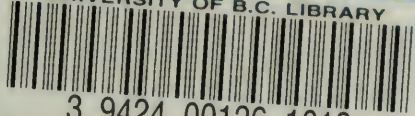


FLOWERING TREES RUBS

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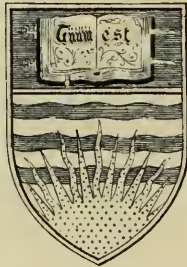
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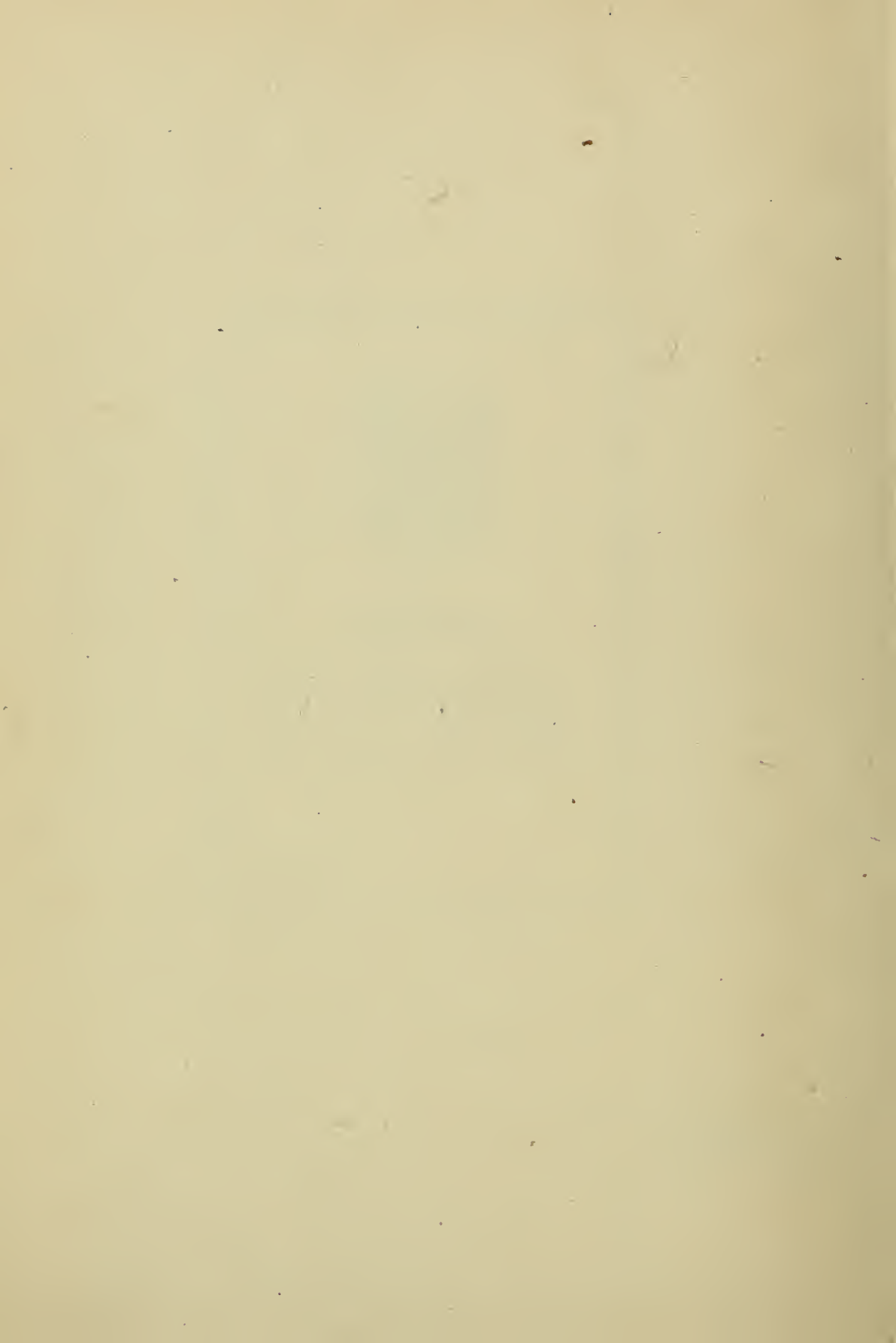


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BEAUTIFUL
FLOWERING TREES
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BEAUTIFUL
FLOWERING TREES
AND SHRUBS
FOR
BRITISH
AND
IRISH
GARDENS

BY
JOHN WEATHERS, F.R.H.S., N.R.S.,

SUPERINTENDENT OF THE MIDDLESEX COUNTY COUNCIL'S SCHOOL OF GARDENING, AND
LECTURER ON HORTICULTURE.
FORMERLY OF THE ROYAL GARDENS, KEW, AND ROYAL HORT. SOC.
AUTHOR OF "A PRACTICAL GUIDE TO GARDEN PLANTS," "BEAUTIFUL ROSES," ETC.

With 33 full page Coloured Plates by John Allen.

LONDON:
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PREFACE.

THIS volume is intended to meet the more intelligent interest that is now taken in the cultivation of Beautiful Flowering and Ornamental Trees and Shrubs. At one time the average idea of a shrub rarely travelled beyond the Common Privet, Aucuba, or Cherry Laurel, hence the great preponderance of these in many parts of the kingdom, to the exclusion of choicer, more ornamental, and as easily grown plants.

Besides assisting the reader to make a selection of trees and shrubs that may be suitable for his particular garden, it is hoped that it will also be found of great use in the hands of those nurserymen who have incurred enormous expense, not only in sending collectors to all parts of the world in search of beautiful plants, but in the cultivation, propagation, and acclimatisation of them to our own country.

For the sake of those not well acquainted with the phraseology of gardeners and botanists, technical terms have been almost entirely avoided; and, with the exception of the coniferous plants (which form a group by themselves), the trees and shrubs enumerated have been described for the most part in alphabetical order.

Within the space at my disposal, only the very finest and best known trees and shrubs have been included, and hints have been added in most cases as to the most suitable soils, and the best methods of culture and propagation. To the reader, however, who may wish for further detailed descriptions of genera, species, and varieties, my previous work—"A Practical Guide to Garden Plants"—may be recommended.

For some essays in this work, and for the selection of the plants illustrated by Mr. Allen, I may mention my indebtedness to Miss Hutchings, of University College, Reading.

JOHN WEATHERS.

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BEAUTIFUL FLOWERING TREES AND SHRUBS.

SOIL AND SITUATION.

Owing to the fact that trees and shrubs occupy a good deal of space and many of them attain a great height, it is fairly obvious that it would be impossible to grow many in a small garden, especially if a love for roses, hardy herbaceous, and other plants, existed. Speaking generally, therefore, the cultivation of these ornamental subjects on anything like a large or reasonable scale, can only be carried out in large gardens and public or private parks. In such places the soil is generally sufficiently good to meet the requirements of most of the plants. It is usually a good turfy loam of fair depth, and may rest on chalk, clay, or gravel. Should the soil be unsuitable for some particular shrub or group of shrubs, it becomes necessary to import into the garden a compost that will enable the plants to grow to the best advantage. Where Rhododendrons, Azaleas, Kalmias, Heaths, Andromedas, and other Ericaceous shrubs are grown, it becomes necessary to have a fair supply of peat available. Indeed, so long as peat, loam, clay, and

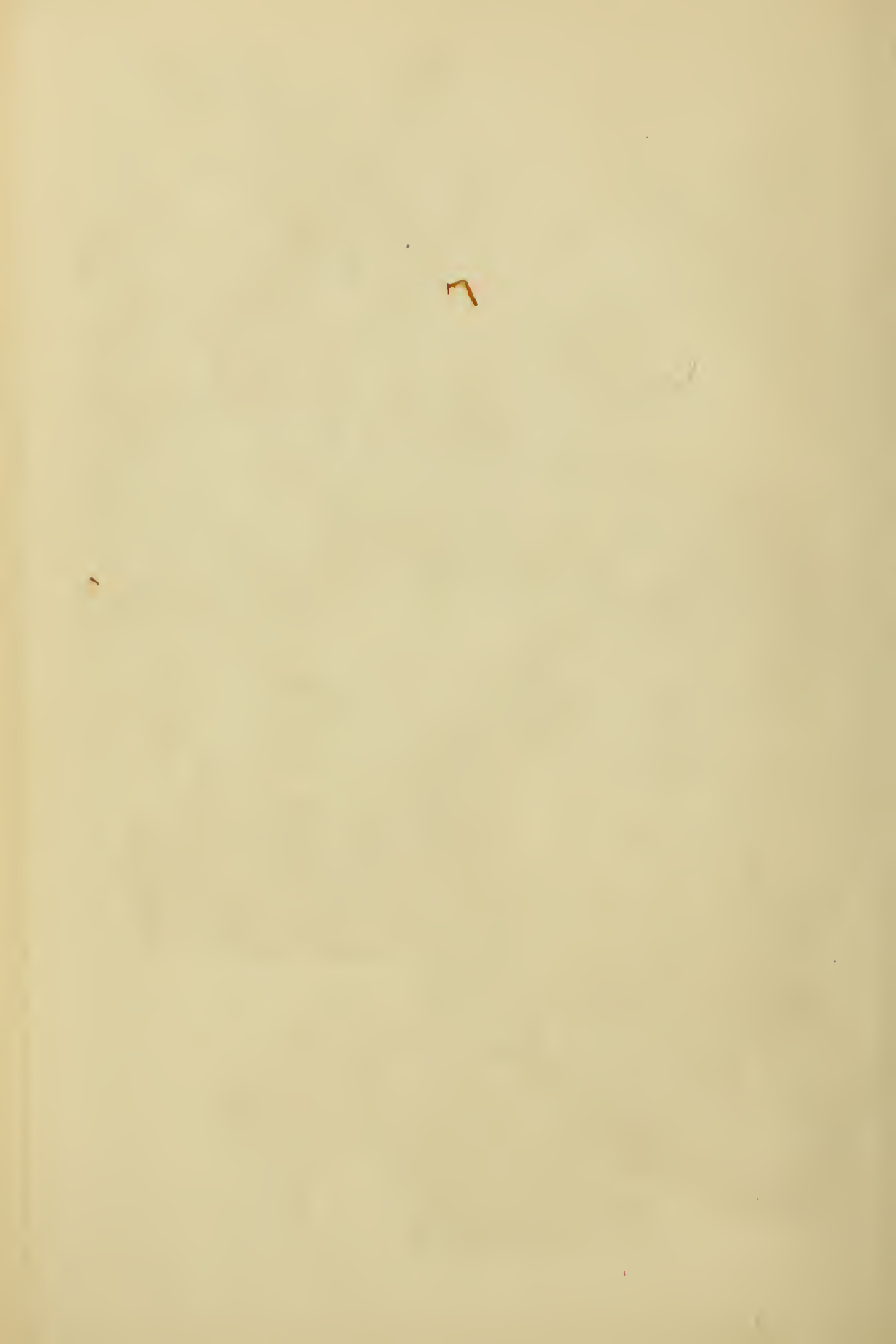
sand can be secured and mixed in proper proportions, there ought to be no insuperable difficulties in growing any of the plants enumerated in this little book.

The soil, however, no matter what its composition, should always be deeply dug or trenched and well-manured some time previous to planting trees or shrubs. As these are often intended to remain where planted for several generations, it is a matter of some importance that they should be given a fair start. Many of the finest coniferous trees in the kingdom have been planted within the past 50 or 60 years, while a few, like the old Cedars, Elms, Oaks, and Beeches, were probably planted two or three hundred years ago, and even more.

Not only is it necessary to have the soil turned up deeply and well-prepared, but it is also a matter of expediency. If the roots cannot get a fair start in suitable soil and surroundings, the plant remains stunted and never thrives, and years of "coddling" will eventually end in utter failure. On the other hand, a little extra time and labour spent at the beginning in producing a good "root run" is amply repaid by the rapidity of growth, symmetry of outline, and ornamental appearance which the trees or shrubs assume in consequence.

As with all other plants, the soil naturally loses a good deal of the nourishment it contained originally, and it therefore becomes necessary to replenish it from time to time if a luxuriant and healthy growth is to be





maintained. Nature provides for this natural exhaustion of the soil by supplying fresh food from the decaying leaves that strew the ground in autumn. A leaf may be taken out of Nature's book, and instead of raking up and burning the leaves in autumn, they should be allowed to remain, whenever possible, and yield up in due course to the soil, and in a more soluble form, some of the food which the plants took from it. Natural manuring in this way may, and should, be always supplemented when possible with top dressings of well-decomposed stable manure, decayed leaves, and the excreta from all kinds of domestic animals.

PLANTING TREES AND SHRUBS.

Only after the due preparation of the soil can this very important operation be undertaken. The future success of the plant depends largely upon the way in which this work is performed. True enough, Nature sows with apparent carelessness and almost indifference, plants coming up on all sides and in all manner of queer and odd places; but she is seldom, indeed, called upon to transplant these children of hers. In fact, this transplanting would be an exceedingly difficult task, though one could not say an impossible one, for in the vegetable world there are few problems which plants are unable to solve.

If for purposes of illustration two apple trees be taken, one having been raised from a seed, and the plant

occupying the same site for some seven or eight years since the seed was sown; the other lifted out of the soil at the end of its first season, when its leaves had fallen, and carefully replanted; this having been done each or alternate dormant season. In these two trees a marked difference will be found to exist. The first has but comparatively few roots, and these are of a straggling description, with the finer, most important feeding portion a long distance from the main part. In the second, fewer large roots exist, but these anchoring ones are of less moment, as they are not required so much in a plant growing as it were under control, and withdrawn from many of the vicissitudes it would have to undergo in the wild. But their places are taken by masses of smaller, fibrous roots which are of double importance. Smaller and containing many ramifications, they very materially assist in retaining soil when the plant is lifted out of the ground. This retention of soil by mat-like roots enables many plants to be successfully moved from one position to another. Some, like the Willow and Dog Rose, seem to possess enough vigour to withstand the most drastic treatment, even to the severing of the majority of the roots, but others there are so impatient of interference that their removal can only be safely accomplished when it is so done that the plant is unconscious of it.

From the mechanical point, in planting it is the finer roots which have the greater value, and the plants which possess such roots will undoubtedly have

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a much larger chance of surviving the operation. One naturally inquires if it is within the bounds of possibilities of increasing these fibrous roots. Going back to the illustration of the seedling apples, a little thought and study will show that the greater abundance of roots in the plant which was lifted periodically was due to the destruction, intentional or otherwise, of the points of the main roots. This brought about the formation of lateral roots, each of which would have as great a value as the one cut off. A somewhat analagous work is very much more familiar to the majority, and can be readily seen in the pruning of the branches of a shrub. In the young stage the plant forms a limited number of branches, which are long and wand-like. If these be cut during the summer, others may be formed, smaller, and more numerous, and if this experiment be carried on for a few seasons a mass of branches is the ultimate result.

When to plant Trees and Shrubs.—Being prepared for planting, the consideration of the season for the work is of some value. With great care, planting may be done at any season of the year. Broadly speaking, *deciduous* plants, *i.e.*, those which do not retain their leaves during the winter months, can be safely moved during the time from September to the beginning of March; whilst the *evergreen* section may be transplanted during April and May and September and October. But why this distinction? The satisfactory answer lies in a knowledge of the

functions of roots and leaves. The latter, among other work, give off or transpire water. To continue this transpiration the leaves must be supplied by the roots, and this is most effectively done when the soil is warm and moist and the atmosphere moderately dry.

The ideal time, therefore, for this is in early September, always provided our variable climate is generous enough to provide a sufficiency of moisture in the rooting medium. Certainly it must be allowed that many authorities claim that this method of early planting is dangerous, but on deliberation and knowledge of the physiology of the plant, it can be seen that even in deciduous trees it is decidedly better to plant before the leaves have been absolutely discarded by the plant. The leaves will have enabled the roots to develop some fresh rootlets, and so a start will have been made to fix the plant in position, and thus better withstand winter winds. This is especially valuable with those plants which rush very early into growth in the spring. Look for example at trees planted only a short time before the *Ides* of March. How do these compare with those planted in early autumn? Shortly after midsummer, when the main portion of the elongation of the shoots should have been completed, it will be observed that in these latter but comparatively little growth has been made. In fact, it can often be seen to be only some two or three inches in length, while the former may be as many feet. And frequently the plants do not recover their full degree of vigour for several seasons.

How to plant Trees and Shrubs.—But apart from this time of planting, there is yet another consideration of vital importance which is too often overlooked. Even in these days, when horticulture is taught on all sides, the belief is held that because these woody plants appear to be more tenacious of life, they can be ill-treated with greater impunity. This belief is strengthened owing to the fact that the plants do not immediately succumb to what must be rightly regarded as cruelty, but linger for some time, miserable and unhappy in the extreme. Perhaps this may be remedied when biology, the teaching of which is gradually spreading, will have taught future generations to see and alleviate the distress of even plants. The common idea is, that it is only necessary to dig a hole and stick the tree in, and leave the rest to Nature. But even generous Nature, forgiving as she is, cannot work on such lines as these. Her doctrine certainly is the “survival of the fittest,” and this can be exemplified in a journey round many of the public parks and open spaces, for here can be seen the Laurel and the Privet—often planted among choicer things to give immediate effect when the work is first started—crowding out and ultimately destroying the more beautiful flowering but slower-growing trees and shrubs.

One explanation of this ill-treatment, this crowding and cramping, this jostling of vigorous with weak, the unconsidered mixing of small and great, is that the

originator does not have after-control, and so his ideas, good though they may have been in the first instance, are not carried out. Before any work of planting is undertaken, a plan of the work should be made, showing the definite positions of the occupants, marking very prominently those which are to be



FIG. 1. PLANTING.

permanent ones, and indicating those which are only to be “nurses,” occupying the ground for a few seasons. It would also be well if a plan were prepared at the same time showing the appearance of the ground in say ten years. Long before this the commoner things should have been removed, and then would be seen far less of the present monotony of Laurel, Privet, and Aucuba.

The actual operation of planting is really simple in the extreme. Having prepared the ground to the required depth—in order that the roots may work freely through the ground, a hole should be dug for the reception of the roots. In making holes the usual failing is that they are too small to allow for the proper spreading out of the roots. If the hole be too small, the tips of these organs are often made to rise vertically from the base of the hole. This greatly impedes their work of taking up moisture and also checks the immediate development of new roots. To remedy this evil, the hole should be of greater circumference than that of

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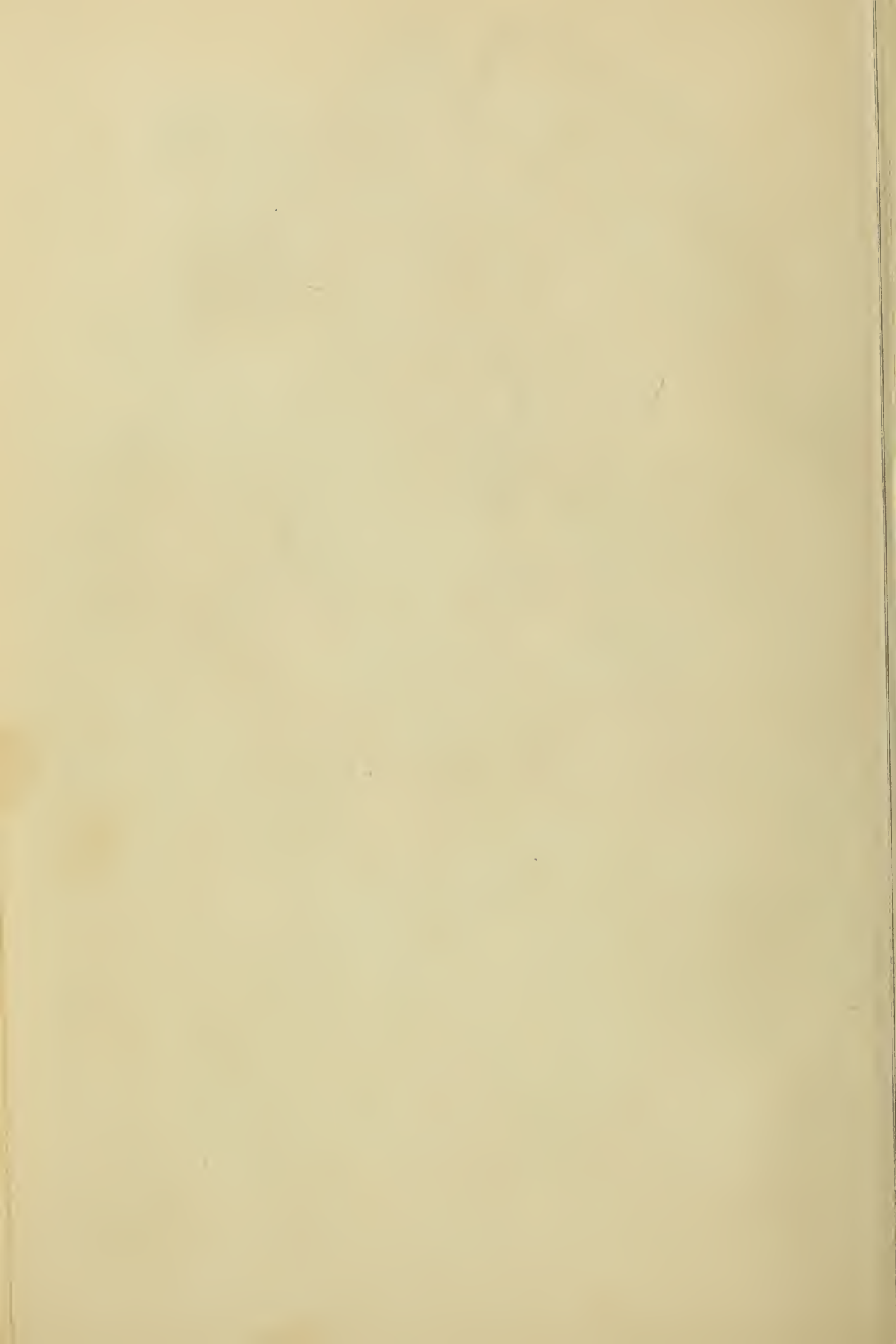


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the roots to be inserted. This will allow the planter to spread out the roots in the way shown in the annexed drawing. In the majority of plants it will be seen that the roots appear to start in several tiers, and this arrangement should be observed in the filling of the hole. The bottom of this should be level or slightly higher in the centre, but on no account should manure be placed in direct contact with the roots. The plant should then be placed in a vertical position, and the lowermost layer of roots spread out evenly on all sides, after having removed all damaged and mutilated portions. Then around and between, some of the finer portions of the soil should be placed on the roots, carefully filling up the interstices, and so continue until the uppermost layer of roots is covered. At intervals, while filling in the soil amongst the finer roots, the stem may be gently shaken so that the soil shall fall more readily into the interstices.

If the soil be at all dry before the hole is completely filled in, it is an exceedingly good practice to fill it up several times with water. This will wash down the minute portions of soil, and bring them into closer contact with the roots. Certainly in all cases the planting of large specimens should be followed by a good watering. When the water has drained away, the hole may be filled to the level of the surrounding ground, but the soil cannot be trodden so firmly after watering for several days. If the watering is not resorted to, the soil should be trodden quite firmly, as the roots of many plants are ungracious enough to resent having the soil very loose about them. Though only a few of them die when this is the case, the others reward the cultivator by making an extra quantity of vegetative growth at the expense of the floral and fruiting characters.

Staking newly-planted Trees.—In exposed positions and always when the plant has but few lateral branches, a stake should be supplied. Even in such a simple thing as placing a stake to a plant, there is a right and a wrong way, though the right in this particular instance does not necessarily depend upon the conservatism or age of the method. The stake should be driven into the hole *before* the tree is planted, and the stem of the plant brought into close contact with it, and *loosely* tied to it. If the stake be driven into the soil when the plant is in *position*, some of the roots are almost sure to be injured, and the

plant can ill stand this after having undergone the severe operation of transplanting. When planting is done in the spring months, it is a good plan to cover the surface of the ground with a thin layer of semi-decayed leaves or short manure, or that in which the straw is decayed or broken into short pieces. Though this is decidedly unsightly, it serves to check evaporation from the soil in a very marked degree, but it must be emphatically pointed out that the layer must be at this time of the year a thin one, or it will keep out the sun's warmth and so the roots would be deprived of this necessary factor.

Most trees and shrubs have sufficient recuperative vitality to survive the mutilation caused by transplantation; but quite a large number resent this interference with their roots, whilst another section, with very fine and delicate roots, can be safely moved only when the soil is kept intact, and the roots and soil moved *en masse*. Of course this somewhat enhances the cost of work, particularly so when plants several feet in height have to be taken into account and transferred by road or rail to a new position; but let it not be thought that this method of moving roots and soil together is difficult, but quite the reverse, for very large specimens, the soil and roots of which often weigh many tons, have been supplied with a new site. This should always be resorted to when specimens valued on account of their size, scarcity, historical or sentimental associations have to be preserved, and in many instances of modifications and improvements of streets where expense is not necessarily so great a consideration as with the individual, good specimens could often be set further back from the middle of the road, instead of being destroyed, and their places occupied by younger ones.

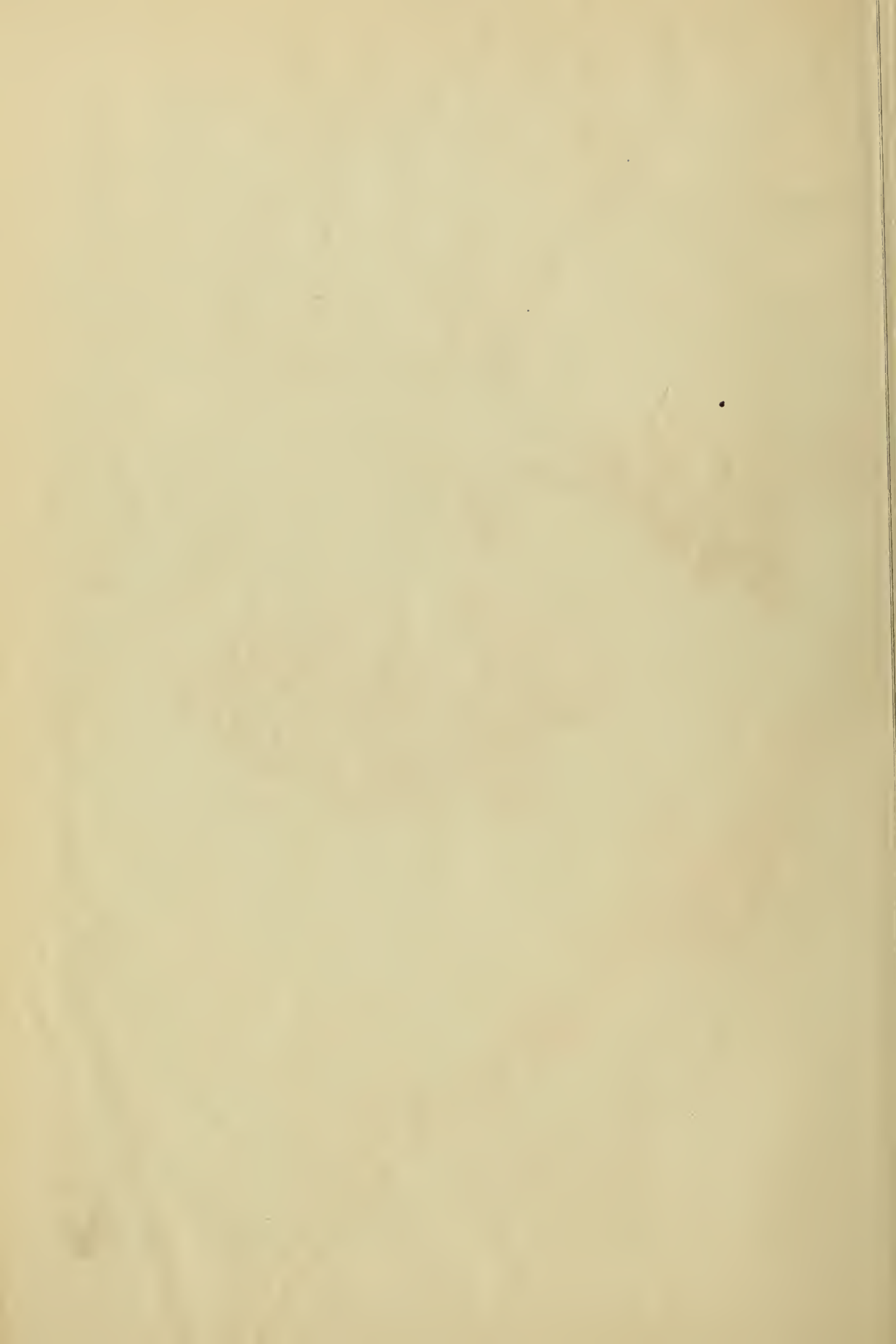
Transplanting Large Trees and Shrubs.—It is of vital importance when moving specimens with the soil attached, that certain precautions be taken to insure soil and roots holding together, for often after some time has been spent in properly excavating, the weight of the soil will cause it to break and crumble away from



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the roots, carrying with it all the finer ones, which are of such extreme value to the plant.

In order to safely transfer a shrub, say 6 to 12 feet high, commence by marking out a square four feet from the stem, and to the outside of this dig a trench about a foot wide on all sides down as far as the roots extend. As soon as the trench has been completed, a fork should be employed, and all soil not permeated by roots should be removed from this central mass or "ball" as it is called. This paring away of the outer coat should be continued on all sides, until the ball is covered with a wig-like mass of small roots. With a trowel, or miniature pick, the soil should be carefully removed from beneath the ball on one side of the mass. A new mat should then be very tightly rolled lengthways for rather more than half its width. This should then be passed under the ball, on the side from which the soil has been excavated, placing the mat in such a position that the uncoiled portion just projects from the side of the ball. Then proceed to remove the soil from the ball on the opposite side. As the centre of the mass is reached, special care should be taken to gently lower the weight on to that side of the mat which is unrolled and as the centre thus becomes free from the ground, the two ends of the mat may be taken and the mat unrolled to take its place under the other side of the ball. Any stray pieces of soil which may be resting on the mat can now be removed. A coil of

very stout canvas or sail-cloth should be at hand. The sides of the ball can be enveloped with this, and a band of soft Manilla cord loosely tied at the top and bottom. Between the canvas and these two bands of rope some six or eight stout battens or staves should be placed.

The ropes should be tightened up with a "tourniquet," or by twisting a stout piece of oak or ash into them, and twirling it round and securing the longer end of the stick to the side of the rope to prevent it from slipping. The four opposite corners of the mat should then be gathered up and tied together upon the top of the ball. With plants which are known to possess, or are suspected of possessing a paucity of roots, and these of the non-fibrous character, the whole mass of soil may be enclosed in stout deals, the bottom carefully undermined and also encompassed with boards. Particular care should be bestowed on the nailing together of this woodwork, as carelessness in this respect often results in the loss of a specimen.

Where no adequate machine exists for raising the plant directly from the hole, an inclined plane should be made on one side, making the slope as gradual as possible; some planks placed upon this surface, and some thin wooden rollers and short pieces of board should also be at hand. Incline the box backwards away from the planks, and insert under it two short pieces of board, and between these and the

planks gradually introduce a very thin roller. A stout piece of rope should be passed round the box, and the ends pulled by assistants to the top of the incline, others levering the box from behind, as well as adding rollers whenever necessary. If the new site for the plant is not far distant, this method of progression may be continued, though it is somewhat slow and tedious. For comparatively small specimens a truck some six inches from the ground, composed only of stout boards, without sides, and ends, and having the handle placed so that it can be attached to either end, forms a very convenient means of transit. But these are only makeshifts after all, and suitable only when the work is to be undertaken at very infrequent intervals. The transplantation of large trees and shrubs, though necessarily rather costly, should be more often employed, especially when street improvements demand the moving of some established specimens. Instead of cutting these down, and planting others in the widened portion it would be an easy matter to form a trench and haul the tree, soil, and roots into the new position. This could easily be accomplished where a steam roller is available for supplying the hauling power. Nor should weight of soil be considered a great impediment; for, about twenty years ago, a large specimen of Yew, in Buckland Churchyard, near Dover, computed to weigh about 80 tons, was transferred from one site to another, and is still in good health.

General Treatment of Shrubberies.—Strange as it may appear even with the advance of knowledge in most matters connected with gardening, little improvement has been effected in the tending of the plants in the majority of gardens, particularly those of the villa type. To rake up leaves and dig, dig, dig, irrespective of the injury done to the tender roots near the surface, is a common practice. What an almost heart-rending sight to examine one of these shrubberies after this annual digging has been performed! Here, there, and everywhere can be seen brown, grey, and almost white roots on the surface, to proclaim that the garden has been “tidied up.” True enough a service is rendered by this digging, for air is permitted to pass more readily into the soil, but it is extremely problematical if the loss does not outweigh the gain. And then, again, oh! why should we be possessed with this desire for tidiness, raking up every leaf which falls on the ground. Go forth into the wood, move aside some of the decaying leaves, and attempt to penetrate into the soil. How often is the way barred by the masses of fine roots. Take a mass of Rhododendrons and apply a layer of several inches of partly decayed leaves to the surface of the ground. In the course of a few months, the roots will be found to have transgressed against the law of geotropic development, and wandered into the mass which offers them food and moisture. If newly fallen leaves are an eyesore, they may be gathered, but their place



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should be filled with the decayed portions of previous years, spread over the ground, for it should be known that these plants may not make such rapid growth as do many annuals, and biennials. Still they are hungry feeders and quickly exhaust the soil in their immediate vicinity. During the summer time and in periods of drought, the flower garden is frequently refreshed with applied water. But alas, how often is this attention bestowed upon the shrubbery? It is too often allowed to struggle on at a season when it more particularly requires assistance in this respect. It may seem strange, but even after a heavy rain many of the shrubs will be found to require water, for very often indeed the leaves may prevent the water from reaching the soil toward the interior of the bush. Even where this is not the case, after several weeks' drought has been replaced by rain, if the soil in the near neighbourhood or beneath the plant be examined, it will frequently be found to be quite dry. In such cases applying water merely to the surface is far from beneficial. It excites the roots towards the surface, and when the sprinkling of water has been absorbed and evaporated, the tender tips are shrivelled up by drought. The soil should be raked or scraped away from the centre of the plant to form a hollow or basin of as large a diameter as that of the shrub. This depression can then be well filled with water which will reach the roots and thoroughly moisten the soil around them. Although considered

somewhat unsightly, a coating of well-decayed manure is extremely valuable during the summer months, for besides carrying food, it retains moisture and prevents undue evaporation from the soil.

In tenacious or clayey soils this mulching should not be applied until June is well advanced. Placed upon the soil earlier in the season than this, growth must be slow, for the heat of the sun will not have penetrated the soil, and this will remain much colder with the non-conducting layer on it. But quite the reverse with soils of a sandy nature. They should be dressed with some wet and cooling manure, as, for instance, cowdung earlier in the season. The value of this can easily be seen if a mass of it be examined in any pasture in the driest weather of summer. Though the upper surface may appear dry, yet the base will be wet and cool—a fit pabulum for roots to enjoy. Other things can be used instead of this purely manurial medium, partly decayed leaves, peat-moss litter, coco-nut fibre refuse, shoddy, and even loose earth. Singularly enough the value of a loose surface is even yet not sufficiently appreciated. Herein lies the secret of successful cultivation of all plants during the summer months, checking as it does much undue evaporation, which in the majority of soils can be ill-spared. The frequent use of the hoe, to stir up the surface of the soil, is a most valuable aid to checking the evaporation of moisture from the root region in dry summers.

PRUNING TREES AND SHRUBS.

Root-pruning.—Like nearly all other things, in a shrubbery of diversified character, some plants will be of slow growth, others rapid in encroaching; some requiring little food, others much. In order to curtail the exuberant energy of the latter class, root pruning in many cases can be performed. Often enough the superfluous branches of a plant are removed, but when this is done, the roots, having fewer buds to supply, are enabled to give those buds more food. The result is a more vigorous growth the following season, clearly demonstrating the necessity of some other mode of pruning, or perhaps none at all. If it becomes at all necessary to curtail the roots, a trench should be made about the width of the spade all round the plant, about six inches further in than the outer limit of circumference of the branches, and should be carried down as far as the roots proceed, severing any that may be met. The ends mutilated with the spade should be smoothly pared over with a sharp knife. Should the plant possess only a few roots, or if the soil is very deficient in plant food through having been occupied for a long time, the trench must be refilled with material of a richer nature. Care should be taken to see that the soil is made as firm as that of the surrounding portions, for, if looser, much moisture would not only be lost, but the new roots would have greater difficulty in securing a hold.

Suppose the ordinary course of treatment is accorded a vigorously-growing plant, and the shoots are severely pruned, the natural balance between roots and shoots is materially altered; for the roots will take up the same amount of food to supply a much smaller number of leaves and buds. The consequence is that these buds being thus overfed, as it were, hasten to make up the balance by forming even more vigorous wand-like branches, which may again in their turn be swept away by the ruthless knife of the "cultivator."

Branch-pruning.—The plant pathologist of the present day pours forth the vials of his wrath upon the un-trained individual who goes about hacking off a branch here and there, nipping this, or "pinching" that. Even with this mutilation he is not content, for he is ever on the look-out to "stop" a shoot. And yet a plant untrammelled by the art of cultivation requires no pruning, for even if it is not sufficiently discernible, that noted of German botanists, Kerner, has clearly demonstrated the leaf-mosaic or phyllotaxis of the leaf. All leaves are arranged on the shoots in such a way that whilst each gains the maximum amount of light, it produces the minimum amount of shade to its neighbours, consistent with the economy to the stem; and no matter whether arranged in crossing pairs, in spiral bands, or alternately in two ranks, exposure to the light is always the aim. Then from the angle formed by the stem and the leaf-



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stalk, a bud will spring into a shoot during the succeeding season. But generally, owing to the law that the buds which are uppermost on a shoot must receive the greatest amount of ascending water when the growing season springs into existence, a number of the lower buds are passed over and remain dormant, forming auxiliaries in the event of any emergency which may demand their aid. Cut away the top of a shoot, and they take their rank in the struggle, whilst if many shoots have been beheaded the fight will be so fierce that it will result in the production of small, poorly-developed leaves, and a mass of thin, thicket-like shoots incapable of fulfilling their functions of reproduction by flower and fruit. Why then is this pruning necessary? Certainly it cannot be to induce the plants to flower, for now it is well-known that by frightening the plant in some way, either by starvation, or checking its food supplies by curtailing its roots, it is induced to turn from its vegetative life of producing leaves, and divert its thoughts to things sexual. The whole life and aim of a plant is reproduction, and when anything tends to threaten its existence, it rushes on to perfect its flowers and seeds.

Pruning is often necessary to curtail the size of the plants and enable more to be grown in a given space as well as to regulate the shape. This may be either in the form of a "bush" (as shown in fig. 2), or a "standard" (fig. 3), or a "pyramid" (fig. 4). But whatever shape is decided upon, the main object

is to keep the centre open to light and air, and free from useless twigs.

Sharp, keen, clean knives and saws, dexterous hands, wounds as few and as small as possible, and afterwards



FIG. 2. "BUSH" TREE.

