

Pruning and Care of Ornamental Trees and Shrubs



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Pruning and Care of Ornamental Woody Plants

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Trees, shrubs and flowers add greatly to the attractiveness of any home. The plants, however, must not only be properly arranged to produce a beautiful landscape effect, but they must be cared for properly in order to keep them most attractive. This care begins at planting time.

CULTURAL REQUIREMENTS AT PLANTING TIME OF DECIDUOUS TREES, SHRUBS AND VINES

Time to Plant

The proper time to plant varies with the kind of shrub or tree and the section of Michigan in which the planting is to be done.

Any shrub or tree may be planted in early spring—the earlier the better. Deciduous trees may be moved with balls of earth from the time the leaves drop until the buds burst.

Early spring planting is advocated where the winters are very severe. Fall planting, for example, as soon as leaves drop naturally, is very successful in southern Michigan with nearly all trees and shrubs. Some of the plants that are best transplanted in the spring are Flowering dogwood, Tulip-tree, Sassafras, Hawthorn, Magnolia, and certain Viburnums.

Evergreens can be planted successfully soon after fall rains begin, provided a medium-sized ball of earth is retained around the root system. The later they are planted, the larger must be the ball of earth.

Shrubs

When the plants arrive from the nursery, they should be either planted immediately or, if the planting must be delayed, "heeled in" in a shady place by covering the roots with earth and kept well watered. The plants should be separated from the bundles if kept more than a few days before planting.

The areas for the shrubs should be spaded deep and plenty of humus or well-rotted barnyard manure incorporated with the soil. This will insure a rapid, thrifty growth of the shrubs and prevent losses after planting. The shrubs should be pruned before being planted (Fig. 1). Even with nursery grown plants, a large part of the roots is lost in digging. When native shrubs are used, a much larger percentage of the roots is left behind. All injured portions of the roots

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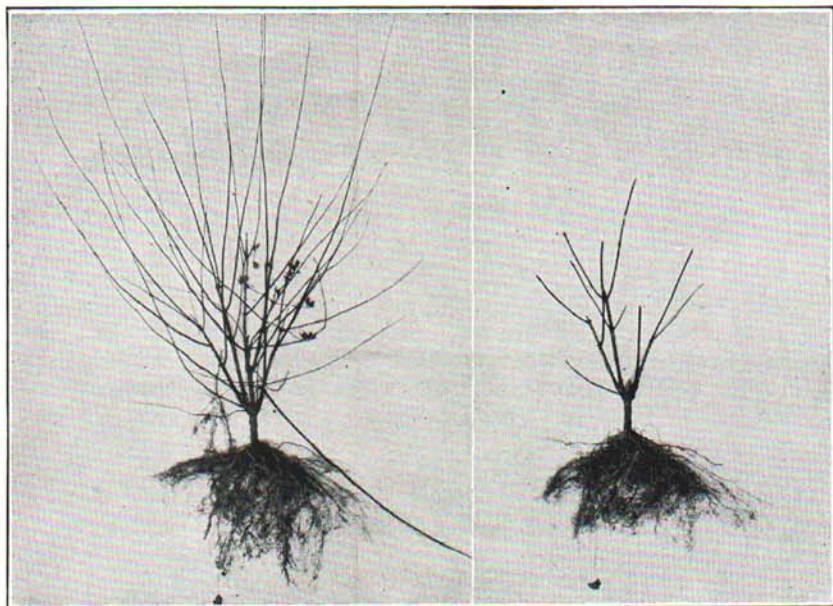


Fig. 1. Mockorange as taken from the nursery row (left) and properly pruned for planting (right).

should be removed and the top pruned to compensate for the reduced root system. This means, in most instances, that at least one-half of the top is removed. Some old wood should be left, inasmuch as growth is more likely to start from this portion. The branches should be thinned and the tops of the shoots cut back to side buds or branches.

A relatively large hole should be dug for each shrub so that the roots can be arranged in their natural position. Running water should be allowed to pour into the hole as soil is shoveled in, and the plant should be jerked up and down to insure the soil making contact with the roots. If running water is not available, the soil should be worked among the roots by hand and tramped so that no pockets of air are left. A depression should be left about each plant that will hold at least a half-pail of water. Adequate watering of the plants the first year is important.

Vines

The same method of planting should be used with vines as with shrubs, but the pruning is different. As vines grow in the nursery row, several small shoots often develop, rather than a few long shoots. Because one desires to induce a long growth quickly, two or three of the vine's longer shoots should be left and these trained on the support to provide the best effect. In the care of some vines, such as the grape, only a few buds are left on the strongest cane so as to insure a long growth from at least one. The same is true with Woodbine, Wisteria, Bittersweet, and other vines that grow similarly.

