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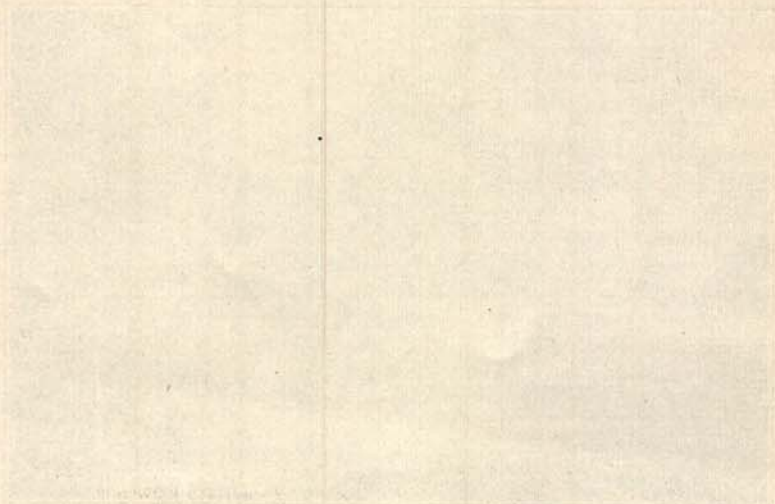


MICHIGAN STATE COLLEGE
Of Agriculture and Applied Science

EXTENSION DIVISION
R. J. Baldwin, Director

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PRUNING ORNAMENTAL WOODY PLANTS

By KENNETH POST

Ornamental woody plants do not require as much care as annuals and herbaceous perennials, for they are comparatively free from insects and diseases and, once established, will live from year to year with little or no attention. Nevertheless, their beauty may be enhanced by proper watering, feeding, and pruning. Of these, pruning is the most frequently neglected because it is, in some ways, the most difficult. Though shrubs growing in the wild receive more or less natural pruning through the dying of branches, pruning of plants in the garden is necessary to determine the shape of the plant and to control its flowering.

The principal reasons for pruning ornamental woody plants are: (1) to reduce the demand upon the roots until the plant becomes established; (2) to improve or modify the form; (3) to remove unsightly dead, injured, diseased or weak wood, along with that which is no longer valuable for flowering; (4) to improve the size and quality of those flowers that remain by reducing the number.

Pruning at the Time of Setting the Plants

Deciduous Trees, Shrubs and Vines—There is always more or less injury to the root system incident to the digging process in the nursery. Usually most of the small feeding rootlets are destroyed and often a major portion of the larger conducting roots is left in the nursery. Furthermore, some of the roots lifted with the plant are likely to be bruised or broken. It is considered good practice to trim off these badly injured roots at the time of setting and thus lessen the danger of infection from fungi or bacteria. As the loss of a considerable portion of its root system at the time of transplanting correspondingly reduces the ability of the plant to obtain water and nutrients from the soil, it is desirable to reduce the size of the top accordingly. If this is not done and all the buds are given an opportunity to unfold and develop branches and leaves, there is danger that the rate of water loss through transpiration will exceed the rate of water intake through the roots, and the plant will die. Pruning back the top severely (Fig. 1) serves to restore the balance between top and roots, between rate of water intake and of water loss, by reducing the amount of foliage permitted to develop early in the season. As the season advances and balance is restored, both roots and top develop rapidly. By autumn the plant may be as large as, or larger than, when transplanted in the spring.

In pruning shrubs at the time of planting, the older stems should be removed to the base of the plant and the new shoots cut back severely,

leaving only a few buds on each one. If the new shoots are numerous, the weaker ones should be entirely removed. This tends to encourage a vigorous growth of new shoots. In pruning trees at the time of transplanting the trunk is usually not cut back, or, if it is cut back at all, it is pruned less severely than its branches. The branches, on the other hand, are pruned rather severely. Some of them are removed entirely and those that are left are cut back so that the top, at least in some degree, is brought into balance with the root system. Usually the larger the tree at the time of transplanting, the heavier should be the thinning out of its branches and the lighter the cutting back of those that remain. This serves to preserve the general shape of its top be-

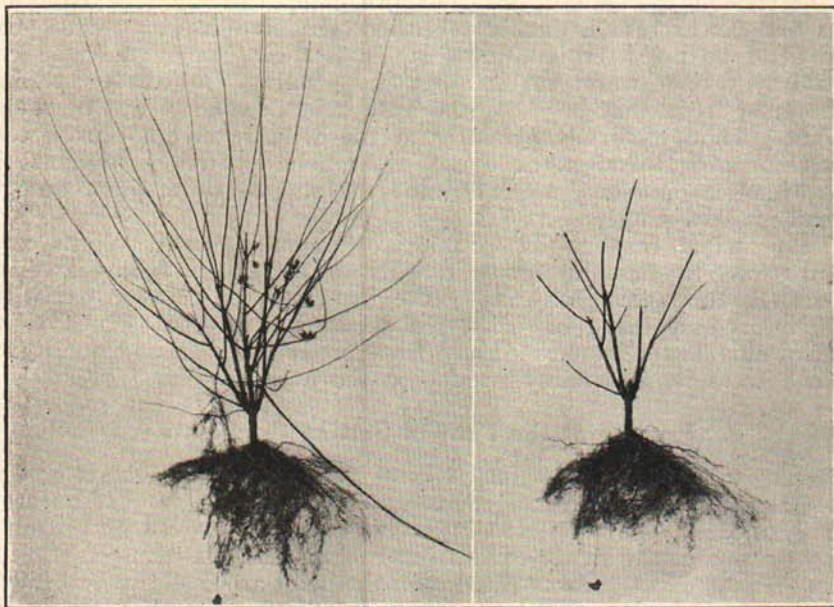


Fig. 1.—*Philadelphus* as taken from the nursery row (left) and properly pruned for planting (right).

fore transplanting. Vines should be cut back very severely at the time of transplanting, leaving only a few buds on each of the more vigorous shoots of the previous season.