(The cross lines show where some branches should be cut.)

covered with some antiseptic preparation, even though it be common tar, are the chief points which must be noted. In the actual operation of pruning there is even a right and a wrong way in cutting a shoot. The cut should be made close to a bud, with the surface of the



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wound receding from the bud, and left as smooth as possible. Failure to observe these essentials may mean at least the loss of part of a shoot. If the cut be made midway between two buds, the stem there generally does not possess sufficient vitality to heal over the wound, the ascending water and salts will be attracted



FIG. 3. "STANDARD TREE."

by the growing bud in the spring, and the end or "snag" left to decay, which decay may spread further down. But when the cut is made near a bud, some of the food, elaborated by the leaves, will be utilised in forming new bark over the wound. The necessity for having the cut recede from the bud is that water may

not lodge in the axil of the bud, and also because there is more chance of injuring the bud when the cut is made on the side of it. A smooth surface is essential,

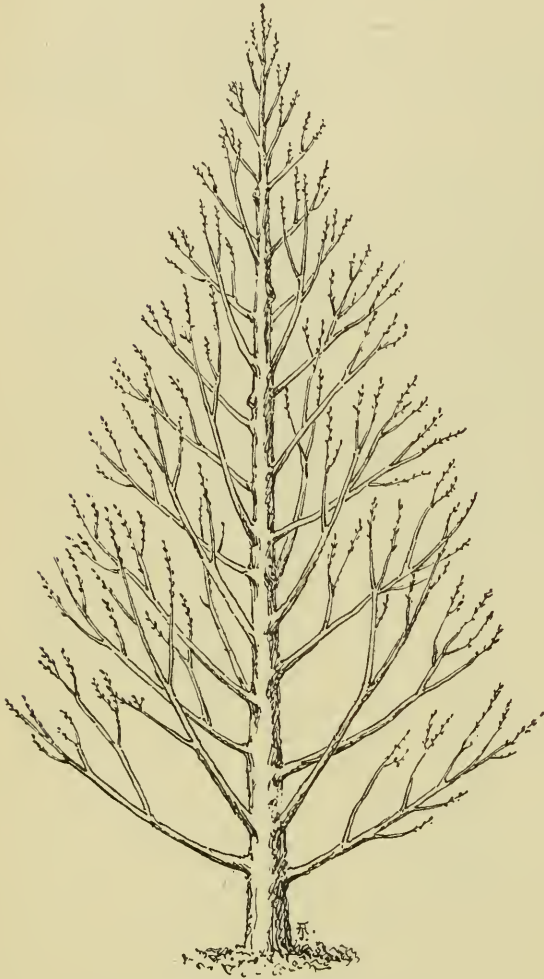


FIG. 4. "PYRAMID" TREE.

as the internal healing layer, *cambium*, is enabled more quickly to heal over the surface when it is not jagged, and also because such a surface gives less chance for wandering fungi to obtain a footing. When wounds are more than half-an-inch in diameter they should be dressed with wood tar, styptic, painter's knotting, or any similar substance which will keep out the wet and prevent decay. It is no un-

common occurrence to find the centre of an apparently sound stem rotted, a large branch having been cut away, and rotting taken place before the wound healed over and continued after such. When wounds of large dimensions have been made, several seasons may

pass ere the healing matter meets in the centre, and until this occlusion is effected, the wound should be annually dressed with tar. Singularly enough this is nearly always neglected in the street trees. The life of many an old veteran, whether suffering from branch decay, or decay in the centre near the origin of the branches, may be prolonged almost indefinitely if the rotted portion be excised and the hole filled with a block of wood, or if very large, bricks and cement, and the whole covered in with cement or zinc.

The accompanying sketch shows how the branches of trees are often broken off and left with jagged ends and gaping fissures. Into these the rain flows freely, and by-and-by sets up a decay that eventually destroys the tree trunk altogether. The straight lines show how jutting branches should be cut clean away from the main trunk, so that as little moisture as possible shall rest on the cut surface.

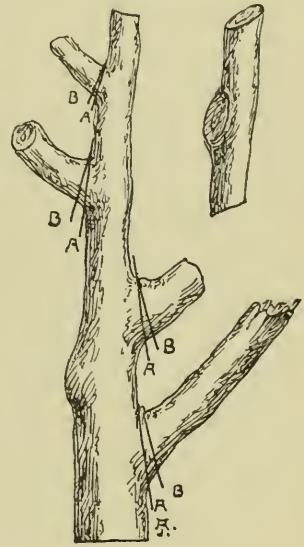


FIG. 5.

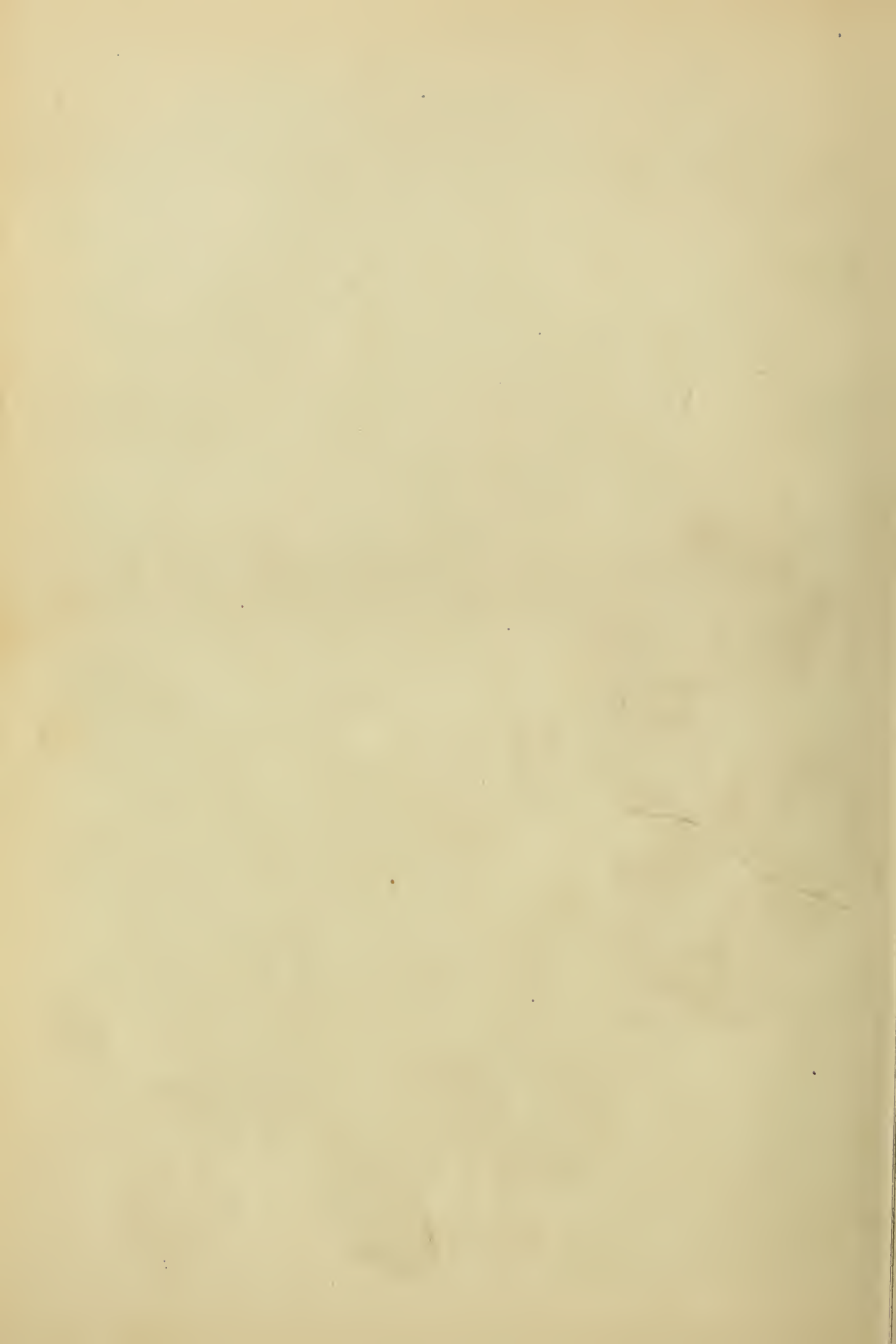
The lines marked A show where the trunks should be cut, and the lines marked B, where they should *not* be cut. The small diagram at the top shows a piece of stem with a clean cut.

Methods of Flowering Shoot Formation.—Observation shows that a number of plants attempt to renew themselves annually by forming long vigorous shoots,

which will flower the following season much better than the smaller more delicate spray of branches, of greater age. Examples of such are to be found in the majority of the *Spiræas*, *Philadelphus*, the *Deutzias*, *Jasminums*, *Ceanothus*, *Cytisus*, *Berberis*, Lilacs, Almonds, &c. To aid this condition to the uttermost, as soon as the floral display is over, those branches which have flowered should be cut back. This will afford an opportunity for the buds at the base of these shoots to form long growths, which will in their turn produce flowers another season. But these growths should not be confounded with the long straight ones proceeding from the base of Lilac. These suckers, not having a sufficiency of light, are unable to produce the necessary flower buds, and the competition is gradually made fiercer as more and more of these wand-like twigs are made yearly, till at last the uppermost branches are unable to flower. Here, then, is a case in which these growths should be removed, and this can most profitably be done at the commencement of the growing season. Then but a small wound is left, which, as all the parts are able to take part in the healing operations, is quickly "callused." When shoots are removed at this early date, much of the plant's energy is conserved, as it is not allowed to form useless growths to be removed at some later period.

Such trees as the Apple, Pear, and Cherry, give the greater abundance of their flowers from very short shoots or "spurs," which are made the





preceding season. As the following year's flowers are formed at the top or sides of these shoots, it would be wrong to sacrifice them. In fact, experience teaches that if the long annual shoots are removed to about two-thirds of their length, the check given to the tree tends to the additional formation of these spurs. Even during the period of active growth, all those shoots, which it appears there would not be room for, should be removed.

Directly opposed to the system of flowering on short shoots or spurs, so well exemplified in Plum, Cherry, Pear, Apple, *Laburnum*, and *Wistaria*, is that where the majority of the flowers is to be found on very long shoots produced the preceding year. Good illustrations of these can be seen in the well-known *Forsythia*, *Spiræa*, *Deutzia*, the Mock Orange, (*Philadelphus*,) Jew's Mallow, (or *Kerria*,) *Ceanothus*, *Jasminum*. Pruning here need not be a difficult matter, for unless the plants are to be kept to some particular height, little need be attempted, except the withdrawal of straggling branches which threaten the symmetry, and thinning where crowding is apparent. If this latter is done those removed should be the oldest. Where, however, the plants are to be kept comparatively dwarf, and a great floral display is expected, then immediately after the flowering period has vanished, the shoots should be removed, leaving only two or three buds at the base. It is quite probable that in many instances there will be small

shoots in place of these buds, and as the roots are now in active growth, the resultant elongation of the shoots will be phenomenal.

WINTER EFFECTS WITH COLOURED STEMS.

Many a large shrubbery is tame and uninteresting, almost depressing, owing to the monotony of ever-green, mingled with a few deciduous plants. This could be considerably brightened if the planter, with judicious care and foresight, formed groups with those plants which, though leafless in winter, must yet be considered valuable on account of the colour exhibited in their stems. Reds, greens, browns, white, and yellow are the more conspicuous, and seen on a winter's day above the snow-covered ground, or in early spring with bright sunshine calling through the ground, Winter Aconite, Celandine, Snowdrop, Scilla, Glory of the Snow, and Crocus. The *Rubi*, though the members of the group are few in number, are singularly conspicuous on account of the clear whiteness of their stems, appearing as though they had been whitewashed, due to the large amount of bloom or wax excreted. The most valuable one, *Rubus biflorus* from the Temperate Himalayas, sends up wand-like shoots some nine or ten feet in height. Another, not so well known, is the Chinese *lasiostylis*, which can be utilised where the former would be considered too rampant. Others with a similar habit are represented by *occidentalis* and

neglecta. One Willow comes into this group, the Violet Willow, *Salix daphnoides*, whose bluish stems are clothed with a glaucous mantle. In situations too moist for *Rubus* this plant may find a footing.

Contrasts and seasonable colour are found in the reds of several Dogwoods, conspicuous among which is the North Asiatic *Cornus alba*, the latter name denoting its variegated foliage. A variety of this (*Spathii*) is of even greater value, for in summer time the leaves are beautifully variegated with yellow, and a form also exists with white marking. Other red-stemmed Cornels are *C. stolonifera*, *sanguinea*, and *Baileyi*. Plants also possessing red stems are to be seen in *Rosa virginiana*, *alpina* and *carolina*, and in the Willow *S. alba vitellina*. To enhance the value of this latter, the shoots should be removed annually, and the plant given a residence in a moist situation.

Green is to be found in the Common Broom, *Cytisus scoparius*, a despised, though beautiful native, whose thin whip-like branches have been specialised to resist the attacks of wind in exposed positions. In common with others of its family it is at home in starved sandy soils, but though such is the case it is far from having any objection to a more generous diet. Where the clear yellow flowers are not considered of sufficient value for the garden proper, its variety *Andreanus*, whose flowers are marked with a reddish-brown blotch (p. 86), is sure to find admittance, whilst the Moonlight Broom, a variety with sulphur-coloured flowers, is also

beautiful. Other green stems are to be found in *Cytisus albus*, *purgans*, and *præcox*, *Spartium junceum*, *Genista hispanica*, *virgata*, *cinerea*, *ætnensis*; *Jasminum nudiflorum*, *humile*, *fruticans*; *Kerria japonica*.

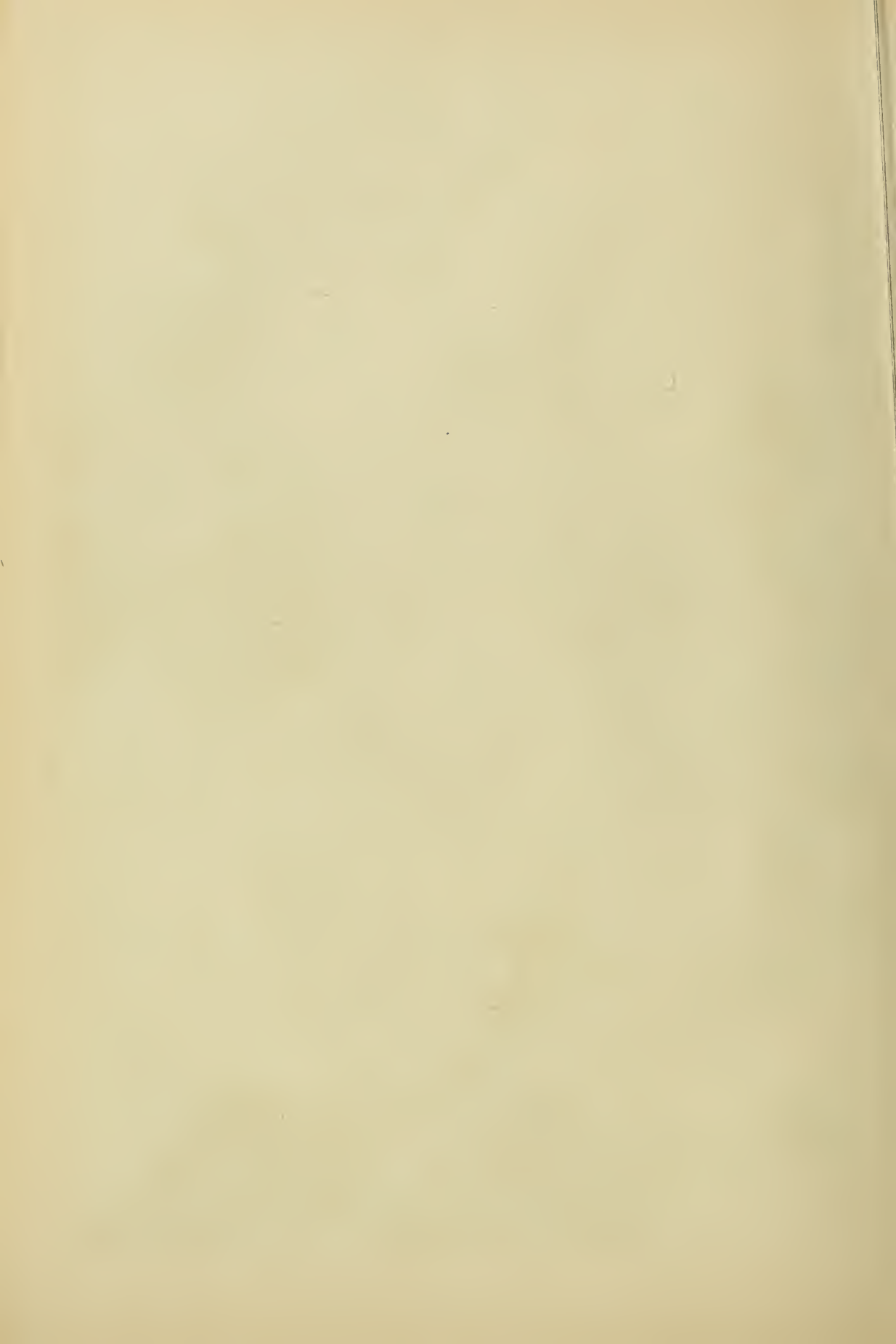
Brown is more homely, but yet no less pretty, for various gradations of colour, from the light-brown of *Neillia opulifolia*, *Stephanandra flexuosa*, and *S. Tanakae*, down to the almost black or dark-brown of the early-flowering *Spiræa arguta*. Others of this group may be found in *Philadelphus*, *Spiræa*, Honey-suckle (or *Lonicera*), *Rubus spectabilis*, the Water Elder (*Viburnum Opulus*) and its variety, the Snowball Tree (*Viburnum Opulus sterilis*).

Yellow seems to suggest ill-health, and for this reason perhaps Nature is more sparing in this tint, though it is to be met with in a few plants. Conspicuous among these rank the Golden Willow, seen to such glorious effect by the sides of stream and lake on a fine day, and the golden-barked form of *Cornus stolonifera*.

TREES AND SHRUBS FOR SEASIDE GARDENS.

Serious as the problem often is, what to plant in seaside gardens, many plants suffering severely from the strong keen winds laden with saline spray, the more difficult factor is the exposure to the wind, for it is often noted that in those gardens where shelter is to be found, many things are hardy, which elsewhere have to be treated with some glass protection. It thus





appears that the plants are naturally to be divided into two categories, the resisters of the stronger winds, and those which require some protection from them. One plant stands up pre-eminently, and is naturally found in exposed positions. The Tamarisk is one of those plants found growing naturally in wind-swept places, and with its small, pale-green leaves, thin, long, wiry, graceful branches terminated with small pink-white delicate flowers, arching, bending, and responding to every breeze, and yet seldom torn or injured by the stoutest gale. It is at one time a thing of grace and beauty and singular attractiveness. In addition to this it is amenable to several systems of training. Allowed to grow its own sweet way, it will give stems of great diameter, whilst, on the other hand, it can be formed into a hedge for the protection of other plants by cutting back. Another delightful deciduous shrub is the Sea Buckthorn, *Hippophaë rhamnoides*, to be met with wild in several spots on the eastern coast. Here again is a sadly neglected plant of great charm, for, with its silvery-grey leaves and brown stems in summer, it is an object of beauty; whilst, leafless in winter, it is even more pleasing when shoot upon shoot is clothed with orange coloured semi-translucent berries remaining upon it until the spring is far advanced. Though on the coast it is dwarf, in the richer soils of gardens and away from competition it attains a height of ten feet or more. But for its successful cultivation one point must be

observed. Following the natural law that nature detests self-fertilisation, it has become *diœcious*, that is to say, one plant will produce male flowers (and therefore no berries), whilst another will produce flowers to be succeeded by berries. One difficulty is that when the plants are not in flower or in berry, it is impossible to differentiate the one from the other. Therefore, before planting is done, care should be taken to note the one sex from the other, in order that some male plants may also be included.

Where an evergreen hedge is desired, few things can compete with the *Euonymus* or evergreen Spindle Tree, *Euonymus japonicus*. This is always very dense and of dark-green foliage, but its golden and silver varieties are quite as amenable to positions of this character. A taller subject would be the Holm Oak, *Quercus Ilex*, and all the varieties of the common Holly, *Ilex Aquifolium*, more especially those with thick leaves. Where a brightly berried showy plant is desired, the Firethorn, *Cratægus Pyracantha*, should be considered. Among the best of the trees, the Mountain Ash or Rowan Tree (*Pyrus Aucuparia*), Golden Rain (*Laburnum vulgare*), or the more showy Scotch *L. alpinum*; the Hawthorn (*Cratægus Oxyacantha*), the Lady of the Woods (*Betula alba*), the Beech (*Fagus sylvatica*), the Ash (*Fraxinus excelsior*), the Hairy or Gray Poplar (*Populus canescens*), with such Willows as *Caprea*, *cinerea*, *alba*, *rubra*, and *viminalis* may find a place.

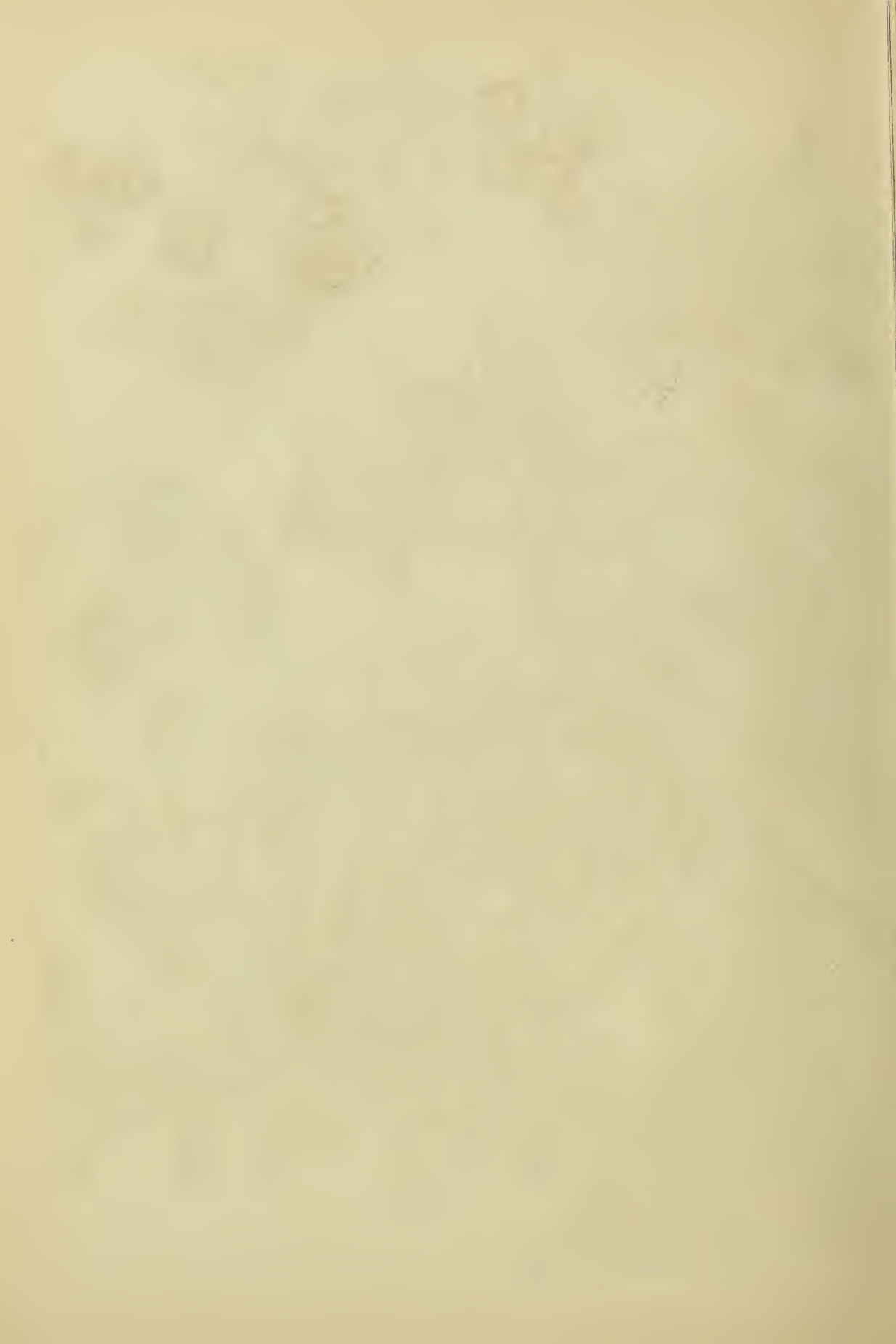


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Where screens of shrubs are made to break the greater force of the sea breezes, such deciduous shrubs as the Bladder Senna (*Colutea arborescens*), the Common Dogwood (*Cornus sanguinea*), *Azalea pontica*, Orange Ball Tree (*Buddleia globosa*), Spanish Broom (*Spartium junceum*), Guelder Rose (*Viburnum Opulus sterile*), with such common Lilacs as *Syringa vulgaris*, and the smaller *persica* can be made happy. Under similar conditions, peat-loving plants as the Prickly Heath, *Pernettya mucronata*, Strawberry Trees, *Arbutus Unedo*, *Andrachne*, and *Menziesii* may be planted. The Laurustinus, *Viburnum Tinus*, whose flowers are so hardy, the Sweet Bay, *Laurus nobilis*, the Silver Berry, *Elæagnus argentea*, the Spurge Laurel, *Daphne Laureola*, *Aucuba japonica*, *Garrya elliptica*, whose tassels are so welcome in early spring, comprise some of the useful shrubs. It must not be thought that these can be planted anywhere on the coast, but much useful work of protection may be done, similar to that near Black-pool, of planting belts of common Willows, which will grow rapidly and thrive in poor soils, protecting more delicate plants. Some may be planted much nearer the water than others: the Sea Buckthorn, flourishing within a few feet of high-water mark, and the Tree Mallow, *Lavatera arborea*, are striking examples. Delightful hedges are formed near the south coast with the *Escallonias*, and Tamarisk. On the east coast, the Box Thorn or Tea Tree, *Lycium barbarum*, (*chinensis*) is extensively used.

CLIMBING TREES AND SHRUBS.

Few people there are indeed to be found who do not really admire the exquisite grace and oft-times crafty devices which creeper, climber, and twiner, adopt to drag their leaves up into the light, and surmount their neighbours. Many an ugly spot may be beautified, and the dull monotonous tint of the bricks of towns removed, and modern life, even in such crowded haunts of men, lightened and made brighter for those forced to live amid such surroundings.

Something of this has been done in the past, but the matter seems to be overlooked until the Virginian Creeper, *Vitis quinquefolia*, flaunts out its gaudy foliage in the autumn when everyone becomes desirous of possessing one. The other which has competed with this is the common Ivy, another case of the fashion of copying one's neighbour and the limited stock to be found in the small nurseryman's place. Very little indeed can be said against the Ivy, but its place could often be taken by more showy plants, both evergreen and deciduous, among which figure *Actinidia*, *Akebia*, *Ampelopsis*, *Aristolochia*, *Berberidopsis*, *Clematis*, *Menispermum*, *Jasminum*, *Vitis*, *Passiflora*, *Polygonum*, *Wistaria*, *Smilax*, *Tecoma*, *Lonicera*.

ORNAMENTAL LEAVED TREES AND SHRUBS.

Variegated Plants.—The term variegation as applied to a plant does not mean always a green and white

striped or spotted leaf, but implies an irregularity of colouring which may often be described as being rich and good in effect in the foliage, and greatly enhancing the picturesque character of the garden. But so many hideous malformations of Nature's beautiful things have been sent out from time to time, that some have refused to see any beauty at all in variegated plants, whereas used judiciously in a garden in juxtaposition with others as backgrounds, or to contrast, they have decidedly a place.

It is well known that the original or green form of a plant is more hardy, and therefore a more healthy individual in the open air than its variegated form. This is sometimes very plainly demonstrated in old and neglected shrubberies, by the appearance of a strong branch of Common Holly growing from the base of a variety or form which was originally grafted upon it. If this be allowed to go on growing, the poor little variegated form becomes overgrown altogether and eventually dies. Hence *variegation* in plants has been looked upon as a kind of disease. If, however, we wish to make our gardens more diverse in character, and in colour effects, it would be well to take advantage of the good things in variegated plants.

Among these the gold and silver Hollies are plants worthy of a first place. Although the Holly is a stiff shrub and not a graceful one in form, there is a sense of satisfaction in looking at a well-trained specimen, and these variegated forms, if well berried, are beautiful

objects in winter, either as specimen trees on a lawn, or in a shrubbery with a good background of green foliage, which could be supplied by the old green type.

Other graceful variegated trees are the so-called Japanese Maples, forms of *Acer Negundo*, *A. palmatum* and *A. japonicum*. There is wide diversity in the forms of their foliage, some of the leaves being finely divided in a fern-like manner, others only slightly indented. In colour, too, there is a wide range, some are creamy-white with only a band of pale green, others are yellow, and others again quite deep bronze, while those with slight variegation are a beautiful pale delicate green. A group of the light and dark shades grown together is very effective, and so also is a group of the lighter coloured ones, either *Negundo aceroides variegatum* (not a true *Acer*), or one of the forms of *A. palmatum* and the deep bronze-foliaged plant, *Prunus cerasifera var. atropurpurea* (*P. Pissardi*).

When a light coloured form is used in planting, it should always be associated with more of the darker foliaged plant, or where some warmth of colour can be obtained from the surrounding vegetation. The good effect is often spoiled by using too much of the white and pale green and yellow, and the whole has a poor appearance, especially when seen under the grey of our English skies.

The following is a list of the most attractive trees and shrubs in which varieties the foliage of which is

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variegated with creamy white, yellow, or other tints may be found:—

Acer palmatum vars, *Aralia quinquefolia* or *pentaphylla*, *Aralia Sieboldi*, *Aucuba japonica*, *Buxus sempervirens* (Box), *Cornus Späthi*, &c., *Elaeagnus pungens*, *Dimorphanthus mandschuricus variegatus*, *Euonymus*, *Fagus* (Beech), *Hypericum Moserianum tricolor*, Holly (*Ilex*) gold and silver forms, *Hedera* (Ivy) gold and silver forms, *Hydrangea hortensis*, var., *Quercus* (Oak), *Concordia*, *Kerria japonica variegata*, *Osmauthus*, *Ligustrum ovalifolium aureum*, *Ligustrum japonicum albo-marginatum*, *Platanus orientalis variegata*, *Sambucus nigra aurea*, &c.

ORNAMENTAL FRUITED TREES AND SHRUBS.

Apart from the blossom or foliage, there are many plants that attract more attention during the fruiting stage than at any other period of their cycle of growth. Some kinds are fortunate enough to be considered ornamental in the foliage, flowers, and fruits; some in the flowers and fruit; some in the leaves and fruit; and others in the fruit only. In this paragraph it is unnecessary to refer to either the leaves or the blossoms, as one or the other or both are frequently to be met with. But it may be useful to have a list of the trees and shrubs that are particularly handsome when in fruit, and the following may serve:—

Arbutus Unedo, *Aucuba japonica* (*fæmina*), *Benthamia fragifera*, *Berberis*, *Cerasus* (Cherry), *Clematis*, *Colutea*, *Cotoneaster*, *Cratægus*, *Daphne Mezereum*, *Euonymus europæus*, *Gaultheria*, *Hippophaë rhamnoides*, *Hymenanthera crassifolia*, *Ilex* (Holly), *Ligustrum vulgare* (Privet), *Myrtus* (Myrtle), *Pernettya*, *Phillyrea*, *Pryus*, *Rosa*, *Rubus*, *Sambucus nigra*, *Skimmia*, *Symphoricarpus*, *Vaccinium*, *Viburnum*.

CATKIN-BEARING TREES AND SHRUBS.

There are many trees and shrubs, the flowers of which are closely packed upon a common stalk, which

may be either erect or drooping. As a rule the male and female flowers are not situated on the same stalk, although on the same plant like the Hazel; indeed, they are sometimes even not on the same plant, as in the Willow. When the catkins are laden with the freshly-opened blossoms they lend to the landscape a lustre and beauty that vanishes when the work of pollination by the wind has been accomplished. The individual blossoms of catkin-bearing trees are not showy in colour, and as they do not therefore so readily attract insects as more gorgeously coloured blossoms, nature has ordained that the wind shall be the chief fertilising agent. Amongst the catkin-bearing trees and shrubs, the following may be mentioned:—The Birches (*Betula*), the Alders (*Alnus*), the Hazels (*Corylus*), the Hornbeam (*Carpinus*), the Oaks (*Quercus*), the Willows (*Salix*), the Poplars (*Populus*), the Pines, Larches, and Conifers generally, the sweet Chestnut (*Castanea*), and *Garrya elliptica*.

TREES AND SHRUBS WITH COLOURED AUTUMN FOLIAGE.

When trees and shrubs have been grouped in accordance with the principles propounded on p. 39, and have been chosen with a view to being as effective in the autumn, as during the summer months, some very charming combinations can be secured. Speaking generally, the leaves of all deciduous leaves change colour during the season, but some assume such

gorgeous tints of yellow, orange, red, crimson, and intermediate shades, that it is not surprising they attract special notice in the quiet autumn months. The colour tints assumed are nature's signals that the active work of assimilation is about to cease shortly, and that the plants will rest during the winter months, and only begin life anew when the genial warmth of spring permeates the soil and awakens the roots to renewed vigour.

The following trees and shrubs are remarkable for the autumn colouring of their foliage :—

Acer, Actinidia, Amelanchier, Ampelopsis, Azalea, Berberis, Carya, Castanea, Cornus florida, Corylus, Cotoneaster Simonsi, Crataegus, Eukianthus, Eucryphia, Euonymus, Fagus, Hamamelis, K lreuteria, Laurus Sassafras, Leucotho , Liquidambar, Nyssa, Parrotia, Pterocarya, Quercus coccinea, Rhus, Ribes aureum, Spiraea, Stephanandra, Stuartia, Styrax, Viburnum Opulus, Vitis.

TREES AND SHRUBS FOR WET PLACES.

While a large number of ornamental trees and shrubs flourish in good loamy or peaty soil only, so long as there is just sufficient moisture available to dissolve the food they require, there are several that may be recommended for planting in situations that are the reverse of dry, indeed rather marshy and wet, or near the banks of rivers, streams, ponds, or lakes. Among the kinds that will flourish in these damp situations are the Alders, Willows, the Sea Buckthorn, the Sweet Gale (*Myrica*), the cut-leaved Rubus (*laciniatus*), the Elder, Tamarix, *Nyssa aquatica*, and several of the hardy Bamboos, enumerated at p. 64, provided they are sheltered from the cold winds.

TREES AND SHRUBS FOR TOWNS.

At one time it was difficult indeed to find a tree or shrub that would repay for the trouble of planting in towns where smoke and dirt were prevalent. But now that there are so many to be found in nurseries that are specially suited for such localities, there is no reason why one should not see something else besides the everlasting Plane Tree (*Platanus orientalis*). This must not be despised on any account, and there is probably no tree to equal it in the most impure atmospheres; but in some towns the atmosphere is practically as pure as in the country, and were it not for the clouds of dust raised by traffic, plants would have no difficulty in growing to a large size. All trees and shrubs with woolly, hairy, or downy foliage should be excluded from the streets of large towns, and only those with hard glossy leaves should be planted. As a rule the authorities of corporations, boroughs, district councils, &c., utterly neglect the proper adornment of the principal streets and thoroughfares in this respect. Where a trained municipal gardener is not employed, all horticultural matters are left to the surveyor or some other official whose knowledge of plants may certainly be peculiar, but is not by any means extensive. Perhaps the following list of trees and shrubs for towns may be of use, those suitable for streets being indicated with an asterisk. (*)

**Acer pseudoplatanus*, **Ailanthus glandulosa*, *Almond, Berberis, Box (*Buxus*), *Cytisus*, *Colutea*, *Cotoneaster*, *Diervilla*, *Deutzia*, Dogwood (*Cornus*),

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Elder (*Sambucus*), Enonymus, Forsythia, Guelder Rose, Holly, Laburnum, Cherry Laurel, Ivies, Lilac, *Lime, Olearia Haasti, Osmanthus, *Plane, Phillyrea, Privet, Pyracanth, Rhododendron, Ribes spectabilis, Lawson's Cypress, *Maidenhair Tree (*Ginkgo*), Virginian Creeper, Fraxinus (Ash), Pyrus Aucuparia, Robinia, Rhus typhina, Sophora, &c.

Trees and Shrubs with White, Red, Yellow, and Blue or Purple Flowers.—As a list of these will be found useful for many purposes it is given here:—

White-Flowered Trees and Shrubs.—*Æsculus Hippocastanum*, *Æ. parviflora*, Amelanchier, Arbutus, Carpenteria, Catalpa, Chionanthus, Choisya, Cistus, Cornus alba, C. Kousa, Cotoneaster, Cratægus, Cytisus albus, Deutzia, Exochorda, Eucryphia, Halesia, Hydrangea paniculata, Jamesia, Jasminum officinale, Leycesteria, Magnolia vars., Olearia Haasti, Philadelphus, Plagianthus, Prunus, Pyrus. Robinia pseudacacia, Sambucus, Sophora, Spiræa vars., Staphylea.

Red or Rose-Flowered Trees and Shrubs.—Abelia, *Æsculus Pavia*, carnea. and glabra, Akebia, Amygdalus, Andromeda polifolia, Berberidopsis, Cratægus, Dabœcia polifolia, Desfontainea, Diervilla rosea, Embothrium, Erica carnea, &c. Kalmia, Lonicera sempervirens, Pæonia Montan, Pyrus floribunda and spectabilis, Rhododendron, Ribes sanguineum, Robinia hispida. Spiræa vars.

Yellow or Orange-Flowered Trees and Shrubs.—Adenocarpus, *Æsculus flava*, Berberis, Buddleia globosa, Cornus Mas, Cytisus biflorus, scoparius, &c., Forsythia, Fremontia, Genista, Hamamelis, Helianthemum, Jasminum fruticans, humile, and nudiflorum, Kerria, Laburnum, Ribes aureum, Spartium junceum, Ulex.

Blue or Purple-Flowered Trees and Shrubs.—Amorpha, Ceanothus, Cistus purpureus, Clematis Jackmanni, &c., Daphne Mezereum, Hibiscus syriacus, Indigofera Gerardiana. Passiflora cœrulea, Vinca, Wistaria.

GROUPING TREES AND SHRUBS.

The massing or grouping of plants of one variety or species has much in its favour, both from an æsthetic point of view, and also from the practical side for purposes of cultivation and soil requirements, while the system of dotting a plant of one variety here and there among others of at least half a dozen other individuals has nothing to recommend it

from either the artistic or practical standpoints. There is nothing to rest the eye upon, the whole is a mass of small tiresome detail, with possibly repetition of the other occupants of the shubbery or bed on either side. How much greater an effect is produced if for instance a group of Lilacs is planted, or an irregular mass of Mock Orange (*Philadelphus coronarius*) and the many other beautiful hybrids of this genus. What perfection of form, colouring, and delicious fragrance, at least for part of the year! And it need not end here, for a succession of lovely floral and foliage effects may be arranged for with some consideration and knowledge of the subjects to be used.

Nature herself is our guide in the matter of grouping or massing plants. For instance, on the chalk downs in the south-east of England what a common sight in autumn are the masses of red berried Wayfaring Tree, *Viburnum Lantana*, and how gorgeous is the effect on a bright sunny day of a hedge boundary 100 yards in length? Even when the berries are turning black, although the whole does not compel one's attention so much, the plant is very attractive. Again, how freely the "Travellers Joy," *Clematis Vitalba*, grows in certain chalky localities, and the contrasting red of the Wild Rose fruits with the shining black of the berries of the Privet, are very commonly seen in combination on the country roads and lanes, making the late flowerless months of October and November very bright for those who

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will see. A prettier picture, after rain has washed the dust-laden roadsides, and wind and sun are doing their best to make the hoary fruits of the Clematis as attractive as possible, can scarcely be imagined. In early summer the yellow shining flowers of the common Gorse, *Ulex europæus*, may be seen in great quantity in some districts, and miles of heather.

Although it may not be possible to plant on such an extensive scale as Nature, the lesson may be learned—instead of mixing individual plants in one confused mass, to plant several plants of the same variety or species, or else combined with others whose characters will serve to enhance the artistic value of the whole. Each plant should be given sufficient room to develop, and no overcrowding should be allowed. When a specimen grows too large it should either be removed altogether, or else a less valuable neighbour taken out, for beauty of form is as desirable as beauty of flower or foliage, and this the plant cannot attain if crowded and jostled by neighbours. It is much better to see a few thin places in the shrubbery for one season than to allow growth to go on with resultant bad development of branches. Trees left in this state take years to recover when at last it has been decided to thin out, and during this time make most unsightly objects.

