No. 113 BULLETIN OF THE DECEMBER, 1930
AGRICULTURAL EXTENSION SERVICE, THE OHIO STATE UNIVERSITY

Ornamental Evergreens

A simple, inexpensive, but effective planting of evergreens.

By

L. C. Chadwick

Department of Horticulture, The Ohio State University

THE OHIO STATE UNIVERSITY, COOPERATING WITH THE U. S. DEPARTMENT OF AGRICULTURE,
AGRICULTURAL EXTENSION SERVICE, H. C. RAMSOWER, *Director*, Columbus, Ohio
FREE—Cooperative Agricultural Extension Work—Acts of May 8, and June 30, 1914

Contents

Ornamental Evergreens

By

L. C. Chadwick
Assistant Professor of Floriculture

EVERGREENS are capable of giving greater charm when judiciously used about the home than any other group of plants—a charm which is lasting throughout the whole year. Evergreens properly planted at the entrance of the home extend their message of welcome even during the coldest of the winter days, as well as during the sunny days of summer when they vie with the deciduous plants and flowers for supremacy in the home planting. In many situations evergreens may be used alone, while their effectiveness, in others, is enhanced and rendered more striking when artistically arranged with the deciduous plants.

In planning the planting about the home, nature is often the best teacher. The real effectiveness and beauty of evergreens are apparent in the variety of coloring and form seen on the slope of a wooded hillside. Here are combinations of evergreens and deciduous plants at their best, and it is little wonder that those who see the beauty of these evergreens want to have some of them growing about their own homes. Most of these plants, however, are not suitable for use on the restricted area of the home grounds. Fortunately, it is possible to secure similar beauty through use of the many evergreen types which are grown by nurserymen. So many different kinds of evergreens are being produced in nurseries that there is a type suitable for every place and condition.

Evergreen Groups

TO many people all evergreens are either pines or spruces, an assumption that is far from correct. An evergreen may best be defined as a plant that holds its green foliage during the dormant or winter season. Therefore, to the careful observer all evergreens do not become pines or spruces or even plants with needle, awl, or scale-like leaves. The common Boxwood, the Rhododendrons and the Mountain Laurel are truly evergreen plants; this group of evergreens is known as broadleaf evergreens. They are entirely different from the spruces, the pines, the junipers, and the firs, which are representatives of the group known as narrowleaf evergreens.

The narrowleaf evergreens, then, even though characterized as a group by having narrow linear or needle-like, awl-shaped or scale-like leaves that are often appressed and overlapping, are not all pines or spruces. For a better understanding of the different kinds of this group a few distinguishing characteristics will be given.

Narrowleaf Evergreens

Group I.—The narrowleaf evergreens can be conveniently divided into three major groups. The first group is composed of those plants having needle-like leaves borne in bundles. This group composes the common pine types, and the different species are easily distinguished by the number of leaves or needles in a bundle and by other common characteristics of the buds and twigs. Most of the pines are large trees and therefore are not suitable for group planting about the average home, and especially should not be used for foundation planting. They may be found of use as individual specimen plants or as screens.

A few of the pines are dwarf in their habit of growth and are suitable for foundation planting. The most common type of dwarf pine is the Mugho Pine, a plant that is shrubby with several stems growing from the base of the plant, instead of a main trunk. The leaves are dark green and borne two in a bundle. The other forms of dwarf pines are not common in the trade at the present time.

Group II.—The second large group of narrowleaf evergreens is characterized by having their leaves opposite or in whorls. This group includes the genera Juniperus (or junipers); Thuja, or as they are often known in the trade, the Arborvitaes and Biotas; and Chamaecyparis, commonly called Retinosporas.

The junipers are characterized by having narrow linear and usually wide-spreading leaves. The foliage is often sharp and harsh to the touch, glaucous, and sometimes marked with white areas. The junipers are a group of plants with wide variation in habits of growth. Some of them, for example the Redcedar *(Juniperus virginiana)*, and the Colorado Juniper *(Juniperus scopulorum)*, are good sized trees. Their use in the home planting is confined to screens, specimen plants, and occasionally for accent plants in the foundation planting or in the borders.

Others like the Creeping Juniper *(Juniperus horizontalis)*, the Sargent Juniper *(Juniperus chinensis sargenti)*, and similar types which creep in their habit of growth, growing always very close to the ground, are useful as ground cover material on steep banks, for facing the taller evergreens in beds, borders, and foundation plantings, and as rock garden subjects. There are many other junipers that are intermediate between these two types. They are useful as foundation plants, in beds, for borders, as specimens and occasionally as rock garden subjects.

The Thujas and the Biotas comprise a large number of our common evergreens. The name "Biota" is often given to the Oriental Arborvitae *(Thuja orientalis)*, and its varieties. The Oriental Arborvitaes are distinguished, with few exceptions, from the Common Arborvitae *(Thuja occidentalis)* and its varieties, by the fact that the foliage spray is vertical in the former and horizontal in the latter. A few of the globose types of the Common Arborvitae have a more or less vertical spray, similar to the Oriental types, but in these cases the scales (leaves) are much thinner, and do not bear a horn-like process on the back as is found with the Oriental types.

The arborvitaes vary greatly in habit of growth and foliage color. Some are upright, emphatic in habit, while others are pyramidal, wide spreading, or globe-shaped. The arborvitaes find their usefulness in foundation plantings, beds, borders, screens, hedges, and a few may be used as rock garden subjects.

The other type of evergreen in this group is the Chamaecyparis. Some of the forms of the Japanese Cypress *(Chamaecyparis pisifera)*, with soft, spreading juvenile foliage, were early introduced in the trade under the name of Retinospora and are still sold under that name. Many of the Chamaecyparis types are hard to distinguish from the arborvitaes. Those that have a spreading spray of foliage are distinctly different from the arborvitaes with their characteristic flat spray. Those Chamaecyparis forms that have the flat

Fig. 1.—An attractive summer house effectively screened with Hemlock.

foliage spray common to the arborvitaes differ from them either by distinct "Y"-shaped lines on the underside of the leaves or by the fact that the leaves are pointed and spreading at the tip. The leaves of the arborvitae are blunt and do not spread at the tip.

The Chamaecyparis types vary in size from good-sized trees to those that are not over 3 feet high. The size, of course, will govern their usage in the home planting. Their use is confined largely to foundation plantings, beds, borders, individual specimens, and for screens. They are not as widely used for home decoration purposes as the arborvitaes.

Group III.—The third large group of the narrowleaf evergreens includes the spruces, firs, hemlocks, douglas-firs, and yews. This group is characterized by having the leaves alternate or scattered on the stem. The spruces, Picea, common to the trade, are standard trees at maturity, and because of this their use is more limited than some of the other types discussed. Spruces

should not be used in foundation plantings, as often seen, but as screens, specimen plants, and possibly for hedges.

The firs, Abies, are also standard trees, and while they are not as common as the spruces are often confused with them. The spruces are easily distinguished from the firs by the fact that they have leaves which are deciduous above the base, thus in falling from the older branches they leave small rough leaf-bases projecting above the twig. In firs there are no rough leaf-bases left when the leaves fall. The firs are most commonly used as individual specimens, and occasionally for screen plantings.

Among the hemlocks the Northern Hemlock *(Tsuga canadensis)* and the Carolina Hemlock *(Tsuga caroliniana)* are standard trees and should be used as individual specimens or screens. The hemlocks are quite easily restrained and because of this fact make very satisfactory hedges. Dwarf types of hemlocks are rare in the trade at the present time.

The Douglas-fir *(Pseudotsuga douglasi)*, also a standard tree, is used in much the same way as the spruces. It is more informal, however, and more suited to mass planting because of this fact. It is quite easily restrained to a height suitable for a high hedge, being more satisfactory in many conditions as such, than are the spruces.

The last type of plant in this group is the Taxus or Yew. As the yews vary so widely in habit of growth, they are as widely adapted to home plantings as any single type of evergreen. The more erect growing types are suitable for accent plants in the foundation planting. The medium growing types also find a place in the foundation planting and are capable of making excellent hedges. The more dwarf-like types are suitable for rock garden plants, and all the types have a place in the evergreen border or bed.

Broadleaf Evergreens

The broadleaf evergreen group is made up of very many useful plants. Most of them, however, are not as commonly known as the narrowleaf types. Many of them are not extensively grown and not as widely adapted to the average home planting. The various broadleaf evergreens vary widely in habit of growth. A few of them, such as the species of Ilex, Holly, are large shrubs or small trees, and are best used as specimen plants. Ground cover plants are also represented in the broadleaf evergreen group, and find extensive use in nearly every landscape development.

Most of the broadleaf evergreen plants are of medium size, ranging from 3 to 10 feet in height. The Rhododendrons, comprising one of our best types of flowering plants, are in this group. Other broadleaf evergreen plants, while smaller, are nearly as beautiful when they are in flower. These medium sized plants are important and are adapted to many uses. They are extensively used as foundation plants, for borders and for beds. Many of them make wonderful specimen plants; others find their place in the rock or wild garden. Since the broadleaf evergreens, through their wide variation in growth habit, can be used so successfully in landscape work, they become as indispensable as the more common narrowleaf evergreens.

Uses of Evergreens

EVERGREENS may be used in nearly every conceivable place where plants are desired in the landscape plan. Such a conclusion is apparent from the foregoing description of the groups of evergreens and their types and variations. From the dignified and more or less formal foundation planting to the most informal of the border plantings, evergreens play their part. The simple plan of the home grounds may call for only a hedge or a tall screen. Steep embankments where grass is not easily established become a pleasing sight when planted with the proper creeping evergreens.

Fig. 2.—A house that is a home! These simple, yet very effective corner plantings, are composed of two Pfitzer and a spiny Greek Juniper.

The home picture again, may call for a beautiful specimen plant on the side lawn or for a few specimen plants for the rock garden, and the plans are fulfilled best by proper choice of evergreen plants.