Evergreens—From the very nature of the trees, evergreens when transplanted retain the greater part of their foliage. Since their beauty depends largely upon their symmetry and the amount and density of their foliage (at least in the case of all those of the cone-bearing type, as distinguished from the broad-leaved kinds), any removal of a part of their leaf system would reduce their value. It is, therefore, necessary in transplanting evergreens to disturb their roots as little as possible so that water absorption may go on practically unchecked.

One or two years in advance of removing time, nurserymen carefully transplant them from one place to another in the nursery row or root-prune them by means of a spade to promote the development of a much branched and compact root system. Then, at the time of digging they "ball and burlap" the trees (Fig. 2). The larger and more



Fig. 2.—Glove arbor-vitae balled and burlapped. The plant was poorly wrapped as the burlap should have been drawn tighter and tied more firmly.

expensive evergreens may be root-pruned or transplanted several times before being placed on the market. Such trees require no pruning at the time of planting; indeed, they will be harmed by it. All that is necessary is to set the tree or shrub with the burlap still inclosing the ball of earth (Fig. 3). In due course of time, the burlap decays. Should the earth surrounding the roots of evergreens become dry in shipping, it should be heavily watered before planting.



Fig. 3.—Barberry balled and burlapped (left). The wrapping is not tight enough. The same plant placed ready for filling around with soil (right).



Fig. 4.—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.

Special Cases—It is possible to move deciduous plants after they have started growth in the spring or even when in full leaf without loss of foliage or flowers, if they are handled in the manner just described for evergreens (Fig. 3). However, better results usually attend transplanting during the dormant season.

The transplanting of comparatively large well-established trees or shrubs for immediate landscape effect requires considerable labor. If possible, they should be root-pruned a year preceding their transplanting. They should be moved with as large a ball of earth as practicable, properly wrapped in burlap, or they should be moved when the ball is frozen (Fig. 4). Such trees or shrubs (if deciduous) should have their tops severely pruned at the time of setting.

It is usually much easier to prune small or medium sized shrubs and trees after setting. This does not hold for larger trees or for vines.

First-Season Care

Though the watering of deciduous trees, shrubs, and vines at, or immediately after, planting is often not considered necessary, watering helps settle the soil about the roots and may result both in a better stand and in a more prompt and rapid growth. Evergreens, on the other hand, should be watered freely. As the season advances, both evergreens and deciduous ornamentals should be watered unless rainfall is frequent and heavy enough to keep the ground moist. In those locations or instances where watering is impossible or impracticable, mulching with peat, paper, or rotted manure will help to conserve soil moisture. Fresh, unrotted stable manure should never be placed around evergreens.

Summer pruning the first season following planting is seldom necessary or desirable with either evergreen or deciduous species. This is particularly true of deciduous trees, which are prone to develop short leafy shoots from latent buds on the trunk or main scaffold limbs. If left alone, these shoots manufacture foods and aid in the recovery from the check of transplanting. They seldom develop into limbs of any considerable size and should they start to do so a year or two later, they can be removed, or perhaps better, checked by heading back.

Pruning Trees

The first step in pruning ornamental trees is to remove dead, diseased, and mechanically injured branches. Sometimes very weak branches can be removed to advantage, but they should be retained as long as possible whenever their presence adds to the general symmetry and beauty of the tree. Suckers arising from the roots or from around the crown should always be promptly removed, as their growth usually stunts the development of the main top of the plant. They are likely to be troublesome for only a few years after planting. The sucker is usually the result of an injury to the trunk by borers, disease, or other agencies.

Similarly, watersprouts arising from the trunk, the crotches, or the main scaffold limbs should be pruned out, except those that may be required to fill in openings made by the breaking of limbs or other injuries. In general, they detract from the appearance of the tree, re-

duce the vigor of its other parts, and often interfere seriously with flower production.

Since trees have a tendency to grow symmetrically, little or no pruning is required to shape them properly. If, however, some limb or branch starts to make a wayward growth and to destroy symmetry, it can be cut back or removed entirely. Most of the pruning of ornamental trees is for the purpose of removing lower limbs that obstruct walks, drives, or views. As the beauty of most evergreens is marred by this type of pruning, special care should be taken at the time of planting so to locate them that their lower branches may be left permanently to sweep the ground. Seldom is there occasion for the pruning out of limbs to make the tree more open. Neither is light heading back or shearing which tends to make trees more compact often necessary or desirable.

Pruning Vines

Woody vines, such as the English Ivy or Virginia Creeper, that climb by means of rootlike "holdfasts," require very little pruning. Dead or injured branches should be removed and likewise those that grow over places where they are not wanted.

Vines that climb by means of tendrils, as the grape, or that twine about some support, as bittersweet, likewise require comparatively little pruning. When they show a tendency to develop principally from the upper buds, leaving the base bare of foliage, the vine should be pruned back rather severely in order to force it to renew its top from some of the more basal latent buds. When this is done, it is better to cut the older stems to the ground and renew the top from some of the younger growths. This pruning can often be done more conveniently by removing the vine from its trellis and spreading it out on the ground.

Hedges

The beauty of a clipped hedge is determined largely by its thickness and evenness of growth. This depends to a great extent on the way it is pruned. Many people who start a hedge expect it to attain the height ultimately desired within a year or two after planting and, therefore, allow it to grow to nearly that height before clipping. This causes a heavy top growth and very thin growth at the base, a condition difficult to correct in later years. When the hedge is set, the plants should be cut back severely. Six to eight inches is enough to leave on privet at the time of planting. In each succeeding year not more than three to five inches more growth should be permitted to remain. Japanese barberry and a number of other dwarf growing species should be cut back even more severely, while more rank growing forms, such as the Japanese quince, may be allowed to attain their full size a little more rapidly.