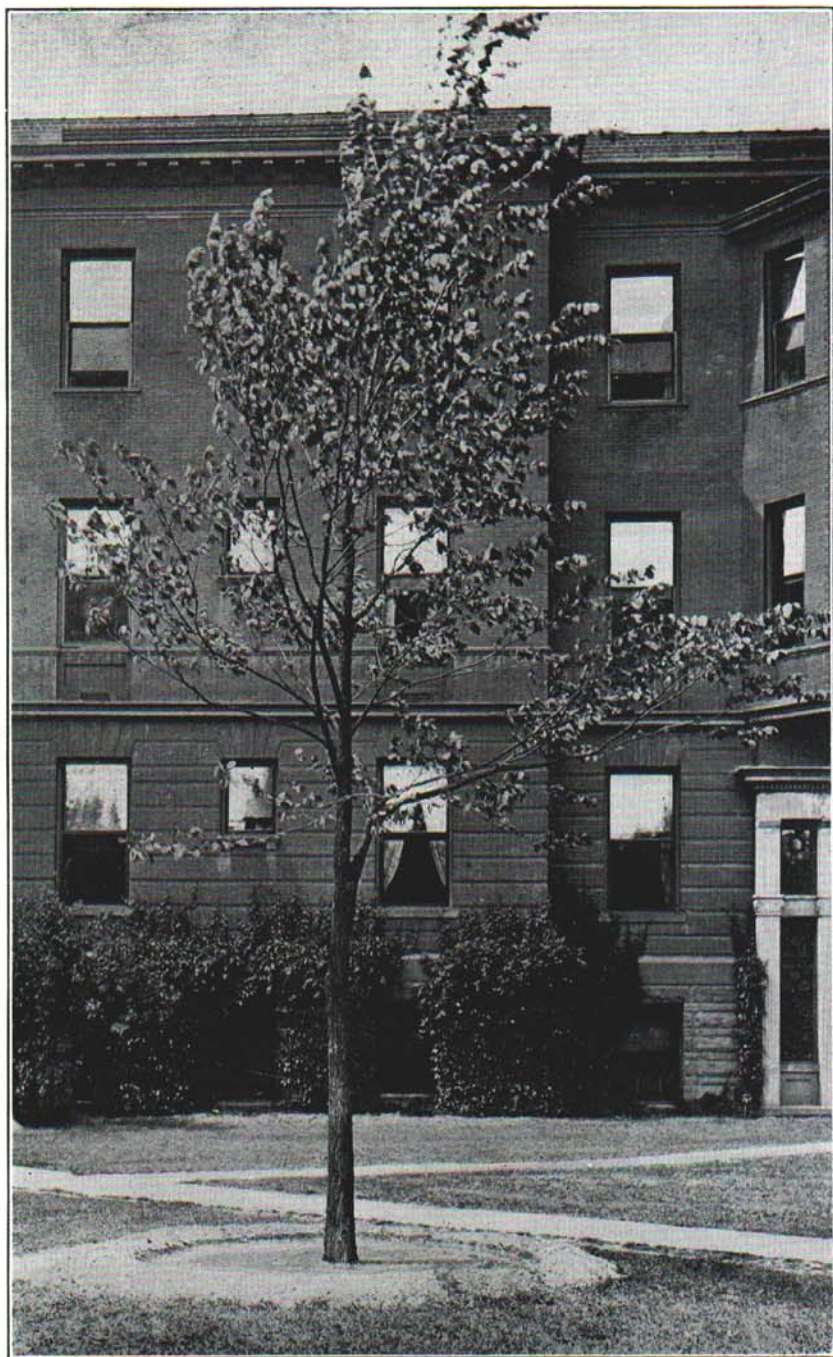


Fig. 2. A large elm successfully moved by freezing the ball of soil surrounding its roots. The soil has been dished around the tree to hold water.

Trees

Box elders are not satisfactory trees for landscaping, and soft maples, catalpas and black walnuts are not so desirable as such trees as elms, hard maples, and oaks.

It is better to take special care with the transplanting of two or three well-selected trees than the same amount of time with a greater number of carelessly selected and planted trees. Also, it is better to induce a medium-sized tree, having a caliper of 2 inches to grow fast, than to transplant improperly a large tree of 4 or 6 inches in diameter which may grow slowly for several years (Fig. 2). A large hole, sufficient for at least a cubic yard of rich soil, should be dug for a small tree. If possible, the tree should be taken up with a ball of earth, especially if the tree is selected from a woodlot or field. For best results, one should prepare the tree for transplanting a year in advance. The procedure is as follows: A trench is dug about the selected tree the proper distance from the trunk, and the side roots severed on the side of the trench toward the tree. If the tree is to be transplanted

in the fall, the trench is dug the previous spring. If spring-planted, the trench is dug the previous year. The trench is then filled with enriched soil, which induces a fine fibrous root growth in this area. When removing the ball of earth, the soil in the trench must be included. Before being placed, the tree should be pruned. This is done, while the tree is lying on the ground, by thinning the small twigs on each branch and removing some of the smaller branches, but not tipping the branches except to make a well-shaped top. An upright leader, if present, should be left to insure a rapid upward growth and a well-balanced top. Often, if a low-limbed tree is selected, the lower limbs, to a height of 6 feet may be removed, thus making it unnecessary to prune much more. Only rich soil should be used to fill in about the tree. A depression of 2 inches should be left about the tree to retain water.

With proper equipment, a larger tree, 4 to 6 inches in diameter, may be planted, but extreme care should be used. Regardless of the size of the tree to be transplanted, the ball of earth should be about one foot in diameter for each inch of diameter of trunk up to 6 inches; less than one foot to each inch as the diameter of the tree is increased over 6 inches.



Fig. 3. Pfitzer's Juniper balled and burlapped just as it came from the nursery.

The trunk of any tree should be wound with paper, in spiral fashion like a bandage, thus keeping the bark from drying as well as to prevent the entrance of borers. See Cover Page. A specially prepared paper should be used, containing a thin layer of asphalt material between two thicknesses of tough paper. This should be allowed to remain for two years until the tree has regained its vigor.

Evergreens

All evergreens, to be of value, must retain a large proportion of their foliage when transplanted. It is necessary, therefore, in transplanting evergreens to disturb their roots as little as possible so that water absorption may go on practically unchecked. Nurserymen accomplish this by root pruning one or more times previous to transplanting. This results in a compact and fibrous root system as well as a slower growth which in turn keeps the tree more dense.

