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## ENGLISH GARDENS.

B Y

## E. T. COOK .



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## PREFACE

IT cannot be urged against this work that it travels along a path already well worn, for the subject of trees and shrubs for English gardens, though almost inexhaustible, has never been so fully treated and illustrated as it deserves. The book may have many defects, but its pages will show that an honest effort has been made to offer helpful and instructive information to the many who wish to know more of the beauty of trees and shrubs.

In writing this book, the labour of my spare hours for many months, I have been greatly helped by Mr. Bean, the assistant-curator of the Royal Gardens, Kew, whose deep knowledge of the subject has been willingly imparted; and by Miss jekyll, to whom I am indebted for many valuable suggestions and notes. Among others to whom grateful thanks are tendered are Mrs. Davidson, Mr. J. Clark, Mr. Dallimore, and Mr. S. W. Fitzherbert.

Some of the chapters have already appeared in the Garden, with the object of making known as widely as possible the importance of the most beautiful trees and shrubs for English woodland and pleasure-grounds.

The illustrations will show how a shrub, so often
stunted and mutilated by unwise pruning, becomes beautiful when allowed to develop naturally.

The illustrations have their own teaching value, and in this matter also I desire to thank many willing helpers, especially Miss Jekyll, Miss Willmott, and Mr. Crump, of the Madresfield Court Gardens.

It is the wish and hope of the author, whose notes, taken during many years, are embodied, that the book may do something to make English gardens more beautiful and interesting, and that it may win many to see the better ways of planting; also that it may be the means of bringing forward the many trees and shrubs of rare charm that are generally unknown or unheeded.

The word "English," of course, stands for the British Isles.
E. T. C.

November 1902.

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## TREES AND SHRUBS

## WANT OF VARIETY A BLEMISH

There is a sad want of variety amongst evergreen and deciduous shrubs in the average English garden. Faith is placed in a few shrubs whose only desire is to rob the soil of its goodness and make a monotonous ugly green bank, neither pleasant to look at nor of any protective value. As one who knows shrubs well and the way to group them says, "Even the landscape gardeners, the men who have the making of gardens-with, of course, notable exceptions-do not seem to know the rich storehouse to draw from." Very true is this. We see evidence of it every day, and the mixed shrubbery fondly clung to as a necessary feature of the garden, with distressing results. There are other shrubs than Privet in this fair world of ours, and as for providing shelter, the wind whistles through its bare stems and creates a draught good for neither man, beast, nor plant. Mr. Bean denounces the Cherry Laurel in no measured terms. "Few other plants can stand against its greedy, searching roots, and its vigorous branches and big leaves kill other leaf-growth near them.

Grown in the proper way, that is, as an isolated shrub, with abundance of space to develop its graceful branches and brilliant green leaves, the Cherry Laurel is a beautiful evergreen ; it is quite happy in shady, half-wooded places. But grown, as it is so often, jammed up and smothering other things, or held in bounds by a merciless and beautydestroying knife, its presence has not been to the advantage of English gardening."

When the planting season comes round, think of some of the good shrubs not yet in the garden, and forget pontic Rhododendron, Laurel, Aucuba, and Privet. By this is not meant rare shrubs, such as may only be had from the few nurseries of the very highest rank or from those that make rare shrubs a speciality, but good things that may be grown in any garden and that appear in all good shrub catalogues.

Perhaps no beautiful and now well-known shrub is more neglected than beautiful Exochorda grandiflora (the Pearl Bush). Its near relatives, the Spiræas, are in every shrubbery, but one may go through twenty and not see Exochorda. Even of the Spiræas one does not half often see enough of S. Thunbergi, a perfect milky way of little starry bloom in April and a most shapely little bush, or the double-flowered $S$. prunifolia, with its long wreaths of flower-like double thorn or minute white roses and its autumn bravery of scarlet foliage. The hardy Magnolias are not given the opportunity they deserve of making our gardens lovely in earliest summer. Who that has seen Magnolia stellata in its April dress of profuse


## CHINESE GUELDER ROSE.



A grouping of magnolia stellata.

## WANT OF VARIETY A BLEMISH

white bloom and its summer and autumn dignity of handsome though not large foliage, would endure to be without it? or who would not desire to have the fragrant chalices of $M$. soulangeana, with their outside staining of purple, and M. conspicua, of purest white in the early months of March and April? And why does not every garden hold one, at least, of the sweet Chimonanthus, offering, as it does in February, an abundance of its little blooms of a fragrance so rich and powerful that it can be scarcely matched throughout the year.

Cassinea fulvida, still known in nurseries by its older name of Diplopappus, in winter wears its fullest dress of tiny gold-backed leafage in long graceful sprays, that are borne in such profusion that they only beg to be cut to accompany the rare flowers of winter that we bring indoors to sweeten and enliven our rooms.

Of small-flowering trees none is lovelier than the snowy Mespilus (Amelanchier), and for a tree of somewhat larger size the good garden form of the native Bird Cherry is beautiful in the early year. The North American Halesia (the Snowdrop Tree) should be in every garden, either as a bush or tree, every branch hung in May with its full array of pendent bloom of the size and general shape of Snowdrops, only of a warm and almost creamy instead of a cold snow-white colour.

Few spring-flowering shrubs are more free and graceful than Forsythia suspensa, and if it can be planted on a slight eminence and encouraged to
throw down its many-feet-long graceful sprays it then exhibits its best garden use. The Japanese Viburnum plicatum is another shrub well known but unfairly neglected, flowering with the earliest Irises. Grouped.with the grand Iris pallida dalmatica it is a thing never to be forgotten.

Asculus or Pavia macrostachya, blooming in July when flowering shrubs are rare, is easily grown and strikingly handsome, and yet how rarely seen! Calycanthus floridus, with its spice-scented blooms of lowtoned crimson, also a late summer flower, is a fine thing in a cool, well-sheltered corner, where the sun cannot burn the flowers. The Rose Acacia (Robinia hispida), trained on a wall or house, is as beautiful as any Wistaria, and the quality of the low-toned rosy bloom of a much rarer colour. It is quite hardy, but so brittle that it needs close and careful wall training or other support. To name a few others in the same kind of category, but rather less hardy, the Sweet Bay is the noblest of evergreen bushes or small trees; the Tamarisk, with its grey plumes of foliage and autumn flower-plumes of tenderest pink, is a delightful plant in our southern counties, doing especially well near the sea. Clethra alnifolia, against a wall or in the open, is a mass of flower in late summer, and the best of the Hibiscus syriacus, or Althoea frutex, the shrubbery representatives of Mallows and Hollyhocks, are autumn flowers of the best class. A bushy plant of half-woody character that may well be classed among shrubs, and that was beloved of our grandmothers, is Leycesteria formosa, a

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delightful thing in the later autumn. The largefruited Euonymus (Spindle Tree) is another good thing too little grown.

For a peaty garden there are many delightful plants in the neglected though easy-to-be-had list. One of these is the beautiful and highly fragrant Azalea occidentalis, all the better that the flowers and leaves come together and that it is later than the Ghent Azaleas. Then there are the two sweetscented North American Bog Myrtles, Myrica cerifera and Comptonia asplenifolia, the charming little Ledum buxifolium, of neatest bushy form, and the larger L. palustre, whose bruised leaves are of delightful aromatic fragrance; Vaccinium pennsylvanicum, pretty in leaf and flower and blazing scarlet in autumn, and Gaultheria Shallon, a most important sub-shrub, revelling in moist peat or any cool sandy soil.

These examples by no means exhaust the list of desirable shrubs that may be found for the slightest seeking. This brief recital of their names and qualities is only meant as a reminder that all these good things are close at hand, while many more are only waiting to be asked for.

## ORNAMENTAL PLANTING IN WOODLAND

Where woodland adjoins garden ground, and the one passes into the other by an almost imperceptible gradation, a desire is often felt to let the garden influence penetrate some way into the wood by the planting within the wood of some shrubs or trees of distinctly ornamental character.

Such a desire very naturally arises-it is wild gardening with the things of larger growth; but, like all forms of wild gardening (which of all branches of gardening is the most difficult to do rightly, and needs the greatest amount of knowledge), the wishes of the planter must be tempered with extreme precaution and restraint. It does not do to plant in the wild garden things of well-known garden character. This is merely to spoil the wood, which, in many cases, is already so good that any addition would be a tasteless intrusion of something irrelevant and unsuitable.

Still, there are certain wooded places where a judicious planting would be a gain, and there are a certain number of trees and shrubs which those who have a fair knowledge of their ways, and a true sympathy with the nature of woodland, recognise as suitable for this kind of planting. They will be


IN THE WCODLAND AT KEW, SHOWING TREE AND SHRUB BY GRASSY WAY.


Wayfaring tree (Viburnum Lantana); A NATIVE Shrub on Chalk.
found in these classes : Native growths that are absent or unusual in the district, such as the Spindle Tree (Euonymus), White Beam, Service Tree, White and Black Thorn, Wild Cherry, Bird Cherry, Wild Guelder Rose (Viburnum Opulus), and V. Lantana, Honeysuckle, Wild Roses, Juniper, and Daphne Laureola.

Then, among cultivated trees and shrubs, those that are nearly related to our wild kinds, including some that are found in foreign woodlands that have about the same latitude and climate as our own. Among these will be Quinces and Medlars, many kinds of ornamental Cratægus, Scarlet Oaks, various Elders and Crabs, and the grand Sorbus americana, so like our native Mountain Ash, but on a much larger scale.

A very careful planting with trees and shrubs of some of these and, perhaps, other allied kinds, may give additional beauty and interest to woodland. Differences of soil will, of course, be carefully considered, for if a piece of woodland were on chalky soil, a totally different selection should be made from one that would be right for a soil that was poor and sandy.

In moist, sandy, or, still better, peaty ground, especially where there is a growth of Birches and Scotch Firs, and not many other kinds of trees, a plantation of Rhododendrons may have a fine effect. But in this case it is better to use the common R. ponticum only, as a mixture of differently coloured kinds is sure to give a misplaced-garden look, or an impression as if a bit of garden ground had missed its way and got lost in the wood.

## GROUPING OF TREES AND SHRUBS

IF this subject were considered with only a reasonable amount of thought, and the practice of it controlled by good taste, there is nothing that would do more for the beauty of our gardens or grounds. Nothing can so effectually destroy good effect as the usual senseless mixture of deciduous and evergreen shrubs that, alas! is so commonly seen in gardensa mixture of one each of a quantity of perhaps excellent things planted about three feet apart. There would be nothing to be said against this if it were the deliberate intention of any individual, for, as a garden is for the owner's happiness, it is indisputably his right to take his pleasure in it as he will, and if he says, "I have only space for a hundred plants, and I wish them to be all different," that is for him to decide. But when the mixture is made from pure ignorance or helplessness it is then that advice may be of use, and that the assurance may be given that there are better ways that are just as easy at the beginning, and that with every year will be growing on towards some definite scheme of beauty, instead of merely growing up into a foolish tangle of horticultural imbecility.

If the intending planter has no knowledge it is well worth his while to take advice at the beginning,

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that a shrub or flowering tree cannot be used both for groups and single use, for such an one as the Forsythia just mentioned is also of charming effect in its own groups, with the red-tinted Berberis or the quiet-coloured Savins, or whatever be the lower growing bushy mass that is chosen to accompany it. Every one can see the great gain of such arrangements when they are made, but to learn to make them, and even to perceive what are the plants to group together, and why, that is the outcome of the education of the garden artist.

Much has been done at Kew in the judicious grouping of plants, and here is a living place of instruction open to all, where the best of plants may be seen and, to a considerable degree, the best ways of using them in gardens.

The one-thing-at-a-time planting is always a safe guide, but as the planter gains a firmer grasp of his subject, so he may exercise more freedom in its application. Nearly every garden, shrubbery, and ornamental tree plantation is spoilt or greatly marred by too great a mixture of incongruous growths. Nothing wants more careful consideration. On the ground in the open air, and sitting at home quietly thinking, the question should be carefully thought out. The very worst thing to do is to take a nursery catalogue and make out from it a list of supposed wants. The right thing is to make a plan of the ground, to scale, if possible, though a rougher one may serve, and mark it all down in good time beforehand, not to wait until the last moment and then


GROUPING OF SHRUB AND DAFFODIL.


NATURAL Grouping of Shrub in Rough ground
mark it ; and not to send the list to the nursery till the ground is well forward for planting, so that the moment the plants come they may go to their places.

All this planning and thinking should be done in the summer, so that the list may go to the nursery in September, which will enable the nurseryman to supply the trees in the earliest and best of the planting season.

How good it would be to plant a whole hillside on chalky soil with grand groupings of Yew or Box, or with these intergrouped, and how easy afterwards to run among these groupings of lesser shrubs; or to plant light land with Scotch Fir and Holly, Thorn and Juniper (just these few things grouped and intergrouped); or wastes of sandhills near the sea within our milder shores with Sea Buckthorn and Tamarisk, and Monterey Cypress (Cupressus macrocarpa), and long drifts of the handsome Blue Lyme Grass.

A mile of sandy littoral might be transformed with these few things, and no others than its own wild growths, into a region of delight, where noble tree form of rapid growth, tender colour of plume-like branch and bloom and brilliant berry, and waving blue grassy ribbons, equalling in value any of the lesser Bamboos, would show a lesson of simple planting such as is most to be desired but is rarely to be seen.

The other and commoner way is nothing but a muddle from beginning to end. A van-load of
shrubs arrives from the nursery-one of each or perhaps not more than six of any kind. No plan is prepared, and the trees and shrubs are planted in the usual weary mixture, without thought or design. Generally there are three times too many for the space. It is a cruel waste and misuse of good things.

## HEATHY PATHS IN OUTER GARDEN SPACES

THE subject of heathy paths comes within the scope of this book. We are not thinking of grass or gravel paths, but those in pleasure-grounds that are beyond the province of the trimly-kept garden, and yet have to be somewhat tamed from the mere narrow track such as serves for the gamekeeper on his rounds. Paths of this kind admit of varied treatment. The nature of the place and the requirements of those who use the paths will determine their general nature, and settle whether they are to be of turf or of something that must be dry in all weathers. But grass and gravel are not the only alternatives. One kind of path not often seen, but always pleasant, and at one time of year distinctly beautiful, can be made of the Common Heather (Calluna vulgaris). We know of such a path, 12 feet wide and some hundreds of feet long, carpeted with 'this native Heath, mown once a year, and feeling like a thick pile carpet to the feet; grey-green in summer, bronze-coloured in late autumn, and in the second and third weeks of August thickly set with short sprays of the low-toned pink of the Heather bloom. It is not so dry as a gravel path, but a good deal drier than grass, and
has a pleasant feeling of elasticity that is absent in common turf.

Many are the pleasure-grounds in the south of England and Scotland where the soil is sandy and, perhaps, peaty. Any such can have these pleasant heathy paths. We have even seen them on a poor sandy clay, scarcely good enough to call loam, in Sussex ; for Calluna, unlike the other Heaths, will grow willingly in clay. In the case quoted the plant was wild in the place.

In a Fir wood, the bare earth carpeted with needles always makes a suitable path, and one that is always dry ; the only thing to correct is to fill up any places where the bare roots rise above the path level. For in these informal paths, where we want to look about and at the trees, there should be no danger of being tripped up. The path, of whatever nature, should be wide enough for two persons- 5 feet to 6 feet is ample ; but it should have quite a different character to the garden path, in that its edges are not defined or straightened.

One may often see in the outskirts of an old garden a dense wood that once was only a growth of shrubbery size. The walk was originally bordered by a Box edging, and there may have been a strip of flowers between it and the shrubs. Here and there one may still see a yard or two of straggling Box nearly 2 feet high. Of course, this edging should have been removed as soon as the place became a wood, for after a certain time its original use as a formal edging to a trim plantation ceased to exist.

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Nothing is pleasanter in woodland than broad, grassy ways, well enough levelled to insure safety to an unheeding walker. In early spring, before the grass has grown any height, here is the place where Daffodils can best be seen and enjoyed, some in the clear grass and some running back in wide drifts into any side opening of the wood. If the grass is cut in June, when the Daffodil foliage is ripe, and again early in September, these two mowings will suffice for the year.

In many woody places where shade is fairly thick, if there is any grass it will probably be full of moss. No path-carpet is more beautiful than a mossy one ; indeed, where grass walks from the garden pass into woodland, the mossy character so sympathetic to the wood should be treasured, and the moss should not be scratched out with iron rakes. Often in the lawn proper a mixture of moss and grass is desirable, though one has been taught that all moss is hateful. In such places, though it may be well to check it by raking out every four or five years, it should by no means be destroyed, for in the lawn spaces adjoining trees or woodland the moss is right and harmonious.

There are paths for the garden and paths for the wood. A mistaken zeal that would insist on the trimness of the straight-edged garden walk in woodland or wild is just as much misplaced as if by slothful oversight an accumulation of dead leaves or other debris of natural decay were permitted to remain in the region of formal terrace or parterre.

## TREES AND SHRUBS IN POOR SOILS

As there is vegetation to suit nearly all natural conditions, so those who find they have to undertake planting in poor, dry, hungry sands and gravels will find that there are plenty of trees and shrubs that can be used, though the choice is necessarily a more restricted one than they might make on better land. The very fact of the fewer number of available trees and shrubs may even be a benefit in disguise, as by obliging the planter to be more restricted in his choice the planting scheme will be all the more harmonious.

As to trees, Holly, Thorn, Juniper, Birch, Scotch Fir, and Mountain Ash are found wild on the poorest soils, and will even grow in almost pure sand. Oaks, though they never grow to the dimensions of the Oak of loamy woodlands, are abundant on poor soils, where they have a character of their own that is full of pictorial value. The lovely Amelanchier, daintiest of small trees, revels in sandy woods, as does also the Bird Cherry, another good native tree, while the Wild Cherry becomes a forest tree of large size and of loveliest bloom. Ilex and Arbutus are excellent in the south of England, enjoying the warmth and winter dryness of light soils.

Garden shrubs in general can be grown, though
not so luxuriantly as on better soils, but some classes are especially successful on poor land. There are the Cistuses and Heaths, with Lavender and Rosemary, in the drier parts, and in the wetter places Kalmias, Andromedas, Rhododendrons, Ledums, Permettyas, and Vacciniums, with the Candleberry Gale and the native Bog Myrtle. These, which are usually classed as peat shrubs, will succeed in any sandy soil with the addition of leaf-mould, and are among the most interesting and beautiful of our garden shrubs.

Those who garden on poor and dry soils should remember that though their ground has drawbacks it has also some compensations. Such soils do not dry in cracks and open fissures in hot weather, and do not present a surface of soapy slides in wet ; they can be worked at all times of the year, except in hard frost ; they are easy to hoe and keep clean of weeds and are pleasant and easy to work. They correct the tendency of stony soils to the making of a quantity of coarse rank growth, and they encourage the production of a quantity of flowers of good colour.

## PRUNING FLOWERING TREES AND SHRUBS

THE art of pruning properly is one that is acquired by considerable practice and observation. The first is necessary that the actual work may be well and cleanly done, and it is only by observing the manner and times of flowering of the different trees and shrubs which go to constitute a well-kept pleasureground that the proper time to prune can be thoroughly understood. The manner of pruning varies considerably, some pinning their faith to a slanting cut towards a bud; some preferring a straight cut; while others again are content with simply slashing off the useless wood in the quickest possible manner. The former is the best method, as it does not present a surface for the lodgment of water, an important point with those shrubs that are of a pithy nature in the centre of the wood, as the presence of water will quickly cause the stems to rot and render the plant unsightly, even if it escapes serious injury. All stems that are an inch or more in diameter should be tarred over to keep out the wet, which either rots them directly or injures them indirectly by making a moist, congenial home for the various fungoid diseases to which so many of our exotic trees and shrubs are liable.

Many shrubs which have been in one place for some years, and which have become stunted or poorly flowered, are often given a new lease of life by a hard pruning in the winter, cutting away all the old wood entirely, and shortening the remainder. With a good feeding at the same time, they will throw up strong young shoots, full of vigour, which will bear fine and well-coloured flowers. Of course, a season of blooming will be lost by doing this, but it will be amply compensated for in after years by a healthy plant in place of a decrepit and unsightly one. The list appended includes practically every flowering tree and shrub hardy in this country, with the proper time of pruning it. Those not specified flower on the old wood.

Abelia.-This genus is barely hardy, and, in most localities, is usually pruned sufficiently or too much by frost. A moderate thinning of the shoots in spring is sufficient.

Acanthopanax.-There are three species of this genus hardy in this country, and of these $A$. ricinifolium requires no pruning beyond the cutting away of side-shoots to a single stem, as it attains the dimensions of a tree in Japan, its native country. $A$. sessiliflorum and $A$. spinosum are low-growing shrubs, and require an occasional thinning out, which is best done in late summer to allow the remainder to thoroughly ripen before winter.

Actinida.-A climbing genus, easily grown in warm, sheltered localities. They require very little pruning, but should be watched in spring when
growth has commenced, or the twining shoots will get into a tangled and unsightly mass. Any growth not required should be cut away in winter.

Akebia.-"Akebia quinata has flowered here, on an east wall, profusely for the last seventeen years, under the following pruning treatment: Cover the space allotted with the strongest shoots, and when new growth pushes from the eyes or spurs in the spring, do not regulate it, but summer-prune away all superfluous growth before it gets entangled. It is from 'spurs' that the flowers are produced, and the more these are kept clear, the more matured they become, and flower correspondingly."-E. M. in The Garden.

Æsculus (Horse-Chestnut).-The common representative of this requires little or no pruning, but the other species are benefited by a thinning out of misplaced and useless branches in late summer to allow light and air to the centre of the tree. This is especially important to all the Æsculus in a young state. Esculus parviflora should have a good thinning if the branches or suckers become at all thick, cutting all growths not required clean away from the base.

Amelanchier.-These should be pruned after the flowers are past, the removal of badly-placed and weakly shoots being all that is required. If the plants are becoming too large, they can be shortened back at the same time.

Amorpha.-If flowers are desired of $A$. fruticosa it should be kept thinned out, and not be cut back; but the flowers are not showy, and it is usually kept

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CEANOTHUS AZUREUS, VAR MARIE SIMON
cut down every winter for the sake of its foliage. A. canescens should be cut down each spring to within two or three eyes of the old wood, as it flowers best on the young growth.

Andromeda.-The only recognised species of this genus is $A$. polifolia, which requires no pruning.

Aralia.-These should be kept to a single stem until they have attained a height of 6 to 8 feet, after which they may be allowed to branch, or be still kept to a single stem, as may be desired.

Arbutus.-An evergreen genus which requires no pruning.

Aristolochia.-A genus of climbers which succeed best if the shoots are not allowed to become too thick. The weakest should be cut away in winter.

Artemisia.-This genus is best known by its common representative, the Southernwood, but this and the other Artemisias should be cut down annually in a young state. When older, an occasional thinning out of the shoots in winter is sufficient.

Baccharis.-Of this, B. halimifolia flowers on the young wood and should be cut back annually, while B. patagonica should not be pruned at all.

Berberis.-Properly the Berberis requires no pruning, but the stronger-growing species, such as B. aristata, B. Lycium, B. virescens, B. vulgaris, \&c., require an occasional thinning to keep them within bounds.

Berchemia.-A climbing genus which requires no pruning.

Bruckenthalia.-A dwarf-growing Ericaceous genus, the seed-pods of which should be removed as soon as the flowers are past, or the plants will be seriously weakened.

Bryanthus.-This should be treated the same as the last, which it somewhat resembles.

Buddleia.-Of these, B. japonica, B. intermedia, and $B$. lindleyana flower on the young wood and require cutting back every winter to within two or three eyes of the old wood; B. globosa need not be pruned at all, except in a young state to keep it bushy ; and B. paniculata only requires thinning out if it becomes too thick, which is not a very common occurrence.

Calluna (the Ling).-This and its numerous varieties should have the old flowers cut off as soon as they are past, and any long or straggling growth cut back at the same time.

Calophaca.-The solitary representative of this genus is rather inclined to become straggly if growing at all freely. When this is the case, the plant is benefited by the cutting back of the longer shoots in winter.

Calycanthus.-These require an occasional thinning of the branches, and any long shoots may be shortened with advantage.

Camellia.-These, which should be grown outdoors much more than they are, should be cut down if they get unhealthy or unshapely, which should be done in April. Otherwise no pruning is required.

Caragana.-Cut away all the straggling or misplaced branches.

Carmichaelia.-Requires no pruning.
Cassandra.-See Calluna.
Cassinia.-These are grown more for their foliage than for their flowers, and should be cut down in the winter or early spring. This can be done annually or biennially according to whether the plants are growing strongly or not.

Cassiope.-See Calluna.
Catalpa.-This genus contains some of our handsomest flowering trees, all of which require careful pruning after the flowers are past, thinning out the weakly wood, and shortening any long branches.

Ceanothus.-Of these, C. americanus, C. azureus, C. integerrimus, and the garden hybrids, such as "Gloire de Versailles," "Marie Simon," "Ceres," $\& c$., flower on the young wood, and should be cut back in spring, allowing only sufficient shoots to remain to form a well-balanced plant, and shortening them back to within two or three eyes of the old wood. The remaining species flower on the old wood, and merely require a shortening back of the stronger shoots and a thinning out of the weakly ones after the flowers are past.

Celastrus.-A climbing genus of strong and vigorous habit with showy fruits. They only require sufficient pruning in winter to keep them within bounds.

Cercis.-Requires no pruning, except such as may be necessary to make well-shaped plants, which should be done after flowering.

Chimonanthus.-The shoots of this should be
shortened back after flowering, and if on a wall they should be spurred in.

Chionanthus.-See Cercis.
Cistus.-Those which are hardy of this genus should be cut back each spring while in a young state, but when they have attained a flowering size no pruning is required. The cutting back of young plants induces a bushy habit, and also keeps them from weakening themselves by blooming and seeding.

Clematis.-The garden forms of this genus are divided into two sections, of which C. Jackmani, C. lanuginosa, C. Viticella, and C. aromatica (C. corulea odorata) are the types of those which flower on the young wood, and which require cutting back close to the old wood in the winter; while C. florida, C. patens, and C. montana are the types of those which flower on the ripened wood of the previous year, and merely require a thinning out of weakly or unnecessary growth. Of species other than those mentioned above, C. Flammula, C. paniculata, and C. Vitalba flower on the young wood; and the remaining species are either herbaceous or flower on the old wood.

Clethra.-These practically require no pruning, but long shoots may be shortened and weakly ones cut away with advantage.

Colutea.-These make better plants and flower later if they are cut back every winter. C. istria (a rare species) should not be cut down if flowers are desired.

Cornus.-The strong-growing shrubby Cornus,


NATUR.AL BEAUTY.

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ing to keep them in good condition. This should be done in late summer, when the plants should be well thinned out, and all useless growth cut clean away.

Erica.-See Calluna.
Escallonia.-These are usually cut back by frost ; but if they escape, E. rubra and E. punctata should have their long growths shortened back in spring, while the other hardy species need not be touched.

Exochorda.-These usually require no pruning, but if the plants are getting too large or unshapely, they should be cut back immediately after flowering.

Fatsia (Aralia Sieboldii).-This is usually cut by frost, but it stands a cutting back in spring, when new growth is soon made which will flower late in the following autumn.

Fothergilla.-Requires no pruning.
Genista.-G. linctoria flowers on the young wood, and should be cut back every spring. The other species of Genista should not be pruned, except to keep them in shape.

Halesia.-These are small trees or large shrubs, and should not be shortened back, but are improved if the growths are kept thinned out, which should be done after the flowers are past.

Halimodendron.-Requires no pruning.
Hamamelis.-Thin out regularly, as they are very apt to get thick and make weakly growths.

Hedysarum.-This flowers on the young wood, and should be cut back each spring, but not too hard. The growths can also be pegged down to improve the plant, which is apt to get straggling.

Helianthemum.-Cut away all dead flowers and seed-pods after blooming.

Hibiscus.-Thin out in winter, but only shorten the longest shoots.

Hydrangea.-These flower best on young wood, and should be cut down in winter.

Hypericum.-These should be cut back fairly hard in early spring, as they all flower on the young growth.

Indigofera.-Cut down every spring, as they flower on the young wood.

Itea.-Keep the growths thinned and cut away all old wood.

Jamesia.-This should be treated as the preceding.
Jasminum.-J. fruticans and $J$. humile are shrubs which should be thinned regularly ; and J. nudiflorum and $J$. officinale are climbers, which should be spurred in after flowering.

Kalmia. - Remove seed-pods as soon as the flowers are past.

Kerria.-Cut away the old wood to encourage the young growths, which yield the best flowers.

Laburnum. - These should be thinned after flowering, cutting away the old or weakly wood, and shortening any long or straggling shoots.

Lavandula. - Cut away all flower-spikes after they are past.

Ledum.-Remove seed-pods after flowering.
Lespedeza.-See Desmodium, which it much resembles.

Leucothoe.-L. axillaris and L. Catesbai flower
much better if the old growths are removed and strong young shoots encouraged. The rest of the genus require no pruning.

Leycesteria.-Thin out old growths every spring.
Ligustrum.-L. ovalifolium and its golden variety are all the better for being cut down each winter while in a young state. The remainder merely require an occasional thinning.

Liriodendron.-Requires no pruning.
Lonicera.-The shrubby Loniceras are nearly all inclined to become very thick and full of weakly shoots if not well looked after. A thinning out should take place after flowering is past. The climbing Honeysuckles should only be pruned sufficiently to keep them within bounds.

Lycium.-These should be served the same as the shrubby Loniceras, but the operation should be performed in autumn or winter, as they flower practically all the summer.

Lyonia.--Requires no pruning.
Magnolia.-Generally speaking, the Magnolias should not be pruned, but cut away useless or decaying wood. Every wound, however small, on a Magnolia should be tarred over immediately.

Microglossa.-The solitary shrubby representative of this is $M$. albescens, which should be cut down in winter, as it flowers best on the young wood.

Myrica.-An occasional thinning is sufficient for this genus.

MYRICARIA.-Flowering on the young wood; this should be cut back every spring.

HYDRANGEA PANICULATA GRANDIFLORA (unpruncd plant).

HYDRANGEA PANICULATA AND VAR. GRANDIFLORA

Neillia.-Thin out every year after flowering is past, cutting back the old wood to strong young shoots.

Neviusia.-This requires the same pruning as Neillia.

Notospartium.-Requires no pruning.
Nuttallia.-The single species of this flowers in February, and is improved by a good thinning out of the old wood when blooming is past.

Olearia.-Requires no pruning.
Ononis.-O. rotundifolius should be cut down every winter, as it flowers on the young wood. The remaining species flower on the older wood, and need not be touched.

Osmanthus.-These should not be pruned unless a particular shape is desired, when the plants may be clipped with a pair of shears in spring.

Oxycoccus.-This is a small creeping genus allied to Vaccinium, and requires no pruning.

Oxydendron.-Remove seed-pods.
Paliurus.-This attains the dimensions of a small tree, and should be kept trimmed up for that purpose.

Parrotia.-Thin out in spring after the flowers are past.

Paulownia.-Keep to a single stem to a height of about 8 feet, and then allow it to branch. If used for sub-tropical bedding, it should be cut down to the ground every winter.

Peraphyllum.-The solitary hardy species of this should not be pruned or disturbed in any way if it can be avoided.

Periploca.-A climbing genus which should be thinned out in winter, and only shortened back if necessary.

Pernettya.-These should not be pruned at any time.

Philadelphus.-These should be thinned after flowering, and the old wood cut back to strong young shoots. This is especially important with P. microphyllus, P. coronarius, and P. Lemoinei and its varieties.

Photinia.-Requires no pruning.
Pieris.-Remove seed-pods.
Potentilla.-Thin out after flowering, and shorten any old wood back to strong young breaks.

Prunus.-When young, all the members of this genus that are grafted or budded are improved by being cut back each spring until they have attained a fair size and shape. More especially is this the case with the Almonds, double-flowered Peaches, and the various flowering Cherries. When older, they need only be thinned and the flowering Plums and Cherries kept spurred in, but not too hard. Prunus japonica, P. nana, and P. triloba should be cut down to strong young breaks after flowering, the resulting wood bearing better flowers than the old wood. If any of these three latter are grown on a wall they should be spurred back hard after blooming.

Ptelea.-When young, trim these to form small trees, and do not allow them to develop into ungainly bushes. When older, they require an occasional thinning. $P$. trifoliata var. aurea, a golden form

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of the Rhus, as the sap of all is poisonous to a certain extent.

Ribes.-All the Ribes are improved by being cut down annually while in a young state, but when older, a yearly thinning out of the old wood is sufficient.

Robinia.-This is a genus that requires very little pruning when the members of it have attained a fair size, an occasional thinning being all that is necessary. In a young state they require well staking, and the longest shoots should be shortened back, as many of them are top-heavy when young.

Rosa.-Although the various garden Roses come under this heading, yet they are a class apart, and are better dealt with by specialists. The species of Rosa do not require any shortening of their shoots, which should always be left at full length, but all of them should have an annual thinning out of the old wood, either cutting it right away or back to a young shoot. Some of the species are very prone to throw up suckers from underground sometimes to a considerable distance from the plant, and these should always be dug out and got rid of ; merely cutting them off only producing two evils in the place of one.

Rubus.-This genus includes the Blackberry and Raspberry, and in a modified form the treatment accorded to them for fruiting is the best to employ with the ornamental Rubi, that is, all old wood that has flowered should be cut away and strong young canes encouraged. But while in the cultivation of
the Raspberry only a few young canes are allowed to grow, in the ornamental species practically every young growth should be utilised. The doubleflowered Rubi should have some of the old wood left, as they do not make so much young growth as the single ones do.

Santolina.-This is a dwarf-growing genus, the old flower-heads of which should be cut away as soon as they are past, and any long or straggling growths cut back at the same time.

Sambucus.-The elders require very little pruning as a rule, but the various cut-leaved, golden, or variegated forms are improved by being cut back annually. This will prevent them flowering, but as good foliage is required the loss of the bloom is a matter of little consequence.

Skimmia.-Requires no pruning.
Smilax.-The hardy species of this genus do not require any pruning if they have room to ramble. If space is restricted, thin out and shorten in autumn.

Sophora.-These should be kept thinned when they have attained flowering size; in a young state they should be kept to a single stem and induced to form well-shaped trees.

Spartium.-This should be cut back in a small state, but when older it requires no pruning whatever.

Spirea.-Though all the Spiræas will flower on the old wood, the following are better for being cut back in winter to form young flowering shoots, viz., S. betulifolia, S. Douglasi, S. Foxii, S. japonica,
S. Margarita, S. salicifolia, S. semperflorens, S. tomentosa, and many of their varieties and hybrids. The remaining Spiræas should be kept thinned out, and if any are making strong young breaks from the lower part of the plant they can be cut back to them after flowering.

Stachyurus.-This should be thinned out after flowering.

Staphylea.-S. pinnata should be kept thinned in late summer ; S. colchica and S. Colombieri require very little pruning, but if too tall or unshapely should be cut back immediately after flowering.
$\left.\begin{array}{l}\text { Stuartia } \\ \text { Styrax }\end{array}\right\}$ Require no pruning.
Sueda.-Cut back occasionally to keep it from getting ragged.

Symphoricarpus.-Keep these well thinned out, which should be done in late summer.

Syringa (Lilac).-These should be kept free of suckers, especially the finer-named kinds, which are usually worked on stocks of the Common Lilac. In addition, disbudding may be practised with advantage in the spring, removing the majority of the blind shoots and any flowering or leading shoots that are misplaced or not required. This should be done twice or thrice at intervals of ten days or a fortnight.

Tamarix.-Cut back in a young state, but when older they should not be pruned at all.

Vaccinium.-The removal of any old or rough wood is sufficient for these.

Viburnum.-All the Viburnums grow thickly, and require an annual thinning.

Viris.-The methods practised in growing Vines for fruit suits the ornamental species as well. If space is restricted they should be grown on the spur system, and if there is plenty of room then the extension system may be employed.

Wistaria.-These should be kept spurred in, with the exception of the leading shoots, which merely require a shortening in early spring according to the strength of the plant.

Xanthoceras.-Requires no pruning.
Zenobia.-These require no pruning as a rule, but occasionally a hard cutting back will induce healthy growth in place of a weakly one.

## PROPAGATION OF HARDY TREES AND SHRUBS

If we were to take many books about trees and shrubs or general gardening as a guide, one might be led to think that only one way of increasing a tree or shrub existed, and that by grafting ; but, as we have pointed out elsewhere, it is a mischievous practice when indiscriminately applied. It is not contended by this that grafting and budding are utterly needless, as in a few instances these methods may be rightly adopted, but the four natural ways of increase are by layers, seeds, suckers, and cuttings.

Of these, practise seed-raising whenever possible; but if seeds cannot be procured, then adopt other ways, and the man is wise who tries to keep a plant on its own roots. Neither budding nor grafting should be resorted to, unless other means fail absolutely. When standard trees cannot be got true from seed, budding or grafting must be practised, and the evils of these methods of propagation are not so pronounced in such cases as with dwarf plants. With the former, suckers, or growths from the stock, are easily seen as soon as they appear, but with dwarf plants a perfect forest of suckers may seriously weaken the plant before they are noticed.

SEEDS.-These can be sown at almost any time,
but the spring is the best, as those which germinate quickly have time to form strong young plants before the following winter. Some take two years to come up, and should be left in the ground. This refers more to seeds sown outdoors, and few hardy trees and shrubs require heat to assist germination. When sown in the open the beds should be made on a fairly rich, moist piece of ground, protected from cold winds, but fully exposed to the sun. After the seeds are sown, cover them with light tiffany shading, fir branches, or heather, but the first is best, as it is easily removed to attend to the bed. Conifers especially should be sown in beds, whether indoors or outdoors, as pot-culture results in the roots taking the shape of the pot, and never afterwards recovering from their cramped condition. It must be remembered, however, that varieties cannot be depended upon to come true from seed, though by careful selection for a few years many varieties will almost reproduce the characteristics of the parents. Hybrids, such as Berberis stenophylla, Hypericum moserianum, and many others, also do not come true from seed, so that cuttings, layers, or division of the old plants, must be the practice chosen.

Suckers.-Plants which throw up suckers from the base, or below the ground-line, are easily propagated by detaching these suckers in winter with a portion of root. They will grow away readily, and soon form good trees or shrubs as the case may be.

Cuttings.-Nearly all the hardy shrubs, and a small proportion of hardy trees also, can be pro-
pagated by cuttings taken at certain times of the year. Summer cuttings are taken during the last two weeks of May and throughout June, the actual time depending on the season, and consist of the young shoots that have grown to a length of 3 to 6 inches. These should be pulled off with a "heel," and inserted in sandy soil in a close frame, with brisk bottom heat. The cuttings should be taken on a dull day, or early in the morning, and kept cool and moist until they are in the frame. A cutting that has flagged is useless, as it never revives. Deciduous flowering shrubs are usually propagated by summer cuttings, which generally root well in a fortnight or less. Autumn cuttings are taken during August and September, and are made from the partially ripened growths of the current year, inserted in sandy soil, in a close frame, without bottom heat. Winter cuttings are made from thoroughly ripened wood at any time between October and March, and are laid in rather thickly in rows outdoors, and only about an inch or less is left above the soil. The majority of our best flowering shrubs are easily increased in this way.

Layers.-Excellent trees and shrubs can be got by layers, and they may be laid down at any time of the year; they will be ready for removal in about eighteen months or two years.

Budding.-This is done about August, and the same rules apply to trees and shrubs as to Roses, \&c.

Grafting.-This takes place outdoors from March to May, at the earlier time for deciduous trees and

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usually budded or grafted on stocks of the parent species.

Ilex (Holly), Magnolia, Populus (Poplar), Platanus (Plane), and Salix (Willow). The Holly is easily raised from cuttings and layers, the second roots readily when layered, and the latter three are propagated in large quantities by winter cuttings. The White Poplar (Populus alba) is an exception, as this can only be increased by root-cuttings.

## Increasing Hardy Shrubs

The best of our hardy flowering shrubs are grouped under seven natural orders, and a knowledge of the order to which a plant belongs is in most cases a guide to its propagation, as the majority of the species contained in an order are, as a rule, increased by the same methods.

Berberidee.-This contains Akebia and Berberis, which are propagated by seeds, cuttings, or layers. Berberis stenophylla and B. Neuberti do not come true from seed, so that one or both of the other methods mentioned above must be adopted.

Leguminosx.- In this order such genera as Cytisus (Broom), Genista (Rock Broom), Spartium (Spanish Broom), Ononis, Indigofera, Colutea (Bladder Senna), Caragana (Siberian Pea tree), and Cercis (Judas tree) should be raised from seed, which is the quickest and best method of propagation. Cuttings of certain forms of Cytisus and Genista will root readily, but the plants will sometimes die off just as they have
attained flowering size. Ulex (Furze, Whin, or Gorse) is propagated by seeds or cuttings, and Wistarias by seeds or by layering.

Rosacere.—This includes Prunus, the shrubby forms of which can, in the majority of cases, be increased by cuttings or layers; Spiraa and Kerria (Jews' Mallow), cuttings of which root readily at almost any time of the year ; Exochorda (Pearl Bush), must be raised from seed to do any good; Rubus (Brambles), some of which can be propagated by suckers, and the remainder by pegging the points of the shoots down to form young plants; Rosa (Rose), the species of which should be increased by seeds, cuttings, or layers, though seeds will not always come true, as Roses become hybridised very readily; and Cotoneaster, which are increased by seeds, cuttings, or layers.

Saxifragee.-In this order Hydrangea, Deutzia, Philadelphus (Mock Orange), Escallonia, and Ribes (Flowering Currant) are included. All are easily propagated by cuttings taken in almost any season of the year. With the exception of Hydrangea, which should be struck under glass, all the members of this order root readily outdoors in the winter.

Caprifoliaces.-This order contains such genera as Sambucus (Elder), Viburnum, Lonicera (Honeysuckle), Symphoricarpus (Snowberry tree), Abelia, Leycesteria, and Diervilla. All are easily propagated by cuttings or by layering. The cuttings can be taken at almost any time of the year, and root
quickly, the young plants attaining a good size by the end of the second year.

Ericaces.-This order includes all the so-called American plants, such as Pernettya, Gaultheria, Leucothoë, Andromeda, Pieris, Zenobia, Erica (Heath), Calluna (Common Heather, Ling), Kalmia, Ledum, Clethra, and Rhododendron (including Azalea). These can all be increased by seeds, layering, and, in addition, the first two by division of the old plants. Erica and Calluna can also be increased by cuttings. Seedlings, of course, make the best plants, but layering is a quicker method, and, in the case of some of the smaller Ericaceæ, one of the easiest. All the Rhododendrons will not root from cuttings, though some of the small-flowered ones strike easily, but practically all may be increased from layers. A few of the showy garden forms cannot be raised from layers, and have to be grafted on stocks of the common $R$. ponticum or $R$. catawbiense.

Oleacer.-This includes both deciduous flowering shrubs and ornamental evergreens, such as Syringa (Lilac), Chionanthus (Fringe tree), Jasminum (Jasmine), Forsythia, Ligustrum (Privet), Phillyraa, and Osmanthus being represented. The first two are best propagated by seeds or layers, though the named garden Lilac is usually grafted on stocks of the common $S$. vulgaris, a silly practice. It is a pitiful business keeping down suckers from grafted plants. Ask for Lilacs on their own roots, and much vexation will be saved. A garden should be a place of rest and pleasure, not a hunting-ground for suckers. The

## PROPAGATION OF HARDY TREES 43

other genera are readily raised by cuttings taken at almost any time of the year, or by layering.

Although the above orders include a considerable number of our best shrubs, several plants must be specially mentioned. The Clematis is increased by seeds, cuttings, or layers in the case of the species, but unfortunately the garden forms are usually grafted on C. Viticella or C. Flamniula, whereas many can be propagated by cuttings, and practically all will root when layered. Daphne should be raised from seeds, or by layering, though a common practice is to graft all the rarer Daphnes on D. Mezereum, which is another mistake, especially with the evergreen ones, which have a brief existence grafted on a deciduous plant.

In the absence of seeds the following genera must be propagated by layers, viz., Aucuba, Chimonanthus (Winter Sweet), Halesia (Snowdrop tree), Hamamelis (Witch Hazel), Hippophaë (Sea Buckthorn), and Myrica (Candleberry Myrtle). Cuttings of the first will root readily enough, but never seem to succeed afterwards. The female form of Hippophaë is best raised from layers, as seedlings usually give a large percentage of male plants. Aralia and Rhus (Sumach) are increased by seeds or root-cuttings; Buddleia japonica is best raised from seeds, and the other Buddleias from cuttings; and practically all other hardy shrubs that have not been specially mentioned are easily propagated by seeds, cuttings, or layers, and the majority of them by all three methods.

Always keep a plant on its own roots whenever possible. Budding and grafting are only makeshifts ; but, of course, if it is impossible to increase a tree or shrub by any other means, then resort to budding or grafting. It is strange that layering is yet only in its infancy. We have gone on blundering for generations, and propagating wholesale in the most uncertain and unsatisfactory of all ways, that is, by grafting or budding when neither was in the least expedient. Such tricks have hindered the development of English gardening.

tulip tree at ranelagh (Winter)


WINTER BEAUTY OF LIME.

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well said with regard to deeper matters that foresight must spring from insight, and it may be taken also as a foundation principle of good gardening. For just in proportion as we use our faculties of insight and foresight will our gardens grow, more or less, into a perfect expression of our sense of the ever-changeful, never-ending beauty of Nature.

It must be no cursory glance given to get rid of an unwelcome duty. We must look deep into the meaning of things as they are-a meaning which never lies wholly on the surface-before we can forecast them as they are going to be, and such insight rarely comes by intuition. The seeing eye is given only to a few, though with some it is but sleep-holden and needs no more than to be awakened.

The things that are and the things that are to be. Let us take the thought as company and try to glean some of Nature's own lessons of fitness. How instinctively we. seek, for a winter ramble, the shelter of the woodland copse, which is not far distant from any English country habitation. The broad grass drive is hoar with frosty rime in the shadow of the bushes and crisp under foot. Under the trees the ground on either side is carpeted with Ivy. The lithe, trailing stems, wreathed with their shining, taper-fingered leaves, so exquisitely pencilled, are cushioned on the soft, feathery moss, or twine in and out amongst the Hazel stocks, or creep at will up the nearest tree trunk. One can scarcely look at Ivy on a winter's day without a
thrill of admiration, especially this woodland sort, for, mark it well, Nature never encourages the coarse-lived Ivy of common cultivation within her domains. How perfect in its grace is this fineleaved Ivy, how utterly content with its surroundings, how resolutely cheerful, be the circumstances of weather or situation what they may! Clinging lowly to the ground or mounting to the topmost branch of some tall Pine, it is equally at home, and why should we not agree with that good naturalist, Charles Waterton, in his assertion that forest tree was never injured by its clasping stems? An English plant for our English climate, it may be used to make beautiful an unsightly building, to clothe a decaying tree stump, as bush or border or mantle, in a hundred different ways, yet it is never out of character, and never touches a jarring note.

Then those tall Hollies, see how dauntlessly they stand up above the under-growth of Hazel. How living and warm, in their ruddy glow, are the clustering berries in the glint of the fearless leaves. For expedience sake, their lower branches have been trimmed away, and greatly we gain by it, for otherwise that lovely contrast of their ashen-grey stems would be hidden from our eyes; but over yonder a fine old Holly tree stands alone, which axe and knife have left untouched, and how graceful is the curven sweep of its feathering boughs. No foreign evergreen can excel it for symmetry of form or winter garniture of leaf and fruit. Life is astir, too, in the brown twigs of the Hazel bushes. The infant
year is not more than a week or two old, yet already the tasselled catkins are swinging in the lightest rustle of the sighing wind, and begin to lift up their tiers of small woolly cowls to set free the yellow pollen-dust. And so we may go on our way, and, at every turn, some rugged Yew, or clump of red-stemmed Scotch Fir, or tapering Spruce with hanging russet cones, will stay our steps, and if we look and listen, they will tell us in their own way the story of their perfect fitness for our homely English landscape. Or, if we chance to be in one of the chalky districts of the South Downs, we may come upon Box, the ever young, as it was called of yore, or Juniper, in its bloom of silver grey, as precious as any, to add to the tale of our best native evergreens.

Now it is to a wise choice of evergreens and to their rightful placing that we must look for the basis of our content in the winter garden. The insight of our forefathers foresaw the solid comfort of the rampart of Yew which was fostered of old in many a manor-house garden. It caused them to fence about their dwellings on north and east with a belt of sturdy timber trees, to meet and ward off in their pliant strength the roughest winter gales. It planned the sheltered nut-walk and the pleached alley and the cosy settle, carved out of the thick Box bushes, on the grassy verge of the bowlinggreen. They took of the materials at hand, and many have since their day blessed the foresight which planted, not only for themselves, but

## A WINTER GARDEN OF TREES

for their children's children. That they were not blind to the rare beauty of foreign trees many a magnificent Cedar of Lebanon and massive Ilex, or deciduous tree-like the fine Tulip trees at Mackery End, beloved of Charles Lamb-bear noble testimony to this hour.

Nothing, perhaps, in the wide range of garden beauty is more pictorial than an ancient Cedar, dusky and glaucous, with cavernous shadows, holding upright the smooth, pale-brown, rounded cones on its flattened branches, or some grand Silver Fir standing alone in its solemn symmetrical beauty, or even, as may now and then be seen, though rarely, some stately Araucaria, wind-sheltered, whose radiating branches sweep down upon the greensward. Others there are, no less pictorial perhaps, nor even less exacting, for none can do without the shelter of a good position, such as the Stone Pines, with corrugated trunk and green spreading head; or again, the graceful fragrant Cypress (C. lawsoniana) of more recent date, with its slender pyramidal growth and drooping feathery branches, taking on at the close of winter the ruby-red of the catkins which tell of the coming of the small, bloompowdered cones.

The desperate hurry, the incessant crowding out of the times in which we live, give little encouragement to the sentiment of planting for posterity, yet some such planting is continually being done. This much must be said, that the last fifty years have seen the introduction of numberless fine trees and

## TREES AND SHRUBS

shrubs, the fitness of which for our climate time alone could test. During that period in England, the Mammoth tree of the Yosemite Valley (Sequoia gigantea) has been planted in its thousands, and by irony of fate, the giant not seldom finds itself cramped within the limits of a half-acre plot. But leaving out the question of space, it is a tree utterly unsuited to our northern climate, unless under exceptional circumstances, as its scorched and fretted branches on the windward side sufficiently prove; while in itself it is not nearly so grand or suggestive as its near-of-kin, the beautiful Californian Redwood (S. sempervirens).

Ah! that burning question of space, how it comes between us and our highest garden aspirations! Have we not all seen the Deodar or the Araucaria trying to exist in a narrow, twelve-foot forecourt, and smiled, if we have not rather been ready to weep, over the crass absurdity of its position? But such mistakes are made every day. Let us think, then, before we plant, of the things that are going to be, and take prudent counsel with ourselves.

Our garden resources, nowadays, are beyond all calculation greater than those of our forefathers, and we rejoice and are glad because of it ; but we should let nothing oust from our affections the hardy trees and shrubs, native and naturalised, that are at home in our climate, beautiful in themselves and invaluable in their fitness to give shelter to the more fastidious immigrants from other latitudes.

Shelter, in fact, is as the keynote to the winter
garden. Beauty is killed when leaves that should be green and smiling are bruised and brown, when boughs that should be perfect in grace and curve are twisted and tortured. We may be very sure, too, that such symptoms of discomfort in our gardens will re-act in disquiet on ourselves, whereas the mere sight of tree or bush standing firm in its green bravery through storm and stress tends, it may be unawares, to brace and uplift. Even the familiar Laurel, good as it is when suitably placed, and used not too freely, is constantly scathed and disfigured in damp or low-lying localities. For the same reason, it is doubtful whether Rhododendrons should be planted within range of our windows. Most of them, in severe weather, frightened before they are hurt, put on a melancholy air and droop of leaf which is apt to send a shiver through any shrinking mortal whose vitality is already low enough.

The bare boughs of winter, on the contrary, are never depressing. They sleep, but it is not the sleep of death ; they rest, but while they are resting, we feel that the mystery of life silently works out the fulfilment of the promise of re-awakening. Meanwhile, before the veil of leafage hides so much else that is beautiful from our eyes, we see the things that are, tree trunks in all their majesty of girth and column and fencing bark, the net-work of budding spray, each after its kind distinct, yet each in its own form perfect. Even in mid-winter, the brown gummy buds of the Horse Chestnuts begin to swell
at the ends of the swaying boughs, and the Ashbuds, as they make ready to burst their bonds, put on a deeper hue.