Foundation Plantings

The effectiveness and beauty of evergreen plants are perhaps best displayed in foundation plantings. Here their dignity and charm are fully realized. By proper arrangement the architectural features of the house are emphasized, and a feeling of "hominess" is created which cannot be accomplished in any other way. Truly, the house is the most essential feature in the picture being created by the landscape development, and the choice of plants used in the foundation planting is therefore important. The plants chosen should, for the most part, be neutral in their effect rather than striking outstanding objects, and should be of such a character that the eyes of the

Fig. 3.—A foundation planting that will never become crowded nor out of scale. This planting is composed of the giant Arborvitae, Pfitzer's Juniper, Mugho Pine, and Creeping Juniper on either side of the door.

observer became focused on the home rather than on the individual plants. It is, then, the effectiveness of the plant throughout the entire season of the year that is important, and few of the deciduous plants are capable of fulfilling this demand.

In making the choice of evergreens for the foundation planting it is necessary that the ultimate size of the plant be known. The common forest trees, even though the plants are small when the planting is done, have no place in a foundation planting. Know the mature size of the plants and make the arrangement in such a way that at maturity the plants show their individuality and still are not out of proportion to their position in the group planting (see Figs. 3 and 4).

Most of the plants used for foundation planting should be of a green color and medium or dwarf in their habit of growth. A few of the taller emphatic varieties will be useful on each side of the entrance and at the corners of the house. The medium and low growing varieties are used to face down the taller types and for planting beneath the windows of the house. The use of too many varieties may spoil an otherwise perfect planting. Two or three varieties will be sufficient for the smaller places and only a few others for the larger plantings.

Occasionally a slight variation of color is desired in the foundation planting. This may be secured in different ways. Between the groups of evergreens a few of the best of the deciduous flowering shrubs may be used, or the flowering character and color may be obtained by a choice of some of the broadleaf evergreen types. Also, variation and color may be secured simply throught the use of a specimen or two of the yellow or blue foliage types of the narrowleaf evergreens.

Hedges, Screens, and Windbreaks

There is hardly a home that does not require a hedge, a screen, or a windbreak. But the planting of hedges is often and easily overdone. Many of them are so placed that they break up an otherwise beautiful and wide expanse of lawn. In many cases the hedge is the most outstanding planting because of its location. Since hedges are so noticeable, plants should be used for them which are really outstanding and beautiful throughout the whole year. A number of the narrowleaf evergreens will stand clipping and form a perfect wall of green, and such a hedge will give a richness and charm obtainable from no other planting.

Few of the deciduous plants give a perfect screen during the winter season. The evergreen plants maintaining their branches to the ground are the correct choice for such a situation. Evergreen plants used as screens not only fulfill that purpose, but many times they provide a background and frame work for the other plantings which are so necessary for the best development of most schemes. (Fig. 5 shows an effective screen of Douglas Pyramidal Arborvitae, bordering a driveway.)

The value of a windbreak to the farmer has long been recognized. Many times his city neighbor would profit as much by such a planting. A windbreak properly located does much to make the home more comfortable. Further than giving shelter to the house it gives protection to the tender plants in the garden and about the grounds. Evergreens have commonly been used for this purpose and their value in this way has not been over-estimated. Such shelter plantings placed so as to cut off the prevailing winter winds yield

Fig. 4.—An interesting corner planting of Evergreens. Hemlock, Retinospora, Rhododendron, Kalmia, Pieris, and Vinca.

Fig. 5.—A charming and useful screen of the Douglas Pyramidal Arborvitae.

a high degree of protection. Their low-growing branches and winter foliage make them admirably adapted for this purpose. Varieties that will thrive in an exposed position are the Red Pine, Scotch Pine, and Douglas-fir. Among the smaller evergreens, the Ware Arborvitae is recommended. It keeps its bright green foliage through the winter.

Fig. 6.—*Tsuga canadensis, Leucothoe catesbaei* and *Pieris floribunda* effectively used in the evergreen border.

Beds and Borders

In every landscape development there is need for a border planting and occasionally for bed arrangements. It is seldom advisable to have a border planting entirely of evergreens. For the average home the evergreen plants in the border should be in the minority. There are very few cases, however, where a few evergreens would not add charm and beauty to the deciduous plant border. (See Fig. 6.)

On the larger places evergreen beds or even evergreen gardens are not out of place. The satisfaction received from such a display is often as great as that derived from a rock or water garden. The broadleaf evergreens are especially attractive in beds. With many, to the beauty of the evergreen foliage is added the charm of an abundance of bloom.

Fig. 7.—A specimen of a dwarf Canada Hemlock and *Lavandula vera*. A graceful and pleasing planting.

Specimen Evergreens

The evergreens provide a large number of fine specimen plants. For the smaller places where space will not allow the planting of a standard tree, many of the smaller growing evergreens make very attractive specimens, furnishing a scene of beauty throughout the entire year. Where conditions allow the establishment of one or two evergreen trees on the lawn a striking picture of beauty will be furnished. A shapely, dignified evergreen tree with its low branches sweeping the ground will add greater attractiveness to the grounds the year around than is possible to provide in any other way. The individuality of the plant, that feature which is so commonly lost in other plantings, is emphasized here.

Fig. 8.—*Taxus cuspidata nana,* effectively used as a specimen plant.

Other Uses of Evergreens

Everyone thrills at the charm of a rock garden. Hardly a rockery is constructed that does not afford and require the presence of a few evergreens. Many times large evergreens find a place in the necessary background. The broadleaf types are not out of place here, for the touch of color provided by their flowers in season is welcomed. The creeping junipers, the low growing arborvitaes and yews, and even the dwarf flowering broadleaf evergreens provide substance to the rockery not obtainable with small rock garden plants.

Fig. 9.—*Pachistima canbyi* nicely used as an edging for the evergreen border. A fine evergreen for the rock garden.

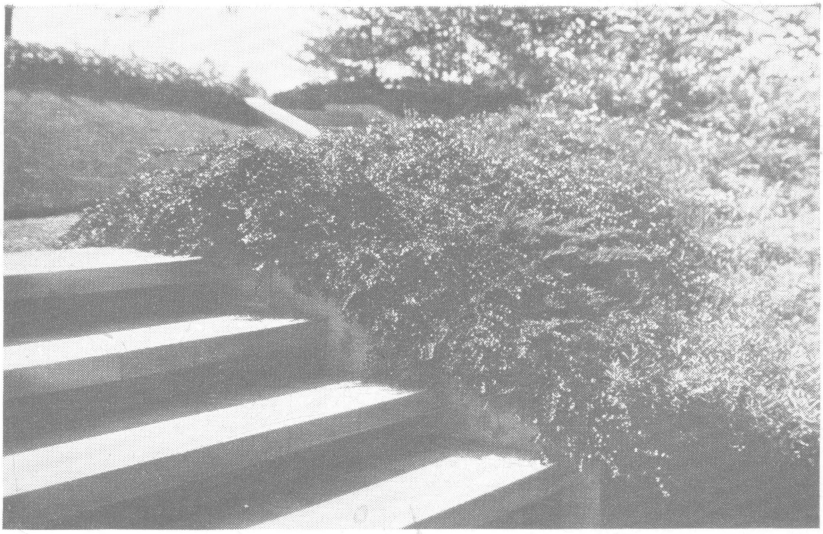

Fig. 10.—Steep banks and walks become a sight of beauty when covered and edged with *Cotoneaster horizontalis*.

Steep, unsightly banks present a problem that is often hard to master. Many times these banks can be made a thing of beauty by planting some of the evergreen ground covers. The choice may be a plant that will flower and add a touch of color to the green carpet of foliage. The English Ivy and Euonymus are very effective for covering bare or unsightly walls of buildings. With the proper use of these broadleaf evergreens in such a way, a beautiful picture often comes from an otherwise unsightly object.

Fig. 11.—A charming foundation planting of narrow- and broadleaf evergreens. Of special interest are the two Boxwoods on either side of the entrance and the Evergreen Wintercreeper climbing on the wall.

Source of Plants

IN spite of their importance, evergreens are not used about the home as much as they should be. This is because it is thought by the layman that they are hard to transplant, to keep alive, and to grow to satisfactory specimens. Undoubtedly this is true, but with reasonable care at planting time and during the first year, the hardy evergreens can be grown to give the pleasing effects that they are capable of producing. There are two major sources of material, collected plants from the woods and plants bought from nurseries.

Plants Collected from the Woods

Pines, firs, spruces, cedars, hemlocks, and some of the broadleaf types are often found growing in the vicinity in which they are to be used. If this is the case, it will often be possible and advisable to move some of these plants. Unless very young specimens are taken, this process requires considerable care and attention if success is to be attained.

It may be advisable in many cases when a number of plants are needed for a hedge or windbreak, or possibly for other reasons, to collect only the seedling evergreens, those that are eight to ten inches high. These will not be large enought to plant out, but they may be placed in one corner of the garden where they will have some shade and protection. They may be grown here for five or six years, but should be transplanted after every second growing season. More care can be given the plants if handled in this way, and when they are large enough to set out they will be better shaped and will have a well developed root system, factors often lacking with plants moved directly from the woods.

It is possible to move from the woods 2- to 3-foot specimens if care and attention are given them. Large plants should never be taken great distances and they should be planted as soon as possible after they are dug. Plants that have attained the size of 2 to 3 feet, growing in the wild, will have a wide spreading root system. It is essential that most of these roots be saved. The plants should be dug only at a time when there is a good supply of moisture in the soil, and care should be taken to leave as much soil on the roots as possible. If the roots dry out at any time the plant is lost. As soon as the plant has been lifted with the ball of soil around the roots, a piece of burlap or an old sack should be wrapped around the ball to keep the soil from loosening and falling away from the roots.

Plants Obtained from Nurseries

Undoubtedly the best source of material is from some nearby nursery. The point *nearby* is stressed because the shorter the distance of shipping, the less the chance of drying out, and the greater the possibility of the plants growing satisfactorily after they are set out. Plants grown in the nursery will have a much better root system than those collected from the wild because

it is the customary practice with all nurserymen to move their stock every second growing season. Because of this, a much more compact and fibrous root system is formed. The specimens can be taken easily with a good ball of soil, which lessens the shock of transplanting to a great extent.

The plants obtained from nurserymen are usually better shaped than those collected from the woods, as some attention is given to shaping the plants in the nursery. Other points in favor of nursery grown material are: that it takes one to two years longer to get a good effect with collected stock than with nursery grown plants, and that a 20 per cent loss may be expected from collected stock. A loss of over 5 per cent from nursery grown material means poor management.