Clipping should be done in the spring immediately after the first heavy flush of vegetative growth takes place. At that time the shoots are soft and cut easily. Checking growth causes new shoots to develop from lateral buds on the shoots of the current season and likewise from latent buds on the older wood with a resulting increase in the density of the hedge.

Shrubs

Most deciduous shrubs send out strong vigorous shoots from near the base of the plant. The lateral growth from these stems the following year is less vigorous and each succeeding year witnesses a further decrease in vigor until the part dies out. In the meantime new and more vigorous shoots have sprung from near the crown of the plants and are replacing the older wood that has become weak or that has died out (Fig. 5).

A general rule in the pruning of shrubs is to remove all dead wood and all stems which have become too weak for satisfactory flower production, as well as those shoots which do not add to the attractiveness of the plant or are interfering with the development of younger, more vigorous and more valuable wood. This is essentially a thinning out process, for the old stems should be cut off at the ground or just above the point of origin of a strong vigorous lateral if the basal shoots are few. If the old weak branches that should be removed entirely are simply headed back, they will either die out or develop weak and practically worthless branches from their latent buds.

In addition to the thinning out effected by a removal of old weak or dead wood, there is often occasion for some thinning out of the new shoots of the past season. In general, enough new wood should be left to replace the old that is cut away. If much more is retained, the bush is likely to become too thick and brushy. In thinning out the new

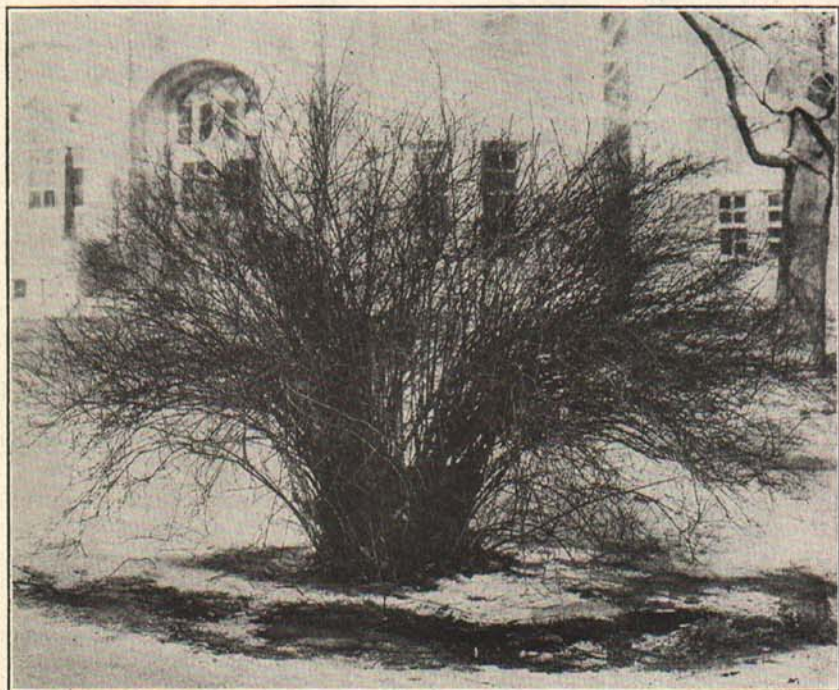


Fig. 5.—A spiraea in need of pruning. Winter is an excellent time to determine which plants are in need of pruning.

shoots, one should cut out those that are weak and that are not essential for the maintenance of general symmetry and attractiveness.

Any general heading back, shearing, or clipping of shrubs is almost sure to result in a thickening of the top and the development of a witch's broom effect (Fig. 6) by forcing out the latent buds. Incidentally, this type of pruning in some kinds of shrubs, such as spiraea, often reduces the flower production. When the proper shrubs are selected for the planting, heading back is seldom or never required.

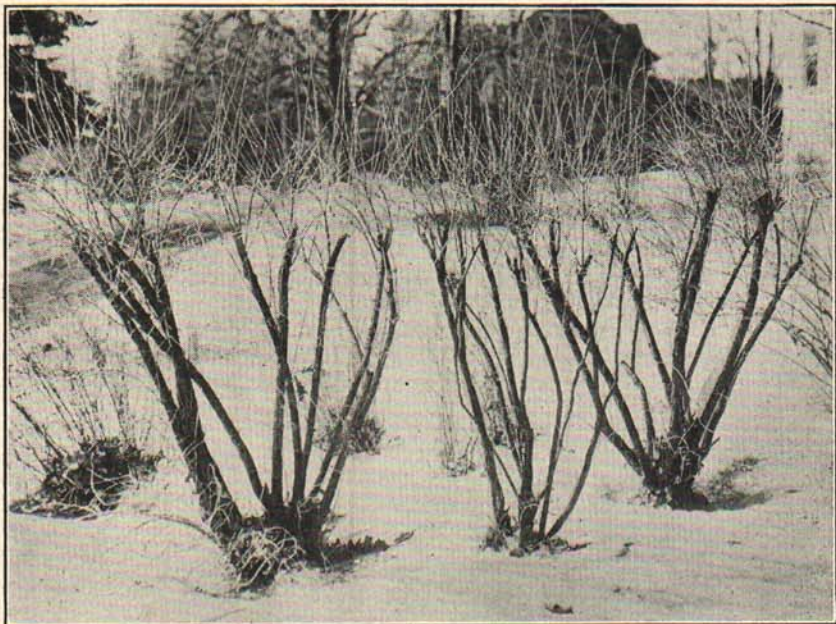


Fig. 6.—Honeysuckles cut back at the top. Note the "witch's broom" effect. The beauty of these plants has been destroyed for a period of several years.

Time to Prune—The time of year when shrubs of different kinds can be pruned to best advantage depends on their growing and flowering habits. Most of the early flowering species produce their flowers on wood which matured the preceding season. If that is removed by a dormant-season or early-spring pruning, flower production is correspondingly reduced (Fig. 7). Ornamentals of this type should not be pruned until immediately after flowering.