The Beeches keep their silken green tight shut within their scale-bound points, and will not let it unfold an hour too soon; but look at the lovely colouring, now silvern, now golden green, of the Lichen-stains on the smooth grey bark. Contrast it with the deeply-chiselled ribs of the Sweet Chestnut, the rugged armour-plates of the Oak, the thin white tissue of the dainty Silver Birch. It is this diversity, these contrasts, which make up the charm of winter, while the sombre green of Fir and Yew intermingling with the leafless trees gives just the touch of warmth and comfort which winter lacks. If any of these bless our gardens with their gracious presence, let us hesitate long before any trivial inconvenience tempts us into doing away with them. A single group of Silver Birches, one spreading Beech, a clump of Scotch Fir, with a stretch of grass beneath them, is more precious to look out upon in the winter garden than all the borders and rockeries that can be devised. Urge as we may, however, for their own sake, the fitness and constant delight of our native trees and evergreen shrubs, we plead for them, no less, because by their well-advised use our sheltered gardens may become congenial abiding-places for the strangers we may invite within our gates.

Do we profit as much as we might by the wealth of garden beauty, in the way of trees and shrubs,

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Perhaps we ought not to include Magnolias amongst hibernal flowers, though the trees are often white with blossom before the Larch is green; but the list of shrubs which bloom, or are bright with coloured fruit during those four months, would surprise most people who think of winter only as the dead season. The boughs of Sea Buckthorn are loaded with orange berries. Clusters of scarlet peep out of the fresh green of the Skimmia bushes and, so long as the birds do not find them out, Pernettya carries a crop of purple and crimson and pink fruit more showy than the modest white flowers of summer. When November days are growing dark, Coronilla, in sheltered spots, puts forth its pale clustering yellow flowers. Winter Jasmine, if the flowering branches are not ruthlessly pruned away in autumn, covers its long green shoots with golden stars. The evergreen Clematis (C. calycina) is never happier than when clinging to some terrace balustrade where it may have a little kindly shelter, which it repays by wreathing the stone-work with garlands of finely-cut bronzed foliage, hung with creamy freckled bells. More than one kind of hardy Heath, if grown in spreading masses, will deck the garden with sheets of colour the whole winter through.
The Chinese Honeysuckle (L. Standishii) arrays itself in its fragile white flowers as early as January. Witch Hazels hang their bare branches with twisted petals of gold or amber or, sometimes (as in Hamamelis zuccariniana), borrow the pale-green tint of the under wing of a brimstone butterfly. Soon after

## A WINTER GARDEN OF TREES

Christmas, Mezereon flushes into rosy purple, and bushes of Winter-sweet (Chimonanthus fragrans), independent of a wall (as few people know), will breathe out its perfume from leafless branches studded over with waxen-yellow flowers. It is strange how many of these winter-blooming plants keep their leaves well out of harm's way, brave as their flowers may be. But so it is, and so we learn that if we would gain their fullest winter beauty, we must group them with evergreen shrubs as foil or background.

And what store there is of these to choose from, not green only, but colour-tinged-Berberis of many kinds, the shining ordered leaf-rows of Azara, the purple tints of Mahonia and Gaultheria, the bronze of Andromeda buds, the deep dull green of Osmanthus, the wine red of Leucothoë, the pearl grey of Atriplex, and a hundred more will respond to our beck and call. Only we must choose with judgment, for whether our lot is cast in north or south, in the black east or soft caressing west, makes all the difference to our choosing. Only be sure that more important still than climate are the wind-breaks we can plan, and the shelter we may contrive. Yet when we are in doubt we can always come back with satisfaction to the quick-growing hardiest shrubs and find in them some fit setting for our garden picture. The slender angled branches of green Broom, the rigid spiny Furze, scented Rosemary, or hoary Lavender - all will lend their varied tints and attributes as we need them. And if a pool or stream only gives us opportunity, what can surpass the
winter colouring of osier twigs-golden and crimson and olive, mirrored in still water or broken into a thousand reflections by the ripple of a running brook.

Perhaps, amongst all the wealth of winter evergreen shrubs the rank of those which show variegation is too much exaggerated. Popular as they are, the effect is not always good, unless more than ordinary care is taken in their placing. Some few, like the best golden and silver Hollies are very beautiful, though not all of these are improvements upon the finest green forms. No variegated shrub, probably, is more universally grown than the Aucuba, and it has excellent points ; it is hardy in constitution, handsome in outline, and bold of leaf. By illluck, as it happened, more than a hundred years ago, the spotted variety was sent home first from Japan, and became domiciled in English gardens and rooted in English affections before the far more worthy green species made its entry.

It is but a private opinion and not given as dogma that it might possibly be a distinct gain to gardens, large and small, if the spotted Aucuba were practically banished and the true green-leaved formssome of which are generally beautiful when well set with large coral berries-allowed to take its place. The variegated Oleaster (Eleagnus pungens), a remarkably fine shrub when taken by itself, sadly disturbs the repose and dignity of the garden outlook in winter, though doubtless positions might be found in which it would harmonise with its surroundings.

We need only con over, mentally, all the more

## A WINTER GARDEN OF TREES

familiar examples of shrub variegation to find, probably, that we should do as well without a goodly proportion of them, though we may frankly admit some to be very handsome. The secret of our discontent, possibly, lies in the fact that variegation in plants that are normally green is not, in its essence, a sign of health but of wasting sickness. In any case, whatever our feelings may be on this particular point, it is well worth while to weigh the merits of each shrub, variegated or green, before we plant it, not only individually, but in relation to its neighbourhood to other garden associates, and more especially with regard to its winter aspect.

Mr. Bean writes as follows about the winter beauty of trees and shrubs: "Even in November and December there are trees and shrubs that brighten the garden with their coloured bark and fruits. Although not abundant, the members of this class are not used so extensively as they might be.
"Among Willows, for instance, there are the golden and red-barked varieties of Salix vitellina. These, though scarcely ever seen, are capable, when properly treated, of producing bright warm effects that are especially charming from November to February. When allowed to grow naturally this Willow-known popularly as the Golden Osierforms a graceful tree of large size. Its twigs have a golden or red tinge, according to the variety, but on fully-grown trees these twigs are not large, and as it is, of course, the bark of the preceding summer's
growth only that is coloured no very marked colour effect is produced. To obtain a really bright patch of colour it is necessary to plant these Willows in goodly-sized groups and to prune them hard back every spring. By treating them in this way a great cluster of long, wand-like growths is made every year, the bark over the whole of which becomes a bright yellow or red as winter approaches. An effective group is produced by mixing the red and yellow-barked varieties.
"Another striking Willow is Salix daphnoides. The young bark of this species is covered with a thick glaucous or vivid blue-white 'bloom.' S. acutifolia is similarly distinguished, though not quite so markedly. Different from any of these Willows, too, is the variety of S. triandra, with purplish-brown bark. To bring out fully the ornamental qualities of these Willows they should be treated as advised for Salix vitellina. All these Willows are especially charming near the edge of water. Not only are their moisture-loving propensities satisfied, but their beauty is doubled by reflection in the water.
"Somewhat similar to the Willows in the character of their bark, but useful in being adapted for drier situations, are the Cornels (Cornus). The best of the genus in this connexion are Cornus alba and its variety sibirica. They produce bark which for one or two seasons remains a bright red during the time the branches are leafless. A group of Cornus alba, with Chionodoxa Lucilice or Winter Aconite planted thickly beneath, gives a very pleasing bit of colour early in
the year. A yellow-barked form of Cornus stolonifera, known as flaviramea, deserves mention.
"Several shrubs are notable for the particularly bright green of their bark. The forms of Kerria japonica and Neillia are very bright during the winter on this account, but still more effective is a near ally, Stephanandra kanaka, a comparatively new shrub, also from Japan, but of little value in any other respect. Finally, I may mention the Rubuses with white stems. As in Salix daphnoides, the bark is covered with the waxy secretion known as 'bloom,' and of a blue-tinted white. Some six or seven species of Rubus have this character. Of those obtainable from nurseries, $R$. biflorus, a Himalayan species often to be had from dealers under the erroneous name of Rubus leucodermis, is the best. Dr. A. Henry has introduced a Chinese species, Rubus lasiostylus, which is even better than biflorus; the bloom is more distinctly blue, and the stems sturdier and more self-supporting. The species is, however, an extremely rare one in cultivation. It is scarcely necessary to repeat how essential it is that these Brambles and Cornels should be planted in bold groups.
"Among trees the most noteworthy as regards the colour of their bark are the Birches. The beauty of the Common White Birch has not been overlooked by planters. A single specimen or a few grouped together make a bright winter picture when associated with evergreens. The Canoe Birch of North America (Betula papyrifera) has a bark of an even
purer white than our native species. The Yellow Birch ( $B$. lutea) shows warm orange-brown tints on the more recently exposed surfaces of its bark. The bark of the River Birch (B. nigra) is not brightly coloured, being of a dull dark brown, but it gives the tree a notably curious aspect owing to the way it stands out from the trunk and branches in great ragged-looking flakes.

## A Flower Garden in Winter

" It is possible to make a new feature in gardens by setting apart a piece of ground exclusively for the cultivation of trees, shrubs, and bulbs-in short, any plants that flower or are bright with fruit or bark between, say, the beginning of November and the end of February. One might term it 'an out-door winter garden.' For the purpose there would be required a well-drained piece of ground, the soil of which was fertile and open. The situation should be fully exposed to the south and west, but guarded well on the north and east sides by a thick belt of evergreen trees and shrubs. The shelter would be still more complete if the site sloped rather steeply to the south-west. Such shelter would be welcome, not only to the plants that grew there, but to those who might visit and tend them. Some of the more noteworthy trees and shrubs with ornamental barks I have already mentioned. Plants that carry their fruit into winter might be included, such as the Hollies, especially the yellow-berried Holly ; Cra-

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tagus Crus-Galli and C. spathulata; Cotoneaster rotundifolia, which is the best of all the Cotoneasters, and frequently carries its bright-scarlet berries till March ; and Hippopher rhamnoides, the Sea Buckthorn, whose orange-coloured fruits are borne in such profusion and retain their colour till past Christmas if the frosts are not too severe. The scarlet-fruited Skimmia japonica and its varieties are very ornamental during the winter months, but of these (as well as the Hippophæ) it is necessary to grow male and female plants together. Groups of variegated evergreens would not only help to give shelter and warmth, but would also add to the brightness of the garden. The best of them are the golden and silver variegated Elæagnuses, the Hollies of a similar character, and the best of the Aucubas, of which there are now some very fine forms ; the female plants are also very ornamental as fruitbearers. Pinus sylvestris aurea, a variety of the Scotch Pine that turns golden in winter but is green at other seasons, and Cupressus macrocarpa lutea are the two best Conifers of their class. Many of the variegated Conifers lose most or all of their colour as autumn and winter approach.
"With regard to the trees and shrubs that bear flowers between November and February, the number is not, of course, great ; still, they constitute a group that is larger, perhaps, than is generally supposed. The following list, which comprises all that I can call to mind, may be useful even to those who would not intend to bring them together in one spot.

Some country houses are only occupied during the shooting and hunting seasons, and these winterflowering plants are of especial value in such places.

## November

Arbutus hybrida.
Unedo and vars.
Daphne Mezereum grandiflora.
Elæagnus glabra, macrophylla, and pungens (all delightfully fragrant).

Hamamelis virginica.
Jasminum nudiflorum.
Lonicera fragrantissima.
" Standishii.

## December and January

Chimonanthus fragrans.
Clematis calycina.
Cratægus monogyna præcox (Glastonbury Thorn).
Erica mediterranea hybrida.

Erica carnea. alba.
Garrya elliptica. Viburnum Tinus.

## February and early March

Berberis japonica.
nepalensis.
Cornus Mas.
Corylopsis spicata.
Daphne blagayana.
" Laureola.
", Mezereum.
" " var. alba.
" oleoides.
Erica mediterranea.
Hamamelis arborea.
" japonica.
" mollis.

Hamamelis zuccariniana.
Prunus davidiana (pink and white forms).
,, amygdalus persicoides.
Populus tremuloides pendula.
Parrotia persica.
Pyrus japonica.
Rhododendron altaclarense. dauricum. nobleanum.
præcox.

## AUTUMN COLOURS

There is a certain amount of mystery about the autumn colouring of the foliage of hardy trees and shrubs in this country, and we have never yet ascertained with any degree of exactness the conditions that produce the richest and brightest colours. Probably the conditions most favourable generally are provided by a good growing season-that is, a warm, moist summer-followed by a dry, sunny autumn. But it frequently happens after what one would regard as favourable seasons, that species which are usually quite trustworthy in this matter fail to colour well. Probably one set of conditions does not suit all trees and shrubs in this respect. To produce the colouration of the leaf just before it falls certain subtle chemical changes in its composition take place. And to bring about these changes certain conditions in regard to sunlight, temperature, and moisture are necessary. But in a climate such as that of Britain, where the seasons are never alike two years together, we can never hope to obtain the same regularity of autumnal colouring that characterises the vegetation, for instance, of the Eastern United States. Still, when all is said, we possess in our gardens a large number of trees and shrubs and climbers that are delightful
in their autumnal livery of crimson, purple, scarlet, or gold. It is curious that every season we may notice species not usually conspicuous for their autumn tints beautifully coloured.

An over-vigorous, sappy growth, often the result of a wet, warm autumn or too rich a soil, is certainly detrimental to autumn colouring. Rhus cotinoides, an American Sumach, worth growing for the beauty of its colours in autumn, is one of the most unfailing in this matter. But young plants, put out in welltrenched, heavily-manured soil, will often fail to colour at all till they get older and less vigorous. The most beautifully-coloured examples of this Sumach that we have seen grow in rather light sandy soil. We have frequently noticed, too, that various species of Vine (Vitis) when starved in pots will colour exquisitely, whilst others, planted out in the ordinary way, completely fail. We believe, therefore, when planting with a view to the production of autumnal colour, any great enrichment of the soil is neither necessary nor advisable, provided it is of moderate quality to start with.

In the following notes, brief mention is made of some of the best trees, shrubs, and climbers that colour in autumn:-

## Trees

First among these are the American Red Oaks. Undoubtedly the best of these is a variety of Quercus coccinea known as splendens and grayana. This not only turns to a fine scarlet crimson, but it retains its
foliage for some weeks after the colour has been acquired-sometimes almost up to Christmas. Other good Oaks, not so certain, however, as the preceding, are Quercus marylandica (or nigra), $Q$. heterophylla, Q. imbricaria, and $Q$. palustris, all of which turn red. The Tupelo tree (Nyssa sylvatica) turns a fine burnished bronzy red. A tree remarkable for the size of its leaves, and especially for the rich golden yellow they put on in autumn, is Carya tomentosa, but, like most of the Hickories, it is scarcely known in gardens. Carya sulcata is somewhat similar. The Common Elm is usually very beautiful in the soft yellow tints of its leaves in autumn, but another Elm of more distinct aspect is Ulmus pumila, a low tree whose small leaves are retained till late in the year, and turn golden yellow before they fall. Liquidambar styraciflua has long been valued for its fading foliage of purple red, but not so well known is the lovely yellow of the Fern-like foliage of the Honey Locust (Gleditschia triacanthos). The Tulip tree (Liriodendron), the Nettle trees (Celtis), the Zelkowas, and several of the Birches turn yellow, one of the best of the Birches being Betula corylifolia, which turns a rich orange yellow.

Among commoner trees the yellow of the Horse Chestnut, the lovely crimson of the Wild Cherry, the golden shades of the Black and Lombardy Poplars, add much to the beauty of every autumn. Several of the Maples are noteworthy in this respect, more especially the numerous varieties of Japanese Maples (Acer palmatum and $A$. japonicum), these, as well as
the Mandshurian Acer Ginnala, turning to various shades of red. The Common Sycamore and Norway Maple change to yellow, but Schwedler's variety of the latter becomes red. Other trees that deserve mention are Amelanchier canadensis, whose foliage changes to lovely crimson shades in autumn ; Kolreuteria japonica, soft yellow ; Pyrus torminalis, bronzy red; Gingko biloba, pale gold; Cladrastis tinctoria, yellow ; Parrotia persica and Hamamelis, bronzy red and yellow. The Common Beech is nearly always beautiful, changing first to yellow, then to warm brown tints. Among Conifers the yellow-leaved variety (aurea) of the Scotch Pine is remarkable in retaining its colour during the winter months only, becoming green in spring and summer. Retinospora squarrosa and Cryptomeria elegans turn bronzy red in winter. The warm red-brown tints of the deciduous Cypress are charming.

## Shrubs

The Sumachs (Rhus) furnish some of the most striking of autumn-colouring shrubs; the best of them, $R$. cotinoides, has been already described; other fine species are $R$. typhina, $R$. glabra (with the cutleaved variety laciniata), and $R$. Toxicodendron, all of which turn red. The Venetian Sumach, R. Cotinus, becomes yellow. Berberis Thunbergi, which dies off a rich scarlet, is so beautiful in autumn that on some estates it has been planted in great quantity, not only for cover, but so that sportsmen may enjoy its colour during the shooting season. Its evergreen

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autumn. Vitis Coignetice is one of the noblest of all Vines, and turns crimson also. Other Vines useful in this respect are the Teinturier Vine, purple; V. Romaneti, red ; and the Virginian Creeper, especially that variety known as muralis or Engelmannii, which clings to walls or tree trunks without any artificial support, and acquires beautiful red shades in autumn. Among Honeysuckles, Lonicera japonica var. flexuosa is noteworthy for the fine red purple of its decaying leaves.

## TREES AND SHRUBS WITH FINE FRUITS

The most important of all the groups of trees and shrubs, for their fruit, is the one comprising the hardy species of the Rose order. This includes, of course, besides the Roses, such trees and shrubs as the Thorns, Crabs, and Cotoneasters. Among the the Thorns (Cratægus) are many very handsome sorts giving variety in size and colour of the fruits. It is unfortunate that many of them fall early and get spoilt by birds. At the same time birds add so greatly to the delight of the garden that we may well overlook their depredations. By many, indeed, these fruiting trees will be considered worth growing for the encouragement they give to bird-life. It may be well to remind planters that a considerable number of these fruiting trees and shrubs bear male flowers on one plant, female on another. People are often at a loss to understand why their Sea Buckthorns or Aucubas or Skimmias do not fruit, when the simple reason is that the plants are all male (or pollenbearing), or that the female ones have no males to fertilise them. As a general rule, if these shrubs are grouped, one male to eight or ten females is a proper proportion. As plants raised from seeds come in about equal proportions of both
sexes, it is necessary to select the females and keep just sufficient males to pollenise them, in order that the full beauty of the species as a fruit-bearer may be obtained. With Skimmias and Aucubas the proper proportions can be obtained by means of cuttings.

The following hardy trees and shrubs are the most conspicuous for the beauty of their fruits:-

Arbutus Unedo.-A native of Western Ireland, has strawberry-like fruits of a bright-scarlet colour.

Ailantus glandulosa, a fine tree over 50 feet high, is very beautiful when covered with its red and yellow-winged fruits; there are male and female plants.

Aucubas, grown at first for their ornamental foliage merely, have latterly come into prominence as fruit-bearers; the female plants bear clusters of bright-red berries which remain long on the branches and are very attractive in winter.

Berberis. - The fruits of the Berberries are mostly covered with a plum-coloured bloom as in B. Aquifolium and B. Darwinii, but none of them is handsomer than our native $B$. vulgaris and its varieties. These have pendent racemes of fruits, varying in colour from the typical orange scarlet to white, purple, and black. B. Thunbergi coral-red, very beautiful.

Crategus.-The finest of all the Thorns is $C$. Pyracantha, well named by the French "Buisson ardent." This shrub or small tree is valuable as a graceful evergreen, and when clothed (as it nearly

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Cotoneasters. - Not enough use is made of Cotoneasters in gardens. They grow well in almost any soil, and are all marked by elegant or neat habit. They are very pretty when in flower, but it is in autumn, when laden with fruits, that they attain their greatest beauty. One of the tallest of them is C. frigida, and this bears a great abundance of rich scarlet-red berries in flat clusters. In the nearly allied C. bacillaris they are almost black. C. rotundifolia is a dwarfer shrub, but the finest of all the Cotoneasters for its fruit ; it grows about 4 feet high, and has small, very dark green, persistent leaves; the fruits are about the size and shape of the haws of the Common Hawthorn, and are brilliant scarlet red; they are ripe in October, and from then till March make one of the most beautiful of winter pictures. In C. buxifolia the fruit is very abundant, but the red colour is not so bright as in the preceding. C. horizontalis, now getting to be a well-known shrub, has very pretty, globose, brightred fruits, small but freely borne. C. Simonsii, of medium height, has brilliant red berries, as has C. acuminata, a near ally, but taller. The dwarfest section of Cotoneaster, viz., thymifolia, microphylla and its variety glacialis (or congesta), which are so useful for rockeries, have all scarlet berries.

Celastrus articulatus is a vigorous climber from Eastern Asia, remarkable for the great beauty of its fruits, which are golden yellow within, and when ripe split open and reveal the shining scarletcoated seeds. C. scandens has orange-coloured seeds.

Coriaria japonica is very bęautiful in autumn, when it succeeds as well as it does with Canon Ellacombe at Bitton, the fruits being covered then with the persistent petals which are of a lovely coral red.

Cornus capitata (Benthamia fragifera) only succeeds to perfection in the south-western counties; its strawberry-like red fruits are very handsome.

Coprosma acerosa is a dwarf New Zealand shrub suitable for the rockery; it has variously-shaded, transparent, blue-green berries.

Eleagnus multiflora (or E. longipes) is the most ornamental in the genus with regard to its fruits. They are remarkably abundant, orange-coloured, and specked with reddish scales.

Euonymus europ.eus, our native "Spindle tree," is most beautiful in autumn, when, after a favourable season, it is covered with its open red fruits revealing the orange-coloured seeds within.

Fraxinus mariesil is one of Messrs. Veitch's introductions from Japan, and is a dwarf tree, one of the "Manna" Ashes; the thin keys are of a bronzyred colour and pretty.

Gleditschia triacanthos is the " Honey Locust." The pods are not brightly coloured, being at first green, then brown, but they are long, thin, and wavy, like crooked scimitars, and hanging in numbers on the tree ; have a very curious and (in this country) uncommon aspect.

Hedera (Ivy).-Some of the "tree" forms of Ivy produce berries freely; the most ornamental of them
are the red, yellow, and orange-coloured varieties of H. Helix arborescens.

Hymenanthera crassifolia, from New Zealand, is a dense-growing, stiff-branched, dwarf shrub, chiefly noteworthy for the white berries it bears.

Hypericums.-H. Androscmum and H. elatum produce rather handsome clusters of black fruits.

Hippophae rhamnoides, the Sea Buckthorn, is one of the most brilliantly coloured of all berry-bearing shrubs. It produces them in marvellous profusion, and they are bright-orange coloured. Birds do not molest the berries, and unless caught by severe frosts (which turn them grey) they lighten the garden wonderfully up to, and sometimes after, the New Year. The necessity of growing both sexes of plants has already been noted, but isolated females may be artificially impregnated by shaking pollen over them when in flower.

Ilex (Holly).-The berries of the Holly are so well known that we need only mention the yellowberried one (fructu-luteo), which is not common, but very effective in winter.

Ligustrum.-The Privets are of little consequence as fruit-bearing shrubs, and only $L$. sinense need be mentioned; it is frequently very striking in early winter, being covered then with great clusters of purple-black, shot-like berries.

Lycium chinense.-Nearly all the Box Thorns in this country belong to this species. As for L. europcum and $L$. barbarum, the names are very common, but the plants themselves very rare. L. chinense is very

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when laden with its hanging corymbs of rich scarlet berries is a delightful picture, and it reaches its full beauty in August. Not so well known is the variety fructu-luteo, with yellow fruits. A near relative of the Rowan tree is $P$. americana, its New World representative, but it is not so beautiful. The fruit is almost identical, but the tree is of a stiff and less graceful aspect. The new P. thianschanica, which also belongs to the Rowan tree group, has brightred, globose berries. Perhaps of all the genus Pyrus, none on the whole are so beautiful in autumn as the Crabs. P. baccata, the Siberian Crab, with its bright-red, cherry-like fruits, and $P$. Ringo from Japan, with bright-yellow ones, are the best of the true species. The hybrid "John Downie" Crab is also very beautiful in autumn.

The flowering Quinces are not particularly attractive in regard to the colour of their fruits, but some of them-notably those of the dwarf Pyrus Maulei-are very sweetly scented.

Some very handsome fruits are borne by the various White Beam trees (Pyrus Aria and its allies). Perhaps the best of them is $P$. lanata (or Sorbus majestica), which has flat clusters of bright-red berries. But many of the varieties of P. Aria itself are very attractive. One of the latest additions to this group is $P$. alnifolia, a neat-habited small tree from Japan and China. It has oblong coral-red fruits.

Rosa.-Beauty at fruiting time is an almost proverbial attribute of the Roses. None is more
beautiful than our native Dog Rose ( $R$. canina). Though in many an English hedgerow, an out-of-the-way corner in many a garden might be given up to the Dog Rose and its varieties for the sake of their wealth of scarlet hips in autumn. $R$. tomentosa and $R$. mollis are other red-fruited natives of Britain. All the members of the Scotch Rose group (pimpinellifolia) have black fruits. Of exotic species, one of the most valuable is $R$. rugosa; its flat, orange-shaped hips are so abundant and brightly coloured that they make a brilliant picture. R. microphylla has yellow prickly fruits, whilst those of $R$. macrophylla are pear-shaped and scarlet. The deepcrimson hips of $R$. pomifera, covered with bristly hairs like large gooseberries, are as remarkable as any. Some of the American species, although the fruits are usually small, are handsome, such as $R$. nutkana and R. carolina. The elongated, pear-shaped fruits of $R$. alpina and its variety pyrenaica are bright red, and have a pleasant, resinous odour when rubbed.

Rhaphithamnus cyanocarpus can only be grown outside against a wall, or in Cornwall or similar localities, but where it will succeed it is well worth growing, not only for its pale-blue flowers, but for the bright-blue fruits that follow them.

Some of the Rhamnus, such as the native $R$. catharticus and R. Frangula, bear abundant crops of purple-black berries.

The dense pyramidal fruit-clusters of the Staghorn Sumach (Rhus typhina) are often attractive,
being covered with crimson hairs. Those of $R$. glabra are similarly coloured.

Rubus pheenicolasius has spread in cultivation recently, and has beautiful scarlet berries. It is hardy enough, but birds are so attracted by the bright colour, that it requires protection from them when in fruit.

Sambucus.-The scarlet-berried Elder, S. racemosus, is by far the handsomest of the genus, but although it flowers freely enough, it is very uncertain in producing its fruits. S. glanca, from the West United States, produces large, flat clusters of blue-white berries, and there is a striking white-fruited variety of S. nigra called leucocarpa.

The Snowberry (Symphoricarpus racemosus) should always have a place in the garden for the sake of its clusters of large pure white berries, which remain long on the plants.

Viburnum.-There are several very handsome fruiting species in this genus, no finer, however, than the native $V$. Opulus, or Guelder Rose, with red fruits, and its variety fructu-luteo with yellow ones. In the other native species, $V$. Lantana, they are at first red, ultimately black. Several of the Viburnums are noteworthy for the blue or blue-black fruits ; of these are dentatum, molle, cassinoides, and nudum. Those of the evergreen $V$. Tinus are also dark blue, but, as with the other blue-fruited species, they are not frequently borne in profusion in the average climate of Britain.

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## WEEPING TREES AND THEIR USES

It is not at all easy to define special uses for trees of weeping habit, but it is safe to use them nearly singly and not in immediate connexion with trees of quite upright form. The point in the weeping tree is a certain grace of drooping line, such as one enjoys in the drooping racemes of many of the papilionaceous flowers such as Wistaria, Laburnum, and Robinia. Nothing is gained by accentuating the peculiarity by a direct association with trees of an opposite way of growth. It is better rather to place the weeping trees near rounded masses of shrub and small tree-for example, a Weeping Birch would group well with a clump of Rhododendrons.

Near water weeping trees seem to be specially effective. An instance of this is shown in the familiar Weeping Willow, but one at a time seems as much as is wanted.

As a general rule, we strongly advocate planting in groups, whether in the case of trees, shrubs, or flowering plants, but the weeping trees are less suited for grouping than any others. One Weeping Willow is all very well, but a whole grove of them would be monotonous and tiresome.

The habit of some of the weeping trees can be directly turned to account in the making of arbours



WEEPING ASH; PALACE GARDENS, DALKEITH.

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* Prunus Amygdalus pendula (Weeping Almond).
* " Avium pendula (Weeping Wild Cherry).
", acida semperforens.
" Mahaleb pendula (Weeping Mahaleb Cherry).
, Padus pendula (Weeping Bird Cherry).
* Cratægus Oxycantha (Hawthorn), red and white flowered.

Sambucus nigra pendula (Weeping Elder).

* Fraxinus excelsior pendula (Weeping Ash).

| $"$ | $"$ | aurea (golden-leaved) pendula. |
| :---: | :---: | :---: |
| $"$ | $"$ | pendula wentworthii. |
| $"$ | parviflora pendula. |  |

Ulmus (Elm) americana pendula.
" ", campestris pendula.
" antarctica pendula.
" suberosa pendula.
, " fulva pendula.
, ", montana pendula.
, Pitteursii pendula.
Zelkowa crenata pendula.
Morus (Mulberry) alba pendula.

* Betula (Birch) alba pendula.
* " " " Youngi.
" ", "purpurea pendula.
Alnus (Alder) incana pendula.
Carpinus (Hornbeam) Betulus pendula.
Coryllus Avellana (Common Hazel) pendula.
$Q u e r c u s$ ( Oak ) pedunculata pendula.
" . ", rubra pendula.
* Fagus (Beech) sylvatica pendula.



WEEPING ELM ON LAWN.


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## THE USE OF VARIEGATED TREES AND SHRUBS

The best use of trees and shrubs with coloured or variegated foliage is not very easy to determine, though it may be possible to give a few useful suggestions. The usual way of planting them here and there among mixed masses of evergreen and deciduous growths is perhaps the worst way of all. All good planting must be done with much thought and care, and these plants of coloured foliage, that are necessarily more conspicuous than others, want the most careful placing of any.

One excellent use of evergreen trees and shrubs with golden colouring, such as the Gold Hollies, Cypresses, Yews, and Privets is to make them into a cheerful bit of outdoor winter garden. The Goldleaved Privet is a delightful thing in early winter, and though Wild Privet, untouched by the knife, is a deciduous shrub, the clipped Privets of our gardens usually hold their leaves throughout the winter. With these the variegated Japan Honeysuckle might be freely used, much of its yellow veining turning to a bright red in winter. Cassinia fulvida is another good winter shrub with its tiny gold-backed leaves. The pretty bushes of this neat New Zealander are

## THE USE OF VARIEGATED TREES

apt to grow somewhat straggling, but the crowded little branches are the very thing that is wanted through the winter as cut greenery to go with winter flowers, whether hardy or from under glass. If these are cut a foot long the bush is kept in shape, and a valuable supply of stuff for house decoration is provided.

A half or even quarter acre of well-arranged planting of these gold-variegated shrubs has a surprisingly cheery effect in winter, making a kind of sunlight of its own when skies are grey, and a comfortable shelter when winds are keen.

In summer, too, it will be beautiful if the spaces between the shrubs are cleverly planted, for preference, with plants of white or pale-yellow flowers, such as White Foxglove, Enothera lamarckiana, white and pale-yellow Hibiscus ficifolius, Liliums auratum, giganteum, speciosum, and longifolium; White Everlasting Pea trained loosely through any near branches ; Nicotiana affinis and $N$. sylvestris; and close to the path hardy Ferns of pale-green frondage, such as the Lady Fern ; with clumps of plants of golden foliage like the Gold Valerian and Gold Nettle. A shrub of variegated foliage, planted without special attention, and coming suddenly in a grouping of others of an average green colour is made unduly conspicuous. It should be led up to by neighbours whose colouring gradually assimilates with its own. The sudden effect of colouring is all very well in the nurseryman's show borders, where the object is to attract attention to showy individuals, but in
our gardens we want the effect of well-arranged pictures rather than that of shop windows.

A variegated plant to be of real value in the garden must have clear, bright, and abundant red and yellow or white markings, not dotted or merely margined with colour. So many worthless shrubs with poor variegation have been named and offered for sale that it is unwise to buy them from a catalogue. We may repeat the advice already given, which is to see them first.

Trees and shrubs with coloured foliage are of several kinds. Most common of all are those which have leaves blotched or edged with golden or creamy yellow and white, such as the variegated Hollies and Elæagnuses. Then there are those which are only coloured at a certain season, like Neillia opulifolia aurea. This has leaves of a beautiful self yellow colour when they unfold in spring, but become green as the summer advances; or the variegated Plane (Platanus acerifolia Süttneri), which is only variegated in late summer and autumn.

Finally, there are those, like the Purple Hazel or Purple Beech, which have leaves of one colour and remain almost of the same shade whilst they are on the tree.

On the whole the plants that retain their colour till late summer and autumn, or acquire it then, are most valuable, because very few trees and shrubs are then in flower.

Variegated trees and shrubs must not be planted too plentifully, and studiously avoid all spotty effects.

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golden, are now very numerous; among the best are argentea marginata, argentea pendula, Golden $Q_{\text {ueen }}$ Silver $Q_{\text {ueen, }}$ Golden King, flavescens, latifolia aureomarginata, maderensis variegata, Watereriana, aureomedio picta, aureo-pendula, handsworthensis.
Laburnum vulgare foliis aureis, all yellow.
Platanus acerifolia Suttneri, very pure white with scarcely any green on late growth.
Populus deltoidea aurea, all yellow.
Prunus cerasifera atropurpurea (P. Pissardi), lovely claret red when young, becoming dull purple in summer.
Pyrus Malus neidwetzkyanus. In this Apple not only the leaves, but the wood and fruit are purplish red. Aria chrysophylla, yellow.
$Q$ uercus Cerris variegata, the white variegated Turkey Oak.
, pedunculata Concordia, a lovely clear yellow, but apt to burn.
" pedunculata purpurea, wholly red purple.
" rubra, crimson.
Robinia Pseudacacia aurea, yellow.
Ulmus campestris, "Louis Van Houtte," the best Golden Elm. ,, campestris viminalis variegata, a charming white-variegated, small-leaved Elm.

## Conifers

Abies concolor violacea, glaucous blue.
Cedrus atlantica glauca, glaucous blue.
Cupressus lawsoniana; numerous varieties, of which gracilis pendula aurea, lutea (very hardy), Silver $Q_{\text {ueen, }}$ and albo-variegata may be mentioned. nootkatensis lutea, yellow-tipped twigs.
" pisifera plumosa aurea, yellow.
macrocarpa lutea, the best yellow Conifer in mild districts.


ELIEAGNUS PUNGENS (Kew)


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Philadelphus coronarius foliis aureis, yellow in the spring and early summer and very bright then, gradually gets green afterwards.
Ptelea trifoliata aurea, yellow.
Rhamnus Alaternus variegatus, white.
Rhus Cotinus atropurpureus, purple.
Symphoricarpus orbiculatus variegatus, yellow.
Sambucus nigra foliis aureis, yellow, retaining its colour well till autumn.
racemosa plumosa aurea, a beautiful cut-leaved Golden Elder.

## Dwarf Shrubs and Climbers

Acanthopanax spinosum variegatum, pretty, white-variegated, dwarf, and slow-growing.,
Arundinaria auricoma, the best yellow-variegated hardy Bamboo. " Fortunei, the best white-variegated hardy Bamboo.
Cornus alba Spaethii, probably the finest of all yellow-variegated dwarf shrubs, never "scorching" in the hottest summers.
Euonymus radicans, the white-variegated form of this plant is useful as a carpet in shady positions where grass will not grow.
Hedera Helix (Ivy), numerous varieties, both shrubby and climbing-arborescens variegata, chrysophylla, discolor, maderensis variegata, sulphurea, canariensis argentea.
Jasminum nudiflorum foliis aureis and
officinale foliis aureis, variegated climbers with yellow leaves ; the latter is the more ornamental, but is delicate in constitution.
Kerria japonica foliis variegatis, white.
Lonicera japonica aureo-reticulata. The veins of this climber are beautifully "picked out" in gold.
Osmanthus Aquifolium ilicifolius variegatus, a holly-like, white-variegated shrub useful in the milder parts of the kingdom.

## THE USE OF VARIEGATED TREES 91

Osmanthus Aquifolium purpureus, the hardiest of the Osmanthus.
Pieris japonica variegata, white.
Ribes alpinum pumilum aureum, golden in spring.
Rubus ulmifolius variegatus, veins of the later leaves golden.
Salix repens argentea, a prostate silvery-leaved Willow, makes
a pretty weeping shrub if trained up at first.
Santolina Chamæcyparissus, silvery white entirely.
Vitis heterophylla variegata, a pretty, blue-berried climber, but tender; the variegation is rosy white.
," inconstans purpurea, a purplish form of the popular "Ampelopsis Veitchii."
," vinifera purpurea, deep purple.
Vinca minor, white and yellow-marked forms.

## TREES AND SHRUBS FOR SEA-COAST

In planting trees and shrubs near the sea, two important matters must be considered-(I) fierce gales; (2) salt spray. As a protection against storms much may be done by planting quick-growing things, such as Poplars and Willows, and in this sheltered area more permanent trees and shrubs may be put. This way of planting for shelter where bleak places are to be clothed with trees and shrubs is universally adopted in some form or other, sometimes in the shape of hedges or belts, and in the other cases the plants are all placed much thicker together than they are to permanently remain, thus forming a compact mass against which the wind makes little or no impression. In this last-named case continual thinning will be necessary as they grow up, for if left too long the plants become weak, and the advantage gained by the thicker planting is then completely lost. A beautiful seaside shrub, and the best, too, for forming shelter hedges of low or medium height is the Tamarisk, which retains its freshness throughout the season till the autumn, however much exposed to the sea.

It is difficult to make a list of trees and shrubs suitable for seaside planting around the British Isles, as the coast-line is so varied, and the action

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Populus alba (Abele or White Poplar). All the Poplars grow quickly.
, deltoidea (Canadian Poplar).
," fastigiata (Lombardy Poplar).
", nigra (Black Poplar).
Prunus cerasifera (Cherry Plum). Padus (Bird Cherry).
,, Pissardi (Purple-leaved Plum).
Pyrus Aria (White Beam tree).
,, Aucuparia (Mountain Ash).
" prunifolia (Siberian Crab).
Sorbus (Service tree).
$Q_{\text {uercus }}$ Cerris (Turkey Oak). Good loam suits this best.
,, Ilex (Evergreen or Holm Oak).
Salix (Willow) of sorts. Prefer a moist soil.
Ulmus (Elm) of sorts, particularly Wych Elm.

## Shrubs

Atriplex Halimus (Sea Purslane). Will grow close to the water.
Aucuba japonica (Aucuba). Few evergreens equal this.
Berberis (Barberry), Aquifolium, Darwinii, dulcis, and stenophylla.
Buxus (Box) and its varieties.
Cerasus Laurocerasus (Common Laurel) and C. lusitanica (Portugal Laurel).
Cistus Gum. Does well at Felixstowe, Suffolk.
Colutea arborescens (Bladder Senna). Will grow in very sandy soil.
Corylus Avellana (Hazel) and varieties.
Cotoneaster of sorts. All these are good for the purpose.
Cytisus (Broom) of sorts.
Daphne Laureola (Spurge Laurel). Will grow in shade.
Deutzia crenata, D. crenata flore-pleno, D. gracilis, D. Lemoinei.
Elæagnus of sorts. All of these are good.


TAURIAN TAMARISK Tamarix tetrandya IN FI OWFR

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Viburnum Opulus and V. Opulus sterile (Snowball tree). Weigelas of sorts, particularly Abel Carriere, candida, and Eva Rathke.

For the west of England and other very mild districts the following may be added :-

Arbutus Unedo (Strawberry tree).
Aralia Sieboldii.
Azara microphylla.
Benthamia fragifera.
Buddleia globosa.
Ceanothus of sorts.
Choisya ternata.
Desfontainea spinosa.
Escallonias of sorts.
Fabiana imbricata.
Fuchsias, hardy kinds.
Garrya elliptica.
Griselinia littoralis.
Grevillea rosmarinifolia, G. sulphurea.
Hydrangea Hortensia.
Laurus nobilis (Sweet Bay).
Myrtus communis (Myrtle).
Pittosporum crassifolium.
Rhamnus Alaternus and varieties.
Veronicas of sorts.
Viburnum Tinus (Laurustinus).

## TREES AND SHRUBS FOR WIND-SWEPT GARDENS

Few trees and shrubs are happy in bleak and exposed gardens. The hardiest should be used to form a shelter belt, as every leaf and twig helps to break the force of the wind, whereas solid obstacles, such as walls, merely serve to divert its course. In planting spots much exposed to the wind, put the trees much closer than it is intended they should remain permanently, as the young plants serve to shelter one another, and encourage, therefore, a quicker growth. When they get crowded, gradually thin them out. The trees and shrubs should always come from exposed nurseries, as the growth is stout and sturdy. Growth made in warm valleys is more sappy. The following trees and shrubs can be depended upon in most windy places:-

## Trees

Acer platanoides (Norway Maple) and Acer Pseudo-platanus (Sycamore). While not equal to some of the trees mentioned, these Maples do well in many places and form a distinct feature.
Betula alba (Common Birch). An extremely graceful tree and a universal favourite.
Cratægus Oxyacantha (Hawthorn). The principal effect of
exposure is to make the growth more stunted than would otherwise be the case.
Fagus sylvatica (Beech). Long recognised as a good shelter tree, its value in this respect is increased by the fact that many leaves often shrivel on the branches instead of dropping, thus giving additional protection in winter.
Fraxinus excelsior (Ash). The wide-spreading roots of this anchor it securely in position, and the leaves do not weigh down the branches to any great extent.
Ilex Aquifolium (Holly). Though of slow growth when young, this, when once established, grows away freely and is indifferent to wind.
Larix europæa (Larch). This is well known as a nurse tree for bleak places.
Picea (Abies) excelsa (Norway Spruce). One of our commonest Conifers, hence it is often used as a nurse tree for choicer subjects.
Pinus austriaca (Austrian Fir). The best of all evergreens for bleak places; Pinus Cembra (Swiss Stone Pine), of slow growth, but very ornamental, and does not mind the wind.
Pinus Laricio (Corsican Pine, or Black Pine). As indifferent to exposure as P. austriaca, P. montana (dwarf), and P. sylvestris (Scotch Fir), a well-known native, which often crowns high hill-tops.
Populus alba (Abele), P. fastigiata (Lombardy Poplar), P. deltoidea (Canadian Poplar), P. nigra (Black Poplar), and P. tremula (Aspen). In low-lying districts all these Poplars are of rapid growth, but in exposed places they make much slower progress. Even then they grow quicker than most shelter plants, and are valuable for making an effective display more quickly than some of the more permanent subjects. These can all be readily cut back within reasonable limits if desired.
$Q_{\text {uercus }}$ Robur (Oak).
Robinia Pseudacacia. The false Acacia is one of the best

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THE LOMBARDY POPLAR.

## TREES FOR WIND-SWEPT GARDENS

town trees we have ; indeed, it does well almost everywhere.
Salix alba (White Willow). This will pass unscathed through fierce storms. In fairly dry spots the rate of progress is much slower than in moister soil, but, as a set-off, the silvery hue of the foliage is more pronounced.
Ulmus (Elm). The best of the Elms for this purpose is the Wych Elm.

## Shrubs

Atriplex Halimus (Sea Purslane). A silvery-leaved, free-growing shrub, indifferent to soil or situation.
Berberis (the Barberry). The best of these are the stronggrowing Berberis aristata, and the common Berberis vulgaris, with its several varieties.
Cerasus Laurocerasus rotundifolia. One of the hardiest forms of our Common Laurel.
Colutea arborescens (Bladder Senna). The golden flowers in early summer and the large inflated seed-pods in autumn are both attractive.
Cotoneaster buxifolia, Nummularia, and Simonsii. These are all pretty berry-bearing shrubs.
Cytisus albus (White Broom), Cytisus scoparius (Yellow Broom), and its varieties.
Deutzia crenata flore-pleno. A handsome flowering shrub and the most robust of its class.
Euonymus europæus (Spindle tree). The fruits of this are very ornamental in the autumn.
Halimodendron argenteum (Siberian Salt Bush). A pretty rambling shrub, with silvery leaves.
Juniperus communis and J. Sabina (Savin). The fact that these Junipers are evergreen is a point in their favour.
Ligustrum ovalifolium, ovalifolium elegantissimum, and vulgare. These Privets are well known for planting where the conditions are none too favourable.
Lycium europæım (Box Thorn). A rambling shrub holding its own almost anywhere.

Osmanthus of sorts. Holly-like evergreen shrubs.
Philadelphus coronarius (Mock Orange). Though less showy than some others, this is decidedly the hardiest.
Phillyræa vilmoriniana. A valuable evergreen with deep-green, leathery leaves.
Pinus (Mountain Pine). This member of the Fir family is but a shrub in stature. It is at home in bleak spots.
Potentilla fruticosa (Shrubby Cinquefoil). A low shrub that produces its golden blossoms in July and August.
Rosa canina (Dog Rose) and Rosa rubiginosa (Sweetbriar) are general favourites.
Rubus (Bramble). The cut-leaved, the double white, and double pink are ornamental.
Spartium junceum (Spanish Broom). However bleak, this will produce its comparatively large pea-shaped blossoms throughout the summer.
Staphylea pinnata (Bladder Nut). The bladder-like seed-capsules are striking in the autumn.
Symphoricarpus racemosus (Snowberry). Grows anywhere, and produces its lárge white berries in great profusion.
Viburnum Opulus (Guelder Rose). A pretty native shrub. Ulex europæa (Common Furze). The double form of this is remarkably showy.

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the famous araucaria imbricata avenue at murthly, n.b.

## CONIFERS (INCLUDING PINES) IN ORNAMENTAL PLANTING.

Those who take a serious interest in their gardens and other planted grounds are so rapidly acquiring a better comprehension of the art in its wider aspects, and are so willingly receptive of further suggestion, that we emphasise a lesson that we have often tried to teach, namely, the importance of planting in large groups of one thing at a time, and of a right choice.

There is no more common mistake made than that of planting just the wrong things in the wrong places. Thus we see plantations of Spruce on dry, sandy hill-tops, from whence the poor trees must look with longing eyes to their true home in the moist, alluvial soil of the valley-bottom below. In mixed plantations we see Conifers from many climes and all altitudes, all expected to do equally well in perhaps one small space of garden ground. If in a projected plantation there is space for only fifty trees, how much better it would be first to ascertain which out of a few kinds would be best suited to the soil and general conditions of the place, and then out of this selection to choose the one that best fits the planter's own liking and will be most in harmony with the further planting scheme that he has in view. In this way he will obtain that unity of effect that alone can
make a garden or piece of planted ground pictorial and restful, and enable to serve as a becoming setting to the brightly-coloured flowering plants that will then show their proper value as jewels of the garden.

In this restrained and sober use of trees, and especially of Conifers, it is well to plant them of several ages, the youngest to the outer edges of the groups. If there is plenty of space it will be all the better to plant the trees in hundreds rather than in fifties, or in any case in spaces large enough to see one whole picture of one good tree at a time. Where such a planting was wisely made from forty to sixty years ago how fine the effect is to-day, as in the case of the grand growth of Douglas Firs at Murthly. No one seeing so fine an example of the use of one tree at a time could wish that the plantation had been mixed, or could be otherwise than deeply impressed with the desirability of the plan.

One such large group can always be made to merge into another by intergrouping at the edges, beginning by an isolated tree of group $B$ in the further portion of group $A$, then a group of two or three of $B$, until the process is reversed and the group is all of $B$, with single ones of A giving place to all $B$. There is no reason why the same principle should not be used with two or three kinds of combined grouping, but then it should be of trees harmonious among themselves, as of Spruce and Silver Fir, or of such things as represent the natural mixture of indigenous growth. Thus the Yew, Box, Viburnum, Dogwood, Privet, and Thorn of a wild

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MAIDENHAIR TREE AT KEW.
chalky waste might be taken as a guide to planting some of these with nearly allied foreign kinds. But the important thing in all such planting is to have the satisfactory restfulness and beauty of harmony that can only be obtained by the right and limited choice of material.

Although a few Conifers are deciduous, such as the Maidenhair tree (Ginkgo biloba), Taxodium distichum, the Golden Larch (Pscudolarix Kampferi), and the true Larches, the great bulk of the family consists of evergreens. It is to the Coniferre, indeed, that belong the only hardy evergreen trees which in stature and size rival the large deciduous trees of cool temperate latitudes. Although our only native Conifers are the Yew, the Scotch Pine, and the Juniper, there is a sufficient variety of soil and climate within the limits of the British Isles to provide suitable conditions for nearly the whole of the family. It is only a few subtropical species that cannot be accommodated. This does not imply that the whole of the hardy Conifers can be grown satisfactorily in any one place. In even the best Conifer localities there are some species that will not reach perfection, and in the general run of gardens there is a considerable proportion of species about which the same must be said. This fact, however, has often been overlooked.

The extreme popularity of Conifers, which was at its height from forty to fifty years ago, undoubtedly led to the enriching of the parks and gardens of this country with what are now, in many instances,
magnificent specimens. To realise how great that enrichment was, one has only to mention such places as Dropmore, Murthly Castle, Ochtertyre. But Conifer planting, from both artistic and merely cultural points of view, was overdone. Conifers began to fill an undue proportion of space in gardens, and displaced to a large extent the beautiful flowerbearing deciduous vegetation whose seasonable variations give such charm and interest. With all their symmetry and richness of hue, the popular species of Abies and Picea often have a heavy, even sombre, aspect. Heavy masses of Pine, Spruce, and Fir can never give that changing aspect in the landscape that comes with deciduous vegetation. The tender tints of spring, the flowers, the gold and purple of autumn, it is to these that the seasons of our northern latitudes owe their greatest delights.

Perhaps the worst of all the uses to which Conifers have been put is that of forming long avenues across parks. It is difficult to understand the frame of mind that would prefer rows of Araucaria, Abies nobilis, or other similar things-however well grown and pyramidal they might be-to a noble vista of Chestnut, Oak, or Lime, with its canopy of branch and foliage overhead. Conifers can, however, be used effectively for forming short avenues within the garden itself, especially in the more trimly-kept parts.

The practice that is frequently adopted of forming a pinetum and bringing together the members of this family in one part of the grounds is a very good

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Pine, $P$. excelsa, and P. Pinaster. Most of the Pines, too, are happy on gravelly or stony ground.

None of the Silver Firs (Abies) or Spruces (Picea) are good trees for planting at the seaside, unless there is sufficient shelter to break the force of the wind, and even then there are very few that will succeed. The species most suitable for planting where there is a thick outer belt are Abies nobilis, A. lasiocarpa, A. nordmanniana, and $A$. pectinata, the Common Silver Fir. Of the Spruces, Picea nigra and P. alba, the North American Spruces, succeed better than the Norway Spruce, P. excelsa, but these, like the Silver Firs, must have the shelter of a good wind break; Picea parryana, P. pungens, and P. Engelmanni will not succeed in exposed places, even in inland localities, and fail entirely by the sea. The Conifers that will thrive by the sea are very few, and probably not more than half-a-dozen kinds can be trusted. The finest of all is undoubtedly Pinus Pinaster, which is essentially a sea-coast Pine, revelling in storms and sprays. $P$. maritima, closely allied, is equally suitable. Then, for warmer parts, is the Aleppo Pine ( $P$. halepensis), but is only for southern and warm coasts. $P$. insignis is somewhat hardier, and stands the sea gales fairly well, and $P$. austriaca, and its relative, $P$. Laricio, are both excellent, specially for making the first barrier against the winds. The hardy Scotch Pine ( $P$. sylvestris), if planted in large masses grows well, but does not luxuriate close to the sea, and is especially liable to be browned in foliage by the salt spray.


VARIETY TENUIFOLIA OF CORSICAN PINE (Pinus Laricio).