Process of Transplanting Evergreens

THERE are two seasons during which evergreens can be transplanted: (1) late summer or early fall, and (2) spring. The words *early fall* should be stressed, because evergreens planted at that season must become established before the ground freezes and the cold drying winds of winter begin.

Soil Moisture an Important Factor.—The most important seasonal factor in transplanting evergreens is soil moisture. There must be plenty of moisture in the soil prior to the time of transplanting. Thus, fall planting should not be started until after the fall rains have adequately moistened the soil. For success in fall planting it is essential that the soil have a good supply of moisture when it freezes.

Transplant Before Soil Freezes.—The factor of temperature also enters into the time of planting. If the fall rains are early and the evergreens can be moved early so as to become well established before the ground freezes about the roots, fall will prove an excellent time to transplant, because then the plant will be ready to begin growth as soon as the warm weather starts in the spring. Evergreens should never be transplanted to a *cold soil,* but to one that is sufficiently warm to permit root growth to begin immediately, and to continue either during the spring and summer or during a period of two or three weeks in the fall before the plants become dormant. Probably many failures in spring planting of evergreens are due to the fact that this planting is done before the soil has warmed up enough for the plant to start root activity at once.

Plants moved from a cold climate to one much warmer ought to be moved in the fall. They will, then, have time to become established before the hot, dry summer season. Different kinds of narrowleaf evergreens seem to vary somewhat in the readiness with which they transplant in the spring and fall. It seems probable that Thuja, Taxus, and *Pinus nigra austriaca, P. montana mughus* and *P. strobus,* and Chamaecyparis can be planted with equal success in either spring or fall. Picea, Abies, Tsuga, Pinus (except those mentioned above) and Juniperus may be best planted in the spring as they are more difficult to establish. Broadleaf evergreens should be planted only in the spring.

Soil for Evergreens.—Most of the narrowleaf evergreens, with proper care, will succeed in any good soil, but a good loam that does not contain too much clay is considered best. If the soil is of a light sandy nature or of clay, a good amount of humus should be incorporated with it before the planting is done. It must be remembered that many of the broadleaf evergreens must have an acid soil. It should not only be acid, but should contain a large amount of organic matter as well. These conditions can be secured and maintained by applying aluminum sulfate, ½ to ¾ pound per square yard, and peat moss or half rotted oak leaves as a mulch.

If a few evergreens are to be used in a bed around the house, or in small groups, the soil should be thoroughly prepared. Do not set the small evergreens in the grass. The growing conditions must be as nearly perfect as possible. Good evergreens can be expected only if reasonable care is given them at the time transplanting is done, and at least during the first years after planting.

The deeper the soil is prepared the better—two feet is none too much with evergreens. *Well rotted* manure can be incorporated with the soil, but unless it is in this condition it should not be used. Fresh manure should never come in contact with or near the roots of evergreens, as they are very tender and burn easily.

The Planting Operation

Preparing the Holes.—In digging the holes make them a little larger than the ball of earth around the roots. The good top soil should be put in a separate pile from the poorer subsoil. If the soil is heavy and there is poor drainage, some sort of drainage material should be placed in the bottom of the hole; this should *always* be done with the broadleaf types. Put some of the good soil on top of this material. When finally set, the plant should be at the same depth or a little deeper than it was in the nursery. Most of the evergreens are shallow rooted—the roots are naturally near the surface of the soil. When replanted they should be in a similar position.

Care Before Planting.—When the boxes of evergreens come from the nurseryman put them in a cool shady place, away from the sun and wind. It is advisable to plant evergreens as soon as they are received. If they have to be kept a few days, after removing the plants from the box submerge each earth ball in a tub of water for several minutes. Place the plants in a shady place out of the wind, throw a covering of hay or loose packing material about the earth balls, and then wet this down to retain moisture. Leave the limbs tied up and the burlap on until the planting is done.

Suggestions on Planting the Trees.—The evergreens purchased from nurserymen will come balled and burlapped. If they have been shipped a considerable distance the outer layer of soil, just beneath the burlap, is apt to have become hardened into a crust. Evergreens planted in this condition often turn brown and die the first year because the roots are unable to grow through this hard crust and obtain sufficient water. If the soil has remained compact about the roots it is best to remove the burlap at planting time.

Loosen the burlap, set the plant in the hole, and then slip the burlap out from underneath the ball. Puncture the ball with a sharp pick in a few places if it is especially dry and hard, and fill the hole half full of water to soften this outer crust.

When the soil has become loosened in handling, the plant should be set with the burlap attached. Fill the hole about half full of soil and firm it thoroughly around the roots. Care should be taken, however, not to break or injure the roots in the firming process. If the soil is dry it is well to add a pail of water at this stage. This will help to settle the soil around the roots as well as to supply moisture. Finish filling the hole with soil, packing it firmly as it is added. Only the good top soil should be used in filling the

Fig. 12.—A picture well framed, but wanting a proper background.

hole; do not use the subsoil. Leave a slight hollow around the trunk when the hole is filled and add a half pail of water. Let this soak in and then add the other half. Then pull some loose soil around the plant, filling the hollow. Do not firm this but leave it loose for a mulch.

The amount of water added at planting time will, of course, depend on the amount of moisture in the soil. Enough should be added to loosen or soften the crust around the ball and leave the soil in the hole quite moist. Do not add too much water, as evergreens can be easily drowned; however, if good drainage is supplied, there is little danger of this happening. If planting is done in the spring, the plants should be watered at intervals of a week or ten days all summer. Pull the loose soil away from the plant and add the water as at planting time. With fall planting, water until the time the ground freezes. When watering is done give a good soaking. A light

sprinkling of water will never reach the roots, but there will be a tendency for the roots to reach up after this water instead of down and this is liable to bring on a serious winter condition.

It should be remembered that during the whole planting operation the roots should never be exposed to the air. Wind or sun will dry them out quickly. For this reason it is better to plant on a dull, damp day if possible.

A puddling process is often used if there is very little soil on the roots of the plants. This is often necessary when dealing with collected stock. "Puddling" consists in dipping the roots of the plants in a basin hollowed out of the soil and filled with a molasses-like mixture of *loam* and water. This puddling process leaves a coating of mud over the fine roots and prevents excessive drying out until the material is planted. A few precautions should be taken in this puddling process. Do not use clay to make up the "batter" or leave the plants lying around uncovered, especially in the sun, after dipping them. If a clay batter is used it may dry and form a hard coat around the roots that is nearly impermeable to water and to the roots.

Remove the labels from the plants as they are set. As growth proceeds, the wire by which the label is attached will cause serious trouble.

Pruning when Planting.—Very little pruning needs to be done at planting time. There will probably be necessity for more with collected stock than that obtained from nurseries. If any of the roots have become broken in digging or handling, trim them off with a good clean cut. If the planting is done in the fall it is advisable not to do any top pruning until the following spring. April seems to be a good month to do this pruning job. Simply trim with a clean cut any broken, dead, or cross limbs. With spring planting, pruning can be done at the time of planting. (For suggestions on yearly pruning, see page 20.)

Replacing a Broken Leader.—With narrowleaf evergreens, in case the leader is injured during planting or at any time thereafter, cut it off with a sharp knife and tie a new branch up in its place. This can be done by taking one of the side branches nearest the top of the tree and bending it in an upright position. It should be tied in this position by using a stake and soft string. After one season's growth in this position the tree will take this new leader without showing any defects in the appearance of the plant.

Mulching after Transplanting.—If the planting is done in the spring and if reasonable care will be given the plants during the summer, do not mulch at the start. The best practice is to stir the soil at intervals of a week or ten days, preferably soon after watering; in this way a good "dirt mulch" is provided. However, if time cannot be taken to stir the soil at frequent intervals during the growing season, it is better to mulch at the time of planting. This is always the best practice with broadleaf evergreens.

If the transplanting is done rather late in the fall and the ground is subject to light freezing and thawing, the best treatment is to place immediately around each plant a light mulch of stable litter or peat moss three or four inches in depth. Peat moss is best where an acid soil must be maintained. This is done in order to maintain an even temperature in the soil and to keep it sufficiently warm so that some root growth will start before freezing conditions develop.

Fertilizers Best Suited to Evergreens

COMMERCIAL fertilizers have been used very sparingly with evergreens. It is the common opinion that bone meal, nitrate of soda, and ammonium sulfate have not been as satisfactory as well-rotted cow manure. The manure may be applied in the fall, used as a mulch around the plants, and incorporated in the soil the following spring. For plants not yet fully established and for those that are ailing, nothing is so good as three or four applications of liquid manure during a two or three months' period.

If manure is not available, ammonium sulfate applied at the rate of 2 to 3 pounds per 100 feet is a good commercial fertilizer to use. Tankage has given good results with small evergreens, applied at the rate of 8 to 10

Fig. 13.—An interesting planting of broadleaf Evergreens. Rhododendrons, Mahonia, and Vinca in the center; at the extreme right, Cotoneaster with English Ivy climbing on the wall.

pounds per 100 square feet. For complete fertilizers, a 10-6-4 or 4-12-4 will give good results. A 3- to 4-pound application per 100 square feet will be sufficient. Many times evergreen plants can be kept in a healthy vigorous condition by simply mulching with partially decayed leaves, straw or hay in the fall and incorporating this in the soil in the spring.

Fertilizers for Broadleaf Evergreens.—The important point to consider in the fertilization of many of the broadleaf evergreens is that the soil must be acid. Fresh manure, wood ashes, bone meal, lime, or any other fertilizers containing lime or materials that will sweeten or neutralize the soil should not be used.

In organic materials there is nothing better than American or imported peat moss dug into the soil as well as applied as a mulch. This material is

now easily obtained and is not expensive. Half rotted oak leaves are fine, but refrain from using leaves of sugar maple, elm, and basswood.

In inorganic materials ammonium sulfate may be considered best. Two or three pounds per 100 square feet may be applied two or three times during the growing season; two applications can be given in early spring, about three weeks apart, and the other in midsummer. It is best to water the fertilizer in immediately after application.