At the time of sale the nurserymen "ball and burlap"—B & B—the trees (Fig. 3). When planted in their proper location the burlap is loosened at the top and rolled back but allowed to remain. If the burlap is removed the ball of earth may break apart. The burlap soon decays. Good soil should be tramped about the plant.

PRUNING

Pruning Established Shrubs

Pruning many kinds of shrubs and vines is necessary each year, but pruning shears improperly used may do much more harm than good unless one is familiar with the characteristic growth and blooming habits of each kind of plant.

The main reasons for pruning ornamental woody plants are:

1. To balance the top with the root system at the time of transplanting, as explained heretofore.
2. To remove dead, injured, diseased, or weak wood which decreases the beauty of the plant.
3. To improve or modify the form of the plant.
4. To improve the size and quality of the flowers.

Most shrubs send out strong, vigorous shoots from the base of the plant each year. The lateral growth from these shoots the following year is less vigorous, and each succeeding year witnesses a further decrease in vigor until the shoot becomes weak. In the meantime, new and more vigorous shoots spring from the crown of the plant to replace the weaker ones.

A general rule in the yearly pruning of shrubs is to remove all dead wood and all canes which have become too weak for satisfactory flower production. Also, all shoots should be removed that do not add to the attractiveness of the plant or which interfere with the development of younger, more vigorous and more valuable wood (Fig. 4). This is essentially a thinning process, for the old shoots should be cut off at the ground or just above the origin of a strong vigorous lateral.



Fig. 4. A spiraea in need of pruning. Winter is an excellent time to determine which plants are in need of pruning.



Fig. 5. Honeysuckles cut back at the top. Note the "witch's broom" effect. The beauty of these plants has been destroyed for a period of several years.

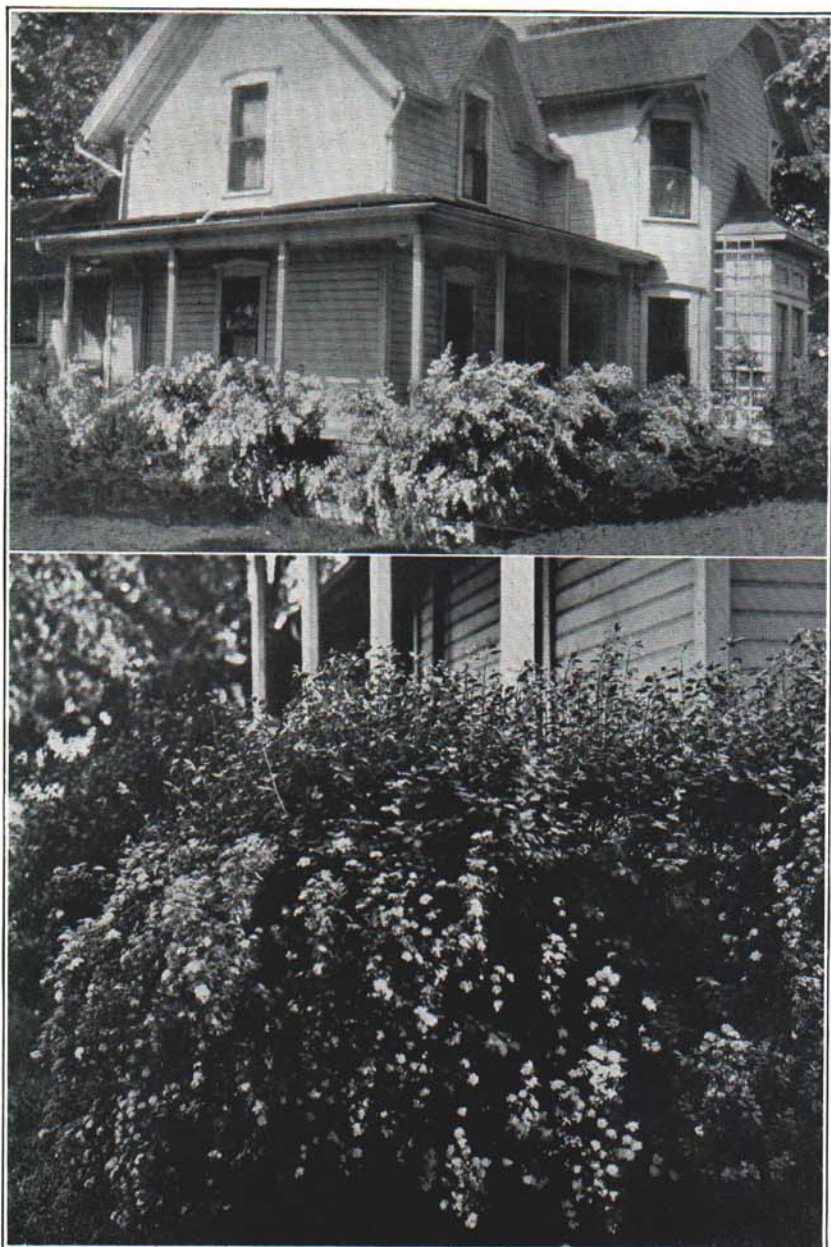


Fig. 6. A spiraea planting in flower in 1929 (upper) and a corner of the same planting sheared in the early spring of 1930 (lower). This is not a satisfactory method of pruning deciduous shrubs.