Groups of the following hardy shrubs are suitable for planting by themselves, viz.:—*Amelanchier canadensis*, the Snowy Mespilus with white racemes of

flowers in early April, followed in late summer and autumn by gorgeous foliage, especially when the specimens become established. *Ribes sanguineum*, the Flowering Currant, with rosy-pink flowers in February and March, and *Ribes aureum*, the yellow Flowering Currant, are both very pretty in groups by themselves, although not of great height. The foliage of these turns a bright yellow in autumn, another item much in their favour.

Rhus Cotinus, the Smoke or Wig Tree, is an exceedingly pretty subject for a bed. It grows to a height of six feet or more, and when in fruit, the greyish hoary appearance which is tinged with pink of the fruits is particularly charming. Added to this the foliage of this species, and also the Sumach, *Rhus typhina*, becomes a rich autumn feast of red, orange, and yellow shades.

The Forsythias form pleasing groups by themselves with their beautiful golden-yellow blossoms, or in combination with the almost purple-leaved *Prunus cerasifera atropurpurea*, or even with such every-day things as Ivy, and the Holly-leaved Barberry.

The Common Laburnum, *Laburnum vulgare*, *Clematis*, *Diervillas* or *Weigelas*, the Brooms, *Robinias*, and many shrubs, and the smaller trees are infinitely more beautiful if planted in groups, and as their special points of grace of form, and colour of foliage or flowers are brought more prominently to one's notice in this way, so with the larger forest trees.

Who has not been struck with the way in which

Nature plants the Beech, Elm, Poplar, Birch, and Yew on the slopes and hillsides, so that in spring, when growth in all things is beginning, the faint purple haze seen in the distance denotes a group of Elm, the pale green tint and the soldier-like straightness of limb the Poplar, another yellowing haze a group of Willow? Then when the leaf is falling, how well some of the browns, reds, and yellows, are shown with background perhaps of Spruce or dark-green Yew.

The following names will indicate some shrubs that look particularly effective when grown in bold groups or masses :—

Acer palmatum	Daboëcia.	Indigofera.	Rhus.
var. .	Daphne.	Kerria.	Ribes.
Amygdalus	Deutzia.	Laburnum.	Rosa.
communis.	Diervilla.	Ligustrum.	Skimmia.
Andromeda.	Erica.	Magnolia.	Spartium.
Azalea.	Escallonia.	Olearia.	Spiræa.
Berberis.	Eucryphia.	Osmarthus.	Staphylea.
Buddleia.	Exochorda.	Paulownia.	Stuartia.
Cerasus.	Forsythia.	Pernettya.	Syringa.
Choisya.	Genista.	Philadelphus.	Tamarix.
Cistus.	Hamamelis.	Prunus.	Ulex.
Cornus.	Hippophaë.	Rhododendron.	Viburnum.
Cotoneaster.	Hypericum.	Rhodotypus.	Zenobia.
Cytisus.			

PROPAGATION OF TREES AND SHRUBS.

Although it will be found generally more convenient for the amateur to leave the propagation of ornamental trees and shrubs to the nurseryman, nevertheless there are some who take a delight in raising their own plants. The various methods by which other plants are increased are also employed to get up a stock of trees and shrubs; sometimes one method being employed, sometimes another, according to expediency or the nature of the plant. Each of the various methods will be shortly described.

Trees and Shrubs from Seeds.—A very large number ripen

seeds in the open air in the British Islands, and where this is so, every effort should be made to secure new plants from them. Many exotic species of trees and shrubs that were at one time considered to be rather tender in their nature, have become hardy in our climate, because a few generations of them have been, as it were, "bred and born" in our midst, and have thus become acclimatised. In the case of plants that are very hardy, like the Barberry, the Horse Chestnut, the Almond, Cherry, Sweet Chestnut, Holly, Laburnum, Maple, Lilac, Hawthorn, Plum, &c., the seeds may be sown as soon as thoroughly ripe, in the open air, in drills, in some part of the garden where they can be kept free from weeds, and protected from cold winds. In the case, however, of plants not quite so hardy, or that only ripen seeds sparingly, it is safer to sow these in cold frames, or in greenhouses, either when ripe, or in the springtime. Nature obviously favours the sowing of seed as soon as ripe, and we have only to glance at the numerous seedlings in the woods and thickets in spring to see that such have a decided lead in life over those of which the seeds are not sown till spring. As a general rule it may be taken that any tree or shrub that will ripen seed in the British Islands can also be reproduced by that particular means. It must, however, be remembered that the seeds of all plants do not germinate with equal rapidity. The seeds of some come up in a few weeks, while others may remain dormant for the best part of a year.

Cuttings or Slips.—Many shrubby plants—more indeed than one would imagine—can be increased by taking off a shoot, and inserting it firmly in the soil, either in the open air or under glass during the summer months, or about the end of October. A "cutting" may be a piece of leafy or leafless stem with or without a thin plate or "heel" of the older wood attached at the base. A "slip," however, is distinguished from a cutting in that it is a shoot stripped from an older stem, and always has a piece, more or less jagged, of the old wood attached. As a rule, this "heel" of old wood ensures the rooting of a larger percentage of cuttings. Amongst shrubs that may be increased by cuttings or slips are the *Andromeda and allied species, *Aucuba, Berberis, Buddleia, Buxus (Box), Cotoneaster, Cratægus, Cytisus, *Deutzia, Diervilla, *Euonymus, Forsythia, *Jasminum, *Kerria, Ligustrum (Privet), Lonicera, Olearia, Philadelphus (Mock Orange), Ribes (Flowering Currant), Roses, Sambucus, *Skimmia, Spiræa, Syringa (Lilac), Tamarix,



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**Veronica*, and **Zenobia*. Those marked with an asterisk being better under the protection of a cold frame and protected from frost. Besides those enumerated many conifers, like *Cupressus*, *Wellingtonia*, *Juniper*, *Gingko*, &c., may also be raised from cuttings.

Layers.—A layer is made by bending down a shoot of a tree or shrub, making a sloping slit half-way through on the under side, and having firmly secured it to the ground by means of a hooked piece of wood or wire, as shown in the sketch, it is then covered with soil and allowed to remain one or two years without being disturbed. Roots develop from the cut surface made by the slit, but in some cases, like *Magnolias* for example, the plants do not become sufficiently established to earn their own living until about two years have elapsed. Therefore, in the meantime they must receive a supply of

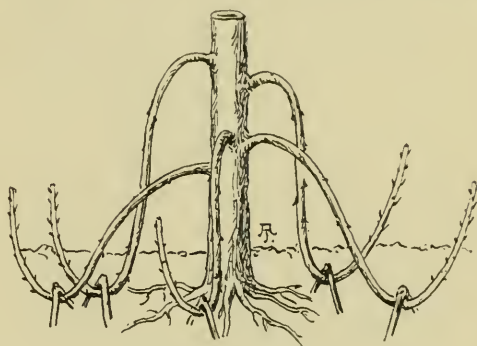


FIG. 6. LAYERING.

plant along the fibrous cords in that part of the stem which had been left uncut at the time of layering. Among the shrubby plants usually increased by layering are:—*Carpenteria*, *Cornus*, *Hamamelis*, (*Witch Hazel*), *Hippophaë*, *Magnolia*, *Phillyrea*, *Viburnum*, &c.

Budding.—There are comparatively few trees and shrubs propagated by budding apart from the *Roses*, *Almonds*, *Cherries*, *Peaches*, *Plums*, and *Variiegated Maple* (*Acer Negundo*). The operation, fully explained in the companion volume to this (“*BEAUTIFUL ROSES*,” p. 90), consists in selecting a well-formed bud of a choice variety, and inserting it beneath the bark in the stock of a common variety. Budding in the open air is generally done in July, but it may be done in greenhouses at other seasons, so long as the plants are actively growing.

Grafting.—This is like making a cutting and slicing a piece of bark off one side, and fitting it against the stem of a rooted plant, which has had a corresponding slice of bark taken off with a sharp knife. Just between the bark and wood is a quick-growing layer called the “*cambium*” in both graft and stock, and when they are placed face to face, the rising sap from the roots of the

stock causes the wounds to heal, and a fusion of the two surfaces to take place in due course. If grafting is done in the open air, the two pieces of stems should not only be securely fastened

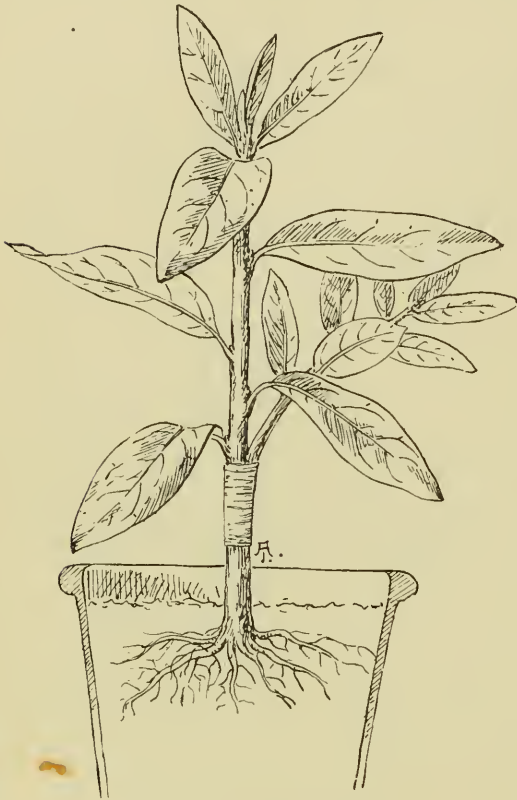


FIG. 7. GRAFTING.

It may be mentioned that some plants are grafted on *roots*, and not on stems, much in the same way. Clematis, Wistaria, and Tree Pæonias are examples.

Suckers.—Although in a wild state many plants throw up shoots called suckers from the roots freely, in a cultivated state, there is not the same tendency to do so. The reason is probably because more care and attention are devoted to the soil and the plants generally, and as soon as a sucker appears it is suppressed. Lilacs are accustomed to produce suckers freely, and where they spring up from the base of a fine variety, they should be carefully detached not later than September, or in the spring time, and replanted for increasing the stock if necessary. The *Xanthoceras* is a tree that seems to be more readily increased by suckers than by any other means.

together with a piece of raffia, but the point of contact should be plastered over with greasy clay or wax to exclude the air. Some Russian tallow and resin, melted over a fire and applied with a small brush, will be found a very clean and effective agent for grafting purposes.

Many trees and shrubs, however, like *Rhododendrons*, *Azaleas*, *Wistaria*, *Dimorphanthus*, *Camelias*, *Clematis*, *Pæonia*, *Roses*, *Lilacs*, &c., are grafted under glass in heat, and then there is no necessity to use wax, as the grafts can be easily kept close and moist.

DESCRIPTIONS OF BEAUTIFUL TREES AND SHRUBS FOR BRITISH AND IRISH GARDENS.

Abelia.—These are ornamental shrubs, 3 to 5 feet high, with opposite leaves, in the axils of which the clusters of funnel-shaped flowers are borne. They are only hardy in the mildest parts of the British Islands. In many localities, however, when grown against a south or west wall they thrive, and will survive all but the severest winters. They like a nice well-drained soil of sandy peat and loam, and should have the younger shoots spaced out on the wall so as to allow them to become matured by exposure to the sun and air for the better production of blossom. By cutting out the old wood each year in the winter or after flowering is over, the plants will always have a good supply of flowering shoots upon them. The easiest way to increase Abelias is by layering the shoots in late summer, or by inserting “slips,” or cuttings of the ripened shoots with a heel of the old wood about October in a cold frame. The following are the best known kinds: *A. chinensis* (or *rupestris*).—A Chinese shrub about 5 feet high with sweet-scented pink flowers in autumn. The variety *grandiflora* has rosy white blossoms. *A. floribunda*.—A Mexican shrub about 3 feet high, with rosy-purple flowers in March and April. *A. serrata*.—A Chinese species with pale red flowers; and *A. spathulata*, from Japan, with white, yellow dotted flowers, are evergreen plants. *A. triflora*.—A handsome Himalayan shrub, with pink or purple flowers; and *A. uniflora*, from China, with myrtle-like leaves and pink and white flowers, and the only other species of note.

Acanthopanax.—These are closely related to the Aralias, and are perhaps better known as such in gardens. They are shrubs or small trees, easily recognised by the palmately-lobed leaves, and although not really hardy in all parts, nevertheless flourish in warm and well-favoured localities. They may be increased from seeds sown in cold frames when ripe; from cuttings of the roots in autumn; or by detaching suckers from the base of the plants in spring, when the dangerous frosts have passed.

A. riciniifolium (*Aralia Maximowiczii*) is an elegant species

with spiny stems, which are said to attain a height of 90 feet in the Japanese forests. The ornamental leaves with 5 to 7 lobes resemble those of the castor-oil plants (*Ricinus*) hence the specific name. *A. sessiliflorum* and *A. spinosum*, both natives of China and Japan, are also in cultivation—the latter species having a form called *variegatum*, the leaves of which are broadly edged with creamy white.

Acer.—All the Maples and Sycamores belong to this genus. They are a good deal confused in the names, but most of them are easily recognised by having the leaves more or less lobed like those of the ordinary Sycamore, or else very deeply divided and finely cut. The fruits are also very distinct and are wafted about by the wind by means of the wings or “keys” attached to them. The flowers are not particularly pretty or conspicuous, but the leaves of many kinds are remarkable for the beautiful colour tints they assume in autumn. Most of the Maples are easily increased from seeds sown in autumn or spring. Many of the rarer and choicer varieties, however, can only be increased by layering the shoots in summer, or by budding about July, or grafting on stocks of the commoner sorts in March.

There are many species known, but the following is a selection of the best:—*A. argutum*.—Leaves 5-lobed, margins serrate; Japan. *A. campestre*.—This is the common British Maple with corky bark; leaves 5-lobed, kidney shaped. There are several varieties of it, the most remarkable being *variegatum*, with blotches and stripes of white and yellow on the leaves; and *postelense* with yellowish leaves. *A. carpiniifolium*.—Remarkable for having oblong lance-shaped leaves like a Hornbeam, instead of lobed ones. It grows 50 feet high in Japan. *A. caudatum*.—Leaves 3-lobed, tapering, coarsely-toothed; N. India. *A. circinatum*.—A beautiful shrub; leaves 7 to 9 lobed, bright scarlet in autumn; N. W. America. *A. cissifolium*.—An elegant shrub 5 to 10 feet high; leaves 3-lobed; Japan. *A. creticum*.—Leaves sharply 3-lobed; this is almost an evergreen species; Levant. *A. dasycarpum* (the Silver Maple).—This is also known as *eriocarpum*, *tomentosum*, *glaucum*, and *virginianum*; it grows 30 to 40 feet high; leaves 5-lobed, silvery or blue-green beneath, often 8 inches long and 10 inches broad, bright lemon-yellow in autumn. There are several forms, the best being *aureo-marginatum*, with yellow-mottled leaves; *lacinia-*

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tum, with deeply-cut and divided leaves; *lutescens*, yellowish foliage; and *pulverulentum*, leaves spotted with white; N. America. *A. diabolicum*, also known as *pulchrum*.—Remarkable for its large 5-lobed leaves, often 10 inches across, and the clusters of beautiful winged fruits with two horn-like projections. Japan.—*A. Heldreichi*; leaves 3 to 5-lobed bluish-green beneath, coarsely and bluntly toothed; E. Europe. *A. giunata*.—A graceful dwarf tree, leaves lobed, rich red in autumn; Amurland. *A. insigne*.—This is very much like the common Sycamore, and is said to be the hardiest Maple in cultivation; Caucasus. *A. japonicum*.—A beautiful small tree with usually 10-lobed leaves of a light green in spring; Japan. *A. macrophyllum*.—A quick growing ornamental, tree with large 5-lobed leaves often a foot across. It grows 60 feet high in California. *A. monspessulanum*.—The Montpellier Maple, leaves heart-shaped, 3-lobed; S. Europe. *A. Negundo* (also known as *Negundo fraxinifolium*, and *N. aceroides*).—This is the “Box Elder” or “Ash-leaved Maple.” It is a native of N. America, where it reaches a height of 50 feet. It is easily distinguished from the ordinary Maples by its pinnate leaves. There are several forms, amongst them being *crispum*, with cut and curled leaves; *laciniatum*, with finely divided leaves; and *variegatum*, the best known form of all, with silvery and green leaves. It is extensively planted, and is usually budded on the green-leaved variety.

Some of the most ornamental Acers undoubtedly belong to *A. palmatum*, a species which attains a height of 20 feet in its native country, Japan, but rarely more than half that in British gardens. There are three distinct sections in this group, namely, (1) *Palmatum* proper, characterised by the leaves having five deeply-cut lobes; (2) *septemlobum*, in which the leaves are cut into 7 to 9 lobes; and (3) *dissectum*, which also has 7 to 9 lobed leaves, but each lobe is again deeply cut or finely divided from the margin to the mid-rib.

In the *palmatum* group the most notable varieties are *aureum*, the leaves of which are pale-green and yellowish when young, but tinged with gold and orange scarlet in autumn; *albo-marginatum*, with white-edged leaves; *crispum*, with leaves curled up at the edges; *atropurpureum*, with deep bronzy-purple leaves; *roseo-marginatum*, the green leaves of which are margined with rose.

In the *septemlobum* group there are also many beautifully

coloured forms, the best being *atropurpureum*, deep purple; *bicolor*, blotched with carmine and red; *elegans*, green flushed with red, and a sub-variety called *purpureum* with deeper coloured leaves; *sanguineum*, deep red; *tricolor*, creamy-white and rose; and *variegatum*, the red-stalked leaves of which are streaked with red and white when old.

Of the *dissectum* group, *ornatum* has deep red or bronzy-purple fern-like leaves; and *roseo-marginatum*, deep green, bordered and streaked with rose and white.

Although there are many species native of Japan and China, the plants belonging to the *palamtum* group are popularly called the "Japanese Maples." They are largely imported now, and many of them are grown in a gnarled and stunted form in ornamental bowls, vases, or pots. The soil is very firmly packed round them and with very little care these pigmy plants, some of which are reputed to be 200 years old, can be kept in good condition for several years.

The naturally grown plants, however, are much more worthy of cultivation. They are not only graceful in appearance and beautiful in colour, but are practically hardy in warm and sheltered situations in most parts of the kingdom. They look most effective planted in bold groups by themselves or near other shrubs, the colours of which will contrast agreeably with them.

Another handsome Maple from temperate Asia is *A. pictum*. It is often called *colchicum*, and grown 15 to 20 feet high, with 5 to 7-lobed leaves. There are several forms known, of which *rubrum* with red leaves; *aureum* with golden-yellow leaves; *variegatum*, silvery leaves; and *tricolor*, with purple-red and rosy-pink leaves, are perhaps the best.

The Norway Maple (*A. platanoides*) is a well-known European tree, 50 to 60 feet high, with 5-lobed leaves, and very ornamental in appearance. Amongst the best forms of it may be mentioned *aureo-variegatum*, with pale yellow-blotched leaves; *laciniatum* with deeply divided greenish-yellow leaves; *Schwedleri*, very ornamental, with deep bronzy-red leaves in spring; *variegatum*, blotched with white; and many others of various shades of colour.

The Common Sycamore or Mock Plane Tree (*A. pseudo-platanus*) is well-known to most people, and yet it is often confounded with the true Plane Tree, which is a quite different



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plant. The Sycamore is a native of Central Europe and W. Asia, and is now so extensively planted in the British Islands as to appear almost indigenous. There are several varieties of it, among them being *albo-variegatum*, with green and white leaves; *flavo-marginatum*, green and yellow; *purpureum*, purple beneath; as well as *atropurpureum*, *aucubafolium*, *Prinz Hendjery*, *purpureo-variegatum*, all more or less distinctly coloured.

The Scarlet Maple (*A. rubrum*) is so called from the crimson flowers, red fruits, and deeply tinted reddish foliage. It is a native of N. America, and grows about 20 feet high. The Bird's Eye or Sugar Maple (*A. saccharinum*) is also a N. American tree, 40 to 60 feet high, remarkable for its sugary sap, and for the beautiful markings of its wood, and ornamental aspect.

There are many other kinds of Maples, but those above-mentioned may be regarded as the most easily grown and most ornamental for the park or garden.

Actinidia.—These are chiefly valuable on account of their climbing habit, and may be used for covering walls, trellises, arbours, &c. They are not well-known outside botanic gardens. The principal kinds grown are *A. kolomikta*, a native of N. E. Asia, with small white flowers and ovate oblong serrate leaves, which assume a reddish tinge in autumn; *A. polygama*, from Japan, with heart-shaped leaves, sweet-scented white flowers, and edible berries in autumn; and *A. volubilis*, another Japanese climber, with oval-elliptic leaves and white flowers.

Actinidias like a warm sheltered spot and light loamy soil. They may be increased from seeds sown in cold frames when ripe; or by means of cuttings with a heel of the old wood inserted about October in a cold frame, and protected from frost in winter.

Adenocarpus.—There are only a few species known, and these are not generally cultivated. They resemble the Common Furze somewhat in appearance, although free from spines, and produce their yellow flowers freely in the early summer months. They thrive in ordinary good garden soil, and as they grow only 3 or 4 feet high, may be massed in bold groups either by themselves or in the mixed shrubbery. They may be increased by means of seeds, layers, or cuttings in the autumn. The best known species is *A. decorticans*, a native of Spain.

Ægle sepiaria.—This is the only species of any garden value,

and is perhaps better known as *Citrus trifoliata*. It is a spiny Japanese shrub, 4 to 6 feet high, having trifoliolate leaves with winged stalks. The sweet-scented white blossoms appear from April to June, according to the season and locality, and are succeeded by orange-yellow fruits about $1\frac{1}{2}$ inch in diameter.

This plant is closely related to the well-known orange of commerce, and is perfectly hardy in the neighbourhood of London. The plants may be propagated from seeds, or from well-ripened cuttings inserted in sandy soil in cold frames in autumn, and protected from frost.

Æsculus.—Under this name botanists have placed the “Horse-Chestnuts” and the “Buck-Eyes.” They are amongst the most noble of our ornamental flowering trees, and are valuable for the effect they give to the landscape of large parks and gardens, riversides and avenues. The true Horse-Chestnuts (*Æsculus*) are distinguished from the Buck-Eyes (*Pavia*) by having spiny fruits, 5-petalled corollas, and by their drooping young leaflets in early spring when first bursting from the winter buds. The Buck-Eyes have few or no prickles on the fruits, only four petals to the corolla, and the young leaflets are more or less erect in spring.

These fine trees flourish in a rich and fairly moist soil, and when they have plenty of space to develop they assume large and symmetrical proportions. They are nearly all easily raised from seeds sown when ripe, but it may be necessary to layer some of the rarer kinds, or even to bud or graft them upon stocks of the common Horse-Chestnut.

Æ. californica.—A handsome Californian tree, about 40 feet high in a native state. The sweet-scented flowers appear in May in great profusion, and are white or pale rose in colour. The pear-shaped fruits, $1\frac{1}{2}$ to 2 inches across, ripen in the mildest parts of the kingdom.

Æ. carnea.—This is said to be a hybrid between the common Horse-Chestnut (*Æ. hippocastanum*) and the Red Buck-Eye (*Æ. Pavia*). It is an elegant tree, about 20 feet high, with scarlet flowers, and is also well-known under the names of *rubicunda* and *coccinea*. There are a few varieties, of which *Brioti*, with rich red flowers, is perhaps the best.

Æ. flava.—This, the Sweet Buck-Eye of N. America, grows 20 to 25 feet high in the British Islands, but as much as 90 feet in its



native state. The pale yellow flowers appear in May on racemes 4 to 5 inches long. The variety *purpurascens* has the yellow flowers tinged with red or purple.

Æ. glabra.—The "Ohio Buck-Eye," from N. America, grows about 20 feet high, and has greenish-yellow flowers, but is chiefly noted for the aspect of its ornamental foliage.

Æ. hippocastanum.—This is the well-known Horse-Chestnut tree seen almost everywhere, although it is not a native of Britain, but of the mountainous regions of S.E. Europe. It often attains a height of 60 to 80 feet or more, and in the month of May is studded with erect trusses of beautiful white flowers tinted and speckled with red. Besides a form with finely cut fern-like leaves (*asplenifolia*), there is a fine double-flowered variety (*flore pleno*), and also one with yellow blotched leaves. Easily raised from seeds.

Æ. indica.—This handsome tree grows 60 to 70 feet high in N. India. The leaf stalks are bright red, and the leaflets are often a foot long. Flowers in May, white tinged with red and yellow.

Æ. parviflora (*Pavia macrostachya*).—A pretty N. American Buck-Eye, 3 to 9 feet high, with long racemes of pinkish-white flowers in July and August. The stamens are very long.

Æ. Pavia (*Pavia rubra*).—This is the Red Buck-Eye of S. U. States. It grows 10 to 15 feet high, and has large loose trusses of bright red flowers in May and June. There are several forms, the best known being *humilis*, a dwarf straggling shrub about 6 feet high; *laciniata*, with deeply cut leaflets; *pendula*, with a drooping habit; and *atrosanguinea*, with deep red flowers.

Æ. turbinata.—It is a native of the mountains near Pekin, and has creamy-white flowers in May. For many years this Horse-Chestnut has been erroneously known under the name of *chinensis*, which is a different species altogether and not yet introduced.

Ailanthus glandulosa.—This quick-growing tree is popularly known as the "Tree of Heaven." It is a native of N. China, where it grows about 60 feet high. The pinnate leaves are from 1 to 3 feet long, and composed of 9 to 25 deeply-toothed or lobed leaflets. The small whitish-green flowers, with a more or less disagreeable odour, appear in large clusters about August. Later on these are succeeded by oblong purple-brown or reddish winged and peculiarly twisted fruits (shown on Plate V., fig. 13), which give the plant a very ornamental appearance in autumn.

The Tree of Heaven flourishes in the milder parts of the kingdom, and in warm sheltered spots in other localities. It likes a rich and well-drained soil, and may be easily increased by cutting the roots into pieces a couple of inches long, and covering them with soil in a cold frame in autumn. The suckers, which are often thrown up freely from the base, may also be detached with as many roots as possible, and established in cold frames. Seeds may also be sown when ripe in cold frames.

Akebia quinata.—This is a pretty climbing plant belonging to the Barberry family. It is a native of China and Japan, and has long-stalked digitate leaves. The small sweet-scented flowers appear in spring or early summer, and are of a violet or purplish tint, being succeeded by oblong-cylindrical berries. The stems reach a height of 6 to 10 feet, but in all, except the mildest parts of the kingdom, they are likely to be cut down by the winter frosts. The plants like a mixture of well-drained loam, peat, and leaf soil, and may be increased by ripened cuttings or slips in a cold frame.

Alnus.—The Alders, of which there are many species, belong to this genus. They are mostly deciduous trees and shrubs, fond of damp situations. They are not remarkable for the beauty of their flowers, of which the males and females, although borne on the same plant, are quite distinct from each other. The Alders are useful in parks and gardens, near ponds and streams, for the gracefulness of their habit, and may be increased by sowing the seeds when thoroughly ripe. The best known kinds are the "Italian Alder" (*A. cordifolia*) from S. Italy, where it grows 30 to 50 feet high. It has deep green, shining, heart-shaped leaves, and likes rather a drier situation than the common British Alder. The latter is known as *A. glutinosa*; it grows quickly and reaches a height of 50 to 70 feet. It is recognised by its dark bark and roundish wedge-shaped leaves, with serrate margins. There are several varieties of it, among them being the "Golden Alder" (*aurea*), with yellowish leaves; the "Cut-leaved Alder" (*laciniata*); the "Oak-leaved Alder" (*quercifolia*), and several others. The "Japanese Alder" (*A. firma*) is a distinct tree with oval tapering, sharply-toothed leaves. The Grey, White, or Hoary Alder (*A. incana*) is a native of N. America, where it grows taller than our common Alder. In British gardens, however, it only



grows 10 to 30 feet high, and is recognised by its broadly ovate, sharply-toothed leaves, with a whitish or downy under surface. *A. nitida*, a fine Alder from the Himalayas, has very large leaves, and *A. viridis*, with somewhat heart-shaped leaves, are the only others worthy of note.

Amelanchier.—These are pretty Rosaceous shrubs and bushes, thriving in a rich loamy soil, and remarkable, not only for the beauty of their blossom, but also for the autumn colouring of their foliage, and their coloured fruits. They can be increased by sowing the seeds when ripe, or by inserting cuttings or “slips” of the well-ripened shoots in autumn; by layering; or by grafting on stocks of the common *A. vulgaris*.

A. alnifolia.—A pretty N. W. American shrub, about 8 feet high, with alder-like leaves, and compact trusses of white flowers in spring or early summer, followed by brilliant purple berries.

A. canadensis.—This handsome N. American shrub grows 6 to 8 feet or more high, and is popularly known under such names as “June Berry,” “Shad Flower,” and “Grape Pear.” It has oblong toothed leaves, which are remarkable for the brilliant hues (as shown on Plate I.) they assume in autumn. The snow-white flowers appear in April and May, and later purple-crimson fruits take their place. There are several varieties of this species, of which perhaps *A. sanguinea*, with shorter trusses of flowers, is best known.

A. vulgaris.—Has been cultivated for about 300 years. It is a handsome European shrub, 3 to 9 feet high, with roundish-oval leaves, white flowers, and deep purple fruits.

Amorpha.—A small genus of smooth or downy shrubs belonging to the Laburnum family. They flourish in ordinary garden soil, and may be increased by layering, or by cutting with a heel of the old wood inserted in sandy soil in autumn, and protected from winter frosts. Suckers from the base of the plants may also be detached to increase the stock.

A. canescens.—A native of N. America, is popularly known as the “Lead Plant,” on account of the peculiar hoary looking or lead-like appearance of its sharply-pointed leaflets. It grows about 3 feet high, and has deep purple-blue flowers in July. *A. fruticosa*, from the river banks of Carolina, is known as “Bastard Indigo.” Botanically, it has a host of other names. It is a

graceful shrub, 6 to 9 feet high, and produces its dark bluish-purple or violet flowers, with conspicuous yellow stamens, in June and July.

Ampelopsis.—Correctly speaking, these plants should be included under the genus *Vitis*, but the name of *Ampelopsis* has become so firmly established, that it may be as well to retain it here for the present. The plants are charming climbers and useful for covering walls, arbours, trellises, &c. They may be increased from seed sown in cold frames, or from cuttings of the ripened shoots inserted in autumn in sandy soil.

A. bipinnata.—This is a beautiful N. American plant, climbing by means of tendrils to a height of 10 or 20 feet, although it is rather slow in growth. The leaves are twice pinnately divided—a feature which distinguishes it from other species.

A. quinquefolia (*A. hederacea*).—This is the well-known “Virginian Creeper,” a native of N. America. It is a quick grower and will soon cover walls, fences, balconies, sheds, &c., the supple stems often attaining a length of from 20 to 50 feet. Although in spring the leaves (which are palmately divided into 3 to 5 leaflets) are of a bright refreshing green, in autumn they assume many beautiful shades of yellow, reddish-purple, and crimson. There are several forms of the Virginian Creeper, such as *incisa*, with more deeply cut leaves; *hirsuta* downy-leaved; and *muralis*, the last-named being remarkable for attaching itself by means of suckered tendrils to its supports.

To keep the Virginian Creeper in order it is necessary to regulate the shoots by having them nailed or tied to their supports. Practically no pruning is required, at least for several years, and then only the very oldest wood should be cut out. Cuttings of the shoots, 8 to 10 inches long, inserted half their length in the open air about the end of October, root readily the following year.

A. tricuspidata (*A. Veitchi*, *Vitis inconstans*).—This charming Japanese climber is to be seen spreading itself over walls in many parts of the kingdom, often up to chimney stacks 50 and 60 feet from the ground. It has slender pliant stems, and leaves varying in shape from being almost entire, when young, to three-lobed or divided when old. They are bright glossy green in spring, tinted with reddish-purple; and in autumn they become



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brilliantly suffused with crimson. There is no necessity to nail or tie the stems once the plants have started to clamber up a wall or fence, as the suckers at the tips of the branched tendrils adhere firmly to the surface. Seeds are freely produced, and may be sown in gentle heat in spring to secure new plants; or cuttings of the stems—a piece about an inch long with a plump “eye”—may be inserted in rich sandy soil in bottom heat in spring.

Amygdalus (The Almond).—Botanically speaking it is rather difficult to separate the Almonds from the Peaches, Nectarines, and Plums; but from a garden point of view they are distinct enough to be kept separate. The Almonds are charming trees, and are amongst the first to expand their beautiful flowers in the early part of the year, when most of our trees and shrubs are still in their winter leaf with bare branches. They flourish in any good and well-manured garden soil. They are, however, often badly treated by being jumbled into mixed shrubberies with Conifers, Elders, Holly, Aucuba, Privet, &c., where they have not a fair chance to develop naturally, and consequently become lop-sided, with a few lean and hungry branches. They do best in open situations, with plenty of air and light, and in such situations require but little attention beyond an annual mulching of well-decayed manure or leaf mould in winter. But little pruning is necessary beyond cutting out any old or dead wood. If practised during the winter months, care should be taken not to cut away the young shoots of only one season's growth, as they are—or ought to be—full of flower-buds. After the flowers are over, the branches upon which they are borne, may be shortened back to one or two buds for the production of stronger ones for next year's flowers—unless there is a wish to allow the fruits to ripen. The same principles of pruning may be applied to the Peaches, Nectarines, and the Apricots.

The Almond may be raised from seeds sown in drills when thoroughly ripe, and also by budding on Plum or Cherry stocks in July. Cuttings of the ripened shoots, 9 to 10 inches long, may also be inserted in well-drained soil in a warm sheltered spot about the end of October.

The common Almond (*A. communis*) is a beautiful tree 10 to 30 feet high, with oblong lance-shaped leaves finely-toothed on the margins. It is a native of Barbary, but is hardy enough to

be grown in the open in most parts of the British Islands. The white or rosy-pink flowers, as shown on Plate XIV., fig. 43, are produced in great profusion early in March, and are succeeded by flattish egg-shaped woolly-coated fruits. There are several varieties, such as the Bitter Almond (*amara*), the Sweet Almond (*dulcis*), the Double-flowered Almond (*flore pleno*), shown on Plate XIV., fig. 41; *macrocarpa*, on the same plate, fig. 42; and others, all beautiful and worth a place in every large garden or public park.

The Dwarf Almond (*A. nana*), from Tartary, only grows 2 to 3 feet high, and is recognised by its narrow serrated leaves, and the solitary rosy-pink flowers produced in abundance in February, March, and April.

The Silver Almond (*A. orientalis* or *argentea*) is a native of Asia Minor, and has a silvery down covering its short ovate leaves. It grows 3 or 4 feet high, but only produces its rosy flowers profusely in the most favoured parts of the kingdom.

Andromeda polifolia.—This handsome dwarf evergreen is known as the "Wild Rosemary" or "Moorwort." It is a native of British and Irish peat bogs, and grows only about a foot high, having variable shining green elliptic lance-shaped leaves, with a blue-green under surface. The pinky-white flowers are borne in drooping clusters near the end of the shoots from May to August. There are several forms varying somewhat in the colouring of the flowers and the shape of the leaves, and distinctive names like *angustifolia*, *rosmarinifolia*, *major*, *rubra*, &c., have been given to indicate them.

The Wild Rosemary (which by the way does not belong to the same family as the true Rosemary) should be grown in bold masses in moist peaty or swampy soil, mixed with Heath, or in front of Rhododendrons, Azaleas, Kalmias, &c., all of which belong to the same natural family. The minute seeds may be sown on the surface of finely prepared peaty soil, in autumn or in spring, in a cold frame, or the shoots may be layered and detached twelve or eighteen months afterwards, when well rooted.

There are many pretty shrubs known in gardens under the name of Andromeda, but the above is the only true species. The reader is referred to *Cassandra*, *Cassiope*, *Leucothoë*, *Oxydendron*, *Pieris*, and *Zenobia*, all of which have been called Andromeda at one time or another.

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Aralia.—There are many species belonging to this genus, but only a few are of sufficient merit to find a place in the ornamental garden. *A. chinensis* is perhaps the most important. It is also well-known as *Dimorphanthus mandschuricus*, and is now to be found in many good gardens. It is a handsome Chinese shrub, and grows 6 to 12 feet high, or even more in favourable situations. The large spreading leaves, often 3 feet long, with prickly stalks, are twice pinnate, and give a fern-like and sub-tropical aspect to the plant. The large clusters of creamy-white flowers appear in July and August, and are followed in due course by black berry-like fruits. There is a charming form called *albo-marginatus*, with an irregular silvery white band bordering the leaflets. It is a “sport” or freak, and is usually grafted on the green-leaved variety. A warm situation and rich well-drained loamy soil, with plenty of moisture, are necessary to secure the best effects.

The Angelica Tree (*A. spinosa*) is a handsome N. American shrub, 8 to 12 feet high, with prickly stems, and large spreading leaves, twice and thrice pinnately cut. Suckers spring up freely from the base, and may be detached to increase the stock.

Arbutus.—This genus contains a few handsome evergreen trees or shrubs with smooth flaky bark, deep green, toothed leaves, and clusters of bell-shaped flowers. Unlike many plants belonging to the Heath family, the Arbutuses will grow in a soil containing a little chalk or lime. They like, however, plenty of “humus” at the roots, and this may be supplied by peat and leaf mould.

When planted on lawns, or given plenty of space in the shrubbery, they are effective and ornamental, especially when in flower and fruit. Seeds may be sown under glass; the branches may be layered; or the choicer kinds may be grafted on stocks of the common Strawberry Tree (*A. Unedo*) when it is desired to increase the plant.

The most important species is probably the Strawberry Tree (*A. Unedo*), so called on account of its granular strawberry-like fruits, which are edible when ripe, but not particularly palatable. Indeed, the great botanist, Linnæus, considered one fruit sufficient to satisfy his wants; hence the specific name he gave the tree.

The Strawberry Tree is very ornamental when laden with its drooping clusters of white flowers tinted with red, during September and October. These are represented on Plate XXVII., fig. 73

and will give the reader a good idea of their beauty. There are a few distinct forms, such as *coccinea* with scarlet, and *rubra* with red flowers; *microphylla* has smaller leaves than the type; and *Croomei* has larger leaves and reddish-pink blossoms.

Other species of *Arbutus* are *A. Andrachne*, an ornamental tree with greenish-white flowers in March and April; *A. hybrida*—a cross between *A. Andrachne* and *A. Unedo*—has laurel-like leaves and clusters of whitish flowers from Christmas to February; and *A. Menziesi*, from N. America, has large leaves and white flowers in September.

Arctostaphylos.—There are a few species belonging to this genus, of which perhaps the best known is *A. alpina*, called the Black Bearberry, and *A. Uva-ursi*. They are both natives of Britain, and have trailing or procumbent stems, with evergreen shining leaves, and clusters of white (in *alpina*) or pink (in *Uva-ursi*) flowers at the end of the shoots. Both plants flourish in cool and shaded situations in moist peaty soil, and may be increased by seeds or layering.

Aristolochia Siphon.—This ornamental N. American climber is commonly known as the “Dutchman’s Pipe.” The twining stems will reach a length of 15 to 30 feet, and are furnished with large heart-shaped leaves, which constitute the chief attraction on a wall. The flowers, unless one happens to know where to find them, might be overlooked altogether. They are small, of a colour which is inconspicuous, a brownish-purple, and produced in the axils of the leaves. From their shape, which is pitcher-like and constricted near the mouth, the name Dutchman’s Pipe is obtained.