Applying the Fertilizers.—When the evergreens are located in beds, the recommendations for fertilizers given, will be satisfactory. Specimen evergreens of the shrubby type should receive about ½ pound per plant, twice a year. The applications should be given early in the spring and about July 1. For specimen trees apply ½ pound of fertilizer for each inch in the diameter of the tree. The fertilizer may be broadcast on top of the ground and watered in, or better, applied in five or six holes around the circumference of the tree even with the outer spread of the branches. The holes should be made 18 to 24 inches deep with a soil auger or crowbar, the fertilizer put in, and the holes filled with good soil. Two applications as mentioned above will be sufficient.

Pruning for Perfect Development

THE pruning given at the time of setting has already been mentioned (see page 18). As stated at that time, evergreens require very little pruning. Pruning is done only to maintain a compact symmetrical growth, to remove dead or injured branches, and to remove interfering branches.

Narrowleaf Varieties.—Some of the narrowleaf evergreens—the retinosporas, junipers, yews, and arborvitaes—can be pruned at almost any time with good results. However, pruning is commonly done in May or just prior to the time when new growth is most active. The simple process of pinching back the buds on the terminal growth is often all the pruning that will be required. The group comprising the firs, pines, and spruces should be pruned only during the stage of most active growth.

Many growers prefer to leave evergreens entirely alone, doing no pruning. However, a little pruning, removing not over half of the new growth, and disbudding while the evergreens are still young, adds much to the natural symmetry and thus to the beauty of the mature plants.

Broadleaf Evergreens.—Broadleaf evergreens require even less pruning than the narrowleaf types. Many of these plants are naturally irregular in growth habit, so it is not necessary or even desirable to try to maintain a symmetrical form. With rhododendrons especially, and a few others, the old flower clusters should be removed as soon as they fade. They must be removed before July if any benefit is derived from the practice. Occasionally, they might be slightly cut back after blooming, if they become too straggly. In very old specimens, if they have become leggy, it is sometimes best to remove part of the old wood entirely to make room and to stimulate growth of new wood. Not over a third of the plant should be removed at any one time.

Seasonal Care of the Plants

Summer Care.—After once established, evergreens, especially the narrowleaf types, are more independent of care than most groups of plants. However, they will respond readily to some cultivation and care, and while young this is especially needed. The best recommendation to give regarding the summer care of newly planted evergreens is to apply a heavy mulch of half rotted leaves, straw, or hay over the well prepared soil bed.

With broadleaf evergreen and other acid soil plants, use only peat moss or half rotted oak leaves as a mulch. Continue using this mulch throughout the life of the plant.

This mulch on narrowleaf types can be left on during the entire summer; however, it is best to remove it four or five times during the summer, loosen up the soil, and water thoroughly. Tillage should be stopped by the middle of July so that the new growth will harden before the cold fall weather begins. With narrowleaf evergreens the mulch need not be maintained after the first year; however, it is well to keep the soil loosened up and water applied during the dry season for two or three years or longer.

It is often very beneficial to give the plants a good syringing three or four times during the growing season. This will keep the dust and dirt from accumulating on the leaves.

Peat moss is coming to be used quite extensively as a mulch for evergreens. Its advantages over those now commonly used are, that it is much easier to obtain, it is much less unsightly, it has considerably more value as a fertilizer than straw, and it is much more retentive of moisture, which factor is of great importance. Many landscape gardeners are reporting very satisfactory results with its use.

Winter Care.—Give the evergreen plantings a thorough soaking as cold weather approaches, so that the plants can go into the winter with a good supply of moisture. This is essential, because the plants are subject to considerable drying out by hard winds during the winter months. Evergreens going into the winter in a dry condition are often subject to winter killing.

During the first few years after planting, if the plants have not been mulched through the summer it is well to put on two to three inches of a good mulch as cold weather approaches. This will help to maintain a uniform temperature around the roots and root activity will continue later. After the ground freezes, it is advisable to mulch heavily around the young plants. Ten inches to a foot of the mulch may be used. This should extend two to three feet beyond the natural spread of the roots. This may serve the purposes of furnishing some protection to the tops if they are low evergreens, preventing drying out, and reducing alternate freezing and thawing, which causes heaving. Heaving is apt to be quite serious in heavy soil.

As the warm weather of spring approaches, it is well to remove the top mulch. That which was put on early may be left until it can be incorporated with the soil, and another mulch added.

Insects and Diseases

FORTUNATELY, insects and diseases are not very troublesome to ornamental evergreens. Good cultural conditions, and good care and attention will go a long way in preventing troubles of this nature, especially those caused by borers and bark beetles. Frequent stirring of the soil and occasional syringing are good preventive measures in controlling a number of the insects. Proper attention to watering and mulching during the summer and fall, and the provision of a heavy mulch for winter protection, will prevent most of the injuries such as winter killing, sun scorch, and frost injury to the roots.

Insects

Red Spider.—One of the most troublesome little pests of evergreens is the red spider. Red spider can best be controlled by spraying with common glue. Dissolve 1 pound of glue in 1 gallon of cold water. Dilute this by adding 4 gallons of water. Spraying should be done at about the time the hatching season is over, near the first of June and on a cool day. If the glue spray fails to stick the spiders fast the first time, go over the plants again with just a spray of water, making the glue sticky again.

One of the emulsified oils on the market may be used as a spray for red spider, but there is more danger of injury to the plant. Use a 1 per cent solution—½ pint to 12½ gallons of water. Apply the spray thoroughly when the temperature is below 85°F.; if the temperature is higher than this, burning is liable to result. A sulfur dust can be satisfactorily used.

Bagworm.—The bagworm is often very troublesome on arborvitae and cedar. Damage is done by the larvae eating the leaves and small twigs, and by defoliation caused by the band of silk girdling the twig to which the bag is attached. The bagworm may be controlled effectively by spraying with arsenate of lead, ¼ pound to 8½ gallons of water, as soon as the eggs hatch, which will be in early June. Hand picking may be resorted to where only a few trees are affected.

Pine Leaf Scale.—The pine leaf scale is often present in large numbers not only on various pines but also on spruces and firs. The pine leaf scale may be controlled by a sulfur spray 1 to 7, or by using nicotine sulfate, 2 tablespoons to 6 gallons of water. The spray application should be given after the eggs have hatched and before the young have formed a protective scale. This will be in May or early June. The Juniper scale, although different, is controlled by the same measures.

Spruce Gall Aphid.—Norway and white spruces are subject to attacks of the spruce gall aphid. This aphid causes the formation of cone-shaped galls on the smaller twigs. The spruce gall aphid can be controlled by a miscible oil spray in early spring, one part of oil to twenty parts of water. Lime sulfur may be used effectively as a control measure at the rate of 1 quart to 2 gallons of water, or the dry lime sulfur at the rate of 2 pounds to 6 gallons of water. The spruce bud scale often occurring on the same plants is controlled by the miscible oil spray.

The Arborvitae Leaf Miner.—The tips of arborvitae leaves turn brown, a condition resulting from the interior being mined by a small caterpillar. Cutting off and burning the infested leaves in the fall or early spring will destroy many of the pests. Thorough spraying with tobacco soap preparation early in July will destroy many of the young caterpillars.

The Pinebark Aphid.—The Pinebark aphid, causing patches of white downy material on the smooth back of the trunk and undersides of the limbs of White Pine and Balsam, is quite common. These white patches are dark brown plant lice covered with a woolly secretion. The control measure is to syringe with water under considerable pressure where it is possible. Spraying under pressure with a tobacco preparation to which has been added soap has given good results. The spray should be applied in May as the young are emerging, and repeated as required.

The Rhododendron Lace Bug.—This insect causes considerable injury to the Rosebay Rhododendron *(R. maximum)* and its varieties and to the Mountain Laurel *(Kalmia latifolia)*. The insect feeds on the undersides of the leaves, causing a light, mottled spotting of the leaves. This pest may be controlled by applications of whale-oil soap at the rate of ¾ pound to 6 gallons of water, provided the spray is directed against the undersides of the leaves and applied as soon as the nymphs are noticed.

Boxwood Leaf Miner.—The boxwood leaf miner occurs on all varieties of boxwoods. The first sign of injury likely to be noticed is a small yellowish or light green spot on the upper leaf surface. Directly under this, on the lower surface, is a pronounced irregular, oval blister, caused by the young maggot enlarging its mine. Later in the season the upper leaf surface shows a yellow or brownish discoloration. Spraying with a molasses solution, using ½ pound to 6 gallons of water, just as the midges begin to issue from the leaves (which will be the latter part of May or early June), has given satisfactory control. The application may be repeated two or three times during the season when the yellow flies are numerous.

Holly Leaf Miner.—The American Holly leaf miner is troublesome in many places. The work of this insect is detected by yellowish or yellowish-brown mines in the rich green leaves of the holly. The most promising method of controlling the miner is to spray with tobacco soap solution, such as 2 tablespoons of Black Leaf 40 to 8 gallons of water, to which is added ½ pound of cheap soap. The first application should be made the last of May or early June. The spray may need to be repeated in July.

The Rhododendron Clear Wing.—Wilting or yellow rhododendron leaves on small plants or twigs, and the occurrence of whitish, boring caterpillars just under the bark, are characteristic of this insect. The rhododendron borer limits its operations largely to stems or branches a foot or more above the ground. The most effective control measure is to prune out and burn all dead or infested portions of bushes in the fall or winter. Large plants may be protected by first scraping the injured parts and then applying a coat of thick tar paint, one in the fall and another in the spring, in late April or early May.

Diseases

Less trouble arises from diseases of ornamental evergreens than from insects. A few are serious, however, and need to be considered.

Juniper Blight.—This disease is the cause of considerable damage in the nurseries. As its attacks are confined largely to young plants, it is not as serious in home plantings, although considerable damage is sometimes done. Infection takes place on the tips of the branches during wet or cloudy damp periods. The fungus grows downward, beneath the bark; and eventually the twig, branch, or even the entire plant is killed. The control measure at present seem to be largely that of choosing resistant strains. *Juniperus chinensis*, its varieties, *J. excelsa stricta*, and *J. virginiana keteleeri* seem to be the most immune. The regular removal of the blighted tips and a periodic spraying with mercurous chloride, 1 ounce to 4 gallons of water, throughout the growing season, have given good results.