There is often occasion for some thinning of new, weak shoots, as well as for "tipping" some of the stronger canes during the growing season to encourage more laterals, as well as to retard the height of the shrub. Any general heading back, shearing or clipping of shrubs forces into growth a few of the topmost buds and results in a thickening of the top too much and a development called a "Witch's Broom" effect (Fig. 5). These make a stiffer and generally a higher growth than if left unpruned. Such a heading back also often reduces flower production, for example *Spirea VanHouttei* (Fig. 6). If shrubs of the proper mature height are selected for a certain position in the first place, heading back is seldom required.

Time to Prune

The best time to prune different kinds of shrubs depends on their growing and flowering habits. Most shrubs may be pruned in accordance with one of two rules:

Rule 1. Shrubs that bloom from buds produced the previous season should be pruned directly after blooming. The *VanHoutte spirea* is the best example of this. An old shrub that has never been pruned needs thinning in the spring to rejuvenate it, but this same shrub needs to be pruned again directly after blooming. The portion of the older canes that have just bloomed should be traced from the top until a lateral which is younger is reached, and the old cane should be cut off just above this lateral. Not more than one-third of the total top should be removed in any one season. Flowering almond, lilacs, honeysuckles and similar early-blooming shrubs may also be pruned in this manner.

Rule 2. Shrubs that bloom from shoots of the same season should be pruned severely each spring. A good example is the *Snowhill hydrangea* (Fig. 7). Each spring all shoots more than one year old should be removed, and the rest, if too many, thinned to 10 or more and pruned at varying heights. The front shoots should be pruned to 12 inches, while those toward the rear may be left 2½ or 3 feet high. The lateral buds from these produce side-branches that bloom earlier than those produced at the tips of the shoots that grow from the ground. This method of pruning insures larger individual blooms and a much longer blooming period.

Anthony Waterer spirea and Froebel's spirea should be pruned in a similar manner except that more shoots are left. Other shrubs that are pruned similarly except that a few two- or even three-year-old shoots are left are, snowberry, coralberry and kerria. These spread by suckers or, as is the case of coralberry, by runners. These new growth should be allowed to remain, except where they interfere with other shrubs, or the edge of the lawn.

Most shrubs require a gradual renewal. This may be done in most instances by pruning a fourth or fifth of the older portions of the



Fig. 7. Snowhill hydrangea before and after pruning.

shrub away each year. If the shrub is at the front of the border all growth near the base should be left to cover the soil. If this is not possible, owing to the natural upright growth, lower-growing shrubs should be planted in front. A spirea, however, if properly pruned from the first can be kept near the ground and will not appear as the plant shown in Fig. 8.

Many shrubs require little, if any, pruning for many years; for example, Siberian pea tree, forsythia, most lilacs, viburnums, althea, and red bud.

In pruning shrubs, these general rules should be kept in mind:

1. Spring pruning is invigorating, while summer pruning is de-
vitalizing.

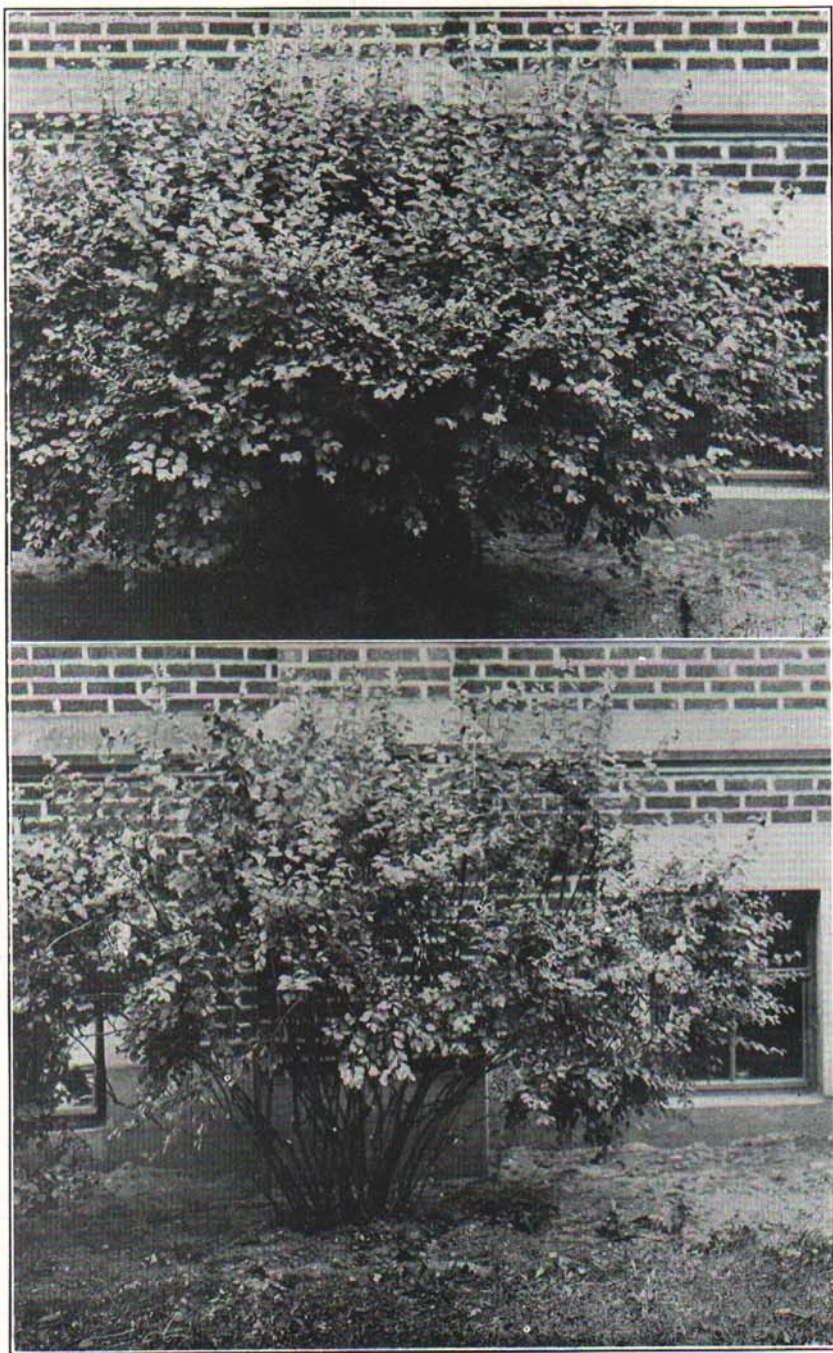


Fig. 8. Spiraea before pruning (upper) and properly thinned (lower) but the bottom branches should have been left.