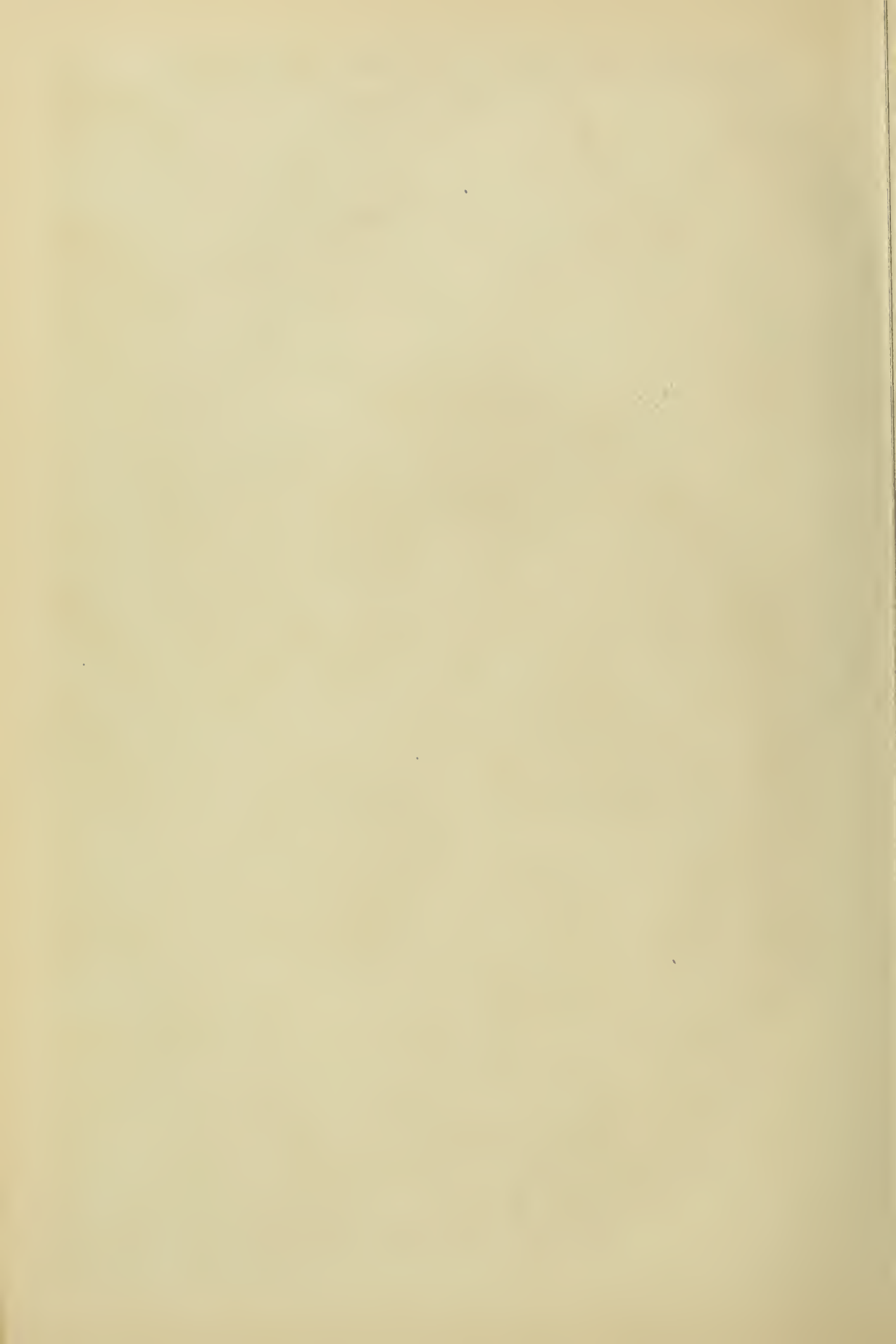
A similar species is *A. tomentosa*, also from N. America, but with downy heart-shaped leaves, and purple and yellow flowers in July and August. Both species may be increased from seeds or cuttings of the ripened shoots with a heel of the old wood. A lovely Brazilian climber called *A. elegans*, has been flowered successfully in the open air, but is generally grown in green-houses like many other species. It has creamy yellow flowers, heavily blotched with purple, and is easily raised from seeds under glass.

Aristotelia Macqui—This is a handsome Chilian shrub belonging to the Lime Tree family. It grows 6 feet to 10 feet

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high, and has oblong smooth shiny, toothed leaves, and small greenish flowers in May, in due course followed by deep purple pea-like berries. There is a handsome variety with variegated leaves. Another species is *A. racemosa* from New Zealand, which grows from 6 to 20 feet high, and has bright green leaves. Both species, however, are only hardy in the mildest parts of the kingdom. In other places they require warm sheltered situations, and light rich soil. Increased by seeds, cuttings, and layers.

Artemisia *Abrotanum*.—This fragrant smelling shrub is the well-known “Southern Wood” of Europe. It has finely divided fern-like foliage, and small yellowish flowers of no particular beauty. It may be increased by cuttings of the ripened shoots in cold frames.

Aucuba *japonica*.—This charming shrub was introduced from Japan about 120 years ago, but until after 1850, when the male or pollen form was introduced by Fortune, none of the beautiful scarlet berries were borne by the plants for obvious reasons. There are now many charming varieties of *Aucuba*—or “Laurel” as they are often called—many of them simply the result of seminal variation. The leaves are bright, glossy green, speckled, mottled, and streaked with creamy or golden yellow. The shrubs, which grow 6 to 10 feet high, flourish in any good garden soil, and are not particular as to situation. They prefer an open place, however, with plenty of light and air to develop the beauty of their foliage. When grown under the thick shade of tall trees, as they often are, they become bare-stemmed and “leggy,” and then look anything but ornamental. They are easily raised from seeds, from layers, or by means of cuttings inserted in autumn in a cold frame, and protected from frost. Of late years, *Aucubas* have become popular for greenhouse decoration on account of their bright coloured berries. Only the female plants produce these, and to secure the fertilisation of their flowers a male plant should always be in the vicinity so that the pollen may be readily distributed for fertilising the pistils of the female flowers.

Azalea.—Although botanists have long been of opinion that there is no fundamental difference between *Azaleas* and *Rhododendrons*, gardeners still prefer to keep the two distinct. The hardy *Azaleas* flourish in a moist, peaty, but well-drained soil, free from lime or chalk. Good loam, with plenty of leaf-soil and peat

mixed with it, is also a suitable medium for the roots. To secure the best effects in the garden they should be planted in bold masses, either in beds by themselves or in connection with Rhododendrons, Kalmias, &c. There are so many beautiful and brilliant shades of colour amongst them, and many are so sweetly-scented that they deserve to be more generally cultivated in our larger gardens and parks. What are known as the Ghent, American, or Honeysuckle Azaleas are charming plants for this particular purpose, and with them may be associated the forms of *A. mollis* or *sinensis*, with which of recent years they have been extensively crossed by the Dutch nurserymen. The various shades of yellow—from the very palest cream, through deep yellow to orange, pink and red—are here represented in most delicate and yet gorgeous array. An Azalea group in May and June is a feast of colour, and the sweet faint scent is very delicious.

Although Azaleas require but very little pruning, they should not be altogether overlooked in this respect, otherwise the plants grow tall and lanky, having only a few leaves on the younger shoots at the top. By cutting out the old and dead wood, and shortening back the younger growths just after flowering, the plants are encouraged to send up fresh vigorous growths from the base. In due course these bear flowers, and may receive similar treatment, so that the plants will always have not only plenty of blossom, but also be well furnished with foliage from the base upwards. Azaleas may be increased from seeds sown under glass as soon as ripe, from layers, or from cuttings. The following are some of the best natural species of Azalea for the open air:—

A. arborescens.—A N. American shrub, 10 to 20 feet high, with long-tubed reddish flowers.

A. calendulacea.—A very variable N. American species, 2 to 6 feet high, with yellow, red, and orange blossoms. It is one of the parents of the Ghent Azaleas.

A. indica.—A charming Chinese shrub, 3 to 6 feet high or more, with white, red, or purple bell-shaped flowers. It is largely grown in greenhouses, but is fairly hardy in the mildest parts of the kingdom. The variety *amana*, with closely packed shining leaves, and a wealth of deep purple-crimson flowers, is hardy in the Thames Valley.

A. ledifolia.—A beautiful Chinese and Japanese shrub, 2 to 6 feet high, with snowy-white bell-shaped flowers.

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A. mollis or *sinensis*.—This showy species from Japan is perhaps the best known of all the Azaleas. It has red, orange, white, and yellow flowers, and is largely grown in pots for conservatory decoration in winter, as it is so easily "forced." It is perfectly hardy in most parts of the kingdom. The orange-red, and the white (*albiflorum*) forms are shown on Plate XX., figs. 56 and 57.

A. nudiflora.—A N. American shrub, 3 to 4 feet high, with pink or purplish flowers.

A. occidentalis.—A strong growing Californian shrub with sweet-scented white flowers in June and July. *A. pontica* (*Rhododendron flavum*) is a native of Asia Minor. It grows 4 to 6 feet high, and in May has large yellow or orange flowers tinted with red, as shown on Plate XXI., fig. 58.

A. rhombica.—A distinct Japanese shrub, with rhomboidal leaves which assume a bronzy tint in autumn. The bright rosy flowers appear in May.

A. Schlippenbachi.—A pretty Chinese and Japanese shrub, 3 to 5 feet high, with wavy leaves about 4 inches long, and bright rosy flowers shaded with lilac. They appear in March and April.

A. Vaseyi.—A beautiful Californian species, 15 feet or more high in a native state. The clear rosy-pink flowers, spotted with reddish-brown appear in April—often on the plants when only a few inches high. There is a pure white-flowered variety. Seeds are freely produced.

A. viscosa.—This is the "Swamp Honeysuckle" of N. America. It grows 2 to 4 feet high, and produces white sweet-scented flowers in July in more or less clammy clusters. The variety *nitida* has shining green leaves and flowers tinged with red.

Azara.—There are about a dozen species of ornamental evergreen trees or shrubs in this genus, but they are only hardy enough to be grown against walls, or as bushes in the warmest and most sheltered localities in our climate, although they are all natives of Chili. They like a rich well-drained sandy loam, and may be increased from cuttings or slips of the ripened shoots in early autumn, if inserted in a cold frame and kept free from frost. The best known kinds, which grow from 12 to 18 feet high, are *dentata* with ovate serrate leaves and yellow flowers; *Gilliesi*, with reddish branches, large smooth Holly-like leaves and bright yellow

flowers ; *integrifolia*, with entire leaves and sweet-scented yellow flowers ; and *microphylla*, with small dark shining green leaves, and greenish flowers with a vanilla-like fragrance, and succeeded by orange berries.

Bambusa.—Although there are several genera of woody-stemmed grasses, popularly known as Bamboos, it is considered more convenient to treat them altogether as one group here rather than to distribute them in alphabetical order according to their names. Speaking of them as a class, they are extremely ornamental plants, and are equally suitable for cultivation in small as well as large gardens. Most of them like a rich and well-manured loamy soil, which, while always retaining sufficient moisture for the roots, never becomes impervious to fresh air owing to being saturated with stagnant water.

As many of the kinds are natives of China and Japan, and some are hardier or more tender than others, it is on the whole safer to plant them in situations where they will be protected from cold blasts or tempests by other vegetation, or rising ground.

The best time for planting Bamboos in the open air is about the end of May, and not during the autumn months. If planted at the latter period, the plants are likely to suffer a good deal during the winter months, and if not actually killed will lose all their foliage, being then far from ornamental in aspect. Plants imported therefore in the autumn are best grown in a cold greenhouse, or where they will not be subject to frost, until the proper time for planting comes round.

The propagation of Hardy Bamboos is best effected by means of carefully dividing the rootstocks about April or May, and then replanting with equal care.

The plants generally grown as Hardy Bamboos come under such genera as *Arundinaria*, *Bambusa*, and *Phyllostachys*. As space, however, will not permit a detailed description of the several species worth growing the reader is recommended to obtain from the nurseryman, any of the following kinds which have been arranged according to their usual heights. This will enable one to choose dwarf plants for grouping in front, and the taller ones for the back.

Dwarf Bamboos, 1 to 5 feet high.—*Arundinaria auricoma*, *chrysantha*, *Fortunei*, *humilis*, *Laydekeri*, *Nagashima*, *pumila*,

pygmaea; *Bambusa angustifolia*, *disticha*, *quadrangularis*, *tessellata*; and *Phyllostachys ruscifolia*.

Medium Bamboos, 5 to 10 feet high.—*Arundinaria anceps*, *aristata*, *falcata*, *Hindsii*, *macrosperma*, *nitida*, *palmata*; *Phyllostachys Castillonis*, *flexuosa*, and *Henonis*.

Tall Bamboos, 10 to 25 feet high.—*Arundinaria Falconeri*, *japonica*, *nobilis*, *racemosa*, *Simoni*; *Phyllostachys aurea*, *fastuosa*, *marliacea*, *mitis*, *nigra*, *nigra-punctata*, *Quillioi*, *sulphurea*, *violascens*, *viridi-glaucescens*.

Berberidopsis corallina.—A handsome Chilean shrub of climbing habit, with oblong heart-shaped spiny leaves, and drooping clusters of crimson blossoms from the end of the young shoots. In the mildest parts of the kingdom this plant makes an ornamental covering for walls. It will flourish in ordinary good garden soil, and may be increased by layering the shoots in the autumn, or by cuttings with a heel of the old wood inserted in cold frames and protected from frost.

Berberis.—There are about 100 different species and a host of varieties of Barberry known, and amongst them are to be found some of the most attractive shrubs of the garden. They are remarkable not only for the masses of golden or yellow blossoms produced with great profusion on the young shoots of one season's growth, but in many cases for their charming clusters of bright scarlet or purple berried fruits, and for the brilliant autumnal tints of their foliage. Some species are deciduous, while others are evergreen, but in nearly all cases the leaves have spiny teeth.

Although the Barberries will grow well in ordinary soil, and some in very poor soil indeed, nevertheless it is only in good rich soil that luxuriance of foliage, abundance of blossom, and depth of colour can be secured. By planting in bold masses, either in beds by themselves, in the shrubbery, or along the carriage drive, they shed a unique glow over the garden in the spring time. Most of them are easily raised from seeds sown in shallow drills in autumn when cleansed from the juicy pulp. The stems may also be layered, and cuttings of the ripened shoots with a heel of the old wood may be inserted about the end of October. Some species like *B. Aquifolium*, produce suckers freely, and these may also be detached for the purposes of increase.

But little pruning is necessary beyond cutting out the old wood

here and there, so as to encourage new sturdy flowering growths from the base.

B. Aquifolium.—A beautiful Holly-leaved Barberry, 3 to 6 feet high, native of N. America, and well-known under the name of *Mahonia*. It has pinnate rather spiny-toothed leaves, in which there is however great variation in shape and size, according to the richness or otherwise of the soil. Often they assume beautiful tints in autumn and in spring, while the masses of deep purple fruits succeeding the yellow flowers not only add a further attraction, but are also useful for converting into an agreeable acidulous preserve. *B. repens* is a dwarf form of *Aquifolium*.

B. Darwini.—A charming Chilian shrub, 6 to 12 feet high, of dense evergreen growth with small oval or oblong spiny teeth, and masses of orange-yellow flowers in April and May.

B. empetrifolia.—Also a Chilian evergreen, about 2 feet high, with narrow pointed leaves.

B. japonica.—A distinct Barberry from China and Japan, with yellowish-green pinnate leaves composed of large spiny leaflets, and lemon-yellow flowers, produced in early spring. The forms called *Beali* and *intermedia* are seedlings. They all require to be grown in warm sheltered spots.

B. nepalensis.—A beautiful evergreen Barberry from Nepal. It grows 4 to 10 feet high, and has pinnate leaves with spiny leaflets, somewhat resembling those of *B. japonica*, but narrower and with a blue-green "bloom" upon them. The yellow flowers are borne in erect spikes at the end of the shoots.

B. stenophylla.—A very handsome hybrid Barberry, raised from *B. Darwini* and *B. empetrifolia*, and intermediate between them in the shape of the leaves, and the general dense habit. From February to April and May the slender arching branches are wreathed in a profusion of bright yellow blossoms drooping from the axils of the narrow pointed leaves.

B. Thunbergi.—A deciduous Japanese shrub of spreading habit, with spiny stems and clusters of spoon-shaped leaves which turn a beautiful scarlet in autumn. The yellow flowers with reddish sepals appear in April, and are succeeded in autumn by oblong scarlet berries.

B. vulgaris.—This is the common British Barberry or Berberry. It grows from 4 to 12 feet high, and has oblong roundish spiny

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toothed leaves. The yellow blossoms, produced in spring, are in due course followed by oblong orange-red berries in autumn, as shown in Plate II., fig. 4. There are many varieties, all more or less handsome, and some of them like *fructu nigro*, shown on Plate IX., fig. 27, have blackish-purple fruits, while others like *asperma* have brilliant red fruits. On the same plate, fig. 26, is shown a scarlet fruited form, called *foliis purpureis*, also remarkable for the purple-red colouring of its leaves. A delightful hedge may be formed with British Barberry, for it is magnificent with its pendant racemes of flowers in early summer, and no less charming when these are succeeded by the red berries.

Besides the above species, there are several others to be met with, but chiefly in botanic gardens. Among them may be mentioned *aristata*, *buxifolia*, *congestiflora*, *Fortunei*, *Lycium*, and *Wallichiana*.

Betula.—The Birches, although not remarkable for the showiness of their blossoms, are amongst the most graceful and ornamental of our trees and shrubs, and appeal to one's artistic taste in either the leafy or leafless state. They grow naturally near lakes, ponds, streams, &c., but will also flourish in good soil, away from these moist situations. Besides the normal forms, there are the "weeping" varieties, the twiggy branches of which droop gracefully towards the ground. Perhaps there is no Birch to compete in beauty with our own native White or Silver Birch (*B. alba*), which has also been called the "Lady of the Woods." It is ever graceful, with drooping branches and silvery bark, which it sheds in winter by degrees, only to have it replaced by new instalments. Besides the weeping forms, of which *pendula* and *Youngi* are the best, there is a cut-leaved form, called *laciniata*, a variegated one, and several others. The Silver Birch has the distinction of growing nearer the North Pole than any other tree.

Bignonia capreolata.—A very ornamental N. American climber, the leaves of which are composed of a pair of heart-shaped oblong leaflets, and branched tendrils. The large bell-shaped flowers appear from May to August, and are orange-yellow in colour, but reddish purple in the variety *atrosanguinea*. Although there are about 100 Bignonias, this is the only one that can be regarded as hardy in the milder parts of the British Islands. It flourishes in well-drained loamy soil, and when trained against

a south or west wall is very effective. It may be increased by layering, or by cuttings of the half ripened shoots under glass.

Bryanthus *empetriformis*.—A pretty Heath-like evergreen native of N. America. The shoots are about 6 inches high, having narrow leaves, and bearing clusters of reddish-purple bell-shaped flowers at the ends. It is a good plant for the rock garden and should be grown in peaty soil. Increased by seeds, layers, and cuttings.

Buddleia.—About 70 species of trees or shrubs belong to this genus, but only those mentioned here have any chance of flowering in the open air in the British Islands.

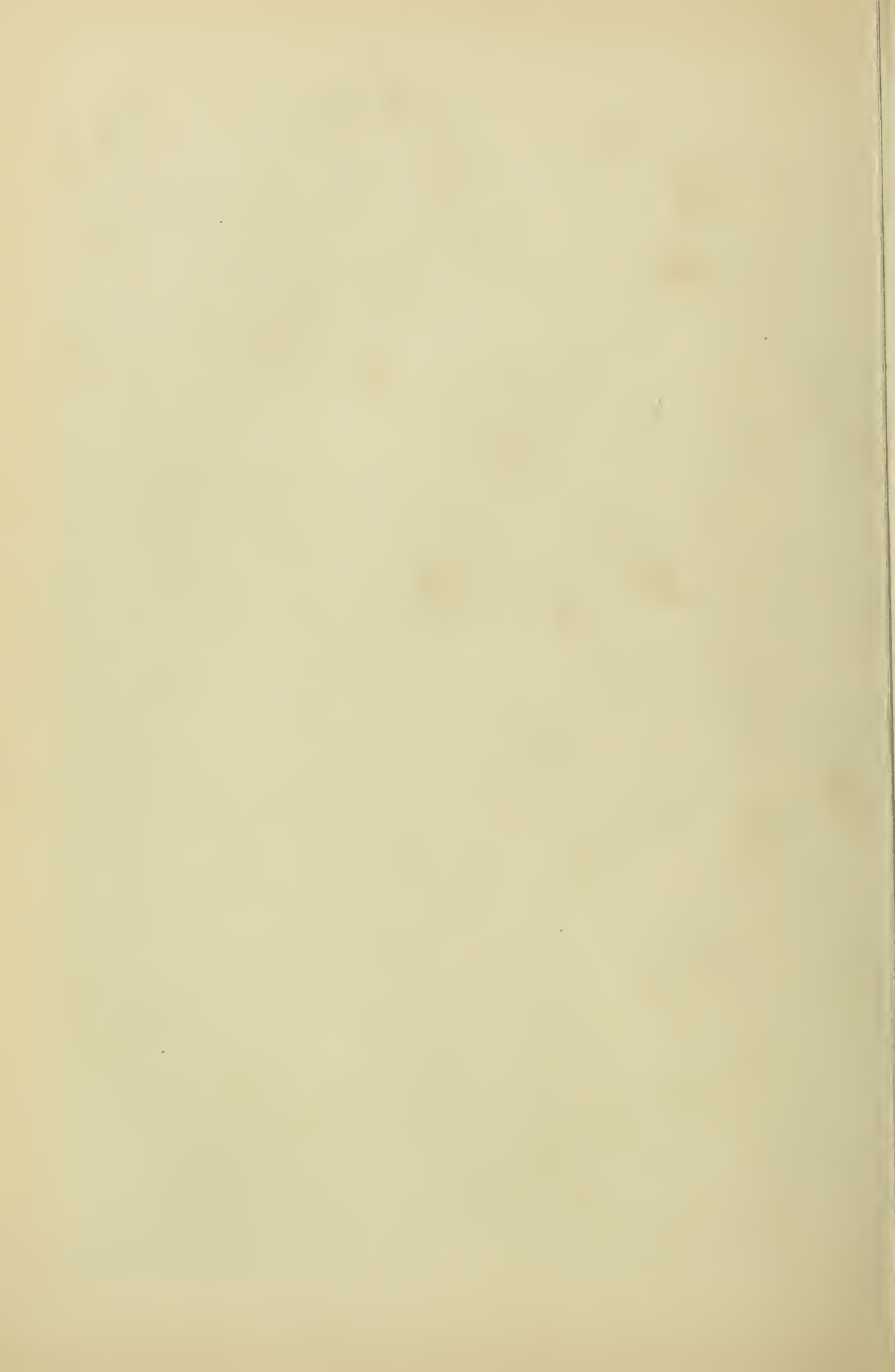
B. Colvillei is a charming Himalayan shrub, 6 to 8 feet high, with narrow lance-shaped toothed leaves, and beautiful deep rose bell-shaped flowers each about an inch across. They appear in June and July near the end of the shoots. Unfortunately this species will only blossom out of doors in the very mildest parts. The same may be said of *B. crispa* with lilac flowers, and *B. lindleyana* with purple-red ones.

B. globosa is fairly well known as the "Orange Ball Tree," on account of the bright golden yellow balls of blossom which it produces freely about May and June. It is a distinct looking Chilean plant, and grows from 12 to 20 feet high, with 4-angled stems and lance-shaped crenate leaves. It flourishes in ordinary good garden soil, and it is only in the severest winters that it is likely to be killed down to the ground by frost. It may be increased from seeds, or by inserting cuttings of the ripened shoots with a heel of the old wood in sandy soil, about the end of October, and protecting them from winter frosts.

The Japanese *B. japonica* with lilac flowers, and *B. variabilis*, a native of China, remarkable for its woolly appearance and long racemes of sweet-scented lavender or rosy purple flowers, may be grown in the same way as *B. globosa*.

Buxus *sempervirens*.—This is the well-known British Box-Tree, famous for the hardness of its wood, and its ornamental shining green appearance. It has always been a favourite evergreen in English gardens, either as a hedge or shrubbery plant, and in the small state for edgings to garden paths. In rich soil, and in an open sunny position the Box grows freely, and assumes a luxuriance of growth not attainable under adverse conditions,





such as in the deep shade of trees, or muddled up in the shrubbery. It stands clipping very well, and for this reason is perhaps the most mutilated shrub grown for commercial purposes. So long as the taste exists for what is called "topiary" work, so long will plants like the Box be cut into all kinds of queer shapes to satisfy the demand. There are many forms of Box, differing chiefly in the shape of the leaves, some being broader, narrower, or differently coloured from the ordinary type. Such names as *argentea*, *aurea*, *marginata*, *myrtifolia*, *rosmarinifolia*, *angustifolia*, *rotundifolia*, &c., convey the chief characteristics of these forms. The Box may be readily increased by stripping ripened shoots from the older stems, and inserting them in sandy soil about the end of October, either in cold frames or in a sheltered position in the open air. The branches may be layered and suckers from the base may be also utilised for increasing the stock. The variety *suffruticosa*, so much used as an edging plant, may be increased by division.

B. balearica, a native of Minorca, is a handsome shrub with yellow-green elliptic leathery leaves, about 2 inches long. It will grow well in the mildest parts of the kingdom, but requires protection in less favoured spots.

Cæsalpinia japonica.—A prickly Japanese tree, with elegant twice pinnate leaves of a soft green hue, and bright yellow flowers with pinky anthers. This species has proved fairly hardy, and may be increased by layering.

Calluna vulgaris.—This is the Heather or common Ling, and is a well-known plant on our heaths, moors, and woods. There are many pretty forms of it, varying from 1 to 3 feet high, and also in the colour of the bell-shaped flowers which vary from white (as in the forms called *alba*, *Hammondi*, *minor*, and *pilosa*) to rosy-pink and crimson, as in *Alporti*. There are also silver and golden-leaved varieties, and one called *flore pleno*, with double rosy flowers. For furnishing the sides of banks, knolls, and undulating ground generally, or for massing in front of Rhododendrons, Azaleas, &c., in peaty soil, the Heather is a most useful and charming plant. Increased by seeds and cuttings.

Calycanthus floridus.—This is the Carolina Allspice. It grows from 4 to 8 feet high, and is remarkable for the camphor-like scent of its broken stems and roots, and the apple-like

fragrance of its dull purple blossoms which appear in May. It flourishes in a mixture of peat and loam, and may be increased by layers or cuttings of the ripened shoots in a cold frame. There are several forms differing in the shape of the leaves, and also a variegated one. Other species are *glaucus*, *lævigatus*, and *oblongifolius*, the latter being the "sweet-scented shrub" of California. It has brick-red sweet-scented flowers, and requires to be grown in warm sheltered localities.

Camellia japonica.—This lovely Japanese tree has been in cultivation since 1739, when it was introduced by Lord Petre. It grows about 20 feet high, and is easily recognised by its handsome shining green leaves, with sharply-toothed margins, and by its bright red flowers. There are many lovely double varieties of it, but it is astonishing how rarely one sees them grown in gardens. When planted in rich loamy and peaty soil, in a partially shaded situation, and protected from cold winds, the plants flourish in the open air. They may be increased by seeds, layers, or cuttings.

Caragana.—There are several species of trees and shrubs, with pinnate leaves and yellow or orange flowers in this genus, and "although not of the highest merit from a decorative point of view, nevertheless they may be given a place in large gardens on account of their rather graceful habit, their perfect hardiness, and the fact that most of them will flourish in almost any poor soil." The species best known are *arborescens*, *aurantiaca*, *chamlogu*, *frutescens*, *jubata*, *microphylla* or *altgana*, and *pygmæa*. Increased by seeds, or grafting on Laburnum, or *C. arborescens*.

Carpenteria californica.—This handsome flowering shrub from California grows 6 to 10 feet high, and has broadly lance-shaped leaves 2 to 3 inches long. The pure white flowers are 2 to 3 inches across, and with the numerous stamens in the centre somewhat resemble those of the Japanese Anemone. There has been an almost fully double-flowered variety recorded by Mr. Gumbleton, of Cork. Unfortunately, this shrub can only be grown with any degree of success in the very mildest parts of the kingdom. It may be increased by seeds, layers, suckers, and cuttings of the ripened shoots.

Carpinus Betulus.—The Hornbeam is a distinct-looking tree, 30 to 70 feet high, more often used for hedges perhaps than for

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any ornamental qualities it possesses. The "thinnings" out from young plantations mostly find their way into the kitchen garden for staking peas, &c. There are several varieties, however, such as *aureo-variegata*, *incisa*, *quercifolia*, and *variegata*, that might be more generally used.

Carya.—The Hickories, all of which are natives of N. America, belong to this genus. They are deciduous ornamental trees, 30 to 70 feet high, somewhat resembling the walnut in appearance and having large fruits which split into four regular valves. They are easily raised from seed, and, owing to their elegant appearance and autumn colouring, deserve to be more extensively grown in large parks and gardens. The principal kinds are the Shell Bark Hickory (*C. alba*); the Bitter Nut, or Swamp Hickory (*C. amara*); the Pecan Nut (*C. olivæformis*); the Pig Nut, or Brown Hickory (*C. porcina*); and the Mocker Nut, or White Heart Hickory (*C. tomentosa*).

Cassandra *calyculata*.—A dwarf shrub, 1 to 3 feet high, native of the Virginian swamps, having elliptic oblong leaves and racemes of pure white flowers tinged with pink, produced from February to April. It flourishes in moist sandy peat and loam and may be increased by seeds and layers.

Cassia.—Of the 400 species belonging to this genus only a few are of any value for open air gardening in the British Islands, *C. corymbosa* is probably the hardiest kind. It is a native of Buenos Ayres, grows 6 to 15 feet high, and may be trained with advantage on walls in the mildest parts of the kingdom. In such places it often produces its large bright yellow flowers profusely from August to November, and even December in mild seasons. It likes a mixture of sandy peat and loam, and may be increased by seeds or cuttings of the half-ripened shoots under glass.

Cassinia *fulvida* (*Diplopappus chrysophyllus*).—This distinct looking New Zealand shrub grows 2 to 4 feet high, and is popularly known as the "Golden Heath," owing to its slender branches, and the narrow deep green leaves being of a golden-yellow colour on the under surface. It should be planted in bold groups for effect, especially in July and August, when the small yellow flower-heads give the plants a deeper golden glow. It grows freely in ordinary garden soil, but relishes a mixture of moist sandy peat. It may be increased from cuttings of the ripened side shoots in early autumn, or from seeds.

Cassiope.—This genus contains several species of evergreen Heath-like bushes, often with 4-angled stems, narrow leaves and bell-shaped flowers. They flourish in moist sandy peat, and may be increased by layering in early autumn. They should be grown in sheltered spots in the rock garden, and appreciate a mulching of manure or litter in the winter. The species best known are the following, all with white flowers: *fastigiata*, from the Himalayas; *hypnoides*, from Lapland and N. America; and *tetragona*, also from Lapland.

Castanea sativa.—This is the well-known Sweet or Spanish Chestnut. It is a native of Asia Minor, and forms an ornamental park tree, 50 to 70 feet high, with large shining green, sharply-toothed leaves. It is particularly attractive when laden with its long yellowish catkins. There are several forms, of which the most noted are *aureo-marginata*, the leaves of which are beautifully variegated with yellow. Closely related to the Sweet Chestnut is *Castanopsis chrysophylla*, from N.W. America, the ovate lance-shaped leaves of which are deep green above, and bronzy-yellow beneath. The Sweet Chestnut may be increased from seeds, or the choicer varieties may be budded or grafted on the common form.

Catalpa bignonioides (*C. syringæfolia*).—This is a fine ornamental tree, native of N. America, where it is called the Indian Bean. It grows 20 to 40 feet high in the British Islands in warm and sheltered localities, and is probably one of the most beautiful flowering trees, suitable for large lawns and parks. Quite apart from the trusses of tubular bell-shaped flowers which are produced in July, the ovate heart-shaped leaves, often 6 to 10 inches long, and 5 to 7 inches across, constitute an attractive feature, owing to their size and peculiar shade of soft green. As may be seen from Plate XXV., fig. 69, the blossoms are white, sometimes tinged with violet, and usually streaked and speckled with yellow and purple—some flowers more so than others in the same truss. There is a charming golden-yellow leaved variety called *aurea*. A fine but rather tender Chinese species is *C. Bungei*, which grows 8 to 10 feet high, and has large greenish-yellow flowers with red spots. *C. Kæmpferi*, from Japan, is a handsome tree with heart-shaped leaves, and rather small sweet-scented clear yellow flowers, spotted with purple brown. *C. speciosa* (or *C.*

cordifolia) is another fine tree, resembling *C. bignonioides* in appearance, and like that species also native of N. America. It has, however, larger flowers, and blooms earlier. *C. hybrida* is a cross between *C. speciosa* (or *cordifolia*) and *C. Kämpferi*, and resembles the latter in appearance, although the flowers are more like those of *C. bignonioides*. Catalpas flourish in rich loamy soil, and may be increased by seeds, layers, budding or grafting.

Ceanothus azureus.—A charming Mexican shrub, 3 to 10 feet high, with oblong sharply-toothed leaves, and long dense trusses of pale blue flowers. There are many varieties of this species, but the most beautiful is probably that known as *Gloire de Versailles*, the flowers of which are shown on Plate XXXII., fig. 85. This shrub makes a beautiful show, and seen against a wall in full bloom it has the appearance of a blue mist. It grows to a height of 10 feet, and practically flowers throughout the summer, commencing in May and June. There are others of this genus, but none are of such a pleasing blue as the one mentioned, and none are so hardy, except perhaps *C. americanus*, the New Jersey Tea, which has clusters of white flowers from June to September. *C. Veitchianus*, deserves attention on account of its bright blue flowers which are borne in dense clusters.

Except in the mildest parts of the kingdom, the Ceanothuses are more satisfactory when grown against a wall for protection. In this way they are an ornament in winter, as well as summer. They flourish in any ordinary good garden soil, and may be increased from seeds, cuttings, or layers. As the young shoots carry the blossoms, the older wood should be cut out every year or so after the flowering period is over.

Celastrus scandens.—A distinct N. American climber, popularly called the "Climbing Waxwork" or Bitter Sweet. It grows 12 to 15 feet high, has ovate-serrate leaves, and trusses of pale yellow flowers in summer at the end of the shoots, followed by bright orange-yellow berries in autumn. *C. articulatus*, from Japan, is an equally effective climber. Increased by seeds or layers.

Cerasus.—There are many lovely flowering trees and shrubs popularly known as Cherries and Laurels belonging to this group, and although difficult to separate them botanically from the Plums (*Prunus*), nevertheless they are distinct enough in appearance to

be kept apart from a gardening point of view. Some of them lose their leaves in winter while others are evergreen, but they are all handsome. Indeed, in the spring time, few trees and shrubs attract so much attention and admiration when in blossom. In some species, like the Bird Cherry (*C. Padus*), the flowers are borne on the young shoots only, but in others, they spring not only from the young wood, but also from that three, four, and even five years of age. It is important to remember this whenever it becomes necessary to thin out or prune the trees. Careful observation will enable one to distinguish the roundish, plump flower buds from the comparatively slender ones which will only produce leafy twigs. In any case, the strong young wood should be retained as far as possible, because, although perhaps not ripe enough to flower one year, is almost sure to reach that state the following year. Old, bare pieces of stem, especially those crowding the centre, are therefore the ones to be cut out chiefly. Most of the Cherries can be raised from seeds, but the choicer and rarer varieties may be budded or grafted on common cherry stocks.

C. acida.—A beautiful dwarf European Cherry with deep glossy green leaves, and clusters of white flowers produced on last year's wood. There is a variety called *dumosa*, and a double-flowered one called *flore pleno*.

C. avium.—This is the Wild Cherry or Gean of Britain. It grows 20 to 30 feet high, and has white flowers in clusters from the two year old stems, followed by black fruits. There are several varieties, amongst them being one with pure double white flowers called *multiplex*.

C. vulgaris.—The common wild British Cherry, 15 to 20 feet high, with pure white flowers in May. There are many beautiful varieties, the best of which is the double-flowered one (*flore pleno*) and *persiciflora*, double white, tinged with rose. The All Saints or Weeping Cherry is a variety (*semperflorens*) with a drooping habit.

C. chamæcerasus.—This is the European Ground Cherry. It is a spreading bush rarely exceeding 10 feet in height. The clusters of white flowers are produced in great abundance in May, and are succeeded by reddish-purple fruits. There is a drooping variety (*pendula*), and also one with variegated leaves.

C. japonica.—A charming Chinese Cherry (also known as



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Prunus chinensis). It grows little more than a yard high, and has pink and white blossoms. There is a pretty double-flowered form, of which a picture is given on Plate XVI., fig. 49.

C. Laurocerasus.—This is the well-known common or Cherry Laurel, so often jumbled up and ill-treated in small suburban gardens. It is a native of the Levant, and grows from 6 to 10 feet or more high, and produces its erect racemes of white flowers in April and May. There are many forms, such as *angustifolia*, narrow leaved; *caucasica*, a very hardy large-leaved variety, known as the “Spanish Laurel”; *colchica*, with spreading habit; and *rotundifolia*, with roundish leaves. The great beauty of the Cherry Laurels lies in the masses of glossy green leaves. When grown in rich soil and in warm sheltered positions the plants grow very luxuriantly. They may be increased by layering or inserting cuttings with a heel of the old wood in cold frames in autumn.

C. Mahaleb.—A sweet-scented Cherry from Central and S. Europe, with clusters of white flowers in April and May, as depicted on Plate XVI., fig. 48. It is much used as a stock for budding or grafting the choicer varieties.

C. lusitanica (The Portugal Laurel).—A hardy Portuguese tree, 10 to 20 feet high, with dark evergreen foliage and drooping racemes of white flowers in June. The variety *myrtifolia* has smaller myrtle-like leaves; while *azorica* has larger ones than the type. Increased like *C. Laurocerasus*.

C. Padus (Bird Cherry).—This is a handsome British tree, 10 to 30 feet high, with elliptic sharply-toothed leaves. The pure white flowers, as shown on Plate XVI., fig. 50, are produced in May in great profusion on long drooping racemes on the young branches. There are several varieties, but the double-flowered one (*flore pleno*) is best from a garden standpoint.

C. pendula.—A charming Japanese Cherry of drooping habit, and a profusion of soft rose or white flowers in March and April.

C. Pseudocerasus.—A beautiful Cherry, 6 to 20 feet high, native of China and Japan. The white or rosy-white flowers, each about 2 inches across, are freely produced in April and May. There are several double-flowered varieties, all superior to the type, and amongst them the best are *flore pleno*, white, becoming flushed with pink; *Watereri* and *James H. Veitch*, the latter with rosy-pink blossoms.

C. serrulata.—A handsome Chinese Cherry, 10 to 15 feet high with sharply-toothed leaves, and clusters of pale white or rosy double flowers, produced in April in clusters on the wood from two to five years of age.

There are many other species, all more or less handsome and free flowering, but the above may be regarded as the best. In a small state, 2 to 3 feet high, many varieties are grown in pots, and easily forced into early blossom for conservatory decoration.

Chimonanthus fragrans.—In the early part of the year, in sheltered gardens or on a wall facing south, the Winter Sweet, or Japanese Allspice, as this beautiful shrub is called, is one of the most charming plants one could wish to have. Its sweet-smelling flowers are yellow, and at first sight might be taken for the yellow Jasmine. Frost injures the blossoms, but often there is a mild period just at flowering time, which extends from mid-December to February and March, and then all can enjoy the fragrance and brightness of this Japanese shrub. The variety *grandiflora* has larger flowers than the type, but is not quite so fragrant. This species likes rich turfy loam, and should be trained on a wall like a Peach or Nectarine. As the flowers appear on the young wood, the older shoots may be cut out each year as soon as the blossoms have faded. Increased by layering.