Fig. 14.—Two Boxwood plants constitute this foundation planting; simple, but very effective.

Rhodedendron Tip Blight.—The first symptom which is noticeable in the tip blight, is a drooping of the leaves of the current season's growth and a "die-back" condition of the young growth. Entire plants may be destroyed as the fungus develops. Since the same disease is common to lilacs and probably spreads from them to the rhododendrons, one of the best control measures is not to plant the two in close proximity. In case of established plantings, clean the lilacs of dead wood and spray with a dormant spray of lime sulfur. With the rhododendrons, in addition to removal of diseased branches, frequent sprayings with Bordeaux mixture 4-6-50 as soon as indications of the disease are observed are beneficial.

Rhododendron Wilt.—The rhododendron wilt makes its first appearance in somewhat the same way as the blight. The young leaves wilt, preceded usually by a yellowing of the foliage. The roots are often decayed by

the time the foliage wilts. A spraying of Bordeaux mixture is the best control measure at present.

Pestalozzia on Rhododendrons.—The pestalozzia disease, while formerly thought to cause most of the troubles with rhododendrons, has been found to be of slight importance and does little damage to ornamental plantings.

Leaf Spot and Twig Blight of Kalmia.—There are two fungous diseases which cause these troubles on the mountain laurel. They are first noticed as leaf spots, or by the dying of the leaf tips and margins, resembling sun scald or wind injury. Small, irregular, dark brown spots occur over the entire leaf, gradually growing larger and coalescing. The fungus may also extend to the twig, causing twig blight. The best control measure for the home owner is to use strict sanitary measures, cleaning leaves from the ground and keeping infected leaves picked from the bush.

Box Canker.—This disease is first noticed by the failure of the branches on an entire plant to put forth a normal and vigorous new growth in the spring. This is caused by a canker, usually found where several branches unite. Control measures consist of thorough spraying with a 4-6-50 Bordeaux mixture in the spring before growth starts. This also is a control measure for the leaf spotting fungi which may occur on boxwood. Each spring all old leaves lodged in the center of the plants should be thoroughly shaken out, collected from the ground and burned. All dead branches and stubs should be pruned out, and the wounds painted with a good wound dressing.

Propagation of Evergreens

MOST of the home owners planting evergreens about their property will not be interested in the propagation of these plants. For the most part they are a difficult group of plants to propagate, considerable equipment being necessary for their production.

Propagation by Seed.—Most of the species of both the narrow and broadleaf types can be propagated by seed. The seed, however, is often expensive, and unless the home owner is provided with good soil and can give the young seedlings careful attention his success as a propagator will not be great.

Seeds of many of the broadleaf evergreens must be started in a greenhouse, and require very careful attention during the first three or four years. Others, like the seeds of most of the narrowleaf evergreens, may be started outside in a specially prepared seedbed. The soil for such a bed must be thoroughly prepared. The seedbed should be provided at the sides with foot boards for protection to the young seedlings. Shades of muslin or lath must be provided. An adequate supply of water must be available.

Propagation by Cuttings and Grafting.—The various varieties of the narrow and broadleaf evergreens are propagated either by cuttings or grafting. Besides considerable equipment, a great deal of skill is required if success is obtained by these methods of propagation. Both methods are usually carried out in the greenhouse during the fall and winter seasons.

While it is possible for the amateur to propagate evergreens, proving a delightful pastime for those that have the time and equipment, it is not advis-

able for the average home owner to attempt it. The nurserymen are able to furnish better plants, at less expense, than the home owner can produce himself.

Summary of Requirements

1. Use only hardy plants.
2. Plant at a time which will allow the plants to become well established before the trying times of summer or winter.
3. Have a well prepared soil, that is warm and contains plenty of moisture.
4. Provide sufficient drainage.
5. Never expose the roots while planting.
6. Plant firmly and water thoroughly.
7. Use only good soil in planting.
8. Keep the top soil loose or mulch during the summer and *water*.
9. Mulch—for protection and as a means of supplying fertilizer.
10. Prune when necessary.

Fig. 15.—*Rhododendron carolinianum* in flower. The best rhododendron for cold climates.

Additional Important Points Applying Especially to Laurel, Rhododendrons and other Broadleaf Acid-Soil Plants.

1. Be sure that an acid soil is maintained. Use a mulch of peat moss or half-rotted oak leaves and add aluminum or ammonium sulfate. Do not add any materials that will tend to neutralize the soil, such as lime, wood ashes, or fresh manure.
2. Maintain a cool, moist soil by providing partial shade and mulches.
3. Provide some protection in the winter from hard drying winds and excessive sun exposure.
4. Roots of most broadleaf evergreen plants are located very near the surface of the soil and do not like to be disturbed. Mulch rather than cultivate.
5. Be sure that the plants are supplied with sufficient water before the ground freezes in fall; never let them go into the winter in a dry condition.

Lists of Evergreens

The following list is a compilation of the best evergreens, together with a short description and notes on the use of each one.

Narrowleaf Evergreens

Abies concolor — WHITE FIR

Southern Rockies. Height, 120 feet. Moderately rapid growth, conical shape; branches hold to the ground. Adapted to wide variation of soil. One of the most beautiful and most satisfactory firs for cultivation in eastern and midwestern United States. Withstands heat and drouth better than any other fir. Specimen tree for lawn.

Abies homolepis — NIKKO FIR

Japan. Height, 120 feet. Broad pryamidal tree; branches hold to the ground. One of the most satisfactory ornamental firs, a good companion to *A. concolor*. Specimen tree for the lawn.

Abies nordmanniana — NORDMANN FIR

Caucasus, Asia Minor, Greece. Height, 150 feet. Narrow pyramidal tree with dark green, shining foliage above, silvery beneath. One of the best of the firs for specimen plants.

Abies veitchi — VEITCH FIR

Central Japan. Height, 75 feet. Broad pyramidal habit of growth. Desirable species, particularly handsome when young. Specimen plant or for mass planting as screens.

As with most of the firs this one delights in a cool soil and climate; it is impatient of smoke and soot, so does not thrive very well in cities.

Chamaecyparis pisifera — SAWARA CYPRESS

Japan. Height, 100 feet. A relatively small but fast growing species with horizontal branches. Narrow pyramidal, loosely branched tree; tends to become thin and open with age. Used as a border plant. There are many good varieties in the trade that vary much in form and color of foliage. Varieties *C. p. filifera*, *plumosa*, and *squarrosa* are best. These are smaller and slower in growth and may be used as foundation plants, for beds or borders.

Chamaecyparis nootkatensis — NOOTKA CYPRESS

Northwest coast. Height, 120 feet. Handsome tree of pyramidal shape with dark green, lustrous foliage. The branchlets have more or less pendulous tips. Use as a specimen plant or for mass planting.

Chamaecyparis obtusa — HINOKI CYPRESS

Japan. Height, 150 feet. Narow pyramidal tree that is light and graceful in its effect. Apt to be open and thin in later years; obviated by annual pruning when young. Best in fertile acid soil. Use as a specimen or for mass planting.

Chamaecyparis obtusa nana — DWARF HINOKI CYPRESS

May become 10 feet, but very slow growing. One of the best and handsomest of all low evergreens. Can be used in the foundation planting, in beds, as a specimen or as a rock garden plant.

Other good varieties of *C. obtusa* are *compacta*, *crippsi* and *gracilis*. They may be used the same as *C. obtusa nana*.

Juniperus chinensis — CHINESE JUNIPER

China, Japan. Height, 60 feet. The type form of this plant is a tree with

slender branches. It sometimes becomes shrubby and procumbent. Many garden forms are in cultivation, two are mentioned.

Juniperus chinensis pfitzeriana PFITZER JUNIPER

Usually not exceeding 6 feet. A dense shrub with wide spreading branches and nodding branchlets. Blue-green foliage. Useful in the foundation planting, as a specimen, for beds and for the rock garden.

Juniperus chinensis sargenti SARGENT JUNIPER

A very desirable low prostrate form rarely exceeding 1 foot. Forms a dense mat with the branches slightly ascending at the tips. Does well in poor soil. Useful in the rock garden, for covering steep banks, as a foundation plant, and for beds.

Juniperus communis COMMON JUNIPER

Europe, Asia, Eastern U. S. Variable upright shrub or tree to 40 feet. Endures light sandy soils. Several garden forms are worthy of cultivation.

Varieties *J. depressa* and *montana*, low prostrate forms, and varieties *hibernica oblonga suecica* and *pendula*, narrow columnar forms, the latter with pendulous branchlets, are the best. These varieties are useful in the foundation planting, in beds, and as rock garden subjects.

Juniperus excelsa stricta SPINY GREEK JUNIPER

A slow growing form of *J. excelsa*, the Greek Juniper, native of Greece, rarely exceeding 6 feet. Columnar form with juvenile glaucous foliage. Useful in the foundation planting, for beds, as an individual specimen plant, and as a rock garden plant.

Juniperus horizontalis CREEPING JUNIPER

Nova Scotia to British Columbia, south to Massachusetts, New York, Minnesota, and Montana. Low procumbent shrub with long trailing branches, rarely exceeding 2 feet. Valuable as a ground cover for sandy and rocky soil in exposed situations. A good rock garden plant. Two varieties are common, *J. horizontalis douglasi*, the Waukegan Juniper, similar in habit to the type plant but its foliage turns deep purple in the autumn, and *J. horizontalis plumosa*, which is often sold incorrectly as a variety of *J. communis depressa*. *J. horizontalis plumosa*, a native of the sea coast of Maine, is slightly more upright in habit of growth than the type. It is perhaps the most charming low juniper with its blue-green summer foliage, which turns purple in the fall and lasts throughout the winter. This variety is useful in the foundation planting, in beds, and in the rock garden.

Juniperus procumbens TRAILING JUNIPER

Japan. Low, spreading plant, not exceeding 2 feet. Somewhat tender. Useful as a ground cover and as a rock garden subject.

Juniperus sabina SAVIN JUNIPER

Europe and Asia. Height, 6 feet. Low, spreading shrub with dark green foliage. Does well on limestone soil. May be used as a foundation plant, as a specimen, for beds or for the rock garden.