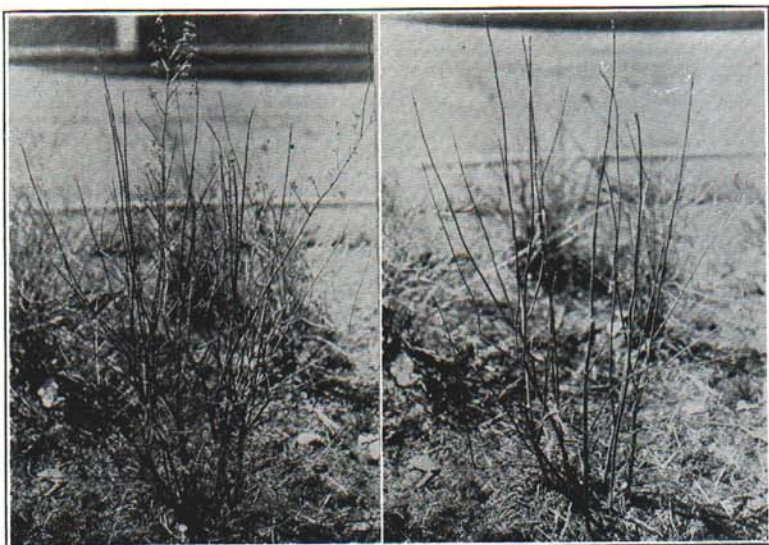


Fig. 9. Only old wood should be removed from certain shrubs in early spring. A Mockorange before pruning (left) and after pruning (right).

2. Shrubs should be kept in a vigorous and healthy condition by a gradual, yet a continued, renewing of the plant by removing old wood and retaining the new. Fig. 9.

As shrubs continue to grow about one's home area, they become as friends, and the habits of each kind should be studied so that every shrub can be pruned and cared for properly.

Special Pruning for Certain Shrubs

Five-leaved aralia always has leaves on all canes to the ground. Leaves on old shoots are smaller and more beautiful than those on the strong young shoots. Where this is very evident, a portion of the new shoots, as well as wayward shoots, may be removed at any time.

Barberries need but little pruning. Wayward shoots may be cut back and old portions cut away during the summer if they grow too large.

Dogwoods should have old canes removed which have become coarse or discolored; this is especially true of Red osier dogwood.

Flowering quince needs to have the old wood thinned after blooming, and if the plant is affected with San Jose scale, a dormant spray should be used as a control.

Deutzias should be pruned severely after blooming. Everything over two years old should be removed.

Snowhill hydrangea has already been discussed.

Pegee hydrangea should be pruned severely each spring by removing branches having weak buds and cutting back long shoots to three buds at the base to insure strong canes and large flowers. The same is true of the hydrangea in tree form.

Kerria is only partially hardy. Prune all dead wood in early spring, cut back strong canes, and thin all weak ones.

Honeysuckles should be planted where they can grow for many years without being molested. Remove old stems gradually.

Mockoranges need to be pruned some each spring by taking out some of the old canes and tipping back some of the young shoots in mid-summer to keep them from growing too high. This is especially true of the Double sweet-scented mockorange. Removal of the seed pods just after blooming improves the appearance and induces more fall blooms to develop.

Roses—these vary so greatly in their growing and blooming habits that they must be divided into groups.

Sweet briars and prairie roses should be pruned severely each spring by removing old wood and pruning back the new unless a large, high, natural-growing plant is desired or where they are used to hide an unsightly bank.

Red leaf rose and Harrison rose should have some of the old wood removed each spring.

The suckers of *Rosa rugosa* should be encouraged to replace the older parts of the plant. They should be tipped back during the growing season to insure low branching. Very old canes should be removed.

The hybrid *Rosa rugosas* should be pruned each spring, removing very old stems and cutting back the new if too high.

Polyantha roses need only light pruning since they are used to liven the border rather than for individual blooms. A removal of canes more than two years old and a tipping-back of new shoots if too high are sufficient. Too-severe pruning weakens the plants.



Fig. 10. A climbing rose immediately after flowering and badly in need of pruning.