Chionanthus.—Two species—*C. retusus* and *C. virginicus*—are fairly well known in gardens. The first named is a Chinese shrub, 5 to 6 feet high, with long stalked obovate leaves, woolly beneath, and white sweet-scented flowers in May. The other, *C. virginicus*, is an ornamental N. American shrub, 10 to 12 feet high. It is popularly known as “Fringe Tree,” owing to the narrow fringe-like petals of the white flowers which hang from the branches in June and July, and are succeeded by purple drupes.

Both species flourish in warm sheltered spots in well-drained loamy soil, to which plenty of well-decayed manure, or a little peat has been added. Increased by layering; by cuttings of the ripened shoots with a heel of the old wood attached in autumn; or by grafting on stocks of the Common Ash, to which they are related.

Choisya ternata.—This charming evergreen shrub grows 4 to 10 feet high, and is a native of Mexico. It has glossy green

three-parted leaves, and during the summer months freely produces its pure white sweet-scented flowers on the young shoots. They look very much like orange blossoms, and are indeed closely related. In the milder parts of the kingdom, the *Choisya* makes a beautiful bush, but in other parts it is trained against a wall for protection. It likes a rich soil, and may be increased by autumn cuttings under glass, and by layering.

Cistus.—There are about twenty distinct kinds of shrubs—commonly called “Gum Cistus” or “Rock Roses”—belonging to this genus, but it is only in the mildest parts of the British Islands that they really come to perfection in the open air. They are frequently trained upon the walls, and thus reach a greater height than when grown as bushes. They like a rich sandy loam, and may be increased from seeds, layers, and cuttings. The latter, taken off with a heel of the old wood, may be inserted in cold frames in sandy soil about the end of October.

Although the individual flowers do not last very long—only a day or so—they nevertheless appear so quickly one after the other that the plants always appear to be in bloom during the season—from May to July and August.

It is unnecessary to give detailed descriptions of the different kinds which are all natives of the Mediterranean regions, but the following may be recommended as the best: *C. cyprius*, flowers white with a dark purple blotch at the base of the petals; *C. ladaniferus*, flowers white, about 3 inches across; the variety *maculatus* has deep blood red blotches. *C. laurifolius* flowers white, yellow blotched, shown on Plate XXX., fig. 81; *C. populi-folius*, white; *C. purpureus*, reddish purple, with deeper blotches; and *C. villosus*, reddish purple.

Cladrastis tinctoria (*Virgilea lutea*).—This is the N. American “Yellow wood.” It grows 20 to 30 feet high, has smooth pinnate leaves, and racemes of white pea-like flowers drooping from the ends of the branches in May. Another species—*C. amurensis*—is an ornamental shrub, 6 to 8 feet high, native of the Amoor Valley. It has greenish-white flowers in erect racemes, and may be increased by seeds or root-cuttings.

Clematis (*Traveller's Joy*).—Some of the most showy garden climbers belong to this genus, the chief characteristics of which have been rendered familiar to most people by means of the well-

known native species, *C. Vitalba*—popularly called the Traveller's Joy, or the "Old Man's Beard." The latter name refers to the long feathered or hoary-looking tails which ornament the fruits in autumn. The garden varieties which have been raised in such large quantities since 1862 have practically placed all the natural or wild species in the shade, owing to the quickness of their growth, their ornamental foliage, and their beautiful blossoms. Strictly speaking, the Clematis has no petals. The beautifully coloured parts usually called flowers are really the "sepals"—organs which are usually green in most plants, but which have assumed the appearance and functions of petals in the Clematis. Perhaps the best-known Clematis in cultivation is *C. Jackmanni*, a hybrid between *C. Viticella*—the Vine Bower of S. Europe and S. W. Asia—and *C. lanuginosa*, a native of China. It was raised by Mr. Jackman, of Woking, in 1862, and since then many fine forms have been evolved by careful selection. *C. Jackmanni* itself has intense violet-purple flowers, but there are also pure white flowered forms, and others with varying shades of purple, violet, and ruby red or wine purple, to which distinctive names have been given. Other species have been taken in hand by the hybridist, among them the crimson or scarlet flowered *C. coccinea* from Texas. By crossing this with the garden varieties such fine forms as the *Duchess of Albany*, shown on Plate XXVII., fig. 77, have been produced. There are many garden forms raised from *C. lanuginosa*, *C. florida*, and *C. patens*, some of which have charming double flowers as well as single ones with several coloured segments. On Plate XXVIII., two fine garden forms called *lilacina floribunda* (fig. 75) and *Impératrice Eugénie* (fig. 76) are shown; but there are many others equally beautiful.

Speaking generally, Clematis are not difficult to grow, but they often become untidy owing to neglect. They all flourish in a rich loamy soil, and few plants, except perhaps Roses, can equal them for covering arbours, pillars, trellises, walls, &c. The chief difficulty for the amateur seems to lie in the pruning of the plants. Some of them, like *Jackmanni*, flower freely on the young shoots produced each year. The stems of these may therefore be cut down almost to the ground at the beginning of the year before the new shoots begin to grow. Other kinds, chiefly belonging to the *florida*, *patens*, and *lanuginosa* groups, flower from the older wood,

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and these should therefore only have the dead stems cut away, and the others shortened back a little, so as to encourage flowering shoots from the base upwards. With this little attention, and a good dressing of well decomposed manure spread over the roots in the early part of the year, Clematises as a rule flower freely, and will continue in good health for many years.

The best, or rather the safest, time to plant Clematises is in spring, when the severe frosts are over. As most of the garden varieties are grafted on roots of the wild *C. Vitalba*, it is essential to have the point of union between the stock and graft buried an inch or two beneath the soil, otherwise the plants may prove unsatisfactory and perhaps die. Plants may be raised from cuttings of the ripened shoots in spring in close cases, or from seeds sown in cold frames when thoroughly ripe in autumn.

Most of the Clematis are woody climbers, with opposite leaves, the stalks of which have the power of twisting themselves round any support, and thus, as it were, pulling the plant upwards towards the air and light. The following are a few of the best natural species for growing in the garden:—*C. alpina* (*Atragene alpina*), with violet blue flowers in May or June; *C. Flammula*, a strong growing climber with smooth pinnate leaves, and sweet-scented creamy-white flowers, from May to September and October, followed by white feathery fruits; *C. florida* with large creamy-white flowers from April to September; *C. heracleafolia*, with tubular purple blue flowers like a Hyacinth; this is a dwarf grower suitable for the rockery; *C. lanuginosa*, flowers 6 to 8 inches or more across, pale lavender, pure white or deep purple; *C. montana*, a fine species for covering walls; flowers in April and May, creamy-white, borne in great profusion, shown on Plate XXXI., fig. 83; *C. patens*, with delicate mauvy flowers in May and June; *C. Viorna*, the Leather Flower of N. America, with balloon-shaped reddish-purple flowers drooping from the stems in June; *C. Vitalba*, the native "Traveller's Joy" of our hedges and thickets, with greenish-white, scented flowers; and *C. viticella*, with drooping blue, purple, or rose-coloured flowers.

Clerodendron foetidum (*C. Bungei*).—This ornamental Chinese shrub grows about 5 feet high, and is easily recognised by its large downy heart-shaped leaves, which emit a peculiarly fetid odour when bruised. The lilac rosy flowers appear in August in

dense clusters at the ends of the shoots. In severe winters these are cut down to the ground, but new ones spring up quickly the following spring. *C. trichotomum* is another handsome shrub or small tree, 6 to 20 feet high, with large heart-shaped leaves, and masses of white and red fragrant flowers about August and September, followed by deep purple berries. See Plate IX., fig. 24. Increased by root cuttings in bottom heat about January, or by layering.

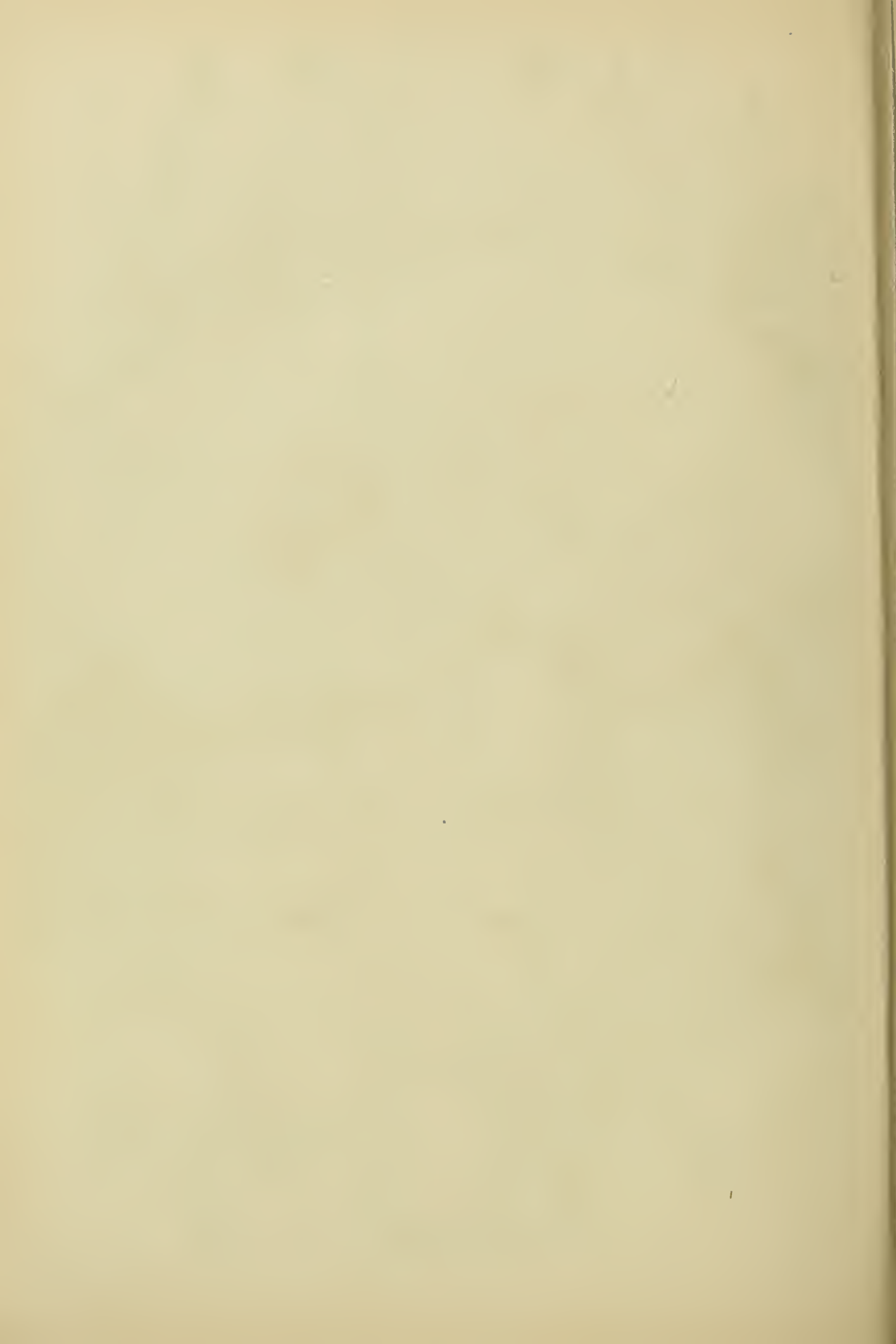
Clethra.—Although there are about 25 species of trees and shrubs in this genus, only a few are hardy or ornamental enough to be worth growing in the open air in our climate. *C. alnifolia*, from the United States, grows 3 to 6 feet high. It has coarsely toothed wedge-shaped leaves, and produces its hoary trusses of white flowers from July to September. *C. arborea*, from Madeira, grows 8 to 10 feet high, and flowers from August to October. It is, however, rather tender, and will only succeed in the mildest parts of the kingdom. They may be grown in a mixture of sandy loam and peat in the warmest and most sheltered localities, and can be raised from seeds, layers, and cuttings of the ripened shoots with a heel of the old wood.

Clianthus puniceus.—A remarkable New Zealand shrub, commonly called the "Parrot Flower." It has silky pinnate leaves and large scarlet pea-like flowers in May and June. In the variety *magnificus*, the flowers are larger and more highly coloured. This plant can only be grown satisfactorily on a wall in the mildest parts of the kingdom. It likes a rich and well-drained loamy soil, and may be raised from seeds, or by grafting on seedling stocks of *Colutea arborescens*.

Colutea arborescens.—This is the Bladder Senna of S. Europe, and is said to grow on the crater of Vesuvius. It grows quickly to a height of about 10 feet, and has pinnate leaves and yellow pea-like flowers from June to August. These are shown on Plate IX., fig. 25, as are also the red-tinted bladder-like pods which follow them. This species flourishes in ordinary garden soil, and looks effective when planted in bold masses. Increased from seeds or cuttings of the ripened shoots in a cold frame in autumn.

Cordyline.—Three species belonging to this genus, namely, *C. australis*, *C. Banksi*, and *C. indivisa*, all natives of New Zealand, may be grown successfully in the open air in the very mildest





part of the kingdom. They are graceful Palm-like plants, often with stems running up to 30 or 40 feet, and surmounted by a cluster of gracefully arching or more or less erect sword-like leaves. Under favourable conditions, as in the Scilly Islands, dense masses of small white sweet-scented flowers are produced. Small plants up to 6 feet high are ornamental adjuncts to the lawn. Increased by seeds sown in gentle heat, and by offsets from the base.

Coriaria myrtifolia.—A handsome S. European shrub, 3 to 6 feet high, with blue-green myrtle-like leaves, and small greenish flowers, produced in summer, and followed by poisonous berries. Although there are a few other species known, this is the only one worthy of notice. It grows in ordinary garden soil, and may be increased by layers or suckers.

Cornus (Cornel; Dogwood).—The Cornels are ornamental shrubs, remarkable for the colouring of their stems, and the beauty of their foliage and flowers—or rather the large, leafy, coloured bracts, commonly called flowers. They should be grown in bold masses on the lawn or in the shrubbery, and some of the dwarfer varieties make good edging plants. They nearly all flourish in good loamy soil, and are benefited by a dressing of well-decomposed manure in early winter, this being the best time to apply it if bulbous plants like Crocuses, Scillas, Snowdrops, or Winter Aconites are planted between them to produce a bright effect in spring. They may be increased by seeds, by cuttings of the ripened shoots in autumn in cold frames, or by layering. Amongst the best known Dogwoods, mention may be made of the following:—

C. alba.—This is a native of the N. temperate regions, and grows about 10 feet high. It has slender reddish stems, which look particularly cheerful in winter, and creamy-white flowers, succeeded by white fruits. The variety *Spæthi*, a small shrub about three feet in height, is one of the most ornamental and brightest of the Cornels. Its foliage is of a beautiful golden colour, and either by itself or in combination with other shrubs, it forms a striking and cheerful note of colour during the winter and early spring months.

C. capitata (*Benthamia fragifera*).—This is well-known as the “Strawberry Tree,” owing to the large clear red strawberry-like

fruits which succeed the dense clusters of large white flowers that are produced from June to October. It must not, however, be confused with the other Strawberry Tree described under *Arbutus* at p. 59. Unfortunately *C. capitata* is only hardy in the mildest parts of the kingdom. It is a native of N. India and China, but reaches a height of 40 feet in Devonshire and Cornwall, and the S. of Ireland, and in these parts it often fruits freely.

C. florida.—This beautiful tree grows 20 to 30 feet high in the United States, its native home. It has ovate pointed leaves, and in April and May it produces its greenish-yellow flowers, the large white bracts of which, however, form the chief attraction. This species requires warm and well-sheltered situations.

C. Kousa.—A beautiful Japanese shrub, 3 to 8 feet high, with ovate lance-shaped leaves. The clusters of small yellowish flowers are surrounded with large and conspicuous white bracts, and appear in May and June.

C. Mas. (*C. mascula*).—This free-flowering Austrian shrub is popularly called the Cornelian Cherry, owing to the bright red, yellow, or violet cherry-like fruits that are borne by old and well-established plants in favourable situations. It grows 10 to 15 feet high, has oval-pointed leaves, and from February to April, freely produces its conspicuous clusters of small yellow flowers, while the branches are still in a leafless state. There is a beautiful form with silvery variegated leaves and scarlet fruits, and a few others to which distinct names have been given.

C. sanguinea.—This is the Common Dogwood or Dogberry of Britain. It is a handsome shrub, 6 to 8 feet high, with deep red coloured stems, and ovate oblong leaves. The creamy-white flowers are borne in clusters at the end of the shoots in June and July, and are succeeded by small black berries. There are several forms.

C. stolonifera, the Red Osier Dogwood, has trailing or underground stems, the young shoots of which are bright reddish purple.

Corokia *Cotoneaster*.—A distinct and pretty evergreen shrub from New Zealand. It is remarkable for the curious interlacing of its twiggy stems, small greyish leaves, and yellow blossoms.

Corylopsis *spicata*.—A pretty Japanese shrub, 3 to 4 feet high, closely related to the Witch Hazels. It has sharp-pointed heart-shaped leaves with toothed margins, and about February produces



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its drooping racemes of pale yellow, sweet-scented flowers, from the leafless stems. Other species, not quite so hardy are *himalayana*, with yellow or white flowers in March; and *pauciflora* from Japan, which resembles *spicata* in habit, but blooms in March and April. They all like rich loamy soil, and warm sheltered situations, and when planted in bold groups, are very effective, early flowering shrubs. Increased by layering.

Corylus avellana.—This is the well-known Hazel or Filbert Nut tree indigenous to Britain. Certain varieties of it are valuable for massing in groups or shrubberies on account of their ornamental foliage. Amongst these may be mentioned the Purple Hazel (*purpurea*), which has large shining purple leaves; *aurea*, with golden leaves; *heterophylla* or *laciniata*, with deeply-cut leaves; and *pendula*, a weeping variety of graceful appearance when drooping from the top of a tall stem.

Other Hazels not so well known, are the Constantinople Hazel, from Turkey, which grows about 60 feet high; and *C. maxima*, from S. Europe, the bright purple-leaved variety, of which (*atropurpurea*) is best for decorative purposes. All the Hazels flourish in rich and rather heavy loamy soil, and may be increased by layers, seeds, and often by cuttings of the ripened shoots with a heel of the old wood inserted about 6 inches deep in the soil in early autumn. The Cob, Filbert, and Barcelona nuts of commerce are all varieties of Hazel.

Cotoneaster.—This genus contains about 20 species of ornamental shrubs, some of which are evergreen, and some deciduous. They are nearly all natives of N. India, being chiefly found in the Himalayas, Nepaul, and the Khasia Hills. While many of them grow to a height of 10 to 20 feet high, others like *horizontalis*, *microphylla*, and *thymifolia*, are quite dwarf, compact, and almost prostrate in habit, and are particularly useful for rock-gardens, or for covering irregular masses of stonework. The evergreen kinds, like *burifolia*, *microphylla*, *pannosa*, *rotundifolia*, and *thymifolia*, besides producing a wealth of white Hawthorn-like blossoms from April to June, are also valuable for the shining deep green and ornamental aspect of their closely-arranged leaves. The deciduous species, which also bear white or pinky-white flowers, are by no means unornamental in a leafless state, as there are many beautiful shades of brown, red, and purple amongst their

stems in winter. All the species—both evergreen and deciduous—have one ornamental character in common, and that is the glowing red or crimson of their numerous berry-like fruits during the winter months. What looks more cheerful, for instance, when the snow is lying thick on the ground, or a hard frost is prevailing, than to see the small-leaved *C. microphylla* snugly trained against the walls of a house, perhaps to a height of 8 or 10 feet, or *C. horizontalis* sunning its red fruits, as shown in Plate XI., fig. 34, on the horizontally spreading branches. Another species (*C. rotundifolia*), the fruits of which are also shown on Plate XI., fig. 31, is likewise remarkable for the cheerful effect it produces in winter. Amongst the deciduous species not already mentioned, perhaps the most noteworthy are *acuminata*, *affinis*, *bacillaris*, *frigida*, *Nummularia*, *integerrima*, *Simonsi*, the latter species being frequently used as a stock upon which the others are grafted. Most of the kinds mentioned flourish in ordinary good garden soil, and may be easily raised from seeds sown when ripe; from cuttings with a heel of the old wood in autumn; and also by layering any that cannot be readily propagated by other means.

Cratægus.—There are about 70 species of ornamental trees and shrubs belonging to this genus, of which the most familiar is the common Hawthorn or Whitehorn of Britain, (*C. oxyacantha*), and its varieties the single and double red-flowered and white-flowered “May” trees, so popular in suburban and other gardens. Most of the species are easily recognised by the masses of beautiful white flowers which are borne profusely chiefly during May, and often into June. The bright crimson, scarlet, purple, and yellow fruits or “haws” are also a conspicuous feature in the autumn and winter, and many kinds owe their popularity almost entirely to their fruits. For instance, during the dull winter months, how cheery and bright the ordinary Firethorn, *Cratægus Pyracantha*, looks with its glowing red berries! Specimens of this are sometimes seen entirely covered with the fiery scarlet fruits. Birds are troublesome occasionally and it is quite worth while to cover a good specimen with netting to protect the berries from the marauders. It is often trained up the side of a wall or house, and will thus reach a height of 20 feet or more, but it may also be grown as a pyramidal tree in the open, and then nothing

looks so cheerful on the landscape, as its brilliant fruits, a cluster of which is shown on Plate IV., fig. 9. The variety *Laclandi* is even better than the type.

Other Hawthorns worth growing for their flowers and fruits are *C. Carrièrei*, a hybrid with large blossoms and scarlet fruits, as large as cherries; *C. coccinea*, from N. America has several varieties, all, however, with bright coral-red fruits; *C. mollis* is closely related to *C. coccinea*, but has downy leaves and larger flowers and fruits, the size and colour of which are shown on Plate VIII., fig. 22. The N. American Washington Thorn (*C. cordata*) flowers later than most of the others. The Cockspur Thorn (*C. Crus-Galli*), another N. American tree, is remarkable for its long spines, large white flowers, and bright scarlet fruits as shown on Plate VIII., fig. 23. There are several forms differing chiefly in foliage. The Glastonbury Thorn is a variety of the common Hawthorn, and is remarkable for being sometimes in flower at Christmas time. *C. pinnatifida* is a distinct Chinese Thorn, with large broadly oval leaves cut into long pointed lobes. It is an ornamental tree, with large white flowers and deep red pear-shaped fruits. The Tansy-leaved Thorn (*C. tanacetifolia*), from the Levant, has deeply-lobed leaves, white flowers, and greenish-yellow fruits. All the Thorns flourish in good garden soil, and when allowed plenty of space form handsome flowering trees. They require very little pruning, and may be increased from seeds. Many of the choice varieties, however, are grafted or budded on the Quince, or common Hawthorn.

Cytisus (Broom).—Many charming flowering shrubs belong to this genus, most of them being remarkable for their twig-like shoots, dense habit of growth, and pea-like blossoms. The latter are produced in great profusion, in many cases almost hiding the shoots upon which they are borne. When planted in bold groups in the shrubbery or on grass land, the Brooms are very attractive. They require but very little attention, and will flourish in ordinary garden soil, and as many of them are very hardy, they may be planted in bleak localities, and even in poor soil. New plants may be obtained by sowing seeds in autumn when ripe, or by cuttings with a heel of the old wood inserted in a sheltered border or under glass in early autumn. Very often the Brooms become leggy and far from ornamental, chiefly because the

older shoots are allowed to remain for several years. As the flowers are borne on the young shoots, it stands to reason that to keep up a good supply of these, the older stems should be cut out, so as to encourage new growths from the base of the plants.

Among the most beautiful Brooms the following deserve attention: the White Spanish Broom, *C. albus*, a native of S. Europe with few leaves, twiggy shoots, and a great profusion of white flowers in April and May; the variety *incarnatus* has wine-red blossoms. *C. Ardoini*, from the Maritime Alps, is a good dwarf rock plant, with prostrate stems, and bright yellow flowers in April and May. *C. biflorus*, a twiggy Hungarian bush, 3 to 5 feet high, produces its bright yellow flowers in May, and is a very variable plant. *C. nigricans* is another yellow-flowered species, with golden blossoms in June and July. *C. kewensis* is a beautiful hybrid between the white flowered *C. albus* and the yellow flowered *C. Ardoini*. It resembles the latter in having a prostrate habit, but has creamy-white flowers.

C. præcox is a charming hybrid between the yellow-flowered *C. purgans* and the white flowered *C. albus*. It commences to blossom earlier than the others, and its long twiggy shoots are wreathed in pale sulphur-yellow flowers up to June. It seeds freely, but the only way to keep it true, is by raising it from cuttings in early autumn. The Purple Broom (*C. purpureus*) is an attractive native of E. Europe. It is a wiry stemmed trailing shrub, with masses of purple flowers in May. Very often it is grafted on the Laburnum, and when grown as a pot plant may be gently forced into bloom as early as January and February. In a natural state it is effective in the rock garden, or for massing in beds by itself. The white flowered variety (*albus*), and the yellow flowered one (*ratibonensis*), are also handsome. The Common English Broom (*C. scoparius*) is a very beautiful shrub, 2 to 10 feet high, and when laden with its golden-yellow blossoms, from April to July, is particularly showy. There are several forms of it, among them being a sulphur-yellow one (*sulphureus*), and the one shown on Plate XXIV., fig. 67. This is called *Andreanus*, and is remarkable for the rich brownish-purple or crimson centre to the yellow flowers. It is largely grown as a pot plant and forced into early bloom, but in the open air it is most effective when boldly grouped.

Daboëcia polifolia.—This charming little evergreen shrub is



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a native of the Connaught bogs, and is popularly known as St. Dabeoc's Heath. It grows 1 to 2 feet high, has glossy green leaves with whitish under surface, and produces its drooping bell-shaped flowers from June to September. The ordinary crimson-purple form, and the white flowered one (*alba*) are shown on Plate VI., fig. 14, but there are others such as *bicolor* and *pygmaea*. When grown in bold masses in moist peaty soil in the rock garden or with Azaleas, Rhododendrons, Ericas, or Kalmias, this plant is very effective. It may be increased by layers, cuttings, or seeds.

Daphne Mezereum.—This British deciduous shrub, commonly known as the "Mezereon," is the best known member of a rather large genus. It grows 2 to 4 feet high, and is remarkable for the masses of sweet-scented pink or crimson flowers which clothe the leafless stems from February to April, and sometimes even in autumn. There are several forms, of which the best known is the white one, both single and double. The blossoms are succeeded in due course by red, yellow, or whitish berries, and in favourable spots the seeds from these will germinate beneath the parent plant. Other Daphnes of garden value are *D. Blagayana*, a beautiful alpine evergreen about a foot high, with fragrant white flowers in April, and *D. cneorum*, with bright pinkish purple blossoms. These two species are shown on Plate XXXII., figs. 87 and 88. Other kinds worthy of note are *alpina*, *altaica*, and *oleoides* with white flowers; *Dauphini*, reddish purple; *Genkwa*, a rather tender Japanese species with lilac flowers; *Laureola* and *pontica*, yellowish-green; and *petraea* with rosy blossoms.

Like many other shrubs the Daphnes look best in bold groups, either in the shrubbery or rock gardens. They flourish in ordinary garden soil, and may be increased by layers, cuttings, or seeds. Some of the choicer varieties may be grafted on stocks of the Common Mezereon.

Daphniphyllum glaucescens.—A handsome compact-growing shrub, 4 to 8 feet high, native of China and Japan. The male and female flowers are borne on separate plants, and are of no particular beauty, the plant being chiefly ornamental on account of its purple stalked Rhododendron-like leaves. The plants thrive in ordinary well-manured soil, and may be increased by layers or cuttings of the ripened shoots.

Decumaria barbara (*D. sarmentosa*).—An ornamental trailing

or climbing shrub from the S. United States. It has white sweet-scented blossoms in June, but requires to be grown in loamy soil against a warm wall to secure a good display of them. Increased by cuttings of the ripened shoots under glass.

Desfontainea spinosa.—A charming evergreen shrub, about 3 feet high, from the Andes of Chili and Peru. It is easily recognised by its shining green holly-like leaves, and the tubular scarlet flowers which droop from the axils of the leaves in summer, and are remarkable for the conspicuous margin of yellow to the corolla. A mixture of well-drained peat and loam suits the *Desfontainea*, which, however, is only really hardy in the mildest parts of the kingdom. Increased from cuttings of the ripened shoots under glass.

Deutzia.—There are several species of ornamental shrubs belonging to this genus. Most of them are natives of China, Japan, and N. India, and have pure white flowers which are produced in great profusion in the spring on the young shoots. The best known is probably the “The Pride of Rochester”—*D. crenata* (also called *D. Fortunei* and *D. scabra*)—which grows 6 to 8 feet high, and is covered with snowy-white blossom. There is, however, a pink-tinted variety, and also a double white one (*flore pleno*) worthy of notice. *D. corymbosa*, *D. discolor*, *D. gracilis*, and *D. setchuenensis*, are other charming white flowered kinds, as is also *D. Lemoinei*, a hybrid between *D. gracilis* and *D. parviflora*.

Deutzias flourish in light and rich loamy soil, and are very ornamental when grown in bold groups. Many of the kinds are grown as pot plants for conservatory decoration in winter. The plants should be pruned just after flowering. The old wood should be cut out and the shoots that have just bloomed should be shortened back to induce the development of new stems from the basal buds for next year’s flowering. Increased by layers and cuttings of the ripened shoots.

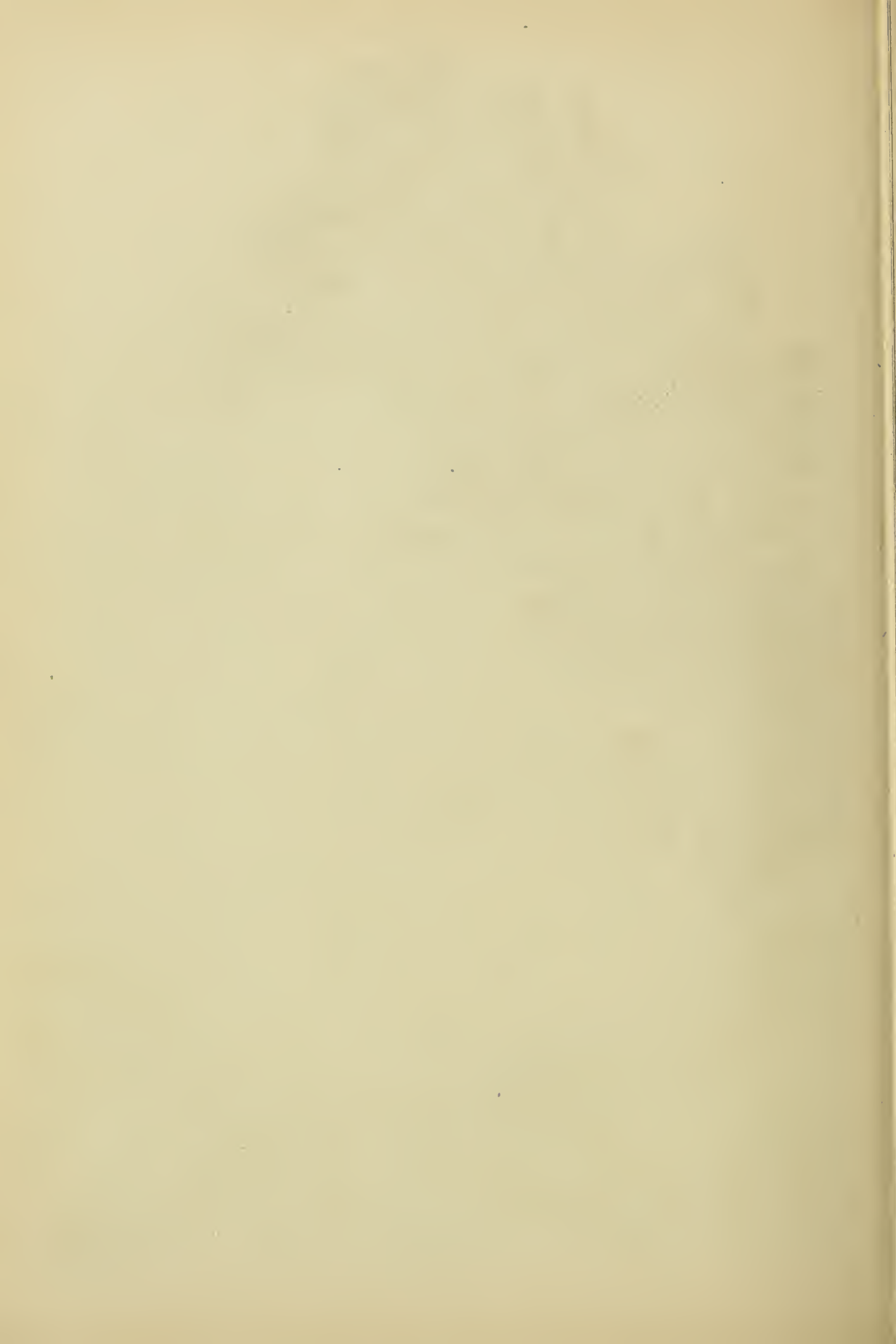
Diervilla.—This genus contains a group of deciduous shrubs or bushes, with ornamental foliage and beautiful bell-shaped blossoms, usually borne with great freedom on the young shoots of one season’s growth. On Plate XXIX. two forms are shown, namely, *D. florida*, fig. 79, with white rosy-tinted blossoms, and its variety *rosea*, fig. 80, with bright rose-coloured ones. These particular forms are still better known in many gardens under the



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old name of *Weigela*, and they are to be met with in all parts of the country, even in cottage gardens in some places.

There is a variegated form of *D. florida*, the leaves of which are mottled with green and gold. *D. amabilis* (or *grandiflora*) comes from China and Japan. It grows 8 to 10 feet high, and has rosy-pink flowers, although there are several garden forms varying in colour; *D. canadensis* (or *D. Lonicera*) and *D. sessilifolia*, from N. America, have yellow flowers; *D. hortensis* (or *D. japonica*), pink or white flowers; and *D. middendorffiana*, from Siberia, yellowish-white blossoms. Besides these there are many garden forms which are undoubtedly hybrids probably between *amabilis* and *florida*, and among the best of these should be noted *Abel Carrière*, with rich reddish-purple flowers, and *Eva Rathke*, with bright reddish-crimson ones.

The Diervillas flourish in ordinary good garden soil, and like a good mulching of well-decomposed manure every season. They are often neglected, and allowed to become straggling and leafless in the lower parts. To prevent this the old wood should always be cut out in winter, and the young shoots should be shortened back as soon as the flowers are over. When grown as bold groups on the grass or in the shrubbery they are very attractive. They are also ornamental when trained against a wall or fence much in the same way as Peaches and Nectarines in the kitchen garden. New plants may be secured from layers, or from cuttings of the ripened shoots, with a heel of the old wood, about the end of October, or from the half-ripened summer shoots under glass.

Elæagnus (Oleaster).—The plants belonging to this genus are small trees or shrubs, remarkable chiefly for their compact habit and the ornamental character of their foliage, rather than for their blossoms. These are inconspicuous, but sweetly-scented, and in due course are followed by drupe-like fruits which are attractive in autumn. The best-known kinds are *E. pungens*, a Japanese evergreen, with greyish-green leaves in the type. There are, however, forms in which the leaves are irregularly bordered or mottled, with pale yellow or creamy-white, and also one in which the variegation is down the centre instead of at the margin of the leaves. Similar variations occur in *E. glabra*, another Japanese shrub. The true Oleaster, *E. angustifolia*, is a native of the Mediterranean region, and is recognised by its shining greyish-

green leaves, the under surface of which is white. The sweet-scented tubular blossoms are followed by reddish fruits in autumn. The N. American Silver Berry (*E. argentea*) has wavy silvery leaves and yellow flowers; *E. longipes*, from China and Japan, is a deciduous shrub with reddish brown branches, silvery leaves, and orange red fruits in autumn; *E. macrophylla*, with large glossy green leaves, having a silvery reverse; and *E. umbellata* are also ornamental shrubs worth space in large gardens.

Closely related to *Elæagnus* is the Buffalo Berry (*Shepherdia argentea*) with narrow silvery leaves, yellowish white flowers, and scarlet fruits.

Embothrium coccineum.—This beautiful Andean shrub has been called the "Fire Bush," owing to the brilliant hue of its orange-scarlet blossoms which are borne in drooping racemes in May and early June from the young shoots. Unfortunately, it is only hardy in the mildest part of the kingdom. It often reaches a height of 20 feet in favourable situations, and flourishes in a sandy peat soil. The plants stand pruning well, and each year the older wood should be cut out to induce new flowering shoots to develop. Increased by cuttings of the ripened shoots under glass.

Empetrum nigrum (Crowberry).—A dwarf ornamental evergreen shrub, suitable for the rock garden. It is a native of Britain, and may be recognised by its heath-like appearance and pinkish-red flowers. The latter are succeeded by brownish-black berries. In the variety *rubrum*, however, the flowers are brownish-purple, and the berries red. The plants thrive in damp peaty soil, and may be increased by cuttings under a hand-light.

Enkianthus campanulatus.—This pretty creeping Japanese shrub is the best known member of the genus. It has elliptic sharply-toothed leaves, and drooping clusters of greenish-white flowers, sometimes tinged with red in June. *E. japonicus*, also from Japan, produces its drooping white flowers as early as February, and is remarkable for the beautiful golden orange tint of its foliage in autumn. *E. cernuus* and *E. himalaicus*, have reddish flowers. All the plants flourish in moist peaty soil, and may be grouped in large masses for effect. Increased by cuttings of the ripened shoots under glass.

Epigæa repens.—This pretty creeping evergreen is the, "Ground Laurel" of N. America. It has heart-shaped leaves

and from May to June its sweet-scented, white or pink-tinted blossoms are borne in dense erect clusters. The plant only grows a few inches high, and prefers shady places under trees and shrubs, and a moist peaty soil. Increased by cuttings, seeds, and layers.

Ercilla *volubilis* (*Bridgesia spicata*).—A handsome Chilean climber with heart-shaped leathery leaves, toothed on the margins. The reddish or purple flowers are produced in great profusion in March and April. It is a very useful plant for covering walls, but can only be regarded as perfectly hardy in the mildest parts of the kingdom, although it thrives fairly well in other places when given the shelter of a south wall.

Erica (Heath).—There are about 400 species of Heath known, some hardy, and some tender, but all beautiful evergreen shrubs, varying in height from only a few inches to several feet. The common British Heath has already been referred to under *Calluna vulgaris*. Its narrow needle-like leaves, and bell-shaped flowers may be taken as representing most of the other Heaths known, although there are of course many differences in such details as colour, shape of the corolla, &c. Two of the best known and most useful species are shown on Plate VI. *E. carnea*, fig. 15, is a compact-growing Heath, which produces its pale pink or reddish flowers in great profusion from January to April. Its white flowered form (*alba* or *herbacea*) is also pretty, but not so vigorous. *E. mediterranea* (or *hibernica*), fig. 16, is the Irish Heath, found in the boglands of Connaught, and also in Mediterranean regions. It grows 4 or 5 feet high, and during April and May its shoots are smothered with cylindrical bell-shaped blossoms, of a bright rosy pink colour. The variety *hybrida*, supposed to be a cross between *mediterranea* and *carnea*, often produces its bright pinky-purple blossoms from Christmas to April; and the variety *alba* has white flowers. *E. ciliaris*, called the Dorset Heath, is native of Dorset, Cornwall, and parts of Ireland, grows a foot or two high. It has ciliate leaves, and is laden with red or crimson flowers from June to September. The Scotch Heather (*E. cinerea*) flowers during the same season, and has many varieties, with blossoms varying from pure white to deep crimson and purple. A Peninsular Heath (*E. codonodes* or *lusitanica*), although liable to be cut down to the ground by a severe frost in bleak localities, is a charming species. It often attains a height of 10 feet in the milder parts

of the kingdom, and produces its white or pink tinted blossoms from January to March, and even in April and May, so that it is in evidence for nearly half the year.

