

**MISSOURI
STATE HIGHWAY
DEPARTMENT**

Bureau of Maintenance



**SPECIFICATIONS
for
TRIMMING TREES**

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Missouri State Highway Department

BUREAU OF MAINTENANCE

Jefferson City, Missouri

MAINTENANCE: Tree Trimming.

TREE PRUNING AND TRIMMING

"Trees are, and ever shall be, a vital factor in the affairs of men and nations, being fundamental sources of wealth as well as of health."—From Governor Henry S. Caulfield's 1929 Arbor Day Proclamation.

Trees are one of our State's chief attractions. Their value grows each year. It is the duty of the citizens of the State to promote tree growth by giving attention to the trees now growing. By planting trees where space is available, the attractiveness of the surrounding country can be enhanced. In considering the care of trees, one should remember that a tree either grows or declines and dies; it cannot stand still.

REASONS FOR PRUNING

One of the most important factors in the preservation of the life and beauty of ornamental and shade trees is the practice of proper tree surgery.

Trees as living organisms are subject to injury and disease. Trees differ from animals in that there is no natural death from old age; by controlling the unfavorable conditions which interfere with their nutrition, their lives can be prolonged indefinitely. As a rule, they succumb to disease or injury so slowly that the trouble can be diagnosed and the remedy applied before much damage occurs.

Tree surgery involves the amputation of diseased or injured members of the trees, the excavation and removal of all infected and diseased portions, the dressing of wounds and filling of cavities, the installation of mechanical supports such as bolts between wide-spreading limbs, and

the pruning or trimming of the crown. Since trees are constantly being injured by windstorms, lightning and animals, and since such injuries leave open wounds facilitating the entrance of fungous diseases, and since broken or dead limbs mar the beauty of the tree, tree surgery is a necessity.

Pruning of ornamental and shade trees is practiced for the following reasons:

- (1) to remove superfluous and injurious parts;
- (2) to keep the trees within manageable shape and limits;
- (3) to train the tree to desirable form; and
- (4) to modify the vigor of the tree.

TOOLS FOR TRIMMING

The tools used in pruning are of sufficient importance to deserve mention. Tools recommended for use in trimming are pruning saws, one-man cross-cut saws, cross-cut saws, long-handled pruning saws, pruning hooks, two-hand pruners, pruning axes, extension ladders, and safety ropes.

Axes, hatchets, climbers, or any other tool or appliance which would be injurious to the tree must not be used.

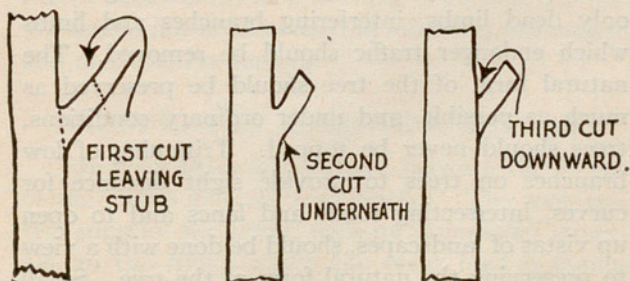
All cutting tools must be kept sharp to insure clean cuts. Sharp tools are much more efficient than dull ones.

The pruning axe is not used for much more than notching limbs prior to severing them with the saw. Experience has proved that of all the various kinds of pruning saws used, the five-toothed, narrow-bladed, stiff saw is in most cases the best tool. The various curved saws have little advantage over the straight blade. Stiffness is a desired quality in saws and a thin blade stretched in a steel frame answers best. Long-handled saws are not as practical as extension ladders or a rope with safety belts which permit a closer approach to the work and the use of short saws. For small limbs up to three-fourths inch diameter, the cutting shear pruners are serviceable. For hedges, a long-bladed hedge shear is used and for light trimming of shrubs the common sheep shears are used.

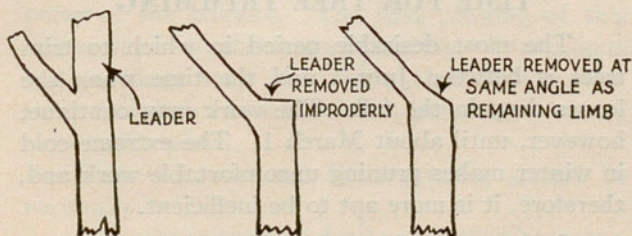
METHODS OF PRUNING

Since the object of pruning can be obtained only when the wounds caused by removal of limbs are properly healed, it is necessary to make all cuts in such manner as to expedite callousing or healing-over with new growth. Limbs should always be cut close at the very base of the branch to be amputated and with a cut as nearly parallel to and even with the outline of the main axis (branch or trunk) as possible, leaving no portion or stub of the amputated dead branch on the trunk. The swelling bulge or shoulder at the base of large limbs must be severed in order to achieve a close cut. Close cuts allow the new wood growth, or callous, to gradually close in and cover the wound. When large and heavy limbs are to be cut, it is necessary to make first an under-cut in order to prevent the stripping of the bark when the limb is severed.