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is a botanical phase of the matter. Horticulturally we are more concerned with such variations as adapt the plants to various garden purposes. Many quaint and dainty forms of large trees are very suitable for the rock-garden in association with other alpine plants. The Common Spruce, for instance, has given birth to many pigmy forms. The Yew, the Scotch Pine, and various others have "sported" in a similar way. But no hardy tree varies so much, perhaps, as the Lawson Cypress when raised from seed. The species has assumed almost every shade of colour that Conifers do assume, and every form of growth. Beautiful golden, variegated, pendulous, and erect varieties have been raised, and not only from the Lawson Cypress, but from many other Conifers also. The Golden Yews, the yellow form of the Monterey Cypress, and the golden variety of the Scotch Pine, may be recommended to those who require this colour, although in the Pine it only shows itself in winter. The blue-white or glaucous hue that is more or less present in most Conifers, shows itself most conspicuously in the Blue Spruce (Picea pungens glauca), in Cedrus atlantica glauca, in the new Cork Fir from Arizona (Abies lasiocarpa var. arizonica), and in Abies concolor violacea.

## The Propagation of Conifers

Many mistakes have been made in propagating the Coniferæ, and to make matters still worse, the old erroneous doctrines are still preached and practised. The unpopularity of certain species of


AVENUE OF ABIES NOBILIS GLAUCA AT MADRESFIELD COURT.
(The avenue is quarter-mile long, planted in 1868; average height of trees 60 feet and 45 feet apart.)


CEDRUS ATLANTICA GLAUCA AVENUE AT MADRESFIELD COURT.
(Avenue is about quarter-mile long, planted in 1865 . All seedling trees, hence some difference in growth and colour.)

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root easily from cuttings, or can be layered with success. The variegated forms are best grafted on stocks of the species they belong to, and J. Sabina (the Savin) and its varieties are easily raised from cuttings or layers, the latter being a very easy way of propagating them.

Cupressus.-This genus is divided into two sections, viz., the true Cypresses, represented by C. macrocarpa, C. sempervirens, \&c., and Chamæcyparis, of which Cupressus lawsoniana is the best known species. With the former section seeds are the best means of reproducing the species, while the few varieties should be grafted on stocks of the parent species. The handsome C. macrocarpa var. lutea especially should be worked on the type, as it is practically a failure from cuttings, and if grafted on C. lawsoniana, as is sometimes done, it makes a short, stumpy bush instead of a typically tall columnar tree. In the Chamæcyparis section Cupressus lawsoniana, C. nootkatensis, C. oblusa, C. pisifera, and C. thyoides are the only species, though there are a host of varieties attached to them, the forms of the three latter species, in fact, including all the various plants more commonly known under the generic title of Retinospora. The species should be raised from seed, which is easily obtainable and germinates readily, or in default they will root from cuttings. The varieties, with a few exceptions, are quickly propagated by cuttings, those that require to be grafted being C. lawsoniana var. lutea, the variegated forms of $C$. nootkatensis, and $C$, obtusa


LIBOCEDRUS DECURRENS AT FROGMORE (about 65 feet high).

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sometimes difficult to obtain, germinate freely and quickly.

Tsuga.-The Hemlock Spruces are easily and quickly obtained from seeds, and one or two will strike from cuttings; the varieties do best when grafted on the species they belong to, though $T$. pattoniana var. glauca, more commonly known as Abies hookeriana, will come fairly true from seed, about 75 per cent. being the usual quantity if the seed is obtained from good plants.

Picea.-This genus has been mentioned before as being commonly grafted on $P$. excelsa (the Common Spruce), which is an easy way of obtaining young plants, which, however, cannot be recommended to form good specimens in after years. The species of Picea should all be raised from seed, and the many named varieties of $P$. excelsa should be grafted on the parent species. At least one-half the plants of $P$. Engelmanni var. glauca and $P$. pungens var. glauca (the Californian Blue Spruce) will be found true to name when raised from seeds, while their superiority afterwards over grafted plants is evident.

Cedrus, Larix, and Pseudolarix.-It should always be remembered that these three are quite distinct genera, and for purposes of propagation should never be used in conjunction with each other, the first being evergreen and the two latter deciduous. The species of all three should be raised from seed; the varieties of Cedrus should be grafted on that genus, the forms of Larix on the Larch, though the geographical forms of the Common

Larch, such as var. rossica and var. sibirica, usually come true from seed. Pseudolarix Kampferi, the only representative of the genus, must be raised from seed, as if grafted on the Larch they will not thrive for long.

Abies.-In this genus some of the most handsome Conifers are found, and also some of the most difficult to grow. All the Abies should be propagated by seeds, but if seed of the varieties cannot be obtained then they must be grafted on the parent species.

Pseudotsuga. - This genus only contains one species, viz., P. Douglasii (the Douglas Fir), which is propagated readily by seed, the seedlings being of rapid growth and soon form good plants. The few varieties are grafted on the type, though the majority will come fairly true from seed, which, however, is not always to be obtained.

Pinus.-Perhaps no Conifer adds so much to the beauty of the landscape in winter as the Pine. All the species should be raised from seeds, and any green or glaucous varieties can also be propagated in the same way if seeds can be obtained. The golden, dwarf, and variegated Pines must be grafted on the species they are varieties of.

Taxacee is usually associated with Coniferæ, from which it differs chiefly by the seed being nearly or quite enclosed in a fleshy envelope instead of in a cone, the fruit of some resembling a small Plum, but a typical fruit is seen in that of the Common Yew. The hardy genera are Ginkgo
biloba (the Maidenhair tree), which is propagated from seed-the plant is deciduous and slow growing ; Cephalotaxus and Torreya are propagated by seeds, cuttings, or layers.

Taxus (the Yew).-There are only three or four species of Taxus, but there are a great many varieties of the Common Yew, many being very handsome. The species are easily raised from seeds, layers, or cuttings. The first two methods are the best, cuttings being very slow in growth, but as seed is very plentiful in most years this is the quickest and best means of propagation. Some of the varieties will come true from seed; the Irish Yew, however, must be struck from cuttings, as seedlings never come true. The more highly variegated Yews grow quickest when grafted on the Common Yew, and as they always keep good in after years this method can for once be recommended.

Propagate Prumnopitys and Saxegothea by seeds, cuttings, or layers.

## Conifers at Murthly Castle, Perthshire

The following account of a great Conifer garden in Scotland is important, as showing how certain of the better-known species have behaved during the last fifty years or so. It is taken from the Garden of May 19, 1900 :-

The second quarter of the present century saw the introduction of a large number of Conifers hitherto unknown to English gardens. Their cultivation was eagerly taken up, and especially in Scot-

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land, a land whose general conditions seem highly favourable to a considerable number of species, much success has been attained. It may still be premature to state with any degree of assurance what may be the ultimate suitability of many of these Conifers for growth in our islands. The lifetime of a tree is not comprised within its first sixty years, and such a length of time is all too short to prove the ultimate success of any new tree, though within that space it may come to a magnificent size and apparent promise. Such a state is shown by the splendid Douglas Firs in the grounds of Murthly Castle, Perthshire, where also many another exotic Conifer is grown in quantity.

These words of Sir William Thiselton-Dyer, that formed part of his opening address on the second day of the Conifer conference of the Royal Horticultural Society in 1891, may here be quoted:-
"Any one who had not travelled in Scotland could form no idea of the extent to which rare Conifers were cultivated in that country, and the splendid development which they attained. The chairman, by way of illustrating these remarks, directed the attention of the audience to some large photographs representing specimens of Coniferæ to be seen at Murthly Castle, Perthshire, where they flourished, and where stately and magnificent examples 70 feet, 80 feet, and 100 feet high were to be met with. Such trees could only be seen in Scotland, and were the result of a peculiar association of physical conditions. In the south-west of England it was impos.
sible to find a parallel, though even on the sunburnt soil of Kew good specimens of the Pines proper were occasionally to be seen. With regard to the Abies, however - that section of Conifers of which the Spruces may be taken as a type-a state of things prevailed in Scotland which could not be rivalled in England. On the other hand, the climate in the south-west of the latter country was fairly suitable for some other Conifers, and many of the fine Mexican Pines could be grown there."

Of the remarkable Douglas Fir at Dropmore, Mr. Charles Herrin on the same occasion says: "The monarch Douglas Fir, planted in 1830 , has attained a height of 120 feet, girth of trunk 1 I feet 9 inches, with beautiful spreading branches sweeping the ground, covering a diameter of 64 feet. The leaves are also of a glaucous hue, equalling in that respect many of the plants now sold from nurseries under the name of Douglasi glauca. . . . Many trees have since been raised from its seeds and planted out on the estate; one, planted in 1843 , is now 78 feet high, with a girth of trunk of 8 feet 2 inches, spreading 39 feet in diameter at base; a perfect specimen."

By comparing the growth of the latter tree with the Murthly table, it will be seen that the trees make their growth much more rapidly in Scotland. The Murthly Conifers were all planted by Sir William and Sir Douglas Stewart. The present owner, Mr. Steuart Fothringham, who measured the trees in r89r in anticipation of the visit of the Scottish

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 tree.
went to $1 I^{\circ}$ below 0 . This shows that all these trees will stand great cold at the time of year that it is likely to come, but late frosts in spring, when the sap has begun to rise, are detrimental to the young shoots of those that start their growth early in the season. There are at Murthly, besides Coniferæ, fine specimens of Yews, Oaks, Beech, Spanish Chestnut, Horse Chestnut, and Sycamore."


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## CARE OF OLD TREES

The charm of many an estate is not the garden or the woodland, but the monarchs that for years have weathered the winter storm and stand out as noble specimens of their family. The trees may have some historic associations, but whether this is so or not, when they begin to decay efforts are made to save them from absolute death. Decay is harmful and objectionable in park and garden, and we are not sure that this matter of decay in trees has been so well considered as it might be, as bearing upon the health of other trees and of mankind also. A tree may be picturesque in decay, but we prefer it in health and beauty. Experts are frequently asked for remedies to arrest decay in old trees.

The two principal causes of decay are starvation at the root and injury by storms and disease. Such trees as the Beech and Horse Chestnut, that root close to the surface of the soil-quite different to the Oak-may often be invigorated by covering the ground with a few inches of good soil or short manure. Artificial watering, during prolonged drought, when thoroughly done, is also very helpful to the tree. Trees with large crowns of branches are frequently seen thinly furnished with foliage, and altogether sickly owing to unhealthy or insufficient
roots. The balance between top and bottom has been destroyed. To restore it in some degree the top-growth may be reduced by pruning out and shortening back branches here and there, wherever it can be done without spoiling the appearance of the tree. This demands careful judgment, but some old and sickly trees may certainly be restored in a measure by this help. It is of no value in the case of trees with decayed trunks, nor with those like our Common Oak, which will not break from old wood. But Elms, Robinias, and Red Oaks are among those that respond to this treatment.

Old trees with insecure branches can often be saved from destruction by fastening the main branches together on to the trunk. The common practice of putting an iron collar round the branch is a mistake. The iron prevents the branch expanding naturally and ultimately chokes it. A better way is to use a strong iron rod with a plate at the end, and instead of supporting the branch by encircling it, a hole is bored right through the centre of it, through which the rod is pushed from the outer side. In this way the weight is borne by the iron plate, which should, by removing sufficient bark, be allowed to fit close in to the wood. New bark will gradually close over and hide the plate, and instead of an ugly collar cutting into the wood, the only evidence of artificial aid is the rod coming from the inner side of the branch.

Branches or snags that have to be removed should be sawn off quite close to the trunk or larger branch
from which they spring. When a stump, even not more than a few inches long, is left, the new bark and wood are unable to close over it, and the wood ultimately decays and acts as a medium for moisture and fungoid diseases. A coating of liquid tar over the wound, renewed once or twice until the new bark has closed over, is a sure protection against these evils.

Trees decayed in the centre, with only an outer layer of healthy wood, are, of course, doomed, but by filling up all holes in the earlier stages of decay, and thus keeping out moisture, their term of life can be lengthened by many years.

Holes made by woodpeckers can sometimes be plugged up with a piece of Oak. This, if left on a level with the bark, will often enable the latter to close over the hole. Large holes may be filled with cement, or even built up with bricks, the surface being made water-tight and tarred over.

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IVHITE WILLOW (Salix alba) BY WATERSIDE.

## TREES AND SHRUBS FOR WATERSIDE

Many of the brightest garden pictures at the present day are by the well-planted pond or lakeside, where shrubs of large growth are grouped to give colour through summer and winter.

The wild plants of the riverside are in themselves for the most part large of stature and important of appearance. When one sees the upright growth and large leaves of the Great Water Dock (Rumex) and the broad round ones ( 2 feet or more across) of the Butter-Bur (Petasites), and the beds of the Common Reed (Phragmites), 8 to ro feet high, with its great brown-black plumes, and the curious brightgreen Horsetail (Equisetum), and the rosy banks of Willow-herb and Loose-strife, and the calm wide breadths of the white Water Lily in the still backwaters; when we see all these lessons that Nature teaches by the riverside we perceive that for the best of good effect of waterside gardening we need not be afraid of planting things of bold growth largely.

When we come to garden plants there are many families that are never so happy as when close to water, or in soil that always feels the cool, moistening influence of water within a few feet below them. Such are the whole range of the larger herbaceous

Spiræas, some of them plants of great size. Then we have the Thalictrums, the autumn-flowering Phloxes, the stately Heracleum ; Telekia, Bamboos, Arundo Donax, the Swamp and Meadow Lilies of the northern states of America; and coming to smaller though scarcely less important plants, the Scarlet Lobelias, Oriental Poppies, many Irises, the Michaelmas Daisies, and Day Lilies; all these thrive by the waterside.

There are many shrubs that prefer a moist place, such as the Guelder Rose and the beautiful North American Halesia, Quinces, Rhododendrons, Azaleas, and Kalmias, while the lovely Fritillaries, Globeflowers, and the double Cuckoo-flowers love damp grassy spaces. We think we may safely advise those who are making gardens by river or lake to go forward and plant with confidence, only selecting such things as are mentioned below.

As the things named are described elsewhere in this book a list only is given.

## Trees and Shrubs for Swampy Places

Willows (Salix) in great variety: S. alba (White Willow), S. babylonica (Babylonian Weeping Willow), S. purpurea, S. p. pendula (American Weeping Willow), S. Caprea, S. C. pendula (Kilmarnock Weeping Willow), Cardinal Willow and Golden Willow-both these are very beautiful in winter; the stems of the former are crimson, and of the latter golden yellow, and make a remarkable picture of intense colouring; plant

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them in large groups-S. daphnoides (the Whitestemmed Willow), S. fragilis (Crack Willow), S. f. hasfordiana (Red-barked Willow), and S. hippophaifolia (Sea Buckthorn-leaved Willow).

Populus alba (White Poplar), P. canadensis (Canadian Poplar), P. nigra (Black Poplar), Lombardy Poplar, and B. tremula (the Aspen). But the Poplars must not be overdone, and by pond or lakeside are citen out of place. In such places the Cardinal and Yellow-barked Willow, Sea Buckthorn, and similar shrubs are more appropriate.

Common Alder, with its many varieties - Cutleaved, the Golden-leaved, and such as Alnus incana and $A$. serrulata.

Taxodium distichum (Deciduous Cypress); tender green in spring and brownish red in autumn, when the leaves change colour.

Hippophae rhamnoides (the Sea Buckthorn).

> Trees and Shrubs for Moist (but not Swampy) Soil

Berberis Darwinii (Darwin's Barberry), B. Thunbergi (for its beautiful autumn leaf-colouring), Birch, Dogwoods, Cornus alba and varieties; the variety sibirica has brilliant-red stems. Cotoneaster buxifolia, C. frigida, C. Nummularia, C. Simonsii; Ash, Myrica Gale (Sweet Gale) and M. asplenifolia; Ledum palustre, Nyssa aquatica (Tupelo tree), Mountain Ash, Quercus aquatica (Water Oak), Q. palustris (Swamp Oak); Rhamnus Frangula (Buckthorn). Roses with brightly-

## 126 TREES AND SHRUBS

coloured heps - Rubus biflorus (White-stemmed Bramble), R. fruticosus fl. pl. (Double Pink Bramble), $R$. laciniatus (Cut-leaved Bramble), R. spectabilis (Salmon Berry). Sambucus racemosa (Red-berried Elder), Spiroaa Douglasii, S. hypericifolia, S. lindleyana; Tamarisk. Viburnum Opulus (Guelder Rose); when this native shrub is weighed down with the rich red berry-clusters, it is a remarkable colour picture, and the autumn leaf tints add to its beauty.

Of Conifers, mention may be made of Tsuga canadensis, Abies Menziesii, Cupressus thyoides, and Thuja gigantea.

Bamboos: Select those of robust growth, such as Arundinaria japonica (Bambusa Metake), A. Simoni, A. Veitchii, and A. palmata; Phyllostachys viridiglaucescens and P. mitis.

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considering its character at other seasons and its adaptability to its special surroundings. A due sense of proportion will also hold us back from planting a spreading, hungry-natured shrub in limited space, or where it would rob and over-run more valuable but weaker plants. Such considerations as these must be left to the planter who, in his turn, must be guided by the incidental circumstances of his particular locality. It is only possible here to set down some of the best shrubs available for the purpose, and to indicate, in a very general way, the positions for which they are suitable.

Occasionally, where there is ample space, a deciduous tree of low growth may be planted to great advantage. Not long ago, in a picturesque district bordering on Western Germany, a mental note was made of the excellent effect of Wild Medlar trees, scarcely more than good-sized bushes, growing about the boulders and overhanging the edge of quarried rocks. The white flowers in spring, and the fine form and tint of the russet-brown fruit as it gradually swells during the summer months give this tree a peculiar claim on our attention where the position is suitable. But in planning the main features of the Rock Garden, we naturally turn our thoughts first to evergreen trees and shrubs, because the plants grown in such positions, being usually either alpine or herbaceous, are mostly in abeyance during the winter, and it is desirable that the rockery, no less than every other part of the garden, should be interesting even if it cannot be gay, during the
period of rest. A specimen Holly or, in exceptionally mild climates, a tall bush, from 8 to 10 feet high, of Pitlosporum undulatum, one of the most beautiful of New Zealand evergreen trees, may be so placed, for example, as to be exceedingly pictorial ; but, as a rule, we must keep our shrubs to an average maximum height of not more than from 4 to 5 feet, and, generally speaking, those of still lower stature are better suited to the ordinary Rock Garden.

Some of the small-growing Conifers, from their compact habit and distinct character, are especially well fitted to ,break the outline and to give contrast. We think of Pines and Spruce Firs and Cedars as majestic trees, and it is only when one comes to study them in their manifold varieties that we find how many of these range from a height of only a few inches to 3 feet, or at most to 4 feet.

Some species, it is true, do not lend themselves gracefully to the dwarfing process, becoming clumpy and inelegant, but this charge cannot be brought against many of the Cypresses and Junipers. Several of the smaller Conifers, besides, give the advantage of distinct variations of colour with the changing seasons. Reference is not now made to the golden and silver forms, so-called, which occur in most of the genera, and put on their brightest tints in spring, but to the deeper winter colouring assumed, e.g. by -Cupressus thyoides ( $=$ Retinospora ericoides), which alters its summer tone of dark green to purple brown on the approach of cold weather ; or by Cryptomeria elegans, a little less hardy, which changes to a fine
shade of bronzy crimson. Like other plants, Conifers differ greatly as to constitution, and judgment must be used in their choice. The dwarf alpine form of the Common Juniper (Juniperus communis nana) is very hardy and slow-growing, never becoming too rampant for the smallest Rock Garden, and shares the blue-grey tint which is so characteristic of this beautiful species. Very distinct from it is the lovely prostrate Savin (J. Sabina procumbens), one of the best of evergreen shrubs for the Rock Garden, and one most restful and satisfying to the eye at all times in its deep tones of sea green.

Cupressus pisifera, almost plumose in one of its many variations, and C. obtusa, both better known perhaps under the garden name of Retinosporas, are admirable, and may be used either in the normal or the dwarf forms according to the greater or less space at command. Almost the last tree, probably, which one would expect to see draping the vertical face of a rock is the Spruce Fir, yet a weeping variety (Picea excelsa pendula) is exceedingly effective in such a position as a foil to hanging masses of richly-coloured Aubrietias or Golden Alyssum, while it looks well at all seasons. Mention may here be made of a remarkable Conifer, Cunninghamia sinensis, of great beauty and very distinct character, which takes the shape, in our climate, of a spreading bush, though in its native habitat it grows into a tree of nobie dimensions. It is suitable only for a Rock Garden of some boldness of construction, with which a mild climate and a sheltered position are fortuitously com-

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There are other dwarf New Zealand Veronicas of a leafy character, differing essentially from these mimetic species, such as $V$. carnosula and $V$. pinguifolia, also inhabiting regions 5000 feet above the sea-level, which are suited for localities with average advantages of climate. Others again, such as $V$. Lyallii, V. glauco-carulea, and V. hulkeana, though they grow naturally at lower altitudes, and must be reckoned only half-hardy, may yet be serviceable for Rock Gardens on the southern sea-board, or on the west coast of Scotland. Belonging to the larger-growing and more familiar species of Shrubby Veronica, mention may be made of a good purple-flowered hybrid, of very compact growth, known as Purple King, which is exceedingly ornamental from its freeflowering habit. Many of the losses sustained amongst these interesting New Zealand shrubs are owing to drought rather than to frost, and their extreme susceptibility to dryness at the root is a fact not recognised as it should be.

Hardy Heaths are of the utmost value in the Rock Garden, and range in height from the 6 feet or more of Erica arborea to the 6 inches of the well-known E. carnea, and can be used in rough places, where more delicate plants might not thrive. A sudden emergency once arose in the experience of the writer, when a shelving mass of earth had to be shored-up as quickly as possible with such material as lay ready to hand at the moment. This happened to be found in a heap of ugly, yellowish, water-worn boulders of great size, which abound in that particular locality,


CISTUSES AND ROSES IN THE ROCK GARDEN (In the lift lower corner, Cistus hirsutus; middle. Rosa alla, to right. R.rugosu Mme Georges Bruant)


DWARF SHRUBS ON ROCK GARDEN.

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as Heaths, but unlike them in general appearance, such as the Alpine Rhododendrons, R. ferrugineum and $R$. hirsutum, and the less well-known but very beautiful and distinct $R$. racemosum, as well as some of the miniature varieties of Azalea indica, notably $R$. obtusa and its forms, seem peculiarly suitable for the Rock Garden. Again, where rock meets more level ground, and the trickle of a stream can be so directed as to give moisture without sogginess, a considerable number of peat-loving evergreen shrubs belonging to the same order, of the type of Gaultheria, Vaccinium, and Pieris, may be used with excellent effect. Gaultheria Shallon, indeed, is a singularly fine shrub in any position, and is not very exacting in any of its requirements. Growing about 2 feet high, with purple leaf-tints in winter, and spikes of white waxy flowers, brightly tinged with red, in spring, which are followed by purple fruit, few things can surpass it in its way. For carpeting moist spots, the little $G$. procumbeus, which rises scarcely 3 inches from the ground, will fill a useful place with its winter colouring of crimson brown. Shrubs of this class are well worth study by those whose locality admits of their cultivation.

For dry, sunny, and stony banks Rock Roses may be chosen, but the position must be wind-screened, a more important factor in the question of their hardiness than cold. The large-growing Gum Cistus is well known and tolerably hardy everywhere, and so also is C. laurifolius, but there are several most desirable species of dwarfer growth, such as the
white, crimson-spotted C. lusitanicus, the pink-flowered C. villosus, the bright-red $C$. crispus, and the pure white $C$. florentinus, which are quite happy in sheltered rock walks especially by the sea; they have been also grown with success in many colder situations inland. The Cistineæ, at best, are somewhat shortlived, and lose vigour and power of resistance as they grow older. Keep up, therefore, young, thrifty stock by yearly cuttings to fill up inevitable gaps, which is a matter of no cultural difficulty. Where Rock Roses are out of the question, their place may worthily be filled by the hardier shrubby Helianthemums, though they differ greatly from Cistineæ in their trailing habit and smaller flowers. The breadths of brilliant colour given by these Sun Roses while in bloom are invaluable, and may be enjoyed to the full in almost any locality, while the many variations of tint, from deep green to ashen grey, in their leafage should also be taken into consideration, as it increases their usefulness when out of flower.

No list of good shrubs for the Rock Garden would be complete without some reference to Yuccas, which for all practical purposes must be included under that head. Groups of these magnificent plants, with their sub-tropical effect, cannot be surpassed for nobility of outline and stateliness of flower. To do them full justice, they must have space to develop their grand proportions, but this may often be found on the ridge or upper slope, even in rock-work of limited character. Y. gloriosa, with its fine form, Y. recurva, and the stemless $Y$. flaccida, of smaller
growth, are amongst the best and hardiest kinds, and to these may be added $Y$. angustifolia, another valuable and nearly stemless species.

It is only possible, in restricted space, to touch in a very cursory way upon a few of the available groups of dwarf-growing shrubs. Many more than have been mentioned will occur readily to the minds of those who are at all conversant with plants, such as Abelia rupestris, Magnolia stellata, several beautiful species of Daphne, some of the St. John's Worts, of low-growing Cytisus, and others which may be classed under the head of miscellaneous. The subjoined list, though it does not pretend to be exhaustive, will be found of use, either for purposes of winter greenery or for summer embellishment, by those who are seeking good and suitable dwarf shrubs for planting, under varied conditions in the Rock Garden.

## DWARF SHRUBS FOR THE ROCK GARDEN

## Hardy Evergreen

Buxus sempervirens vars.
Cotoneaster buxifolia.
Danæa Laurus (Alexandrian Laurel).
Gaultheria Shallon.
Lavendula vera (Lavender).
Mahonia Aquifolium.
Osmanthus Aquifolium. Pernettya mucronata.

Rosmarinus officinalis (Rosemary).
Skimmia Foremani.
Veronica (Whipcord).
" cupressoides.
" cup. var. variabilis.
" Armstrongi.
Hectori.
loganioides.
lycopodioides.

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Flowering and other Shrubs for Sheltered Situations and Mild Climate

Abelia rupestris.
Cistus albidus.
" crispus.
", lusitanicus.
villosus.
Coronilla Emerus. ," glauca.
Daphne Dauphini.
, Genkwa.
Desfontainea spinosa.
Dracæna australis.
Fabiana imbricata.
Escallonia macrantha.
" montevidensis.
", philippiana and hybrids.
Eugenia Ugni.
Fatsia japonica.
Grevillea rosmarinifolia.
Helianthemum formosum.
Linum arboreum.
Myrtus communis.
" box leaved.

Olearia dentata.
Ozothamnus rosmarinifolius.
Philesia buxifolia.
Pittosporum Tobira.
,, undulata.
Rhododendron.
Rosa berberifolia.
Rubus rosæfolius.
Swainsonia alba.
Trachycarpus excelsa (Chinese Fan Palm).
Veronica chathamica.
" epacridea.
" Fairfieldii.
" glauco-cœrulea.
" pimeleoides.
" speciosa.
,, Traversii.
" Purple King (hyb.).
Conifers.
Cryptomeria elegans.
Cunninghamia sinensis.

For Moist Peaty Soil at the Foot of Rocks

Andromeda polifolia.
Bryanthus erectus.
Cassandra calyculata.
Cassiope tetragona.
Dabœcia polifolia (Irish Heath).
Gaultheria procumbens.
Ledum palustre.
Leucothoe axillaris.
Catesbæi.
Lycopodium dendroideum.

Myrica asplenifolia.
Gale.
Pieris floribunda. ,, japonica.
Rhodothamnus chamæcistus.
Salix reticulata.
Selaginella Douglasii.
Vaccinium crassifolium.
" uliginosum.
,, Vitis-idæa.
Zenobia speciosa.

ononis fruticosa (Shrubby Rest Hurrow) AT EXETER.


TREE IN COURSE OF REMOVAL WITH ONE OF BARRON'S MACHINES.

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No. I
Kalmia.
Rhododendron.

Vaccinium.

No. 2.
Amelanchier. Carya.
Ash.
Beech. Birch. Box. Celtis. Chestnut. Cratægus. Elm. Flowering Cherries. Hornbeam. Horse-Chestnut. Laburnum. Lime. Malus. Maple. Mulberry. Oak. Peach. Plane. Poplar. Pyrus. Robinia. Coniferæ. Willow.

No. 3. Catalpa. Cotoneaster. Diospyros. Elæagnus. Halesia. Hamamelis. Hippophæ. Holly. Liquidambar. Laurel (Common). " (Portugal). Magnolia.
Osmanthus. Phillyræa.
Rhamnus.
Styrax.
Tulip Tree. Viburnum.
Walnut. Yew.

It will be noticed that Conifers are mentioned in the third list, and even in nurseries where they are regularly moved the mortality amongst them is very high ; and the removal of large Conifers should never be attempted except with a transplanting machine, and expert men to handle it. As a rule, it will be found cheaper and better to buy young plants than to attempt the removal of large ones that have stood for some years without root disturbance. Such
flowering shrubs as Spiraa, Philadelphus, Kerria, Ribes, \&c., can be safely moved without much trouble, as they make a mass of roots which will hold a good ball of soil unless it is very dry. All are practically certain to live if carefully planted and well watered afterwards.

There are several ways of moving large trees, the simplest and quickest being by a proper transplanting machine, which consists of a framework on wheels fitted with a system of rollers and levers. For moderately-sized trees, say, to about 12 feet high, a two-wheeled machine is sufficient. This is moved by eight or ten men. For trees above 12 feet high a four-wheeled machine is required, with two, or perhaps three, horses to draw it. The first will take a ball of soil weighing from two to three tons, the latter anything to ten tons, or even more.

In preparing the tree for the small machine the ball is made round, and slightly smaller than the width of the machine, a trench being cut round the tree to a depth of 3 feet or so, the actual depth depending on the roots, but the soil should be removed a foot lower than the lowest roots. On no account undermine the ball until the proper depth has been reached. A proper machine-pick is the best thing to use under the ball, carefully working out sufficient soil to introduce a board 6 inches wide and about $1 \frac{1}{2}$ inches thick on each side of the ball. The soil immediately under the centre of the ball should be left intact. When the boards are in position ropes are passed under them on each side and led
up over the rollers on the machine and fastened, and then by levers the ropes are rolled up, swinging the plant up cleanly and with a good ball of soil. Before putting the ropes under, however, a stout piece of canvas or mat should be tied round the ball with a couple of cords, between which and the canvas seven or eight pieces of narrow flat board should be fixed to prevent the cords from cutting the ball. The rear part of the machine is made to be taken out so that it can be pushed right over a plant, and it should be run on planks on soft ground.

With the large transplanting machine a ball of soil of almost any size can be taken, but the method of preparing it is somewhat different. It should be made nearly square, being rather longer than it is broad. When the proper depth has been reached make a hole about 2 feet wide under the centre of the ball, and running entirely through the longer way of it. Through this hole one, or even two, broad planks 3 inches thick should be passed. On each end of these, where they project beyond the ball, a stout plank is laid on edge, and two others placed lengthwise to fit above the first two. These planks should all be cut to fit tightly into each other. If necessary, owing to the depth of the ball, another tier of planks should be placed above the first to insure stability. The machine is then placed over the plant, and the whole, by means of chains and levers, is swung up off the ground, and then ready to be taken anywhere. This machine, however, should only be used by those who have had experience with

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and the way they run. If small roots are plentiful at the top, little or no soil can be removed, but if they are lower down, then the upper soil may be removed with advantage. Having worked under the ball, lay two stout planks under it well packed up to the centre, and then with two strong poles under the ends of the planks lift the whole on the trolley. If the work is carefully thought out, it is possible to make the actual lifting a very small operation by bringing the trolley close and lowering it considerably.

The draw-board is a handy contrivance for moderate-sized trees or shrubs which will hold a good ball of soil. It is made in two forms. One consists of a piece of well-seasoned oak 3 inches thick, and about 3 feet long by 2 to $2 \frac{1}{2}$ feet wide at the widest part, from which it slopes down to a thick end, where a stout swivel-ring is fixed to take a rope. The other form is a kind of trolley, and consists of a frame 3 feet long by 2 feet wide; it runs on rollers that work on bent irons fastened to the framework, the whole standing about 4 inches high. Either of these can be used for moving plants the ball of soil attached to which is not larger than the board. They will take a heavy plant with comparative ease, and are especially useful for moving large Rhododendrons and other American shrubs. To get them under a plant cut out the ball of soil to the proper depth, and work under it from the front, that is, the direction in which the plant is to go, keeping the ball wedged up during the process,
not by having a man to pull the top over, but by using wedges or levers underneath it, until sufficient soil has been worked out to allow the board to be inserted. When the board is in position the rope should be passed through the ring and then around the collar, using a piece of mat to keep it from rubbing the bark off, and then back through the ring again. It is well to run the board over planks on soft ground to reduce the labour of pulling.

In putting the tree or shrub into its new position, carefully measure the size of the ball, and make the hole considerably larger and slightly deeper, breaking up the bottom well. When the tree or shrub is in position ram the soil tightly round it until it is about two-thirds covered, when the hole should be completely filled with water, covering in the remainder when the water has drained away. The stem must also be made secure by means of stakes or cords, otherwise wind will cause damage to the roots.

When the ground is dry under a tree that is to be moved nothing should be done until it has been thoroughly soaked. To do this a trench 2 feet deep and as narrow as possible should be taken out all round, and gradually filled in with water, pouring it in steadily, away from the ball rather than to it, and persevere with this watering till the ball of soil under the tree is thoroughly saturated. Leave it for at least twenty-four hours to drain. Three points must not be forgotten: (1) Wrap the ball of soil securely round with canvas as soon as possible; (2)
never use the stem of a tree as a lever in moving the ball-this should always be moved from below, and the stem never touched on any account ; (3) always allow plenty of room for working.

Moving large trees is not easy and must not be lightly undertaken. It involves much time, labour, and expense, in most cases far more than the trees are worth. Trees 8 or io feet high may be easily moved, but above that height the work should be done by an expert. Trees and shrubs of considerable size can be purchased at a moderate price from good tree nurseries, where they have been regularly transplanted, and if carefully planted will soon make good specimens.

It is in the planting of trees that so many failures occur as a rule. A good tree may be obtained, arrive in excellent condition, and yet be planted in such a way that success is out of the question. The fault, as a matter of course, is put on the man who supplied the tree, not on the one who killed it by improper planting. Those who think of moving large trees or shrubs should not do so until the probable cost has been considered, and the advice and help obtained of some one who has handled big trees before. The expert will be able to say if a tree can bear removal, or whether it is better destroyed, and its-place filled with a young and vigorous specimen from a nursery.

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of longitudinal cracks in the bark, which is also slightly browned and flattened, as if there were a hollow beneath. The part affected is from about I to 3 feet in length, and from 1 to 3 inches in width. If the bark is cut away the wood beneath will be found perfectly firm, but hard and dry, more like a piece of seasoned wood than part of a growing tree. When such is the case the only thing that can be done is to cut away the bark back to the living tissue, thoroughly coat the wound with gas tar, and shade the stem afterwards with a few branches or something that does not need to be fastened on the stem. Hay or straw bands cannot be altogether recommended, as anything which excludes the light tends to the softening of the young bark. This should be avoided, as the firmer the bark the better will be the ultimate success of the tree. Iron tree-guards, though not beautiful, have the advantage of protecting the stems of young trees from the sun as well as from the attacks of animals. In addition to the slight shade they give, the iron, being a good conductor of heat, takes up a large amount of the heat rays which would otherwise be directed full upon the stem.

A hot and dry season is no more likely to cause sunstroke than a wet one, and probably not so much, as we have noticed it in sunless years quite as much as in bright summers. The time when it is most likely to happen is when a few days of hot sunshine follow a spell of wet weather, as the wood is then soft and full of moisture, and is more
liable to be scorched than during a period of prolonged sunshine.

When trees are planted out singly it is well to choose those with spreading heads and low stems, as then the tree will shade itself to a great extent, the short amount of bare stem being less exposed to the sun's rays than a taller one. After all, this is only Nature's method of protection, as, in a wild state, no young tree is bare-stemmed, except in a wood, where it is shaded by those near it. On the edge of a wood, or in the open, young trees are furnished to the ground with foliage, which is not shed until the stem has become hardened enough to withstand climatic vicissitudes. If trees with tall stems are the only ones available, then the stems should be shaded by some means for a year or two, especially when they have become established and are making strong, sappy growths, as the stem is practically in the same condition and apt to be scorched by a sudden burst of hot sunshine.

## Goat and Wood-Leopard Moths

Sunstroke must not be confounded with the ravages of the caterpillars of the Goat Moth and Wood-Leopard Moth, the external signs of which are much the same, but on the bark being removed one or two channels almost the size of a man's little finger are to be seen, together with accumulations of wet sawdust-like material deposited by the caterpillar. These are exterminated by thrusting a

## 150 TREES AND SHRUBS

stout wire into the channels until the grub is killed, and afterwards cutting away the dead bark and tarring the wound thoroughly. The tree should also be securely staked, otherwise it will probably snap off in the first high wind.

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without seeing many a street or waste space or corner where a row or a group or even a single tree would not add immensely to both beauty and comfort. Where there is plenty of width, and especially where houses fall back a little from the road, the trees may well stand just within the edge of the footpath or pavement. Should there be still more width, there may be a row in the middle of the road. In this case the middle row of trees should not be quite evenly continuous, but perhaps five or six trees and then a gap, formed by leaving out one tree, in order to allow the traffic to move from side to side of the road. In many a town where a street runs north-east and south-west, a row of trees on its south-western side only might be an inestimable boon.

Even in country villages there is often a bare place, especially where roads meet, where a few trees well planted and a-plain strong oak bench would be a comfort and a pleasure to many hardworking folk, and might be the means of converting unsightliness into beauty.

For towns the Plane has the best character, but other good trees are Wych Elm and Hornbeam, Sycamore, Maple, Lime, Lombardy Poplar, and Horse Chestnut. The spreading growth of the Horse Chestnut commends it rather for a space like the place of a foreign town. Here is also the place for Limes, for though they are good street trees, yet when in bloom the strong, sweet scent, although a passing whiff is delicious, might be an


PLANE TREE (Platanus onientalis).

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## TREES AND SHRUBS IN SCOTLAND

The following list has been kindly sent me by a great lover of trees and shrubs who lives at Forres. My correspondent writes: "I have grown all the plants in my list in my own garden, except Buddleia globosa and Aralia mandschurica, but the latter is grown in quantity by several of my neighbours, and there are also several fine plants of the Buddleia in many gardens in sheltered spots. My experience is that many plants are quite frost-proof but cannot stand cold winds. This applies more especially to the shrubby Veronicas. I have seen them in the Edinburgh Botanic Gardens as if scorched with fire on the exposed side, while they were untouched where sheltered from the north and east. My own garden is fairly well sheltered."

Amelanchier canadensis.-Hardy, free-flowering, beautiful at all times.

Aralia (Dimorphanthus) mandschurica.—Useful in some positions for its curious habit of growth and rather handsome foliage ; quite hardy.

Aristolochia Sipho.-This has curious and inconspicuous flowers, which give this climbing plant its popular name of "Dutchman's Pipe." It can be grown on a wall, in which position, perhaps, its fine foliage is seen to the best advantage, but it is quite
hardy and looks well climbing into a thin tree such as the Common Almond.

Berberis (Mahonia) Aquifolium.-A handsome plant at all times, and will even grow under the shade of trees.

Berberis Darwinii.-Very bright in flower. Young and sappy shoots get killed back in winter.

Berberis Thunbergi.-A most attractive Berberis; it makes a small neat-growing bush to which the adjective "sparkling" might be applied. Its chief glory is its autumnal foliage, and a large clump in September is "a sight to see"; quite hardy.

Berberis vulgaris.—Very beautiful when clustered with fruit. The purple-leaved variety (B.v. purpurea) is most useful for its foliage.

Betula purpurea.-A good foliage tree.
Buddleia globosa.—This does well in a warm sheltered spot facing south-west, where the morning sun in winter will not touch it too soon. It also objects to exposure to cold winds.

Calycanthus floridus.—Quite hardy, and grows well in half-shady places.

Ceanothus azureus.-This succeeds either trained to a wall or as a bush. In the latter case it should be in a sheltered position. It seems quite frost-proof, and its blue flowers are very beautiful at a time when few shrubs are in bloom (July and August). Its shoots should be well thinned, and those left shortened as soon as the buds begin to show signs of movement in the spring. The best form I have tried is Gloire de Versailles.

Choisya ternata (Mexican Orange Flower).—This is well worth growing as a bush in a sheltered angle of a wall, where it can be protected in winter with a hurdle or some such contrivance, lightly thatched with Broom. It is even then, in very severe weather, cut about the points of the shoots, which, of course, spoils the blooming ; but it soon grows through again, and it is worth growing for its foliage alone.

Clematis.-These mostly do well, and the newer sorts are very attractive, but for all purposes it is very hard to beat C. montana and C. Jackmani, the former in May and the latter for the autumn.

Clethra alnifolia.-A neat and free-flowering shrub, with spikes of white flowers in August; it is very hardy and useful, as few shrubs are in flower at that time.

Cornus alba.—A clump of this Dogwood is very effective in winter, especially when the sun is shining on its bright-red shoots. C.a.Speethii is a good variegated variety.

Corylus purpurea.-A good purple-leaved tree.
Cotoneaster microphylla.—Quite hardy either as a bush or on a wall.

Cytisus albus.-No garden should be without this beautiful Broom. C. procox, the Cream Broom, is a dwarfer but no less beautiful variety ; it is very pretty grouped with a few plants of $C$. purpureus, which flowers at the same time. Another fine Broom is the red and yellow variety of the Common Broom (C. scoparius andreanus). The Brooms will grow anywhere, but prefer an open place in full sun. They

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A VARIETY OF MAHALEB CHERRY (Prunus Mahaleb, var. chrysocarpa).
should be cut hard back after flowering, and if the young seed-pods can be picked off so much the better.

Daphne Cneorum.—A bright little shrub best grown on the rock garden; quite hardy.

Daphne Laureola.-This has fine foliage and will grow in quite a shady place.

Daphne Mezereum.-A beautiful early-flowering Daphne, too well known for description.

Deutzia crenata.-A most useful hardy shrub, growing to a good size. The variety, Pride of Rochester, is very pretty.

Diervilla (Weigela).—Indispensable shrubs, very hardy, free-flowering, and easily grown. The flowering shoots should be cut back to strong young wood as soon as the flowers fade. They are most accommodating in this respect, as the strongest of the young shoots start well back and not at the points, as is usual with most plants. Good varieties are Eva Rathke, Hortensis nivea, and rosea.

Escallonia macrantha.-A good wall shrub.
Escallonia philippiana.-Hardier than E. macrantha, and can be grown as a bush in a sheltered spot.

Forsythia suspensa.-Quite hardy, and very beautiful in early spring, as it flowers before the leaf-buds burst. It should be cut back to young growths after the flower is over.

Garrya elliptica.-Quite hardy as a bush.
Fuchsia Riccartoni.-This gets cut down every winter, but is never killed, and it flowers abundantly every year treated as a hardy herbaceous plant.

Genista tinctoria fl. pl.-A low-growing trailing Genista, useful for the rock garden and flowering when many of the alpines are over.

Genista virgata.-A very different plant to the above, and will make a very large bush, covered with pale-yellow flowers in late summer. A good shrub.

Halesia tetraptera.-Quite hardy and attractive both in bloom and foliage.

Hamamelis arborea.-This is quite hardy, but grows very slowly. It flowers in a small state, but not very freely. I have only had this plant for four years, but I think it will do very well, and should flower more freely when a bit larger.

Hedysarum multijugum.-Quite hardy. An attractive shrub, with spikes of reddish pea-like flowers in July and August. It increases freely from the root by suckers. Thin and cut back the shoots in spring.

Helianthemum vulgare (Rock Rose).-There are many garden varieties of this, both double and single, the single sorts being the most attractive. They are quite hardy on a warm and sunny rock garden.

Hydrangea paniculata.-Hardy. A splendid lowgrowing shrub, flowering in autumn. A group of this, with a few plants of Prunus Pissardi cut hard back every spring to keep them small, is very effective, and the group can be carpeted with Lily of the Valley or London Pride to cover the bare soil underneath. The shoots of the Hydrangea should be well thinned, and those left cut hard back in the spring. It well repays a dose or two of liquid manure in the

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serotina, flowers later than the type, and is best known under the name of Late Dutch. L. Sullivantii is a shrubby sort, with not unattractive flowers of a brownish-orange colour.

Magnolia.-The only one I have tried is M. stellata, which has proved quite hardy, and I have no doubt that several others would do quite as well in sheltered places.

Neillia opulifolia (Spircea opulifolia).-Quite hardy.
Pernettya mucronata.-Does well.
Pieris (Andromeda) floribunda.-Is quite hardy and very beautiful early in the year. Will grow in soils that suit Rhododendrons.

Potentilla fruticosa.-A little summer-flowering shrub, with yellow flowers. It does well on the upper parts of the rock garden, and is quite hardy.

Padus (Cerasus) Mahaleb pendula.-A very attractive little weeping tree, with small white flowers in spring.

Pyrus.-The following do well here: P. Malus floribunda, P. coronaria, P. lobata (syn. Mespilus grandiflora), and, of course, the native Rowan tree ( $P$. Aucuparia). The family of Apples enjoy a welldrained place, being impatient of too much wet at the roots ; otherwise, their culture is of the simplest. They should be allowed to grow as they will, only cutting out any branches that would be obviously better away, and dead wood if any.

Rhododendrons and Azaleas luxuriate here. The common $R$. ponticum sows itself in the woods. I have not yet tried the Himalayan Rhododendrons, but from what I have seen of them in the Edinburgh

Botanic Gardens, which are much exposed to cold winds, I feel fairly certain I could grow them here, where I can give them more protection.

Rhodolypus kerrioides.-A very pretty hardy shrub, flowering on and off all the summer. It has very clean white flowers, and from appearances looks as though a cross with Kerria might be successful. The Rhodotypus seeds freely here. It grows to a good size.

Rhus Cotinus.-Another good shrub, attractive either in flower or foliage, and the latter turns to a good colour in autumn.

Ribes.-No garden should be without a plant of the Common Ribes. I also grow Aureum and a pale pinkish-white sort.

Robinia hispida (Rose Acacia).-This is doing well in a corner sheltered from the north, east, and west by evergreens.

Roses.-The best that I grow as shrubs (in the garden sense) are the Penzance Briars, Rosa rugosa (Japanese Rose), Austrian Briars, R. spinosissima, Blairii II., Charles Lawson, R. macrantha, R. alpina, $\& \mathrm{c}$. These Roses stand up and make a good bush in a sheltered place, without staking or any other trouble. Very little pruning is needful, and that after the flowers are over, cutting out weak wood and shortening some of the old shoots back to where young ones are breaking vigorously.

Rubus deliciosus.-Very pretty white flowers, large for a bramble. It appears to be quite hardy, but is not a very strong grower.

Ruscus aculeatus (Butcher's Broom).-An inconspicuous little shrub that grows well under trees.

Spartium junceum (Spanish Broom).-A good shrub for a sheltered bank; it has spikes of bright-yellow flowers in July.

Spirea.-Most of the Spiræas do well here. The following are the best of those I grow: S. canescens, very pretty habit of growth and foliage ; S. discolor (ariafolia), S.japonica (vars. alba, bumalda, and Anthony Waterer), the last-mentioned very good. S. lindleyana, a large grower, handsome both in flower and foliage. S. prunifolia $f l$. pl. should be in all gardens; good both for flowers and autumnal foliage. S. Van Houttei, very good. Exochorda grandiflora, often known as Spirea grandiflora, I have had since 1898, but though it is now a large bush and very healthy, it has not yet made any attempt to flower.

Syringa (Lilacs).-These are indispensable. Some of the newer varieties are good, such as Charles X ., rosy lilac ; Marie Legraye, white; Souv. de L. Spath, reddish; Mme. Lemoine, double white. These should always be procured on their own roots. Grafted plants seldom live long.

Viburnum Opulus sterilis. - This, the well-known Snowball tree, and V. Tinus (Laurustinus), are the only two I have grown. Both do well, and I fancy $V$. plicatum and some others would do also. I shall try them.

Vitis Coignetiou.-I have this growing up the outer branches of a Spanish Chestnut. It does not grow very fast, but is making steady progress. It appears

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slow growing. A. rubrum. A.pictum. A. opulifolium obtusatum*-A bright tree in early spring with its golden-green foliage and flowers. A. saccharinum (Sugar Maple). A. japonicum and varieties.

Actinidia Kolomikta.-Climber; grows quickly on south wall.

Horse Chestnut (Esculus Hippocastanum) and others: carnea, Pavia, parviflora, flava.

Ailantus glandulosa (Tree of Heaven).
Amelanchier vulgaris and $A$. canadensis.*Very ornamental. Seldom seen, but as free-growing and flowering as the Hawthorn.

Andromeda polifolia.*-Dwarf height, about one foot. Very beautiful shrub for peat beds.

Arbutus Andrachne.-Flowers in February and March.

Arctostaphylos alpina.-Plenty of this found in north of Scotland, but somewhat difficult to establish in gardens. A. Uva-ursi-Freer in growth than the preceding. Both species are low-creeping shrubs suitable for planting with Heaths in peat.

Aralia spinosa * and $A$. chinensis.
Aristolochia Sipho (Dutchman's Pipe).-Large effective climber.

Artemisia Abrotanum, arborescens, and tridentata.* -Useful shrubs of grey tone.

Aucuba japonica and varieties.*
Azara microphylla* and $A$. dentata.
Berberis Aquifollum,* Darwinii, vulgaris, nepalensis. Single specimens of B. Aquifolium, the Mahonia, become very ornamental with age.

Betula alba* (the Silver Birch).-A very hardy tree, beautiful both in summer and winter. The pendulous variety is the best. Its branches are proof against all winds. No tree is so well adapted for planting close up to houses in the city, for it is very graceful, and obscures little light. B. utilis, B. papyrifera, B. populifolia.

Bryanthus empetriformis.*-_Very fine planted in broad masses. B. erectus-Very beautiful in small beds.

Box* and varieties.
Calycanthus floridus.-This is excellent on walls.

Camellias only flower here on walls in the open. They form large bushes in the grounds. Camellia Thea, the tea-plant, is also perfectly hardy.

Carmichelia flagelliformis.*-Very interesting, and flowering with great freedom.

Carpenteria californica.*-A splendid plant for south walls, large established specimens having a profusion of large white flowers.

Carpinus Betulus* and varieties.
Caryopteris Mastacanthus. - A good wall plant.

Cassiope fastigiata* and C. tetragona.*-Both are very choice subjects here and flower well.

Castanea sativa* (Sweet or Spanish Chestnut). -Ornamental, but does not ripen fruit here.

Ceanothus americanusand veitchianus.*-Splendid.
Cercis Siliquastrum* (Judas tree).
Chimonanthus fragrans (Winter-sweet).—Wall.

Choisya ternata (Mexican Orange Flower).
Cistus.*-These are very fine, and flower for months if somewhat sheltered.

Clematis.-Of these very charming are alpina,* apiifolia, Flammula,* heraclecefolia, Vitalba.*

Colletia cruciata.
Colutea arborescens and melanocalyx.
Convolvulus Cneorum.*-Very pretty plant for a south wall ; silvery foliage and white flowers.

Cornus (Dogwood).—Of these, $a l b a$ and varieties, Kousa, florida, sanguinea (very ornamental in winter), Mas and $m$. variegata* (a very choice, variegated shrub), are the best.

Corylopsis pauciflora and C. spicata.-Both do well on a south wall.

Corylus Avellana and purpurea.*-One of the most effective shrubs if used carefully.

Cotoneasters.-Of these, buxifolia, Simonsii, thymifolia,* microphylla,* horizontalis* (a species with peculiar spreading flat branches, producing a fine effect if grown on sloping banks), are the most noteworthy.

Hawthorn. - Cratogus monogyna, Oxyacantha,* also the ordinary white single form, are valuable hardy trees, flowering at the end of June to July.

Cytisus (Broom).—Of this beautiful family, albus,* Ardoini,* biflorus,* decumbens,* nigricans, procox,* purpureus,* scoparius and varieties,* are all splendid growers for dry, sunny situations.

Dabcecia.-Polifolia,* alba,* bicolor,* the Irish Heaths, are beautiful in small beds and rockeries.

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Fraxinus Excelsior* (the Ash), also the Manna Ash (F.Ornus).*

Fuchsia Riccartoni.*-Flowers for a very long time, and is very hardy.
. Genista.-Of these, G. anglica, hispanca, pilosa, sagittalis, tinctoria.

Gleditschia triacanthos.
Hamamelis (Witch or Wych Hazel).-H.arborea,* japonica,* virginica.

Hydrangea paniculata. * - Magnificent when established.