In Figure 8, the illustration gives the impression that the bush was pruned up from the bottom, but this was not the case. The apparent bareness of the stems is due to the removal of considerable foliage in thinning the top. Care should be exercised in this summer thinning to avoid exposing more than absolutely necessary the bare stems at the base of the plant.

On the other hand, most of the summer flowering ornamentals, such as Buddleia and the Anthony Waterer spiraea, produce their flowers on wood of the current season's growth. They should, therefore, be pruned during the dormant season or in early spring just as growth is starting (Fig. 9).

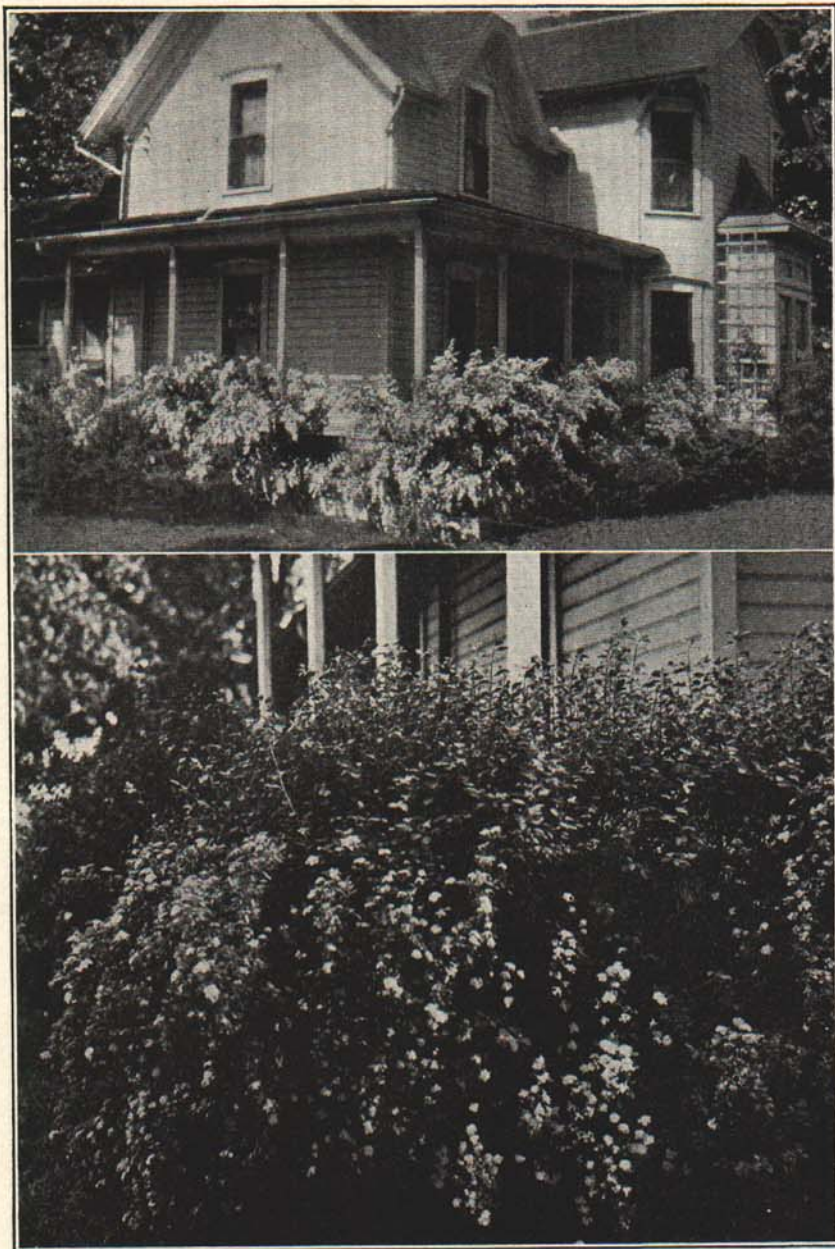


Fig. 7.—A spiraea planting in flower in 1929 (upper) and a corner of the same planting sheared in the early spring of 1930 (lower). This is not a satisfactory method of pruning deciduous shrubs.