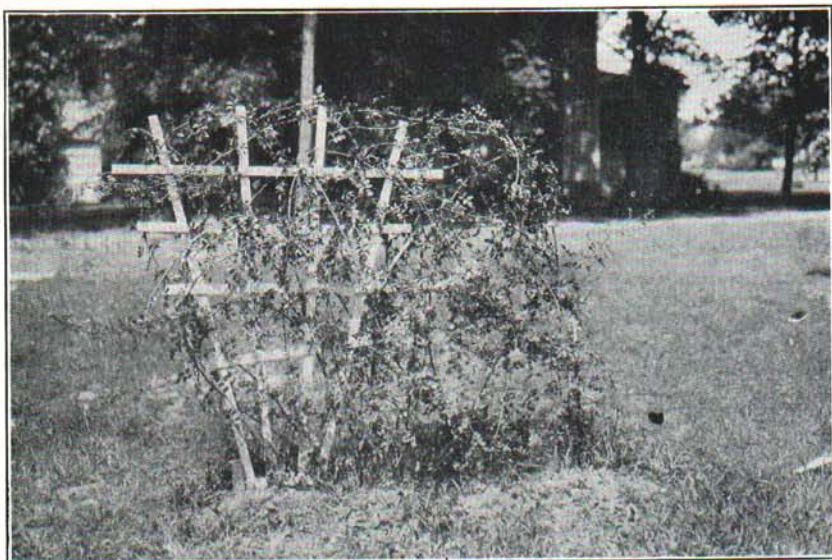


Fig. 11. A climbing rose properly pruned.

Many roses must be grafted by nurserymen upon seedling wild roses to insure a vigorous hardy root. Therefore, such roses should be inspected frequently, so as to detect possible sucker growths from the root stock, because these sap the life from the grafted portion. The suckers can be recognized easily from the character of the leaves and thorns, and should be carefully removed as soon as discovered.

Climbing roses are often very difficult to prune properly. They should be pruned after blooming (Figs. 10 and 11) but, owing to the difficulty at that time spring pruning is recommended as an alternative. The plants should be examined carefully for winter injury and girdling by mice and all canes removed that have been injured. If the new canes are of sufficient number and vigor, most of the old canes may be removed. The side shoots, if retained, on old canes should be cut back to two or three buds. Better results are obtained by severe pruning rather than by a too-light pruning. As the new shoots develop, all that are not needed for the next year should be removed as they appear so that those remaining will obtain all of the nourishment from the root system and make a stronger growth.

Hybrid tea roses should have all dead, weak, spindling, and diseased branches removed. Most of the shoots more than one year old should be cut away. If the plant appears too dense, remove the weakest shoots, leaving the remaining ones evenly distributed. The proper pruning of the remaining shoots is still to be done. The fewer the buds that are left, the larger will be the resulting blooms (Fig. 12). In this instance, two or three buds to the cane and three or four canes are left. Cut close to a side bud, generally to one pointing outward, to insure an open center. Many persons prefer more, but smaller blooms; to achieve this, more buds are left on each cane.

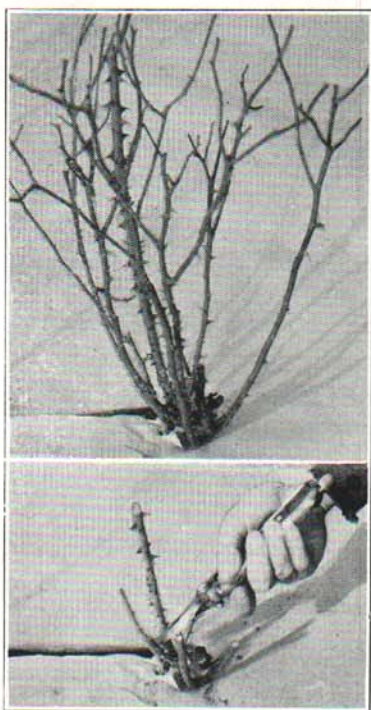


Fig. 12. A hybrid tea rose pruned in the early spring.

Hybrid perpetuals—Because hybrid perpetuals are generally more vigorous than hybrid tea roses, the amount of bush left on the perpetuals is much more than that left on the tea roses, even though the pruning is severe.

Roses that are used for shrub purposes, such as polyanthas, do not require as heavy pruning as those used for cutting or exhibition blooms.

Early spring-planted roses should be pruned severely. Within 3 inches of the ground is best.

Elderberries—Cut out winter-injured shoots and all wood that is more than two years old.

Spireas—These are divided into two classes that are very different in their blooming habits, and, therefore, require different pruning methods.

The early-blooming types, such as bridal wreath, Thunberg, and Vanhoutte, should have some old wood removed in early spring if they have not been pruned during the last two or three years. The newer shoots often grow from lateral buds of old canes rather than from the ground. These shrubs are more unsightly just after blooming than at any other time. This is fortunately the best time to

prune. The proper way is to cut off the older portions of the canes just above the strong laterals or buds that show a tendency to develop. The too strong canes may again be pinched back to make the top uniform yet not formal. Spireas are more often abused by "hedge" pruning than any other shrub. They should never be pruned up from the bottom or uniformly at the top (Fig. 13).

Late-blooming spireas, such as Anthony Waterer and Froebels, should be pruned in the early spring, for they bloom from shoots of the current season. More individual shoots should be left than with Snowhill hydrangea, but the pruning is similar. Take out everything but one-year-old wood. A good second bloom is assured if the brown seed heads are broken off, a few inches down, immediately after blooming.

Snowberry is susceptible to a defoliating disease, which can be controlled by spraying. Spraying usually is not necessary if the plant grows in the shade and is pruned each spring, leaving only one- and two-year-old wood.

Coralberry is similarly pruned, but instead of suckering, it produces runners, part of which should be allowed to take root and thicken the area so the ground cannot be seen (Fig. 14).

Lilacs do not need much pruning. Occasionally an old branch may be removed to a vigorous lateral. More important is the removal of



Fig. 13. A mass planting of shrubs along highway improperly pruned.

any seed pods that develop immediately after blooming. They can be easily broken off. Not only are the pods unsightly but, to mature, they require so much plant food that strong flower buds cannot be produced in quantity for the production of bloom the following year.