Hypericum.-Of these, H. Androstamum, hookerianum, moserianum* (the best of the genus for small beds).

Ilex.-Of the Hollies, I. Aquifolium and many varieties, I. cornuta,* I. Dahoon,* I. crenata,* and I. latifolia* succeed best.

Jasmines.--J. fruticans and J. nudiflorum.* The last-named should be grown as a small bush as well as on walls. Also J. officinale ${ }^{*}$ and varieties. A golden-leaved form of this species merits attention from its foliage alone.

Juglans (Walnut) regia.-Grows fairly well, but no fruit of value.

Laburnum.-Both L. alpinum and L. vulgare.*
Lavender.
Ledum.-Of this family, L. latifolium ${ }^{*}$ and $L$. palustre.*

Leucothoe recurva.
Leycesteria formosa.
Liquidambar styraciflua.*

Liriodendron tulipifera (Tulip tree*).-Grows into a very handsome tree.

Lonicera.-Of the Honeysuckles the best are L. Caprifolitım,* L. fragrantissima, L. Periclymenum,* L. japonica,* L. Standishi, L. Xylosteum, L. Ledebourii.

Lupinus arboreus * and varieties (Tree Lupine). -Best on walls.

Magnolias.-Of these, M. acuminata,* the Cucumber tree, flowers freely. M. grandiflora* is only for sheltered walls, and M. Fraseri, M. conspicua, M. stellala, M. Watsoni ${ }^{*}$ for sheltered places.

Morus nigra (Black Mulberry) and M. alba.
Olearia Haastif. *-The best August flowering shrub. O. macrodonta and stellulata.*

Osmanthus Aquifolium.*
Pernettya mucrunata. * - Effective both in flower and berry.

Philadelphus (Mock Orange).—P. coronarius* and varieties and microphyllus.

Phlomis fruticosa.
Pieris floribunda.*-Very free flowering. $P$. japonica variegata*-Effective.

Platanus acerifolia (Plane).-These appear hardy, but are not popular. They are slower in growth than most trees.

Populus (Poplar).-P. alba, P. balsamifera (Balsam Poplar), $P$. nigra (Black Poplar), and $P$. tremula.

Potentilla fruticosa* (Shrubby Cinquefoil).Well deserves more attention.

Prunus.-Of these, the Cherry and Bird Cherry,* Plum,* Bullace,* and the beautiful P. triloba are a success.

Ptelea trifoliata.
Pyrus.-P. Aria* (the White Beam tree), P. Aucuparia* (Mountain Ash), P. japonica,* P. rotundifolia,* $P$. Sorbus* (Service tree).

Quercus (Oak).-The most satisfactory species are $Q$. sessilifolia,* and $Q$. pedunculata. These generally thrive well and are amongst the most beautiful of trees for large gardens. In poor soil and windswept places the British Oaks do not grow more than about 40 feet in height, but develop into picturesque features. Their foliage here is of a pleasing green when that of the Beech and Sycamore is past its best. Very few acorns are produced. Q. Cerris,* the Turkey Oak, and its variety laciniata,* and $Q$. lucombeana,* are also beautiful trees. We must also mention the Evergreen Oak ( $Q$. Ilex),* alba, palustris, laurifolia, coccinea (Scarlet Oak), Suber (Cork Oak), conferta.

Rhododendron.-Of the Rhododendrons the following are satisfactory: R. altaclerense, Anthopogon, arborescens, arboreum Campbellic, azaleoides, blandyanum, calendulaceum, campanulatum, campylocarpum, catawbiense, caucasicum,* ciliatum, cinnabarinum,* ferrugineum,* fulgens, glaucum,* hirsutum* and varieties, indicum balsaminaflorum, lancifolium, lepidotum,* myrifolium,* nobleanum,* n. album,* ponticum * (many varieties), pracox,* punctatum, racemosum, Rhodora, sinensıs* (azalea mollis), Vaseyi,* Wilsoni. These are the principal

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much larger than the Wild Thyme), Lapponum, nigra, Paulince, reticulata, rubra, viminalis.

Skimmia Fortunei and S. japonica.*
Sambucus (Elder).-S. canadensis, nigra, racemosus.
Spireas.-Of these, S. bella, bullata, canescens, decumbens, cantoniensis,* discolor,* japonica, var. Bumalda,* tomentosa, var. alba.

Staphylea colchica.
Symphoricarpus racemosus (Snowberry).
Syringa (Lilac).—S. persica* (Persian Lilac), and S. vulgaris* and varieties.

Tamarix.-T. gallica, T. hispida, and T. odessana,* a very fine August flowering shrub.

Tilia (Lime).-T. argentea, T. cordata, T. platyphyllos, and T. vulgaris,* the best of all.

Ulex (Furze).-U. europeus and var. fl. pl.*
Ulmus (Elm).-U. campestris * and U. montana.*
Vacciniums.-Of these choose $V$. arboreum, $V$. corymbosum, $V$. Myrtillus, and $V$. pennsylvanicum,* very fine for drooping over rocks in rock garden; V. Vitis-idoca and the variety variegata, a pretty variety of this native shrub.

Veronica.-Of these the most satisfactory are V. amplexicaulis,* Armstrongii,* buxifolia,* chathamica,* Colensoi,* cupressoides,* c. variabilis *—grown in poor soil and well exposed, this variety of $V$. cupressoides is very fine both in summer and winter-decumbens,* epacridea,* glauco-carulea,* Hectori,* Kirkii,* ligustrifolia,* monticola,* pimeleoides,* pinguifolia,* rakaiensis,* salicifolia,* Traversii.* The above are hardy Veronicas. They also happily include many of the best. Other


GUELDER ROSE OR SNOWBALL TREE.

WYCH ELMS BY HEDGEROW.

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## 174 <br> TREES AND SHRUBS

are very valuable in a young state. They should be replaced as they become thin and shabby, as they soon do in exposed places. The most satisfactory tree of all is the Yew. Even this hardy tree has its foliage badly hurt by severe winds, but the damage is soon made good.

## TENDER SHRUBS AND TREES IN THE SOUTH-WEST

The possibilities that exist of the successful openair culture of tender subjects in the south-west are but little dreamt of by the majority of English flowerlovers. They doubtless read with interest the accounts in the horticultural press of Australian, Chilian, and Californian flowering trees and shrubs growing in their native habitats, and possibly feel a desire to visit these climes in order that they may verify with their own eyes the truth of their readings. As a matter of fact, however, a lengthy sea-voyage is by no means indispensable in order to view certain of these exotics flourishing in the open air, for a few hours' journey by rail will bring the passenger to a land where many of these denizens of other climes may be seen enjoying robust health under English skies.

The following list of tender shrubs and trees growing in the gardens of the south-west cannot claim to be an exhaustive one, since it contains only such as have been personally noticed in good health during rambles along the southern coast-line of Cornwall and Devon, and, where no lengthened inspection is possible, it is obvious that certain species and varieties must be overlooked. Incomplete, however,
as it doubtless is, it should give an idea of the climatic advantages enjoyed by the district in question.

Many of the subjects mentioned are growing in Tresco Abbey gardens, Isles of Scilly, but most of these are also found in mainland gardens as well. Where any have been met with at Tresco only, the fact is noted, but these may also be present on the mainland.

The soil of the Scillies, which is composed apparently of peat and disintegrated granite, and is almost identical with much of that around Penzance, is admirably adapted for hard-wooded Australian, New Zealand, and Chilian shrubs and trees, and almost all the species and genera enumerated would be best suited by a compost in which peat and leafmould and granite sand formed the chief proportion, although it must be allowed that some alluded to have been found to succeed equally well in sandy loam. Porosity in the soil is indispensable, for, in this district, where the winter rains are often exceptionally heavy, unless the water percolates rapidly through the ground, stagnant moisture collects around the roots, a condition which is absolutely fatal to success. The advantages of the Cornish granite sand are gradually being appreciated. Mr. Fitzherbert writes, "I was told the other day by an acquaintance that since he had imported it by the truck-load to his Sussex garden he was able to grow many things successfully that he had before failed with."

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simply covered with golden blossom which was thrown into high relief by a background of Ilexes. A. verticillata is another handsome species flowering later in the spring. It is a very rapid grower, reaching a height of 15 feet in a few years, generally growing in the form of a broad-based cone, with its lower branches but a foot or so from the ground. When in flower it is so covered with its pale-yellow blossoms that no foliage is discernible. A. armata may be seen as a bush 7 feet high and as much in diameter. A. ovata Mr. Fitzherbert has only seen as a bush some 3 feet high; very pretty when bearing its circular, golden flower-bells. A. longifolia is another handsome tree, with leaves something like those of an Oleander and bright-yellow flowers. $A$. melanoxylon is a fine tree. The specimen at Tresco is about 50 feet in height, and there are good examples on the mainland. Pale-yellow flowers produced in profusion. Other species met with are A. riceana, A. (Albizzia) lophantha, A. calamifolia, A. linifolia, A. latifolia, and A. platyptera, the latter against a wall.

Adenandra fragrans.-Cape of Good Hope. A small evergreen shrub, bearing fragrant, rose-coloured flowers. Tregothnan.

Anopterus glandulosa.-Tasmania. A vigorous evergreen shrub, with-dark, shining green leaves, bearing long, erect terminal racemes of white, cupshaped flowers, resembling the blooms of Clethra arborea, but larger. Tregothnan.

Aralia quinquefolia. - Garden seedling. A
striking plant with dark-green, large-sized leaves divided into five sections. Height at present 5 feet. Tregothnan.

Aster (Olearia) argophyllus.-Australia. The Silver Musk tree, with musk-scented leaves and dullred flowers in summer. Three gardens. Height 12 feet.

Athrotaxis laxifolia.-Tasmania. A tender Conifer. A fine example, 20 feet in height, fruited profusely at Menabilly two years ago.

Banksia grandis.-Australia. Evergreen shrub, bearing yellow flowers in dense spikes. B. serrata, red flowers, and $B$. littoralis. All at Tresco. B. quercifolia, handsome leaves, with white reverse. Abbotsbury. Banksias were at one time in request as greenhouse plants.

Bauera rubioides.-New South Wales. A pretty little evergreen shrub not unlike a Heath, but more branching, bearing solitary, pink, saucer-shaped flowers half an inch across, each petal striped with white down the centre.

Benthamia (Cornus) fragifera.-Nepaul. A strikingly handsome, evergreen tree, first introduced into England in 1825 , when seed was sown at Heligan, Cornwall, and where there are now specimens some 60 feet in height. It is largely represented throughout Cornwall, being used in some places as a woodland tree. In June, when the leafage is hidden by the wide-spread, platter-like flowers of pale yellow, its effect is very beautiful, especially when thrown up by a background of green foliage.

In the autumn the fruits, from which it takes its name of Strawberry tree, some an inch or more in diameter, become bright crimson.

Boronia.-Australia. These are almost universally treated as greenhouse plants, but succeed in the open air in the south-west. At Tregothnan, at the end of March, two bushes of $B$. megastigma, planted in front of a wall, the larger of which was about 3 feet in height, were coming into profuse bloom, and already scented the air with the first of their brown, yellow-lined, drooping cups. $B$. heterophylla, with its purple-red flowers was also expanding blooms, and B. Drummondii, B. elatior, and $B$. polygaloefolia were also growing in the same garden.

Brachyglottis repanda. - New Zealand. A handsome tree, with leaves nearly a foot in length and numerous minute flower-heads. Tresco.

Buddleia Colvillei.-Sikkim. The finest of the new race, with pendulous racemes, nearly a foot in length, of crimson, pentstemon-like flowers, paler round the centre, an inch across. Leaves large and dark green, 6 inches or more in length. Several gardens.

Callistemon Salignus.-Australia. There are two forms of this Bottle-brush, one bearing paleyellow flowers and the other crimson. Others are $C$. lanceolatus, carmine-flowered, and C. speciosus, scarletflowered. These grow well as bushes, specimens of the first-named being sometimes 10 feet in height and as much in diameter. There is much con-

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form. The type is common. This is also happy farther north.

Cassinia leptophylla.-New Zealand. A small evergreen shrub, bearing white flower-heads. Tregothnan.

Ceanothus. - California and Mexico. Many species and varieties are grown both as bushes, in which form they soon make small trees, and trained against walls. Of the early-flowering varieties $C$. veitchianus is the brightest coloured, and of the autumnblooming, azureus section, Gloire de Versailles is the favourite. Common in most gardens.

Citharexylom Quadrangulare. - West Indies. The Fiddle-wood. Bears white, fragrant flowers. There is a fine specimen at Abbotsbury. Dorset.

Citrus trifoliata (CEgle sepiaria). - Japan. This fiercely-spined Citrus is hardy, but rarely flowers and fruits in the north. In the south-west it flowers freely, and one specimen fruits almost annually. It is 7 feet in height, and last year carried over thirty fruits.

Clerodendron trichotomum.-Japan. A deciduous shrub, also hardy, but flowering best in the south-west. A fine specimen over 15 feet in height and as much through is at Greenway on the Dart.

Clethra arborea.-Madeira. The Lily-of-theValley tree. Evergreen. It bears panicles of white, bell-shaped flowers in the summer, at which time it is quite a feature at Tresco. There are good bushes, the largest about 7 feet in height, at Trewidden, near Penzance.

Corokia buddleioides.-New Zealand. A tallgrowing evergreen shrub, with leaves 2 to 6 inches in length. C. Cotoneaster is a spreading shrub with small leaves. Both species bear yellow, sweetscented flowers. The first was at Ludgvan Rectory, Cornwall, the second at Bishop's Teignton. South Devon.

Correa.-Australia. Greenhouse evergreen shrubs which do well at Tresco, and also in some gardens on the mainland. C. cardinalis is the most brilliant, but $C$. ventricosa is almost as highly coloured. The two named, as well as C. alba, C. bicolor, C. carnea, C. glauca, C. magnifica, and C. virens are sometimes seen in good health and flower on the mainland.

Corynocarpus levigatus.-New Zealand. An evergreen tree, bearing panicles of white flowers followed by plum-like fruit. A healthy young plant is at Ludgvan Rectory.

Crinodendron Hookeri (Tricuspidaria hexa-petala).-Chili. A particularly handsome shrub, growing to a height of 5 feet, bearing large, drooping, cherry-red, urn-shaped flowers on long peduncles, the petals being very fine in texture. In many gardens.

Cytisus racemosus.-Peak of Teneriffe. One of the commonest and most popular greenhouse plants. It grows to 8 or ro feet in height in the south-west and often flowers until Christmas.

Daphne indica.-India. Both the white and purple-red form of this fragrant plant are common in the open in Devon and Cornwall, and in mild
seasons commence to bloom in January. Some old plants have formed large bushes in front of walls.

Daphniphyllum glaucescens.-China. Evergreen. This is hardy, but is uncommon. A very large specimen is at Trewidden, and is 12 feet in height and 20 feet in spread. It has long shining leaves, the shoots being red in colour ; these, early in April, are surrounded by closely clustered, maroonred flower-buds.

Datura sanguinea.-Peru. This grows to a large size in the south-west, often forming a tree 12 feet or more in height, and, in mild winters, blooming until February. D. suaveolens, Mexico, is probably more tender, as such large specimens are rarely seen.

Dendromecon rigidus.-California. A handsome shrub with glaucous leaves, the branchlets terminated by bright-yellow poppy-like flowers. It succeeds best in poor soil that does not induce vigorous growth. Enys.

Desfontainea spinosa.-Chili. A most distinct evergreen shrub, with leaves resembling those of a Holly. It bears tubular flowers 3 inches in length of a bright vermilion tipped with yellow, and is a very handsome object when in full flower. It commences to bloom in the summer, and often holds many of its flowers until November. The largest specimen met with was about 8 feet in height, and was in the neighbourhood of Teignmouth. The Desfontainea is to be found in most gardens.

Diosma ericoides.-South Africa. A heath-like

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Embothrium coccineum.-South America. The Fire Bush. The most brilliant of all flowering trees capable of out-door culture in this country. In May every twig is laden with clusters of long flowers of glowing scarlet, the trees presenting a most gorgeous spectacle. Every good garden in Cornwall and most in South Devon possesses specimens, some containing a dozen or more. The finest are probably Trewidden and Penjerrick, where they are 30 feet in height and as much in spread.

Eriostemon buxifolius.-Australia. A small evergreen shrub, bearing pink flowers in the spring. Tresco.

Escallonia illinata.-Chili. Bears white flowers in July. There is one 15 feet high at Menabilly. E. revoluta-Chili. Bears white flowers three quarters of an inch long in August, 20 feet high. Menabilly. E. organensis-Organ Mountains. Bears rose-coloured flowers. Fine specimens in more than one garden. E. floribunda-Montevideo. Bears fragrant white flowers in August. Common in the south-west.

Eucalypti. - Australia. Some thirty or forty specimens are grown, of which perhaps the best known are: E. globulus, which has attained a height of 50 feet ; E. citriodora, 20 feet, against the house at Tregothnan ; E. amygdalina, \&c. Many flower freely and bear fertile seed. E. Gunnii flowers freely at Parkstone, Dorset, in Professor Wallace's garden. It is quite hardy there.

Eucryphia pinnatifolia.-Chili. A beautiful


fabiana imbricata in flower in a devonshire garden.

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cupped flowers 3 inches in diameter with orange stamens. It often remains in bloom for months. Large plants have unfortunately a way of dying off when apparently in good health, several fine specimens having succumbed in this manner. The finest we now know of is one growing in bush form about 8 feet in height at Newton Abbot, but the same garden contained at one time a larger example.

Grevillea. - Australia. G. rosmarinifolia, with carmine-red flowers, forms a vigorous shrub, growing to a height of 8 feet with a spread of 7 feet. It is to be found in many gardens. At Tregothnan, $G$. Priessii, with pink and yellow flowers ; G. alpina, redtipped yellow ; and G. sulphurea are grown ; and we have seen $G$. robusta, which had been in the open for three years. All species are evergreen.

Guevina avellana.-Chili. A very ornamental evergreen tree, with large impari-pinnate leaves of a deep, glossy green, bearing white flowers followed by coral-red fruit the size of a cherry. There is a fine specimen at Greenway, 20 feet in height, which has ripened fruits from which seedlings have been raised.

Habrothamnus corymbosus. - Mexico. This well-known red-flowered greenhouse shrub does admirably as a bush plant in the open, as does $H$. elegans, with purple-red flowers. They often carry bloom as late as November and are frequently met with.

Hakea laurina.-Australia. An evergreen shrub, bearing clusters of rosy-lilac flowers. Menabilly.

Mr. Fitzherbert says, "I am not aware if it has flowered in this country."

Heliocarpus cyaneus. - Tropical America. A small evergreen tree, bearing blue flowers. Tresco.

Hoheria populnea.-New Zealand. The Houhere of the natives. Ribbon-wood. With pure white flowers and a handsome foliage. Enys and other gardens.

Illicium anisatum.-Japan. A half-hardy evergreen shrub, bearing clusters of ivory-white flowers. Held sacred by the Japanese, who burn the bark before the shrines of their deities. Tresco. I. floridanum, Southern States of America, bearing maroon flowers. Not uncommon.

Indigofera gerardiana.-India. A low-branching evergreen shrub, with finely-divided foliage, bearing racemes 5 inches in length of rose-purple, pea-like flowers. Common. There is a white variety which is rarely seen.

Jacaranda mimosefolia.-Brazil. A very graceful evergreen tree with acacia-like leaves a foot in length, bearing panicles of drooping violet-blue flowers. There is a fine young plant at Rosehill, Falmouth.

Lagerstroemia indica.-A handsome deciduous shrub, bearing large bright-pink flowers.

Leptospermum.-Australia. L. baccalum and L. scoparium are the most generally met with. Both bear small white flowers and are evergreen. We have seen the former 12 feet and the latter 20 feet in height. Other species are also grown.

Libonia floribunda. - Brazil. The favourite
greenhouse flowering shrub, bearing drooping scarlet and yellow blossoms. Tresco and one mainland garden.

Litsea geniculata. - Southern United States. A deciduous shrub or tree, bearing white flowers in May. The largest in England is probably one at Menabilly, 25 feet in height.

Melaleuca hypericifolia.-Australia. An evergreen shrub, bearing scarlet bottle-brush flowers. Tresco.

Melia azedarach.-Tropical Asia. The Bead tree, so called from the seeds being used for rosaries, bearing much-branched panicles of fragrant lilac flowers. Leaves bipinnate and deeply serrated. Rosehill. Evergreen.

Melianthus major.-Cape of Good Hope. A well-known plant in sub-tropical gardening. At Rosehill it has reached a height of 12 feet.

Metrosideros robusta. - New Zealand. An evergreen tree, bearing clusters of brilliant crimson flowers at the extremities of the shoots; in this it differs from Callistemon, whose flowers encircle the branchlets some distance below the extremities. Tresco ; 30 feet in height.

Mitraria coccinea.-Chili. An evergreen shrub, bearing bright-scarlet flowers. This is to be found 6 feet in some gardens.

Myoporum Letum.-Australia. Native name, Guaio. An evergreen tree, bearing small white flowers, and having lanceolate leaves dotted with countless transparent spots. Two mainland gardens.

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is at Pentillie Castle, and is 20 feet in height with a spread of 30 feet. When this is white with its clustering flower-sprays it is a lovely sight.

Pimelea decussata. - Australia. An evergreen shrub, bearing rose-red, globular flower-heads at the extremities of the branches. Tresco.

Pinus Montezume.-Mexico. A noble and distinct Pine, good specimens of which are at Tregothnan and Menabilly, where it has fruited.

Piptanthus nepalensis.-Nepaul. An evergreen shrub, bearing numbers of bright-yellow laburnumlike flowers. It seems indifferent to soil, and may be seen flourishing under adverse circumstances. Common.

Plagianthus betulinus.-New Zealand. Ribbon tree. Bears small white flowers in clusters. A splendid example 50 feet in height is at Abbotsbury.

Pittosporum.-New Zealand. Evergreen shrubs. P. Mayi, at Tregothnan, is about 30 feet in height; while we have seen $P$. bicolor over 20 feet, and many fine examples of $P$. undulatum, $P$. tenuifolium, of which last a hedge has been made at Falmouth, and other species. All bear their little flowers in profusion in the south-west. The Japanese $P$. Tobira is a hardy shrub, bearing spreading flower-heads of fragrant white blossom.

Podocarpus andina.-Chili. A handsome evergreen tree to be found in most gardens. At Penjerrick there is a specimen 40 feet in height.

Poinciana (Cesalpina) Gilliesi.-South America.


PINUS MONTEZUMAE AT FOTA.

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Fruits are rarely produced by the Pomegranate in England."

Rhapithamnus cyanocarpus.-Chili. An evergreen tree, bearing pale-blue flowers, followed by violet-blue berries. A fine specimen 20 feet in height is at Menabilly.

Rubus australis.-A Bramble, the only form of which is worth growing, and that merely as a curiosity, is a practically leafless one. The leaves are indeed there, but they consist merely of three midribs armed with curved spines, and terminated by leaflets less than an inch in length of an inch in breadth. A large plant at Bishop's Teignton has smothered a Euonymous bush, and climbed into an adjacent Fir.

SENECIO.-Many of the newer evergreen exotic species, such as S. Grayii, S. Fosterii, S. Heretieri, and others are grown, while in Rosehill garden is a fifty-year-old plant of the Mexican S. Petasitis, 8 feet in height.

Solanum Crispum.-Chili. An evergreen flowering shrub, bearing lavender yellow-centred flowers in profusion, often reaching a height of 8 feet. Quite common.

Sparmannia africana.-Cape of Good Hope. African Hemp. An evergreen shrub, bearing masses of white flowers with ruby-tipped anthers; a wellknown greenhouse plant. At Tresco both the single and double forms are grown, and attain a height of 10 feet. The single form is also met with in mainland gardens, where it is often in flower in February.

## TENDER SHRUBS IN SOUTH-WEST

Veronica hulkeana.-New Zealand. An evergreen shrub, bearing branching panicles of pale-lilac flowers, doing best with the support and protection of a wall. To be found in many gardens.
Westringia triphylla.-Australia. Evergreen shrub, bearing blue flowers in summer. Tregothnan.

## TENDER WALL PLANTS IN THE SOUTH-WEST

The notes on tender shrubs and trees grown in the south-west are fittingly supplemented by a passing reference to plants used for covering walls, mostly of climbing habit, but a few of shrubby growth.

Bignonia.-B. (Tecoma) radicans is a hardy climber, and B. capreolata may also be considered so. Other members of the family grown in the open are B. capensis, Cape of Good Hope, orange; B. Cherere, Guiana, orange scarlet; and B. speciosa, Uruguay, pink. Greenway on the Dart.

Berberidopsis corallina. - Chili. Drooping crimson flowers borne in racemes in the autumn. This evergreen plant does best in peat or leafmould in a partially shaded position. Common.

Bougainvillea glabra.-Brazil. This climber cannot be considered a success in the open in the south-west, but in two gardens it has been grown and flowers, but in neither case has it exhibited a tithe of the freedom of growth displayed by it under glass.

Bucklandia populnea.-Himalayas. A handsome evergreen foliage plant, said to grow to a height

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until mid-May, when it is a glowing sheet of colour. The finest plant Mr. Fitzherbert knows is at Stoke Fleming, near Dartmouth, where it covers the side of a large house.

Diplacus (Mimulus) glutinosus.-California. Another popular greenhouse plant, bearing buff flowers, which succeeds admirably against walls in many gardens, growing some 5 feet in height.

Eleocarpus cyaneus.-Australia. An evergreen plant of shrubby growth, bearing whitish-blue flowers. Greenway.

Ercilla (Bridgesia) spicata.-Chili. A selfclinging evergreen climber, bearing inconspicuous flowers. Fairly common, but scarcely attractive.

Hibbertia dentata.-Australia. An evergreen climber, with foliage of deep bronze, bearing single bright-yellow flowers in April. Trewidden. H. Reidii, also yellow-flowered. Tregothnan.

Hydrangea scandens.-Japan. A rampant-growing climber, bearing flat flower-heads, composed of blooms the minority of which are sterile. It clings naturally, and is displayed to best advantage when allowed to ascend a bare tree trunk. At Menabilly, Cornwall, a specimen planted twelve years ago has ascended the columnar trunk of a Turkey Oak to a height of almost 40 feet.
inga pulcherrima.-Mexico. An evergreen shrub, bearing bright-scarlet flowers in summer. A fine plant covering a large expanse of wall is at Greenway.

Kennedya nigricans.-Australia. An evergreen

## WALL PLANTS IN SOUTH-WEST

climber, bearing violet-purple racemes of small pea-like blossoms. Greenway. $K$. alba is also grown.

Lapageria.-Chili. This handsome evergreen climber, producing long wax-like blossoms of white and rose, is well known under glass. In the southwest it does well in the open against a north wall, in peaty compost, often bearing its flowers as late as Christmas.

Lasiandra (Pleroma. Tibouchina) macrantha. -Brazil. A beautiful evergreen shrub of climbing habit, bearing large violet flowers. It is usually cut down by frost, but breaks again strongly in the spring. Trewidden and other gardens.

Mandevilla suaveolens.-Buenos Ayres. A lovely deciduous climber, bearing large, white, de-liciously-fragrant flowers in August. It does well in several gardens in the south-west, in some of which it seeds freely.

Michelia (Magnolia) fuscata.-China. A deciduous shrub, bearing dull-purple sweetly-scented flowers. Tregothnan.

Phenocoma prolifera.-Cape of Good Hope. -An evergreen shrub, bearing large, terminal, crimson flower-heads. Trewidden.

Physianthus albens syn. Araujia albens.Brazil. An evergreen climber, bearing a profusion of white flowers, which later assume a reddish tinge. Common in the south-west. The finest specimen Mr. Fitzherbert has seen grew against a cliff-face in the public gardens at Torquay. It spread to a
height and breadth of considerably over 20 feet, and one year bore over a dozen huge corrugated seedpods, about the size of a cricket ball, but oval in shape. This strain killed the plant, but a young one has now taken its place.

Plumbago capensis.-Cape of Good Hope. A climbing evergreen shrub, bearing large heads of paleblue flowers; a favourite conservatory plant. It is grown in several gardens, and flowers well in the open. A fine example, which has been unprotected for five months, is growing in the same site as the Physianthus alluded to above.

Pueraria thunbergiana.-Khasia. An evergreen climber, with leaves 5 inches in diameter, bearing blue flowers. Fibre is obtained from the stems and starch from the roots. Tregothnan.

Rhodochiton volubile.-Mexico. A climber, bearing blood-red drooping flowers. This plant, in common with Lothospermum and Maurandya, all three of which are perennials, is almost invariably killed by the winter, but is easily raised from seed. Rosehill, Falmouth.

Rhynchospermum (Trachelospermum) jasmin-oides.-Shanghai. An evergreen climber, hardy in the south-west, bearing countless starry-white flowers, most delicately perfumed in August. It is to be met with in the majority of gardens, and in one it has covered the house porch.

Ruscus androgynus syn. Semele androgyna.Canary Islands. An evergreen climber, valuable for its striking foliage. The leaves, or rather cladodes,

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are over a foot in length, and are furnished with from twelve to twenty pinnate sections of a glossy green. Penjerrick, Falmouth, where it has borne its inconspicuous greenish-white flowers.

Solanum wendlandi.-Costa Rica. An evergreen climber, bearing clusters of large lilac-blue flowers, $2 \frac{1}{2}$ inches in diameter. The late Rev. H. Ewbank, in whose garden at Ryde the finest specimen we have seen was growing, considered it the best of all the tender climbers amenable to open-air culture in the south-west.

Sollya heterophylla. - Australia. Bluebell Creeper. An evergreen climber, bearing drooping blue flowers. Tregothnan.

Stauntonia (Holboellia) latifolia.-Himalayas. An evergreen climber, with oval leathery leaves, bearing in April clusters of greenish-white flowers, delightfully odorous. A very common plant in the south-west.

Streptosolen Jamesoni.-Columbia. A handsome evergreen shrub, in great request for clothing conservatory pillars, \&c. It bears panicles of orangered flowers, and when in full bloom has a brilliant effect. A plant about 7 feet in height is growing against the house at Trewidden.

Swainsonia albiflora.-Australia. An evergreen leguminous shrub, bearing white pea-like flowers, well known in greenhouses. It is grown in several gardens, and if cut down by sharp frosts breaks strongly again in the spring.

Tacsonia exonensis.-A hybrid between T. Van

Volxemii and T. mollissima. Bearing bright rosy-pink flowers. Trewidden.
T. mOllissima.-Quito. A vigorous species, bearing pink flowers, with tubes from 4 to 5 inches in length. Though Quito is on the equator, its height above sea-level being 9600 feet, the temperature is not unduly high. There is a large plant, which has had to be kept within bounds by periodical pruning, at Rosehill.

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fresh, green tints in winter. Very few, indeed, equal them."

Although between forty and fifty species and varieties are now grown, only about twenty need be thought of, because many of them are so much alike that for the garden they may be regarded as synonymous. The family is divided into three groups or genera-Phylostachys, Arundinaria, and Bambusaand it is well to thoroughly understand these divisions. We hope those trade growers who still group everything as Bambusa will follow the now accepted classification. The following have proved the most hardy and beautiful in the Bamboo garden at Kew: Phyllostachys Henonis, P. viridi-glaucescens, P. flexuosa, $P$.nigra, $P$. boryana, $P$. sulphurea, $P$. Marliacèa, $P$. ruscifolia, P. Castillonis, Arundinaria nitida, A. japonica, A. auricoma, A. fastuosa, A. Simoni, A. Fortunei, A. anceps, $A$. Hindsii var. graminea, Bambusa palmata, B. tessellata, and B. marmorea.

In selecting a place for the Bamboo colony, think well of position. Shelter from north and east is essential. Luxuriant leafy stems are only possible when the plants are screened from winds in these quarters; and unless this protection is given the foliage gets brown and withered in March. Cold north and east winds are more harmful than severe frost, and this applies to all the tender evergreens. A moist and rich soil is also important. Without it luxuriant growth is impossible, and a Bamboo that is not leafy, that does not bend its tall, graceful stems to the breeze and make willowy shoots yards high, when it


Grouping of yuccas, pampas grass. AND BAMBOOS, KEW (Winter).


BAMBOO GARDEN AT KEW, WINTER.

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is accounted one of the most delightful spots in the Royal Gardens.

In the Garden of February 1, 1902, pp. 73, 74, is an interesting account of the Bamboos at Kew. As this contains much practical information, it is reproduced: "Kew was one of the first gardens in which hardy Bamboos were grown, and it is to a great extent due to this collection, and the collections of Mr. Freeman Mitford, Messrs. Verten, and a few other pioneers, that the planting of hardy Bamboos has assumed its present proportions. The creation of the Kew Bamboo garden dates back to 1892. Previous to that the cultivation of hardy Bamboos had been practised under great difficulties. The collection contained only a few species, planted in poor soil in an exposed position, and were always unsatisfactory. In addition to Bamboos, there were other monocotyledonous plants in the same plight, hence the happy idea was conceived of forming the present Bamboo garden. This garden is situated on the eastern side of the Rhododendron dell, near the north or Sion Vista end. It was originally a shallow gravel pit, and is peculiarly adapted to the requirements of Bamboos. The depression in the ground and the high bank of the Rhododendron dell give considerable shelter, whilst a wide belt of large forest trees, which surrounds the north, east, and south sides, insures almost complete protection from cold winds. The garden is pear-shaped, and can be entered by three paths on the south-east, west, and north sides. The banks round the sides are terraced,
and held up by large tree roots placed roots outwards, the roots forming numerous bays and corners, each of which is given over to one species. Separated from these bays by a gravel path 9 feet wide is a central bed of about a quarter of an acre. This is filled with large clumps of various species and fine single specimens, arranged in such a way as to open a vista right through the bed here and there or into the centre. These vistas and openings, together with the paths, add greatly to the general effect, the plants and groups being well separated and showing to advantage, while the beauty of the stately upright stems of some and arching plumes of others, lining or bending over and almost meeting across the openings, is at once seen. Intermixed with the Bamboos are Yuccas, Miscanthus, Pampas Grass, and other things, all of which help to give pleasing variety. Between the back of the garden and the belt of trees a screen is formed of Rosa multiflora, Spiræas, Rhododendrons, and other shrubs, interspersed with clumps of Pampas Grass, Yuccas, and some of the strongest and hardiest of the Bamboos.
"When first formed, stiff loam to a depth of 3 feet was spread all over the garden, and into this large quantities of decayed leaves were mixed; in this soil the plants have thriven well. A water main runs through the garden, so that copious supplies of water can be given in dry weather with little trouble.
" Altogether some forty-one species and varieties of Bamboos are cultivated. These are composed of
seventeen Arundinarias, nine Bambusas, and fifteen Phyllostachys. The majority belong to China and Japan, one, however, belonging to North America, and one to India. The Indian species, Arundinaria (Thamnocalamus) Falconeri, which does so well in the south-west counties and in Ireland, is the most difficult to manage, and is killed to the ground every winter, while $A$. falcata and $A$. nobilis, which are two of the most common species in the famous Cornish gardens, refuse to thrive.
"The arrangement of the plants has undergone considerable modification since the first planting, owing to natural development and the introduction of more species. This has resulted in the removal of many duplicates which have been used with large Rhododendrons as an undergrowth to the wood adjoining the entrances, thus considerably enhancing the beauty of the place.
"The period of the year at which the garden is at its best extends from the early weeks of July until the cold east winds in February and March, for, although severe frost has little effect on the leaves of many, cold winds from east or north quickly turn them brown. That Bamboos should continue in good condition and practically be at their best through the worst of the winter months is a strong recommendation in their favour, and by leaving, as is done at Kew, the tall dead stems and leaves of Miscanthus and the plumes of the Pampas Grass, touches of colour are given to relieve the greenery, and add greatly to the general effect.

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The whole picture is set in an irregular framing of Bamboos and other plants, some of the most conspicuous of which are Miscanthus sinensis in front, Arundinaria japonica, A. Hindsii var. graminea, Phyllostachys aurea and P. Castillonis, and Pampas Grass at the back and sides.
"A collection of hardy species of Smilax is allowed to ramble at will over the tree roots which form the bays, each species having its own particular place. The species cultivated are S. aspera and its varieties, S. maculata and S. mauritanica, S. Bona-nox var. hastata, S. hispida, S. rotundifolia, and S. tamnoides.
"In addition to the plants named, others given places in the garden are Kniphofias, Funkias, Eremuri, Physalis (grown for winter effect), Ruscus, Asparagus, $\& c$., the whole forming an interesting collection, and one which must be seen to be fully appreciated.
"The Kew collection is composed of Arundinaria anceps, $A$. auricoma, $A$. chrysantha, A. Falconeri, $A$. Forlunei, A. F. compacta, A. Hindsii, A. H. graminea, A. humilis, A. japonica, A. macrosperma, A. m. tecta, A. nitida A. pumila, A. Simoni, A. S. variegata, and A. Veitchii. Bambusa agrestis, B. angustifolia, B. disticha, B. marmorea, B. Nagashima, B. palmata, B. pygmaa, B. quadrangularis, and $B$. tessellata. Phyllostachys aurea, $P$. bambusoides, P. boryana, P. Castillonis, P. flexuosa, P. fulva, $P$. Henonis, $P$. Marliacea, $P$. mitis, $P$. nigra, $P . n$. punctata, $P$. Quilioi, P. ruscifolia, $P$. sulphurea, and $P$. viridi-glaucescens."

## THE HEATHS

Few groups of small flowering shrubs are so charming in the garden as the hardy Heaths. Their usually neat growth, profusion of flowers, and length of time they are in beauty-sometimes three or four months-make them of great garden value. Not more than twelve species can be grown in the open air, but, with one or two exceptions, all are beautiful, as the following complete list suggests : Erica arborea, E. australis, E. carnea, E. ciliaris, E. cinerea, E. lusitanica (or codonodes), E. Mackaii, E. mediterranea, E. mulliflora, E. scoparia, E. stricta, E. Tetralix, and E. vagans.

When the whole group is grown, one or more species may be had in flower every month in the year, except, perhaps, November. A hybrid between E. mediterranea and E.carnea (sold under the name of mediterranea hybrida) has been seen much of late, and is a very welcome little shrub, flowers appearing in some years even in November. Every year some expand before Christmas, and during January it is the brightest plant in the outdoor garden. E. carnca and the white variety follow it ; then in a cluster come E. australis, E. arborea, E. lusitanica (codonodes), E. mediterranea and its several varieties, which fill up the months from March to May, and from June onwards we have E. cinerea, E.
ciliaris, E. Mackaii, E. scoparia (the least worthy of the Heaths), E. stricta, and E. Tetralix. The two allied species, E. vagans and E. multiflora, carry on the Heath season until October.

The Heaths are happiest in a peaty soil. The great Heath nurseries are all on soil of that nature, but it is not essential. A loamy medium can, by adding leaf-mould and, if necessary, sand, be made to suit all the Heaths, and some, such as E. cinerea and E. mediterranea, are quite at home on a calcareous soil. Choose positions for them well exposed to the sun, with, if possible, a cool, moist bottom. The ways of planting vary, of course, according to the character of the species and varieties selected. The rather free-growing and taller Heaths, like lusitanica and arborea, may be planted in informal groups on sloping banks, or more sparsely with a dwarfer species like $E$. carnea as the groundwork. E. lusitanica and E. arborea, being somewhat tender, are only seen at their best in the south and west, but beautiful effects have been got by planting them in irregular and scattered groups on grassy slopes, The natural grouping of Gorse and Broom suggests a way of using the many beautiful Heaths.
E. mediterranea and its varieties, a beautiful group, and much hardier than the two species just mentioned, have flowers of shades of purple and white. Delightful effects are possible when they are planted in bold, informal groups, especially on sloping banks or ground, their flowers appearing over a period of ten or twelve weeks. Dwarf Heaths, like E. carnea,

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E. lusitanica. The flowers are almost globular and nearly white; they are quite small individually, but produced so abundantly that the plants are smothered with them from March to May. My experience of this species is that it is hardier and thrives altogether better in the London district than E. lusitanica, a species for which it is often grown. It ripens seed every year almost, and can thus be readily increased in a natural way. The young wood is densely covered with short dark hairs and the leaves are closely packed in whorls of three.
E. lusitanica (syn. codonodes).-Many will not recognise the name lusitanica as applied to the well-known E. codonodes, but lusitanica is really an older designation. This Heath, as its name implies, comes from Portugal ; it is also a native of Spain, and is often confounded with E. arborea. Briefly, they differ in the following respects: The flowers of $E$. lusitanica are longer and more bell-shaped than the globular ones of E . arborea; the foliage of E. lusitanica is a rather pale green, and has a rather more plumose look, the individual leaf being longer and more slender ; the young wood, although downy, is not so hairy as in E. arborea. The remarkable abundance of flowers, a feature of E . arborea, is quite as apparent in this species, their colouring is a faintly pink-tinged white. From Messrs. R. Veitch and Sons, of Exeter, who are taking a special interest in these tree Heaths Kew has lately received a form intermediate between E. arborea and E. lusitanica-probably it is a hybrid. E. lusitanica does not apparently grow so large as
E. arborea, but it is recorded to have reached 12 feet in height in Sussex. Farther west, in Dorsetshire, it grows luxuriantly, and is certainly one of the loveliest of evergreens that can be grown even in that favoured county. Seeds afford the best means of propagation.
E. australis.-One of the most beautiful and rare of all the Heaths, but unfortunately it is not so hardy as the majority. In the southern and western counties, however, it will thrive admirably, withstanding 20 degrees of frost without serious injury, provided the winter is not unusually protracted. It is curious that in spite of its beauty it is little known even in Cornwall, Devon, and similar localities, where it would doubtless thrive to perfection. It has been grown at Kew for the last six years, and although the winters during that period have not been very severe, it has stood out all the time, and it flowers regularly and profusely every spring. It can be increased by cuttings put in at the end of July or the beginning or August. E. australis is a native of Spain and Portugal ; it flowers in April and May, and lasts eight weeks in beauty. The flowers are rich, bright, rosy red, brighter, indeed, than those of any other Heath; they are fragrant, pitcher-shaped, and about a quarterinch long. The species has been confounded with E. mediterranea, which often does duty for it, but it is distinguished by having the flowers produced generally four or eight together in terminal clusters. (Those of E. mediterranea appear in the leaf axils.) Those who have gardens in well-sheltered or mild
localities should grow this beautiful Heath. The difficulty at present is to get hold of the right thing. I am glad to know, however, that some trade firms are taking it up. It is said to grow 6 to 8 feet high, but I have not seen plants half as high.
E. mediterranea.-Of all the taller Heaths this is the one, I think, that deserves to be most freely planted in districts no warmer than the London one. The three preceding species, so beautiful when seen at their best, are more comfortable in the southern and western counties. Of sturdier constitution, E. mediterranea may be planted in large quantities with a view to producing broad effects. At Kew a group 70 feet across, planted three or four years ago, already makes a striking mass of purple each spring. The habit of remaining for a long time in full beauty, which is so marked a characteristic of the Heaths, is possessed to the full extent by this species. It is beautiful from March to May, and is all the more appreciated because the majority of the trees and shrubs that bloom at this season have yellow, pink, or white flowers. In the typical $E$. mediterranea the flowers are bright rosy red, but there is a charming white-flowered variety (alba), another with bluish foliage (glauca), and a dwarf one (nana). The flowers appear near the ends of the shoots in the axils of the leaves, and are pitcher-shaped. The name mediterranea is misleading, for according to Moggridge, the Mediterranean botanist, it is not a native of that region at all ; it is rather of Biscayan origin, and is found in Western France and Spain.

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white ; the growth of the plant is somewhat straggling and uneven, but it has one merit-viz., it is quite hardy. I have seen its stems split by hard frost on more than one occasion during the last twelve years, but no permanent injury has resulted. It flowers in June, and is a native of the mountainous country to the north of the Mediterranean, especially about Mentone.

## The Dwarfer Heaths

The dwarf Heaths can be used quite differently from the more tree-like species that have just been described: as a carpeting beneath sparsely-planted shrubs, for furnishing sloping banks, or for growing on the small terraces of the Rock Garden they are equally useful. And of all these dwarf Heaths more can be said in favour of E. carnea than of any other species. It is not only absolutely hardy, but it flowers with astonishing freedom at a time of year when flowers are particularly cherished. Its flowering, of course, somewhat depends upon the weather, but frequently one may see its bright rosy bells almost as soon as January comes in. By the end of February the entire plant is a mass of beautiful colour, and for two or three months longer they retain their freshness no matter what weather may occur. So free-flowering is this Heath that its flowers literally cover it. E. carnea is one of those plants (and there are many of them) which, although perfectly well known and quite common, are still not used in gardens so freely as they ought to be. The majority



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to crimson. E. carnea loves the cool pure mountain air, and on hot and sandy soil in the Thames Valley is short-lived. At the same time it thrives admirably in gardens where a moist, cool bottom can be provided and where the air is pure. Altogether it makes an admirable succession to $E$. carnea.
E. ciliaris (Dorset Heath).-Although in smoky and foggy places, such as London, this Heath is not always satisfactory, in the purer air of the surrounding counties it is a delightful shrub. In some of the old oak-bearing country, in Sussex, for instance, it succeeds to perfection. It is a native of Britain, but is, I believe, confined to Cornwall and Dorset in England, and to Galway in Ireland. It has long, slender, prostrate stems, from which spring erect flower-bearing branches; the rich rose-purple flowers are borne in a long raceme, and they are the largest individually of those of all the native Heaths. The leaves are nearly always in threes, and, like all the younger parts of the plant, are covered with hairs and pubescence ; it flowers from July onwards.
E. maweana.-This appears to be a fine variety of E. ciliaris, with larger leaves and flowers, even richer in colour and of sturdier growth. It was discovered in Portugal some thirty years or so ago by Mr. George Maw, but has not become popular notwithstanding its beauty. It was obtained for the Kew collection from Messrs. Cunningham and Fraser, of Edinburgh, three or four years ago, and certainly promises to be a better grower there than


WhIte scotch heather (Evica cineria alba).


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authorities. It was first found in Galway in Ireland, between Roundstone Bay and Clifden. It has since proved to be a native also of Spain. It is a charming garden plant flowering from July to September. The leaves have the same right-angled arrangement as those of E. Tetralix, but the flower is shorter, broader, and of a paler rose.
E. vagans (Cornish Heath).-This Heath is one of the the most useful of dwarf evergreens, growing vigorously, especially when planted in good soil. I think, however, it flowers better and has more of the typical Heath character when in somewhat poor, sandy soil. In England it is almost or quite confined to Cornwall, but occurs also in Ireland and South-West Europe. It is especially valuable in the garden because it flowers late, beginning in July and keeping on until October. Its flowers are crowded in racemes 4 to 6 inches long, and they are pinkish purple in colour. The plants may be kept neater and more compact by removing the flowering portion of the shoots before growth recommences in the following spring. Left to themselves, especially in soil that is at all rich, the plants are apt to get straggling and unkempt.
E. multiflora.-This belongs to the same type of Heath as E. vagans, the Cornish Heath, but differs in its more compact growth and shorter racemes of flowers. Although not so vigorous and showy, it may still be preferred for some situations. It is a neater plant, and its lower branches have not the
same tendency to get sprawling and ungainly as E. vagans. In other respects it is much like that species, the leaves being of similar shape and arrangement, and the flowers of a paler purple; the raceme, however, is only 2 inches or so long. E. mulliflora is not found in Britain, but is a native of the country to the north of the Mediterranean Sea from France to Greece.
E. vulgaris.-This is now classed as Calluna vulgaris, but the word Erica is used to include it in this chapter. It is the Common Heath of mountain and moor, is very closely allied to the true Heaths, and has given rise to many varieties. It likes a peaty or sandy soil, and is longer-lived and more profuse flowering under cultivation in poor rather than rich soil. It is very charming when grown in natural masses in the wilder parts of the garden, and its value is all the greater because it flowers when almost all other shrubs are out of bloom, viz., from July to October. Numerous varieties are offered by the trade, amongst which the following are the most noteworthy, either for their beauty or for their distinctness: Alba (white), Alporti (crimson), aurea (golden leaved), tenuis (red), pygmaea, and hypnoides (both dwarf).

Dabacia polifolia (St. Dabœc's Heath) is a lovely little shrub, a close relative of the Heaths, and found wild in the west of Ireland. It grows a little over I foot high, and bears bell-shaped flowers rather abundantly on erect terminal spikes. They are purple or white, and sometimes have both colours

## 224 TREES AND SHRUBS

in one flower, and the plants continue to produce them from July or August till the frosts come. It is quite as plentiful as the dwarf Heaths. $A l b a$ is a white variety. Menziesia polifolia is its former name, and is still found under that title in books.

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Yews. On dry, sandy soils no Conifer is better for England than the Scotch Fir ; or for moist, loamy regions and valley bottoms none is better than the Spruce. Exception is sometimes taken to the Spruce ; and when planted in other than the place it likes it is, indeed, a wretched object, as on dry and hilly grounds. But a mass of Common Spruce in a cool, alluvial bottom is a picture of well-being, and no one can deny their majesty on alpine hillsides. The Douglas Fir is sometimes recommended in its stead, but this beautiful and quick-growing tree must still be regarded as an experiment. There is not as yet a single old Douglas Fir, and there are some among our botanical experts who are yet in doubt whether, for all its young vigour, it will be a lasting tree for our country. For dry uplands in light soil there is the lovely Juniper, best of all its kind (though often in nurseries foreign ones only are offered to its exclusion), and for chalky soils and loams the Box luxuriates, and can be used as a small tree, as well as in its usual bush form.

The use of Common Ivy should not be forgotten. How important it is in winter may be perceived by any one during a country drive, when it will be seen under many conditions.

In Ireland we have the Arbutus ( $A$. Unedo), that is found at the Lakes of Killarney, where it attains to the height of a small tree.

Importance of a Suitable Climate.-Evergreen shrubs luxuriate generally in the climate
of the British Isles, especially in the southern and western counties, and constitute one of the great glories of the English garden, delighting in these sea-bound islands, with their cool and moist atmosphere.

It has been established, therefore, that the evergreen seeks an equable climate, free from extremes of cold and heat, and with an even supply of moisture to both leaf and root, favouring in a marked degree the sea-coast with its salt-laden winds. As we travel south, so opportunities for growing an increasing variety of evergreen trees and shrubs become more apparent, until, in the south of Cornwall and the south-west of Ireland, things may be planted out with safety which towards the midlands and north would scarcely exist. But latitude is not everything, and easily proved so by the rude vigour of plants from New Zealand and the Himalayas that are happy in the north of Scotland, but failures in the midlands and further south of England, requiring the protection of glass to develop their characteristic beauty.

The place for the tender evergreens must be protected from dry north and east winds. Mr. Bean writes me: "One of the most striking examples I have met with of the importance of having a situation such as is described is the Duchess' garden at Belvoir Castle. Belvoir is in the eastern midlands, a district where the average temperature is certainly not high, and where, during my stay there, the thermometer fell on more than one occasion to zero
(Fahr.). Yet in this particular spot (known as the Duchess' garden) there were fine specimens of Himalayan Rhododendrons - one of R. Falconeri being especially noteworthy for the way it grew and flowered-an Azara microphylla, 16 feet high, and other similar examples. The explanation of these successes, I believe, is entirely in the situation and exposure of the garden. It was formed on the slope of a rather steep hill, and is in the shape of an amphitheatre opening freely to the south. The bitter ' north-easter' loses much of its sting before it reaches the plants in this garden. In most gardens it is, of course, impossible to obtain sites so favourable as this. One has to make the best of what exists. But at the same time it shows the desirability, often the necessity, of choosing positions for the tenderer evergreens in which this need of shelter is satisfactorily met. Bamboos, Camellias, many Rhododendrons, Elæagnus, all afford striking examples of the value of a shelter belt on the north and east sides." A cool, moist soil is generally necessary for evergreen shrubs, and we know this to be true from the distress shown by many kinds during a dry and parching summer.

The Time to Transplant.-A question frequently asked is, "When is the time to plant or transplant evergreens?" To this the reply is, early autumn. When planting is impossible at that season, then postpone it until late spring, avoiding winter and February and March. An evergreen should be disturbed whilst the roots are active, and by doing

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to remove a portion of the leafy branches. This helps to restore, in some measure, the balance between root and top. The shrub will frequently do this itself. Hollies, for instance, often lose a large proportion of their leaves after transplanting in spring; it is one of the surest signs of success, just as the shrivelling of the leaves on the branches is the worst. Evergreen oaks also furnish other examples. I remember a good proof of the value of late planting of evergreens being furnished here (Kew) by the Holm Oak (Quercus Ilex). A gap in an avenue of these trees had to be filled up, and a specimen was planted from the nursery at the end of April. The weather that followed was not unfavourable ; but by the beginning of June I saw it was not going to live. However, it was then replaced by a similar plant, the young shoots on which were already 2 or 3 inches long. The young growth flagged a little at first, but the roots soon got hold of the soil, and the tree is now one of the healthiest in the avenue. The Holm Oak is notoriously bad to transplant."