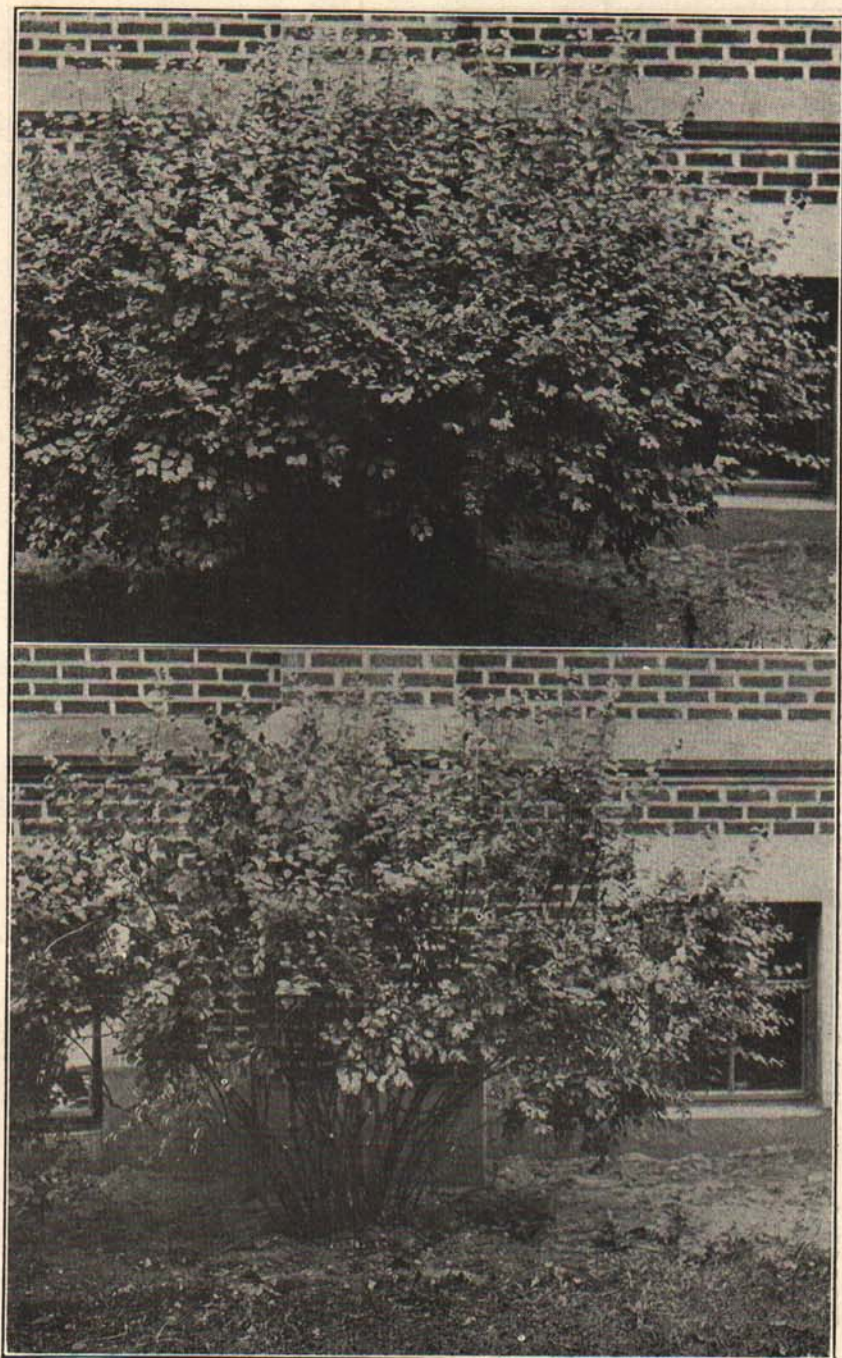


Fig. 8.—*Spiraea* before pruning (upper) and after pruning (lower).

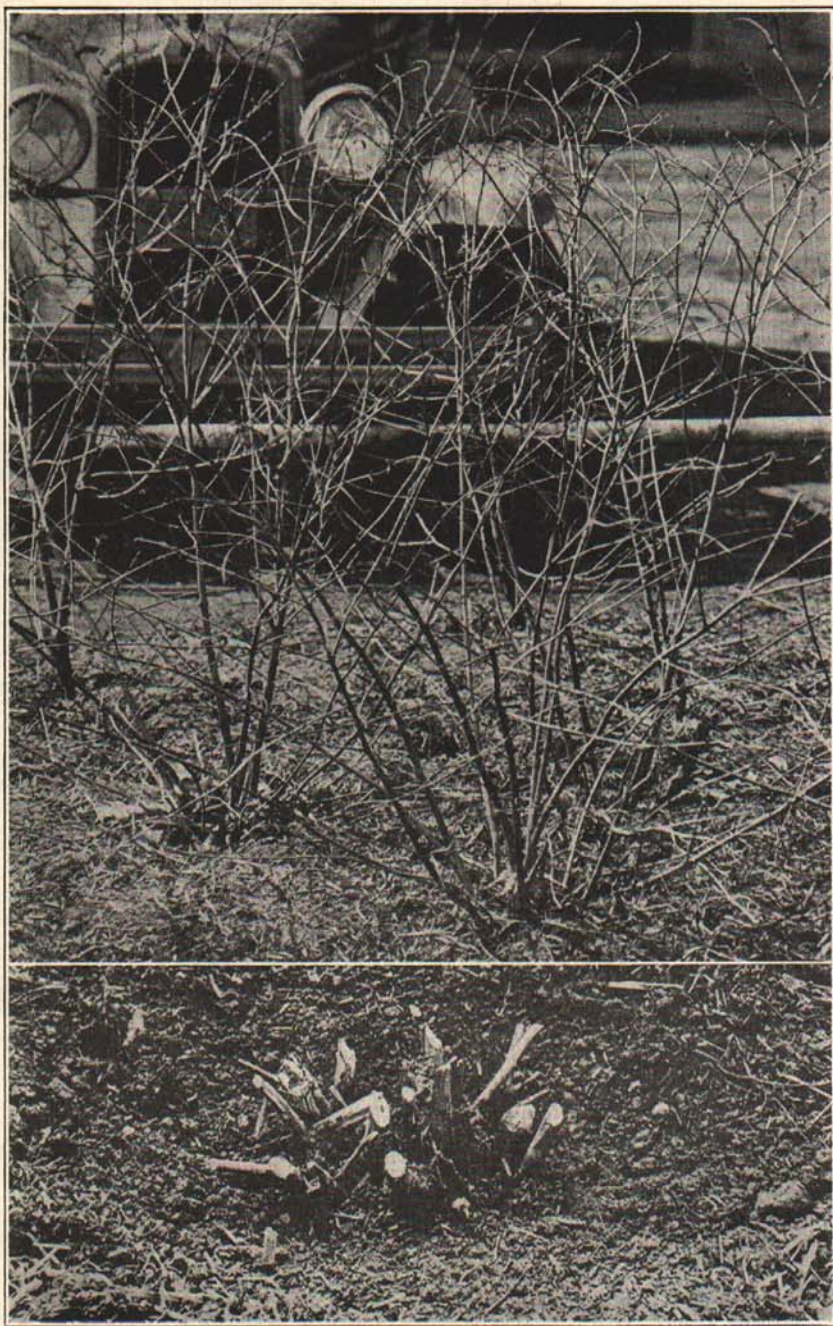


Fig. 9.—*Buddleia* (Summer Lilac) before pruning (upper) and after pruning (lower).