One variety is common, *J. sabina tamariscifolia*, the Tamarix Savin. Procumbent or prostrate shrub rarely exceeding 3 feet. Attractive dark or bluish-green foliage. Very susceptible to the Juniper blight. May be used in the same way as the type plant.

Juniperus scopulorum COLORADO JUNIPER

Rocky mountains. Height, 50 feet. A narrow pyramidal form with very glaucous, sometimes nearly silvery-white leaves. Used as a specimen, for mass planting, and as a screen.

Juniperus squamata

Himalayas, Western China. Decumbent shrubs rarely exceeding 2 feet, branchlets thick and often ascending. Foliage grayish-green. Useful as ground cover, for the rock garden, and in the foundation planting.

One variety is common, *J. squamata meyeri*, Meyer Juniper. Upright in habit of growth and densely branched. Bluish-white foliage. Useful in the rock garden, as a specimen plant and for beds.

Juniperus virginiana RED CEDAR

United States east of Rocky mountains. Height, 100 feet. Columnar in outline with upright or spreading branches; green to yellow-green foliage. One of the most hardy of the evergreens but is apt to be open and raggy when old. Should be given sunny exposures and well drained soil. Best used for screen planting, occasionally as a foundation plant.

Many varieties of *Juniperus virginiana* are common. The best are:

cannarti—A compact form with dark green foliage.

elegantissima—Tips of branchlets golden.

glauca—Vigorous form with bluish-white foliage.

globosa—A compact globose form with bright green foliage.

keteleeri—Compact pyramidal form with dark green foliage. Very resistant to the Juniper blight.

pyramidalis—Dense columnar form.

schotti—A small columnar form with bright green foliage.

tripartita—A dwarf, spreading form, 4 to 6 feet, densely branched and with glaucous foliage. All the forms make good specimen plants. The smaller, lower growing varieties may be used in the foundation planting. Those with striking foliage should be used sparingly.

Picea canadensis WHITE SPRUCE

Alaska, south to Minnesota and New York. Height, 60 feet. Dense habit, especially when young, with ascending branches and bluish-green foliage. Longer lived, smaller, and slower growing than the Norway Spruce. Very hardy, will stand cold, heat, drouth, boggy and lake front conditions better than most of the spruces. Useful as windbreaks, screens, and specimen plants.

Picea engelmanni ENGELMANN SPRUCE

British Columbia and Alberta to Oregon, Arizona, and New Mexico. Height, 150 feet. Narrow, compact, symmetrical pyramid with slender spreading branches and steel-blue foliage. Not a rapid grower. Tends to lose its lower limbs with age. Blue foliage forms are common and when properly arranged are superior to the Blue Spruce. Useful as a specimen plant.

Picea excelsa NORWAY SPRUCE

Northern Europe. Height, 150 feet. A rapid growing pyramidal tree with spreading, ascending branches and pendulous branchlets. Foliage dark green. It is best in light rich loam, but usually grows freely in any soil not wet. Stands exposed lake front conditions. Apt to become open, ragged, and lose its lower limbs after 30 to 35 years. One of the best of the conifers for windbreaks but plants should be given plenty of room; set in a double row, staggered, 15 to 20 feet apart. Best used for screens, windbreaks, and for specimen plants; fairly satisfactory as a hedge.

There are a number of dwarf varieties of Norway Spruce, but they are not common. These dwarf types may be used in the foundation planting, as specimens, for hedges and as rock garden subjects.

Picea omorika SERBIAN SPRUCE

Southeastern Europe. Height, 100 feet. A narrow pyramidal tree with short, spreading and ascending branches. Foliage dark green and shining below and white above. Rapid grower, but somewhat addicted to borers. One of the best spruces for the northeastern states. Should be used as a specimen plant, perhaps for screens.

Picea orientalis ORIENTAL SPRUCE

Caucasus, Asia Minor. Height, 100 feet. A slow growing pyramidal tree with spreading and ascending branches. Leaves are short, blunt, dark green, crowded and more or less appressed to the branches. It retains its lower branches better than the other spruces with the possible exception of the Serbian Spruce. Because of its slow growth it is adapted to use on small properties. Should be used as a specimen plant.

Picea pungens COLORADO SPRUCE

Wyoming to Colorado, Utah and New Mexico. Height, 80 to 100 feet. A broad pyramidal tree with stout, horizontal branches. Foliage bluish-green to silvery-white. Tends to lose its lower branches at an early age and become unsightly. One of the best spruces for dry climates. Two varieties are common; *P. pungens glauca*, a form with blue foliage, and *P. pungens kosteri*, a form with bluish-white foliage and pendulous branches. All are useful as specimens when set against a proper background of green foliage plants.

Pinus cembra SWISS STONE PINE

Alps. Height, 70 feet. A slow growing, symmetrical, dense, narrow pyramidal tree. Needles five in a bundle. Flourishes on thin, stony soil in exposed situations. Useful as a specimen plant, especially on small properties.

Pinus montana SWISS MOUNTAIN PINE

Mountains of Central and Southern Europe. Height, 30 feet. A plant of variable habit of growth. Usually a low shrub with ascending branches. Needles two in a bundle. Useful as specimens, screens and for planting on rocky slopes.

The variety *P. montana mughus*, Mugho Pine, is more commonly used. A dwarf, compact plant with many branches. Height, 3 to 4 feet. May be used in the foundation planting, as specimens or as a rock garden subject.

Pinus nigra austriaca AUSTRIAN PINE

Southeastern Europe. Height, 100 feet. A broad pyramidal tree with dark green rigid needles, two in a bundle. This form will stand more moist soil than most pines. Adapted to wide range of soil conditions. A coarse, strong, rapid grower. Use this plant for screens and windbreaks.

Pinus resinosa RED PINE

Newfoundland to Manitoba, south to Pennsylvania, to Michigan, Wisconsin, and Minnesota. Height, 70 feet. A broad pyramidal tree with stout spreading branches. Rapid growing and one of the best of the pines. Needles two in a bundle and dark green. Useful as screens, windbreaks, and specimen plants.

Pinus strobus WHITE PINE

Newfoundland to Manitoba, south to Georgia, Illinois and Iowa. Height, 100 feet. A symmetrical pyramidal tree with horizontal branches in regular whorls. With age the head becomes broad and open and very picturesque. Leaves five in a cluster, soft and bluish-green. This pine will stand pruning to a 4 to 5 foot hedge or higher screen. It will do best in deep rich soil but will stand light sandy or heavy clay soil. Besides screens and hedges it may be used as windbreaks and specimen plants.

Pinus sylvestris SCOTCH PINE

Europe to Western Asia. Height, 70 to 100 feet. A pyramidal tree with spreading, somewhat pendulous branches, often becoming round-topped and picturesque with age. The needles are twisted, bluish-green and two in a cluster. More resistant of dirt and impure air than most pines; because of this, it stands congested city conditions fairly well. Endures light sandy soil and exposed situations. Useful as specimen plants, screens and windbreaks.

Pseudotsuga douglasi DOUGLAS FIR

Western states. Height, 200 feet. Pyramidal tree with horizontal branches and drooping branchlets. Buds brown and long pointed. Lower limbs will remain near to the ground when given plenty of room. Can be pruned to a hedge. Useful as a specimen plant, windbreaks, screens, and hedges.

Fig. 16.—Evergreens provide a charming background for an architectural seat.

Sciadopitys verticillata UMBRELLA-PINE

Central Japan. Height, 120 feet. While the leaves of this plant resemble a pine, it is not a pine. Instead of being in bundles the dark green leaves occur in whorls at the ends of the branches. It is of slow growth and forms a narrow pyramidal tree. Useful as a specimen plant.

Taxus baccata ENGLISH YEW

Europe, N. Africa, and W. Asia. Height, 60 feet. Not hardy north of Cincinnati. A fine specimen plant for the south. Three varieties are common.

T. baccata fastigata—Irish Yew—Fastigate form with crowded upright branches. A fine evergreen for the formal garden.

repandens—Spreading English Yew—Hardier than the type, low, with wide spreading branches. Can be used in foundation plantings, beds, or in rock gardens.

T. baccata washingtoni—Washington Yew—A spreading form with golden yellow foliage.

Taxus cuspidata JAPANESE YEW

Japan, Korea and Manchuria. As seen in cultivation usually not over 5 feet high, but in its native habitat it becomes 50 feet or more. A plant with upright spreading branches and splendid dark green foliage. One of the best, if not the best, of the low growing evergreens. Retains its green color through the winter. Perfectly hardy and will stand shade. May be used as a specimen plant, for beds, for borders, in the foundation planting or for a satisfactory hedge.

Two varieties are common:

T. cuspidata capitata—An upright form of the type plant.

Fig. 17.—An especially pleasing entrance planting of *Taxus cuspidata capitata,* banked with *Heucheria sanquinea,* the Coral Bells.

T. cuspidata nana—Dwarf Japanese Yew. Often incorrectly sold under the name *T. brevifolia.* The best of the low evergreens. A fine plant for foundation planting and low hedges.

Taxus media hicksi HICKS YEW

An upright growing type resembling the Irish Yew but much hardier. A columnar form with upright branches attaining a height of 5 feet. Best used as an accent plant in the foundation planting.

Thuja occidentalis AMERICAN ARBORVITAE

Nova Scotia to Manitoba, south to North Carolina, Tennessee, and Illinois. Height, 60 feet. Plant with short horizontal branches ascending at the end and forming a narrow, pyramidal, compact head; will do well under adverse conditions but becomes rather unattractive during the winter. One of the best evergreens for hedges when trimmed so the base is not shaded. Useful as specimens, foundation

plants, screens, windbreaks, hedges, and borders; and some of the forms, as rock garden plants.