The following figures show how limbs can be cut without injury to bark:



In removing a leader which has been injured, it is necessary to make the cut at the same angle as the remaining branch which will then develop into the leader.



Great care must be taken not to injure the bark or cambium surrounding the wound.

All wounds must be smoothed and painted with an antiseptic and water-excluding paint, to protect the tree against decay. Almost any commercial tree paint is satisfactory, although one of inconspicuous color, such as olive-green, or black, is desirable. If necessary to thin paint, use un-boiled linseed oil. Extremely large cuts should first receive coating of wood preservative, such as a thin, penetrating, refined tar product—before applying the paint. All cuts should be painted each year until the injury is healed.

The healing of wounds caused by pruning has an important bearing on the time of pruning and the severity with which any given species can be pruned. After the cut is made, the living tissues surrounding the wound extend their growth over the wound from all sides until they finally meet, leaving only a scar where their margins join, and forming a cap of living tissue over the surface of the wound.

In trimming existing trees on the highways, only dead limbs, interfering branches and limbs which endanger traffic should be removed. The natural form of the tree should be preserved as much as possible, and under ordinary conditions, trees should never be topped. Trimming of low branches on trees to provide sight distance for curves, intersecting roads and lanes and to open up vistas of landscapes, should be done with a view to preserving the natural form of the tree. Small cuts heal over more quickly than large ones, therefore, it is preferable to accomplish pruning before the growth becomes large.

TIME FOR TREE TRIMMING

The most desirable period in which to trim trees is between July 1 and the time when the leaves drop in the fall. The work may continue, however, until about March 1. The extreme cold in winter makes pruning uncomfortable work and, therefore, it is more apt to be inefficient.

Spring trimming while the sap is flowing, probably does not do great harm, but it creates a rather unfavorable public impression. As few

trees as possible should be trimmed during this season of the year.

REMOVAL OF DEBRIS

All brush and wood must be removed from within the limits of the right-of-way by tree-trimming crews. Abutting property owners have first right to everything removed from the trees, but the trimming crews are responsible for everything left within the right-of-way as a result of their work.

Fires, if brush is burnt, must be a sufficient distance from trees and shrubs to prevent their injury.

WHITEWASH ON TREES

It is impossible to improve the original color of a tree-trunk. Whitewashing the trunks of trees is an unsightly practice seldom preventing the attacks of insects and making the trunks of the trees obtrusive, when they should be inconspicuous, except occasionally as a warning to careless drivers. We should not be interested in following this useless and unattractive custom.

PRUNING FOR BALANCE AND FORM

In trees there is a balance between the extent of the crown and the root system. The root system supplies the water, with its assimilated minerals, to the crown where the plant food is manufactured and passed on to the growing tissues. If the root system is reduced, it cannot supply enough material to keep up the growth of the crown and, in order to compensate this reduction, it is necessary to prune or trim the crown and thus preserve the balance. The first pruning of this nature occurs at the time of planting. Transplants and seedlings very often have their root system injured to such an extent that it becomes necessary to trim the crown.

After trees are set, little pruning should be necessary.

After the removal of dead and broken branches, the next consideration in pruning shade trees is the development of the proper form consistent with the species.

In order to attain the maximum effect of beauty, each species should be encouraged to develop its natural form as far as possible. Branches that grow toward the center of the tree instead of away from it, across other branches or so near as to cause a rubbing as the tree develops, should be removed as soon as they are discovered. Occasionally a tree will grow more vigorously on one side than on the other, then it is frequently advisable to prune away part of the more vigorous side to make the tree symmetrical.

In pruning for form, the removal of lower branches will invigorate the growth of the upper crown and the heavy pruning of the top will produce an increased development of lower branches. One consideration to keep in mind is to keep the crown compact and overcome the formation of irregular straggling growth which is susceptible to damage from wind action. Study and observation of the trees growing in a natural state under best conditions will reveal the true typical form to be desired of each species.

TREE TRIMMERS

Tree trimming is an art and the ordinary individual will not make a good trimmer unless he has had the proper training and experience. The occupation is extremely difficult and dangerous. Tree trimmers must be willing to climb high and take chances. They must know their work thoroughly and make all cuts properly, regardless of difficult positions which are often necessary to assume. The employment of an experienced tree trimmer and surgeon to trim and doctor valuable trees is economy.

RIGHT-OF-WAY

In trimming or removing trees or shrubs within the limits of any state highway, it is necessary to obtain written permission from the State Highway Department. Such permits are issued from the division engineer's office and cover only such sections of the highways as stated in the permit.

Copies of all permits issued should be in the hands of the foreman on the job at the time the

task is being done. Such permits besides granting permission are a protection to those doing the work, in event any question arises as to the workmen's lawful procedure.

The parties to whom permits are granted will be responsible and must restore at their expense any public or private property damaged while carrying out their work or as a result of their work.

Traffic must be maintained at all times with as little interference as possible. Signs, red lights, red flags, and barricades must be used whenever necessary for public or private safety.

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