Special Cases—While the general statements that have been made apply to most shrubs, there is occasion for some modification to meet the growing habits of different species and even of different varieties of the same species. The following table lists a number of the more common shrubs and indicates the kind, amount, and time of pruning recommended:

Botanical Name	Common Name	Time of Pruning	Method of Pruning
Acanthopanax.....	Angelica tree.....	BG.....	D
Amelanchier.....	Juneberry.....	AF.....	D
Amorpha.....	False Indigo.....	BG.....	X
Berberis.....	Barberry.....	BG.....	3
Buddleia.....	Butterfly bush.....	BG.....	X (Fig. 9)
Calycanthus.....	Sweetshrub.....	AF.....	D
Caragana.....	Pea-shrub.....	AF.....	D
Cercis.....	Redbud.....	AF.....	D
Chionanthus.....	Fringetree.....	AF.....	D
Colutea.....	Bladder-senna.....	BG.....	X
Cornus.....	Dogwood.....	B & A.....	3
Cotoneaster.....	Broom.....	B & A.....	D
Cytisus.....	Deutzia.....	AF.....	D
Deutzia.....	Golden bells.....	AF.....	D & 3
Forsythia.....	Silverbell.....	B & A.....	D & 4
Halesia.....	Bush-Althea.....	B & A.....	D
Hibiscus.....	St. Johnswort.....	BG.....	P-D
Hydrangea.....	Indigos.....	BG.....	P-X
Hypericum.....	Kerrybush.....	BG.....	P-D
Indigofera.....	Privet.....	BG.....	X
Kerria.....	Honeysuckle.....	BG.....	D-4
Ligustrum.....	Except <i>L. fragrantissima</i>	AF.....	P
Lilac.....	(Prune as little as possible).....	B & A.....	D-3
Lonicera.....	Flowering almond.....	BG.....	D-3
Lonicera.....	Tree peony.....	AF.....	P
Lonicera.....	Mock orange.....	AF.....	D
Magnolia.....	Sumac.....	BG.....	D (Fig. 10)
Prunus.....	Rhus.....	BG.....	3 (Fig. 11)
Peony subfruticosa.....	Currants.....	BG.....	X (Figs. 13 and 14)
Philadelphus.....	Golden Willow.....	AF.....	D-3
Rhus.....	Elder.....	BG.....	2
Ribes.....	Early flowering types.....	B & A.....	3
Salix vitellina.....	Late flowering types.....	AF.....	2
Sambucus.....	Bladdernut.....	BG.....	X (Fig. 12)
Spiraea.....	Snow berry.....	BG.....	D
Spiraea.....	Early flowering sorts prune severely.....	BG.....	P
Spiraea bumalda and varieties.....	Tamarisk.....	BG.....	X
Staphylea.....	Fragrant Viburnum.....	AF.....	P
Stephanandra.....	Other kinds.....	BG.....	D
Symphoricarpos.....		B & A.....	3
Tamarix.....		B & A.....	3
Tamarix.....		B & A.....	3
Viburnum carlesl.....		B & A.....	3
Viburnum.....		B & A.....	3
Weigela.....		B & A.....	3

AF—Prune after flowering.

BG—Prune before growth starts in early spring.

B & A—Prune lightly before blooming and similarly after, if flowers or berries are desired.

D—Prune to remove dead wood only.

X—Remove all two-year wood to the ground and prune back one-year growth to a few eyes each spring.

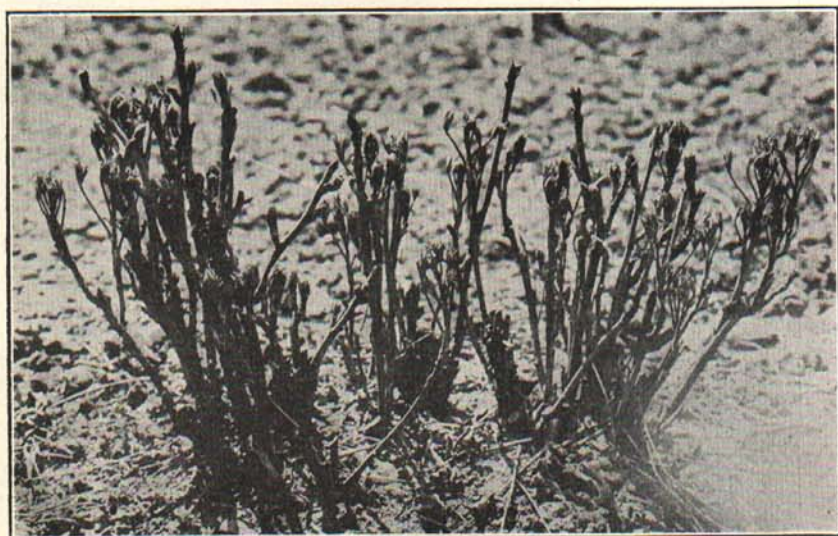
P—Remove developed seed pods after they have formed.

3—Remove three-year-old wood to the ground.

4—Remove four-year-old wood to the ground.



Before.



After.

Fig. 10.—Pruning a Tree Peony.

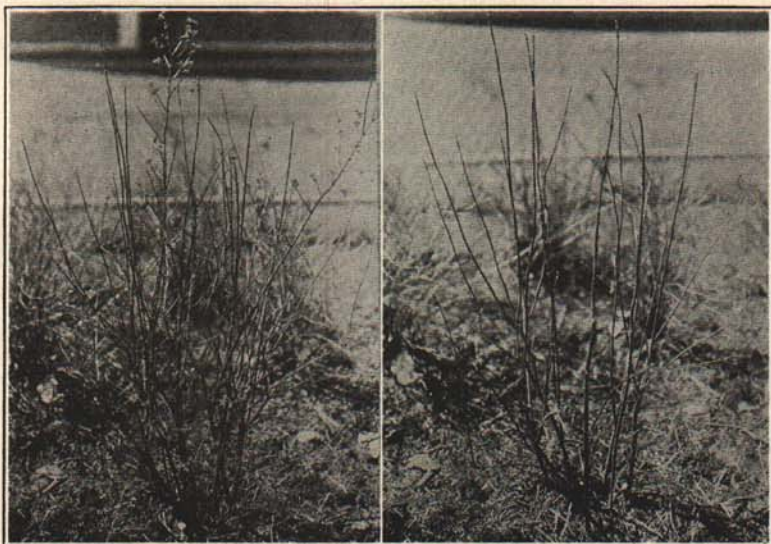


Fig. 11.—Only old dead wood should be removed from early flowering shrubs in early spring. A Mock Orange before pruning (left) and after pruning (right).