Pruning.-This is quite simple; but pruning, whether of the Rose, the deciduous tree or shrub, or the evergreen, seems to be regarded as a mysterious and wonderful operation. Many gardeners delight in using the knife apparently as a physical exercise, and the wise man is he who allows his shrubs to develop their natural beauty of form and flower. An evergreen shrub requires practically no pruning, as we understand the term generally, unless some
shape is desired foreign to its nature, or its allotted space has been outgrown.

Evergreens differ from deciduous plants in regard to time of pruning. Most deciduous things may be pruned at any time between the fall of the leaf and the recommencement of growth in spring. But evergreens should never be pruned in late autumn or winter. For plants that are grown merely for foliage sake and not for the flowers, pruning should be done just as new growth is commencing. In the case of flowering shrubs like Rhododendron or Berberis it should be done as soon as the flowering season is past.

As a matter of routine cultivation, however, and as an aid to improved health or freedom of flowering, pruning is not so necessary for evergreens as with many deciduous plants. A Rhododendron, a Pieris, a Berberis stenophylla, and all similar things never want pruning in the sense that a Spiræa or a Rose does.

Climbing Evergreens.-One of the peculiarities of the evergreen class of plants is the marked absence of climbing species in cool temperate countries - that is, true climbers, not, the numerous things that are made to do duty as such on walls. If one takes up a tree and shrub catalogue of even the best nurserymen, one is struck by the few evergreen climbers offered. In spite of the fact that the cool, temperate regions of the earth have been so thoroughly ransacked during the last century, no plant has ever been found that equals
or even approaches in value the Common Ivy and its varieties for the special purposes for which they are adapted. The best that are available are the Jasmine, Ercilla volubilis (Bridgesia spicata), Smilax, Clematis calycina, and tenderer things like Lardizabala and Passiflora cerrulea.

Evergreens as a whole are much neglected in ordinary gardens. Instead of drawing upon the great wealth of shrubs available, so many go on using the same old things over and over again, generally Aucuba, Portugal and Cherry Laurels, Rhododendron ponticum, and such like.

The Best Evergreens.-The following is a representative list of the hardier species of evergreens which are considered most deserving of attention, and I have roughly grouped them according to their size. Conifers are not included. There is, of course, considerable difference in the sizes to which evergreens attain, according to the climate in which they are growing. The grouping here is merely intended to give an approximate idea of their habit. Those marked with an asterisk (*) are the more tender ones, and although valuable in the southern and warmer parts of the country, have not been grown in the colder localities, or if so, against a wall. Probably several quite as good as those mentioned are omitted, and there are always some beautiful plants that do well in certain places, but fail in the majority of gardens. Such evergreens, for instance, as Fremontia californica, Embothrium coccineum, Carpenteria californica, and many other things like the New Zealand Veroni-

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## NATIVE AND HARDY EVERGREENS

cas, Himalayan Rhododendrons, Escallonias, \&c. But on the whole these hardier evergreens, with the varieties that belong to them, adequately represent the best of those that can be grown in the average climate of Great Britain and Ireland. A garden that contains them all is rich in evergreens.
(i.) Trees
Common Box and varieties.
Common Holly and varieties
(especially such superb varie-
ties as I. Wilsoni, with large
dark green leaves and crim-
son berries a laurifolia nova).

$$
\begin{aligned}
& \text { * Magnolia grandiflora. } \\
& Q_{\text {uercus }} \quad \text { Ilex (Holm } \\
& \text { Oak). } \\
& \text { Yews. }
\end{aligned}
$$

(ii.) Tall Shrubs (say 8 feet or more high)

Arbutus hybrida and varieties.

## ," Menziesi.

Unedo (Strawberry tree).

* Azara microphylla.

Camellia japonica varieties.
Cotoneaster buxifolia.
Cratægus Pyracantha (Fiery Thorn).
Laurus nobilis (Sweet Bay). Ligustrum lucidum. Prunus lusitanica (Portugal Laurel).

Prunus Laurocerasus (Common or Cherry Laurel). Quercus acuta.
" coccifera (Kermes Oak).
phillyræoides. Rhododendrons, garden varieties. catawbiense. Fortunei.
(iii.) Medium Sized Shrubs (3 feet or more)

Aucuba japonica vars.

* Azalea ledifolia.

Berberis Aquifolium and vars. " buxifolia.

Berberis Darwinii.

* " japonica.
" stenophylla.
", wallichiana.
(iii.) Medium Sized Shrubs (3 feet or more)-continued

Ceanothus Gloire de Versailles.

* Choisya ternata (Mexican Orange Flower.
Cistus laurifolius.
Elæagnus macrophyllus.
," pungens and vars.
* Erica arborea.
* ," australis.
* ", lusitanica.
", mediterranea and vars.
Escallonia philippiana.
," rubra.
* Eucryphia pinnatifolia.

Euonymus japonicus.

* Garrya elliptica.
* Hydrangea Hortensia.

Ilex cornuta.
Kalmia latifolia.
Ligustrum japonicum (Japanese Privet).

Olearia Haastii.
Osmanthus ilicifolius.
Phillyræa decora.
, latifolia.
Pieris floribunda.
, japonica.
Rhamnus Alaternus and vars. Rhododendron azaleoides.
, ponticum. myrtifolium.
Rosmarinus officinalis (Rosemary).
Skimmia japonica.
Ulex europæus flore pleno
(Double Gorse, Furze, or Whin).
Veronica Traversii.
Viburnum Tinus and vars. (Laurustinus).
Yucca augustifolia.
" gloriosa.
" recurvifolia.

## (iv.) Dwarf Shrubs (under 3 feet)

Andromeda polifolia.
Azalea amœna.
Bruckenthalia spiculifolia. Bryanthus empetriformis.
Calluna vulgaris and vars. (Heather, Common Ling).
Cotoneaster microphylla. $" \quad$ rotundifolia.

Dabœcia polifolia.
Daphne Cneorum (Garland Flower). oleoides.
Erica carnea.
, ciliaris(Dorset Heath).
" cinerea (Scotch
Heather).
, mediterranea hybrida.

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(iv.) Dwarf Shrubs (under 3 feet)—continued

Erica Tetralix (Bell Heather).
,, vagans (Cornish
Heather).
Euonymus radicans and vars.
Gaultheria procumbens (Partridge Berry).
Gaultheria Shallon.
Genista hispanica (Spanish Broom).
Hypericum calycinum (Rose of Sharon).

Kalmia angustifolia.
" glauca.
Ledum latifolium.
Leiophyllum buxifolium.
Pernettya mucronata and vars.
Rhododendron ferrugineum (Alpine Rose).
Rhododendron racemosum.
Vaccinium Vitis- idæa.

## (v.) ClimberS and Trailers

Arctostaphylos Uva-ursi. Hedera Helix and vars. (Ivy).
Vinca major (Common Periwinkle).

Vinca minor (Lesser Periwinkle).

## SHRUBS FOR SMALL GARDENS

IT is possible in small gardens to grow many beautiful shrubs without constant cutting of the branches to keep them within set bounds. Those mentioned in the following list will grow in ordinary soil. Transplant during late autumn and early winter; and one golden rule to observe in the case of shrubs obtained from nurseries is to plant them in their permanent position as soon as possible after they are received, but should anything occur to prevent this, the roots must be well covered with soil till planting takes place. In winter large numbers of plants are sold at auction rooms, but though they may appear cheap, this is not always so, as there is no guide to the length of time they have been out of the ground, and in a dry atmosphere many of the smaller roots may have perished. Such plants take a long time to recover from the check. If trees or shrubs are bought at a local nursery, there is the great advantage of getting them in the ground again as soon as possible. The shrubs named are fully described elsewhere in the book.

Aucubas, 3 to 6 feet. Evergreen shrubs, some with variegated, others with plain green leaves. The

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after flowering. A mass of golden-yellow flowers in March or April.

Genista hispanica (Spanish Furze), 2 feet ; G. sagittalis.

Hamamelis arborea (Japanese Witch Hazel), 6 to io feet ; H. zuccarmiana.

Hedera (Ivy). It must not be forgotten that several varieties form bushes. These are known as Tree Ivies, and are invaluable in shady spots.

Hibiscus syriacus, 6 to 7 feet.
Hydrangea Hortensia (Common Hydrangea), 4 to 8 feet; $H$. paniculata grandiflora, 4 to 8 feet. Pruned back hard before starting into growth in spring, this can be kept dwarf, and if liquid manure is given the heads of creamy-white flowers in early autumn are very fine.

Hypericum calycinum (Rose of Sharon), I foot. Grows well under trees. H. moserianum, 2 feet.

Ilex Aquifolium (Common Holly). A familiar and handsome evergreen tree. The best variegated varieties are Golden Queen and Silver Queen. I. crenata (Japanese Holly).
Jasminum nudiflorum (Winter-flowered Jasmine), Common White Jasmine. Both for walls or to ramble over some support.

Kerria japonica, 5 feet. This little-known shrub should be more grown; its yellow flowers are small but pretty. Flore-pleno is a popular variety.

## Laburnum.

Ligustrum ovalifolium aureum (Golden-leaved Privet), L. sinense (Chinese Privet).

hibiscus siriacus (Althaa frutex), VAR CIERULEUS.


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neat little evergreen shrubs, with bright-crimson berries in winter. Cool, moist soil.

Spartium junceum (Spanish Broom).
Spircaa arguta, 4 to 5 feet; S. ariafolia, 8 to ro feet, very beautiful ; S. Douglasi, 6 feet ; S. japonica (S. callosa) and varieties (see tables) ; S. media, 4 feet; S. prunifolia fl. pl., 6 to 8 feet; S. Thunbergi, 4 to 5 feet.

Symphoricarpus racemosus (Snowberry), 5 to 6 feet. The variegated variety of the Common Snowberry is pretty.

Syringa vulgaris (Lilac), 8 to 12 feet. Described.
Ulex europcus $f$ l. pl. (Double-flowered Furze or Gorse), 4 to 6 feet. Beautiful in hot and dry soil.

Viburnum Opulus sterile (Guelder Rose or Snowball tree), $V$. plicatum, 5 to 6 feet.

Vinca major (Periwinkle), 6 inches to 1 foot. A little creeping shrub, delightful for a rough bank, and will thrive under trees better than most shrubby plants. The pretty blue flowers appear for a long time. There is a variety with prettily variegated leaves. V. minor, another species, is smaller altogether. There are deep-blue and white varieties.

Weigelas, 6 to 8 feet. Excellent shrubs for small gardens.

## Shrubs for Town Gardens

From the preceding list of shrubs for small gardens a selection suitable for towns is appended. Many things refuse to live in the smoky and confined air of towns. This is particularly noticeable in the case
of evergreens ; the pores become choked with sooty deposit, and the plant consequently soon fails, whereas many of those whose leaves are removed annually are not so seriously affected. Conifers are generally a failure. This is a small list, but only small gardens are under consideration.

Aucubas.
Berberis Aquifolium.
Berberis stenophylla.
Cotoneasters, especially C. frigida, which is, however, a small tree.
Cratægus Oxyacantha (Hawthorn) and varieties.
Cratægus Pyracantha (Tree Thorn).
Daphne Mezereum.
Euonymus japonicus.
Forsythia.
Genista hispanica.
Hedera (Ivy).
Hibiscus syriacus.
Jasminum officinale.
Kerria japonica.
Laburnum.
Ligustrum ovalifolium aureum (Golden-leaved Privet).
Magnolia stellata, M. conspicua.
Osmanthus ilicifolius.
Philadelphus (Mock Orange). All the species and varieties.
Privet.
Prunus Amygdalus (Almond).

Prunus Avium flore-pleno (Double-flowered Gean).
Prunus Laurocerasus (Laurel).
Prunus Persica (Peach).
Prunus pseudo-cerasus.
Pyrus Aucuparia (Mountain Ash).
Pyrus floribunda.
Pyrus japonica and varieties.
Rhus typhina (Sumach).
Ribes aureum.
Ribes sanguineum and varieties.
Robinia Pseudacacia and varieties.
Spartium junceum.
Spiræa arguta.
Spiræa japonica and varieties.
Symphoricarpus racemosus (Snowberry).
Symphoricarpus vulgaris.
Syringa vulgaris (Lilac) and varieties.
Viburnum plicatum (Chinese Guelder Rose).
Weigela rosea and varieties.

## SHRUB AND FLOWER BORDERS

Where there are wide lawn spaces and fine trees in garden ground much of the effect is often lost or spoiled by the presence of unworthy trivialities where there should be distinct and bold features. The most frequent offender is a narrow strip of flower border, edging shrubbery and coming between the shrubs and the grass. Nothing is more useless than such a border. The shrubs would look much better coming right down to the grass, while if bright or distinct colour is absolutely required, it is easy to make a place here and there where some patch of Lily or other flower of bold form may be well seen.

These narrow borders are undesirable, not only for their poor effect-we think not of one, but of many a fine place where there are furlongs of such futility-but because the plan is destructive to both shrubs and flowers. If the ground is not dug for a year the roots of the shrubs invade it ; if it is dug and enriched for the flowers, the feeding roots of the shrubs are mutilated.

In the case of a place where lawn comes up to shrub plantation, which, again, is backed by woodland, the better way is to have, in just the right places, a bold planting of something fairly large, whose flower shall endure for a good while, to let the large

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group of it come right through to the lawn, and also stretch away back into the woodland. In our southern counties, in sheltered places, where the ground is cool and moist, and at the same time well drained, nothing can be better than Hydrangeas. Other softer plants for the same treatment would be the fine Nicotiana sylvestris, and for earlier in the year White Foxglove, and even before that Verbascum olympicum. Lilium auratum is also superb in such places, and Polygonum Sieboldi and others of this fine race of autumn-blooming plants. If some of the shrubs at the edge of the grass, such as Azaleas, have beautiful colour at more than one time of the year, both at the flowering time and in autumn blaze of foliage, two seasons of beauty are secured.

Hardy Ferns are undeservedly neglected as plants to group about the feet of shrubs; some of the bolder kinds, as the Male Fern and the Lady Fern, are charming as a setting to the Lilies that love cool, shady wood edges.

If shrubbery edges were planned with a view to good effect both far and near, what capital companies of plants could be put together. As one such example, let us suppose a cool spot, with peaty or light vegetable soil, planted in the front with Skimmia and hardy Ferns, Funkia grandiflora, and Lilium rubellum. A little farther back would come Lilium Brownii, then a group of Kalmias and Lilium auratum. One carefully-planted scheme such as this would lead to others of the same class, so that the quantities of grand shrubs and plants that are only
waiting to be well used would be made into lovely pictures, instead of being planted in the usual unthinking fashion, which is without definite aim, and therefore cannot possibly make any good effect.

We do not, as a rule, plant upright-growing Conifers of the Juniper and Cypress class in our flower borders, and yet the illustration shows how this may be done with the very happiest effect. Probably in this case the trees were there already, and the flower border was wanted, and therefore was made in circumstances that would not have been specially arranged at the outset. But it has been done with rare intelligence and sympathy, and the result is excellent. Here also is seen the best kind of edge treatment, for the grass is either cut with the scythe or the plants at the edge are lifted with a stick as the machine runs along, so that the usual pitiless machine edge is not seen, and the plants at the side bush out over the grass just as they should do. This is a thing that is rarely seen well done in gardens.

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as sometimes one or two of the lower ones may be removed with benefit to the shrubs, judicious cutting away letting in light and air.

The best of the larger growing evergreens to use under trees are Laurels, both common and Portugal, Yews, Box, Osmanthus, Aucubas, Phillyræas, common and oval-leaved Privet, Ligustrum sinense, and Rhododendron ponticum. Of these Yews, Box, and Osmanthus are perhaps as successful as any. The Osmanthus is not usually considered suitable for this purpose, but it succeeds well in the shade, and keeps a good dark-green colour. Hollies are sometimes recommended, but, though they may occasionally thrive under trees, it is not advisable to use many of them, as they are more often a failure, becoming thin and straggling in the course of a year or two. Of dwarf-growing evergreens Berberis Aquifolium, Butcher's Broom (Ruscus aculeatus), Cotoneaster microphylla, Euonymus japonicus, and E. radicans, with their respective varieties, Skimmias, Gaultheria Shallon, Ivies, Pernettya mucronata, St. John's Wort (Hypericum calycinum), and Vincas can all be recommended, as they all do well in the shade, and most of them will flower freely.

For a very dry spot where nothing else will grow the Butcher's Broom and St. John's Wort should be planted, as both will grow and thrive where other plants die. With deciduous shrubs under trees the difficulty is not so much in getting them to live as in coaxing them to flower, but a few of them will do well in the shade, and, as a rule, bloom freely.

Of these the best are the common and White Brooms, Azalea ponlica, Genista virgata, Philadelphus, Forsythias, and Daphne Mezereum. The shrubby Spiræas may also be used sparingly in a fairly light and open place, though plenty of sun is required as a rule to enable them to flower properly. In addition, though their flowers are insignificant, Cormus alba, with its red stems in winter, the Snowberry (Symphoricarpus racemosus), which is laden every year with white berries long after the leaves have fallen.

The question about shrubs growing under trees is so frequently asked that the names of those most successful are given, but generally the beauty of the tree is lost when smothered up with evergreens and other shrubs beneath its spreading branches. A tree is a picture in itself, and it is pleasant to see the grass creep to the branch edge and then cease, leaving a brown earth patch under the canopy of foliage.

## HARDY SHRUBS IN THE GREENHOUSE

Hardy shrubs have for many years brought colour and fragrance to the greenhouse in the depth of winter, but we think it is only within recent years that they have been used in such beautiful variety as at the present time. The great show of the Royal Horticultural Society in the Temple Gardens, and many of the delightful fortnightly displays, have been responsible for much of their present popularity, and the picture of a group of Plums, Peaches, Almonds, Wistarias, and many other things in flower long before their natural season is refreshingly pleasant when perhaps winter still lingers.

So many shrub families may be used for gently forcing into bloom before their time that it is impossible to lay down hard and fast rules with regard to culture. In some cases the plants may be lifted in the autumn, then potted, and placed out of doors until they are removed under glass, when the flowers will open in profusion ; but the shrubs that can be treated in this way make dense, fibrous masses of roots, therefore scarcely feel the check of removal. Some shrubs, however, transplant so badly that it is needful to grow them entirely in pots.

Shrubs for flowering under glass are grown in large quantities by some English nurserymen, and

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of moisture, and after potting never allow the roots to suffer through dryness. Whether intended for very early flowering or later on, the plants should at first only be taken into a comparatively cool structure, and, if necessary, brought to a greater heat by degrees, and the lower the temperature, say about 55 degrees, the more beautiful the flower colouring; while, when they are only required in bloom a little before the natural season, mere protection from sharp frosts and keen winds is alone essential. The advantage of early potting is shown conspicuously in the case of Azaleas. The flowers produced by plants that have been potted soon after the leaves have fallen will remain twice as long in beauty as on those not potted until after Christmas.

In a general way, plants that have been forced hard to get them into flower early cannot be depended upon to bloom satisfactorily the following season, no matter how carefully they may have been treated, but those merely brought into bloom a little in advance of those out of doors will undergo the same ordeal next year. Too often, when the flowers are over, the shrubs are put away in some corner and forgotten, and the result is injured leaves and general upset. Shrubs so treated cannot perform their duties in the year following. Shrubs that have finished flowering under glass before the time of frost and cold winds is past should be at first carefully protected and gradually hardened off. Where a cool house is not available, a frame in a
sheltered position is suitable, but even then avoid overcrowding. By the middle of May this precaution is not so necessary, although keen frosts and winds are experienced that would injure foliage developed under glass. Where potting is necessary, that is, in the case of plants grown permanently in this way, it should be done before they are placed in their summer quarters. For this the pots should, if possible, be placed on a firm bed of ashes and plunged in some moisture-holding material, such as partially decayed leaves, spent hops, or cocoa-nut fibre refuse. Occasional doses of liquid manure during the growing season are beneficial, particularly in the case of shrubs that have not been re-potted, as the limited amount of nourishment in the soil will have gone by that time.

The following is a list of the -best shrubs for flowering under glass:-

Andromeda (known also as Pieris and Zenobia). -The Andromedas are beautiful shrubs, with lily-of-the-valley-like flowers, and form such a mass of fibrous roots that they can be lifted from the open ground and potted without receiving any check. When placed in a cool house they flower profusely. The best are $A$. floribunda, which has crowded, somewhat stiff spikes ; $A$. japonica, known by its drooping racemes ; and $A$. speciosa pulverulenta, which has hoary leaves and waxy-white bells. The first two may be had in flower by the end of March, but the other is later.

Azalea.-One of the useful classes of shrubs that
we have for this purpose, quite as valuable for hard forcing as for flowering later in spring. Although the formation of the roots is dense and wig-like, they are, as already stated, all the better for being potted early, while they may be permanently grown in pots in a satisfactory way. The Chinese $A$. sinemsis, or mollis, as it is more popularly called, is of close and compact growth, with massive clusters of large flowers, varying in colour from pale yellow to deep orange salmon, and innumerable tints and shades. Among the most beautiful are Alphonse Lavalle, bright orange; Anthony Koster, deep yellow; Dr. Pasteur, orange red; General Vetten, orange; Hugo Koster, salmon red ; and J. J. de Vink, soft rose. The varieties grouped under the head of Ghent Azaleas are very beautiful, and quite as suitable for forcing as the preceding. The individual flowers are smaller, but they are borne in such profusion that the whole plant is a mound of blossom. The colour varies from white, through all shades of yellow, orange, pink, rose, and scarlet, to bright crimson, so that plenty of variety is available, and some forms have double flowers. These are not so showy as the single Azaleas. Azaleas, when planted out, require a certain amount of peat or other vegetable matter in the soil, and this is even more important when they are grown in pots. A suitable compost consists of equal parts of loam, leaf-mould, and peat, with half a part of sand. Very little pruning is needful, and this to only consist of shortening an occasional shoot that threatens to upset the balance

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flowering, the shoots generally die back almost to the ground, but break up with renewed vigour in spring.

Ceanothus.-Some of the early-flowering Ceanothuses are very valuable ; they may be grown in pots, and their flowers are of pleasing blue colouring, which is unusual and therefore welcome. Among the best for this purpose are C. dentatus, C. papillosus, and $C$. veitchianus. Ceanothuses do not transplant very well, and if intended for flowering in pots should be lifted in the autumn, potted carefully, and wintered in a cool house. They may be kept altogether in pots, giving them much the same attention during summer as Berberis stenophylla.

Cercis Siliquastrum.-This is the Judas tree, and as many know, while the leaves are still absent the stems bear clusters of rosy-purple flowers. It may be lifted and potted in the autumn or kept altogether in pots, but on no account indulge in hard forcing, as it resents this treatment. Well-grown specimens are very pretty when in flower in late March.

Chionanthus.-There are two species of Chionanthus, viz. the North American Fringe tree (C. virginica) and its Japanese representative C. retusus. They resemble each other very much, but the American form is the better of the two. The Fringe trees are very charming when in pots. Prune back hard after flowering and fully expose to the sun to ensure plenty of flower buds. A moist soil is essential.

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Mexican Orange Flower (Choisya ternata). This will bear its white fragrant flower clusters in March in a greenhouse, and a succession is maintained for some time. It is most satisfactory when grown altogether in pots and plunged outside during the summer.

Clematises.-Of late years the various forms of Clematis have been grown largely under glass and used for various purposes, not only in the shape of large specimens, but in pots five inches in diameter, the plant being secured to a single stake and carrying several big showy flowers. Two somewhat new continental varieties, Marcel Moser and Nelly Moser, have proved very useful for this treatment. The plants flowered in small pots are those that are propagated in the preceding spring and plunged out of doors daring the summer. The Himalayan $C$. montana that flowers naturally so early in the season readily responds to a little heat, and in the greenhouse in spring it is almost as welcome as the New Zealand C. indivisa.

Clethra.-Although C. alnifolia does not flower until the autumn it may be had in bloom in spring. Of course, it will not be so early as shrubs that are naturally in beauty in the spring, but in May its white, fragrant flowers should be seen. It requires a cool, moist soil and sunshine, while prune moderately immediately after flowering. Lifted in the autumn soon after the leaves drop, it will succeed well.

Corylopsis spicata.-This reminds one of a
small Hazel bush, and in early spring before the leaves appear, the drooping clusters of fragrant yellow flowers appear in profusion, simple protection is all that is needed to get flowers quite early in the year, when it is very pretty in the greenhouse. It thrives well kept permanently in pots, or it may be lifted and potted in the autumn. No pruning is necessary.

Cytisus (Broom).-The various Brooms are much admired, whether in the open ground or under glass, and for the latter purpose they must be established in pots, for their roots are few, descend deeply, and therefore transplanting is difficult. They will not bear hard forcing, but in a greenhouse may be had in flower by the end of March, or soon after. If kept altogether in pots, cut them hard back after flowering to encourage vigorous shoots for another year. Numerous sorts may be grown in pots, particularly the Spanish Broom (C. albus), the common Broom (C. scoparius), with the hybrid Andreanus and the sulphur-coloured C. precox.

Deutzia.-The pretty D. gracilis is well known as one of the best of all shrubs for early forcing. The Dutch cultivators grow it in pots and plunge it in the open ground. Of these smaller Deutzias some beautiful hybrids have been raised, particularly $D$. Lemoinei, D. hybrida venusta, and D. kalmaflora, all of which may be forced almost, if not quite, as readily as D. gracilis. The old and exhausted shoots of these Deutzias should, if the shrubs are kept in pots, be cut away to allow young and vigorous ones to

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Hydrangea.-The many varieties of the common Hydrangea are all valuable for the greenhouse, particularly Cyanoclada, Mariesii, Rosea, Stellata, and Thomas Hogg. To obtain small flowering plants the cuttings are struck in spring or early summer, grown on freely for a time, and well ripened by full exposure to air and sunshine before autumn. Plants grown in this way readily respond to a little heat in the spring. Larger specimens, too, may be brought on in the same way. The Japanese $H$. paniculata grandiflora needs quite different treatment, the plants being generally grown in the open ground, from whence they are lifted and potted in the autumn. Before potting prune the long, wand-like shoots back hard, leaving only about two eyes at the base. By so doing the plants are kept dwarfer, and the flower heads are larger than if no pruning were done. By some the Hydrangea is grown as a standard, and is very effective when in beauty.
itea virginica.-A neat little bush, about a yard high, with dense spikes of white flowers. It needs a sunny spot in a cool and moist soil, and under these conditions will flower freely if carefully lifted in the autumn and potted. It must not suffer from dryness afterwards. No pruning is necessary.

Jamesia americana.--A pretty little white-flowered shrub from the Rocky Mountains. It will bloom. freely under glass, but must not be forced hard; it may be treated in the same way as the Itea.

Kalmia.-All the Kalmias are good pot shrubs. The roots are dense and wig-like, reminding one of
those of a Rhododendron, so that well-budded plants can be lifted in the autumn and potted without risk. They must be brought on gradually in a cool house, and never suffer from want of water. The earliest to bloom is $K$. glauca, followed by $K$. augustifolia, while later on there is the largest and best-known species, K. latifolia, the Mountain Laurel of the United States, which has pretty pink flower clusters.

Kerria japonica (the Jews' Mallow).-The single Kerria is a twiggy bush, with bright yellow flowers, like those of a single Rose, and expand quickly in spring. The ordinary double Kerria is very bright amongst forced shrubs; they can be potted in autumn or grown permanently in pots. After the flowering season is over the double variety can be spurred back hard to prevent a tall weakly growth.

Laburnum.-This has long been used for the greenhouse, and very effective it is when well flowered. It is as a rule most successful when in large pots, in the shape of a standard. Prune back moderately after flowering.

Lonicera (Honeysuckle).-As L. fragrantissima flowers naturally out of doors soon after Christmas when the weather is mild, it is evident that no forcing is needed to obtain it at that season, and in a cool greenhouse the little white flowers are remarkable for their delicious perfume. As spring advances the early Dutch may be flowered under glass, while the scarlet Honeysuckle ( $L$. sempervirens minor) is a delightful greenhouse plant, not used so much as it
deserves to be for rafters and similar purposes in the greenhouse.

Loropetalum chinense.-This Chinese shrub, with its long, pure white, strap-shaped petals, bears much resemblance to the Chionanthus, and is quite as desirable for flowering in pots. It may be either lifted in the autumn or grown altogether in pots.

Magnolia.-The Magnolias can be grown under glass. If allowed to come gradually into bloom in a greenhouse the large flowers will open freely. As a rule they transplant badly, and for that reason, at least the choicer ones, are kept in pots for convenience in removal. From this it will be understood that as a rule it is more satisfactory to keep them permanently in pots than to lift them in the autumn. $M$. purpurea can be grown more easily than any of the others in this form. When grown in pots for the greenhouse, if they get too large for that structure they may be planted permanently out of doors and their place taken by smaller plants. Of those particularly valuable for this treatment are the little $M$. stellata, a charming shrub; M. Lenné, which has massive chalice-like flowers, rosy-purple outside ; M. conspicua, M. soulangeana, and $M$. purpurea among the early Magnolias ; and of those that flower later the Japanese M. parviflora and M. Watsoni do well in pots.

Olearia.-The best known of the Daisy trees of New Zealand is $O$. Haastii, which flowers freely in August. Two at least of the species bloom naturally much earlier, namely $O$. Gunnii and $O$. stellulata, and very pretty they are under cover and with their daisy-

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a fragrance like that of ripe apples. These newer hybrids-Avalanche, Boule d'Argent, Gerbe de Neige, Manteau d"Hermine, Mont Blanc, and Lemoinei-are all worth a place either in the open ground or for flowering in pots.

Prunus.—Several classes that were at one time considered as separate genera are now included in the genus Prunus, which was formerly limited to the Plum family. Now the Cherries, Almonds, and Peaches are only sections of the genus Prunus, as explained elsewhere in this book, but as they are better known under their respective names it will be wiser to refer to them thus. The Cherries (Cerasus) have been added to considerably of recent years, several varieties having come from Japan, mostly of P. (Cerasus) pseudo-cerasus. These, which include such varieties as Sieboldi, Watereri, and J. H. Veitch, all flower freely when quite small, an important point when considering plants needed for flowering under glass. Where larger plants are required the double form of the Wild Cherry ( $P$. Avium) is very beautiful. The Almonds (Amygdalus) flower early naturally, and under glass, of course, earlier still ; the variety purpurea is one of the best, while a distinct species, A. davidiana and its variety alba, are also suitable for growing under glass. The Peaches (Persica) form a delightful group, all available for flowering under glass ; indeed, they respond readily to gentle forcing, hence may be had in bloom by March. There are several varieties, the flowers ranging in colour from white, through pink, to crimson, and double as well

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as single. One of the finest forms is magnifica, a Japanese variety, semi-double, and brilliant carmine crimson in colour.

Of the true Plums, special mention must be made of the dark-leaved variety of the Cherry Plum, known as Prunus Pissardi, of the pretty little P. sinensis alba plena, and Rosa plena, which has slender shoots, wreathed for the greater part of their length with double rosette-like flowers, and the charming pink semi-double $P$. triloba. All these forms of Prunus will, if they have been regularly transplanted, lift well in the autumn and flower without a check. They are also quite satisfactory if kept altogether in pots when spurred back after flowering and encouraged to make free and well-ripened growth during the summer months, when they should be plunged out of doors in a sunny spot.

Pyrus.-The beautiful $P$. Malus floribunda is quite happy under this treatment, and $P$. or Cydonia japonica (the Japanese Quince) that flowers early in the year is pretty under glass, especially the distinct $P$. Maulei, which is of dense and compact growth, and bears salmon-red flowers in profusion. Grow the Pyruses in a similar way to the Prunuses.

Raphiolepis japonica ( $R$. ovatus).-An evergreen of sturdy growth, and about 3 feet high, with terminal spikes of pure white hawthorn-like flowers. It is decidedly uncommon and ornamental when in bloom. Out of doors its season is June, but, of course, is earlier under glass.

Rhododendron.-These are the most gorgeous
of shrubs, and largely used for flowering in pots or tubs. They form a dense mat of fibres, and can therefore be lifted with little check. Owing to this they can, when ordinary care is used, be transferred to new quarters without losing a leaf, not only when potted, but also when planted out in the open ground. Hard forcing must be avoided, but the Rhododendrons may be brought on gradually in gentle heat. Under this treatment they must be well supplied with water, and liberal syringing is also beneficial. The wide range of colouring in the Rhododendron family gives an opportunity for getting almost any shade desired.

Rhodotypus kerrioides.-A beautiful Japanese shrub, reminding one of a Kerria, but the flowers are white. It will succeed with the same treatment as the Kerria requires.

Ribes (Flowering Currant).-Both the yellowflowered $R$. aureum and the curious forms of $R$. sanguinea can be brought into flower early under glass, but the flowers do not last long, and for this reason the shrubs are little used for the purpose.

Spireas.-An extensive family, some of which bloom delightfully when lifted and potted in the autumn and brought into flower in gentle heat. They may also be grown permanently in pots, but as a rule autumn potting is preferable. The most popular is $S$. confusa or media, but also very charming are $S$. arguta, one of the most beautiful of all Spiræas, S. Van Houttei, S. Thunbergi, and S. prunifolia fl. pl.,

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Viburnum.-When the plants are well budded the Laurestinus (V. Tinus) will flower throughout the winter in a greenhouse. Of those that are amenable to slight forcing the best are the common Guelder Rose ( $V$. Opulus sterile), the Chinese $V$. plicatum, and $V$. macrocephalum. Treat them in the same way as the Lilac. The Guelder Rose is a delightful shrub under glass, with its wealth of ivory-white balls. It is one of the most interesting of all the things that can be brought into bloom in a greenhouse. Treat the Viburnums in the same way as recommended for the Lilacs.

Weigela.-Many of the Bush Honeysuckles, as the Weigelas are called, will flower well in a cool house, but they do not last sufficiently long in bloom to make them of great value for this purpose. The best is the dark-coloured Eva Rathke, which grows naturally into a neat bush; the flowers are of claret colouring.

Wistaria.-It is only within the past few years that the Wistaria has been used to any extent for flowering in this way, but now it is universally admired. At the exhibitions early in the year it always attracts more attention than any other shrub grown in a greenhouse ; the soft lilac colouring of the flowers is very beautiful against the tender green of the expanding leaves. The best and general way is to grow it as a standard, as the racemes hang down in graceful profusion. W. sinensis is the Wistaria planted so freely against houses and pergolas, and for flowering under glass the variety alba

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may be mentioned; it is more satisfactory than in the open garden. W. multijuga, which has racemes of great length, may also be tried, but $W$. sinensis is as charming as any, and the most likely to give satisfaction. Wistarias transplant badly, hence in nurseries are usually kept in pots; therefore, for flowering under glass, permanent pot culture is the proper treatment. To obtain standards train up a single shoot till the required height is reached, then stop it, and encourage the formation of branches. When the head has reached flowering size, after the flowers are over, spur the shoots back to good eyes to keep the growth fairly compact.

Japanese Maples (Acer palmatum and varieties).The handsome foliage of the Japanese Maples forms their chief charm. When grown under glass they are very beautiful, the leaves varying greatly both in colour and shape; some almost plain, others deeply cut and almost fringe-like.

## SHRUB GROUPS FOR WINTER AND SUMMER EFFECT

In the gardens of Lord Aldenham at Elstree an interesting feature is the grouping of shrubs for summer and winter effect, and some valuable notes contributed to the Garden by the gardener there, Mr. Beckett, may be helpful to those desirous of getting the best results from both tree and shrub :-

The grouping of suitable subjects, either in the pleasure-ground proper, on the margin of wood, lake, and stream, and especially so in the half-wild garden, when carefully carried out, has such a good effect at all seasons that it is difficult to understand why it is not more generally done, for only when massed together is it possible to see the true beauty of many of the commoner hardy shrubs. For some years we have practised this way of planting to a considerable extent, and I will endeavour to give my experience as a possible help to others.

The chief desire here has been to create autumn and winter effect, and I may mention that Nature has assisted us but little, as the land is not undulating but generally flat and uninteresting, consequently much thought and attention have been devoted to attaining the desired object. No two shrubs grown either for the beauty of their leaves

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chalky soils, should be cut close to the ground every third winter, and the soil left undisturbed about the roots.

Colutea arborescens.- The Bladder Senna may be planted in the half-wild garden, and will succeed in almost any position and in any soil. Its yellow flowers in July are pretty, but the seedvessels during winter are most effective ; it should be pruned back hard annually. There are several varieties, each of which are equally well adapted for this purpose. Plant 3 feet apart.

Cornus sanguinea (Dogwood).-Few deciduous shrubs are more easily grown or more effective during winter than the Scarlet Dogwood. It may be grouped in any position either in the gardens or outside when of any extent, and when space is no object the beds or groups can hardly be too large. The foliage attains a beautiful bronze tint during autumn, but unfortunately soon falls. The position should be open, and it is absolutely essential that the growths be cut to the ground annually the first week in April, bearing in mind that it is only the young wood which puts on its brightly-coloured robe in winter, and the more intense the cold the better colour will be the wood. Plant 3 feet apart. Cornus sanguinea variegata is a beautiful silver variegated form of the above, but not so vigorous. It is very fine for summer decorations; the ground requires to be well manured. Plant at a distance of 18 inches and prune annually. The scarlet wood, though small, is very pretty in winter, but
not showy enough in the distance. Cornus alba Spathi has beautiful golden foliage in the summer, but is too scarce and not vigorous enough to plant to any extent. Requires the same treatment as the above.

Corylus avellana purpurea.- One of our best purple-leaved plants, especially so in early summer. Arrange to plant this near Acer negundo variegata, Sambucus nigra aurea, or both, and the effect will be good. It will succeed on almost any kind of well-trenched ground. Plant the shrubs 3 feet apart, and they will require little attention, but every fifth year the shoots should be cut clean to the ground, when the growth and foliage will be much more robust and telling.

Cotoneaster Simonsii.-A strong-growing shrub, and suitable for making large groups; it is very effective during autumn and winter when studded with its red berries. It should be planted 3 feet apart and not pruned, but about every fifth year it should be cut close to the ground.

Cydonia japonica.- This well-known earlyflowering shrub may be grouped in almost any position, but is seen to the best advantage when on raised ground or overhanging masses of rock. It should not be pruned, but allowed to retain its natural habit. Plant at a distance of 4 feet apart. The variety carnea is equally good, but bears more freely; the fruits make excellent preserve, while the flowers are a beautiful flesh colour. C. Maulei is quite distinct from the above, but quite as valuable, and flowers and fruits freely.

Cytisus albus multiflorus, the Common White Broom ; C. scoparius, Common Yellow Broom ; and the effective although newer variety, C. scoparius andreanus, are all delightful plants when extensively planted, not only when in flower, but their freshlooking green wood is pleasing at all seasons. Plant early in April $3 \frac{1}{\frac{1}{2}}$ feet apart, using small plants. None of the Brooms like being cut back to the hard wood, but the young growths may be shortened back after flowering. C. s. pracox is perhaps the best of the whole family, flowering profusely, and is of good habit. It should be planted 4 feet apart.

Spartium junceum (the Spanish Broom).-Flowers in early autumn and lasts a considerable time. Its bright-yellow blooms are very telling in the distance. Plant 4 feet apart, and prune after flowering.

Daphne mezereum and the white variety album are among our earliest and most beautiful flowering shrubs. They should be planted 4 feet apart, either immediately after flowering or in very early autumn, both flourishing best on light soils.

Dimorphanthus mandschuricus (syn. aralia mandschurica).-This fine tropical-looking plant, when planted in large beds, forms a magnificent feature during the summer months, and in the winter the stems when bare are both curious and interesting. It enjoys a deep rich soil, and is easily propagated from root suckers. Plant at a distance of 5 feet apart.

Euonymuses.-The true variety of Euonymus alatus

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planted sixteen years ago and have never once failed to make a splendid display. The surface-soil should be pricked over early in spring.

Hippophe rhamnoides (the Sea Buckthorn).This will succeed well in any deep moist soil. Its beautiful grey foliage shows up well during summer, and when the male and female plants are mixed together the branches will be wreathed with clusters of beautiful orange-coloured berries during autumn and winter. Plant 5 feet apart and somewhat in the background. Very little pruning will be required, except to regulate the growths. Prick over the surfacesoil annually. The Sea Buckthorn also lends itself admirably for planting by the sides of lakes and streams or at the back of rock-work.

Hypericums.-H. androsemum grows to the height of 2 feet 6 inches, and is sure to be appreciated. Its flowers appear profusely during summer, and are followed by clusters of dark-brown berries. Plant 2 feet apart and prune close to the ground annually early in April. H. calycinum (the Common St. John's Wort) is partly evergreen and admirably suited for clothing banks or making beds where low-growing subjects are required; it will flourish anywhere, and should be cut close to the ground with the shears annually: H. moserianum is one of the best of this class of plants, but needs some protection in cold districts. H. patulum is also an excellent variety, and not so extensively planted as it deserves.

Kerria japonica.-A charming compact-growing shrub, with single bright-yellow flowers. It is suit-
able for small beds or grouping in the front of shrubberies. There is a variegated variety which is liable to revert back to the green form, but such shoots should be kept cut out. Very little if any other pruning is required ; a poor, light, sandy soil suits it best.

Leycesteria formosa.-A delightful shrub for massing in the wilderness or wild garden; requires a deep rich soil. Its large purple and white flowers in August and September are very pleasing, and during autumn and winter the wood is very conspicuous, being bright green. It should be pruned back annually, and the ground pricked over in spring. Plant at a distance of 4 feet apart.

Lonicera (Honeysuckle), Large Dutch.-To see this beautiful climbing plant at its best, make a mound of tree roots, fill in with soil, and plant at a distance of 4 feet apart. At first the growths will require to be trained and nailed over the roots, and when once covered they will need little other attention. Large beds planted in this way will be sure to be highly appreciated, if for nothing else, for the fragrance of the flowers.

Lycium barbarum.-Commonly called Box Thorn or Tea Tree ; should be planted in large groups where it can ramble away near the water or overhang large roots of trees or boulders. Except to regulate the growths once a year, it will give no further trouble. There are several other varieties well suited for the same purpose.

Rhus cotinus (Venetian Sumach), the Smoke Plant
or Wig Tree, is one of the most effective shrubs for this purpose. A large mass of this, with its delight-fully-tinted foliage in autumn, is a pleasing picture, and is well adapted for any position or any part of the garden. It should be planted in deep but poor soil, at a distance of 5 feet apart, and slightly pruned annually early in April ; it requires no other attention. R. typhina (the Stag's Horn Sumach) is one of the commonest plants grown, with not much beauty, except when planted in large beds and cut close to the ground annually. When treated in this way few things are more attractive; it then throws up strong, vigorous shoots, with fine tropical-looking foliage, which is highly attractive during summer, and the colouring of the foliage during autumn is most conspicuous, also of the wood during winter. When stripped of its foliage it is distinct and pleasing; it will flourish in any soil. Plant 3 feet apart, and it is easily propagated by root suckers.

Rosa rugosa.-This charming Rose, when planted in the wilderness, wild garden, or around the lake, in large beds or masses, is always seen to advantage ; it has fragrant flowers in summer, and large, highly-coloured fruit in autumn. Place it in the forefront of flowering plants. Plant in deep, well-enriched soil, at a distance of 4 feet apart, and prune, like other Roses, annually. The white variety is equally well adapted, and may be mixed with the above.

Rosa Bengale Hermosa, belonging to the monthly or China section, is the freest flowering of all Roses that I am acquainted with. In mild autumns it flowers

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winter produce a most pleasing effect. It is a strong grower when planted in good soil at a distance of 5 feet apart. Remove all the old canes during winter. The ordinary garden forms of Raspberry also make fine groups in the unkept parts of the grounds. The old growths should be pruned out each autumn, when the young canes have a warm and pleasing appearance.

Salix. - Many of the Willows form splendid features during the winter months. Perhaps on a fine winter's day large masses of the highlycoloured barked Willows can hardly be excelled for their beauty and rich colouring, but, of course, are only adapted for water-side planting or low, wet, marshy land. Nothing is more readily propagated from cuttings than these. They should be planted 3 feet apart, and the young growths pruned hard to the ground annually the last week in March, for it must be borne in mind that any wood more than twelve months old has very little, if any, beauty in it. The three best kinds I know for the beauty of their wood are Salix vitellina, the golden-barked Willow, S. cardinalis (which has bright-red bark), and S. purpurea, as its name implies, is purple. Though not so effective in the distance as the foregoing, it is well worthy of cultivation. I will mention one other Willow only which should be planted for its summer beauty, that is $S$. rosmarinifolia. Its beautiful grey foliage much resembles that of Rosemary. It is not so robust a grower as many of the family, and there is no beauty in the wood during winter, consequently
the growths should only be shortened back to within three eyes of the base annually.

Sambucus.-The Elder family, like the preceding, is a large one, and fortunately adapts itself to almost any soil and situation. First and foremost must be mentioned Sambucus nigra aurea, a bold and beautiful tall-growing Elder, and its rich golden foilage produces a marvellous effect in the landscape. Large bold masses of this should always be used where practical in a half-open position. Hard pruning in this case must be carried out, cutting the summer's growth close to the ground annually in the last week of March. The effect of the greenish-grey wood in winter when treated in this way is pleasing; the silvery variegated form, though not so showy, is worthy of a place where the grounds are extensive. Should be planted on poor soil in an open position, and pruned hard annually. S. n. laciniata (the Parsley-leaved Elder) is a beautiful and distinct form of the cut-leaved Elder, which attains its true character and makes splendid beds; it requires the same kind of treatment as to pruning as the above. S. racemosa serratifolia aureis is unquestionably the finest variety in cultivation; but unfortunately is not so robust as many of the others, and it is far too rare and expensive at present to plant to any extent. It does best on a deep rich soil in a fully-exposed position, and prune back hard early in April. The cuttings should be propagated in pots in a cold frame. The whole of the Elders should be planted 3 feet apart.

Spireas.-Another beautiful and interesting class for effect either in summer or winter, when sufficiently large plantations are made and properly treated. The whole of these should be planted at a distance of 2 feet apart, on deeply-trenched and well-manured ground. The North-West American Spircea Douglasi, though one of the most common, is unsurpassed for its distinct and beautiful wood during autumn and winter, but the only way to see it at its best is to cut it clean to the ground every year during the last week in March. It will then produce young strong growths from 4 to 5 feet in height, each of which will furnish fine heads of deep-pink flowers during summer, and its beautiful, warm-looking, nut-brown wood in winter is among the most richly toned of all the barks which are used to produce effect, and yet when grown in the ordinary way, and partially pruned down, as we in nearly all cases see it, it produces miserable flowers, and the wood is uninteresting. About every third or fourth year after pruning give a surface dressing of half-decayed manure and loam in equal proportions. The prunings should be tied up and saved for staking purposes; I know of nothing to equal them for all kinds of slender-growing plants. S. callosa also makes a fine bed, and is very effective during late summer ; its large heads of deep-pink flowers render it most conspicuous ; they are produced when the others are past their best. It should be cut to the ground every third year. S. prunifolia flore-pleno is a very beautiful form, flowers freely in March and April,

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and its foliage assumes lovely tints in the autumn. It is of very graceful habit, and well suited for banks or overhanging rocks. It should be moderately pruned each year, and when it attains to a leggy appearance cut hard back. S. canescens (syn. hypericifolia) makes splendid beds owing to the pretty arrangement of the foliage. This should be pruned to the ground annually.

Symphoricarpus racemosus (the Common Snowberry) is generally regarded as an almost worthless plant, but when in a sunny open position on welltrenched land and cut close to the ground each year, large beds are most attractive in autumn and winter, as by such treatment the growths will become thickly studded with pure white fruits. S. variegatus is a very pretty, somewhat slow-growing golden-leaved shrub, and should be planted in an open position. It has a tendency to revert back to the green form. Shoots of the type should be kept cut away. This should be slightly pruned in spring, and when leggy cut to the ground.

Rosa rubiginosa (the Sweet Briar). - Every woodland walk, wilderness, or wild garden should have one bed or more of this fragrant plant. The delicious scent emitted from its foliage in spring after showers is very welcome, and the bushes, when heavily laden with the bright-red fruits in autumn and winter, are most effective. This should be planted at a distance of 3 feet apart in well-trenched and heavily-manured ground, and clipped over every spring.

## Evergreens

Berberis (syn. mahonia) aQuifolium, or Hollyleaved Barberry, is too well known to need much description. It is one of the most useful and accommodating of shrubs, and will succeed in almost any soil, and either in the open or under the shade of trees is quite at home. For clothing banks few things can equal it. It should be planted when in a small state 18 inches apart, choosing the beginning of April for the purpose. It may be allowed to take care of itself when once established.

Box.-The entire Box family is excellent for grouping when the soil is suitable, but it is waste of time to attempt planting it in large quantities unless the position and soil agree with it. A light surface, with a chalky sub-soil, is what it enjoys.

Laurels.-The two best Laurels are Cerasus Laurocerasus caucasica, the hardiest of the whole family, and rotundifolia. The former may be severely pruned and is excellent for clothing large bare places, mounds, or banks. Rotundifolia is a splendid variety with larger foliage, but not so hardy. The ground in which these Laurels are to be planted should be trenched or bastard trenched, and small plants be planted 3 feet apart all ways. To keep them in condition, prune hard down during the growing season twice, if not three times, when they will remain in good health for many years. Cerasus lusitanica (Portugal Laurel) is happy in heavy soils, and its beautiful dark-green leaves are very telling. This

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so when water-logged) being the most unfavourable to its growth. Fortunately, it will adapt itself to any mode of pruning, but unquestionably the best way to treat it is to plant in large bold clumps, allowing it to grow away at its own sweet will. Many of the more uncommon varieties, both green and variegated, make highly attractive groups and beds, and where expense is of little object should most certainly be planted.

Rhododendrons.-Of course, one must possess a suitable soil to plant the more beautiful varieties in any quantity ; nevertheless, the common $R$. ponticum and hybrid seedlings, of which there are now fortunately a great variety, will succeed in nearly all soils free from lime. The ground should be thoroughly broken up during autumn, and the planting done 4 feet apart in the spring. The seedvessels should be picked off after flowering, and the plants are much benefited by an occasional topdressing of road grit and leaf soil. Even here on a cold London clay, where the ground has been well drained and treated as above, they succeed very well.

Ruscus aculeatus (Butcher's Broom), a native of this country, is invaluable for planting in masses in shady spots. It appears to enjoy the drip from other trees, and is very accommodating as to soil and position, but likes to remain undisturbed. Ruscus racemosus, which is a native of Portugal, and commonly called the Alexandrian Laurel, is unquestionably the best of the Ruscus family, and its
growth very much resembles that of the Bamboo. It is rarer than the commoner kinds, but it deserves extended cultivation, being worth a good position in any part of the gardens or grounds. It berries freely in some seasons. It lasts remarkably well, and is very handsome in a cut state. It enjoys a deep rich loam, but will not fail to give a good account of itself on any soil.

Juniperus Sabina tamariscifolia is a beautiful shrub for the fringe of a plantation, it is of robust growth, and the best of the Junipers for this planting.

Taxus baccata aurea (the Golden Yew) is a most effective evergreen shrub. It should be planted in open sunny positions. Without doubt it has no rival, being the most useful and telling golden evergreen shrub we have. It is of somewhat slow growth, consequently should be planted fairly thick. Like the Common Green Yew, it succeeds in almost any kind of soil, but it colours best on a deep yellow loam in a thoroughly exposed position.

Ulex europeus (Common Gorse or Whin).This common British plant needs little description here. When seen in its wild state, where it is thoroughly naturalised, it presents a most charming sight. Half-wild patches of land may easily be made suitable for it at little expense. During winter the land should either be ploughed or dug, and the seed sown during April, either in drills or broadcast, and the seedlings thinned to a fair distance
apart during the following spring. When once thoroughly established, little trouble will be experienced in keeping the ground well stocked. Occasionally, when the old plants become leggy, they should be cut close to the ground immediately after flowering, and in a short time these will break away freely from the bottom. Ulex europous florepleno, an invaluable plant for all kinds of ornamental planting, is, unfortunately, very expensive, as it has to be struck from cuttings and distributed in pots; nevertheless, it is a most important plant to have. The flower is a much brighter yellow than the common form, is produced more freely, and lasts a considerable time in beauty. It is very suitable for either making beds or forming large patches of colour behind rocks and among the fissures of the rock garden. It should be planted about 3 feet apart, in fairly good ground, and about every fifth year pruned down close to the ground.