The Cross-leaved Heath or Bell Heather (*E. Tetralix*) is a charming British and Irish plant with a grey-green appearance and leaves arranged cross-wise. The drooping rosy-pink flowers appear from July to September. There are several varieties, including *alba*, with white blossoms. The Cornish Heath (*E. vagans*), although found in parts of Ireland and S. France, seems to be confined in a wild state in England to Cornwall. It grows about 2 feet high, and has pink flowers with protruding anthers. There are white and red flowered varieties.

Escallonia.—Most of the species in this genus are natives of Chili and Peru, and as a rule are too tender for any except the mildest parts of the kingdom. As far north as the Thames Valley, however, some may be grown against walls in sheltered spots, and in more favourable localities beautiful flowering hedges can be made from them. The most useful kinds are *E. exoniensis* with white flowers. It is a hybrid between the red-flowered *rubra*, and the white-flowered *Philippiana*, both of which are worthy of cultivation. *E. langleyensis*, with rosy-purple flowers, is another hybrid between the crimson-flowered *macrantha* and *Philippiana*, and is likely to prove hardy in many localities. There are many other species similar in habit and flower to those mentioned. They will all flourish in good garden soil, and may be increased from seeds sown under glass, from layers, or from cuttings of the ripened shoots in autumn.

Eucalyptus *urnigera*.—This seems to be the only species of Australian Gum Tree out of about 100 that can be called perfectly hardy in the British Islands. It is a distinct looking tree, and has reached a height of over 75 feet in the gardens of the Prime Minister, Mr. A. J. Balfour, at Whittinghame, N.B. It seeds freely, and the young plants attain a height of nearly 40 feet in three years. For large parks and gardens this species might be more freely used. The Whittinghame variety seems to be the best and hardiest for our climate. *E. Gunnii*, the Cider Tree of Tasmania, is also a very hardy species, as is also *E. coccifera*, remarkable for its blue-green appearance.

Eucryphia *pinnatifolia*.—A beautiful Chilian shrub, 10 to 15

feet high, with dark green pinnate leaves and large pure white flowers, with four petals and numerous yellow stamens. It flourishes in warm sheltered spots in a mixture of loam and peat, and is more at home in the milder parts of the kingdom. *E. cordifolia*, with heart-shaped leaves and large white flowers, and *E. Billardieri*, var. *Milligani*, also with white flowers, are both more tender than *pinnatifolia*, but are worth a place in favoured spots. Increased by ripened cuttings in autumn under glass.

Euonymus.—About 40 species belong to this genus. Some are evergreen and are well-known in gardens either as large bushes or as small plants for edging borders, or even as pot plants for winter decoration. The ordinary shining green-leaved form is called *E. japonicus*, and is a native of Japan. There are now many varieties of it, some with the leaves broader, as in *latifolius*, some irregularly bordered with creamy-white or yellow. *E. radicans* is a distinct evergreen species from Japan. It is of a trailing or slow climbing habit, emitting roots from the branches in the same way as Ivy, and will in the course of time clamber up a wall to a height of 20 feet or more. The variegated form with green and silvery leaves is a capital plant for an edging, or for covering the bare ground beneath trees, and looks exceedingly pretty in spring if bluebells have been planted so as to appear through the variegated carpet. There are many lovely forms of this species in which tints of crimson and gold as well as silver appear on the foliage, and amongst these, perhaps *tricolor* is one of the hardiest and best known.

Amongst the deciduous species the common British Spindle Tree (*E. europæus*) is a great favourite. It has ovate, lance-shaped, finely-toothed leaves, which assume beautiful colour tints in autumn. The small greenish-white flowers appear in May, and are succeeded in autumn by the clusters of bright pink fruits, which, when bursting, display the orange-coloured aril within, as shown on Plate IV., fig. 10. There are also white and violet tinted varieties, and others with gold and silver variegation in the foliage. *E. americanus* is the Strawberry Bush of N. America, so-called on account of its scarlet fruits. *E. atropurpurens*, also from N. America, is known as the Burning Bush. It has small purple flowers and smooth scarlet fruits.

Nearly all the *Euonymus* are easily raised from cuttings of the

ripened shoots under glass in sandy soil. Some of the choicer varieties, however, are grafted on the green forms, while the creeping varieties like *radicans* may be divided.

Exochorda grandiflora.—This handsome Chinese shrub is commonly called the “Pearl Bush,” and grows 6 feet or more high. It is closely related to the Spiræas, and produces its racemes of large white flowers—like single Roses—in the axils of the oblong lanced-shaped leaves. A rich loamy soil and a warm situation suit it best. It looks effective planted in bold groups, and may be increased from seeds, layers, suckers, or cuttings. *E. Alberti*, from Persia, resembles *E. grandiflora*, but has larger and brighter green leaves, and smaller pure white flowers, having five more stamens in the centre.

Fabiana imbricata.—A graceful heathlike evergreen, belonging to the Potato family. It grows about 3 feet high, and is a native of Chili, and during May and June has a profusion of pure white funnel-shaped flowers. It flourishes in peaty soil, but can only be regarded as perfectly hardy in the mildest parts of the kingdom. It may be increased from cuttings of the ripened shoots under glass in spring.

Fagus sylvatica.—This is the well-known British Beech, an ornamental tree 60 to 100 feet high, with clean slaty-coloured trunks and shining green leaves. There are many handsome forms amongst which the Copper Beech (*cuprea*), and its relative the Purple Beech (*purpurea*), both with deep-coloured foliage, are perhaps the best known. There are also forms in which the leaves are variegated with white or yellow, besides others in which the leaves are more or less deeply cut or lobed, among these being *asplenifolia*, *incisa*, and *quercifolia*. The variety *macrophylla* has larger leaves than the type, while the “weeping” or drooping forms come under the head of *pendula*.

All the Beeches flourish in a rich loamy soil, and when given plenty of space, the coloured forms soon make handsome and symmetrical trees. The ordinary green-leaved form is easily raised from seeds, but the choicer varieties are grafted.

Fatsia japonica.—This ornamental evergreen shrub is a native of Japan, and is also well-known under the name of *Aralia Sieboldi*. Amongst the uninitiated it is also erroneously called the Castor Oil Plant—with the true form of which (*Ricinus*) it has

very little in common, except perhaps the shape of the leaves. Large specimens are developed in warm sheltered spots, and look very effective grouped on the grass, especially when laden with masses of ivory-white flowers in winter. There are forms variegated with gold and silver, but they are too tender for most parts in the open air. Increased from seeds sown under glass about April, or by cuttings of the tops. The Chinese Rice Paper Tree (*F. papyrifera*) is another handsome species, hardy enough in the mildest parts of the kingdom; and *F. horrida*, the stems of which and also the midrib of the leaves are covered with spines, is a remarkable plant from the Rocky Mountains and Japan.

Forsythia suspensa.—This is a graceful and ornamental shrub from China and Japan, remarkable for the profusion of bright yellow bell-shaped blossoms, (shown on Plate XIII., fig. 39) which it bears from February to April, on the young wood of one season's growth, and before the leaves have unfolded. It may be grown as a bush, but does equally well when trained on a wall. Young plants are often grown in pots for conservatory decoration in winter. *F. viridissima* is a somewhat similar species from Japan. It has simple lance-shaped leaves, and masses of yellow blossoms in March. *F. intermedia* is a hybrid between the two species named, and is intermediate in every respect.

The Forsythias flourish in loamy soil and in warm, open, sunny situations. Each year, directly after the flowers are over they should have the old wood cut out, and the young wood which has just finished blooming may be cut back more or less severely so as to start new shoots from the base for next season's blossom. On no account should the young shoots be cut during the winter months. About the end of October cuttings of the ripened shoots may be inserted in a warm, sheltered border or cold frame; or leafy shoots with a heel of the older wood may also be rooted under glass about July.

Fothergilla Gardeni (*F. alnifolia*).—A dwarf deciduous N. American shrub with crooked straggling branches, and ovate leaves covered with a silvery down beneath. The white, sweet-scented flowers appear in April and May in dense spikes at the end of the shoots, before the leaves appear. This shrub flourishes in a mixture of peat and loam, and may be trained on a south wall for protection. It is increased by layers, or seeds sown under glass.

Fraxinus excelsior (the Ash).—The ornamental appearance of the British Ash is so well known that it needs but little description. It grows from 30 to 80 feet high and has spreading pinnate leaves, and masses of greenish yellow flowers with purple-black stamens. There are many varieties, some being remarkable for the gold or silver variegation of the foliage, others for their “weeping” habit, and others again in which the leaves are more finely divided than usual, so as to give a fern-like appearance to the plant; and one variety called *monophylla* has usually only one instead of many leaflets. Another well-known species is the Flowering or Manna Ash (*F. Ornus*). It is a handsome tree, 20 to 30 feet high, from S. Europe, and resembles the Common Ash in appearance. The young branches, however, assume a purplish hue, and the chief characteristic lies in the dense clusters of whitish flowers which are borne in great profusion and droop from the branches in May and June. There are about 50 species of Ash altogether known and almost innumerable varieties, but for large parks and gardens those mentioned are the most valuable. They flourish in a rich loamy soil, and may be increased from seeds which are blown about in the oblong, winged fruits when ripe. The rarer and more choice varieties are grafted on stocks of the Common Ash, the weeping forms being generally “worked” on the top of tall stems.

Fremontia californica.—This handsome Californian shrub with brownish stems and heart-shaped lobed leaves can only be induced to produce its bright yellow blossoms on the young wood, in the mildest parts of the kingdom. It flourishes in sandy loam and may be increased by cuttings of the ripened shoots under glass.

Fuchsia (Lady’s Ear-Drops).—In the mildest parts of the kingdom there are several kinds of Fuchsia that may be regarded as perfectly hardy in the open air, and in such places may be trained against walls, utilised as ornamental hedges, or grown in bold groups on the grass. The most suitable kinds for outdoor cultivation are probably *F. macrostemma* (or *magellanica*) a Chilian shrub 6 to 12 feet high, with scarlet and purple flowers, two forms (*bicolor*, fig. 32, and *carnea*, fig. 33) of which are shown on Plate XI.; *F. coccinea*, also with scarlet flowers; *F. Riccartoni*, a hybrid with twiggy branches and deep red blossoms; *F. globosa* and *F. gracilis*, both from Mexico, and with red and purple

flowers. They all flourish in a warm loamy soil, and may be easily increased from cuttings under glass or even from seeds.

Garrya elliptica.—A handsome evergreen from N. America, is an excellent plant for covering a wall in many gardens, while in the South of England, and in other favoured localities, it forms quite a large shrub. Its pale green catkins are frequently 4 inches in length, and the quaintness of the plant, together with the contrasting green of the catkins, and that of the darker leaves, make it very attractive both as an evergreen wall plant and shrub. The male catkins are borne on a different plant from the female, and are of larger size, and both last from December until April.

Gaultheria.—Several charming and useful species of dwarf evergreen shrubs belong to this genus, and are remarkable not only for the cheerful appearance and density of their foliage, but also for their trusses of bell-shaped blossoms, and scarlet fruits. *G. procumbens*, from N. America, is one of the best kinds for growing under trees, or on banks or edgings to borders. It produces its white flowers in July and August, and afterwards its crimson-scarlet berries, which nestle amongst the bronzy-tinted foliage during the winter months, and look particularly cheerful. *G. Shallon*, also a native of N. America, grows 2 to 3 feet high, and flowers in May and June. The white blossoms tinted with red are succeeded by purple berries in autumn. Both of these plants flourish in shady places, as well as in open spots, but they like a moist peaty soil. Increased by seeds or layers.

Genista.—There are about 70 species of these Broom-like shrubs, most of them having yellow pea-like flowers, slender branches, and simple or three-parted leaves. They are chiefly ornamental when planted in bold groups on the grass or in the shrubby border, so that the numbers of blossom cannot fail to attract attention. Of the kinds most used for this purpose may be mentioned the Mount Etna Broom (*G. ætnensis*), a Sicilian shrub 10 to 15 feet high, with narrow silky leaves on the young twiggy shoots, and numerous bright yellow blossoms from June to August. Other good yellow flowered kinds are *G. hispanica*, *G. radiata*, *G. pilosa*, *G. sagittalis*, *G. tinctoria* and its double-flowered variety, and *G. virgata*, one of the handsomest and earliest to come into flower. A white-flowered species (*G. monosperma*) seems to

succeed only in the mildest parts of the kingdom. Most of the *Genistas* flourish in a rich loamy soil, and may be easily raised from seeds sown when ripe, or from slips of the ripened shoots in early autumn.

Gordonia pubescens.—A deciduous N. American shrub, with serrated green leaves, downy beneath, and large white sweet-scented flowers, each about 3 inches across, and having a bundle of golden stamens in the centre. *G. Lasianthus* is a somewhat similar Camellia-like shrub with larger white blossoms. Both kinds are only hardy in the warmest parts of the kingdom, and like a well-drained peaty soil to which a little loam and leaf-mould may be added. The plants are increased with some difficulty by layers and cuttings.

Griselinia littoralis and *G. lucida*, both natives of New Zealand, are evergreen shrubs chiefly remarkable for their leathery glossy-green leaves, but they can only be grown successfully in the open air in the mildest parts of the kingdom, and even then are apt to be cut down by severe frosts. Increased by layers and cuttings.

Gymnocladus canadensis.—This is the Kentucky Coffee Tree of N. America, where it grows 30 to 60 feet high. It is recognised by its large pinnate leaves, often 3 feet long, and elegant in appearance. It flourishes in a rich loamy soil, and may be increased by root cuttings.

Halesia tetraptera.—This ornamental tree, 20 to 30 feet high, is a native of N. America. It has ovate lance-shaped leaves with sharply toothed margins. During May its masses of pure white flowers droop in clusters of nine or more from the branches, and so much resemble Snowdrops in appearance, that the species is popularly known as the "Snowdrop Tree." The blossoms are followed by four-winged fruits. Other species not so well known, but all having white flowers, are *corymbosa* and *hispida* from Japan, and *parviflora* and *diptera* from N. America. They like a moist loamy and well-drained soil, and may be increased rather slowly by seeds or layers.

Halimodendron argenteum.—This pretty Siberian shrub is commonly known as the Salt Tree. It has pinnate silky leaves of a silvery whiteness, and produces its pinkish and purple pea-like flowers in drooping clusters, from May to July. It flourishes in a well-drained loamy soil, and may be increased from layers, cuttings,

or seeds. Standard forms are secured by grafting on tall stems of Laburnum or Caragana.

Hamamelis.—The four species of deciduous shrubs or bushes in this genus are popularly known as Witch Hazels. They are remarkable for their yellow blossoms, the petals of which are very narrow and twisted; and they are produced in such profusion during the winter months, when there is not a leaf upon the zig-zag branches, that they are thus rendered more conspicuous by the sombre surroundings. *H. arborea*, *H. japonica*, and its variety *Zuccariniana*, are all natives of Japan, and are usually covered with yellow blossom from January to March. *H. mollis* is a distinct Chinese species, having larger leaves than the others, and covered with a felt-like down on the under surface. The flowers appear in January and February, and are of a brighter yellow, and perhaps less twisted than in the other species. *H. virginica* is the oldest Witch Hazel in cultivation. It is a native of N. America, and flowers with great freedom from October to February. All the Witch Hazels flourish in a rich loamy soil, and should be planted in bold groups by themselves to be really effective. They require but little pruning out of the older wood and useless twigs, and may be increased by layers, seeds, or by grafting on seedling stocks of *H. virginica*.

Hedera Helix (Ivy).—Of the many evergreen climbers there is not one that can compare with the Common Ivy and its numerous varieties in popularity. For covering a wall or tree trunk, or for carpeting the ground beneath large trees under which nothing else will grow, some of the green-leaved Ivies are not to be surpassed. There are so many distinct forms of the Ivy, that many of them might be almost regarded as distinct species, so very distinct are they not only in the lobing of their leaves, but also in their habit. In some varieties like *digitata* (or *palmata*) and *caenwoodiana*, the leaves are very deeply divided, and there are all sorts of gradations in this respect until the large and almost simple-leaved forms are reached. In the matter of climbing, there is also a good deal of difference, some performing this operation much more rapidly than others by means of the aerial roots which issue from the stems and attach themselves firmly to mortar, bricks, or rough-barked trees. The Irish Ivy (*canariensis*) is a good climber, and may be used with the forms of it having gold or silver variegation on the

leaves. Many other varieties have forms with variegated foliage, and they are all more or less ornamental and useful. What are called Tree Ivies, now becoming so popular, are obtained by grafting the flowering shoots on common stocks. Choice forms are also increased in the same way under glass, as it is more convenient and more successful than by means of cuttings. Many forms of Ivy, however, present no difficulty whatever in propagating. The stems having aërial roots may be cut into lengths and pegged into light soil in a damp shady place, and they will soon root and throw out new shoots. The flowers of the Ivy are yellowish green and not particularly showy. In the commoner sorts they are succeeded by blackish berry-like fruits in clusters, but there are one or two forms like *chrysoarpa* (*baccifera lutea*) with yellow fruits that are distinctly attractive.

Hedysarum multijugum.—A Mongolian shrub 2 to 6 feet high with a rather loose habit, silky grey-green pinnate leaves and erect racemes of rosy purple or pinkish-red pea-like flowers in summer. When planted in bold groups in warm sunny positions it is very effective. Seeds ripen freely in the open air, and may be sown in cold frames when ripe. Cuttings of the half-ripened shoots will also root in sandy soil under glass.

Helianthemum vulgare.—This is the Common Rock Rose or Sun Rose of Britain. It has many beautiful varieties of a more or less trailing habit of growth that renders them useful for sunny places in the rock garden. The loose clusters of flowers appear from June to September and vary from bright yellow to deep rose. There are also double-flowered varieties, of which the one called *croceum flore pleno* is perhaps best known. Another beautiful Rock Rose is *H. formosum* from S. Europe. It grows about 4 feet high, and has hairy greyish leaves. The large yellow flowers are remarkable for having a blackish purple blotch at the base of the petals. There are several other Rock Roses besides those mentioned, but many of them are too tender for the open air except in the very mildest localities. They like a warm sandy loam, and may be increased from seeds; or cuttings inserted in sandy soil under glass.

Hibiscus syriacus (*Althæa frutex*).—A handsome deciduous Syrian shrub, 6 to 8 feet high, with three-lobed coarsely toothed leaves and purple flowers with a deep blotch at the base of the

petals. There are several garden forms of this malvaceous bush. The type is shown at fig. 17 on Plate VII., while the varieties *elegantissimus*, *violaceus variegatus*, and *violaceus flore pleno* are shown on the same plate at figs. 18, 19, and 20 respectively. Besides these there is a form with pure white flowers, and a deep blue one called *caelestis*. When grown in a rich loamy soil and in warm sheltered localities this plant is very ornamental when laden with blossom about September. It may be increased by seeds; or cuttings of the ripened shoots under glass.

Hippophaë *rhamnoides*.—This is the Sea Buckthorn found growing wild occasionally on the eastern sea-shores of England. It is a willow-like tree, 8 to 10 feet high, having narrow leaves with a greyish or silvery sheen. Like the Aucubas and Willows, the male and female flowers are borne on different plants. To secure an abundant crop of the bright orange red berries, it is therefore essential that the pollen from the flowers of the male plant should be easily transferable to the blossoms of the female tree. Perhaps the surest way to accomplish this fertilisation is by grafting a shoot of the pollen plant on to the berry-bearing one.

The Sea Buckthorn, although a valuable plant for seaside localities, grows remarkably well inland in rich damp soil near ponds, lakes, or rivers, and makes beautiful silvery-looking bushes wreathed with clusters of bright-looking berries during the winter months—from September and October onwards past Christmas. A glimpse of these is given on Plate V., fig. 12. Propagation is effected by sowing the seeds when ripe; by layers; and by cuttings of the shoots and roots.

Hydrangea.—This genus contains over 30 species of dwarf shrubs, some of which are deciduous and some evergreen. The best known evergreen species is *H. Hortensia*, a native of China, which forms a splendid compact bush about 5 feet high in the mildest parts of the kingdom. It has broadly ovate, toothed, and shining green leaves of great substance, and from spring to autumn produces large flattish clusters of white, rosy, pink, or bluish coloured bracts which are commonly called flowers. There are many fine varieties of this species, some of which bear not only the large bracts already mentioned, but also smaller perfect flowers, that is those having both stamens and pistil. In the variety *Mariesi*, the bracts are very large, about 3 inches across,

and of a lovely soft pinky blue; *Lindleyi* has white or blue bracts tinged with red; *Otaksa* is flesh coloured; *Thomas Hogg* pure white; *Coerulescens*, bright blue; and *stellata* has double "flowers" of pink, rose, or pale blue.

Among the deciduous species *H. paniculata* is probably the best known. It is a native of Japan, and in that favourable climate is said to reach a height of 25 feet, with a dense roundish head. In British gardens it is only a few feet high, and is remarkable for the immense erect trusses of white blossoms it produces in early autumn. To secure plenty of blossom on this plant each year, the shoots should be rather severely pruned during the winter months, and the soil should also receive a good top-dressing of well-decomposed manure. On Plate XXVI. two forms are shown, fig. 71, representing the variety *grandiflora*, and fig. 72, the ordinary form in an advanced stage, when it begins to turn colour.

Other Hydrangeas worthy of notice are *H. arborescens*, from N. America with rather small sweet-scented blossoms; *H. petiolaris*, a climbing Japanese species with white flowers in June, and *H. quercifolia* with lobed leaves and white flowers in July, changing to greenish purple.

Hymenanthera *crassifolia*.—This ornamental little shrub belongs to the same family as the Pansy and the Violet, and comes from New Zealand. It grows 3 or 4 feet high, and has small yellowish flowers in March. These are succeeded by pearly-white berries in clusters in the axils of the narrow spoon-shaped leaves. It is a pretty plant for warm sheltered spots in the rock garden, and flourishes in a mixture of sandy peat and loam. It may be increased by cuttings of the ripened shoots under glass.

Hypericum (St. John's Wort).—This genus contains about 160 species of deciduous or evergreen shrubs, with almost stalkless leaves, and usually bright golden yellow blossoms which are not unlike single Roses in appearance. Indeed one species (*H. calycinum*) is popularly known as the Rose of Sharon, and also as Aaron's Beard. It is a native of S.E. Europe, but is now found wild in parts of Britain. Its large yellow flowers are about 3 inches across, and look glorious among the oblong glossy green leaves in summer. The flowers of *H. Hookerianum*, and *H. Moserianum* are shown on Plate X., at figs. 28 and 29 respectively. The last-named

is a hybrid between the Rose of Sharon and a graceful Japanese species called *patulum*. There is a beautiful form of it called *tricolor*, the leaves of which are marbled with green, white, and red. For covering mounds, banks, or slopes, for making edgings to large shrubberies, or for massing in raised beds on the grass, nearly all the *Hypericums* are very useful. They flourish in any good and well-manured garden soil, and most of them are hardy enough not to need protection in ordinary winters. They may be increased from seeds or cuttings.

Idesia polycarpa.—This ornamental tree is a native of China and Japan, where it reaches a great size. It has large heart-shaped toothed leaves on bright red stalks, and drooping racemes of yellowish flowers succeeded by clusters of purple black berries on the female trees. This species can only be regarded as hardy in the mildest parts. It flourishes in rich loamy soil, and may be increased by cuttings of the ripened shoots under hand-lights. It should be pruned carefully every year.

Ilex aquifolium.—This is the well-known British and European Holly, readily recognised by its wavy shining green leathery leaves with spiny margins. The small white flowers which appear in spring in clusters in the axils of the leaves are by no means showy, but their presence is nearly always a forerunner of the masses of scarlet berry-like fruits that make the Holly one of the most cheerful-looking and attractive evergreens during the winter months. Apart from its berry-bearing character, the Holly is a decidedly ornamental tree when allowed plenty of space to develop. There are many varieties of it, all more or less attractive, and some of the golden and silver-leaved forms are extremely valuable, more for the colouring of their beautiful foliage than for the fruits. Either as solitary specimens on the grass, or when grouped in beds by themselves, they are effective at all seasons of the year. As a hedge plant, few evergreens can compete with the Common Holly. It stands clipping well, and in a comparatively short time makes a most useful barrier as well as a shelter from cold winds. Besides the scarlet fruited forms there are others having white, yellow, and also blackish fruits.

Most of the Hollies flourish in a rich loamy and well drained soil, and bear transplanting either early in autumn or late in spring. They seed freely, and colonies of young plants arise around the

old ones in neglected gardens. The choicer varieties of the green, gold, and silver-leaved classes are usually increased by grafting early in the year on young stocks of the common form under glass.

Besides the common Holly and its varieties there are a few other species of *Ilex* that may be found worth a place in large parks and gardens. Among these *I. cornuta* from China; *I. crenata* and *I. latifolia* from Japan; *I. dipyrrena* from the Himalayas; and *I. opaca* from the United States, are all more or less ornamental and striking in appearance.

Indigofera *Gerardiana*.—A charming Himalayan, shrub with graceful sprays of grey-green pinnate leaves, and erect racemes of pale red or rosy-purple pea-like blossoms during July and August. When trained against a south wall, or even when planted in bold groups on the grass, it is an attractive little shrub. Unfortunately it gets killed down to the ground by the winter frosts in bleak localities, and is therefore best in warm and sheltered localities. It likes a rich and well-manured loamy soil, and may be increased from seeds sown under glass, or by cuttings of the ripened shoots in sandy soil in a close frame. Another species, *I. decora*, a native of China and Japan, has reddish blossoms, and may be grown exactly in the same way.

Itea *virginica*.—A pretty deciduous shrub, 6 to 8 feet high, native of N. America. It has oblong minutely-toothed Willow-like leaves, and during June and July produces its sprays of small white Privet-like blossoms in great abundance. It flourishes in a mixture of peat, sandy loam, and leaf-soil, in partially shaded spots, and may be increased from seeds, layers, or cuttings.

Jamesia *americana*.—This handsome deciduous shrub is a native of the Rocky Mountains, and is closely related to the Mock Oranges (*Philadelphus*). It grows 3 or 4 feet high, and has lance-shaped toothed leaves with a whitish under-surface. The white flowers, each about $\frac{1}{2}$ inch across, appear in June and are borne in trusses at the end of the shoots. It is a good shrub for massing on the grass, and flourishes in well-drained loamy soil. It may be increased by seeds, or cuttings of the ripened shoots under glass.

Jasminum.—The Jasmines or Jessamines are graceful

climbing, trailing, or rambling shrubs belonging to the same natural family as the Lilac and the Ash. Almost everyone knows the beautiful Chinese Winter Jasmine (*J. nudiflorum*) that commences in December, and continues up to March and April, to clothe its leafless shoots with bright yellow blossoms, each of which is an inch across. Another yellow-flowered species that might be mistaken for the Winter Jasmine, is the European *J. fruticans*, except that it is almost an evergreen, and produces its blossoms during the summer months, usually from June to August; and these are succeeded by large blackish-purple fruits. From N. India comes *J. humile* or *revolutum*, with pinnate leathery leaves. It also has yellow blossoms in clusters at the ends of the shoots from May to October as shown on Plate XXIII., fig. 65. And quite recently a new species called *primulinum*, with large yellow flowers, has been introduced from China, but is probably only hardy in the mildest parts of the kingdom. Perhaps better known than any of the above is the Common White Jessamine (*J. officinale*). It is a beautiful, vigorous, and very hardy climber and is so frequently met with, that one would almost think it a native. It comes, however, from Persia and N.W. India, and may be recognised by its pinnate leaves and pure white, sweet-scented, blossoms which are freely borne from May to October, and are depicted on Plate XXIII., fig. 62.

All the Jasmines are most useful for clothing walls, arbours, pergolas, old tree stumps, &c., and will flourish in any good and well-manured soil. Indeed they often seem to thrive in the poorest soil and under the most adverse circumstances. Beyond keeping the young growths tied in here and there, they require but little pruning. And yet one often sees the winter Jasmine (*J. nudiflorum*) sheared in close to the wall about November and December. This treatment simply destroys the very shoots that are full of flower buds, hence the bare bleak aspect of the plant during the winter when thus mismanaged. The best time to cut this species is just after the flowers are over. The new shoots will then have a long period of growth, and come into blossom the following winter. Most of the hardy Jasmines may be increased from seeds, cuttings, or layers.

Juglans regia.—This is the common Walnut, a native of Western Asia, so well known, not only for its ornamental foliage,

but also for its valuable fruits. It grows 70 to 80 feet high and flourishes in any ordinary soil, but likes plenty of space for development. There are a few forms, of which *laciniata* is probably the most ornamental from a garden point of view. Other Walnuts worth a place in large parks and gardens are *J. nigra*, a N. American tree, 50 to 100 feet high; *J. cinerea*, the "Butter Nut" of N. America, 30 to 60 feet high; *J. mandschurica*, from Amurland, the pinnate leaves of which are over 30 inches long; and *J. Sieboldiana*, from Japan. All the Walnuts may be increased by seeds, or failing them, from layers.

Kalmia.—These are charming evergreen shrubs with more or less lance-shaped leathery leaves and clusters of broadly bell-shaped flowers, which are remarkable for having the stamens bent back so as to fit into tiny pits or depressions in the corolla tube. Amongst the best kinds are *K. angustifolia*, commonly known as the Canadian Sheep Laurel. It grows 2 to 3 feet high, and has clusters of crimson or purple flowers from May to July. There are several forms of it. *K. latifolia*, the Calico Bush of N. America is very similar, but has larger blossoms of soft pink, rose, or white at the end of the shoots, and set off by the bright green foliage. The variety *myrtifolia* is recognised by its smaller myrtle-like leaves. *K. glauca* is another Canadian species like *angustifolia*. It is, however, not quite so dense in habit, has glaucous or blue-green leaves, and lilac-purple blossoms as early as April.

The Kalmias flourish in semi-shaded places, and are most ornamental when massed in bold groups. They like a rich and moist peaty soil, to which a little loam or leaf mould may be added, but like their relatives, the Rhododendrons, they object to their roots coming in contact with lime. Each year the beds should receive a good top-dressing of well-decomposed manure. The plants may be increased from the minute seeds; by cuttings under glass; from layers; or by grafting.

Kerria japonica (Jew's Mallow).—A distinct-looking and handsome Rosaceous shrub, 3 to 4 feet or more high, and native of Japan. It has numerous orange-yellow flowers in early summer, and may be grown in groups as bushes, or trained against a wall or trellis. The double-flowered form (*flore pleno*) has been over 200 years in gardens, and is most popular on account of its orange-

yellow rosette-like blossoms. There is a variety in which the leaves have a silvery variegation, and also one with a golden variegation. The plants may be increased by layers; division of the rootstocks; or by cuttings in sandy soil under glass.

Kœlreuteria paniculata.—A handsome Chinese tree, 10 to 15 feet high, with deciduous pinnate leaves which assume beautiful tints of yellow, bronze, and purple in autumn. The irregular yellow flowers appear in summer in trusses at the end of the shoots, and are succeeded by conspicuous bladder-like fruits in favourable seasons. This plant likes a rich soil and a warm sheltered situation. It looks well when grown in bold groups, and may be increased by cuttings or layers.

Laburnum vulgare.—The common Laburnum is a native of Central and S. Europe, but is now perhaps one of the best-known flowering trees in British gardens. It is readily recognised by its three-parted downy leaves and golden-yellow pea-like flowers, which droop in trusses from the wood two or three years of age from April to June. There are several varieties to which distinct names have been given, but those having the longest trusses of blossom (like *Parkesi* and *Watereri*) are most esteemed. The Scotch Laburnum (*L. alpinum*) has larger flowers than the common one, and blossoms later in June. The Purple Laburnum (*L. Adami*) is a remarkable tree, 15 to 20 feet high, having both yellow and purple blossoms on the same branches. It is supposed to be a "graft hybrid" between the purple-flowered *Cytisus purpureus* and the Common Laburnum, raised by a French gardener named Jean Louis Adam, and the colour cells of the two plants became intermixed in some mysterious way that the plant has been a scientific puzzle ever since.

The Laburnums flourish in ordinary good garden soil, but to become really handsome they require rich loamy soil, and plenty of open space. They are often choked in the shade of shrubberies, or become lanky and wretched in out of the way holes and corners, or under larger trees. They are easily raised from seeds, but any choice variety with large flowers and long racemes are best perpetuated by grafting on stocks of the commoner kinds.

Lapageria rosea.—This is a charming shrubby climber from Patagonia, easily recognised by its ovate leathery green leaves, and large drooping bell-shaped flowers of a deep rosy red or pure

white. Although too tender for bleak northern localities it may be grown out of doors in the warmer parts of England, and a few degrees of frost do not injure it. It flourishes in a shady position and should have a mixture of fibrous peat and loam in which to grow. Although we are perhaps more accustomed to seeing it in a greenhouse, it really is a capital plant, if properly trained, on a wall out of doors, and may be had in bloom in such places as Cornwall at Christmas time.

Lardizabala bitermata.—A handsome quick-growing Chilean climber, with deep, glossy-green leaves, twice divided into three oblong acute leaflets. The purplish flowers appear in December and January in favoured spots. Although fairly hardy on a south wall near London, this climber assumes its natural beauty only in the mild parts of the south and west, where it will cover a wall 20 feet or more high. It likes sandy loam and peat, and may be increased from cuttings of the ripened shoots under glass.

Laurus nobilis.—This is the Victor's Laurel or Sweet Bay Tree that has been in British gardens for nearly 350 years. It is a native of S. Europe, where it attains a height of 30 to 60 feet, but in our climate it is only a small evergreen tree with oblong lance-shaped leaves, pleasantly scented and often used for flavouring. Its compact habit and sombre green foliage render it an ornamental object in many gardens. On the continent it is highly esteemed, and is extensively grown as a plant in large pots or tubs for the decoration of hotel porches, entrances, &c. The "Spice Bush," or "Benjamin Bush," of Virginia (*L. Benzoin*) grows 8 to 10 feet high, and has large oblong leaves. It is more suitable, perhaps, for the south and west, and may be grown in moist peaty soil. The Sassafras Tree (*L. Sassafras*) is a deciduous tree from N. America, where it attains a height of 40 to 50 feet. The leaves vary from entire to three-lobed and assume brilliant red, crimson, and yellow tints in autumn.

The species of Laurel described above all flourish in good garden soil, and may be increased from seeds when obtainable from the female plants, or by cuttings or layers.

Lavandula vera.—The common Lavender is a popular little shrub owing to the sweet fragrance of its blue, lilac, or whitish flowers, which are borne on long erect spikes during the summer months, and are as much appreciated in a dried state as when

fresh. There are several forms, some with narrow and some with broad leaves, but all are worth a place in a sunny spot in the garden. They flourish in a rich loamy soil, and may be increased by slips torn from the older stems inserted firmly in sandy soil in sheltered spots about August and September.

Ledum *latifolium* (Labrador Tea).—A pretty N. American shrub, about 3 feet high, with narrow evergreen leaves curled at the edges, and rusty coloured beneath. The small white or pinkish flowers appear in April and May in clusters at the end of the shoots. *L. palustre* is a native of the marshy lands of the N. Temperate Zone, and forms a compact bush about 2 feet high, with leaves and flowers similar to those of *latifolium*. There are many varieties of both species, but they may be distinguished by the fact that *L. palustre* has ten stamens and *L. latifolium* has only five. A more recently introduced species is *L. glandulosum*, from the Rocky Mountains, where it grows 2 to 6 feet high. It may be recognised by its ovate glossy-green leaves, with a dotted blue-green under-surface, devoid of the rusty down so noticeable in the other species. The pure white flowers appear in May and June, and have ten stamens.

A moist peaty soil or sandy loam, to which plenty of leaf mould or well-decomposed manure has been added, will suit the Ledums, which should be grown in bold masses in the border or rock garden. The plants may be increased by layers, or from the fine seeds carefully sown in peaty soil under glass.

Leiophyllum *buxifolium* (The Sand Myrtle) is an erect bushy evergreen from the mountains of Virginia. It is closely related to the Ledums, and may be grown under similar conditions. It has small smooth oval glossy-green leaves, and during May and June its white flowers tinted with pink are borne in clusters at the end of the shoots.

Leptospermum *lanigerum*.—This charming Australian shrub, 3 to 5 feet high, with silky haired Box-like leaves, and beautiful white starry flowers from July to September, is not grown so much as it ought to be in the open air. It is certainly hardy in the milder parts of the kingdom, and flourishes in a mixture of peaty loam and sand. *L. scoparium*, from New Zealand, is even hardier, and has not been injured by 12° of frost in the open air in some places. It grows 4 to 5 feet high, and is remarkable for the

fragrant odour given off from the ovate leaves when bruised between the hands. It has the further recommendation of producing its masses of reddish-lilac blossoms, each over half-an-inch across, during January and February. Both species may be increased from cuttings of the ripened shoots under glass.

Lespedeza bicolor.—A handsome shrub, 4 to 8 feet high, native of China and Japan with Laburnum-like leaves, and trusses of rosy purple pea-like blossoms in autumn. *L. Sieboldi* (*Desmodium penduliflorum*), also a native of China and Japan, is a somewhat similar shrub with hairy leaves, and rose, lilac-purple, or pure white flowers in long drooping trusses during the summer months. Except in the mildest parts of the kingdom, these shrubs are often cut down to the ground like *Indigofera Gerardiana* during the winter months, but new branches spring up each year to take the place of the old ones. They like a good sandy loam in warm situations, and may be increased by seeds and cuttings.

Leucothoë.—These are pretty deciduous or evergreen shrubs, closely related to Andromeda, and all natives of N. America. *L. Catesbæi*, *L. racemosa*, *L. recurva*, and others, all have white bell-shaped flowers borne in trusses at or near the end of the shoots, from May to July. They flourish in moist sandy peat, and leaf mould, and may be increased by seeds or layers.

Leycesteria formosa.—A beautiful Himalayan shrub—with hollow stems and ovate lance-shaped wavy leaves. The small white flowers are borne in circles on the arching racemes in summer, and issue from leafy bracts at the end of the shoots. The bracts are of a purplish or claret colour, and with the many-seeded purple berries nestling amongst the green foliage form the chief charm of the plant during the autumn months. Ordinary good and well-manured garden soil suits this plant, which is easily raised from seeds, or from cuttings under glass. It is very effective when grown in large groups in the border or on grass in the milder parts of the kingdom. It may also be trained on a wall in less favoured spots.

Ligustrum.—About 25 species of smooth-leaved bushes or shrubs belong to this genus, of which the common British Privet (*L. vulgare*) is undoubtedly the best known representative. Indeed it is too well-known in the opinion of some, as it seems to be the one and only shrub which the jobbing gardener or costermonger is

able to dispose of easily to the owners of small gardens. It is a pretty shrub when properly used for making a dense green hedge in the open air, and when kept in a neat well-clipped and tidy condition. It produces its trusses of white sweet-scented flowers freely from June to August, and in autumn is again attractive on account of its blackish purple berries, a cluster of which is shown on Plate III., fig. 7. There is also a yellow fruited variety (*xanthocarpum*), and a form with variegated leaves rarely seen. Next to the common Privet perhaps the Japanese Golden Privet (*L. ovalifolium aureum*) is best known. Of late years it has sprung into popular favour by leaps and bounds, and is extensively used for edgings, hedges, groups on the grass, shrubberies, &c. It is remarkable for the conspicuous and pleasing golden border to its ovate leaves when fully exposed to the sunshine. Other species of Privet having an ornamental aspect are *coriaceum*, 3 to 4 feet high, with roundish deep glossy green leathery leaves; *Ibota*, with slender branches and broadly ovate leaves; *japonicum*, a fine hedge plant, 6 to 8 feet high, with oblong ovate acute glossy green leaves; there is a large leaved and also a variegated form of it. These are all natives of Japan. *L. lucidum* is a handsome evergreen from China. It grows 8 to 12 feet high, and has large shining green leaves, which in some varieties are variegated with silver or gold.

All the Privets may be increased from cuttings of the half-ripened or wholly ripened shoots. The choicer varieties are grafted on stocks of the common Privet, and in this way standard forms of the Golden Privet and others can be readily produced.