—Photo Courtesy, Keats Vining, Grand Rapids

Fig. 14. (Left) Coralberry before pruning; (right) similar shrub after pruning.

Lilacs that are prone to sucker should be prevented from doing so from the first. Suckering is often induced by injury to the roots, which causes many adventitious buds to form from which the suckers grow. Weeds and grass may be removed by pulling, rather than by hoeing or spading. Common lilacs and many of the named sorts are susceptible to oyster shell scale—a sucking insect that may kill the plant unless properly controlled by a dormant spray of miscible oil or lime sulphur. Removal of the seed stems of mockoranges also insures better flowers, but in other plants, such as honeysuckles, the fruit is an added attraction that is very important.

Tamarisk should be pruned only if the canes become ungainly. Prune near the ground so side shoots will develop. At planting time the entire top should be pruned within 6 inches of the ground.

Pruning Established Trees

Pruning is unnecessary on established trees except to remove dead, broken or wayward-growing branches so as to improve their shape or to thin a tree.

All dead branches should be removed as soon as possible after discovery so that rot will not become established in the main part of the tree. In cutting off a limb, large or small, a cut parallel to the trunk or large limb should be made and as close as possible, even though the resultant wound may be much larger than where the limb is cut straight across (Fig. 15). Sap travels up a tree in parallel lines and cannot be drawn out on a portion of a branch that is left unless leaves are on the branch. Hence even a small "heel" cannot grow over properly. Any wound exceeding one inch in diameter should be painted with a proper protective covering to prevent the entrance of decay. Bordeaux paint, made by mixing raw linseed oil with bordeaux powder until a thick paint is formed, is an inexpensive and nearly ideal dressing.

A limb that is so large that the weight is likely to peel the bark of the trunk on the under side when nearly severed, should first be cut underneath a foot or more from the trunk until the saw binds and the limb cut off beyond this point from the top. The stub can then be cut off close to the trunk or large limb. The bark should be shaped

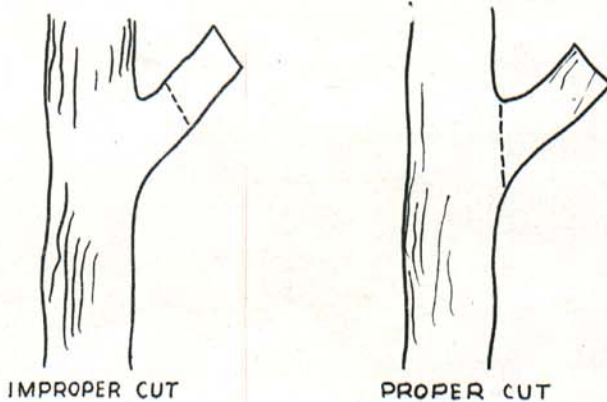


Fig. 15. Never leave a short stub or "heel".

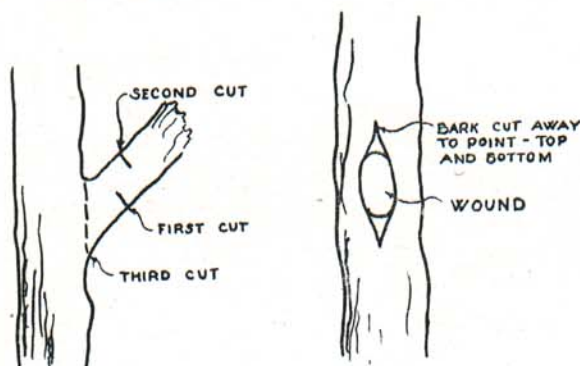


Fig. 16. Steps in cutting a large limb and about the wound after severing limb.

to points as indicated to insure a proper growth of the "callus" that will quickly cover the wound (Fig. 16).

If a tree is growing "one-sided" or in an awkward manner, the remedy is to cut the top or branch to a side branch or bud that will cause a shoot to develop in the direction desired. In some instances a strong branch may be made to replace a broken or weak one. This is done by pulling the limb into an upright position and holding it in place with a splint, which may be a large pole fastened to the trunk lower down. Usually this limb need not be held in place more than one year.

Avoid possible weak crotches in young trees by cutting back one of the sides forming the Y at least half way to cause the shortened branch to become a secondary limb; this forces more food into the stronger portion. If two large branches form the Y, the one to be subordinated should receive a heavy thinning and heading back, although not so severe as with smaller branches. Where possible, the limb pruned should be opposite from the prevailing wind. Details as to proper methods of overcoming the ravages of wind and ice storms, filling cavities, and similar operations are found in Farmers' Bulletin 1726 of the U. S. Department of Agriculture. Books obtainable from libraries also give this material in detail.

Thinning the smaller branches of a tree that is very dense may be very desirable for at least two reasons. When a small tree is planted one wishes to increase its perimeter or total size as rapidly as possible. By thinning as many as one-third of the small inside branches, interlacing branches, and those smaller branches that are too thick along the larger branches, the plant nourishment is distributed to fewer growing tips. Therefore, these tips will grow much faster than if all wood had been left. Some trees, such as Norway maple, have foliage so luxuriant and heavy that the rays of the sun cannot pass through them to the grass beneath. This often results in a very poor lawn and often causes people to prune the lower branches from such trees to too great a height. A better way is to thin the branches in early spring only as much as seems necessary and then to continue the work during the summer if the sun's rays cannot penetrate sufficiently.

Where the lawn area is extensive, some trees like Norway maple, Chinese elm, and beech are most beautiful when allowed to grow to the ground, like an evergreen, without any pruning. When used on a relatively small home area or as a street tree, such trees must be pruned higher in order for persons to walk and play beneath the branches.