Viburnum Tinus (Laurustinus).-A beautiful evergreen flowering shrub, and generally well known, but unfortunately it is not sufficiently hardy to plant in many parts of the country, especially in exposed positions. It will grow and flower profusely in very shallow and, indeed, in almost any soil. It makes a handsome bed, and should be planted 4 feet apart.

The Hon. Vicary Gibbs has taken keen interest in the tree and shrub planting in the gardens of Aldenham House.

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CLEMATIS MONTANA OVER ARCHWAY.

## THE USE OF HARDY CLIMBING SHRUBS

The best and best known of our good hardy climbing shrubs are by no means neglected, but yet they are not nearly as much or as well used as they might be. Such a fine thing as the easily-grown Clematis montana will not only cover house and garden walls with its sheets of lovely bloom, but it is willing to grow in wilder ways among trees and shrubs where its natural way of making graceful garlands and hanging ropes of bloom show its truest and best uses much better than when it is trained straight along the joints of walls or tied in more stiffly and closely. Even if there are only a few stiff bushes such as Gorse or low Thorns to support and guide it, it gladly covers them just as does the Traveller's Joy (Clematis Vilalba) of our chalkland hedges. This also is a climber that, though a native plant and very common in calcareous soils, is worthy of a place in any garden. Clematis Flammula is another of the family that should be more often treated in a free way, and grown partly trained through the branches of a Yew or an Ilex. The less-known Clematis graveolens, with yellow flowers and feathery seeds, and the fine October-blooming C. paniculata, make up five members of one family, apart from the large-flowered Clematises, that all
lend themselves willingly to this class of pictorial treatment.

One of the most important of our climbing shrubs, the Wistaria, makes grand growth in all the south of England. This also can be used to excellent effect trained into some rather thinly-furnished tree such as an old Acacia. Its grey snake-like stems and masses of bloom high up in the supporting tree are shown to excellent effect. This is also a fine plant for a pergola. A few plants growing free and rambling full length would, after the first few years, when they are getting old, cover a pergola from end to end. The piers or posts could also be covered with the same, for though the nature of the plant is to ramble, yet if kept to one stem and closely pruned it readily adapts itself to pillar form, and bears a wonderful quantity of bloom.

Among the Grape Vines there is a great variety of ways of use other than the stiff wall training they generally receive. If they are wanted for fruit they must be pruned, but most outdoor Vines are grown for the beauty of their foliage. Here is another firstclass pergola plant, making dense leafy shade, and growing in a way that is delightfully pictorial. Nothing looks better rambling over old buildings. Now that so many once prosperous farms are farms no longer, and that their dwelling-houses are being converted to the use of another class of occupier, the rough out-buildings, turned into stabling, and adapted for garden sheds, often abut upon the newmade pleasure-garden. This is the place where the

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in the open air. This is also true of many localities in the south and west of Ireland, such as Fota, Cork, Bantry, and Tralee, where New Zealand, Japanese, Californian, and many Chilian shrubs are quite happy in the open air. Nearly all visitors to Glengarriff notice the luxuriance of the Fuchsias, which, not being cut down there every winter by severe frosts, assume more or less of a tree-like aspect, and are literally one mass of brilliant coralred flowers during summer and autumn. But it is even more wonderful to see there growing up the front of the hotels and elsewhere such plants as Maurandya, Lophospermum, Mikania, and Cape Pelargoniums year after year. But, apart from mild climates, aspect has an enormous effect on many climbing shrubs, and especially on light dry soils. Lapageria, for example, prefers a northern exposure, and the same is true of Berberidopsis and in the case of the familiar Fatsia (Aralia) japonica. Many climbers and trailers, again, are hardy on north or north-western walls that are ruined by bright sunshine after frost, which is often experienced on south and especially south-western exposures. Even when climbers like Wistaria, Jasminum nudiflorum, Ceanothus, Cydonia, and many others are perfectly hardy on sunny walls it is often a great advantage to train a few branches over the top of the wall to the shady side, as in these cases there is a week or ten days or more difference in the time of blooming, and so an agreeable succession is obtained.

In planting both walls and pergolas there is danger in planting too thickly, and in planting too hurriedly or without sufficient preparation. We all must perforce often do the best we can rather than the best we know. Large - growing, permanent shrubs, such as Cydonia japonica, Wistaria, and Magnolias, which may remain in the same spot for twenty years or more, often fail through starvation, and in any case never attain their full luxuriance and beauty if cramped and stunted during the first few years after planting. Again, it must be remembered that both wall and pergola creepers often suffer from dryness during the summer and autumn months, and provision should be made for necessary mulching and watering.

There is one important point that must be attended to in the planting of anything of which the general hardiness is not fully assured, and that is, never plant late in autumn. The golden rule with all half-hardy things is to plant well in April or May, after all danger from severe frost, \&c., is over, so as to allow the plants a long summer and autumn season of root and top-growth before the stress and strain of winter weather come upon them. In this way many plants will succeed perfectly in establishing themselves that would at once die off if planted out in October or November.

Abelia.-A. floribunda is a Mexican plant. Mr. Burbidge writes in the Garden, April 14, 1900, p. 272: "I have seen it very handsome in flower on a low wall at Mount Usher, county Wicklow. Its
pendent flowers in axillary clusters are of a rich purple red, and remind one of some Fuchsias." A. rupestris, a Chinese plant, is very pretty, as also is $A$. triflora from North India.

Abutilon.-Several of the Abutilons are sufficiently hardy to thrive on walls or in borders near to heated plant-houses. Mr. Burbidge writes in the Garden: "I have seen $A$. striatum, A. vexillarium, and $A$. vitifolium grow and bloom for years outside. The last-named forms a spreading bush io to 13 feet high in South, West, and Eastern Ireland. It has leaves somewhat resembling those of the Grape Vine, and clusters of pale-lilac, mauve, or lavendertinted flowers that remind one of those of Meconopsis Wallichi in shape, size, and colour. A. vitifolium comes from Chili, and enjoys shelter and ample root moisture, being apt to suffer from drought near walls, otherwise it grows well thereon." $A b u$ tilon vexillarium, when afforded the protection of a south wall, blooms for eight months out of the twelve, bearing on slender, curving shoots its handsome, bell-shaped flowers with their crimson sepals, yellow petals, and protruding dark-brown stamens well into the month of December should no severe frost occur. Florist's varieties of the Abutilon, such as Boule de Neige, also do well on sheltered walls.

Adlumia cirrhosa.-This grows quickly, and the fern-like leaves, covering almost the twining stems, possess much beauty; the flowers are white. A biennial, but sows itself freely. North America.

Akebia Quinata.- A most distinct Japanese

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known under the names of Clematis carulea and $C$. alpina. It enjoys a lime soil. A native of Europe.

Azara.-The best known of these is $A$. microphylla; it is not one of the hardiest of shrubs, but in many gardens, especially where sheltered and by the sea, it covers much space with dense glossy leaves; the flowers are white, small, and give place to orangecoloured berries in autumn. It is quite a shrubby wall plant.

Benthamia fragifera.-Now known as Cornus capitata, but in gardens its old name will long be retained. In Devon, Cornwall, and in Wicklow, Cork, and Kerry, and elsewhere in Ireland, this fine shrub flowers and fruits luxuriantly as a bush on the border or lawn, but in less favoured places it needs the warmth and shelter of a wall. It is a native of Nepaul, and is readily increased from home-grown seeds, and the plant, like all its allies, is a rapid grower in any deep, rich, loamy soil. Quite small bushes of this plant and the common Arbutus Unedo are often very handsome as seen laden with fruit in South and Western Ireland.

Berberidopsis corallina.-Mr. Burbidge writes in the Garden: "The finest specimen of this beautiful and distinct evergreen climber I ever saw was on the stable wall at Lakelands, Cork, when that noble place was in the hands of the late Mr . William Crawford, a great lover of garden vegetation. It is a native of the Chilian Andes, introduced in 1862. It likes a deep peaty soil or loam and leaf-mould on a moist bottom, and, like the Lapageria and its dwarf
cousin Philesia, it enjoys a northern or shaded aspect, rarely thriving for long together in full sunshine. Its flowers resemble those of the Berberis, but are much larger, have pendent stalks, and are of the brightest coral-red or blood colour. It grows and flowers here in a shaded corner under an ivy-topped wall."

Billardiera longiflora.-This is the Apple Berry of Tasmania, and is of elegant twining habit, its greenish-yellow flowers, which are not very showy, being succeeded by handsome blue berries that are very ornamental, and are similar in shape and size to Fuchsia fruits. The plant is closely related to the Pittosporums of New Zealand, and grows 2 or 3 feet in height. There are two or three other kinds, but none prettier than $B$. longiflora. It grows best in moist peat and sandstone, at the foot of a half-shaded wall.

Bignonia Radicans.-This is the hardiest of the Bignonias. It clings to walls, and there is much beauty in the orange-scarlet, trumpet-shaped flowers, which are in clusters. It grows to a considerable height. North America.

Calystegia.—Also known as Convolvulus. C. pubescens fl. pl., the double Birdweed, is more useful for rough stumps than walls, but may be included; the flowers are double, of rosy colouring, and large, and appear during the summer and into the autumn. It is best in warm, well-drained soil.

Camellia. - Mr. Scrase-Dickins writes in the Garden, March 30, 1901, p. 227, as follows about
these little-understood hardy shrubs: "The best Camellias for planting out of doors in the open air are those which bloom late and start late into growth, such, for instance, as Chandleri elegans or Anemonoflora; the varieties with broad roundish leaves appear to grow in more robust fashion than those having narrow pointed ones with a serrated edge, though the latter will make sometimes very compact bushes. It is possible that the sorts with dark-red flowers are hardier than those with pink. The old double white seems to stand the cold well enough, but it hides its flowers rather too much among the foliage to make any effective display of them, though in this way they are often secured from frost or bad weather and made serviceable for cutting. To train against a trellis or wall Doncklaari is very good, and next to reticulata one of the most beautiful when well grown, blooming so freely.

Camellias appear to grow in almost any aspect, but are naturally sun lovers; and though preferring peat, they will do in most other soils, provided that there is no lime present. The points of the young roots are very sensitive to drought, so should be protected until well established, by light mulching or a surrounding growth, from the risk of being withered up by a fierce sun striking the ground in which they are starting. Unlike many other shrubs, they seem to have the advantage of being exempt from the destructive attention of rabbits; perhaps when snow is on the ground they might be barked,

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no flowers next year. It may be raised from seed, but seedlings vary greatly.

Choisya ternata(Mexican Orange Flower).-Very vigorous, shrubby, glossy, green-leaved plant ; rather tender, but quite happpy in northern gardens if not very exposed. Its clusters of flowers are very sweet and white.

Clematis.
Cotoneaster.
Eccremocarpus. - Beautiful climber for wall, arch, or pergola, with reddish flowers. Protect the roots by coating the soil above them with ashes or some protective material.

Edwardsia (Sophora) tetraptera. - This is called the New Zealand Laburnum. A tree in its own country, but a shrubby wall plant here. Grandiflora is the best variety.

Escallonia.
Fuchsia.-The hardy Fuchsias are almost unknown, though amongst the most beautiful of hardy shrubs. My favourite is F. Riccartoni, but this often makes a good hedge. Very charming also are F. coccinea, F. corymbiflora, F. globosa, F. macrostemma, F. microphylla, F. splendens, and F. thymifolia.

Hablitzia tamnoides.-Better, perhaps, for arch, pergola, or tree stump than a wall, but in some cases it may be placed there. It is a vigorous climber, with misty masses of greenish flowers in summer and autumn. Not often seen.

Hedera (Ivy).-The Common Ivy when growing in an exposed position will often acquire a rich bronzy
hue during winter, but in this respect individual plants vary a good deal, the smaller-leaved forms being as a rule the richest in colour.

The most marked in this respect, and one that from its neat, prettily-lobed leaves is well suited for use in making up button-holes, sprays, \&c., is the variety atropurpurea, whose distinctive character is far more marked in winter than in summer. Hedera Helix minima must not be confounded with $H . H$. conglomerata, though at a certain stage of growth there is some similarity. A three-year-old specimen differs from the freer conglomerata form in that it grows more flat both as regards the twigs and the leaves on the twigs. It has more shining foliage of a deeper and more sombre green, with pleasing clouded tints, and further, as the name would suggest, it is a smaller plant in all its parts. It is a beautiful creeper for positions on the rock garden, and is one of the best surface plants, as through it bulbs may spear their growth and flowers without injury. H.H. pedata and H. H. gracilis, both charming varieties of the small-leaxed Ivies, should be in every collection.

The uses to which Ivy may be put are innumerable, and with the many beautiful varieties that are now to be obtained their sphere of usefulness has considerably extended. One of the most picturesque methods of growing Ivy is to allow it to clamber over tree stumps placed here and there in suitable parts of the garden. Ivy banks also are very charming, and for carpeting the bare ground beneath the spreading branches of large trees nothing could be
more suitable. For the latter purpose the shoots should be pegged down and kept in position so that they may take root. Suitable varieties for this purpose are H. dentata, H. ragneriana, rhombea, obovata, himalaica, pedata, palmata, lobata, \&c.

Indigofera gerardiana.-During the late summer and early autumn this leguminiferous shrub is one of the most attractive of those that are then in flower. Its finely divided pinnate leaves are of a rich deep green, and almost fern-like in grace and luxuriance. It is, indeed, worth growing for their sake alone. About the end of June it commences to flower, produces its flower-spikes in the leaf-axils, and continues to do so until the middle of September. The flowers are pea-shaped, and borne on spikes 4 to 5 inches long. The colour is a bright rosy purple. The species is a native of the Himalaya, and its stems do not survive winters of even moderate severity. The root-stock is, however, perfectly hardy, and it sends up a thicket of young growths every spring 2 to 4 feet long, which flower the same summer. It is not suited for growing in large masses by itself, because it starts rather slowly, and the season is advanced before the space the plants occupy becomes furnished. But it is very suitable for the herbaceous border, or, still better, as an undergrowth beneath groups of taller, thinly-planted shrubs. It is happy also against a wall. Also known as I. floribunda.

Jasminum.-The White Jasmine (J. officinale) is too well known to describe. It is one of the best of

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DUTCH HONEYSUCKLE ON WALL.
the cheaper wall climbers. Affine is the best variety ; it has larger flowers. J. humile (revolutum), although an Indian species, will succeed against a wall ; it has yellow flowers and is evergreen. J. fruticans, another bushy species, may also be grown; its flowers are yellow. Of course, the beautiful, fragrant, yellowflowered J. nudiflorum will not be omitted; it is bright with colour in winter.

Kerria japonica.-Sometimes grown against a wall, but an excellent bush for grouping, except in very cold and exposed gardens. The flowers are yellow and produced abundantly. It should be more grown. The double variety, $K . j$. flore-pleno, is frequently seen against cottage walls, and making a cloud of yellow from the double rosette-like flowers in early summer.

Lonicera (Honeysuckle).-This is too well known to describe. The Honeysuckle of the hedgerow is as familiar as the Poppy of the cornfield. The common native Honeysuckle is Lonicera Pericylmenum, the best variety of which is serotina, or late Dutch; it flowers into the autumn, and is of redder colouring. Belgica is the Dutch Honeysuckle and is of strong growth. L. Caprifolium is not a true native, but has become naturalised. Major is a distinct variety. Then there are the evergreen Trumpet Honeysuckles ( $L$. sempervirens and varieties, minor being the best known ; the flowers are scarlet and yellow). Plantierensis is a good hybrid with larger flowers. The Trumpet Honeysuckles are not so robust and free as the late Dutch, for example. The well-known varie-
gated Japan Honeysuckle, L. japonica aureo-reticulata, should not be planted much ; its small, green, yellownetted leaves are pretty, but one quickly tires of their colouring. L. etrusca, orange yellow, and L. flava, which must have a warm place, may also be mentioned. Certain species are quite bushy in growth. L. tomentella has small pink flowers in July. L. fragrantissima blooms in winter and is a delightful wall Honeysuckle; its small white flowers are very fragrant. L. Standishii is also sweet scented. A plant or two of either kind near the windows is very pleasant on sunny winter days. L. tatarica, another bushy Honeysuckle, has rose-coloured flowers in early summer.

Lophospermum scandens. - A slender, pinkflowered climber, but only for warm wall.

MaGnolia.-M. grandiflora is generally grown against a wall. The large, glossy, green leaves and big, creamy, fragrant flowers are very handsome. M. conspicua I have also seen very beautiful against a wall, a mass of white in late spring. The flowers in this position are less likely to get damaged by frost and rain. Its varieties may be used in the same way, but the type is the best.

Olearia.
Passiflora cerelea.-Few climbing plants are more fascinating than the blue Passion Flower. It is, with its bluish flowers and orange, egg-shaped fruit, most happy against a warm wall, and is not the hardiest of climbers. The white variety, Constance Elliot, should be grown also.

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Piptanthus nepalensis (Nepaul Laburnum).This is a shrubby wall plant, and not a very important one. Its yellow flowers remind one of those of the Laburnum, and are borne in clusters.

Polygonum baldschuanicum.-A beautiful shrubby climber, with clouds of white, pink-tinted flowers in summer and autumn. An illustration shows it clambering into a Fir tree near the rock garden at Kew. I have seen many poor forms in gardens, seedlings, and therefore to keep the true type, it must be increased by cuttings. If frost cuts the stems down in winter, new growths spring up in the following year. Its graceful flower masses are useful in the house. $P$. molle is not unlike it, but there is considerable difference between them.

Punica.
Pyrus.-The Pyruses are described elsewhere in this book. P. (Cydonia) japonica and its many beautiful varieties and $P$. Maulei are, however, more frequently grown against walls than any other members of the same family. Prunus triloba is an excellent wall shrub.

Rosa (Rose).
Rubus.
Smilax.-This group is not common in gardens, but is interesting. They are a change from the repetition of a few common things. S. rotundifolia is a very handsome large-leaved Smilax with shiny foliage, now and then met with as S. laurifolia or $S$. latifolia, from which, however, according to Mr. R. Irwin Lynch, of Cambridge, it is distinct. All the kinds of hardy Smilax form handsome leafy creepers
for walls, but in our climate they rarely produce the rich clusters of red berries that often render them so attractive abroad.

Solanum.-S. jasminoides is the most popular flowering climber of the south-west, producing its white bloom-clusters for many months in succession. It is classed as deciduous in botanical dictionaries, but is rarely bare of leaves, except after severe frosts in the early months of the year. S. crispum and S. Wendlandi will also succeed in mild counties; the latter has very large bluish flowers.

Sollya heterophylla.-This is the dainty little Australian Bluebell Creeper, and belongs to the shrubby Pittosporums, growing from 2 to 6 feet in height. It was formerly much valued as a greenhouse plant in the old days of the "balloon trellis"-surely a "false ideal," and one of the very ugliest ways in which graceful climbers could be grown. But even in that way this Sollya and the dainty little tuberousrooted kinds of Tropæolum used to be extremely fascinating to many in habit, such as S. parviflora (S. Drummondi), S. salicifolia (S. heterophylla), and S. angustifolia, or S. linearis, also a form of the lastnamed.

Stauntonia latifolia (syn. Holbollia latifolia).This plant bears clusters of small greenish-white, highly-fragrant flowers in March, and often perfects seed-pods in the autumn. It is a rapid grower, and its leathery leaves are rarely affected by frost.

Stuartia pseudo-Camellia. - A rare and very beautiful flowering shrub now seldom seen in even

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known, very showy in autumn. Of the Asiatic Vines, $V$. Coignetice is the most famous. It has very large leaves, which turn to a glowing crimson in autumn. It is a noble climber. $V$. heterophylla humulifolia has beautiful fruit, each berry about the size of a pea and turquoise blue ; it likes a warm, sunny wall. $\quad V \cdot(A m-$ pelopsis) Veitchii is too well known to describe. $V$. Romaneti and $V$. vinifera, the Common Grape Vine, also deserve notice. Of the last-mentioned there are many beautiful varieties, such as Purpurea, Miller's Burgundy, Teinturier, with claret-coloured foliage, and the Parsley-leaved Vine. V. Thunbergi has very fine leaves, which turn crimson in autumn. The Vines should be seen in greater variety in gardens.

Weigela.-May be grown against fences and even walls, but are better against the former. I saw a fence covered with the crimson-flowered Eva Rathke in a London garden, and it flowered abundantly every year.

Wistaria.-Wistaria time is a pleasant season of the year. A few noble examples may be seen in the suburbs of London, especially at Kew and Hampton Court, where the trees must be a great age, while quite a fine plant is in the Royal Gardens, Kew, also. What may be achieved with this plant if some attention to its needs were forthcoming is not clear, for most of the Wistarias we see from time to time shift for themselves, and by the position they occupy must have large numbers of their roots in dusty, dry soil. In former days it was always the custom to plant this



WISTARIA RACEME; SHORT, W SINENSIS; LONG. W. MULTIJUGA.

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## FLOWERING AND OTHER HEDGES

Of the more or less known 3000 species and varieties of trees and shrubs hardy in this country, only a small proportion are suitable for making good hedges. Every garden of any size has a hedge or two of untidy look through inattention at the proper time. A hedge must be kept in proper order, not a difficult business when clipping is done annually, when to do so depending upon the plants used.

Hedges may be of two kinds-the neat trimmed hedge, which serves as an outside line to a garden, and also as a screen or wind-break to small or tender plants growing near it ; and the straggling rough hedge, varying from 10 to 20 feet in width, more properly a wide bank made up of all sorts of plants, rambling Roses, ornamental Vines, and other things which usually serve to brighten some spot where colour is desirable, or to shut out an undesirable view. The best plants comprise both evergreens and deciduous, but only one thing should be used, as mixed hedges are rarely a success, and of mingled evergreen and deciduous plants are generally quite a failure. The best evergreen plants in their order of merit are Holly, Yew, Arbor-vitæ (Thuya occidentalis), Thuya gigantea, Lobbi, Common Box, Cupressus lawsoniana, C. nootkatensis (Thujopsis borealis), Privet (Ligus-
trum), Common Laurel, Portugal Laurel Pyramid Laurel (Prunus lusitanica myrtifolia), Berberis Darwinii, and Osmanthus ilicifolius.

Holly.-The Common Holly makes one of the best evergreen hedges. Its growth, though somewhat slow, is regular, and it does not mind the shears, but it is costly to use to any extent. It does not move readily, so that for the first year or two there will probably be a few gaps to fill up, but when the hedge is once established it is there practically for ever, and with proper attention will never become rough or unsightly. Before planting the site should be marked out, and the ground trenched 3 feet wide and deep, breaking the subsoil with a fork, and working some well-decayed manure about half-way down. This will tend to draw the roots down, and keep them from running out on either side to the injury of neighbouring plants. Plants should be obtained in the early autumn, as soon as it is safe to move them, and planted at once before the ground gets cool. If this be done they will make fresh roots and get established before winter. Some prefer to move Hollies in May, but much depends on whether artificial watering can be done. If it can, May is quite as good a time as September or October ; if not, then choose the autumn.

The size of the plants used depends upon taste and the depth of the pocket, but good plants, $\mathrm{I} \frac{1}{2}$ to 2 feet high, with a leading shoot or two on each, placed from 12 to 16 inches apart, can be recommended, as they move readily at that size, and are
not so costly as larger plants. Holly hedges should be clipped in late August or early September, when they will make a short growth before winter, and keep in good condition without further attention until the following autumn. The height of the hedge is entirely a matter for the owner to decide, one 30 or 40 feet high, properly feathered to the ground, being quite possible, as we know from some already in existence. When grown to this height, however, the top should be cut to a point to throw off snow. The flatness of the hedge can be broken by allowing a few leading shoots, 20 or 30 feet apart, to run up, budding them in August with some of the variegated varieties. Gold Queen, Waterer's Gold, Silver Queen, and Argentea variegata are good sorts to use for this.

When a Holly hedge has been neglected for some years cut it back to the old wood in March or April, and fork in a liberal dressing of manure around it. It may not make much growth the first year, but will practically re-establish itself the second.

Yew.-The Common Yew is hard to kill, and easy to prune into various shapes, as topiary work suggests. Yew is generally used for the inside of a garden, such as terraces and hedges near the house. It should be treated in the same way as the Holly, with the important exception of being clipped in May, as the Yew makes most of its growth in the early part of the year. In buying Yews, choose rather stuntedlooking plants in preference to those of fresher look and freer growth. The former have been moved

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never become overgrown, as, in addition to the hard cutting necessary to bring it into shape, it is a terrible plant to cut, even the small wood being very hard and tough.

Lawson Cypress.-Cupressus lawsoniana and C. nootkatensis (Thujopis borealis) can be treated together, as, in addition to their natural relationship, both require the same treatment as a hedge. Neither makes a good flat-topped hedge of the ordinary kind, as the growth is distinctly pyramidal, and unless kept to a point is apt to get injured by snow. They should be cut to a point, and a hedge 12 to 20 feet high of this shape is very handsome and effective in a garden, as well as forming a first-rate screen. They can be trimmed at any time preferably in the spring or early summer, care being taken not to cut the base too hard, and the leading shoots top annually. In planting no manure need be used, provided the ground is good, and it is not required later on unless the hedge shows signs of starvation, when a good top dressing may be given with advantage. Plants 2 or 3 feet in height, placed about 18 inches apart, are a good size to use, as they move readily and are not expensive.

Privet.-The oval-leaved Privet (Ligustrum ovalifolium) is a native of Japan, and makes a fairly good hedge about 5 or 6 feet high. It grows readily, and moves without any trouble at almost any time. It can be bought cheaply. The ground should be well treated in the first place; afterwards it will require little attention in the way of feeding. It can
be clipped at almost any time, but for the first year or two should be cut hard back before growth begins in the spring. Neglect of this leads to a hedge that is leafy at the top but bare at the bottom. In this note the use of Privet is not wholly condemned, but it must be understood its use is not recommended. We have never seen a Privet hedge that ever looked respectable for any length of time. We have not a Privet hedge in the garden, and hope to be always free from such an affliction.

Laurels.-Any of the various forms of the Common and Portugal Laurels with the types are suitable for what may be called second-rate hedges, the best being the Pyramid Portugal, which is a smallerleaved and more upright-growing kind than any of the others. With the exception of the last-named, all the Laurels make hedges rather wide for their height, and all require much attention to keep them in proper shape. All should be clipped in June, after the first growth is made; they will then make another short growth, which will keep the hedge in good condition until the following year. The Pyramid Portugal has leaves about half the size of those of the type and quickly makes a hedge. It is rather more expensive than the commoner Laurels, but it moves well, and does not become bare at the bottom.

Osmanthus ilicifolius.- This plant has not been much used for hedges, but it makes a very good one if carefully looked after during the first year or two. It somewhat resembles the Common Holly,
and requires much the same treatment. It is not very expensive to buy, and the hedge should be kept to a height of 3 or 4 feet.

## Deciduous Hedges

Many deciduous plants can be used for hedges, but a good selection comprises Beech, Hornbeam, Quick, Myrobalan Plum, and Sweetbriar. The first two require practically the same treatment, the most important part of which is to procure good two or three years old transplanted plants, and to treat them liberally at first. Beyond an annual trimming they will not require any further attention, except to tie or peg down a branch or two where gaps may occur.

Quick and the Myrobalan Plum should be planted in double rows to form a hedge, and be cut back hard at the time of planting to form a bottom to the hedge, which would otherwise become leggy and bare at the base. If they should happen to get into this state most of the growth should be cut away, and the main branches tied or pegged down in the direction of the hedge. In a year or two it will be practically as good as ever.

For a dividing line between the flower and kitchen gardens, or for some spot where too much formality is not required, the Common Sweetbriar makes an excellent hedge, although it requires much attention for the first few years. If planted without support, such as a wooden railing, it should be kept tied or pegged down almost to the ground for the first two

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HEDGE OF MAIDEN'S BLUSH ROSE ( 6 feet to 7 feet high).

## FLOWERING AND OTHER HEDGES

or three years, using practically every growth that is made by the plants. By this means a good foundation is laid for the hedge, which will, when made, merely require an annual trimming. We plant Sweetbriars everywhere. Its leaves in the early morning, or after a warm summer rain, saturate the air with their fragrance.

## Hedges of Flowering Shrubs

It often happens that some kind of hedge is wanted in a garden, either as a screen to hide vegetable ground, or as a wind-break, or some kind of partition. When this is the case, it is a good plan to plant hardy flowering shrubs about 4 feet apart, and so to train and trim them that they grow into a compact hedge, and yet have enough lateral play to allow them to flower. Two years ago we privately advised some friends who were planting new gardens where such dividing hedges were wanted, and the hedges are already coming into use and beauty.

Such a hedge is not only ornamental, but it yields endless material for cutting. It should be allowed to grow quite 4 feet thick, and is best formed with a backbone of stiff woody shrubs, such as Guelder Roses, Ribes, and Lilac, while between the stiffer shrubs might be some that are weaker, such as Kerria, Rhodotypus, and Leycesteria. Plants of rank rambling growth, such as free Roses and double-flowered Brambles, Aristolochia, Wistaria, Virginia Creeper, and the rambling Honeysuckles, are not in place in such a hedge; they are more suitable for rough hedge
banks, walls, or for arbour and pergola; the flower hedge wants true shrubs. The bush Honeysuckles, such as Lonicera fragrantissima and L. tatarica, are just right, or any woody, twiggy bushes of moderate growth, or such as are amenable to pruning and thinning, such as Deutzia and Snowberry shrubs that so often get overgrown in a shrubbery. In the hedge these would do well, as they could easily be watched and thinned; also many true shrubs that flower all the better for reasonable pruning.

Any one would be surprised to see what a quantity of useful flowers such a hedge would yield, while, if there is another of foliage for winter use, it will be invaluable to the indoor decorator. We have just planted a hedge for this use, all of golden variegated or yellow-leaved shrubs, those chosen being the Scotch Gold Holly, Golden Euonymus, Golden Privet, the variegated Eurya latifolia, yellow variegated Box, Cassinia fulvida and Golden Tree Ivy, all shrubs of the utmost value for winter cuttings. Though they are barely 2 feet high as yet, the slightly varied golden hedge is already a pleasant, cheering sight in the quickly-shortening November days.

Other flower hedges are also delightful possessions. Hedges of China Rose, of Lavender, of Sweetbriar, of old garden Roses, or of climbing or rambling Roses trained down, of Honeysuckles, of Jasmine; some of these are occasionally seen, but of a good selection of true shrubs hedges are rarely if ever made.

Any of the shrubs recommended for the mixed flowering hedge could, of course, be used alone ; and

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## PLEACHED OR GREEN ALLEYS

In the old days the pleached alley was as familiar in English gardens as the pergola of the present age. Both are interesting, and both provide grateful shadowed walks in the heat of summer. The trees most generally used in the fashioning of pleached alleys were the Hornbeam and Lime, both native of this country, but green alleys have been made of Yew, of Cotoneaster microphylla, of Holly, and other evergreens. There are flowering Cherries of weeping habit that would suit well for such treatment, and several other small trees of pendulous growth, such as Laburnum, Weeping Ash, and the large-leaved Weeping Elm. There is an important green alley at West Dean, near Chichester, of Laburnum only.

The green alley differs from the pergola in that the pergola has solid and permanent supports, its original purpose, in addition to the giving of shade, being to support vines. The green alley, being made of stiffer and more woody growths, only needs a temporary framework to which to train the trees till they have filled the space and formed the shape. Hornbeam was the tree most used in former ages, and for a simple green alley nothing is better. Beech is also good. Several other of



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wear out. These are proper to the pergola, whose permanent substructure makes it easier to cut away and renew those of its coverings, whether structural or growing, that are liable to partial decay.

A great many delightful things may be done with these green alleys and green shelters. Much interest is already aroused in the pergola, and when thinking of this it is well to consider these other ways of adding to the comfort and charm of our gardens. One thing, however, should be carefully considered. It should be remembered that where a path is made more important by passing under trained green growths it should have some definite reason for being so accentuated, certainly at one and desirably at both ends. It often occurs that in laying out ground the owner wishes to have a pergola, as it were, in the air, and when there is nothing to justify its presence. It should not be put at haphazard over any part of the garden walk. If of any length, it should distinctly lead from somewhere to somewhere of importance in the garden design, and should, at least at one end, finish in some distinct full-stop, such as a well-designed summer-house or tea-house.

Another important matter is that a pergola or green alley, in the usual sense, should never wind or go uphill. It is not intended by this that shading coverings cannot be used in such places, but that they would want especial design, and it is altogether a matter of doubt if these could not be much better treated in other ways.

## PLEACHED OR GREEN ALLEYS

The circumstances of different gardens are so infinitely various that it is impossible to lay down hard rules; only general rules can be given and exceptional circumstances dealt with by exceptional treatment.

Green alleys require some attention. In winter the oldest of the wood must be cut out to make room for the young growth, and when this is lengthening vigorously it must be carefully laid in.

If the alley has an iron framework, which is necessary when such strong growing things as Wistaria are used, this may be clothed during the first few years until the Wistaria is growing strongly with annual climbers such as Cobaea scandens, lophospermum, Mina lobata, and even varieties of the large-flowered Clematis, which must be removed when the Wistaria covers the alley.

Very charming alleys are sometimes formed of fruit trees-Pear, Apple, Cherry, and Plum making delightful spring pictures, and almost as much so when in fruit in autumn. Where fruit and flower are desired every shoot must be exposed to sun and air. When densely shaded by other growths the wood does not ripen, and therefore flowers badly, if at all.

## THE GARDEN ORCHARD

One's enjoyment of the garden would be greatly increased if the orchard, which is so often thrust away into a remote corner, were brought into direct communication with it. How easily the trimmer lawn spaces might lead through groups of flowering shrubs to the rather rougher grassy orchard. How naturally the garden Roses and masses of free-growing Cluster Roses would lead to their near relations, the Pears and Apples and other fruiting trees of the great Rose order.

There is no need to make a definite break between the two ; it is all the better not to know where the garden ends and the orchard begins. Towards the edge of the mown lawn there may already be trees of the Red Siberian Crab and the handsome Crab John Downie, and the pretty little Fairy Apple; while the nearer orchard trees may well be wreathed with some of the free Cluster Roses, such as Bennett's Seedling or Dundee Rambler.

If the orchard is of some extent its standard trees of Pear, Apple, Cherry, and Plum may be varied by three or four bush trees, or by some of the beautiful fruit trees of lower growth, such as Medlars and Quinces. There may also be breaks of cut-leaved Blackberry and a thicket of Crabs or Filberts, and

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old medlar tree on edge of garden orchard.
on some one side, or perhaps more, a shady Nut alley. There is no need to be always moving the garden orchard. One wide, easy, grassy way might well be kept closely shorn, but much of the middle and side spaces had better not be cut until hay-time, for many would be the bulbs planted under the turf, great drifts of Daffodils and Spanish Scillas, and Fritillaries for the larger effects, and Colchicums and Saffron Crocus for the later months. If the grass were mown again in September, just before the Colchicums appear, it would allow of easy access to the fruit trees in the time of their harvest, and in those interesting weeks immediately before the Apples ripen.

It must not be forgotten that the best use of many fruit-bearing trees is not restricted to the kitchen garden only, for many of them are beautiful things in the most dressed ground. Few small trees are more graceful in habit than the old English Quince that bears the smooth, roundish fruits. It is not only a pleasant object in leaf and flower in early summer, and in autumn glory of golden fruit, but even when bare of leaves in winter a fully matured tree is strikingly beautiful, and in boggy ground where no other tree would thrive it is just at its happiest and is most fruitful. Then many Apples are extremely ornamental, and there is a whole range of Crabs ; Siberian, Chinese, and home-raised hybrids that are delightful things both in flower and in fruit. Pyrus Maulei, vieing in beauty of bloom with its near neighbours, the Japanese Quinces, quite outdoes them
in glory and bounty of fruit, which in October is one of the most brilliant things in the garden. There are no better garden ornaments for foliage than Figs and Vines, and though the needful pruning of a Vine for fruit takes off somewhat of its pictorial value, which depends in some measure on the wide-flung, luscious summer growth and groping tendril, yet in any shape the Grape Vine is a thing of beauty. Some of its garden kinds also show how, in distinct departures in colour and shape of leaf, it is always beautiful ; for the Parsley-leaved Vine, with its dainty and deeply-cut foliage, is a suitable accompaniment to the most refined architecture ; while the red-purple leaf of the Claret Vine and its close clusters of blue fruit are richly ornamental in the autumn garden. A Medlar tree, with its large white bloom and handsome leaves, is desirable, and several of the Services are ornamental small trees. Every one knows the lovely pink bloom of the Almond in April, but few may have tried something that is not an experiment but a certainty-namely, the successful culture of the hardier Peaches, near relatives to the Almond, as standards in the south of England. A Peach of American origin, the Early Alexander, bears full or fair crops every year. The only danger is from leaf blister from sudden cold in May, but if its position is sheltered, or if it can be afforded the protection of a net, it will suffer but little, and perfectly ripened peaches, red all round, may be had at the end of July. The beauty of Cherry blossom is so well known that it needs no extolling ; and any great high

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## THE WORTHY USE OF ROSES

FOR a full consideration of the Rose as a garden flower, one must look to such a work as "Roses for English Gardens," but as the Rose is a flowering shrub it cannot be omitted from the present volume.

In these days of horticultural prosperity and rapid progress, when there would appear to be one or more specialists devoting themselves to every worthy flower, we need scarcely say that the Rose has not been forgotten. Indeed, within the memory of many who have watched its culture for the last forty years, the rapid advance is nothing less than astonishing. Our own veteran growers and some of the foreign firms seem to have vied with each other in producing new forms in the Hybrid Perpetuals and in the Teas, but it has been almost within the last decade that growers have not only deepened the interest in the cultivation of the Rose, but have immensely widened it by striking out in new directions.

It is now a good many years since the Bennett hybrids appeared and gave us many forms of noteworthy novelty, but the parents of these were still among the well-known H.P.'s and Teas and Chinas. But of late years hybridists have taken in hand some of the handsomer of the species, and by working them with well-established favourites have produced
whole new ranges of fine Roses. Of these the most prominent have been products of $R$. polyantha, nigosa, rubiginosa, and wichuriana. The striking success of many of these later hybrids is encouraging in the highest degree, and the field for future work is so immense that the imagination can hardly grasp the extent of the prospect that these earlier successes seem to open out.

There are so many ways in which Roses may be beautiful. Even in the varied form and habit possessed by the types some special kind of beauty is shown and some special garden utility is foreshadowed. And then we think of the future possibilities of the Rose garden! Already-we say it with deliberation and a feeling of honest convic-tion-the Rose garden has never been developed to anything like its utmost possible beauty. The material already to hand even twenty years ago has never been worthily used.

The Rose garden to be beautiful must be designed and planted and tended, not with money and labour and cultural skill only, but with brains and with love, and with all those best qualities of critical appreciation-the specially-cultured knowledge of what is beautiful, and why it is beautiful-besides the indispensable ability of the practical cultivator.

There are in some places acres of Rose gardens, many of them only costly expositions of how a Rose garden had best not be made. The beautiful Rose garden, that shall be the living presentment of the poet's dream, and shall satisfy the artist's eye, and
rejoice the gardener's heart, and give the restful happiness and kindle the reverent wonderment of delight, in such ways as should be the fulfilment of its best purpose, has yet to be made.

It matters not whether it is in the quite free garden where Roses shall be in natural groups and great flowery masses and arching fountains, and where those of rambling growth on its outskirts shall clamber into half-distant surrounding trees and bushes, or whether it is in the garden of ordered formality that befits a palatial building; there are the Roses for all these places, and for all these and many other uses. Indeed, for reducing the hard lines of the most formal gardens and for showing them at their best, for such enjoyment as they may give by the humanising of their rigid lines and the softening of their original intention as a display of pomp and state and the least sympathetic kind of greatness, the beneficent quality of age and aecompanying over-growth may be best shown by the wreathing and clambering cluster Roses, whose graceful growth and tender bloom are displayed all the better for their association with the hard lines and rough textures of masonry surfaces.

## Some Beautiful Wild Roses

No family of hardy shrubs is more bewildering in the multiplicity and intricacy of its nomenclature than Rosa. There are only some seventy species now accepted by botantists, yet the pseudo-specific

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In the wilder parts of the garden the common Dog Rose ( $R$. canina) and its numerous varieties are worth a place; they flower well, and are always beautiful in fruit. The same may be said of the Sweet Briar (R. rubiginosa), the fragrance of whose young growths is always a delight, whether in garden or hedgerow. R. hibernica, a British Rose, thought to be a hybrid between the Scotch Rose and $R$. canina, comes in the same category. It flowers earlier than the Dog Rose.

For the wild garden also there are several other Roses that may be mentioned, such as cinnamomea, with rosy-red flowers and crimson fruit; nutkana, acicularis, pisocarpa, and californica. Only those are mentioned that from their greater beauty and distinctness deserve a more detailed notice.
R. alba.-Although found wild in several parts of Europe, this, the "Common White Rose" of Linnæus, is supposed to be a hybrid between $R$. gallica and the Dog Rose. It is always found in places which lead to the belief that it is not truly indigenous, but an escape from cultivated grounds. The typical plant has white flowers that are considerably larger than those of the Dog Rose, and the petals have more substance. There are now numerous double-flowered varieties in gardens, some beautifully tinged with rose.
R. Alberti.-A native of Turkestan, where it was discovered by M. Albert Regel not many years ago. This is one of the rarest species of Rosa in cultiva-
tion. The flowers are bright yellow, the leaves small and much divided.
R. alpina.-This is the species from which the Boursault Roses have been derived. It is a native of the Alps and Pyrenees. The stems are 4 to 5 feet high,. and have few or no spines except when young. The flowers are rosy red ; the fruits red, often pear-shaped, and covered with bristles, which, when rubbed, have a turpentine-like odour.
R. arvensis (or R. repens).-From this species the Ayrshire Roses have been obtained. It is naturally a trailing or climbing plant, having long thin shoots and white flowers. When trained over tree stumps or rough stakes and ultimately allowed to grow at will, it forms tangled masses which are very pretty. But the double forms-even the common variety, flore-peno-are to be preferred, being especially useful in semi-wild spots. The type is wild in England, and frequently to be seen in hedges and thickets.
R. carolina.-For certain positions this is a useful Rose. It has erect stems and forms dense thickets, spreading rapidly by means of the numerous underground rhizomes it sends out in all directions. The flowers are purplish rose. A later-flowering variety known as muttalliana is a stronger grower and has larger flowers. This will flower up to September. $R$. lucida and $R$. nitida are, like $R$. carolina, natives of North America, and are of similar habit, but they are dwarfer and the leaves are more glossy. All these are apt to become crowded with old stems, and,
besides an occasional thinning out, are much improved by dividing up every three or four years.
R. ferruginea (R. rubrifolia).-This species, which comes from the Pyrenees and Alps, is remarkable for the reddish-purple colour of its leaves and young shoots. Groups of half-a-dozen or more plants give a striking colour effect. The flowers are similar to the Dog Rose, but red.
R. levigata (R. sinica).-Except in the south and south-west or in similarly favoured localities, this is not really hardy, but where it thrives it is a singularly beautiful Rose, perhaps unsurpassed among single Roses in the size of its pure white flowers. It is known as the Cherokee Rose, and is naturalised in some of the Southern United States. A lovely hybrid between it and $R$. indica has been raised and named Anemone. Its flowers are soft rose.
R. lutea (Austrian Briar).-Of all the Wild Yellow Roses this is the most beautiful. The yellow-flowered species do not, as a rule, thrive so well as the others in gardens-one has only to mention such species as berberifolia, sulphurea, xanthina (or Eca) to recall that. But $R$. lutea, in strong loam with plenty of lime added, generally thrives well. The copper-coloured varieties are more difficult to deal with in suburban districts. The flowers of the typical $R$. lutea are of the brightest rich yellow. When in good health it produces each year long arching shoots, wreathed from end to end with blossom. This species comes from the Orient.
R. microphylla. - This interesting species is closely allied to $R$. rugosa, and is a native of

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China. It has a sturdy bushy habit, few spines, and the curious habit of peeling its bark. Its foliage is very handsome, the leaflets being small and numerous. The flowers are rose coloured and very fragrant. The shrub is interesting for its fine fruits, which are of large size, very spiny, and of a yellowish colour when ripe. Although some other species surpass this in showiness, it is one of the most distinct.
R. moschata (Musk Rose).-When seen at its best, few of the rambling species are more beautiful than this. It is not, however, so hardy as some, especially when young, in which state it makes long, succulent shoots during summer and autumn, which are apt to be killed back in winter. Old plants do not suffer in the same way, or not so severely. Its flowers are borne in great clusters, and are notable for their pure whiteness and conspicuous bunches of bright-yellow stamens. The best plants often of this species are in shrubberies, where, no doubt, the other shrubs afford it some protection. It is a native of the Orient and India. The name "Musk Rose" refers to a perfume which may occasionally be detected in its flowers after a shower, but is never very apparent. Nivea is a beautiful form.
R. multiflora.-This, the Polyantha Rose, the wild type of the group so named and the progenitor of many graceful Roses, is a native of Japan and China. It is a shrub 8 feet or more high, forming a dense thicket of arching branches. Its flowers individually are small, but they come in large dense clusters and so abundantly as to transform the shrub
into a mass of white. They are very fragrant. This is an admirable plant for putting at the top of a wall or steep bank which it is desirable to drape with vegetation. The Polyantha group of Roses can always be distinguished by the stipules at the base of the leaf-stalk being fringed.
R. ochroleuca.-In stature, foliage, and mode of growth this is like the Scotch Rose, but its flowers are of as bright and rich a yellow as those of the Austrian Yellow (R. lutea). Where $R$. lutea does not grow well, this will be an excellent substitute. A native of Siberia.
R. pomifera (Apple Rose).—This is, perhaps, the most striking of Roses in regard to its fruit. The hips are I to $\mathrm{I} \frac{1}{2}$ inches long, apple or pear-shaped, of a fine bright red, and covered with bristles. It is a species that requires generous conditions at the root to be seen at its best. $R$. mollis and $R$. tomentosa belong to the same group, and have also fine red fruits, but they are much smaller than those of $R$. pomifera.
R. rugosa (Japanese Rose).-No plant has come to the front more rapidly in recent years than this Rose. It was introduced from Japan in 1845 , but appears to have been neglected. It is one of the very hardiest of Roses, as well as one of the sturdiest and most robust. The leaves are very handsome, the leaflets being of a rich green and wrinkled. The flowers in the wild type are rosy crimson, but there is also a white variety, and seedlings give quite a variety of shades. It hybridises freely with other species and garden varieties, and has in this way

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creamy white; those of hispida a lovely cream yellow. The garden varieties of this Rose are numeroussome double, some single, and varying in colour from yellow to white and from pink to purple. The type is found wild in several parts of Britain.
R. webbiana.-Coming from some of the highest elevations on the Himalaya at which shrubby vegetation exists, this species is the hardiest of the Indian Roses. It has a thin, graceful habit, and its spiny stems are blue white when young. This year it has been very pretty in the unusual profusion of its bluishtinted flowers, each of which are about 2 inches across. The leaves are of a blue green, and are similar in size and division to those of the Scotch Roses. But it is quite distinct from them or any others, for which reason it is worth the notice of lovers of these wild types.
R. wichuriana.-It is not many years since this Japanese Rose was first introduced, but it is now fairly well known. It is a perfectly prostrate plant, and is remarkable for the shiny, varnished appearance of the leaves. It is one of the latest species to come into bloom. The flowers are pure white, and appear during July and August in clusters resting on the carpet of glossy foliage. It makes an excellent covering for sunny banks where the soil is good. Old tree stumps are also pretty when covered with this Rose. It has already been hybridised, and among its progeny are Pink Roamer, Manda's Triumph, South Orange Perfection, and Jersey Beauty. There is a very distinct cross between it and $R$. rugosa at Kew.

## PLANTING AND STAKING TREES

A FEW words of advice upon these important subjects will be helpful. When planting a tree, prepare the ground beforehand, so that when the trees arrive they can be put at once into their proper places without having to be laid in. If the trees are to be planted thickly, trench the ground to a depth of at least 2 feet, keeping the top spit to the top all the while, merely burying the turf if there is any. If the soil is poor, enrich it during the trenching. If possible this trenching should be done the spring previous to the planting of the trees, and the ground cropped with Potatoes or Cabbages to keep down weeds during summer. If the trees are to be planted wide apart or as isolated specimens, make large holes, varying in diameter from 6 to 10 feet, these being trenched 2 or $2 \frac{1}{2}$ feet deep and filled in again to within $I$ foot of the surface. The shape of the hole is a small matter, round or square being equally good. In some instances, however, especially when a tree is being moved with a large mass of soil, a square hole will be found handier than a round one, on account of the additional room given by the corners.

The time to plant is of much importance, for though deciduous trees may be transplanted through-
out winter, October, November, February, and March are preferable to December or January. October and November are the two best months, as then the ground is warm and root action begins before winter sets in.

If the trees are simply to be transplanted from one position in the garden to another, the work may be begun in the case of deciduous trees as soon as the leaves turn colour and commence to fall. In lifting, take care not to injure the roots. When putting the spade into the ground the edge should be to the tree, not the face. Digging must begin at a reasonable distance from the tree, and if a ball of soil is not required, the soil should be forked from between the roots into a trench which has previously been made round the stem. If, while lifting, any of the main roots have suffered, cut the injured parts away with a sharp knife and tar over the wounds. When planting, the tree should be stood in the hole, and a stick laid across the top of the hole near the tree to ascertain whether the depth is right, sufficient space for an inch of soil over the uppermost root being allowed. The centre of the hole should be filled in slightly higher than the sides, and on the little mound the tree should be stood, laying the roots out carefully all round. When filling the soil in, some fine material should be worked in among the roots with the hand, and before the hole is fully filled in give a good watering; this has the effect of settling the soil well about the roots. The amount of ramming necessary depends on the

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## PLANTING AND STAKING TREES

consistency of the soil. After a tree is planted in early autumn a mulching of rotten manure may be given, but if the planting is done in spring the mulching is better left until early summer when the ground has become warmed.

After planting, staking, where necessary, should be attended to. It is not necessary to stake every tree that is planted. When it is sturdy, with a wellbalanced head and set of roots, and the position is not exposed to rough winds, staking is needless. If, however, the stem is weak or the roots are mostly on one side, not spread round the tree, or the position is very exposed, staking for a time will be necessary. In the case of young trees little difficulty will be experienced, as good straight stakes can be easily got. As a rule, one stake is quite enough for a tree, and that should be driven in as close as possible to the trunk without injuring it or the roots. To the stake the tree should be secured with wire or stout tar string, using thin cushions of felt, leather, or old hose-pipe to keep the wire or string from cutting into the bark. Allow a little room between the stem and stake for growth. Two or three ties are usually sufficient, and these should be examined and loosened once or twice a year until the stakes can be dispensed with. The habit of putting in stakes in such a way that they cross the trunk, and that when the wind blows there is sufficient play for the stem and the stake to rub against each other, is a bad one, the chafing often causing serious wounds. In exposed situations, or
when there is danger of the tree rocking about and becoming loose at the collar, put in three stakes in the form of a triangle, the stem fitting in the space left between the three stakes at the top, while the bottoms of the stakes extend some 2 or 3 feet from the tree. For this purpose wires fastened to stakes driven in the ground are useful, and neater than stout stakes. When wires are used, however, take care to provide a good soft pad between the tree and the wire. For trees with large heads, or those not well furnished with roots, this way of staking will be found very useful. When inserting stakes they should be properly sharpened for the sake of straight driving. The staking of trees which have the lower parts of their trunks straight and their leaders crooked differs from other staking, as the stakes should not be driven into the ground, but tied firmly to the trunk below the bend, the leader being then drawn to the stake. In all cases, however, where staking is done the stakes should be removed as soon as the trees are able to do without them. A stake is not beautiful. There is always the chance of the tying material being left a little too long without examination, and therefore it cuts into the bark. Ties also harbour insects.