Linnæa borealis.—This pretty trailing Scottish evergreen shrub grows only a few inches high. It has roundish leaves and bell-shaped pink flowers in pairs in June and July, and is an excellent plant for moist shady parts of the rockery or border. It likes peaty soil and may be increased by division or seeds.

Linum arboreum.—This charming evergreen shrub, known as the "Tree Flax," is a native of Greece. It grows 12 to 18 inches high and produces its bright yellow blossoms in early summer, as shown in Plate XXIX., fig. 78. It is often grown as a pot plant for the decoration of conservatories in February and March. It is hardy enough in the mildest parts of the kingdom, but requires protection in less favoured spots. It rarely produces seeds in cul-

tivation but may be increased by cuttings of the more or less ripened shoots in early autumn under glass.

Lippia citriodora.—This is popularly known as the Lemon or Sweet-scented Verbena, and is remarkable for the delicious fragrance emitted from its light green narrow oblong leaves, especially when gently drawn through the hand. It is a native of Chili, but as a rule only succeeds in the open air in the most favoured parts of the British Islands. It is easily increased by cuttings of the half-ripened shoots in sandy soil under glass.

Liquidambar.—The species best known are *L. orientalis* from Asia Minor, and *L. styraciflua*, the Sweet Gum of the United States. Both species somewhat resemble the Maples in the foliage, having palmately-lobed leaves of an ornamental appearance. The first-named grows 10 to 20 feet high, but *L. styraciflua* attains a height of 30 to 50 feet in a native state. They both flourish in moist loamy soil in warm sheltered spots, and may be increased by layers.

Liriodendron tulipifera.—This ornamental flowering tree is known as the "Tulip Tree" or Whitewood of the United States. It grows 80 to 100 feet high, and may be recognised by the roundish ovate three-lobed leaves, the central lobe of which appears to have been cut off transversely. It is a quick growing tree, but not till it reaches 20 or 30 years of age does it freely produce its large tulip-like soft green and yellow blossoms at the tips of the shoots about June or July. There are several forms known varying in the shape and colouring of the foliage. In large parks and gardens the Tulip Tree forms an attractive sight and flourishes in ordinary loamy soil. Increased by seeds or layers.

Loiseluria procumbens.—A trailing evergreen shrub, native of the Scottish mountains, and recognised by the flat patches of its narrow deep glossy green leaves and small bell-shaped pink flowers, which are borne at the tips of the shoots in May and June. A pretty plant for the rockery in peaty soil. Increased slowly from seeds, and also by layers.

Lonicera (Honeysuckle.)—These are a charming group of climbing or bushy shrubs, having opposite leaves and bell-shaped or tubular irregular flowers, often possessing an agreeable fragrance. The climbing kinds are highly valued for covering walls, arbours, porches, trellises, &c., but they are often allowed to get

into a wretchedly bare state owing to the lack of judicious pruning. Every year or two, during the winter months, the old and dead wood should be cut out, leaving the strong young branches for the production not only of blossoms, but also of new shoots from the base upwards. There are evergreen and deciduous kinds. Among the former one of the best known is *brachypoda* or *flexuosa* from Japan. It has ovate-oblong shining green leaves, and pale yellow or purplish sweet-scented flowers in June and July. Closely related is *aureo-reticulata*, so well known on account of its elliptic leaves, which are beautifully netted with yellow. *L. sempervirens* is another almost evergreen species, called the Trumpet Honeysuckle. It is a native of the United States and has rather ovate glaucous leaves, and clusters of beautiful scarlet and yellow flowers during the summer months. Amongst the deciduous Honeysuckles the common British *L. Periclymenum* of our hedgerows is a climber of very great beauty. It has ovate oblong glaucous leaves, and from June to September bears its red and yellow blossoms in great profusion, to be succeeded later on by crimson berries. The variety *serotina*, known as the late Dutch Honeysuckle, produces its deeper red flowers in autumn. The ordinary Dutch Honeysuckle (*belgica*), is a vigorous plant, while the Oak-leaved Honeysuckle (*quercifolia*), may be recognised by its sinuately-lobed leaves. *L. fragrantissima*, from China, may be regarded almost as an evergreen in mild winters, as it then retains its oblong ovate leaves. It is an excellent species with sweet-scented creamy white or pale yellow flowers in January and February. *L. Standishi*, also a Chinese species, is sometimes confused with *fragrantissima*. It differs, however, in being quite deciduous, and in having larger ovate oblong leaves, and pinkish or purplish white blossoms. *L. tatarica* from Siberia, with rose, white, and purple-flowered varieties; and *L. xylosteum* from N. Asia and Europe with yellow blossoms are two other Honeysuckles of value for their free-flowering properties in April, May, and June.

There are many other Honeysuckles—about 80 species altogether—but those mentioned will be found most generally useful and ornamental. They flourish in ordinary good loamy soil, and may be increased by cuttings in sandy soil under glass, or by seeds.

Lycium chinense (*L. barbarum*).—This rather pretty climbing

Chinese shrub is known as the "Box Thorn," and in some places as the "Duke of Argyll's Tea Plant." It is a quick grower, and its young arching shoots are covered with rosy purple-veined flowers from May to August, being followed by scarlet berries. The plant flourishes in any soil, and may be increased by cuttings or seeds. It is only worth a place in rough parts of large gardens. *L. pallidum* from New Mexico is not as well known. It grows about 4 feet high, and makes an ornamental bush, with large greenish flowers in May and June.

Magnolia (Lily Tree).—The genus *Magnolia* is a large one, although, perhaps, most people are acquainted with comparatively few species, and these certainly are among the most handsome. A considerable number have flowers before their leaves and quite as many produce their leaves first and flower later in the season. One of the best known is *M. stellata*, which commences to flower in March, and its star-like flowers, so well shown on Plate XVIII., fig. 53, are very sweetly scented. It grows to a height of 7 feet, and is adapted for small groups in the shrubbery, rock garden, or even by itself. The Yulan (*M. conspicua*), shown on Plate XVII., fig. 51, is a splendid species from China and Japan, where it has been cultivated for hundreds of years. As an individual specimen it forms a very striking object, although the beautiful white blossoms are often injured by frosts. It can, however, be grown as a wall plant, and with this protection would be much more secure from harm. *M. Soulangeana* is a hybrid between the last-named species and *M. obovata*, and has purple-tinted flowers, as shown on Plate XVII., fig. 52. Another very fine hybrid between *conspicua* and *obovata* is *Lenné*, the rich purple blossoms of which are shown on Plate XVIII., fig. 54.

M. grandiflora is a magnificent evergreen, with very glossy, dark green leaves, thick in texture, and when the large white flowers appear their presence is often first apparent by the delicious scent. In some old gardens there are magnificent specimens, and instances are known where a large plant has been cut down to the ground, only to spring into fresh growth as robust as before. It will grow to a height of 70 feet, and will cover yards of wall space.

Other fine *Magnolias* are the Cucumber Tree (*M. acuminata*), with leaves 6 to 12 inches long, and glaucous green flowers

tinted with yellow; *M. Campbelli* has large crimson and white flowers, but is too tender for most parts of the kingdom; *M. Fraseri*, with leaves a foot long, and sweet-scented creamy white flowers; *M. glauca*, known as the "Sweet Bay" in the United States, has sweet scented white flowers about 3 inches across; *M. hypoleuca* and *M. Kobus*, both from Japan, have creamy white blossoms; *M. macrophylla* has also white flowers with a purple base, and somewhat fiddle-shaped leaves 1 to 3 feet long; *M. obovata* has tulip-like flowers, purple outside, white within; *M. parviflora*, flowers white tinted with rose; *M. tripetala*, the "Umbrella Tree" of N. America, large white flowers; and *M. Watsoni*, a dwarf species with fragrant ivory-white flowers, flushed with rose outside, and having crimson filaments in the centre.

The Magnolias like warm sheltered spots, and a rich loamy soil. They are best transplanted in spring, and are most easily propagated by layers, which take about two years to become well established before they are fit to be detached from the parent plant.

Menispermum canadense (Moonseed).—This ornamental quick-growing Canadian climber may be recognised by its roundish or kidney-shaped peltate leaves and drooping clusters of small yellowish flowers in summer, and later on with small blackish grape-like fruits—which, however, are borne only on the female plants—as in the Aucuba, Sea Buckthorn, Willow, &c. It likes a rich moist soil and rather shaded positions, and should be more used for the decoration of walls, arbours, trellises, &c. Increased by seeds or cuttings.

Morus alba, the White Mulberry, and *M. nigra*, the common Black Mulberry, and also *M. rubra*, the Red Mulberry of N. America, are large trees and may be grown in large parks and gardens for their ornamental aspect. They flourish in rich loamy soil, and may be increased by cuttings or layers. Besides making fine trees in the open, they are also excellent when trained on a wall, especially if it is desired to easily gather the delicious fruits which ripen in August and September.

Myrica Gale.—This is the "Sweet Gale" or "Bog Myrtle" found wild in British bogs and moors. It is a beautiful fragrant shrub 2 to 4 feet high, with toothed leaves, and flourishes in moist peaty soil in shaded parts of the rockery or border. *M. cerifera*,

the common Candleberry or Wax Myrtle, is a Canadian evergreen, 5 to 12 feet high, with flat shiny green serrate leaves, and reddish flowers, succeeded by waxy fruits. Both species may be increased by seeds, layers, or suckers.

Myrtus communis.—The common Myrtle is a native of S. Europe, and grows 3 to 10 feet high. It has ovate shiny green leaves, and white blossoms with numerous stamens in the centre. There are several varieties, some with broader and some with narrower leaves than the type. In the milder parts of the kingdom the Myrtle becomes a charming evergreen bush in the open air. In other places it should have the shelter of a wall. It flourishes in sandy peat, loam, and leafsoil, and may be increased by cuttings, layers, or seeds.

Nandina domestica.—A handsome evergreen about 5 feet high, native of China and Japan, with twice or thrice pinnate leaves and trusses of small white flowers in summer. It is only really hardy in the mildest parts of the kingdom, and flourishes in loam, peat, and leafsoil. Increased by cuttings under glass.

Neillia.—This genus is closely related to Spiræa, and contains four or five species. *N. amurensis*, from Amurland, grows 4 to 7 feet high. It has roundish three to five-lobed leaves with toothed margins, and white Hawthorn-like flowers in summer. *N. opulifolia* is a vigorous N. American shrub with lobed leaves like those of the Guelder Rose (*Viburnum Opulus*), and clusters of white flowers succeeded by purplish fruits. The variety *lutea* (or *aurea*) has yellow-tinted leaves. Any good garden or loamy soil will suit the Neillias, which are easily increased by cuttings, or from seeds.

Neviusia alabamensis (Alabama Snow Wreath).—A beautiful dwarf shrub from Alabama, with ovate-oblong toothed leaves, and rather large white or yellow-green flowers, with numerous conspicuous stamens in the centre. It may be treated like the Neillias.

Notospartium Carmichaeliæ.—An interesting New Zealand shrub with slender branches and drooping thong-like shoots without leaves. The trusses of small pink or mauve pea-like blossoms appear in August, giving the plant a very distinct appearance. It flourishes in the mildest parts of the kingdom, and is also fairly hardy round London. Increased by seeds, which are freely produced in good seasons, and also by cuttings.

Nuttallia cerasiformis (Osoberry).—This rather pretty deciduous shrub from California grows 6 to 12 feet high, and is remarkable for producing its drooping racemes of small white flowers in March and April, often before the leaves appear. It likes rich soil and warm sheltered spots, although perfectly hardy and may be increased by cuttings and layers.

Nyssa aquatica (Water Tupelo).—A rather rare and interesting N. American tree, with oval-oblong leaves which are chiefly remarkable for their conspicuous scarlet or reddish tints in autumn. It likes moist peaty soil, and may be grown near lakes, rivers, &c. Increased by layers.

Olearia Haasti.—Of the 85 species known this is the most extensively cultivated. It is a beautiful New Zealand shrub 3 to 4 feet high with ovate oblong or elliptic Box-like leaves, of a leathery texture, and almost pure white on the under surface. The small white Daisy-like blossoms are borne in great profusion in July and August, and where bold groups are planted they look very effective. There several other species, like *dentata*, *stellulata*, *macrodonta*, and *Traversi*, but they can only be grown with anything like success in the mildest parts of the kingdom. *O. Haasti*, on the other hand, seems to be perfectly hardy almost everywhere, and flourishes in ordinary garden soil. It ripens seeds freely (as also does *macrodonta* under favourable conditions), and it may be increased by that means. A much quicker process, however, is to slip off the shoots about the end of September or October, and insert them firmly in warm sheltered spots or cold frames as cuttings.

Osmanthus Aquifolium.—This beautiful Japanese shrub grows 4 or 5 feet high, and might easily be mistaken for a Holly, on account of its deep shiny green spiny-toothed leaves. It belongs, however, to the same family as the Lilac, and has small sweet-scented greenish-white flowers about August. The variety *ilicifolius* (of which there are several forms) is more dense and compact in habit, and is often in bloom as early as January. The form called *purpurascens* has the young leaves more or less deeply tinted with bronzy purple, while *myrtifolius* has narrow spineless leaves like a myrtle, and *rotundifolius* roundish ones. A rich loamy soil and warm position are most suitable for these plants, which are increased by layers or cuttings under glass.

Oxycoccus palustris (Cranberry).—A native trailing evergreen with ovate glaucous leaves and pink flowers in May, succeeded by dark red or crimson fruits. The American Cranberry (*O. macrocarpus*) is somewhat similar. Both plants thrive in moist peaty soil, and may be increased by seeds, layers, and cuttings.

Oxydendron arboreum (Sorrel Tree).—A rare ornamental deciduous tree, 15 to 40 feet high, native of N. America. It has oblong lance-shaped toothed leaves, and about July and August has trusses of white bell-shaped flowers at the end of the shoots. A moist peaty soil and warm sheltered positions suit the Sorrel Tree best. It may be increased by layers, which, however, take a long time to become established.

Ozothamnus rosmarinifolius.—This beautiful fragrant smelling composite shrub is a native of Tasmania. It has bluntish Rosemary-like leaves, and during July and August the white Daisy-like flowers are borne in such profusion that the plant has received the popular name of "Snow in Summer." It is practically hardy in ordinary good soil in the mildest parts of the kingdom, and may be increased by cuttings under glass.

Pæonia Moutan.—This is the "Moutan" or "Tree Pæony," native of China and Japan. It grows 3 to 5 feet high, and has smooth leaves deeply divided or cut into oblong acute segments. The large handsome flowers appear in May, and vary in colour from white to rose, salmon, lilac, magenta, purple, &c. One of the forms is shown on Plate XIX. Another Tree Pæony of recent introduction from Yun-Nan is *P. lutea*, which also has deeply divided leaves suffused with purple, and bright golden yellow blossoms like a Water Lily, each being about 4 inches across, and having numerous stamens with blood-red filaments in the centre. This plant is still very rare, and looks more like an herbaceous than a Tree Pæony.

The varieties of the ordinary Tree Pæony Moutan flourish in a deep rich loamy and well-manured soil. They are often injured by frost in spring in bleak localities, and for this reason they should be planted in sheltered spots. When grown in pots they are useful for conservatory decoration early in the year, but they should not be "forced" too severely, or they will become exhausted. They are increased by cuttings of the more or less ripened shoots

with a heel of the old wood attached; and also by grafting on fleshy roots of such herbaceous kinds as *P. albiflora* and *P. officinalis*.

Parrotia persica.—This pretty Persian tree is closely related to the Witch Hazels (*Hamamelis*). It grows about 10 feet high, and has ovate-oblong deep green leaves which are particularly handsome in autumn when tinted with orange, yellow, and crimson scarlet. The yellowish flowers with crimson-tipped stamens appear in February, but are of no particular beauty. It thrives in ordinary good loamy soil, and likes warm sheltered positions. It is effective on a wall and may be increased by layers.

Passiflora carulea.—This is the well-known “Passion Flower,” so called from the parts of the flower being supposed to represent the crown of thorns (the filamentous blue, white, and purple corona), the five wounds (the five stamens), and the nails (the three purple stigmas) of Christ’s Passion. The petals are pale blue, but in the variety called *Constance Elliot* they are white. The Passion Flower is a sweet-scented climber, and is highly valued for training over arches, trellises, walls, &c. In the milder parts of the kingdom it is perfectly hardy, and produces its scented egg-shaped fruits freely. It likes a rich loamy soil with a little peat and sand, and may be increased by cuttings under glass, or from seeds.

Paulownia imperialis.—This imposing Japanese tree attains a height of 30 to 50 feet in the most favoured spots in the British Islands, but it is too tender for most of the bleaker localities. It has large heart-shaped leaves, 1 to 3 feet long, and large purplish violet flowers, something like the Foxglove, but they are rarely produced in our fickle climate. It is often grown in bold groups, the stems being cut down each year, so that sturdy shoots with large leaves may spring up from the base. A well-manured loamy soil suits the Paulownia perfectly. It may be increased by root-cuttings as well as shoot-cuttings, and also by seeds when obtainable, all under glass.

Periploca græca.—A quick growing but evil smelling climbing shrub, native of S. Europe, with ovate lance-shaped leaves, and clusters of hairy green and brown flowers in July and August. It is useful for covering walls, trellises, &c., and may be increased by layers and cuttings.

Pernettya mucronata.—A pretty shrub 2 to 3 feet high, native of the Straits of Magellan. It has ovate shiny green leaves with prickly tips, and produces its white flowers from May to July. Its chief beauty, however, consists in the numerous clusters of berries which nestle amongst the foliage during the autumn and winter months, and vary in colour from white to rose, pink, purple, crimson and almost black in colour. A few clusters are shown on Plate II., fig 2. The *Pernettyas* flourish in moist peaty soil, and are most effective when planted in bold groups by themselves. They may be increased by seeds and layers.

Philadelphus.—The “Mock Oranges,” of which there are about a dozen species, belong to this genus. They are all beautiful deciduous shrubs with opposite leaves, some being very small in kinds like *microphyllus*, and others much larger and coarsely toothed as in *coronarius*. The flowers of all the species are pure white, and very often highly fragrant. To many, these plants are known under the name of “Syringa,” but as that is the botanical name of the Lilac, it will prevent confusion by retaining the name of Mock Orange solely for the various kinds of *Philadelphus*.

The common Mock Orange, *P. coronarius*, grows 6 to 12 feet high, and its white blossoms with a cluster of yellow stamens in the centre, appear from April to June. They are shown on Plate XXIV., fig. 66. There are several varieties of it, including a double flowered one, a yellow-leaved one (*aureus*), and one with a silvery edging to the leaves; *P. Gordonianus* from N. America, has much larger flowers in July; *P. grandiflorus* (or *speciosus*), also from N. America, produces its white sweet-scented blossoms, each 3 to 4 inches across, in June and July. *P. inodorus* is closely related, but has large scentless flowers and untoothed leaves. *P. hirsutus* flowers freely and grows 3 to 5 feet high. It may be recognised by its oblong ovate toothed leaves being hairy on both surfaces. *P. microphyllus* is a charming little Mock Orange from Colorado. It has small Myrtle-like leaves, and produces its small cross-shaped white flowers freely during the summer. This species, in conjunction with *P. coronarius*, has been largely used for the production of a race of beautiful hybrids to which the name *Lemoinei* has been given in honour of the raiser. Some very fine forms have been developed, some with single and some with double flowers; one of the latter, called *Boule d'Argent*, being shown on Plate XXIV.,

fig. 68. There are others like *Candélabre*, *Cerbe de Neige*, and *Manteau d'Hermine*, equally charming and free-flowering. *P. Satsumi*, from Japan, is a graceful bush 4 to 6 feet high, with long narrow leaves, and white flowers about $1\frac{1}{2}$ inch across in July

The Mock Oranges flourish in ordinary good and well-manured garden soil, and when grown in bold groups either on the grass or in the shrubbery are extremely attractive when in blossom. They are often sadly neglected by being placed in deep shade beneath large trees—the worst possible position for them. They like plenty of light and air, and should have the older stems cut back after flowering. Most of them are easily increased by cuttings of the ripened shoots in autumn, either in cold frames for the more tender sorts, or in the open air for the others like *coronarius*.

Phillyrea.—This is a small genus of evergreen shrubs of compact habit, and ornamental appearance at all seasons of the year. *P. decora* (otherwise known as *Vilmoriniana* and *laurifolia*) is perhaps the best of them all. It is a native of Asia Minor, and grows 6 to 10 feet high. The green leathery leaves are 4 to 6 inches long, and lance-shaped. The small white flowers are produced in the axils of the leaves in May and June, and are often succeeded by reddish-purple sloe-like fruits. Other species are *angustifolia*, with linear lance-shaped leaves; *latifolia*, which grows 20 to 30 feet high in S. Europe, has large ovate leaves; and *media*, from the same region, lance-shaped ones. They all revel in rich loamy soil, but *P. decora* is the hardiest and most generally useful. They may be increased by layers; cuttings of the ripened shoots under glass; or by grafting under glass upon stocks of the common Privet, which is in the same family.

Photinia serrulata.—This handsome evergreen shrub is a native of China, and grows 10 to 20 feet high. It has oblong, acute, laurel-like leaves of a leathery texture, and with finely toothed margins. The small white flowers resembling those of the Hawthorn are produced in flat clusters from April to July in favourable spots. *P. japonica* (or *Eriobotrya japonica*) is a distinct and handsome Japanese evergreen, although not quite so hardy as *serrulata*. It is popularly known as the “Loquat” or “Japanese Medlar,” and is readily distinguished by its large oblong wrinkled

leaves, with coarsely-toothed edges, and a downy under surface. Except in the mildest parts its white flowers are rarely seen in British gardens. It is, however, a handsome plant for covering a south wall, and flourishes in the open air round London. Both species may be increased by cuttings of the side shoots under glass, or by grafting on stocks of the common Quince. *P. variabilis* is a graceful Japanese shrub, 8 to 10 feet high, remarkable for its sharp-pointed oval leaves that become scarlet in autumn, and for its clusters of white flowers.

Pieris.—The few evergreen shrubs belonging to this genus are closely related to *Andromeda*, and may be treated exactly in the same way so far as general culture and propagation are concerned. They rarely grow more than 2 or 3 feet high, and are ornamental on account of their deep green leathery leaves, and the masses of whitish bell-shaped flowers which are produced in great abundance about April, May, and June. The best known species are *P. floribunda* and *P. Mariana* from N. America; *P. formosa*, from the Himalayas and China; and *P. japonica*, from Japan.

Plagianthus *Lyalli*.—This charming New Zealand shrub has oblong heart-shaped leaves, 2 to 4 inches long, with toothed margins, and when the young shoots are laden with drooping pure white flowers and conspicuous yellow stamens about August, it is a beautiful and attractive sight. In the milder parts of the kingdom it flourishes as a bush in well-manured loamy soil, but in other places it is safer to train it on a south wall. After flowering the older wood should be cut out, the younger shoots for next year's flowering should be spaced out so as to get ripened by more light and air. The plants may be increased by layers, or by cuttings of the well-ripened shoots in sandy soil under glass.

Platanus *occidentalis*.—A handsome N. American tree often 70 to 80 feet high, or even more, with five-angled leaves of an ornamental aspect. What is known as the "London Plane Tree" is a variety of another species, *P. orientalis*, a native of Asia Minor. There are several forms of it, including one having beautiful variegated leaves. The London Plane is an excellent plant for large smoky towns on account of its hardy shiny green leaves to which very little dust or dirt can cling. In appearance it is very similar to the Sycamore, and is often confused with it. The latter, however, has leaves much softer in texture, and without

a hollow at the base of the leaf-stalk, as in the Plane Tree. The fruits are also quite distinct. In the Sycamore they are winged and easily blown about by the wind in autumn; but the fruits of the Plane Tree are globular and prickly, and last several months hanging from the trees.

Polygala *Chamæburns*.—This is a pretty creeping shrub, 6 to 12 inches high, native of Central Europe. It has oblong lance-shaped pointed leaves, and sweet-scented creamy yellow flowers in early summer. The variety *purpurea* is an improved form with bright magenta purple blooms, clear yellow in the centre. This is a good plant for shaded parts of the rockery in a mixture of moist sandy peat and loam. Increased by seeds or cuttings.

Polygonum *baldschuanicum*.—This attractive climber belongs to the Rhubarb family, and is remarkable for the clouds of small pinkish-white flowers which it produces during the summer months. The stems, which attain a height of 10 to 15 feet, are furnished with ovate heart-shaped leaves 2 to 4 inches long. For covering an old tree trunk or rambling up branches stuck in the ground, there is nothing to equal this. It flourishes in rich loamy soil and warm open sunny positions, being a native of Bokhara. Unfortunately it is very difficult to propagate, either from seeds, cuttings, layers, or grafts. Cuttings of the shoots inserted in sandy soil in spring, just as growth is about to start, are fairly satisfactory; shoots have been grafted on roots of *Polygonum cuspidatum* under glass, but are not very successful; besides, the leaves are then attacked with a disease which resembles that of celery leaves in appearance.

Populus (Poplar).—The Poplars are fast-growing deciduous trees of ornamental appearance, and flourish in damp situations and rather heavy soils. The Abele or White Poplar (*P. alba*) is well known on account of its whitish appearance, and remarkably quick growth, which renders it valuable for forming a screen. The variety *Bolleana* resembles the Lombardy Poplar in its columnar habit. The Balsam Poplar (*P. balsamifera*) is a fine N. American tree with yellow-green leaves; as is also the Necklace Poplar (*P. monilifera*), of which there is a golden-leaved variety. The Black or Italian Poplar (*P. nigra*) is a quick growing tree; its variety *pyramidalis* or *fastigiata*, is the well known Lombardy Poplar with erect broom-like aspect. The Aspen

(*P. tremula*) is remarkable for the perpetual tremulous motion of its leaves.

Potentilla fruticosa.—This British shrub grows 2 to 4 feet high and has glaucous leaves divided like the fingers of the hand. From June to August it produces its bright yellow flowers in great profusion at the end of the shoots, and is then very attractive. It flourishes in ordinary garden soil and may be increased by seeds or cuttings.

Prunus.—Under this name botanists now include not only the Plums proper, but also the Almonds, Cherries, Peaches, Nectarines, and Apricots. The Almonds have been already dealt with under *Amygdalus*, and the Cherries under *Cerasus*; but it will be more convenient to deal with the others here. Of the Plums proper, that known as the “Myrobalan” (*P. cerasifera*) is one of the most ornamental. It is a handsome tree, about 20 feet high, and produces its profusion of white flowers in April before the leaves appear. There is a well-known purple leaved form of it called *atropurpurea* (or *Pissardi*), with small white blossoms in spring. It is, however, chiefly valuable for its foliage, masses of which find their way to the florists’ shops for decorative purposes. The double flowered form of the Common Sloe or Blackthorn (*P. spinosa*), is also a highly decorative tree. But perhaps the most charming of all is *P. triloba*, a Chinese Plum, the double flowered form of which, with rosy-pink blossoms in March and April, has been in cultivation for nearly 50 years. The single flowered variety is now also in gardens. *P. Davidiana* is properly a Peach. It is a native of China and often opens its white or pale rose flowers as early as January and February. The common wild Peach (*P. Persica*) has several charming varieties with white or red blossoms the most handsome being perhaps the double-flowered form called *flore pleno*.

All the Plums, Peaches, Almonds, Cherries, &c., flourish in ordinary good and well-manured soil, and make magnificent subjects for grouping in the shrubbery or as individual specimens on the grass. When given plenty of space to develop in open sunny situations they grow symmetrically and require but very little pruning. Indeed, so long as the old wood is cut out occasionally, that is all that is needed. They may be increased by budding or grafting on stocks of the common Plum or Cherry.

Ptelea trifoliata (Hop Tree).—This N. American shrub grows 4 to 8 feet high. The leaves are cut into three parts, and the small greenish flowers are succeeded by attractive clusters of winged hop-like seed vessels. The variety *aurea* has golden yellow foliage when young. The Hop Tree flourishes in ordinary soil, and may be increased by seeds or cuttings.

Pterocarya caucasica (*P. fraxinifolia*).—An ornamental Caucasian tree, 20 to 40 feet high, with long Ash-like or Walnut-like leaves, 12 to 18 inches long, which assume a soft yellow tint in autumn. It grows in any good soil, and may be increased by seeds, suckers, or layers.

Punica granatum (Pomegranate).—This is a handsome deciduous tree, but is too tender for the open air in the colder parts of the British Islands. It has oblong lance-shaped leaves, and produces its red flowers from June to September. There is a beautiful double-flowered variety. The Pomegranate being a native of S. Europe, Persia, &c, likes warm sheltered spots, and rich loamy soil, and may be increased by seeds, layers, suckers, grafts, or cuttings.

Pyrus.—This genus now includes the Apples, Pears, Quinces, Crabs, Medlars, and Service Trees, making altogether about 35 to 40 distinct species. They are all deciduous, and more or less ornamental, not only for their appearance and blossoms, but many of them also for their brilliant fruits. Perhaps one of the best known members of the genus is the Mountain Ash or Rowan Berry (*P. Aucuparia*). It is a native of Britain, and has spreading pinnate fern-like leaves, and dense clusters of creamy-white flowers in April and May. But it is the clusters of brilliant orange-scarlet fruits that follow that make the tree so attractive during the autumn months. *P. tianschanica*, closely resembles the Mountain Ash with its pinnate leaves and clusters of white flowers. Another very popular species is the Japanese Quince (*P. japonica*) which is often referred to by amateurs as “*the japonica*,” as if no other plant bore the specific name. It is a handsome shrub and flourishes equally well in the open as when trained on a wall. There are many varieties of it, some with whitish or pale rose flowers, but the deep blood-red form as shown on Plate XV., fig. 44, is the most attractive. The blossoms are borne in great profusion, and often expand at Christmas time and continue

to do so until June. Closely related to the Japanese Quince is *P. Maulei*, a lovely shrub, 2 to 4 feet high, with bright orange-red flowers in May, followed by sweetly-scented orange-yellow fruits about 2 inches in diameter, from which an excellent preserve can be made; *P. baccata*, the Siberian Cherry Crab is an ornamental tree with masses of white flowers in April and May, and later on clusters of beautiful reddish fruits tinted with yellow, as shown on Plate XXVIII., fig. 74. The sweet-scented or American Crab (*P. coronaria*) has large rosy flowers in May, but is surpassed in beauty by the large clusters of its double-flowered form (*flore pleno*), the rose-white blossoms of which are about two inches across and emit a violet-like fragrance. One of the most beautiful Crabs is *P. floribunda* (or *Malus floribunda*). It is a native of Japan, and during April and May it is almost hidden beneath a wealth of bright crimson buds or soft rosy-white flowers, a spray of which is shown on Plate XV., fig. 45. In the variety *atrosanguinea* the blossoms are of a deeper tint, while *flore pleno* (or *Parkmanni*) has double flowers of a soft rosy tint.

P. spectabilis is a beautiful Chinese Crab resembling *P. floribunda*. It has pale red semi-double flowers in April and May. The Siberian Crab (*P. prunifolia*) has masses of white Pear-like blossom, followed by yellowish red-tinted fruits. Both flowers and fruits are shown on Plate XV., figs. 46 and 47. There is a double flowered form, and also one with a drooping habit.

A very distinct species is the White Beam Tree (*P. aria*), which grows about 40 feet high and has large pinnately divided leaves covered with a dense whitish or silvery pubescence on the under surface. Its loose clusters of white flowers are followed by red or scarlet dotted fruits. Other ornamental species to be met with in gardens are: *P. arbutifolia*, the Chokeberry; *P. Sorbus* or *domestica*, the True Service Tree; and *P. torminalis*, the Wild Service Tree. *P. Schiedeckeri* is a hybrid form of *P. floribunda* and has rosy-red flowers. Ordinary good garden soil, with plenty of light and air, are the chief requirements of these fine trees.

Quercus (Oak).—As there are about 300 species of Oak, all more or less ornamental forest, park or garden trees, with drooping catkins of inconspicuous flowers, it is unnecessary to describe more than a few of the more popular ones here. Most of the species are deciduous, but a few are evergreen. Among the latter

perhaps the Holly or Holm Oak (*Q. Ilex*) is best known. It is a native of S. Europe and is readily recognised by its deep shining green leaves more or less oblong ovate in outline, and quite unlike those of any other species. The Kermes Oak (*Q. coccifera*) with elliptic oblong spiny-toothed leaves only attains the height of a shrub in Britain, and the same may be said of the Japanese *Q. acuta* with sharply-pointed wavy leaves, 2 to 5 inches long, and covered with a rusty down on the under surface when young. The Cork Oak (*Q. Suber*) has coarsely-toothed oblong oval leaves. Other evergreen Oaks are *Q. cuspidata*, the bright green leaves of which are silvery beneath, and in the variety *variegata* are irregularly blotched with creamy-white; *Q. glabra* has smooth laurel-like leaves 2 to 5 inches long, and is a charming plant in the young state.

Amongst the deciduous species, the best known is the British Oak (*Q. pedunculata* or *Robur*), of which there are numerous varieties. Of these the Golden Oak (*Q. Concordia*) with soft yellow-tinted foliage is very popular. The Turkey Oak (*Q. Cerris*), with pinnately-cut leaves attains a considerable size, and also has several forms. The Scarlet Oak (*Q. coccinea*) is an elegant N. American tree remarkable for its large leaves, nearly a foot long, which assume beautiful red or scarlet tints in autumn, especially the variety called *splendens*.

The Oaks flourish in good loamy soil and may be increased by seeds, or by grafting on stocks of the common forms.

Raphiolepis japonica.—A beautiful Japanese shrub, 2 to 4 feet high, with shining green broadly obovate leaves, and erect clusters of pure white sweet-scented blossoms resembling those of the Hawthorn only being much larger. This grows best in the milder parts of the kingdom in a mixture of sandy peat and loam, but may be grown on a south wall in less favoured spots. Increased by cuttings under glass.

Rhododendron.—Most of the species and hybrids in cultivation are beautiful evergreen shrubs with trusses of large showy bell-shaped flowers borne at the end of the shoots in spring and early summer. Although many are perfectly hardy, it is always better to plant Rhododendrons in positions where they will be sheltered from the cold winds of the north and east. When this precaution is neglected Rhododendrons become miserable objects,

as it is impossible for them to attain anything like luxuriant proportions when exposed to bitterly cold and biting blasts of wind. The soil should, as a rule, consist of plenty of sandy peat to which a little rich loam and leaf soil may be added. Heavy clayey soils should be avoided, and lime or chalk, so often useful to other plants, must be rigorously suppressed in the case of the great majority of *Rhododendrons*. One species, *R. hirsutum* (the Alpine Rose) does not appear to suffer from lime in the soil.

There are about 130 natural species of *Rhododendron* known, and many of them are extremely beautiful. But in several instances they are surpassed by the hybrids which have been raised in gardens, and have proved to be hardier even than their parents. On Plate XXII., fig. 60, for instance, is shown a truss of beautiful crimson flowers of *R. Shilsoni*, a fine hybrid between *R. barbatum* and *R. Thomsoni*, both species from the Sikkim Himalayas. Other very fine hybrids are *altaclerense* (scarlet); *Harrisi* (rosy-crimson); *kewense* (beautiful rose); *Luscombei* (bright rosy-pink); *Manglesi* (white); *Nobleanum* (bright crimson, often in flower in January); and *præcox rubrum* (rosy-purple, shown on Plate XXI., fig. 59). There are a host of other hybrid varieties having white, blush, pink, rose, crimson, scarlet, purple, magenta, and claret coloured flowers, but as a mere list of names would convey no meaning to the amateur, the lists of nurserymen may be consulted, or a visit to their nurseries about May and June, would be still more satisfactory.

The following are a few of the hardiest and best species of *Rhododendron* for the open air:—

R. arboreum.—15 to 20 feet high; flowers March and April white, rose, or blood red; Himalayas. *R. barbatum*.—40 to 50 feet high in Sikkim; flowers deep purple or blood red. *R. campanulatum*.—About 4 feet high; flowers in April, about 2 inches across, pale lilac with a few purple or rose spots. *R. catawbiense*.—4 to 6 feet high; flowers in July lilac-purple or rose, spotted. There are many forms of which *Cunningham's White* is one of the best known; North America. *R. caucasicum*.—About 1 foot high; flowers rose outside, white within, and spotted with green; Caucasus. *R. dauricum*.—About 3 feet high; flowers January to March, rosy; there is a deciduous and an evergreen form; Siberia. *R. ferrugineum*.—About 1 foot high; flowers May to

July, scarlet or rose, and white; Alps. *R. Fortunei*.—12 feet high; flowers in May, pale rose, sweet-scented, 3 to 6 inches across; China. *R. fulgens*.—4 to 6 feet high; flowers in April and May, shining blood-red; Himalayas. *R. grande* (*R. argenteum*).—30 feet high in Sikkim; flowers in May, white, 2 to 3 inches across, leaves 6 to 12 inches long, silvery beneath. *R. hirsutum*, the Alpine Rose.—1 to 2 feet high; flowers May to July, pale red or scarlet; does not dislike a chalky soil. *R. maximum*.—6 to 20 feet high; flowers in July, pale rose or nearly white; N. America. *R. ponticum*.—6 to 12 feet high; flowers in May, purple, upper petal spotted. This is the most common and almost the hardiest Rhododendron. It is seen everywhere, and is extensively used as a stock upon which the choicer varieties are grafted. *R. Thomsoni*.—6 to 15 feet high; flowers in June, deep blood red; Sikkim. *R. yunnanense*.—About 3 feet high; flowers varying from white to pale lilac, spotted with red; China. Rhododendrons may be raised in large quantities from seed. The latter are very minute and require to be carefully sown on the surface of finely prepared sandy peat. When fine varieties are secured, they are usually propagated by grafting, as shown on p. 46, or by layers.

Rhodora *canadensis*.—This is closely related to the Rhododendrons and may be grown in the same way. It is a deciduous N. American shrub about 3 feet high, and produces its purple sweet-scented flowers before the leaves appear in spring.

Rhodothamnus *Chamæcistus*.—This is also closely allied to the Rhododendrons. It is a pretty Alpine evergreen shrub, about 6 inches high, with shining green elliptic leaves, having toothed and fringed edges, and pinkish purple flowers in May. It flourishes in a mixture of peat and loam in the rockery, and may be increased by seeds, layers, or cuttings.

Rhodotyus *kerrioides*.—A charming deciduous Japanese shrub, 5 to 15 feet high, with deeply-toothed leaves and solitary white Rose-like flowers at the end of the shoots. This plant may be grown like the Kerria, either as a bush or against a wall in ordinary garden soil. Increased by seeds, cuttings, layers, or division.

Rhus.—Of the 120 species belonging to this genus only a few are to be found in gardens. Most of them have ornamental foliage, and a few are remarkable for the bright hues of colour

which they assume in autumn. One of the best for this purpose is *R. coccinoides* from N. America, which has oblong elliptic leaves that become shaded with crimson and yellow in autumn, and also carry feathery sprays of fruits. Very similar in appearance is the "Smoke Tree" or "Venetian Sumach" (*R. Cotinus*). This is a native of S. Europe, and grows 5 to 8 feet high. The variety *atropurpurea* has purple tinted foliage. The feathery fruits, as shown on Plate XXXIII., fig. 91, constitute one of the attractive features of this plant. *R. glabra* is a handsome N. American shrub 5 to 8 feet high. It has large pinnate leaves, which in the variety *laciniata* are still more elegantly cut and divided. In autumn they are highly coloured.

The "Stag's Horn Sumach" or "Vinegar Tree" (*R. typhina*) is a very well-known shrub. It is a native of N. America, and grows 10 to 30 feet high, and may be easily recognised by its large spreading fern-like leaves and densely hairy shoots. The flowers are borne in dense purplish cones at the end of the shoots, and the leaves become highly coloured in autumn. This species is often grouped and cut down each year for the production of sturdy young shoots in spring. Some of the Sumachs, like *R. Toxicodendron* and *R. venenata*, although ornamental in appearance, are nevertheless very poisonous, and should be carefully handled. Most of the Sumachs are very easily grown in ordinary soil, and may be increased from seeds, or cuttings of the roots or stems.