Wounds heal much faster when the pruning of large limbs is done during February, March, or April. Hence all major pruning should be done as much as possible during this period.

Pruning of Evergreens

Evergreens for use in landscaping the home area should be chosen with extreme care. Only those that can be successfully pruned should be used for foundation plantings. These include the various species of juniper, arborvitae, yew, dwarf mugho pine, and hemlock. A formal effect about the foundation of the house is seldom desired; therefore, the evergreens selected for planting about the house should be kept within bounds by cutting back both top and side branches to prevent their growing too large; this should be done as inconspicuously as possible. The outside of the evergreen should be informal and irregular. This can be accomplished by cutting back a portion of the tips to two-, three- or even four-year-old wood close to side branches. After a year's growth some of these side branches may then be pruned similarly. This method not only thickens the evergreen but prevents it from growing too large for the place. This pruning should be done just before growth starts in the spring. Even Pfitzer junipers often become too large unless pruned to some extent. Summer pruning may also be done to prevent wayward growths. Shearing should only be used on hedges.

The symmetrically growing species of spruce and balsam should seldom, if ever, be pruned. They are more attractive when their lower limbs touch the ground. Hence, these trees should be kept out of the front lawn unless the area is very extensive.

The pines also appear best when allowed to have limbs trailing on the ground, but as these trees grow older, they cease to be symmetrical; therefore, it does not injure their appearance so much to prune them up from the bottom as it does the spruce. Sometimes, the terminal growth on an evergreen tree dies from injury or insect attack. When this happens, the small branches of the circle next to the top vie with each other as to which will supplant the tip. Unless remedied, this causes several tops to form. The method of control is to cut back all but one branch and then bring that one to an upright position and hold it in position for a year with a splint.

The dwarf mugho pine when used for a part of a foundation planting should be pruned each year just after the new growths are in the "candle stick stage". The tips of these new growths may be pinched back with thumb and finger or cut with shears.

Some persons prefer a spruce for Christmas lights, but such trees quickly grow too large. By root pruning each spring, they can be made to grow slowly. This is done by spading about the tree at the tips of the branches, cutting off a large proportion of the horizontal roots. Each year the circle is slightly increased in diameter.

PLANTING AND PRUNING OF HEDGES

Although hedges are not used so much as formerly except as a boundary for formal gardens, some persons desire a hedge or hedges as part of the landscaping of the home area.

The plants should be set one foot apart in one row, or in two rows 9 inches apart with the plants 14 inches apart in each row.

The proper pruning of a hedge is very important and should start when the plants are received from a nursery. If the plants are privet they should be pruned to 6 inches high at planting, instead of 2 feet as is most often the case. As the new growths reach a height of 6 or 8 inches, they should be pruned back to 3 or 4 inches above the original pruning. This should be continued until the desired height has been attained. The sides should also be pruned back as the growths occur, gradually bringing the sides out to the desired width. Such a pruning from the first guarantees a dense growth to the ground (Fig. 17). If the tops are not cut back severely, new growths start only from a few of the top buds and the bottom of the hedge always remains open.

The individual plants of an evergreen hedge may be set 2 or 3 feet apart. If the trees are not of the same height, the tops may be pruned so that all are of the same height. This is particularly true of an arborvitae or hemlock hedge.

When using the true hedge barberry, plants about a foot high are usually planted. They may be left as they come from the nursery and only awkward shoots or high top-shoots cut back to keep the whole the desired height and width.



Fig. 17. A properly pruned hedge in winter.

When coarser material is used, such as honeysuckle, buckthorn or hawthorn, the size of the plants regulates naturally the height and width to hold the hedge.

PRUNING TOOLS

Pruning shears, both hand and long-handled, should have very sharp shearing edges and relatively small guards that will easily pass between limbs or shoots that are close together.

A saw with a curved pulling blade cuts much faster than a straight-edged saw (Fig. 18).

A roll of paper for winding newly planted trees should be included.



Fig. 18. Pruning tools.

ADDITIONAL CARE OF SHRUBS

Care of shrubs, aside from pruning, is simple although necessary for their proper growth.

As previously stated, the areas to be planted to shrubs should be cultivated and plenty of humus and rotted manure spaded in. If the areas were originally a part of the lawn, the grass should be "skimmed off" first. After the shrubs have been planted, the space about and between the plants should be kept cultivated. Nothing dwarfs a shrub more than allowing grass to grow about it. The area should not be spaded deeply, for most plants have shallow root systems, especially if kept heavily mulched.

Mulching with peat or other humus each year for several years is very beneficial because the mulch holds moisture and adds fertility. After new shrubs have been growing vigorously for two years, fertilizers low in nitrogen should be used, because they increase flower production and still keep the plants stocky. High-nitrogen fertilizers cause rapid succulent growths and plenty of leaves, but few flowers. Lack of vigor is generally due to a lack of fertility. If rotted barnyard manure is not available, commercial fertilizer may be used.

The care of roses is a special problem. A rich clay loam soil is needed and should be kept enriched with commercial fertilizer or good cow manure. A mulch of peat moss adds greatly to the appearance of a rose garden, because it makes a pleasing background, either wet or dry.

Because many roses are only partially hardy in Michigan fall protection is necessary. Just before the ground freezes, the roses may be pruned back to a foot or so in height and a pyramid of soil brought up about each plant to a height of 8 inches or more. A mulch of leaves, peat, or branches is then put between the plants for further protection. The mounds are removed after severe freezing weather and just as new growths begin to appear in the spring.

STATE OF CALIFORNIA

IN SENATE,
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