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| :---: | :---: | :---: | :---: |
| . Hippocastanum Common Horse Chestnut) | Loudon, in his " Arboretum, | White; | The common Horse Chestnut is too well known to describe. |
|  |  | late May |  |
|  | says: "Accord- | or early June. | It is not a tree for very ex- |
|  | Sante-Hılaire | There is | eaves offer considerable re- |
|  | and his account | considerable | stance to the wind, and |
|  | appears to us | variation, | get torn and unsightly. The |
|  | the most prob- | as many of | double varıety (flore-pleno) is |
|  | able, the Horse | the trees in | very distinct, having quite |
|  | Chestnut passed | parks and | double flowers. Folns aurels |
|  | from the moun- | gardens | vanegatis is a variegated |
|  | tains of Thibet | have been | variety, as the name sug- |
|  | to England in | raised from | gests, with blotches of yellow |
|  | 1550." Gerard |  | on the leaves; and laciniata has cut foliage. |
| Indica | Nepaul, and other parts of Northern India. On the Himalaya the tree reachesa height of 70 feet, with a trunk 3 feet through | White, with yellow and red blotches at the base of the petals; Summer | This distinct and beautiful tree |
|  |  |  |  |
|  |  |  | Horse Chestnuts in cultiva- |
|  |  |  | tion, and probably netther so |
|  |  |  | hardy nor so robust as the |
|  |  |  | common species. It flowered in England as long ago as |
|  |  |  | I858at Mildenhall in Suffolk, |
|  |  |  | but has been little heard of. |
|  |  |  | It is a tree doubtless for the |
|  |  |  | Cornish and Devonshıre and |
|  |  |  | southern coast gardens where the Hımalayan Rhododen- |
|  |  |  | drons thrive well. Sir Joseph |
|  |  |  | Hooker, durıng his Hımalaya |
|  |  |  | travels fifty years ago, saw it loaded with its white racemes, |
|  |  |  | and equal in beauty to the |
|  |  |  | common Horse Chestnut of |
|  |  |  | English parks. Its foliage is quite distinct from that of |
|  |  |  | the other species, the leaflets |
|  |  |  | numbering seven or nine, |
|  |  |  | and being of a dark glossy |
|  |  |  | green. In the other Horse <br> Chestnuts the leaflets are |
|  |  |  | usually only five to each leaf, |
|  |  |  | and never more than seven. |
|  |  |  | The racemes of this Indian species are about 8 inches |
|  |  |  | long, the flowers being white, |
|  |  |  | with blotches of yellow and |
| (Pavia) parviora | North America. | White | This is better known as P. |
|  | in Georgia. In- | fragrant flowers | macrostachya, and is a low, spreading shrub 8 to ro feet |
|  | troduced to England by Mr. | sometımes | high; the leaves consist of |
|  |  | tunged with | five to seven finely serrated |
|  | John Fraser in 1786 | pink, and | leaflets, covered underneath |
|  |  | long | with a whitish tomentum. |
|  |  | stamens, | Although introduced so long |

HORSE CHESTNUT (Esculus Hippocastanum) IN FLOWER.

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## TREES AND SHRUBS

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| :---: | :---: | :---: | :---: |
| canadensıs | Canada | White; April | This flowers about a month before A. alnifolia, and is one of the first trees to greet us with its wealth of snow-white blossom in spring. It should be planted in a free group. Juneberry and Snowy Mespilus are its popular names. Eighteen synonyms are given in the list referred to, the most usual being A. Botryapium. No small garden should be without this lovely small tree; it is between 6 and 8 feet high, spreading, and has purplish fruits, whilst the leaves die off deep golden yellow, so that the Snowy Mespilus has many beautiful phases. There are several varieties, but the species is as beautiful as any. |
| , olıgocarpa | Northern United States, and found in bogs and swamps | White; April and May | This is quite a dwarf shrub, 3 feet to 4 feet, and the individual flowers are $\frac{3}{4}$ inch across. As it is found in most places it should be tried in such positoons in Britain. |
| vulgaris | Europe | White; April | This has been in English gardens about 300 years. It is like the Canadian Juneberry or Snowy Mespilus, but not so beautiful. If only one Mespilus is required, choose M. canadensis. |
| ndromeda polifolia <br> (Moorwot) | Ericaceæ : North America and Northern Europe, including Britain | Pink; Summer | A small shrub about a foot high, with pretty pink wax-like flowers borne throughout the summer months. A moist, peaty soil is necessary to its welldong. |
| erberss Aquifolum (Ash Barberry, Syn Mahonia Aquifolum) | Berberideæ; Western North America | Yellow ; <br> early <br> Spring | A common, but handsome evergreen shrub, reaching a height of 3 to 5 feet, and clothed with dark-green pinnate and leathery leaves. The flowers are bright golden; they are succeeded by berries, purple when ripe, which add to the ornamental features of the plant. It is one of the best shrubs for growing under trees, and in many places is planted for game cover. |
| buxifolia (Boxleaved Barberry, Syn B. dulcis) | Chili | Yellow; April and early May | An upright evergreen bush 5 feet high, clothed with small box-like leaves, and bearing drooping blossoms borne on unusually long stalks. It is not so handsome as B. Dar- |

## TREES AND SHRUBS

| NAme. | Country or Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SeAson. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| buxifolia (Boxsaved Barberry, yn B. dulcis) | Chili | Yellow; <br> April and early May | wini1 or B. stenophylla, but flowering before them is on that account valuable. A dwarf variety (nana) is a pretty rockwork plant. |
| concinna | Hımalaya | Pale yellow | A little deciduous shrub not more than 18 inches high, and with silvery undersides to the leaves. It needs a sheltered spot in good soll. |
| congestiflora var akeoides | Chili |  | A large interesting bush, with masses of flowers. Rare. |
| aristata | Himalaya | Yellow | A strong-growing deciduous shrub, somewhat after the style of the common Barberry, but chiefly remarkable from the bright red of the young bark, which thus forms a fine winter feature. |
| Darwinii (Darn's Barberry) | Chili | Orange yellow; May | This ranks with B. stenophylla as the most handsome of all Barberries ; and, indeed, it is in the very front rank of flowering shrubs. It is of bold, wide-spreading growth 6 to 8 feet high, and the masses of dark evergreen leaves serve admirably as a setting to the clusters of orange-coloured blossoms, which are at their best in May. The purple berries are very attractive towards the end of the summer. This Barberry forms a delightful lawn shrub, particularly in a farly moist soll. |
| empetrifolia | Chili | Yellow: <br> Spring | A little evergreen bush less than 2 feet high, and flowering about the same time as B. Darwinil. With this justnamed species it shares the parentage of B. stenophylla, which is unsurpassed in the entire genus. |
| nepalensis, Syn Mahonıa nepalensis | Nepaul | Yellow | The statellest of the Ash Barberries, forming a specimen 6 feet high, and regularly furnished with long compound leaves. It is however tender, except in the West of England and Ireland, where, in a moist, farly open soil, it does well. Even there a sheltered spot should be chosen for it . |
| repens, Syn Mahonia 1 epens | North America | " | Related to B. Aquifolium, and, like that, will do well in shady spots. It is dwarfer than the other just mentioned. |

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| :---: | :---: | :---: | :---: |
| varıabilis | China | Rosy purple, Yellowish throat; Midsummer | A free-growing shrub, 6 to 8 feet high, with large panicles of flowers borne about midsummer. As in the case of B . globosa and B . japonica, a warm soll in the South of England is necessary. |
| æsalpinia japonica | $\begin{gathered} \text { Japan; } \\ \text { Leguminosæ } \end{gathered}$ | Canary yellow; Summer | A very interesting shrub, rambling, and with long flexible shoots with red prickles. The leaves are a foot long, and of a pleasing green; the flowers, which are in partially erect racemes, are about 1 inch across, and blight canary yellow in colour, against which the reddish anthers are conspicuous. It must not be planted where it is likely to get smothered. It has stood out unharmed for many years in the Coombewood Nursery (Kingston). |
| alycanthus floridus (American Allspice) | North America; Calycanthaceæ | Purplish red; July | A deciduous, much-branched shrub from 5 to 6 feet high, well worth growing for its highly fragrant flowers, about a couple of inches in diameter. It needs a fairly cool, moist soll. |
| occidentalis(Calıfornian Allspice) | California | Crimson | Much like the preceding, but of more vigorous growth with larger flowers. |
| assandra calyculata (Syn Andromeda calyculata) | North America | White; April and May | An evergreen under-shrub, growing from 1 to 2 feet high. The shoots are arching, and the waxy Lily-of-the-Valleylike flowers are suspended from the undersides in considerable numbers. It is a pretty but by no means showy shrub, and needs moist, peaty soll. |
| assıope fastıgıata | Himalaya; Ericaceæ | Pink; <br> Summer | A pretty little erect growing shrub about a foot high, suggestıng a Club Moss or a small Conifer, with tıny bell-shaped blossoms. It is suitable only as a rockwork shrub in moist, peaty sonl. |
| hypnordes | Siberıa | White | Even smaller than the preceding, and needs the same treatment. |
| tetragona | North America and Northern Europe | White | The tiny scale-like leaves of this are arranged in four rows, thus giving the branches a curious square appearance. Succeeds under the same conditions as the others. |



## TREES AND SHRUBS



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| :---: | :---: | :---: | :---: |
| hybrıda | A hybrid between C. cordifolia and C. Kæmpferi. Rased nearly thirty years ago by Mr. John C. Teasın Indıana, U.S.A. | White, with yellow and purple markings on the throat | In the United States this appears likely to prove the finest of all the Catalpas, exceeding even C . cordifolia in the vigour of its growth and the size of its panicles. Four hundred flowers have been borne on a single panicle. Generally, the plant is intermediate between the two species that share its parentage. |
| Kæmpferı | China: introduced by Siebold in 1849 | Flowers 1 inch across; reddishbrown and purple markıngs | Whilst this species-named in honour of Engelbert Kæmpfer, who visited Japan in the seventeenth century - bears a strong resemblance to the American C. bignomioldes, it is neither so fine nor so ornamental a tree. It has naturally the same rounded habit, but is never so large. The leaves differ in frequently being more or less lobed. Kæmpfer noted this tree in Japan, and until a recent date it was regaided as indigenous to that country. Recent travellers have, however, concluded it to be (like many other popular trees in Japan) of Chinese origin solely. It is frequent in the grounds surrounding Buddbist temples in Japan. |
| eanothus americanus (New Jersey Tea) | Eastern United States; Rhamner | Whitish ; July and August | A deciduous shrub, 3 to 4 feet high, that dies partally back during the winter. The flowers, which are borne in good-sized racemes, are at their best in July and August, and on that account are very valuable. It is one of the hardiest of the Ceanothuses, and in the South of England it will flower as a shrub in the open ground. |
| azureus | Mexico | Light blue ; July and August | This is not quite so hardy as the preceding, and it cannot be regarded as a shrub for the open ground, except in particularly favoured districis. It is, however, a delightful wall shrub. There are many garden varieties of this, mostly of Continental origin, of which may be especially mentioned Glorre de Versailles, blue; Marie Simon, pink; and Indigo, deep blue, very beautiful. |


| NAme. | COUNTRY OR <br> Origin and NAtural Order. | Colour <br> AND <br> SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| eanothus divaricatus | California | Pale blue; May and June | Suitable only for a wall. With this amount of protection it will reach a height of io fet. |
| papillosus | California | June <br> Blue ; May and June | Like the last, it is, except in the extreme west, essentially a wall plant ; it is one of the best. |
| rıgidus | California | Purplish blue; Spring and early Summer | The leaves of this are small and neat, and its charming blossoms are on a wall borne sometimes as soon as April, and are kept up through May to June. It will reach a height of 6 to 8 feet. |
| thyrsiforus | California | Bright blue; Summer | In its native country this attans to the dimensions of a small tree, but here it is essentially a wall plant. The flowers are in large racemes. |
| veitchianus | California South Europe and | Bright blue ; May and June Rose | A species with neat dark-green leaves. It forms a delightful wall plant. |
| (Judas Tree) | South Europe and West Asia; Legummosæ | Rose purple, but varies; May and June | Throughout May and early June the Judas Tiee is very beautiful, being smothered with pretty pear-shaped red blossoms. At Kew it flowers well in numerous places. It grows to a height of 20 feet or more in the Mediterranean region, though in gardens hele it is more often represented by bushes of less than half that height. It thrives in sandy loam, and likes plenty of sun and arr. The flowers are produced from all paits of the stems, much of the old wood being often smothered with flowering spurs. A varrety with white flowers is in cultivation, and this may also be seen in flower at Kew. In addition to this species, C. canadensis, from North America, and C. chinensis, a native of China and Japan, are also grown, whilst a fourth species, C. reniformis, from Western China, has lately put in an appearance, but it has, however, so far proved more tender than the others. |
| hionanthus retusus <br> (Fringe Tree) | Japan; Oleaceæ | Pure white; Early Summer | This Chionanthus furnıshes one of the many illustrations of the close affinity that exists between the flora of the United States and that of Japan, for it is very nearly related to the American |

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## TREES AND SHRUBS

| NAme. | Country or <br> Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl Remarks. |
| :---: | :---: | :---: | :---: |
| stus crispus | Southern Europe | Reddish purple; <br> Summer | Reaches a height of a couple of feet, and bears its saucershaped blossoms in great profusion. The individual flowers are about $2 \frac{1}{2}$ inches in diameter. |
| ladaniferus (Gum s s) | South-West Europe | White; Summer | A bush 4 to 5 feet high, with large, white, solitary flowers, The variety maculatus has a crimson blotch at the base of each petal. |
| laurıfolius(Laureleaved Cistus) | South of Europe | White ; <br> July and August | A sub-evergreen shrub 5 to 6 feet high, and the hardiest of all the Cistus. Of this there is also a variety maculatus blotched at the base with purple crimson, which forms a delightful shrub. |
| monspeliensis | South of Europe | White ; Summer | A compact bush 4 feet high, with flowers about an inch across. |
| populifolius(Pop-ar-leaved Cistus) | Levant | White; <br> Summer | The leaves of this are very distunct, being heart-shaped and long-stalked, whilst the plant itself will attain a height of 6 feet. |
| purpureus | South-East Europe | Reddish purple with a maroon blotch | This is only suitable for planting in the West of England, but where not injured by frost it is a delightful shrub, a little over a yard high. |
| villosus | Mediterranean region | Reddish purple | A compact shrub, whose red-dish-purple blossoms are about $2 \frac{1}{2}$ inches across. |
| adrastis amurenis (Amoor Yellow Wood) | Amoorland; Leguminosæ | Whitish; July | A very distinct shrub or small tree, which is perfectly hardy, and has pecularly greyishgreen leaves. The dense spikes of small, pea-shaped blossoms are showy when at their best. This has deep descending roots, and holds its own in sandy solls better than most shrubs. |
| tinctoria (Virginian Yellow Wood. Syn Virsilia lutea) | North America | White | A tree, 30 feet high, clothed with large ornamental pinnate leaves, which die off a rich yellow. The flowers are white, and in dense drooping racemes. A farrly moist soll is necessary for this. |
| thra alnifolia | United States of America; Ericaceæ | White ; August and early September | In the United States of America the White Alder or Pepper Bush, as Clethra alnifolia is called, occurs as a native over a considerable area; hence several forms exist, but do not possess any strongly marked features, unless it be the variety tomentosa, which is certainly the most widely |



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## TREES AND SHRUBS

| NAmE. | Country or Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| ronilla juncea (the ush-like Coron11a) | South of France | Bright yellow | An erect shrub less than a yard high, with rush-like shoots, suggesting those of the Spanish Broom, and also almost devoid of leaves. When in full bloom it is decidedly pretty. |
| rylopsis paucıora | Japan; <br> Hamamelidere | Primrose; Spring, before the leaves | This delightful little shrub, when fully grown, makes a dense bush, with branches 6 feet high. The leaves are small, thin in texture, prettuly tinted when young, and again in autumn. The flowers are primrose-yellow in colour and fragrant. They are arranged from two to four together in drooping catkins from every node on the previous season's wood. Though it is quite hardy in other respects the flowers are easily damaged by frost. |
| spicata | Japan | Also cowslipcoloured and scented. Before the leaves in Spring | A shrub between 3 and 4 feet high, and better known than C. pauciflora. |
| tisus albus(White panish or Porturuese Broom) | Spain and Portugal; introduced in 1752; <br> Leguminosæ | White; May | A beautiful and popular Broom. It grows with great rapidity, and flowers bountifuliy and regularly. A bush 6 or 7 feet high, in full flower is a delightful picture, and one never seems to tire of it. Group it with the common Broom. It is very cheap and easily raised from seed. Loudon says: "In good soil it is of very rapid growth, attaining the height of 5 feet or 6 feet in three or four years, and in six or eight years growing as high as 15 feet or even 20 feet if in a sheltered situation. Placed by itself on a lawn it forms a singularly ornamental plant, even when not in flower, by the varied disposition and tufting of its twiggy threadlike branches. When in flower it is one of the finest ornaments of the garden." Loudon also says that bees are fond of the flowers. |



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## TREES AND SHRUBS

| NAme. | Country or Origin and NAturAl Order. | Colour <br> AND <br> SEAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| tisus nıgricans | Austria | Bright yellow; July and August | while in beauty. Sunshine and poor soll bring out its finest qualities. One can scarcely say too much in its praise, especially as it blooms at a time few trees and shrubs are in flower. |
| præcox | Hybrıd between <br> C. purgans and <br> C. albus | Sulphur yellow ; April to May | One of the most fascinating of all flowering shrubs. makes clouds of soft colouring, every shoot hidden with the wealth of bloom; whilst when out of flower there is beauty in the brilliant green colouring of the long slender shoots. It is a shrub to make groups of in the flower garden, grows quickly, does not soon get " leggy," and is very dense. The big groups of it on the grass in the Royal Gardens, Kew, are one of the delights of the spring season there. The ordinary shrubbery is the worst place for it, all its gracefulness is lost, there is no fountain of flowers from the slender shoots. is best raised from cuttings, as seedlings are apt to reproduce C. albus only. Also well known as Genista præcox. |
| purgans | South and Central Europe | Yellow | Chiefly of note because it is one of the parents of C. præcox, but is of little account for the English garden. It is necessary in a collection, but nowhere else. |
| purpureus | Found in Eastern Europe in exposed situations. | Purple | A delightful shrub when properly placed. Loudon's advice to graft it "on the laburnum standard high " is bad, and has been followed in many gardens. This way of treating the shrub is utterly foreıgn to its nature ; it is a trazling Broom, and therefore should be planted on the rough garden or some bank where it can spread in its own way. We have seen it falling over a boulder and making a trail of purple colourıng in May. Rare varieties are albus, white, and one with flowers of rose tint. The famous Cytisus Adami is the outcome of grafting this species on the Scotch laburnum (L. alpinum). This curious graft- |




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s. flore-pleno
atægus (Thorns)



| NAme. | Country or Origin and NAturAl Order | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl Remarks. |
| :---: | :---: | :---: | :---: |
| atægus coccinea he Scarlet Thorn) | North America: introduced in 1683 | White; late Spring | finer than the species. One is *Macracantha, which has spines sometimes 5 inches long, and bright scarlet haws, not so large as those of the species, but produced more abundantly. It should be more frequently seen in gar- dens, and is worthy to rank as a species. Indentata has deeply-cut leaves and brightred fruits. |
| cordata (Washngton Thorn). | North America | June; white | This is a small tree with thin, glossy, heart-shaped leaves and small flowers, orange-red fruits, not unlike those of C. Pyracantha, and carried late in the year. Birds, however, enjoy them. |
| Crus-galli (the Ockspur Thorn) | North America | June ; white | This is a handsome American Thorn, and one of the most striking of the whole famıly. It has stout. glossy leaves and formidable spines, these often being from 3 to 4 inches long, and gave rise to the popular name. The brickled fruits hang on the tree long after the leaves have fallen, and make a bright winter picture. There are several varieties. Arbutifolia has shorter spines and smaller fruts than the type; the leaves are also narrower and duller in colour; linearis has long linear leaves and brightred fruits. Ovalifolia has large oval shinıng leaves and bright scarlet fruits, it is rather more upright than the type. *Splendens makes a handsome, shapely tree about 20 feet high, and flowers and fruits very freely; the leaves are rounded, green, and shining, and the flowers pure white, in small corymbs, and followed by bright-scarlet fruits. |
| Douglasii | Western side of North America | White ; late Spring | This is a large irregular-shaped tree 20 feet to 30 feet, and has short stout spines about an inch long; the flowers appear in small clusters, and the fruts are small and black. Wood and spines are brown and quite shiny. Rivularis has smaller and thicker leaves, and shorter and stouter wood. |

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| NAme. | Country or Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SeAson. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| atægus pinnatifida | China and Central Asia | Pure white ; May | 4 to 6 inches long, thick and shining. It does not show its true beauty unthl of some age, but it is a hardy tree of great beauty. The flowers are in large corymbs, and the fruits are of an intense shining red, pear-shaped, and make a bright picture in autumn. This variety is often labelled C. Layi. |
| punctata | East and North America | Variable | A good garden tree; it is variable, but the accepted type has white flowers and bright red fruits as large as a small Crab apple. Another form has smaller deep ruby-red fruits. Brevispina, striata, and xanthocarpa are variethes, the last mentioned with bright yellow fruits. |
| Pyracantha (Fiery Thorn) | South Europe, in hedges and rough ground | White | An evergreen Thorn. Introduced in 1629, and a well known shrub. Its charms consists in its dense glossy leaves and brilliant masses of scarlet berries. It can be grown as a bush or tramed up a wall or trellis. It is so brlliant when in fruit that the French call it buisson ardent, or Burning Bush. This Thorn should be more grown as a bush, and not confined as it usually is to a south wall. As the fruits are bitter they are not cared for by the birds, and thus make a display through the winter. Lælandi is a variety with larger and deeper coloured fruits. |
| sanguinea | Siberia | White; May | This is not of great garden value, but effective in winter owing to the red bark. Songorica is a variety also with reddish bark. |
| tanacetifolia <br> (Pansy - leaved Thorn) | Levant: introduced 1789 | White ; May | This is rare, and can be recognised by bracts at the base of the fruits. The fruits are very large, yellow, and of good flavour, and eaten in the native country of the tree. The specimen at Kew flowers regularly and abundantly every year. |
| spathulata | United States | White; May | A very distinct Thorn, small, and the leaves are persistent, remaining on until the New Year. The frults are very small and scarlet. |


| NAME. | COUNTRY OR Origin and NAturAl Order. | Colour <br> AND <br> SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| ratægus tomenosa | Eastern United States | White; June | A late flowering and handsome Thorn when its orange-yellow are in perfection, but the birds soon consume them. |
| uniflora | North America, and introduced by the famous tree bishop, Bishop Compton, in 1713 | Creamy white; early June | More curious than beautiful; it is only 2 feet to 3 feet high and has greenish haws. |
| yrilla racemıflora | Florida to North Carolina, \&c. Cyrillea | White | Quite a shrub, 4 feet to 6 feet high, very rare, although introduced as long ago as 1765. The flowers are in drooping racemes on previous season's growth. |
| aboecia polifolia, .Daboec'sHeath (Syn Andromeda Daboecia) | Western Europe and Ireland; Ericaceæ | Rosy purple, bell-shaped; May, and throughout Summer and Autumn | A pretty little Heath-like shrub growing about 18 inches high, and producing erect spikes of comparatively large bellshaped blossoms. It is the most continuous blooming of its class. There is a beautiful pure white variety-alba. |
| aphne alpina (Alpine Daphne) | Alps of Europe; Thymelæaceæ | White ; May and June | A spreading deciduous shrub, with white, sweet-scented flowers. It grows about a couple of feet high, and is essentially a shrub for the rockwork, as it is particularly happy when the roots are wedged between stones. |
| blagayana | Carniola | Ivory white; March and April | Like the last, this forms a spreading bush, and is equally at home under similar positions. It is, however, of an evergreen character; the ivory white are very sweet-scented blossoms. It is worthy of a place among the most select Daphnes. |
| Cneorum (Garland Flower) | South Europe | Bright rose; May to June | A delightful little evergreen, with highly fragrant blossoms. A good proportion of vegetable soil is necessary to its welldoing. |
| Genkwa (Japanese Lilac) | Japan | Lilac | In its flowers this Daphne closely resembles the Lilac, so that it is frequently mistaken for that well-known shrub. It needs the protection of a wall in most parts of England. |
| Laureola (Spurge Laurel) | South Europe and North Africa | Yellowish green | The flowers of this are not particularly showy, but as an evergreen bush some 3 or 4 feet high it is valuable from the fact that it will thrive under the drip of trees, and is one of the few evergreens absolutely rabbit proof. |

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| :---: | :---: | :---: | :---: |
| aphne Mezereum (the Mezereon) | Northern Europe | Red; early year | This is an upright deciduous bush that flowers in February or March according to the season. At that time the stıll leafless branches are packed for some distance with the pretty fragrant blossoms, so that it may be regarded as the most showy shrub at that time in bloom. There is a variety (alba) with white blossoms, and another (autumnalis or grandiflora) that blooms before Christmas. A cool, loamy soil suits this best. |
| oleoides (Syn D. fioniana, Syn D. neapolitana) | South Europe | Purplish rose | A neat growing evergreen bush about a yard high, whose flowers are often borne throughout the greater part of the year. It is less attractive than some of the others. |
| pontica | Asia Mınor | Yellow | A good deal in the way of Daphne Laureola, but the flowers are of a brighter yellow, and are borne in April and May, whereas D. Laureola flowers in February and March. |
| sericea (Syn D. collına) | $\cdots$ | Deep pink | A compact evergreen 2 to 3 feet high, clothed with dark-green box-like leaves, while the terminal clusters of flowers are borne in early Spring. It prefers a cool, fairly moist, yet well-drained soll. |
| eutzıa crenata (Syn <br> D. scabra) | Japan; Saxifragex | White ; Midsummer | A bold growing and handsome deciduous shrub, with white blossoms. There is a doubleflowered variety, tinged with purple on the outside, known as D. crenata flore-pleno purpurea. Both are beautiful shrubs that will thrive in most solls. |
| discolor purpurascens | China | White, purple. late May | This has pretty purple-tinged blossoms borne in flattened corymbs, and not, when in the bud state, laable to be injured by late spring frosts. |
| gracilis | Japan | White; Spring | The best known of all the Deutzias, forming a compact bush a couple of feet high, and bearing masses of its pretty white blossoms. |
| - hybrida | Hybrid | White and pink | There are now several beautiful hybrid Deutzias, viz., hybrida rosea, hybrida venusta, kalmæfiora, Lemoine, Lemol- |

NAme.
nkianthus campanulatus
oigæa repens (Trailing Arbutus, Ground Laurel, Mayflower)

| Country or <br> Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAsON. } \end{aligned}$ |
| :---: | :---: |
| Hybrid | White and pink |
| China | White; end of |
| Japan; | April and early May Dark red |
| The most popular of wild flowers in New England | Pale white with pink tint ; very sweetly scented; Spring |

Spain; Leguminosæ

Blue ;
May and

GenerAl RemArks.
nei compacta, all of which merit a place in gardens.
An upright shrub 5 feet high, with flattened clusters of white blossoms, very suggestive of those of the Hawthorn.
A very charming and interesting shrub resembling one of the Andromeda. A tree in its native country. The flowers are pendent and in clusters.
In Bailey's "Cyclopædia of American Horticulture" it is mentioned: "The cultivation of the Trailing Arbutus, especially in districts where it has been exterminated by ruthless ' mayflower parties,' always attracts interest. . . . Occurs in sandy and rocky woods, especially under evergreen trees, in ealliest Spring. Thrives only in humid soil and shady stuations. Transplanted with difficulty. Best on north side of a hill in brıght, sandy soil, mixed with leaf mould. Once established, it spreads rapidly. Propagated by division of old plants, layers, or cuttings. Seeds are rarely found, but when found may be used, though slow to develop." My experience is that it likes a damp, shady ditch side in peaty soll. Mr. G. F. Wilson planted it near to Shortia galacifolia, and the two were quite happy together. June

Somewhat resembling the dwarf-growing Genistas is this extremely rare and pretty little shrub. It grows very slowly, and seldom attains a height of 9 inches, spreading out in a mat-like mass rather than growing in an upward direction. The branches are short, stiff, and spiny, and what few leaves there are are small. The pea-shaped blossoms come from the axils of short, spiny branches, and are blue. This plant has been in cultivation for a great number of years, never, however, having become at all common. This

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| NAme. | Country or Origin and NAtural Order. | Colour <br> AND SEAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| cinacea pungens | Spain ; <br> Leguminosre | Blue ; May and June | is no doubt due to the great difficulty there is in propagatıng it. Seeds appear to be the only means of increase, and these are borne very sparingly even when the plant is growing under natural conditions. It has been said to be a tender plant, but it has withstood several winters out of doors at Kew without injury. Plants are to be seen there near the Temperate house, and they flower every year. |
| scallonia illinıta | Chili : Saxifrageæ | White ; Summer | A neat evergreen shrub 4 to 5 feet high, with pretty white flowers. It is only in mild districts, such as the South and West of England, that the Escallonias are seen at their best. |
| macrantha (Syn <br> E. Ingramı) | Chiloe | Crimson red; Summer | The finest of all the Escallonias, and one of the hardiest. It is a free-growing shrub over 6 feet high, clothed with rich green shiny leaves, and the bright-coloured fuschia-like flowers are freely borne. It is a good wall-plant, and stands the sea-breeze well. |
| langleyensis | Hybrid | Rose carmine | Raised by Messrs. J. Vettch between E. philippiana and E. macrantha. It has small, dark-green leaves, and an abundance of brightly coloured flowers. A good shrub. |
| montevidensis Syn E. floribunda) | Montevideo | White | Grows from 8 to 10 feet high, and bears its clusters of white flowers in great profusion. It is too tender for planting except in the extreme West of England and in Ireland. |
| . philippiana | Valdıvia | White ; Summer | Will suceeed as a bush in the neighbourhood of London, where its small white flowers are borne in the greatest profusion. |
| punctata | Chili | Deep red ; July | A much-branched evergreen shrub 5 to 6 feet high. |
| . rubra | Chili | Red; Summer and early Antumn | Differs from the last in the absence of spots on the young leaves, in the flowers being rather lighter in colour, and borne for a longer period. |
| orsythia (Golden <br> Bell) intermedia | Oleaceæ; hybrid between $F$. suspensa and $F$. viridissima. Represents the two parents. | Yellow; Spring | This is a charming early shrub. It may be etther grouped or trained, but one has to be careful not to make it too stiff. It is quite hardy, and a bush. |


| NAme. | Country or <br> Origin and <br> NAtural Order. | Colour <br> AND <br> SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| orsythia suspensa (Syn F. Fortunei and F. Sieboldı) | China | Yellow ; Spring | A <br> graceful and beautiful rambling shrub, now well known. It succeeds well in London-that is, if given anything like favourable conditions. A fence fully exposed to the sun in a London backyard is clothed with it, and each recurring spring the Forsythia flowers profusely, and forms an object of great beauty. Immediately the season of blooming is past the plant is severely pruned, the old and exhausted wood being cut out and the vigorous shoots spurred back to within three or four eyes of the base. This results in the production of long, wandlike shoots, which are allowed to develop at will, hence they dispose themselves in a loose and informal way, and being from the position of the plant thoroughlyripened, the spring display is in every way satisfactory. When autumn pruning is done the best portion of the flowering wood gets cut away. |
| viridissima | China | Yellow; <br> Spring | Quite a bush, and very handsome when in full bloom. Likes full sun and air. |
| axinus Ornus (Flowering Ash), (Syn Ornus euroрæа) | Mediterranean region and Orient | Creamy white; late May | This is a very charming lawn tree with luxuriant panicles of flowers, and foliage like that of the common ash. Angustifolia, latifolia, and variegata are varieties. |
| floribunda (Syn Ornus floribunda) | Himalaya | White; <br> Summer | Rather tender, but very vigorous and handsome. |
| CHSIA. - Though value in the gree of the country. ground during districts, such as checked into lar ing shrubs are bloom. The ha | he genus Fuchsia is house than outdoor Still there are a few inere winters they bushes, and somet ore beautiful than diest are :- | an extensi -that is to quite hard oon recove land and mes make . corallina | one, most of them are of more sav, throughout the greater part Fuchsias, for, even if cut to the while in particularly favoured Isle of Wight, they grow undelightful hedges. Few flowerand $F$. Riccartonı when in full |
| chsia corallina Syn F. exoniensis) | Garden origin ; Onagraceæ | Red; Summer and Autumn | A plant of more vigorous growth, and with larger leaves and flowers than any of the other hardy Fuchsias. It is very popular in the West of England, but is not nearly so effective when cut to the ground each winter as some of the others are. |

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TREES AND SHRUBS

| NAme. | Country or Origin and NAtural Order. | Colour and SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| enista æthnensis | Slopes of Mount Etna in Sicily | July and August ; golden yellow | when even inferior flowering |
|  |  |  | shrubs are not plentiful. It |
|  |  |  | inelegant habit, and assumes |
|  |  |  | a somewhat tree-like form when old, being often re- |
|  |  |  | when old, being often re- |
|  |  |  | base. It carries, however, |
|  |  |  | a wide head of thin cordlike, arching or pendulous |
|  |  |  | like, arching or pendulous branches, with little or no |
|  |  |  | foliage except when the wood |
|  |  |  | is quite young. The flowers are of a rich golden-yellow, |
|  |  |  | are of a rich golden-yellow, and during the series of hot |
|  |  |  | summers we have experienced |
|  |  |  | in recent years have been especially abundant. It would |
|  |  |  | pecialy abundant. It would, |
|  |  |  | shrub better adapted for hot, |
|  |  |  | light solls than this, a fact |
|  |  |  | that is amply proved by the |
|  |  |  | way it succeeds at Kew. It |
|  |  |  | with medum-sized ever- |
|  |  |  | greens, which hide its bare |
|  |  |  | stems and render it more |
|  |  |  | grows to feet to 14 feet high, |
|  |  |  | and is thus one of the tallest -If not the tallest-of the |
|  |  |  | Brooms hardy in Britian. It ripens seed freely, and is best propagated by that means. |
| cinerea <br> hispanica | South-West Europe South-West Europe |  | This is a shrubby plant for the rock-garden in sunny places. |
|  |  |  | A dwarf and charming shrub, |
|  |  |  | I foot to 2 feet high, and when in bloom covered with |
|  |  |  | flowers. One of the best of its race |
| monosperma | Sicily | White | Not well known but interestıng. |
| pilosa | Europe, England | Rich |  |
|  |  | Yellow; | garden. Ordinary soll. |
|  |  | May and |  |
|  | Central and Southern Europe | June Yellow | Very beautiful when in full |
| radiata |  | Summer | flower on the rock garden, and will even succeed in a |
|  |  |  | rough wall. |
| . sagittalis | Europe |  | Another dwarf species for rock garden. |
|  |  | May and June |  |
| . tunctoria | Britan | Yellow; <br> July and September | The double variety flore-pleno and elatior are finer than the species. Elatior makes quite a bush and is very attractive when in full bloom. |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |


gENISTA (Ulex) HISPANICA. SPANISH FURZE.


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## TREES AND SHRUBS

| NAme. | Country or Origin and NAturAl Order. | Colour <br> AND <br> SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| lesia corymbosa | Japan, in the province of Higo | White, tinted with pink or yellow; Spring | Mr. Bean writes in The Garden, May 19, 1900, p. 361, about this species as follows: "I do not know if there is any authenticated instance of its having flourished in Britain or even in Europe, most plants so called being H . hispida. It was first found on the mountains of the most southern of the man islands of Japan, in the province of Higo, and may possibly not be quite so hardy as H. hispida. Judging by pictures and dried specimens, its racemes, whilst having much the same general character as that species, are shorter, broader, and more branched, and the flowers are not so numerous on the branches of the racemes, and the fruits are more downy than bristly. The flowers have the same onesided arrangement on the racemes. |
| dıptera | South-eastern United States | White ; late Spring | Not a common species, and dwarfer than H. tetraptera. The flowers are white, Snow-drop-like, and are borne on slender pendulous stalks as in H. tetraptera; they differ, however, in having the corolla almost lobed to the base. Very distinctive is the seed-vessel, which has but two prominent wings, the other two being only rudımentary. Whilst not perhaps equal in merit to H. tetraptera this species appears to have been undeservedly neglected. Its dwarf bushy habit will also render it more suitable for some positıons; it loves abundant moisture at the root. It blossoms rather later than H. tetraptera. |
| hispida | China and Japan. Introduced about 1870 | White | This belongs to the Astatic group of Halesias, and is very distinct from the American 'species. It is a vigorous shrub, a small tree with large oblong leaves, and small flowers, which are very numerous on the raceme, which is 4 inches to 8 inches long. One strıking pecu- |



GENISTA MONOSPERMA. (Scep.032)

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TREES AND SHRUBS




HYDRANGEAS.

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| NAme. | Country or <br> Origin and <br> NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl Remarks. |
| :---: | :---: | :---: | :---: |
| ydrangea Hor- tensia (the Hy drangea, Syn H. hortensis) | China and Japan ; Saxifrageæ | Deep red ; Summer and Autumn | it is very handsome in the open ground. The huge heads of flowers make a great display. There are several varieties, some of them being often regarded as distinct species, the most notable of which are: Lindleyi, with the large sterile flowers limited to a few around the out- side of the cluster. They are pink, tinged with blue. Mariesil is a very handsome Japanese variety, with large sterile flowers, pinkısh mauve. Nigra or cyanoclada has purplish black stems, and is Rosea has all the flowers sterile, and of rich rose colour. Stellata has the sterile flowers double and star-like. Thomas Hogg has white blossoms. |
| - paniculata | Japan | Creany white; Autumn | A handsome shrub that may be grown as a dwarf bush or as a standard. The variety grandiflora is far more popular than the type, and is grown largely for flowering under glass as well as in the open ground. In this the huge pyramidal-shaped heads are composed entirely of sterıle blossoms. If to be kept dwarf it must be pruned back hard when dormant, and only three or four shoots allowed to develop. |
| petiolaris (Climbing Hy drangea,Syn Schizophragma hydrangeoides) | Japan | Creamy white; June and July | A free-growing climber, that attaches itself to a wall by means of aerial roots after the manner of ivy. It has flattened clusters of flowers. Being so distinct from all the rest, it at once attracts attention |
| . quercifolia | North America | White | A shrub about a yard high, with large lobed leaves. The flowers are less showy than some of the others. It needs a moist soll and a very sheltered spot. |
| . radıata | North America | White | The flowers of this are not at all showy, but the leaves are clothed on the under sides with a dense white felt-like substance, which renders it very noticeable when ruffled by the wind. |



HYDRANGEA PETIOLARIS. A GROUP IN WOODLAND.

$\begin{aligned} \text { KALMIA } & \text { LATIFOLIAA GOOD SHRUB FOR } \\ & \text { PEATY SOILS } \quad \text { (Seep.040) }\end{aligned}$

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## TREES AND SHRUBS

| NAmE. | Country or Origin and NATURAL Order. | Colour <br> AND <br> SEAson. | GenerAl RemAris. |
| :---: | :---: | :---: | :---: |
| ea virginica | Virginia; Saxifrageæ | White : July | A freely branched rounded shrub, from 3 to 4 feet in height, and has small spikes arranged in much the same way as the shrubby Veronicas. It is a favourite of the Red Admiral butterfly (Vanessa Atalanta). It is quite hardy, but needs a morst peaty soil. |
| mesia americana | Rocky Mountains; Saxıfrageæ | White; April and May | A somewhat upright shrub, 4 to 5 feet high, with ovalshaped leaves and a great profusion of terminal clusters of pure white blossoms. It is quite hardy and needs a cool moist soil. |
| almia angustıfolia (Sheep Laurel) | North America; Ericaceæ | Bright purplish red; end of May | A delightful little evergreen shrub about a couple of feet high, with bright-coloured, saucer-shaped blossoms. All the Kalmias prefer cool damp soil, especially of a peaty nature - indeed, conditions favourable to Rhododendrons suit them well. |
| . glauca | North America | Purphish pınk | Flowers two or three weeks earher than the preceding, and is somewhat dwarfer, but is equally desirable. |
| . latıfolia (Mountain Laurel) | North America | Pink; <br> May, through Summer | This forms a large rounded bush from 6 to 8 feet high, clothed with handsome, bright-green foliage, while the flowers are pink and wax-like. It is a desirable subject to associate with Rhododendrons, which, except in flowers, it much resembles. |
| œlreuterıa panıculata | China; Sapindaceæ | Yellow; June and July | A small picturesque tree to to 15 feet m height, with ornamental pinnate leaves, and large terminal panicles of bright yellow flowers, very distınct. |
| aburnum (Cytisus) <br> vulgare (Golden <br> Rain or Chain) | Loudon writes: "A native of Europe and the lowes mountains of the South of Germany, and of Switzerland, where it grows to the height of 20 feet or upwards. It was introduced in 1596"; Leguminosæ | $\ldots$ | There is no need to praise the laburnum; it is one of the most beautiful of all trees, and its countless flowersmake a shower of gold in early summer. It seems strange to read that the labun num is not a native, for it is so general in gardens, and is even used in hedgerows in some parts of the country. We have in mind a hedgerow in Berkshıre with laburnums rising above the thorn, and a pleasant sight this is in late May and early June. |

 vulgare (Golden Rain or Chain)

Colour
and SeAson.

GenerAl RemArks.

Laburnums grow so freely almost everywhere that they are somewhat overdone in gardens, but it is so beautiful a tree that many would say: "I don't mind how many laburnums I have in the garden." Mr. Goldrıng, writing in the " Gardeners' Magazine" about laburnums, says:-
" Besides the common way of growing the laburnum as a shrubbery or plantation tree, it may be put to various other uses. It is a beautiful covering for a wall on the north, east, or west sides. In some old gardens one meets with huge trees of it covering large areas of wall, and affording a lovely sight at flower time. This is a common way of growing it on the Continent, and in some of our old botanic gardens it may be seen trained against a wall as a host for the wistaria, which flowers about the same time, and produces a lovely contrast of colour.
"I have pleasing recollections of seeing it in some old gardens trained over a path as a covered way before pergolas were in vogue in this country. For several weeks such covered pathways are glowing with colour, and for the rest of the summer they afford a pleasant shade. In some of the old Sussex gardens laburnum 'tunnels' are still to be seen, and they are worth imitating in new gardens.
"Of the two commonly grown species of laburnum, L. vulgare and L. alpinum, there are numerous vanteties, differing more or less from the types, though the differences in some cases are slight, even from a garden point of vew. A laburnum is a laburnum to most people, and nothing more, but there is a great difference between a worthless seedling with short flower clusters of a poor yellow, and the vaneties such


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| NAme. | Country or <br> Origin and NAturAl Order. | Colour <br> AND SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| gustrum coriaceum (Thickleaved Privet) | China: <br> Oleaceæ | White | A sturdy evergreen shrub, with very dark-green leaves, thick, about $\mathrm{I}_{\frac{1}{2}}$ inches long and roundish oval in shape. It reaches a height of about a yard, and is of extremely slow growth. |
| $\begin{aligned} & \text { Ibota (Syn L. } \\ & \text { a murense) } \end{aligned}$ | Japan | White; June and July | A graceful shrub with long, slender, arching branches, narrow leaves, and white flowers. |
| japonicum (Japanese Privet) | Japan | White ; early July | Reaches a height of 6 to 8 feet, and forms a freely branched bush clothed with bright shining green leaves from 2 to 3 inches, oval pointed in shape. |
| lucidum (Wax Tree) | China | White ; <br> July and August | This is the most ornamental of all the Privets in foliage, the leathery dark-green leaves being sometımes as much as 6 inches long, and over two inches wide. It reaches a height of 9 to 12 feet, and has large panicles of white flowers. There is a variety -tricolor, with leaves beautifully variegated, but, being tender it needs wall protection. |
| massalongianum (Syn L. rosmarinifolium) | Khasia Hills | White | The long narrow leaves of this species make it distinct from all other Privets. It is hardy only in the west of England and Ireland. |
| ovalıfolıum (Ovalleaved Privet) | Japan | White | This sub-evergreen species is one of the hardiest of all Privets, being much used for hedges, and for planting where little else will thrive. Its small dense clusters of flowers are borne in great profusion, but they (in common with most Privets) possess such a heavy and unpleasant odour as to unfit them for planting near dwel-ling-houses. The golden form of this Privet, known as Aureum or Elegantissimum, is met with nearly everywhere, particularly in the environs of London. |
| Quihour | China | White; late September | A somewhat spreading shrub about 5 feet high, with small leaves and terminal panicles of -flowers. For this reason it is worth growing as a flowering shrub. |



| NAme. | Country or Origin and NAtural Order. | Colour <br> And <br> SeAson. | GenerAl Remarks. |
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| riodendron tulıpıfera (Tulip tree) | United States ; <br> Magnoliaceæ | Yellow ; June | mg trees. There are several varieties, notable among them being integrifolia, in which the distinctive lobes of the leaves are suppressed; aurea maculata, whose leaves are blotched with yellow; and fastıgiata, which is of upright growth. These are all interesting, but not equal in beauty to the type. |
| ropetalum chineuse | China: <br> Hamamelideæ | Pure white; Winter | A very interesting shrub, with long petals, resembling one of the flowers of Hamamehis; they appear 6 to 8 together in clusters at the bract tips. |
| gnoliaacuminata Cucumber tree) | North America; Magnoliaceæ | Greenish yellow | From a flowering point of view this is one of the least showy of the Magnolias, but the tree has handsome foliage; it reaches a height of many feet. The leaves are nearly a foot long, and half as much in width. There is a tree 60 feet high in Syon Park, Middlesex. |
| conspicua (the ulan) | China | Pure white; early Spring | Of all the Magnolias, and indeed of all our deciduous trees, this is one of the finest, and also one of the earlest flowering. It blooms in some seasons as early as March, and the pure white flowers, like silver chalics, stand out boldly from the bare darkcoloured branches. Owing to the flowers expanding so early, they are sometimes injured by spring frosts, hence in the northern parts of the country this species is often given wall protection. This Magnolia succeeds best in a good, well-dranned, loamy soil of not too heavy a nature, indeed, such will suit all the Magnolias perfectly. |
| Fraseri (Fraser's agnolia), (Syn uriculata) | North America | Creamy white; May | A distinguishing feature of this Magnolia is the shape of the large leaves, which are broader towards the upper portion than at the base. It reaches a height of 30 feet or more, but needs a spot sheltered from strong winds. The sweet-scented flowers are nearly 6 inches across. |

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YULAN (Magnolia conspicua); ITS USE AS A WALL SHRUB, CROWSLEY PARK, HENLEY.

| NAme. | Country or <br> Origin and NAturAl Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAsON. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| agnolia glauca (the Swamp Magnolia) | North America | White | A shrub from 10 to 12 feet high, with flowers not borne all at once, as in most of the others, but scattered over two or three months, from June onwards. It makes a pretty lawn shrub for a damp spot. |
| - grandifiora (the Evergreen Magnolia) | Southern United States | White : late Summer | The evergreen Magnolia is more generally grown as a wall plant than in the open ground, though in the south and west of England it will thrive perfectly without protection. As a wall covering the handsome dark-green leaves render it effective at all seasons, and they also serve as an admirable setting for the large cup-shaped deliciously-scented flowers. |
| . hypoleuca | Japan | Creamy white | In Japan this is a tree 60 feet high, and is said to be a very desirable kind, but it has not been long introduced, and the plants of it in this country are small. |
| Lenneı | Garden origın | Glowing purple outside pinkısh within ; late Spring | The flowers of this are large, massive in texture, and delightfully coloured. They are a month or two later than those of the Yulan, hence they escape the frosts which sometımes injure it. |
| . obovata (Syn M. purpurea) | Japan | Purple outside, whitish within; late Spring | A spreading shrub 6 to 8 feet high, with flowers much smaller than those of M. Lennet, and not of so pleasing a colour. It is, however, a handsome shrub, less particular in its requirements than most Magnolas. |
| . parvifora | Japan | White: <br> May and June | A neat bush. The centre of the flower is occupied by a ring of bright-red filaments. It is rather tender. |
| . soulangeana | Garden origın | White, tinged purple outside: Spring | A small tree more spreading in character than M. conspicua, and flowering also a little later. Very pretty, early flowering. |
| stellata (Syn M. balleana) | Japan | Purewhite; <br> March | The earliest of all the Magnolias. It is a much branched shrub, seldom more than 4 feet high, and as much through. The flowers, which are borne in great profusion, are about 3 inches in diameter, and composed of a dozen or so of strap shaped petals; a lovely shrub. |


| NAme. | Country or Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl RemArks. |
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| agnolia tripetala <br> (Umbrella tree), <br> (Syn M. Umbrella) | North America | Creamy white; early Summer | A tree remarkable for its large handsome leaves, which are arranged in a regular manner towards the upper parts of the branches. The flowers are creamy white. A sheltered spot suits this best. |
| Watsoni | Japan | Ivory white inside, flushed with rose on the exterior: May and June | A bush about 5 feet high. The flowers are remarkable for their central cluster of crimson filaments. It needs a sheltered spot. |
| otospartium Carmichæliæ | New Zealand; Leguminosæ | Rose; June | This grows in New Zealand several feet high, but not here. It has graceful shoots, which are very pretty when smothered with the pink pea-shaped flowers. A correspondent to the Garden, writing in July 1900 from Castle Douglas, N.B., says: "I am sure if my plant of Notospartium Carmichæliæ were to be seen by anyone who has not got it, there would be countless inquiries for it. It has always done well and flowered freely, but this year it 15 simply magnificent, with only the points of the twigs visible above the mass, of bright pink blossoms." |
| uttallıa cerasiformis | California; Rosaceæ | White; early Spring | This is one of the prettiest and most interesting of March shrubs. It is of good habit, and produces a large quantity of dull white flowers in drooping racemes. The fruits, too, are pretty, not unlike those of a small plum, of reddish-yellow colour, with a plum-like bloom. It must be noted that the flowers are liable to be diœcious, and so, therefore the sexes must be planted together, though we have obtained fruit by sticking branches of the male flowers among those of the female shrub. <br> A valuable evergreen Box- |
| learia Haastii (Dasy Bush) | New Zealand; Compositæ | White ; July and August | like shrub, laden with small white Dassy-like blossoms with a yellow disc. Though a native of New Zealand, it is hardy in most parts of England. |

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OLEARIA MACRODONTA (Redruth.)

| NAme. | $\begin{gathered} \text { COUNTRY OR } \\ \text { Origin and } \\ \text { NATURAL Order. } \end{gathered}$ | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl RemArks. |
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| $\begin{aligned} & \text { macrodonta(New } \\ & \text { Zealand } \begin{array}{l} \text { Daisy } \\ \text { tree), } \\ \text { dentata) } \end{array} \text { (Syn O. } \end{aligned}$ | New Zealand | White ; July | This has large Holly-like leaves, silvery on the undersides, and heads of Dassy-lıke blossoms. Far more tender than 0. Haastı, this needs a wall in most parts of the south of England, though it is hardy in the extreme west and in the south of In eland. |
| stellulata (Syn. <br> O. gunniana, Eurybia gunniana) | New Zealand | White, yellow disc; May and June | An evergreen bush, with small narrow leaves, the undersides covered with whitish felt. The Dassy-like flowers appear in profusion. Its requirements are the same as the last. |
| Traversii (Syn Eurybia Traversu) | New Zealand | White ; June | In its native countiy this is a timber tree, but here it needs the same treatment as the last two $I$ he flowers ate small and creamy white. |
| xydendron arborea | Eastern United States; Ericace: | Pure white; June and July | This is a charming shrub, but in its native country grows to a height of 40 feet. The leaves are dark green, but very richly coloured in autumn. The bell-shaped white flowers remind one of those of the Lily of the Valley, and appear in pretty racemes. |
| zothamnus rosmarinıfolıus | South Australia and Tasmania; Composite | White ; July | A neat shrub, 4 to 5 feet high, with narrow rosemary-like leaves, and during the summer a profusion of white Asterlike blossoms. It is hardy only in the West of England. |
| ernettyd mucronata | Cape Horn, introduced in 1828 ; Erıcaceæ | Berries the chief beauty | Many garden varieties. .Between 1878 and 1882 the floral committee of the Royal Horticultural Society awarded no less than seven first-class certuficates, selecting the following varieties for the purpose. P. alba, carnea nana, illacina macrocarpa, nigra major, rosea purpurea, and sangumea. There are ten or a dozen quite distinct shades of colouring, from white through tenderest pink, white and rosy pink, the colours then reaching to a soft scarlet, and ending with a dark blood-red, reminding one of the seeds of the Pomegranate, and also the differences in the size of the berries and foliage, partuculars which impart additional interest to this useful |