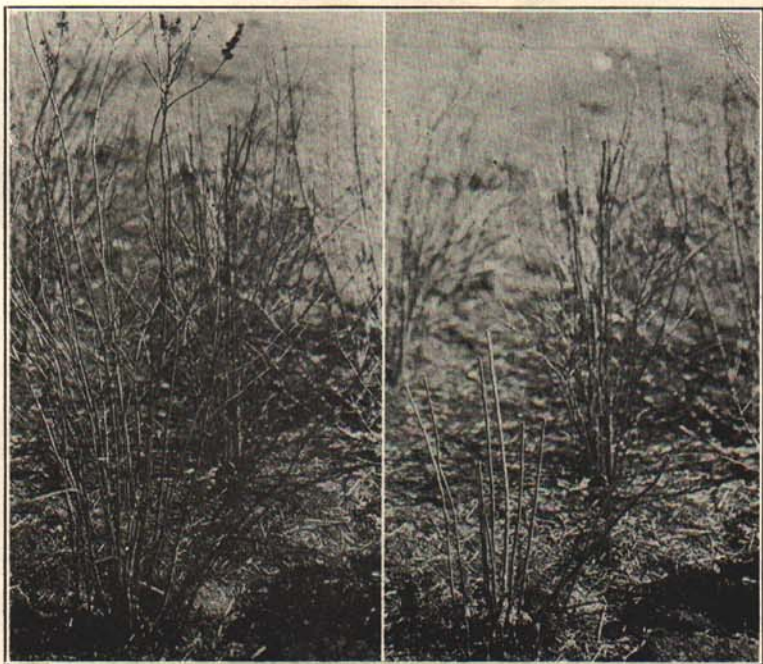


Fig. 12.—*Spiraea Billardii* before pruning (left) and after pruning (right).

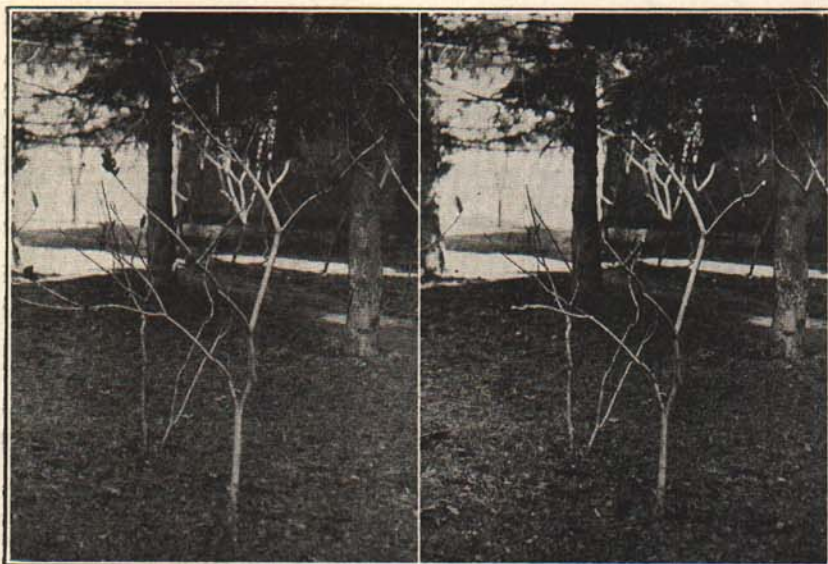


Fig. 13.—*Rhus canadensis* before pruning (left) and after pruning (right).



Fig. 14.—Pruning causes the flowers to grow larger. A branch of *Rhus canadensis* from a plant severely pruned (left) and a branch from a plant not pruned (right).

Pruning Roses



Fig. 15.—A hybrid tea rose pruned in the early spring.

Rose pruning is somewhat different from that of other woody plants, in that, the type of flowers desired governs largely its severity. Severe pruning produces fewer and larger flowers than light pruning does. The several shoots should be cut to varying heights, their length depending largely on sturdiness. All cuts should be made to an outside bud to encourage a better spreading of the plant. When the pruning is completed, the plant should be symmetrical. If the shoots are stronger on one side than on the other, symmetry can be promoted by pruning back part of them more severely than others and cutting to a bud that points in the direction of the weakest side.

The type of rose which is pruned should also be taken into consideration. Some require severe pruning, while others do better is pruned lightly or not at all.

Hybrid Perpetual roses should be pruned in early spring and cut back, until six to ten buds are left on each shoot. The vigor of the plant should govern the number of buds left.

Hybrid Teas should also be pruned in early spring. Besides the removal of all small growth, they should be cut back to three or four buds per shoot (Fig. 15).

Cutting roses from the plant in summer is essentially a pruning operation and more or less influences the character of the next crop. The flower stem should be cut so as to leave two or three nodes of new growth on the plant (Fig. 16). This will permit the development of laterals that will produce flowers later in the season.