Common varieties of *Thuja occidentalis* in cultivation, mostly 4 to 10 feet:

columbia—Columbia Arborvitae—Sturdy grower, foliage marked with silver.

compacta—Parsons Arborvitae—Small, compact globose form with slender branches and light green foliage.

douglasi pyramidalis—Douglas Pyramidal Arbovitae—A dense pyramidal form reaching 20 feet. One of the best for accent plants and screens.

elegantissima—A broad pyramidal form. Foliage heavy, compact and bronze tipped. Correctly, a variety of *Thuja plicata.*

ellwangeriana—Tom Thumb Arborvitae. A low broad pyramidal form with two types of foliage.

ericoides—Heath Retinospora—A dwarf, globose form with juvenile foliage.

globosa—Globe Arborvitae—Dwarf globose form; lower and smaller than var. *compacta.*

hoveyi—Hovey Arbovitae—A dwarf, dense, globose form with bright green foliage.

Little gem—Little Gem Arborvitae—Perhaps finest of small evergreens; a very dwarf dark green form growing broader than high.

lutea—George Peabody Arborvitae—Pyramidal or columnar in habit with light yellow or orange-yellow young foliage.

riversi—Rivers Arbovitae—Compact, pyramidal form with yellowish-green foliage.

rosenthali—Rosenthal arbovitae—Columnar form with dark green lustrous foliage.

spiralis—Spiral Arbovitae—Compact form with compact, twisted branchlets.

vervaeneana—Vervaene Arborvitae—A smaller and denser form with yellowish foliage, bronzy in winter.

wareana—Ware Arborvitae—Dense pyramidal type with bright green foliage not fading during the winter. One of the best for hedges.

woodwardi—Dense globose form with deep green foliage. Also retains its color during the winter.

Thuja orientalis ORIENTAL ARBORVITAE

North China and Korea. Height, 60 feet. Usually not attaining this height in cultivation. Bushy plant with spreading and ascending branches. Foliage appearing in a vertical spray. Not hardy in northern localities nor satisfactory for midwestern conditions. May be used the same as *T. occidentalis.* The varieties generally used as accent or specimen plants.

A few varieties of *T. orientalis* are common:

aurea nana—Beckmans Golden Arborvitae. A small, compact form with yellow foliage, more tender than the type.

elegantissima—Yellow Column Arborvitae. Columnar form with yellow foliage which becomes greenish with age.

pyramidalis—Oriental Pyramidal Arborvitae. Pyramidal form with bright green foliage, supposedly hardier than the species.

Thuja plicata GIANT ARBORVITAE

Montana and West Coast. Height, 200 feet. Much smaller as grown in cultivation. Narrow pyramidal tree, with short horizontal branches. Foliage bright

green, glossy or bronzy above, dark green beneath. Its outstanding feature is that it retains its green color during the winter. May be used as screens or hedges.

Thuja standishi — STANDISH ARBORVITAE

Japan. Height, 50 feet. A broad pyramidal tree with spreading branches. Foliage differs from that of other species, usually thinner and more open. Used as specimen plant.

Tsuga canadensis — CANADA HEMLOCK

Nova Scotia to Maine, South along mountains to Alabama. Height, 70 feet. Handsome tree, with graceful, sweeping branches. Leaves shining dark green above, silvery-green below. The foliage spray is flat. Does well in a wide range of soil conditions. Prefers moderately acid soil. Stands full shade or sun. Stands pruning to make a wonderful hedge. Can be used for screens, windbreaks, and specimen plants. The variety *T. canadensis pendula*, Sargent Weeping Hemlock, is a dwarf, weeping form useful for foundation planting and for specimen plants.

Tsuga caroliniana — CAROLINA HEMLOCK

Virginia to Georgia. Height, 70 feet. More compact in habit of growth and with darker green foliage than the Canada Hemlock. Very graceful and fine for general planting. Desires a well drained soil. Used especially as specimens, screens, and hedges.

Tsuga diversifolia — JAPANESE HEMLOCK

Japan. Height, 60 to 80 feet. Usually not as large in cultivation. A graceful and handsome tree. Hardy at Wooster, Ohio. Used as specimen plants.

Tsuga sieboldi — SIEBOLD HEMLOCK

Japan. Height, 100 feet. Similar to the preceding but larger. Leaves rather short and yellowish-green. Makes a fine specimen plant.

Broadleaf Evergreens

Arctostaphylos uva-ursi — BEARBERRY

Northern hemisphere. A low growing, creeping shrub with small dark green leaves. Often forms a dense evergreen carpet. Prefers a sandy, well drained, acid soil. Will do well in either sun or shade; better when not fully exposed to sun in winter. Used as ground cover. A fine rock garden plant.

Berberis buxifolia — MAGELLAN BARBERRY

Chili, Strait of Magellan. Upright shrub to 10 feet. Hardy as far north as Southern Ohio and Philadelphia. Prefers sunny situations and a soil near neutral. Three varieties are known, *B. buxifolia nana* and *pygmaea*, dwarf forms, and *B. buxifolia spinosissima*. A compact shrub, and one of the hardiest of the evergreen barberries. The type plant is fine for beds and foundation plantings. The dwarf forms are good rock garden plants.

Berberis gagnepaini — BLACK BARBERRY

W. China. An upright shrub to 6 feet. Hardy only as far north as the preceding species. Leaves narrow and light green. This species is useful in beds, border and foundation plantings where it is hardy.

Berberis ilicifolia — HOLLY BARBERRY

S. Chile. A straggling semi-evergreen shrub to 6 to 8 feet. Leaves dark green with a few spiny teeth near the tip. Orange yellow flowers attractive in early spring. Prefers well drained soil and partial shade. Hardy at least as far north as Philadelphia and Columbus. Useful as a border plant.

Berberis julianae WINTERGREEN BARBERRY

Central China. A handsome evergreen plant of upright habit of growth, 4 to 6 feet high. One of the hardiest of the evergreen barberries. Fine for foundation planting, beds, and as a border plant.

Berberis sargentiana SARGENT BARBERRY

C. China. Height, 6 feet. A handsome plant with spreading spiny branches. Leaves are leathery and dark green. Entirely hardy only as far north as Philadelphia and Cincinnati. Interesting as a border and foundation plant.

Berberis stenophylla ROSEMARY BARBERRY

A hybrid evergreen plant reaching about 9 feet. A very graceful shrub with slender branches covered with golden-yellow flowers in spring. Hardier than the preceding species. A fine plant for the border or an evergreen bed.

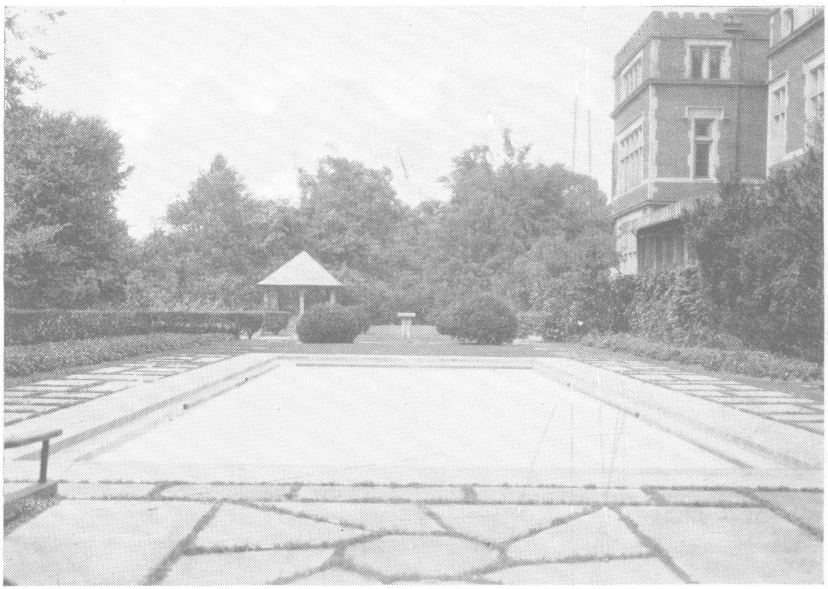

Fig. 18.—The four Boxwoods are pleasing in this formal court.

Berberis verruculosa WARTY BARBERRY

W. China. A low shrub 2 to 3 feet. A dense plant with small shining leaves that are dark green above, white beneath, and with rolled margins. Prefers a good, well drained soil. Hardy as far north as Philadelphia and Cincinnati. A fine foundation and rock garden plant.

Buxus microphylla

Japan. Height, 3 feet. A compact shrub that is not usually seen in cultivation as it is tender. The variety *B. microphylla japonica*, a spreading shrub to 6 feet is more commonly known. This plant differs from the common box by having a looser, more spreading habit and a lighter colored foliage. Another variety, *B. microphylla koreana*, a new plant, is useful; it is a smaller upright plant to about 1½ feet. These two varieties are the hardiest of the Boxes. Box may be used as specimen, foundation, or border plants and also for hedges and as rock garden subjects.

Buxus sempervirens COMMON BOX

S. Europe, N. Africa, W. Asia. Height, 20 to 25 feet. A very slow growing plant and usually requiring protection north of Cincinnati. A plant of shrubby, upright habit of growth. A plant doing well in either sun or shade. The variety *B. sempervirens suffruticosa* is the best known variety. A dwarf plant much used for edging. Other uses of this box are the same as for the preceding species.

Cotoneaster dammeri

C. China. A prostrate shrub with trailing, often rooting branches. Leaves are lustrous dark green and bright red fruit. A hardy plant useful for ground and rock gardens.

Cotoneaster microphylla ROCKSPRAY

Himalayas. Height 3 feet. A low shrub with spreading, prostrate branches. Attractive scarlet fruit in fall. An especially attractive plant for the rock garden and for ground cover.

Cotoneaster prostrata

Himalayas. An evergreen shrub to 12 feet with long arching stems and lustrous dark green leaves. Attractive red fruit in the fall. A beautiful specimen plant or useful in the border.

Three other semi-evergreen Cotoneasters which are more commonly known than the preceding: *Cotoneaster adpressa* and *C. horizontalis* are low growing and especially attractive as ground cover and rock garden plants and *Cotoneaster francheti*, an upright shrub with spreading branches, is especially attractive as a specimen plant because of its orange-red fruit in the fall.

Daphne cneorum ROSE DAPHNE

Central and Southern Europe. Height 12-18 inches. A procumbent shrub with slender trailing and ascending branches. Especially attractive and fragrant flowers in the spring. Prefers a well drained, cool, and slightly acid soil. A fine plant for foundation planting, for an evergreen bed, and for rock gardens.