## TREES AND SHRUBS

NAME

gordonianus

## grandiflorus

(Large - flowered Mock Orange, Syn P. inodorus)
hirsutus (Hairyleaved Mock Or. ange)
Lemoine
(Lemoine's Hybrid Mock Orange)

| Country or Origin and NAtural Order. | Colour <br> and SeAson. | GenerAl Remarks. |
| :---: | :---: | :---: |
| Cape Horn. Introduced in 1828 ; Erıcaceæ | Berries the chief beauty | group of plants. Some fifty or so years ago Mr. Davis of Hillsborough began his experıments with such forms of the Pernettya as were then in cultivation, and he selected as his first seed-parent $P$. angustifolia, a native of China, a densely branched, narrow-leaved evergreen shrub, growing to a height of about 3 feet. The frut of this species is light pink in colour. It is a very effective subject, thriving well under the shade of trees, but in such a position does not, as might be expected; flower so freely as when grown in the open. P. mucronata, the type, bears reddish-tinted fruts. Regarding P. angustwo, Mr. Davis made this the first seed-bearing parent, and found the seedlings from it to vary considerably in the character of the foliage and colour of the frut. This encouraged him to take seed from the best of his seedlings, and from it obtained the fine varieties which are now in our gardens. It is difficult to over-estımate their value as berry-bearing plants in autumn in peaty soll. |
| Europe and Asia; Saxifrageæ | White ; early May | A well-known shrub, from 6 to ro feet high, with a profusion of white, strongly scented flowers. There are several varieties, the best being aurea, with golden leaves, and Keteleerin, with double blossoms. |
| North America | White : early July | A free-growing bush with flowers twice the size of the preceding, and about six weeks later in expanding. |
| Southern United States | White; Midsummer | Forms a bush about 12 feet high, with large leaves and blossoms. It lacks the fragrance of the other species, which is to many people a point in its favour. |
| North America | White | Grows obout 5 feet high, and bears its comparatively small flowers in great profusion. |
| Garden Hybrid | White: June and July | A hybrid between P. coronarius and the little New Mexican P. microphyllus. <br> It (P. |

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NAME.
eris japonica (Syn
Andromeda jap-


| Country or <br> Origin and <br> NAtURAl Order. | Colour <br> And <br> SeAson. | GenerAl RemArks. |  |
| :---: | :---: | :---: | :---: |
| Japan | White | with them. | The tips of the |

mariana (Syn Andromeda mariana)
ovalıfolia
unus (Rosaceæ)


| NAme. | Country or Origin and NAturAl Order. | Colour <br> AND <br> SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| unus davidiana (Amygdalus davidiana) | China | White or pale rose ; January or early February | the Almond, but the flowers are of about the same size and substance. There are two forms, alba, white, and rubra, rose or red. Beautiful |
| incana (Amygdalus incana) | Asid Minor | Pale red; March and April | This species is allued to the pretty P. nana; it is a spreading shrub 4 to 6 feet high with linear leaves silverywhite underneath. The flowers are about half the size of those of the Almond and freely produced. |
| nana (Amygdalus nana) | Eastern Europe and the southern parts of Russia | Rose; March and April | This delightful little shrub is rarely more than 3 feet high, the thin twiggy growths being covered every Spring with rose-coloured flowers. It makes a charming bed for the Spring, and is very easily increased by layerıng. |
| orientalis | Western Asia | Rose; April | This shrub grows to a height of about 6 feet, but is not very hardy. So many, however, enjoy the beauty of the Almond family that we include it, as in many southern gardens it is happy. The willow-lıke leaves are silvery white. |
| Persica (the Peach), (Syn Persica vulgaris and Amygdalus Persica) | China, but former:ly considered a native of Persia | Pink; <br> April or May | This beautiful spring-flowering tree needs no description. It is not grown, however, so much as the various doubleflowered varieties, such as flore-roseo-pleno and flore-albo-pleno; the former has very double bright rose flowers and the latter white. Flore-rubro-pleno is a double red form. The variety folns rubris has deep purplecoloured leaves; the flowers are tinged with the same colour and the fruits are daık and freely produced. Magnifica is a double red-flowered variety with larger and finer flowers than the others, and the finest of all. All the Almonds are best propagated by budding or grafting on suitable stocks, which are the common Almond for warm light soils, and the Plum for heavier soils and colder localities. For budding the mussel plum stock is the best to use, and either the same or the Myrobella plum for |

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| NAme. | Country or Origin and NAtural Order. | Colour AND SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| unus Avium (the Gean or Wild Cherry) |  | Pure white ; <br> April and May | *double white (flore-pleno), which is one of the loveliest of all flowering trees. In late April the whole tree seems enveloped in blossom as white as driven snow, and it lasts for many days in this condition. No garden should be without this queen of flowering trees. |
| Cerasus (Dwarf or Wild Cherry) | Europe and Britain | White; Spring | This is not very interesting, except that it is one of the parents of the fruiting cherry, and in the garden is hardly wanted, as its doubleflowered varieties are far more beautiful, especially *Rhexi flore-pleno, which bas very double, snow-white, rosette-snaped flowers. It is one of the most beautiful of all the Cherries, and when grown as a standard makes a small and spreading tree of much charm. It is sometımes catalogued as C. caproniana multıplex, C. c. ranunculifora, and C. serotina flore-pleno. Persicifolia has sımilar flowers, but tinged with rose. C. Cerasus and C. Avium have much in common, but the former has smaller leaves and an acid fruit. |
| Chamæcerasus (Sıberian Cherry) | Europe, but long grown in English gardens | White flowers, $\frac{3}{4}$ in. across; Spring | This is a small shrub, seldom more than 4 feet high; it has slender branches, shining dark-green leaves and flowers, followed by small reddish-purple acid fruits. When grown as a standard it makes a round, half-drooping and graceful tree. |
| japonica | China and Japan | Double, pure white | This is one of the prettiest of small shrubs when in flower. It is very charming against a wall, but is a success in the open, flowering freely, and for this reason makes an interesting and beautiful group. It grows between 3 and 4 feet high, and its long slender branches are often welghed down by the wealth of purewhite flowers. The leaves are tinged with red when young. The flowers of the variety flore-roseo-pleno are rich rose; it is a beautiful shrub. Increase only by layers or by cuttings; never graft. |



## PRUNUS JAPONICA. (Syn. P. sinensis.)

| NAme. | COUNTRY OR <br> Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl Remarks. |
| :---: | :---: | :---: | :---: |
| unus Avium (the Gean or Wild Cherry) |  | Pure white <br> April and May | *double white (flore-pleno), which is one of the loveliest of all flowering trees. In late April the whole tree seems enveloped in blossom as white as driven snow, and it lasts for many days in this condition. No garden should be without this queen of flowering trees. |
| Cerasus (Dwarf or Wild Cherry) | Europe and Britain | White; <br> Spring | This is not very interesting, except that it is one of the parents of the fruiting cherry, and in the garden is hardly wanted, as its doubleflowered varieties are far more beautiful, especially ${ }^{*}$ Rhexi flore-pleno, which has very double, snow-white, rosette-shaped flowers. It is one of the most beautiful of all the Cherries, and when grown as a standard makes a small and spreading tree of much charm. It is sometimes catalogued as C. caproniana multiplex, C. c. ranunculiflora, and C. serotina flore-pleno. Persicifolia has simılar flowers, but tinged with rose. C. Cerasus and C. Avium have muchin common, but the former has smaller leaves and an acid fruit. |
| Chamæcerasus (Sıberian Cherry) | Europe, but long grown in English gardens | White flowers, $\frac{3}{4}$ in. across; Spring | This is a small shrub, seldom more than 4 feet high; it has slender branches, shining dark-green leaves and flowers, followed by small reddish-purple acid fruits. When grown as a standard it makes a round, half-drooping and graceful tree. |
| japonıca | China and Japan | Double, pure white | This is one of the prettiest of small shrubs when in flower. It is very charming against a wall, but is a success in the open, flowering freely, and for this reason makes an interesting and beautiful group. It grows between 3 and 4 feet high, and its long slender branches are often welghed down by the wealth of purewhite flowers. The leaves are tinged with red when young. The flowers of the variety flore-roseo-pleno are rich rose; it is a beautiful shrub. Increase only by layers or by cuttings; never graft. |

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TREES AND SHRUBS



THE DOUBLE-FLOWERED BIRD CHERRY.
(Prunus Pudusfl pl.)

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| NAmE. | COUNTRY OR Origin and NAturAl Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAsOn. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| cunus Laurocerasus (Cherry Laurel) | East Europe | White | casica, rotundifolia, and schipkænsis; the last mentioned is about the hardiest. |
| lusitanica (Portugal Laurel) | Spain and Portugal | White | A popular evergreen. There are four varieties-azorica, which is very tender; coriacca; myrtıfoha, small narrow leaves, and bears clipping well. P. ilicifolia is the only plant that need be raised from seed. The Cherry and Portugal Laurels, with their varieties, are usually propagated by cuttings, ripened wood of almost any size being cut into pieces 8 inches or so in length, and inserted nearly their full length in the ground. This can be done from the time the wood is ripe enough untul the end of the year. Practically every cutting will root and make sturdy plants in a twelvemonth. The Portugal Laurel is also largely raised from seeds, which are gathered when ripe and sown Immedıately without any preliminary cleaning. If kept in sand until the following spring, they begin to grow before the season is sufficiently advanced to sow them, and if dried, nearly a year is lost before they germinate. |
| yrus | Rosaceæ | ...... | An important and beautiful genus, asit includes the Pears, Apples, and Quinces of the hardy fruit garden, and such trees as the Flowering Crabs, the White Beam tree, Mountain Ash, and Pyrus japonica. It is divided into seven sectıons, viz., Pyrophorum, which includes the true pears; Malus, the Wild Crab apples, parents of many garden forms; Aria, of which the White Beam tree is a good type; Sorbus, in which is found the Mountain Ash; Adenorachis, which only contains the North American species, Cydonia, the Quinces, and Mespilus, with which is placed the Medlar. These are found practically throughout the northern temperate zone, under varying conditions, and with one or two |


| NAme. | Country or Origin and NAtural Order. | Colour <br> AND <br> SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
|  |  | ...... | all hardy in this country. are trees of considerable size. A few are small trees, and about half a dozen are lowgrowing and dense shrubs. All are deciduous, and will grow in ordinary garden soil, but none of them like a cold and moist soll and position. and Pears well will suit the Pyruses, though they will thrive in considerably pooier fruit culture the ground should be deeply trenched, and the bottom well broken up, any clay or gravel that is encountered being thrown out and replaced with good soil. Most If the soil is not properly prepared in the first place they are apt to fail and get cankered. Propagation is done by seeds, budding, or grafting, and in a few cases by suckers. The best ways are given with each section. |
| ROPHORUM (the Pears). betulrefolia | China and Japan | White; early Spring | A small and pretty tree, 15 feet to 20 feet high, with leaves somewhat like those of a Birch in shape, though rather larger. They are on long petioles, and have a pleasing sound when ruffled by the wind. It does not flower or fruit much until well established. The white flowers are in dense clusters and appear before the leaves. |
| communis (the Wild Pear) | Europe and Asia | White: Spring | As this is widely distributed it varies greatly. The type is more interesting for its flowers than for its fruit, which is hard, gritty, and dry. It grows 30 to 40 feet high, and has long spreading branches, half pendulous. When the tree is covered with its white flowers the effect is very beautiful. There are several named vaneties, the best being fore-pleno, with semı-double flowers; linearis, with long, narrow leaves, and pendula, described by the name. |


| NAme. | Country or Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| rrus nivalis | Eastern Europe | White; Spring | A small spreadıng tree which flowers in great abundance; the fruits are plentifully produced, and are nearly globular in shape, and of fairly good flavour, but dry. The habit of the tree and shape and fla vour of the fruit suggest some of the garden pears. There is a variety with leaves variegated with white. |
| sinaıca | Asia Minor | White ; April | This is one of the few species worth growing for their leaves alone, for during Spring and Summer it is quite silvery. Although about 20 feet high in its native country, it makes here, as a rule, a small bushy stunted tree. |
| salicifolia (Wil-low-leaved Pear) | Levant | ...... | A beautiful tree, about 15 feet high, and delightful to make groups of for the sake of its long and narrow silvery-white leaves. There is a creeping variety of it. The flowers are white, and the fruits small and woody, netther of much account. It is the effect of the foliage that we must consider, which is very charming when waving in the wind. A good tree for grouping and for small gardens, and this remark applies also to the weeping form. The Pyrophorum group will come true from seed, which is the best way of propagating them. If not from seeds they can be worked on stocks of the Wild Pear, on which they do fairly well, though much better on their own roots. There are other species in this section, such as P. auricularis, P. Michauxi, P. parviffora, P. Pashia, and $P$. sinensis, but the above are the most important. |
| Alus (the Apples). baccata (Sibetian Crab) | Himalaya to Japan | Rose pink; May | A well-known tree, very beautiful on the lawn. It grows 20 feet to 30 feet high, and as much or more in diameter, and the flowers smother every branch, followed by a glorious display of brilhant scarlet fruits, which are esteemed by some when preserved. There are several varieties, of which three may |

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TREES AND SHRUBS

| NAme. | Country or Origin and NAturAl Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| rus prunifolıa | Siberia | Rose : late Spring | This much resembles $P$. baccata, and has many varieties, one of them named pendula being a beautiful weeping tree. |
| Ringo | Japan | Late Spring | A small tree about 20 feet high, with rather long spreading branches, and large flower trusses followed by bright yellow fruits. These are sometımes borne so abundantly that the branches get weighed down. |
| Schedeckeri | Supposed hybrid (P. spectabilis, *P. Torıngo) | Soft rose ; May | This hybrid has for its near alles such popular and beautiful plants as Pyrus floribunda, P. spectabilis, P. baccata (Siberian Crab), \&c.; yet it is not inferior in beauty to any of them. It is only in recent years that it has been in commerce. It has not, of course, reached its full size yet in this country, but it is evidently going to be a small tree. It is nearly related to P. floubunda, but gives every indication of possessing a more tree-like character, its branches being sturdier and more erect in growth. But it is for its wealth of blossom that it is chiefly remarkable. Even among such profuseflowering things as those of its allies mentioned above, it is noteworthy for its qualithes in that respect. During May, its flowering season, clean branches 3 feet and even 4 feet long can be cut, which are wreathed from end to end with blossom. The flowers are semidouble and come in the usual Apple-lhke clusters; each flower is about $\mathrm{I} \frac{1}{2}$ inches across. |
| spectabilis <br> (Chinese Crab) | China and Japan | Pink; Spring | A beautiful and fairly well known tree, 20 feet to 30 feet high, with large semidouble flowers of much charm ; the fruits are bright red. Every garden should possess a group of $1 t$, and at least a single specimen standing out by itself, unfettered by trees or shrubs near. There are three varieties of note : flore-pleno-albo, with white flowers; flore-pleno; |

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TREES AND SHRUBS

| NAme. | Country or <br> Origin and NAturAl Order. | Colour and SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| rus lanata | Hımalaya | White | growing tree, 30 feet to 40 feet high, with large serrated leaves, covered beneath with a dense silvery tomentum. The flowers are succeeded by corymbs of intense scarlet fruit. P. pinnatifida is also of note for its silvery leaves. |
| vestita | Northern India | White | Thoroughly hardy in this country, and a handsome tree, met with commonly under the names of $P$. Thomsoni and Sorbus magnifica. It has large oval silvery leaves, and is worth growing for this reason alone. The white flowers and scarlet frult are an additional charm. The above are all best propagated from seeds, which are freely produced, and come true to name, with the exceptions of $P$. alpina and P. decarsneana, which, being hybrids, cannot be depended on. These two, and the varieties of P. Aria, are best worked on stocks of P. Aria, on which they succeed very well as a rule, care being taken to choose clean, vigorousstocks with straight stems. |
| Sorbus. rus americana | North America | White | This is the American Mountain Ash, and is not a great success in this country. It is of smaller growth than our Mountain Ash, and has pinnate leaves and clusters of red fruit, which, like those of most of the Pyruses, are much liked by birds. There are several varieties. |
| Aucuparia <br> (Mountain Ash or Rowan tree) | Natıve | White; Spring | This adds a brilliant note of colour to the garden landscape in Autumn, and is the glory of many a Scotch and Welsh ravine. In the north the berries are very rich. There are many varieties; the best are asplenifolia, a very handsome tree, with finer leaves and more deeply serrated leaflets than those of the type; dulcis, a handsome, vigorous variety, with bold foliage and larger fruts than those of any of the other Mountain Ashes. Fastigiata has somewhat the habit of the Lombardy Poplar; fructu |

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## TREES AND SHRUBS

| NAme. | COUNTRY OR ORIGIN AND NaturAl Order. | Colour <br> AND SEAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| ododendron rboreum | Hımalaya | Bell- <br> shaped, various colours-blood-red, white, rose, and, as a rule, spotted | puniceum, and others, but difference in flower colouring is the chief reason for distinctive names. Not hardy except in a few very favoured spots, chiefly Cornwall and south-west generally. Must be grown under glass, and requires a big house. Many beautiful trees in the Temperate House at Kew. |
| barbatum | Sıkkım | Bellshaped, blood-red, $1 \frac{1}{2}$ inches across | This is a tree 40 feet to 60 feet high in its native country. It is hardier than R. arboreum. |
| calıfornicum | Calıfornia | Rose-purple, upper petal spotted with greenish yellow ; broadly campanulate, almost without a tube. Good sized umbels; June | This is a strong-growing Califormian species, the leaves dark-green; farrly hardy. |
| campanulatum | Hımalaya | Lilac, with purplish spots; June. Leaves elliptic or elliptic oblong, blunt as a rule at both ends, April | This is a beautiful species, about 4 feet high. We have seen it in several Surrey gardens, but it requires shelter. It is not one of the hardiest. |
| campylocarpum | Hımalaya | Bellshaped, clear, pale yellow, 2 inches or so across, in rather loose clusters; May or late April | The best hardy yellow Rhododendron at present known is this. It is hardy at Kew in sheltered spots, but succeeds better farther to the south. It is a shrub of neat compact habit, with leaves 2 inches to 3 inches long, dark-green and glossy above, blue-white beneath. When full of flower it is a singularly pretty and distinct Rhododendron. It varies somewhat in shade, and the flowers are sometimes of a pale lemon tint, becoming almost white with age. The late Mr. Mangles, we believe, raised some hybrids from this species, but we know of none in commerce. |



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| NAme. | Country or Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| hododendron cinnabarına | Himalaya | orangescarlet, orange, or red; they vary somewhat in size, but are usually about 2 inches long and $\frac{3}{4}$ of an inch across the mouth, and thick and | branches upright and slender, the leaves ovate, 2 to $2 \frac{1}{2}$ inches long, and glaucous. Only moderately hardy. |
| dauricum | Alpine regions of Eastern Asia | Rosy purple; January | This is quite hardy, but flowers so rarely that it is only seen in beauty very often in a cold house. It is almost deciduous, as most of the leaves fall off in winter. It is a bush, and has been crossed with R. cllatum, the wellknown præcox and Rosy Gem being two of the hybrids. |
| ferrugineum <br> (Alpine Rose) | European Alps. Introduced about 150 years ago | Flowers small, funnelshaped, and in small upright terminal clusters in June ; bright rose or scarlet | This is frequently seen in rock gardens, and grows about I foot high, forming a rounded mass thickly clothed with small green leaves, covered with minute reddish-brown spots. When young the leaves are slightly harry, but the mature folage is almost free from hars. There are varieties, one with white (albiflorum), another with rosy or scarlet flowers (myrtifolium), but there are others. Its popular name is Alpine Rose. |
| Fortunei | China | Fragrant, pale rosecoloured flowers, with seven petals; Mid-May | This is one of the hardiest of the Himalayan species, and, as it does not flower untıl well into May, it is generally untouched by late frosts, which so disturb early-flowering species. It grows from 10 feet to 12 feet high, and has large, handsome oblong leaves. It 15 the origin of a distinct race. |
| fulgens | Eastern Himalaya | Blood-red ; April and May | There are several forms of this Himalayan Rhododendron in gardens, the best producing compact clusters of medıum-sized flowers of the colour mentioned. The leaves bear a striking resem- |


| NAME. | Country or <br> Origin and Natural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAsON. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| hododendron fulgens |  | Rose waxy | blance to those of R. campanulatum in both size and colour. Although hardy, it is seldom seen in true beauty outdoors, because of its naturally early-flowering season. |
| glaucum | Hımalaya | Rose, waxy, 3 of an inch across, and in small upright heads; May | This is a dwarf species, with small oblong leaves, seldom more than 2 feet high, and rarely seen in cultivation, although very pretty. |
| hirsutum | Alps | Pale red; May and July | In many ways this is the counterpartof $R$.ferrugineum, the chief difference being in the intensely harry leaves of this species. The two species grow side by side in the Alps, and the one under notice is one of the few species that will grow in a limy soll. It has also been used by the hybridist. |
| Keysii | Bhotan | Flowers tubular, red and yellow, and $1 \frac{1}{2}$ inches long; May | A distınct, upright-growing, scantily branched species, suggesting affinity to R. cmnabarına, but it is quite distinct. It grows from 4 feet to 6 feet high, has narrow ovate or lanceolate leaves 2 inches long. |
| lepidotum | Temperate and Alpine Himalayas | Colour varies, usually purple and yellowish; curious flattened form, and about 1 inchacross; May and June | The individual flower does not suggest a Rhododendron, so unlike other species is it in this respect. It is a lowgrowing plant with small oblong leaves; it succeeds outdoors at Kew. |
| maximum (Great American Laurel) | North America | Rose, or whitish spotted with yellow or red | This will grow to a height of 35 feet, and has large, thick, elliptical, oblong leaves. It is not much grown here. In the "Cyclopædıa of Amencan Horticulture," it is mentooned: "This is one of the hardiest species, being hardy as far north as Quebec and Ontano. . . . This species and the former (catawbiense) are now often extensively used in park-planting, and taken by the car-load from the woods. If properly handled and taken from a turfy soil with a sufficient |

## TREES AND SHRUBS

NAME.

hododendron
maximum
Great American
Laurel)

Metternichii
. niveum

- ponticum
punctatum
. racemosum

| Country or Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ |
| :---: | :---: |
| North America | Rose, or whitish spotted, with yellow or red |
| Japan; known here about 30 years | Rose; about 2 inches across, and in small clusters; March |
| Himalaya; 8 to 9 feet | Purplish; April |
| This has a curious distribution, being found in Portugal and not again until Asta Minor is reached | Purple ; about 2 inches across; May |

Flowers
Alleghany Mountains, from North Carolina to Georgia
First exhibited by the introducers, Messrs. Veltch, in 1892, and is a native of Western China, where it is found 6000 to 10,000 feet elevation rose; rinch across; in clusters in June Pinkwhite ; April

GenerAl RemArks.
ball of earth around the roots, they are usually successfully planted." There are three varieties, album, purpureun, and roseun.
This is not in general cultivation, but is hardy. As yet no opportunity has arısen of ascertaining to what dimensions it will grow in this country; it has thick and leathery oblong leaves, 3 to 4 inches long, green above, and covered underneath with a thick grey or brownish tomentum.
At Kew this species lives outdoors, but is not a success, and even in Cornish gardens gets injured insevere weather. It makes a dense bush, with medium-sized leaves, green above, and covered with a dense greyish tomentum beneath. It has been in cultivation about 40 years.
Of all the hardy Rhododendrons this is the most largely grown and most popular ; it is much used as an undergrowth in woods and other places. In many parts it has become naturalised, reproducing itself from self-sown seeds. It has been much used by the hybridist, and with R. caucasicum and R. catawbiense has produced many beautiful hybrids. It will grow beneath trees, and its evergreen folage is not the least of its attractions. There are several varieties.
A dwarf and evergreen species. R. minus is a synonym.

The introduction of this added another type to this genus, for both in flower and general habit it is distinct from other species. It is dwarf, with small oval leaves, and flowers borne in axillary and terminal clusters, and so profusely that every branch is a mass of blossom. It is quite hardy and very welcome. There is a form with deep rose flowers.

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(Donegal.)

| NAme. | Country or Origin and NAtural Order. | Colour <br> AND SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| hododendron <br> Rhodora <br> hodora canadens1s) | North America | Magentapurple ; April | Not much grown, but colou probably not popular. makes an upnght deciduou shrub, 3 feet to 4 feet, slender twiggy wood, and small ovat lanceolate leaves. Should have moist peaty soll. fallure on dry and sandy ground. Does not object to partial shade. Easily in creased by seeds and layering |
| Smirnowi | Caucasus | Crimson purple ; 3 inches across; April and May | This has large flowers and leaves, and, as recorded elsewhere, has founded a distinct race. It blooms freely when about a foot or so high. The leaves are about 5 inches long, 2 inches wide, and covered on underside with a soft white felt. |
| Thomsoni (see page 80) yunnanense | Yunnan; first flowered at Kew in 1899 | White, with bloodredspotson upper petal, in loose clusters in May | This is an erect shrub, with glossy green leaves 2 to $2 \frac{1}{2}$ inches wide. A very useful shrub, and should not be forgotten by the hybridist. |
| HArdy Hybrid | ...... | May | Very few of the species of Rhododendron have not some value either for out of doors or under glass. Rhododendrons are widely distributed, species being found in North America, Europe, and through temperate Asia as far south as the Malay Peninsula, the headquarters of the genus being Western Asia and the temperate Hımalaya. Rhododendrons also differ greatly in size, some very tall as $R$. arborea, which is sometimes said to grow to a height of 40 feet in the Sikkım forests, to the little alpine R. chamæcistus, which rarely exceeds 6 inches high. There is quite as marked vanation in the size of the leaf, several species, of which R. Falconerı may be taken as a type, having large and handsome leaves, sometimes a foot high and 6 inches wide, whilst the quaint little Japanese species R. serpyllifohum has tiny leaves not a third of an inch long and of corresponding |

NAME.
aododendron
Hardy Hybrid

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| NAme. | Country or Origin and NAtural Order | Colour <br> and Season. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| hododendronAscot Brilliant | Rassed by Mr. Standish | Rıch scarlet mid and late May; a peculiarly brilliant colour | This is a flower of wonderful colour, and the whole shrub in growth, size of calyx, texture, and clusters reminds one strongly of R. Thomson. It is of dwarf and bushy growth, and flowers with great freedom. |
| Shilsoni | Raısed by Mr. Gill, gardener to Mr. H . Shilston, Tremougb, Penrhyn, Cornwall, between R. Thomsoni and R. barbatum | Crimson | This beautiful hybrid combines the good qualities of both parents. It resembles $R$. barbatum in height and R . Thomsoni in folage, and the flower truss is compact as in the former parent, with the larger, more fleshy leaves of the latter. It is an exceptonally fine Rhododendron for Cornwall, but at Kew is grown in a cold house, although a small plant withstood the winter of 1901-2 outside without injury. |
| Harrsıı | A hybrid raised by Mr. Harris, at one time gardener to Lord Swansea; the parents are <br> R. Thomsons and $R$. arboreum | Red; early Spring | This is a hybrid of much interest, and flowers freely when quite small. It is apparently quite hardy, but would be happler in the south than elsewhere. |
| RIFFITHiANUM <br> Group. |  |  |  |
| Aucklandi | Himalaya | White : May | The group, in which the Himalayan species griffithianum, better known as R. Auckland,, is most marked, is composed of a number of large-flowered hybrids which vary considerably in size of flower and colouring. It is probably the finest species of Rhododendron in existence, and named in honour of Lord Auckland, a GovernorGeneral of India, by Sir Joseph Hooker. It appears, however, to have previously been named after Griffith, the Indian botanist, whose name it ought now properly to bear. It carries its flowers in large, loose trusses, and individually they are frequently 6 inches across. This Rhododendron, we believe, ranks first in the genus in regard to the size of its bloom. Six or eight of these are borne in a truss, and they are pure white when once fully expanded, although pink |

## TREES AND SHRUBS



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## TREES AND SHRUBS

| NAme. | Country or Origin and NAturAl Order. | Colour <br> AND <br> SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| ododendron ortunes | Chına | White, with deep pink suffusion, and very fragrant ; May and early June | Thiselton-Dyer. They bloom profusely, the flowers being very deep rose with dustbrownish blotchesat the base; the chief difference is that the flowers of the former are paler than those of the latter. An interesting hybrid raised at Kew by crossing R. Fortunei with the variety Meteor has flowered well for the last four years. The cross was made in 1893, and the plants flowered when only a few inches high. Several plants have now grown to a height of $2 \frac{1}{2}$ feet. The flowers are in compact, rounded trusses, and appear in May; they are delicate pink, and fragrant. The great peculiarity of the hybrid is that no plant has perfect stamens, some being full size but barren, others reduced to mere specks, and occasionally they are quite absent. |
| Smirnowi | Native of Caucasus. Flowered for the first time in England at Kew in 1893 | Bright rosy-lilac ; April and May. | This is a handsome species, of compact growth, and 3 feet to 6 feet high, with large, deep-green leaves, covered on the underside with quite a dense, whitish, wool-like substance. The flowers are from $2 \frac{1}{2}$ inches to 3 inches across, and in shapely trusses. Both at Kew and in the nursery of Mr. George Paul many hybrids have been raised. The first rassed at Kew resulted from crossing the species with the scarlet-flowered garden hybrid Johnsoni in 1893 . It flowered when four years old, and was of dwarf growth, with rosy-red flower. Of numerous other hybrids rased since then three resulted from crosses made in May 1896; they floweied in May 1902, and are so far the best. One of these was raised by crossing with the variety purpureum splendens; this has trusses of purplish flowers. Another claims R. Fortuneı as its male parent; it has large fragrant flowers with five or six petals, pink, and arranged in shapely trusses. In the third case kewense |



## TREES AND SHRUBS

NAME.
ododendrons
(Azaleas)

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| Name. | Country or Origin and NAtural Order. | Colour AND SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| bododendrons (Azaleas) |  |  | been much used for forcing, and they are extremely useful for that purpose, as has been so well demonstrated by the brillant groups exhibited at various meetings of the Royal Horticultural Society by Messrs Cuthbert and other firms. When planting these hardy Azaleas, choose a sheltered position, not because they are tender, but to protect the flowers as much as possible from cold winds and late frosts. The majority of them are in bloom before the time of frosts has passed, and sometumes the flowers get destroyed wholesale. Few shrubs are more suitable for planting in woodland or on the fringe of walks in single groups, as here the colours are fully brought out. A peat soll or a mixture of loam and peat will provide quite suitable material. Mr. Anthony Waterer writes as follows: "In a general way all American plants may be said to delight in and to require what is called a peat soil; it was at one time beheved they would not grow in any other. Experience, however, proves the contrary, and it is now found that Rhododendrons and Azaleas, which are the most important of that class, as well as any other of the more vigorous plants, succeed in almost any soll that does not contain lime or chalk. In many sandy Ioams they grow with as much luxuriance as they do in pcat ; in fact, almost any loamy soil, free from lime or chalk, may be rendered suitable for them by a liberal admixture of leaf mould or any fibrous material, such as parings of pasture lands. When the soil is poor, thoroughly decayed cow dung is one of the best manures for Azaleas." Seed pods should be picked off immediately the flowers are over. |



## TREES AND SHRUBS



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CALIFORNIA POPPY. (Romneya Coulteri.)

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| Name. | Country or Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl Remarks. |
| :---: | :---: | :---: | :---: |
| ubus fruticosus, flore-pleno(Double Pınk Bramble), Syn R. bellıdifolius | Garden form | Pink; late Summer | A double pink form of our common Bramble, and of a loose rambling nature, soon forming a tangled mass. The flowers consist of closelypacked petals like some of the double daistes, and the plant itself will thrive in dry sandy or stony soils. |
| lacıniatus (Cutleaved Bramble) | Garden origin | White | A strong-growing Bramble with elegantly cut leaves. It is essentially a plant for the wild garden, while the fruits are particularly good. |
| . nutkanus <br> (Nootka Sound Raspberry) | North America | White | A free upright species that pushes up annual shoots like the Raspberry, while the lobed leaves are decidedly ornamental. The large white blossoms are borne in May and June. |
| odoratus <br> (Purple-flowered <br> Raspberry) | North America | Rosy purple | Somewhat like the last, but with rosy-purple blossoms that are rather later in expanding than those of $R$. nutkanus. It thrives best in partial shade. |
| phœenicolasius <br> (Japanese Wine Berry) | Japan | Whitish | A strong-growing Raspbeirylike plant, densely clothed with hairs. It is principally grown for its fruits, that are, when ripe, of a bright red tint, and appreciated by many. But this is a pictu resque spreading shrub worth growing for its colouring and rambling growth alone. It is a good bank shrub, or to spread about over the rougher parts of the rock garden. |
| spectabilis (Salmon Berry) | North America | Purple; early May | A shrub so aggressive that it must go into the wild garden. It forms a dense tuft 6 feet high, and when laden with its drooping purple flowers is decidedly ornamental. |
| thyrsoideus florepleno (Double White Bramble) | Garden form | White | A semi-double white-flowered Bramble, less effective, however, than the double pink. |
| phora japomica | China; <br> Leguminose | Creamy white panicles, which show up against the dark-green foliage | Excluding the plants formerly known as Edwardsia, now Included in Sophora, this is the only well-known member of the genus, and it is the only one of our large-growing hardy trees that flowers in autumn. Regarded only from a foliage point of view, it forms a very handsome specimen, the elegant pinnate |



NAME. $|$| COUNTRY OR | COLOUR |
| :---: | :---: |
| ORIGIN AND |  |
| NATURAL ORDER. | AND |
| SEASON. |  |

GenerAl RemArks.

> profusely laden with clusters of pure white blossoms, despite frosts or cold winds, which play havoc with some of the early kinds.
> A free-growing species, 5 feet high, with pretty flowers.
> A dwarf bush, 2 feet high, with pretty cherry-pink flowers.
> A bold bush, 6 feet or more in height.
> Grows 5 or 6 feet high.
> A dwarf species suitable for rockwork.
> The shoots of this are slender and archıng so that it forms a graceful freely - branded shrub, some 5 to 8 feet in height. It is one of the best Spiræas.

A well-known shrub, far better known, however, under the name of Spiræa arıæfolia. It reaches a height of to to 12 feet or even more, with plume-lıke clusters of creamy white blossoms. This is a shrub for the smallest garden.
Forms a crowded cluster of erect shoots 6 feet or so in height, with each shoot terminated by a dense spike of flowers. It succeeds best in damp soil.
The slender arching shoots are clothed with clusters of pure white flowers in late May.
Far better known under the name of $S$. callnsa than that of japonica; it forms a shrub 5 or 6 feet high with brightly coloured flowers in flattened clusters. There ale many distinct vaneties, all good, the best being alba, a dwarf form with white flowers; Bumalda, also dwarf with pink blossoms; Anthony Waterer, the richest tinted of all dwarf kınds; superba, a deep tinted form of the type; and glabrata, with curiously broad leaves. Anthouy Waterer is especially worth growing.

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FLOWERS OF SPIREA LINDLEYA.VA.

| NAme. | Country or <br> Origin and NAtural Order. | Colour <br> and <br> SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| piræa lindleyana | Himalaya | White : <br> August | Reaches a height of 10 to 12 feet, and is remarkable for its handsome pinnate leaves, while the large feathery flower panicles are very strikıng. |
| $\begin{gathered} \text { media } \\ \text { confusa) } \end{gathered} \text { (Syn S. }$ | Europe | White; May | Forms a dense rounded bush from 5 to 8 feet high, and has clusters of pure white blossoms in profusion. |
| opulifolia (Nine Bark of the United States), (Syn Neillia opulifolia) | North America | Whitish | One of the largest of all the Spiræas, being of almost tree-like habit, but the flowers are not showy. There is a golden-leaved form (aurea) of dwarfer habit than the type, which is in the first half of the season very pretty. |
| prunifolia flore- pleno | Japan | White; Spring | The flowers of this are quite double, luke little rosettes, and in clusters along the arching shoots. Early in April as a rule they are very pretty. |
| salicıfoha | Europe | Pınkısh | A variable kind, more or less approaching S. Douglasi, but with light-tinted flowers. |
| sorbifold | Northern Europe | White July | A pinnate-leaved species somewhat in the way of S. lindleyana, but it does not grow more than half the height and flowers a month earlier. |
| Thunberg | Japan | White: very early Spring | I he first of all the Spireas to bloom, but its beauty is often marred by inclement weather. It forms a dense mass of slender twigs clothed with tuny leaves. |
| Van Houtte | Garden form | White | A hybrid kind with pure white blossoms, which are as a rule more satisfactory under glass than in the open ground. |
| aphylea colchica | Caucasus: Sapindacea | White; Spring | A sturdy upnght deciduous shrub, 6 to 8 feet high, with drooping clusters of white flowers. Though decidedly ornamental it is as a rule more effective when flowered under glass than in the open ground. Needs a farly moist loamy soll. |
| pinnata (European Bladder-Nut) | Europe | Greenish white; Spring | A shrub from 8 to so feet high, which has bladder-like capsules in which the seeds are contaned. The capsules are more attractive than the flowers themselves. |
| trifolia (American Bladder-Nut tree) | North America | Greenish white; Spring | In the way of the last, but a stronger grower, while the leaves are pinnate. |



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STANDARD LILAC, MME. LEMOINE.

| NAme. | Country or Origin and NAtural Order | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| yrax officinale ringa (lilac) | Levant <br> Oleacce | White <br> Various | tection of a wall in many districts. <br> A lovely family described else- |
| amarix gallica (the Tamarisk) | Northern portion of the Old World; Tamariscineæ | Pınk; May | A charming shrub, not half enough grown, owing, in some respects at least, to a Wide-spread idea that it will not flourish away from the sea-coast. True, it luxuriates there, but it may be depended upon to thrive anywhere unless the soll is a stiff clay, chalky, or too much parched up in the summer. It is deciduous, but during the Summer the foliage is as delicate as any of the Comfers, and in May, when the branches are terminated by the waving plume-like panicles of pink blossoms, it is delightful. As a plant for the waterside it is most useful, and forms a pleasing picture if a score or so of plants are grouped on a lawn or open stretch of grass. In such a situation the long straggling shoots must be shortened back occasionally to keep the plants within bounds, as growing unchecked they will reach a height of ro to 15 feet. There are several forms of Tamarisk, by some considered distinct species, and by others as forms of T. gallica, but a good deal of confusion prevails concerning them. One of the best (perhaps the very best Tamarisk) is that known as tetrandra or taurica, in which the feathery plumes are of a deeper pink than the type. Other names that occur are parviflora, cbinensis, and japonica, but given tetrandra, as a rule no other is wanted. |
| germanica (Ger- <br> man Tamarisk), <br> (Syn Myricaria Germanica) | Europe | Pinkısh | A smaller shrub than the last, more upright in growth, and with a glaucous tinge. The pinkish flowers are far less effective than those of the preceding. |
| lex europæus (the Furze, Gorse, or Whin) | Europe: Leguminosæ | Yellow | The common Furze is known to every one, but its great beauty as a flowering shrub is apt to be overlooked, for |



ERONICA.--There ate a vast number of Veronicas, all natıves of New Zealand, and garden forms raised from them, but many can only be regarded as hardy in the extreme west of England and Ireland, whereas some of the hardiest are from their diminutive growth suitable only for rockwork 'The best are-
eronica Andersonii $\mid$

| Garden Origin <br> (Scrophularineæ) | Purple; <br> Summer <br> and <br> autumn |
| :---: | :---: |
| New Zealand | Pale <br> lavender; <br> May and <br> June |

A neat evergreen shrub with dense spikes of bluishpurple blossoms in great profusion for a long period. Near the sea, in especially favoured spots, it is delightful, while in other districts it forms a valuable subject for greenhouse or conservatory. Of the numerous other garden forms belonging to this section the following are all good: Blue Gem, light blue ; Bolide, reddish; Celestial, sky blue, light centre; La Sedusante, rich reddishpurple ; Marie Antomette, pink; Purple Queen, rich purple; and Reine des Blanches, white.
Very distınct; it has large terminal panicles of pale lavender flowers.

Purple ;
Summer and Autumn lavender: June

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| NAme. | Country or Origin and NAturAl Order. | $\begin{aligned} & \text { Colour } \\ & \text { And } \\ & \text { SEAson. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| hurnum Lantana (Wayfaring tree) | Britain, also Europe, North and Western Asia, and N. Africa | White ; May and June | A beautiful native shrub. Its chief beauty is in the colour of the flowers and the gorgeous Autumn leaf tints. Groups of this are pictures of colour in Autumn. The fruit, at first black and afterwards red, soon disappears before the birds. The tree grows rapidly and generally attains a height of about 12 or 15 feet; the leaves are large and downy. The way-faring tree should be more planted in Englısh gardens. It will grow almost anywhere. There are two variegated - leaved varieties, but these we know little about, and we care more for the type than any golden variegation. |
| macrocephalum | China and Japan. Introduced from China in 1844 by Fortune | Pure white | This must be included, but it is not very hardy. Mr. Bean, writing of it in The Garden, November 17, 1900, p. 36r, says: "The shrub known under this name is a cultivated form of a Chinese species, in which all the flowers have, under artificial influences, become sternle. The wild plant to which it belongs is also in cultivation, and is known as V. Keteleeri. In this type plant the middle of the truss is piled with perfect flowers, the edges only being occupied with the large and showy sterile ones. V. macrocephalum is by far the most striking plant, its large, rounded or pyramidal trusses of pure white flowers being unequalled among the Viburnums. The plant is, however, better adapted for growing in pots for greenhouse decoration or as a wall plant than it is as a shrub in the open. In my experience it is scarcely hardy enough to assume its best character without some sort of protection. Although hard winters may not kill it outright they seriously cripple it. It is only in recent years that it has attained popularity, but it has long been known." |



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| NAme. | COUNTRY OR Origin and natural Order. | Colour <br> AND <br> SeAson. | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| hurnum tomentosum Mariesi | Japan | Cream white | are on the outer edge of the flat cymes, and line the spreading shoots. We hope it will soon be plentiful. |
| tomentosum var plicatum | Japan. Introduced by Fortune in 1844 | Ivory white | We have used the word tomentosum as plicatum is a variety of that species. V. tomentosum itself is a handsome shrub with big, flattish cymes and creamy - white sterile flowers round the margin of the truss. That known as V . plicatum, a sterıle form of V . tomentosum, is a beautıful shrub; the most precious perhaps of the whole family. It makes a glorious group on the lawn, and in early June the spreading shoots are so thickly covered with flower clusters that scarcely a vestige of the dark-green, wrinkled leafage is visible. It is quite hardy, but in the north it will be wise to choose a sheltered position for it. As a wall shrub too it is valuable, and a specimen on a wall in the Royal Horticultural Society's gardens at Chiswick is quite a mass of bloom every year. Passers by who know not the shrub wonder what it is making so thick a mantle of white. It grows 4 to 5 feet high in the British Isles, taller in its native country; the trusses of flowers are erect on short bianches, and each measure about 3 inches across. Being in parrs they make a striking double row on every bianch. V. plicatum must come into the smallest list of flowering shrubs. |
| Tinus | South of Europe and North of Africa. Introduced in 1596 | White ; flowers in Winter in the south, but much depends upon locality | This is a well-known evergreen shrub, and quite hardy in the south of these Isles, where it is planted as a hedge. Even when out of flower the bush has a certain beauty owing to its shining green leaves. Near London it succeeds. Many things considered hardier get severely injured when the Laurustınus escapes. North and easterly winds are harmful to it. There are several varietıs. Lucidum |

NAME. | COUNTRY OR |
| :---: | :---: | :---: |
| ORIGIN AND |
| NATURAL ORDER. |\(\left|\begin{array}{c}COLOUR <br>

AND <br>
SEASON.\end{array}\right|\)
iervilla florida
Syn Weigela amabilis, W. rosea

Rose; Summer
. middendorfiana
anthoceras sorblfolia

Japan ; Caprifoliaceæ

Siberia

North China

GenerAl RemArks.

Yellowish

White; stained with red in the centre;
Spring
is the finest, the leaves and corymbs are larger than those of the type, the former being of a very glossy green and smooth. In lucidum the leaves and branches are woolly, whilst there are also purpureum, with purplish leaves, and a variegated variety, but nether is of value.
A beautiful free-growing, freeflowering shrub, that will hold its own almost anywhere. Its flowering time is in May or early June, but occasionally there is an Autumn display. Beside the original species there are many garden varieties, all of which are beautiful, but there are so many that a selection is necessary. Three of the best are: "candida, whte; *Abel Carrière, bright rose; and *Eva Rathke, claret crimson, which lasts in flower more or less from May till the end of the Summer. Other good variethes are: Dr. Ballon, red; Grœnewegenil, rose and white; hortensis nivea, white, spreading habit; Looymansi aurea, golden leaves; præcox, rose, earlier than any of the others; and P. Durchartre, purplish red. In any selection of flowering shrubs some of the Wengelas must certannly have a place.
Remarkable among Weigelas for its distinct yellow flowers. Though pretty in itself, it is likely to prove of more value in the production of new varieties by crossing it with the older kinds.
A beautiful tree, but seldom seen in English gardens. The following note appeared in The Garden about it: "This tree does not appear to be widely grown, and I have heard doubts expressed as to its being hardy enough to stand the winter in some districts Not long ago I saw a fine specimen in a Kentish rectory garden. The tree is 5 feet or 6 feet high,

## TREES AND SHRUBS

| NAme. | Country or Origin and NAtural Order. | $\begin{aligned} & \text { Colour } \\ & \text { AND } \\ & \text { SEAson. } \end{aligned}$ | GenerAl RemArks. |
| :---: | :---: | :---: | :---: |
| nthoceras sorbiolıa | North China <br> Lıliaceæ | White ; stained with red in the centre; Spring | and under the shelter of a thick hedge of Laurustinus it flowers freely every year, and also produces fruit. The long white and slightly tinted blooms, which change to purple, are very effective, but one rarely gets an opportunity of seeing this interestıng tree in flower. Perhaps this is because it does not belong to the common order of things, or else it is not accommodating enough for general culture, but it is very beautiful." The Xanthoceras is sometimes traıned against a wall, but its growth is too stiff for the purpose. The flowers are in dense spikes about 6 inches long, reminding one of the Horsechestnut, and are an inch across individually. The foliage is very ornamental, and each leaf-stalk has seven pinnate, serrated, brightgreen leaves. Apt to get spoilt by frost, however. |

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yUCCA filamentosa var. fi accida rightly placed.

# HARDY TREES AND SHRUBS FOR BEAUTY OF FOLIAGE AND GROWTH 

The following is a table of hardy trees and shrubs more interesting for the beauty of their foliage and growth than for their flowers, with their popular names, approximate heights, native country, and other particulars. All are deciduous unless otherwise specified. Those with an asterisk (*) are the most important. Some groups such as the Vitis, will be found elsewhere.

| CHARACTER AND Height. | Remarks. |
| :---: | :---: |
| Tree 50 ft . | Suitable for South and West of England, needs <br> a good loamy soil |
| Shrub 8 ft . | For sheltered spots in South . . . . |
| Tree $20, \mathrm{ft}$. | In ordinary soil and position |
| Tree 30 ft . | Will grow in dry spots . |
| Tree 20 ft . | If too much exposed the variegated leaves suffer |
| Tree 30 ft . | In ordinary soil and position . . . |
| Tree 20 ft . | Handsome leaves but rather tender |
| Tree 30 to 40 ft . | Needs a sheltered spot |
| Small tree io ft. | In ordinary soil and position |
| Tree 15 ft . | " |
| Tree 25 ft . | Soil " ${ }^{\prime \prime}$ '' ${ }^{\prime \prime}$ |
| Tree 50 ft . | Soil must not be too dry - . |
| Tree 50 ft . | Forms a very pretty lawn tree ; soil must not be too dry |
| ree 25 ft . | In ordinary soil and position . . . . |
| Tree 15 ft . | Very handsome leaves, 5 to 7 in . long, $4 \mathrm{in}$. broad; in ordinary soil and position |
| Fee 30 ft . | In ordinary soil and position . . . |
| fie 25 ft . | " ${ }^{\text {a }}$ |
|  | Requires protection from cold winds in spring. Very slow in growth |
| " | ", " |
| Tree 50 ft . | In ordinary soil and position |
| Tree 70 ft . | " ${ }^{\text {" }}$ |
| Tree 30 ft . | ,, ", ", . . . |
| Tree 40 ft . | , ", ", • • |
| Tree 30 ft . <br> " | A well'known" variegated tree that must be sparingly planted |



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| Latin Name. | Character and HeIGHT. | Remarks. | native Country. |
| :---: | :---: | :---: | :---: |
| Alnus orientalis <br> ,. rhombifolia <br> , serrulata <br> ", serrulata viridis | Te 25 ft . Tree 20 ft . Shrub 8 to ro ft. Shrub 6 ft . | Moist soil <br> Does' well in exposed position. | Orient California North America Northern Europe and Asia |
| Aristotelia Macqui . | $\underset{6}{6 \mathrm{ft} \text {. }}$ | Rather tender, will grow in ordinary soil | Chili |
| $\stackrel{\text { Artemesia Abrotanum (Southernwo }}{\text { variegata }}$ ( | Shrub 3 to 4 ft . | Very fragrant leaves ; will grow in dry soils | South of Europe |
| *Arundinaria Veitchii | Evergreen 2 to 3 ft . | Needs good, fairly moist soil, and protection from cutting winds | Japan |
| Arundo Donax (Giant Reed) . | Evergreen rof | Hardy in South of England, needs protection in North, moist soil | Mediterranean region |
| Atraphaxis buxifolia . | Shrub 2 ft . | Well drained, sandy peat, fairly moist | Garden form Caucasus |
|  | ," | ", ", " |  |
| Muschketo spinosa. | Sub-everg'reen Shrub | " | Central Asia |
| Atriplex canescens | Shrub $_{3}{ }^{\text {ft. }}$ | Will grow in dry, sandy soils, and also near the sea | Western North America |
| confertifolia | Shrub Ift. | Fairly moist peaty soil - - - - | estern United States |
| ,, ${ }^{\text {Halimus ( }}$ Nree Parslane) | Shrub 6 ff . | Will grow in dry sandy soils and also near the sea | Western Europe North America |
| ", ${ }^{\text {Nuttallii }}$ portulacoides | Shrub 3 ft Shrub 2 ft . | ", ", ", ", | Western North America |
| Azära dentata . | Evergreen shrub 12 ft . | Ordinary soil, but thoroughly hardy" only in South and West of England | Chli |
| Gilliesii | Evergreen shrub $\mathbf{1 5} \mathrm{ft}$. | , ", ", | " |
| $\cdots$ | Evergreen shrub 12 ft . | "," ${ }^{\prime \prime}$,"," ${ }^{\text {,", }}$ |  |
| Ba"ccharis halimifolia | Shrub 6 to 8 ft . | Useful for dry sandy soils | North Ämerica Patagonia |
| ${ }_{\text {patagonica }}^{\text {paliciolia }}$ | Shrub | " " $\quad$. | Patagonia <br> Southern United States |
| Berchemia racemosa | Climbing shrub 15 | Deep " moist soil and sheltered spot. | Japan |

Northern Hemisphere


ว絾（une Western ofth America Western orth America
North I A＂a
H＂．
Hımalaya
Ofth America
Japan
China，Japan，and
Polynesia
Southern Unıted States


5
8
0


# Tree 50 to 60 ft. <br>  <br> hEub ro ft． 


 if Si al ${ }_{11}$ SI 21
＊Betula alba（Syn B．verrucosa），（Silver Birch）

 ＂papyrifera（Syn Morus papyrifera），
（Paper Mulberry）
Bumelıa lanuginosa（Syn．Sideroxylon lanuginosum） ＂：papyrifera（Syn Morus papyrifera），
（Paper Mulberry）
Bumelıa lanuginosa（Syn．Sideroxylon lanuginosum） Broüssonetia Kzempferi $\quad . \quad . \quad . \quad . \quad$.

papyrifera（Syn B．
嘼
．$\widehat{\text { 鳥 }}$
pumila
Bigëlovia Douglasii Bhojpattra），（Indian Callicarpa americana $\qquad$ Carpínus caroliniana（Syn C．americana），（Ameri－ can Hornbeam）Hornbeam） －－－elepios （weวquioh asaurdef）espuode！


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EVERGREEN OAKS. (Frogmore.)

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Europe and North Asia
North America
Tyrol
Europe and North Asıa
Garden form
Europe ard North Asia
aden form
Arctic regions
Europe ard North Asıa
Europe


名

E
$==$
South "Europe
Spain and Portugal
South Europe
Himalaya
United States
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