Ribes sanguineum.—This is the well-known Flowering Currant from N. America. It grows 4 to 10 feet high, and has lobed and toothed leaves and drooping trusses of deep or pale rose, crimson, or white blossoms, according to variety. One (*album*) is shown on Plate XII., fig. 37, and gives a good idea as to its ornamental character. Another good flowering currant from N. America is *R. aureum*, the yellow blossoms of which are also shown on Plate XII., fig. 35, as well as a spray of the beautiful autumn tinted foliage. The "Fuchsia-flowered Currant" (*R. speciosum*) is a Gooseberry-like shrub with spines beneath the leaves. It is a native of California, and grows 6 to 8 feet high, and produces its deep red or crimson blossoms in May. These droop from the joints, and with the conspicuously protruding stamens remind one of some kinds of Fuchsia. Unfortunately it

is not so hardy as the other two species, and requires the shelter of a wall in cold localities.

The Flowering Currants, either by themselves or in groups, are very handsome and flourish with ordinary care; but they should have plenty of air and light and room to develop. The old wood should be cut out each year, and any very long young shoots just have the tops taken off. By always retaining branches from one to three years of age a fine display of blossom can be secured.

Robinia *Pseud-acacia*.—This handsome N. American tree, 30 to 60 feet high, is known as the "False Acacia," or "Locust Tree." It has large spreading pinnate leaves cut into elliptic oval leaflets, and during April and May its white sweet-scented pea-like flowers hang in loose clusters from the branches. There are several varieties of it, the best known being *Bessoniana*, and *inermis*, both compact round-headed forms, the last named being very popular for small gardens; *Decaisneana* has rosy pink blossoms, and *aurea* has yellow-tinted foliage. The Rose Acacia (*R. hispida*) is an attractive N. American shrub 4 to 10 feet high, remarkable for the bristly hairs on its young shoots, and for its beautiful rose-coloured flowers which appear in June, and a spray of which is shown on Plate XXX., fig 82. *R. neo-mexicana*, with deep rosy flowers, is somewhat similar. Ordinary well-manured and well-drained loamy soil suits the Robinias, and they may be increased from seeds or layers, the choicer kinds being grafted on stocks of the common *R. Pseud-acacia*.

Rosa.—As a special volume of this series, "BEAUTIFUL ROSES," has already been devoted to the Rose, there is no need to dilate upon their beauties in this place. One or two of the plates, however, contain coloured drawings of one or two attractive kinds which therefore require mention. On Plate III., fig. 6, and on Plate IV., fig. 8, are shown what charming fruiting plants are the Dog Rose (*R. canina*) and the Japanese Rose (*R. rugosa*). As pictures in autumn they are very attractive, especially when grown in bold groups. For all other kinds of Roses, their culture, pruning, and propagation, the reader is referred to the volume already mentioned.

Rosmarinus officinalis.—The sweet-scented Rosemary is a popular old garden plant, native of the Mediterranean region. It grows 2 to 4 feet high and has narrow greyish leaves, and white or pale

purple flowers in early spring. It thrives in most gardens, and may be increased by cuttings, layers, or seeds.

Rubus.—The Brambles and Blackberries, of which there are about 100 species, belong to this genus. These are nearly all prickly climbers or ramblers, and require stakes, trellises, hedges, or other supports to enable them to flower and fruit freely. The common Blackberry (*R. fruticosus*) is too well known to need description. There are, however, double white and double pink flowered forms which are very pretty, one called *ulmifolius fl. pl.* being shown on Plate X., fig. 30. There is also a cut-leaved variety called *laciniatus*. Of late years the “Japanese Wineberry” (*R. phoenicolasius*) has sprung into popularity owing to its ornamental foliage covered with red hairs, white blossoms, and scarlet fruits, although it has been in cultivation many years and grown as a greenhouse plant. *R. australis* is a curious leafless-looking prickly climber from New Zealand, which will find a place in warm gardens where curious looking plants are tolerated.

There are several species, all more or less similar, in flowers and fruit to the common Bramble, but special mention must be made of such species as *R. deliciosus* from the Rocky Mountains, which has large pure white flowers with a cluster of yellow stamens in the centre, as shown on Plate XXXII., fig. 86; *R. nutkanus*, also from N. America, with deeply lobed leaves and white flowers from May to October, and afterwards red fruits; *R. odoratus*, with purple flowers; and *R. spectabilis*, with large bright red or purplish flowers, and large yellow fruits. Special mention must be made of the Himalayan *R. biflorus*, the stems of which are so densely covered with a whitish bloom that they look as if they had been whitewashed—and many who do not know the plant actually think that such is the case. A Bramble with prettily marked foliage, being a mixture of white, green, and rosy pink, is that known as *japonicus tricolor*, the young leaves of which look particularly handsome. Another handsome-leaved Bramble is *R. reflexus* or *moluccanus*, the velvety green leaves of which are elegantly lobed, and marked with a silvery grey variegation above and a soft pale brown pubescence beneath.

Speaking generally, most of the Brambles are easily grown in well-manured and well-drained soil, and can be easily raised by cuttings, layers, suckers, or seeds.

Ruscus aculeatus.—(Butcher's Broom). This peculiar British shrub has more to do with the Lilies in structure than with the Brooms. The ovate spiny-tipped organs usually called leaves are really modified branches, and the small greenish-white blossoms are borne near the base being succeeded by bright red or yellow berries on the female plants only. The Butcher's Broom is a good plant for the shade beneath trees and shrubs where little else will grow. It may be increased by layers, suckers, and seeds. The "Alexandrian Laurel" (*R. racemosus* or *Danwa Laurus*) is a graceful Portuguese shrub about 4 feet high with glossy green modified branches (so-called leaves) and greenish yellow flowers. These have stamens and pistil in the same blossom (unlike the Butcher's Broom), and often produces their roundish red fruits. Increased by seeds, layers, and suckers.

Salix.—Very little can be said about the Willows in regard to the beauty of their blossoms (of which males and females are borne on different plants) although the male catkins of the "Pussy Willows" or "Palm" (*S. caprea*) always attract attention in spring. The "Kilmarnock Weeping Willow" is a variety of *S. caprea*, and has a drooping habit. The ordinary Weeping Willow (*S. babylonica*) is always a favourite on account of its slender drooping branches. Taken on the whole, however Willows are not altogether suitable among ordinary flowering trees and shrubs.

In no place are they better than by the side of river, stream, or lake. There they grow and make their long wand-like half-succulent shoots with greater freedom, and the effects of the colours of the different species is very telling in autumn and winter, and in spring the pale green of the young leaves is very delicate and fresh.

Sambucus nigra.—The common Elder, perhaps because it is so common, so good-natured, so free flowering, and a native, is a much despised ornamental tree. For gracefulness and beauty it is far ahead of many other shrubs that find a place in large gardens but are often miserable failures. When the bright green divided leaves are covered with fleecy sheets of white flowers from May to August, it is impossible not to admire the Elder. And in autumn also, when laden with its clusters of blackish purple berries, it is still attractive. There are several forms, amongst which the

golden-leaved one (*aurea*), the one irregularly edged with cream gold, and the cut-leaved one (*laciniatus*) are most popular. *S. racemosa* has ornamental pale foliage, perhaps not quite so coarsely cut as the common Elder, and its white blossoms are followed by scarlet fruits. The Elders thrive in any garden soil, and may be increased by seeds or cuttings.

Santolina *Chamæcyparissus* (Cotton Lavender).—A pretty greyish shrub 1 to 2 feet high, native of S. Europe. It has small narrow toothed downy leaves, and roundish heads of yellow blossoms in June and July. It flourishes in any garden soil, and is increased by cuttings.

Skimmia.—These are pretty dwarf evergreens with deep-green glossy leaves, and sweet-scented white flowers followed by scarlet berries. Indeed the berries constitute the chief attraction of the plants, as they look particularly cheerful peeping out here and there amongst the foliage. The best and most useful kinds grown are *S. Fortunei* from China and *S. japonica* (or *S. oblata*) from Japan. There are many varieties of *japonica*, that called *Foremanni* being the oldest and best known. *S. Rogersi* is supposed to be a hybrid between *Fortunei* and *japonica*. It is a pretty shrub and berries freely.

Skimmias flourish in a mixture of good sandy peat and loam, and are readily increased from cuttings of the ripened shoots inserted in sandy soil under glass, or from seeds.

Smilax.—This genus includes several species of climbing shrubs with prickly stems and ornamental foliage. *S. aspera*, the Prickly Ivy, from S. Europe has been known in gardens for nearly 250 years. It is an evergreen climber with heart-shaped leaves, and is useful for training up a wall. Other species equally useful and ornamental are *Cantab*, *China*, *laurifolia*, and *rotundifolia*. They grow well in dryish loamy soil, and may be increased by seeds, layers, cuttings, and division of the roots.

Solanum *jasminoides*.—This charming climber of the Nightshade and Potato family is often met with trained on walls. It has tapering ovate leaves, and from July to August the pure white flowers with yellow stamens in the centre (as shown in Plate XXIII., fig. 63) are borne in loose drooping clusters. Another species, *S. crispum*, is still more showy, but is equally tender, if not more so. It is a native of Chili, and rambles on a wall 12 to

16 feet high. The ovate wavy leaves are 3 to 4 inches long, and the bluish-purple sweet-scented blossoms, with deeper line down the centre of each petal, are borne in drooping trusses in late summer. They are shown on Plate XXIII., fig. 64.

Both species are best grown in the mildest parts of the kingdom, although they often flower on a south wall around London. They like a rich loamy and well-drained soil, and may be increased from cuttings under glass.

Sophora japonica.—A beautiful deciduous tree, native of China and Japan, and resembling the False Acacia (*Robinia*) in appearance and foliage. It has creamy white flowers about September. There is also a weeping variety, and one with variegated leaves. Increased by seeds or layers.

Spartium junceum (Spanish Broom).—An ornamental shrub, 6 to 10 feet high, native of the Mediterranean region. It has slender twiggy branches, and from June to August its erect trusses of bright yellow pea-like flowers are borne in great profusion, and produce a fine effect when in bold masses. The plant flourishes in any garden soil, and may be increased by seeds, or cuttings of the ripened shoots.

Spiræa.—The shrubby Spiræas constitute one of the handsomest, most effective, and easily grown groups among flowering trees and shrubs, and there can scarcely be too many of them in large parks and gardens. Among them are to be found dwarf, tall, and intermediate sizes, and flowers which are white, rose, or purple. Nearly all the white-flowered kinds remind one of the Hawthorns (to which indeed the Spiræas are related), but they are produced in such long sprays, often gracefully arching, that they possess a charm entirely their own.

Amongst the most ornamental white-flowered Spiræas may be mentioned *arguta*, *bracteata* (or *media rotundifolia*), *betulifolia*, *chamædrifolia*, *discolor*, *gracilis*, *hypericifolia*, *Lindleyana*, *media* (or *confusa*), *millefolium*, *prunifolia* and its double-flowered variety, *sorbifolia*, *Thunbergi*, *trilobata*, and *Van Houttei*—the last-named being a hybrid between *media* and *trilobata*, and now rather popular for pot culture.

The rosy red or pink flowered Spiræas also make a charming group, among them being *bella*, *bullata*, *Douglasi*, *expansa*, *japonica* (of which *Bumalda* and *Anthony Waterer* are two

first rate forms), *Nobleana*, *salicifolia*, and *tomentosa*. A general idea of the rose-coloured varieties may be gleaned by consulting coloured Plate VIII., on which *S. japonica glabrata* is represented by fig. 21. To secure the finest effects with *Spiræas* they should be planted in bold groups in rich and well-drained loamy soil, which should receive a good dressing of well-decomposed manure each winter. As the flowers are borne on the younger shoots, it stands to reason that the older wood should be thinned out occasionally so as to induce young growths from the base of the plants, and thus always make sure of a wealth of blossom lasting from early spring to late summer. Most of the *Spiræas* can be increased readily by cuttings of the ripened shoots in sandy soil about the end of October.

Staphylea colchica.—A pretty Caucasian shrub 3 to 5 feet high, the pinnate leaves of which consist of three or five ovate toothed leaflets. The white flowers as shown in Plate XXV., fig. 70, are produced in large erect trusses in early summer. This species is often grown in pots for conservatory decoration in spring. Another species (*S. pinnata*) grows from 6 to 12 feet high, and is popularly known as Job's Tears or St. Anthony's Nuts, owing to the ivory white nut-like fruits which are found in July enclosed in a bladdery capsule, after the disappearance of the whitish flowers that were borne in April and May. The leaves are composed of five large ovate toothed leaflets, and the plant is often found in old and neglected shrubberies. *S. Coulombieri* is a hybrid between *colchica* and *pinnata*. There are a few other species not so well known. They grow well in ordinary good garden soil, and may be increased by seeds, layers, cuttings, and suckers.

Stephanandra flexuosa.—An elegant deciduous Japanese shrub with deeply lobed and toothed leaves, and flattish trusses of small white Hawthorn-like flowers in July. *S. Tanakæ* is a coarser growing plant with larger leaves and greenish white flowers. Being closely related to the shrubby *Spiræas*, the treatment they receive will suit the *Stephanandras*. The latter may be increased by cuttings or suckers.

Stuartia pseudo-Camellia.—A beautiful Japanese shrub with ovate toothed leaves that assume gold and crimson hues in autumn. The white flowers with numerous golden stamens in the centre

appear in June and July, and resemble single Roses, but are more cup-shaped. Indeed, the whole plant is very similar to the true tea-plant. *S. pentagyna* from N. America flowers from May to July, and so does *S. virginica*, both having a general resemblance to *pseudo-Camellia*. They all flourish in a mixture of sandy peat and loam, and like warm sheltered spots. The plants may be increased by layers or cuttings.

Styrax japonicum.—A pretty Japanese shrub or small tree with lance-shaped leaves and drooping trusses of white flowers in spring. *S. Obassia* is another beautiful Japanese tree with roundish leaves 6 to 8 inches across, and drooping racemes of pure white sweetly-scented blossoms in June and July. *S. officinale*, which provides the Storax of commerce, is a native of the Levant. It has racemes of white flowers drooping from the axils of the leaves. There are about 60 species of *Styrax* altogether, but those named are best for garden purposes. They should be planted in bold groups in rich loamy soil, and may be increased by layers.

Symphoricarpus racemosus (Snowberry).—This shrub grows 4 to 5 feet high, and has roundish leaves, small tubular rosy-pink flowers from July to September, and during the winter months is easily recognised by its clusters of round ivory white berries. *S. orbiculatus*, the berries of which are shown on Plate II., fig. 3, is the "Coral Berry" or "Indian Currant" of N. America. There is a red and purple fruited form of it, also one with variegated leaves. There are a few other species, of which perhaps the "Wolf Berry" (*S. occidentalis*) is best, but they can only be regarded as plants for rough parts of large gardens. They grow in any garden soil, and may be increased by seeds or suckers.

Syringa vulgaris.—This is the common Lilac that produces such glorious masses of lilac, white, or purple blossom during May at the end of the shoots. There are many varieties of it highly esteemed for the decoration of parks and gardens. Among them, perhaps, the best white forms are *alba*, shown on Plate XXXIII., fig. 90, and *Marie Legeraye* and *Madame Lemoine*, the last named having double flowers. Among the coloured forms *Souvenir de L. Späth*, shown on Plate XXXIII., fig. 89, is one of the best; others are *Dr. Lindley* and *Charles X.*, with reddish-lilac flowers, *violacea*, &c.

Besides the ordinary Lilac and its varieties, the following

species also are worth a place in gardens: *S. amurensis*, creamy white; *S. chinensis*, known as the "Rouen Lilac," with deep violet flowers; *S. Emodi*, purple or white; *S. japonica*, white; *S. Josikæa*, bluish purple; and *S. persica*, the "Persian Lilac," the flowers of which are either bluish purple or white (in the variety *alba*). When grown in bold groups, and given plenty of air and light, and space to develop, the Lilacs are amongst the most enchanting flowering shrubs of the early summer. They like a rich loamy soil, and may be increased by cuttings in October; by suckers taken at the same time; and by means of seeds sown as soon as ripe—all in the open air for the hardier sorts. After flowering, the trees or bushes should have the old or dead wood and twigs cut out, and the shoots that have just finished blooming should be cut back to one or two pairs of buds unless it is desired to secure seeds.

Tamarix gallica (Tamarisk).—A graceful half-evergreen now naturalised in many parts of Britain, and recognised by its small scale-like leaves and cord-like shoots, the whole having a feathery appearance. The small white, rose, or pink blossoms are borne in short spikes from July to September, and have a most ornamental effect swaying in the breeze. This particular species is found along the sea coasts, but flourishes in inland situations. There are at least 20 species of Tamarisk known, but after *gallica* perhaps the best for gardens is *chinensis* which has a more graceful and feathery appearance, but is not quite so hardy. Tamarisks flourish in ordinary garden soil, and may be easily increased by seeds; or cuttings in October or in spring.

Tecoma radicans.—(Trumpet Flower). This is the hardiest of the two dozen species known. It is a native of N. America, and like the Ivy climbs up walls or tree trunks by means of aerial roots, often to a height of 25 feet or more. The pinnate leaves are divided into ovate toothed leaflets, and during the summer and early autumn the orange-scarlet bell-shaped flowers are produced in clusters at the ends of the shoots. The plants like a warm sheltered spot and a rich leamy soil, and may be increased by root and stem cuttings, and also layers.

Tilia (Lime Tree).—The Limes are well-known handsome trees, remarkable for their great height, their ornamental foliage and the yellowish blossoms attached to the centre of a conspicuous

leafy bract. Besides the Common Lime or Linden (*T. vulgaris*) there are several others like *americana*, *argentea*, *cordata*, *petiolaris*, *platyphyllos*, and *dasystyla*—the last-named having very large leaves—all of which are of value for the decoration of the landscape in large gardens, parks, &c. It is best to start with young trees that have been transplanted a few times.

Trachelospermum jasminoides.—Under the better known name of *Rhynchospermum* this beautiful Japanese climber is often met with in gardens, perhaps more frequently in greenhouses than in the open air. It has smooth, glossy-green, oval, lance-shaped leaves, and very sweetly-scented pure white flowers about July and August. It clings to walls by aërial roots, like the Ivy, and in the milder parts of the kingdom may be regarded as hardy. It likes a rich loamy soil, and may be increased by cuttings under glass.

Trachycarpus excelsus (*Chamærops Fortunei*).—This beautiful fan-leaved Palm, is a native of China and Japan, and is quite hardy in many different parts of the United Kingdom, often attaining a height of 10 to 20 feet. It likes a rich loamy soil, and should be protected from cold winds. Owing to its naturally slow growth, it is best grown in greenhouses for several years until it attains a size large enough to make it an adornment to the outside garden.

Ulex europæus.—The common Furze, Gorse, or Whin is a well-known spiny shrub on British and Irish commons. In the spring time (February and March) its masses of golden yellow Pea-like blossom almost hide the bushes. The double-flowered form (*flore pleno*) is a beautiful shrub and is now found used in bold groups or as a hedge in many large gardens. The Cat Whin or Tam Furze (*U. nanus*), and its variety *Galli*, flower in the autumn, and are of dwarfer growth. The Furze seems to flourish in any soil. It is best raised from seeds sown where the plants are to grow, as old plants are not only difficult to transplant, but rarely thrive after moving.

Ulmus campestris.—This is the common British Elm, which often attains a height of 120 feet, and a girth of 20 feet or more round the trunk. Besides the ordinary form there are several varieties. Amongst these the Variegated Elm, the leaves of which are blotched and streaked with white, is very ornamental, as is also the Golden Elm with yellowish foliage. The Winged Elm

(*U. alata*) is a much dwarfer N. American tree, having corky, winged branches. Elms are increased by layers, grafts, and suckers, and young trees can always be secured from the nursery.

Vaccinium.—The Bilberry, Blueberry, Cranberry, Cowberry, Whortleberry, Huckleberry, &c., belong to this genus in which there are about 100 species, mostly natives of N. America.

V. Vitis-idea is the native Cowberry, a trailing evergreen with glossy green box-like leaves, and drooping trusses of pink flowers. *V. ovatum* grows 3 to 5 feet high, with ovate-toothed leaves and clusters of rosy-white blossoms in the axils of the leaves. It is not hardy in all parts. Most of the kinds flourish in peaty soil, and may be increased from seeds, layers or root cuttings.

Veronica.—There are several shrubby species, but perhaps the one most frequently met with is *V. Traversi*, a native of New Zealand. It grows 3 to 5 feet high, and has glossy green narrow leaves arranged crosswise on the stems. During June and July the pale lilac-white blossoms are borne in short trusses in the axils of the leaves, and add a distinct charm to the plant.

V. Andersoni, with larger glossy elliptic leaves, although a rather tender plant of garden origin, is nevertheless a great favourite, and in the milder parts of the kingdom makes a very ornamental bush with bluish-violet flowers. *V. pinguifolia* forms a compact shrub with roundish, thick, leathery leaves, and trusses of white flowers in June. *V. salicifolia* is another ornamental and fairly hardy shrub with narrow leaves and bluish-white blossoms. There are several others, but they are not generally grown outside botanic gardens. Those mentioned flourish in warm sheltered spots, and in rich loamy soil. They can be readily increased from cuttings in early autumn in cold frames.

Viburnum.—The Snowball Tree or Guelder Rose (*V. Opulus*) and the Laurustinus (*V. Tinus*) are the two best known representatives of this large genus. The former is a deciduous British shrub 6 to 15 feet high, and in June and July has clusters of creamy-white flowers, followed later on by translucent scarlet berries, drooping clusters of which are shown on Plate V., fig. 11. There is a variety, however, having yellow instead of scarlet berries. The best known form in gardens is the one with sterile flowers in which all the seed-bearing flowers are transformed into large white bracts that render the plant very attractive. In addition there is also a

form in which the leaves are variegated with white and yellow. The Wayfaring Tree (*V. Lantana*) is also a British tree, with white flowers and fruits which are at first red, but afterwards black.

The Laurustinus is an evergreen shrub from S. Europe that often commences to bear its clusters of tubular white blossoms as early as Christmas, and as a pot plant is often used for conservatory decoration in winter.

One of the most ornamental shrubs in this genus is undoubtedly *V. plicatum*, a Japanese plant with plaited toothed leaves, and large trusses of pure white sterile blossoms borne in May and June. The wild form with fertile flowers is known as *V. tomentosum*, and although perhaps not so attractive, owing to the absence of the large white bracts, is nevertheless very ornamental in August and September, owing to the clusters of brilliant crimson-red berries nestling among its foliage.

V. macrocephalum, as the name indicates, has very large heads of pure white flowers like the Guelder Rose. *V. Keteleeri* is the fertile form of it, and has only a few sterile blooms surrounding the perfect ones in the centre of the truss. The species named are the best for British gardens out of the 80 known. They all like warm and sheltered spots, and a rather rich and moist soil. They may be increased by layers, cuttings, seeds, or grafts.

Vinca major.—This is the larger Periwinkle of Britain. It is a trailing shrub with oval heart-shaped leaves, and in May has bluish-purple blossoms about 2 inches across. There is a white flowered variety, and also one or two with variegated leaves.

V. minor, the lesser Periwinkle, is smaller in leaf and blossom, the latter being bluish-purple, and white in some varieties. Like the larger kind, *V. minor* also has varieties with variegated leaves. Both kinds are useful for covering old ruins, tree stumps, rocks, &c., and flourish in places more or less in shadow. They thrive in ordinary soil, and may be increased by division, or detaching the portions that have rooted from the joints.

Vitis.—Two of the best known species, the Virginian Creeper and *V. inconstans*, have been referred to under the name of Ampelopsis. There are, however, about 230 species of Vine, all more or less useful for clothing tree trunks, walls, arches, pergolas, &c., and many of them have not only very ornamental foliage, but also attract attention by their clusters of coloured berries in autumn.

Of late years attention has been called to *V. Coignetix* and *V. Thunbergi*, both remarkable for their large and handsome foliage, the individual leaves being often 9 to 10 inches across. They are of a rich downy green in spring and summer, but in autumn they assume brilliant shades of orange, yellow, scarlet, and crimson when grown in warm sunny spots. Other ornamental vines are the Hop-leaved one (*heterophylla humulifolia*) remarkable in autumn for its turquoise-blue berries speckled with black. The variegated form is charming with the marbling of white and pale rose tints on a greenish ground. *V. Labrusca*, is a well-known N. American vine with roundish, heart-shaped leaves, and amber coloured berries in autumn. *V. lanata* resembles *V. Coignetix* in having large leaves that become highly-coloured in autumn; while the common Grape Vine (*V. vinifera*) is not only an ornamental plant for covering walls, but might be turned to good account with its fruits if a little more attention were given to its cultivation in the open air. Given a good soil, and warm sheltered spots the vines mentioned are easy enough to grow, and they may be increased from cuttings, layers, or seeds.

Wistaria chinensis.—Since its introduction from China nearly 90 years ago, this handsome climbing shrub has spread all over the kingdom, and is to be found covering walls in gardens great and small, and is sometimes seen climbing away up the gnarled trunks of old trees. Besides the ordinary lilac-purple form, shown on Plate XIII., fig. 38, there is a beautiful white flowered variety shown on the same plate, fig. 40; a double one; and one with variegated foliage.

W. multijuga from Japan is remarkable for the length—often 2 to 3 feet—of its trusses of lilac-purple pea-like blossoms, the centre parts of which (technically called the “wings” and “keel”) are of a deep purple colour. *W. frutescens* from N. America, has dark-blue, violet tinted blossoms, and *W. japonica*, white ones; but neither is often met with.

The Wistarias flourish in any garden soil and when the old wood is thinned out occasionally, there is usually a wealth of blossom not only from April to June with *W. chinensis*, but often a second time in August and September. They may be increased by grafting on pieces of the root under glass, or by layers.

Xanthoceras sorbifolia.—This beautiful Chinese tree bears a

striking resemblance in its foliage, to the Mountain Ash or Rowan Tree (*Pyrus Aucuparia*). The flowers, however, are quite different, being over an inch across and pure white, with blood red streaks at the base of the petals. In favourable seasons they are borne in trusses at the end of the shoots about June. In a small state they are often grown in pots for conservatory decoration, and may be gently forced into bloom as early as February and March. A good garden soil and warm situation suit this tree admirably. It is increased by layers, or by cutting a trench round the roots, and afterwards taking up the suckers that arise from them.

Yucca gloriosa (Adam's Needle).—This handsome Palm-like shrub, with long sharp-pointed sword-shaped leaves, and immense trusses, often 4 to 6 feet long, of whitish bell-shaped flowers, is one of the hardiest and best species for the open air. *Y. recurvifolia* or *pendula* is a form in which the leaves arch over and give a graceful appearance to the plant. The hardy Yuccas flourish in ordinary garden soil. They are very effective and give a sub-tropical aspect to the garden when they have attained a good size. They throw up numerous buds or suckers from the base and by means of these they are fairly easy to propagate. Pieces of the roots also when placed in a warm greenhouse will give rise to new plants.

Zauschneria californica.—A handsome Fuchsia-like shrub about a foot high, with narrow leaves and drooping scarlet flowers in summer and autumn. In cold localities this pretty little plant is likely to be cut down in winter like the Fuchsias, but it will shoot up again in spring. It likes warm sheltered spots, and a rich loamy soil, and may be increased by cuttings under glass.

Zenobia speciosa.—A charming N. American shrub, 2 to 4 feet high, with oblong ovate leaves, and clusters of white bell-shaped flowers drooping from the axils of the leaves in summer. The variety *pulverulenta* is a better form with a whitish under surface to the leaves. A peaty soil, and warm but open situations suit this plant well. Increased by seeds or layers.

CONE-BEARING TREES AND SHRUBS.

Although the plants belonging to this group can scarcely be regarded as having beautiful flowers in the ordinary sense of the

term, they are nevertheless so ornamental in aspect, and so varied in outline that they may be reasonably referred to in this volume.

From an ornamental point of view the Cone-bearing Trees and Shrubs—usually called Conifers—have a beauty all their own. The Scots Fir (*Pinus sylvestris*), the Yew (*Taxus baccata*), and the Juniper (*Juniperus communis*) are the only natives of Britain, and are well enough known to obviate the necessity of further reference. Amongst exotic Conifers, however, are many ornamental subjects which have proved to be quite hardy in our gardens. There are consequently few large gardens or parks of any note in which several fine specimens are not to be found. Indeed, years ago, fortunately, there was a rage for Conifers, and they were extensively planted in all parts of the kingdom, with the result that to-day there are specimens almost equal in size to those found growing in a native state.

Speaking generally, Conifers flourish in a well-drained loamy soil, the great majority of them detesting anything like stagnant moisture at the roots. One or two kinds, like the Deciduous Cypress (*Taxodium distichum*) for example, revel in moist situations, and will even flourish when planted in lakes or pools where the water is being continually refreshed. In addition to a good soil, many of the choicer varieties require some protection from the cold north and east winds, and this is easily secured by intervening belts of Oaks, Beeches, Elms, or other hardy trees, or by planting on undulating land with a slope towards the south or west.

The planting of Conifers should be done very carefully, and when the weather is suitable. If planted too late in the year there is a risk of their being killed by hard frosts, and one should therefore plant either in October or early November, or else in early spring when severe frosts are over. As a general rule young plants are better than old ones for transplanting. I have seen Sequoias or Wellingtonias that have been carefully transplanted when about 10 years old beaten in stature and symmetry in the course of a few years by plants only a couple of years of age moved at the same period. This tends to show that when large masses of roots have been formed, so much injury is done to them that it takes a much longer time in proportion for the plants to recover, and make a fair start into growth.

So far as the propagation of Conifers is concerned a very large number can be raised from seeds, and also from cuttings—the latter being pieces of the ripened side shoots, as in *Cupressus*. *Sequoia*, Juniper, *Retinospora*, &c., pulled off with a heel of the old wood about the end of October, and stuck firmly into sandy soil in sheltered spots in the open air, or in a cold frame. Many choice varieties, however, can only be successfully propagated by grafting or layering, and amateurs who have neither the convenience nor inclination for raising their own plants cannot do better than to secure nice sturdy young plants from a nurseryman. The following is a list of the most ornamental Conifers to which the heights have been added in many cases:—

Abies (Silver Firs).—*Amabilis*, 100 to 150 feet; *balsamea*, 70 to 80 feet (Balsam Fir); *brachyphylla*, 120 feet; *bracteata*, 50 feet; *cephalonica*, 80 feet; *concolor*, 70 feet; *firma*, 45 to 50 feet; *grandis*, 90 to 100 feet; *magnifica*, 200 to 250 feet in California; *nobilis*, 80 to 90 feet; *Nordmanniana*, 70 feet; *pectinata*, 110 feet *sachalinensis* 130 feet in Japan; *Webbiana*, 30 to 60 feet.

Araucaria imbricata, the well-known “Monkey Puzzle,” 70 feet, with sharp prickly leaves arranged spirally on the branches.

Cedrus.—The best known Cedars are the Deodar (*C. Deodara*), a beautiful lawn tree; *C. atlantica*, and its variety *glauca*; and the Cedar of Lebanon (*C. Libani*).

Cryptomeria elegans and *C. japonica*, both ornamental Japanese trees, attaining a height of 70 feet in Britain.

Cupressus Lawsoniana.—This is the well-known Lawson’s Cypress, of which there are numerous varieties, the tallest in our climate being about 50 feet high. *C. macrocarpa* and *C. nootkatensis*, are two other ornamental Cupresses.

Gingko biloba (or *Salisburia adiantifolia*) is the Maidenhair Tree, so called because its leathery two-lobed leaves are veined and shaped very much like those of the Maidenhair Fern. It is deciduous and attains a height of 50 to 60 feet. A good ornamental tree for smoky towns.

Juniperus.—There are many species, some tall, some dwarf. *J. Sabina*, the Savin, with its varieties *cupressifolia*, *prostrata*, and *tamariscifolia* being very useful for rock gardens, &c. *J. Sanderi*, from Japan, is a new and distinct plant with bright green leaves and a bushy habit.

Larix europaea is the common larch; *L. leptolepis* is a Japanese Larch, with a golden appearance, something like the Golden Larch (*Pseudolarix Kämpferi*).

Libocedrus decurrens.—A distinct Californian Conifer, with dark glossy-green glaucous leaves.

Picea.—The Spruces belong to this genus, the best known kinds being *ajanensis*, 20 to 30 feet; *alba*, the White Spruce, 40 to 70 feet; *Engelmanni*, and its variety *glauca*; *excelsa*, the Norway Spruce, of which there are many varieties; *Morinda*, 80 feet; *nigra*, Black Spruce, 50 to 70 feet; *Omorica*, Servian Spruce; *orientalis*, 60 feet; *polita*, 20 to 30 feet; *pungens* and its distinct and handsome forms, *glauca* and *Kosteri*; and *sitchensis*, 120 feet.

Pinus.—The Pines are a numerous family divided into groups according as to whether they have needle-like leaves in tufts of 2, 3, or 5. The Corsican Pine (*P. Laricio*); The Cluster Pine (*P. Pinaster*); the Stone Pine (*P. Pinea*); the Swiss Stone Pine (*P. Cembra*); the Bhotan Pine (*P. excelsa*); the Sugar Pine (*P. Montezuma*); the Monterey Pine (*P. insignis*); the Weymouth Pine (*P. Strobus*); and *P. Coulteri* or *macrocarpa* are among the best known and most ornamental representatives of the genus after the Scots Fir, many of them attaining a height of 50 to 100 feet in our climate. The Douglas Fir (*Pseudotsuga* or *Abies Douglasi*) is a great favourite in many gardens, and reaches a height of 120 feet in British gardens.

Retinospora.—These are charming feathery-like shrubs, really forms of the Cypress and Thuya, but so distinct in general appearance that they are always kept distinct from a garden point of view. The best known varieties are *obtusata*, *pisifera*, *ericoides*, *filifera*, *plumosa*, and *squarrosa*, and of these there are many charming variations with golden, silver or blue-green foliage.

Sciadopitys verticillata.—This is the Umbrella Pine of Japan, where it grows 100 to 150 feet high. It is an attractive plant with flat bright green leaves, and branches radiating from the main stem in circles like the ribs of an umbrella.

Sequoia gigantea. This is the famous Wellingtonia or Mammoth Tree of California, where it attains a height of 250 to 400 feet. The largest trees in Britain, however, are only 80 or 90 feet high. They form beautiful pyramidal trees, and like to be sheltered from cold winds. The Californian Redwood (*S. semper-*

virrens) is another ornamental tree reaching a height of about 80 feet in our climate.

Taxodium distichum.—Known as the deciduous or Bald Cypress, because it loses its leaves in winter, is a very ornamental tree, attaining a height of about 90 feet in England. It loves moisture, and may be grown in or near lakes, &c.

Taxus.—Besides the Common Yew, there are one or two others like *T. canadensis*, the Ground Hemlock, and *T. cuspidata* from Japan, to be found in gardens. The varieties of the Common Yews, however, are very attractive, especially the Irish Yew (*T. fastigiata*) and its golden form. One of the attractions of the Yew is its pinky scarlet fleshy arils nestling amongst the sombre green foliage; but there are varieties having yellow fruits instead of red ones.

Thuja.—This genus includes plants well-known in gardens as *Thujopsis* and *Biota*, and the following are known in most gardens of note: *T. dolabrata* with flattened branches and scale-like leaves; *T. gigantea* (or *T. Lobbi*), a fast-growing pyramidal evergreen; *T. japonica* (or *Standishi*), also pyramidal in growth and slender in habit; *T. occidentalis*, the American Arbor-Vitæ, of which there many varieties; and the Chinese Arbor-Vitæ (*T. orientalis*) equally prolific in its variation.

Tsuga canadensis, the Hemlock Spruce from N. America, grows about 60 feet high, and has feathery branches; and closely related is the graceful Prince Albert's Spruce *T. Mertensiana* (or *Albertiana*). There are many other fine Conifers worth growing, but it would need a separate volume to do them anything like justice.

For more detailed descriptions and cultural notes regarding the 300 species of Conifers known, the reader is recommended to consult "A PRACTICAL GUIDE TO GARDEN PLANTS."

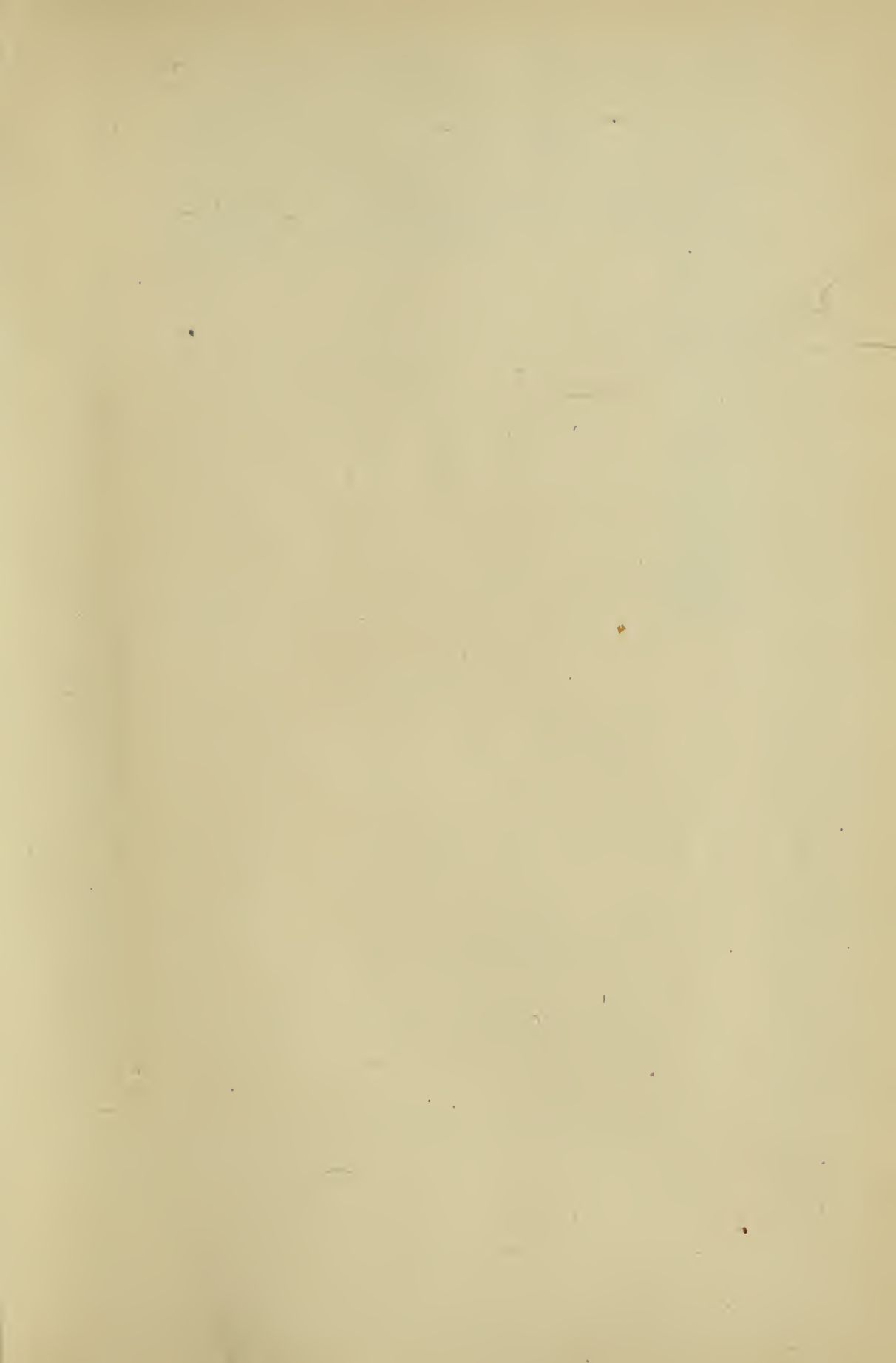
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