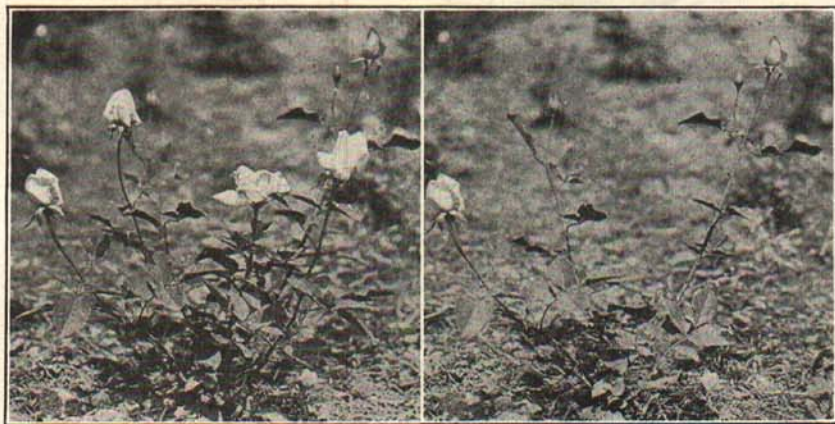


Fig. 16.—A hybrid tea rose before removing the flowers (left) and after their removal (right).

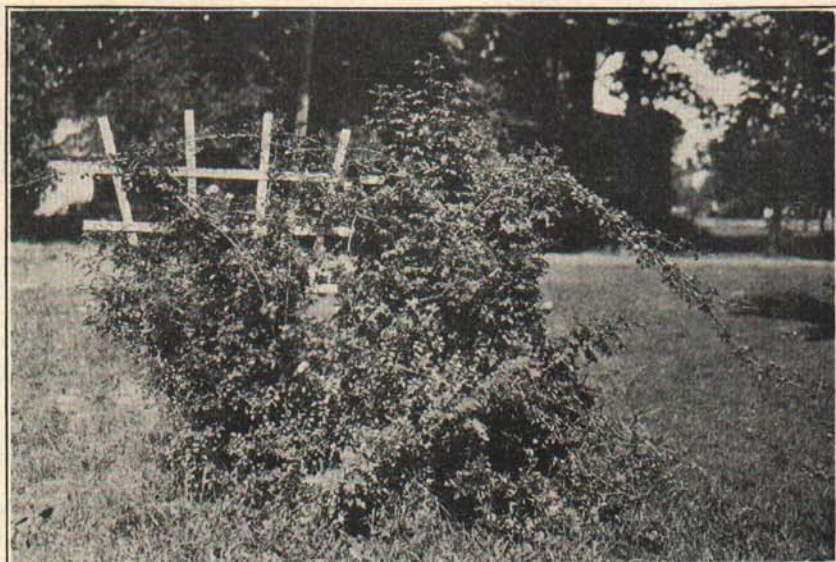


Fig. 17.—A climbing rose immediately after flowering and badly in need of pruning.

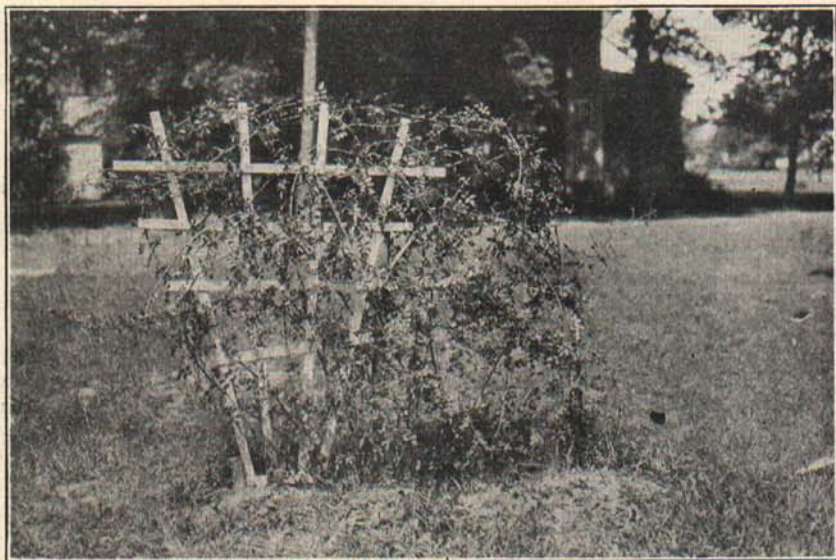


Fig. 18.—A climbing rose properly pruned.

Climbers should be pruned immediately after flowering. All of the stems which produced flowers that season should be removed (Figs. 17 and 18). This will allow the newer growth to develop for flowering the following year.

Provence Rose, Moss, French Damask and Ramblers should be pruned in late March. They require very little cutting back. Dead and weak wood should be removed.

Rugosa roses may or may not require pruning, depending on where and for what purpose they are grown. Often they are planted where shrubs 2½ to 3 feet high are desired. In such locations, pruning is necessary. They should be pruned in early spring. Pruning should consist of the thinning out of old and weak wood and the removing of dead or diseased material. If not sufficiently dense and vigorous, they may be pruned to the ground.

Suckering

Some trees and shrubs have a tendency to send out long, slender, vertical shoots along the branches. These are known as suckers. They draw nourishment from the more horizontal branches and in many cases detract from appearance. In such instances, they should be removed. Sometimes, especially in the case of shrubs, they can be retained to advantage and used to replace older growth that has become weak and has lost its value for flower production.

Wound Treatment

All cuts should be clean, close to the base of the removed branch, and parallel to the portion from which it was severed. Parts of branches left attached to the plant will dry out, decay, and then possibly serve as a point of infection for the trunk of the trees. Limbs that are being sawed off should not be allowed to break over and peel some of the bark from the main trunk. All wounds over an inch in diameter should be painted. The paint will keep water, fungi, and insects from entering the wound. It should be applied every second or third year to prevent checking.

Pruning Tools

A pair of small hand pruning shears, a pruning saw, and a pair of large pruning shears constitute all the necessary equipment for pruning shrubs. If trees are to be pruned, a ladder may also be necessary. All cutting tools should be kept sharp to prevent the making of rough-edged wounds that are slow in healing.