Euonymus japonica EVERGREEN BURNINGBUSH

S. Japan. An upright shrub to 15 feet. Compact and with lustrous dark green leaves. Hardy as far north as Cincinnati and Philadelphia. Useful as a specimen and border plant where it is hardy.

Euonymus patens SPREADING EUONYMUS

China. A nearly evergreen shrub to 8 to 9 feet. Branches are sometimes prostrate. Hardy as far north as Philadelphia and Cincinnati. Useful as a specimen plant because of its attractive fruit in late autumn.

Euonymus radicans WINTERCREEPER

Japan and Korea. A low procumbent shrub, trailing and rooting or climbing, by root-like holdfasts on the stem, like English Ivy. Especially attractive yellow and orange berries like Bittersweet in the fall. Does well in neutral soil and in either sun or shade, and is entirely hardy.

A number of varieties of *E. radicans* are good:

acuta—Sharpleaf Wintercreeper. A rooting and climbing plant with more pointed leaves than the type.

carrierei—Glossy wintercreeper. A low spreading shrub that fruits very freely.

minimus—Baby Wintercreeper. A small-leaved variety.

E. radicans vegetus—Bigleaf Wintercreeper. A large-leaved sort, occasionally 3 to 4 feet tall and bushy. Fruits abundantly.

Other varieties are common. The wintercreeper and its varieties have a number of uses. The creeping sorts make fine ground cover plants, especially for steep banks and dense shade under trees. They are useful for climbing plants on stone and brick walls. The shrubby types can be used for low hedges and for foundation planting.

Gaultheria procumbens WINTERGREEN

Newfoundland to Manitoba, south to Georgia and Michigan. A low spreading plant, 6 to 8 inches high, that spreads by underground stems. The leaves are thick and glossy green with an aromatic, wintergreen odor when crushed. Does well in either sun or shade in an acid soil. Useful as a ground cover plant.

Fig. 19.—An effective step planting of *Euonymus radicans.*

Hedra helix ENGLISH IVY

Europe. A climbing or creeping plant with dark green lobed leaves. Climbs on brick and stone by root-like holdfasts on the stem. Should be planted in good, fibrous, moisture holding soil in positions sheltered from the winter sun. Should be planted on the north side of the house in colder climates. A fine plant for climbing on brick and stone and for ground cover in shady places.

Helianthemum chamaecistus COMMON SUNROSE

Europe and Asia. A low, creeping, almost prostrate shrub forming broad mats and bearing green leaves. The type plant has interesting yellow flowers in early summer. Varieties of the species have white or pink flowers. Prefers a well drained limestone soil. A perfectly hardy plant that is excellent for the rock garden or for ground cover.

Iberis sempervirens EVERGREEN CANDYTUFT

Europe and Asia. A low, prostrate, creeping shrub, forming dense mats. Produces an abundance of white flowers in early May. Does best in full sun and neutral soil. An attractive plant for edging, for the border and for the rock garden.

Ilex aquifolium ENGLISH HOLLY

W. and S. Europe, N. Africa, and W. Asia. Height 45 to 50 feet. A dense pyramidal tree with short spreading branches. Particularly fine because of its lustrous leaves, dense form, and the bright red fruit remaining on the tree during the winter. Not hardy north of Cincinnati. A wonderful specimen plant.

Ilex crenata JAPANESE HOLLY

Japan. Height, 20 to 25 feet. A slow growing much branched shrub that may be easily restrained into formal shapes or hedges. Has attractive black fruits. Hardy as far north as Cleveland. Prefers light, well drained but moist soil. The variety *Ilex microphylla*, the Little leaf Japanese Holly, is hardier than the type. These hollies are attractive as specimens or as foundation plants.

Ilex glabra INKBERRY

Nova Scotia to Florida, West to Missouri. Height, 6 to 8 feet. A graceful shrub with upright branches and handsome, lustrous, dark green foliage. Has attractive black fruits in autumn. Useful as specimen plants.

Ilex opaca AMERICAN HOLLY

Massachusetts to Florida, West to Missouri and Texas. Height, 40 to 50 feet. A narrow pyramidal tree with spreading branches. The dark green leaves have spiny margins. The red berries are borne one to a few in a cluster. Plant not as attractive as *Ilex aquifolium* but hardier. Prefers rich well drained soil. A fine specimen plant.

Kalmia latifolia MOUNTAIN LAUREL

New Brunswick to Florida, west to Ohio and Tennessee. A slow growing, bushy shrub, occasionally reaching 30 feet or more. One of the most beautiful American flowering shrubs and broadleaf evergreens. Its green foliage and abundance of white and pink flowers in May or June make it attractive throughout the whole year. The leaves do not roll in winter as commonly occurs with many of the Rhododendrons. Must be provided with an acid soil. Useful as specimen, border, or foundation plants.

Leucothoe catesbaei DROOPING LEUCOTHOE

Virginia to Georgia and Tennessee. A slow growing shrub to 6 feet with spreading and arching branches and large lustrous dark green leaves. Its fragrant, white, bell-shaped flowers borne on the ends of the branches are very attractive. Prefers an acid, peaty soil and partial shade. A fine specimen, border, foundation and rock garden plant.

Lonicera henryi HENRY HONEYSUCKLE

W. China. A semi-evergreen, twining, or postrate shrub. Useful in covering steep banks.

Lonicera japonica halliana HALL HONEYSUCKLE

E. Asia. Similar to the above and used in the same way.

Lonicera nitida

W. China. An upright shrub to 6 feet with small attractive leaves. Not hardy north of Cincinnati. Interesting as a specimen and rock garden plant.

Lonicera pileata PRIVET HONEYSUCKLE

China. A low shrub with spreading and prostrate branches and glossy green leaves. A hardy evergreen honeysuckle. Useful as ground cover and as rock garden plants.

Mahonia aquifolium — OREGON HOLLYGRAPE

British Columbia to Oregon. Height, 3 to 5 feet. An upright and widely branched shrub. Leaves compound, shining, dark green, leathery and spiny toothed; turn a deep bronze color in the fall or early winter. Prefers partial shady situations. Best as border plants.

Mitchella repens — PARTRIDGEBERRY

Nova Scotia. A low and creeping plant only a few inches high. Leaves small and lustrous dark green. Requires an acid soil. Will do well in either sun or shade. A fine ground cover and rock garden plant.

Pachistima canbyi — CANBY PACHISTIMA

Mountains of Virginia and West Virginia. A dwarf shrub with decumbent stems and rooting branches ascending to 10 inches high. Prefers an acid soil and sunny or partial shady situations. A fine rock garden, border, or ground cover plant.

Pachysandra terminalis — JAPANESE PACHYSANDRA

Japan. A low creeping plant with branches ascending to 12 inches. The leaves are large, wedge-shaped, and light yellowish green. A fine ground cover plant for shady situations.

Pieris floribunda — MOUNTAIN ANDROMEDA

Virginia to Georgia. A slow growing shrub 5 to 6 feet, dense habit of growth. Produces an abundance of white flowers, resembling those of the Lily-of-the-valley, in early spring. Requires a well drained acid soil. A fine specimen, foundation, border, or rock garden plant.

Pieris japonica — JAPANESE ANDROMEDA

Japan. A slow growing shrub to 10 feet with densely spreading branches. Leaves lustrous dark green. Winter flower buds nodding and reddish, usually winter killing and not blooming in the north. Not as hardy as the preceding species. Useful as a specimen and border plant.

Potentilla tridentata — WINELEAF CINQUEFOIL

Maine and northern Michigan. A low spreading plant with long stems 6 to 12 inches high. Leaves compound, dark, shiny green. Requires a well drained, acid soil. Partial shade or sunny situations. A fine rock garden and ground cover plant for dry sunny situations.

Pyracantha coccinea lalandi — LALAND FIRETHORN

Italy to W. Asia. A vigorous growing shrub to 6 feet with slender branches bearing dark green leaves and bright red fruits in September and October. This variety is hardier than the type plant, doing well as far north as Columbus, Ohio. Useful as a specimen and border plant.

Rhododendron carolinianum — CAROLINA RHODODENDRON

North Carolina. Usually a low compact plant but occasionally growing upright, reaching 6 feet tall. Leaves smaller than most of the other rhododendrons and densely brown dotted beneath. Flowers pink or white in May or June. Probably the best rhododendron to grow in cold climates. Prefers a well drained acid soil that is fairly moist. Very attractive as a specimen, foundation, border, or rock garden plant.

Rhododendron catawbiense — CATAWBA RHODODENDRON

Virginia to Georgia. A spreading shrub to 6 feet, rarely larger, with large leaves that have a tendency to roll in cold weather. Large lilac-purple flowers in

May or June. Requires an acid soil and prefers a cool well drained soil and partial shady situations. Used as specimen, border, or foundation plants.

There are very many forms in cultivation known as Catawbiense hybrids, producing flowers of many colors and providing one of our best flowering shrubs.

Rhododendron maximum ROSEBAY RHODODENDRON

Nova Scotia and Ontario to Georgia, Alabama, and Ohio. A larger shrub than the preceding species, often reaching 35 to 40 feet tall. Leaves very large and dark green. Rose or purple-pink flowers are produced in late June or July. Also requires an acid soil. Does best in cool, shady or partial shady situations. Useful as specimen or border plants.

Viburnum rhytidophyllum LEATHERLEAF VIBURNUM

China. An evergreen shrub to 10 feet with upright branches and heavy lustrous dark green leaves. Its yellowish white flowers and black fruits are not as striking as those of some of the deciduous species. A fine specimen or border plant.

Vinca minor COMMON PERIWINKLE

Europe and W. Asia. An evergreen trailing shrub with upright flowering shoots to 6 to 8 inches. This plant, often known as myrtle, has lustrous dark green leaves and blue flowers from April to September. An especially fine ground cover plant for either sunny or shady situations.

Yucca filamentosa COMMON YUCCA

South Carolina to Mississippi and Florida. A stemless plant with long, sword-like leaves arising in dense clumps. The flowering stalk often reaches 6 to 7 feet high and bears many white flowers in July and August. Used mostly as a specimen plant.

Printed by
THE OHIO STATE UNIVERSITY PRESS
COLUMBUS, OHIO