# TREATMENT AND CARE OF TREE WOUNDS*

## NEGLECTED WOUNDS

WOUNDS of all sorts are so common on trees that most people have become oblivious of the damage arising from neglected wounds, or at least they underrate the possibilities of damage. Every broken limb and every other kind of external wound that penetrates to the inner bark may allow active plant or animal parasites or rot-producing organisms to enter unless these injuries receive prompt and proper treatment and care.

The best, safest and most economical means of preventing future extensive decay, disfigurement, or premature death of a tree is to attend to each wound as soon as it occurs. This kind of work is simple and comparatively inexpensive. If a wound is allowed to remain untreated for some years (as commonly happens) decay-producing organisms almost invariably enter and produce a rotted area in the wood beneath, often so extensive that a violent wind may break the tree at the decayed and weakened spot. Roadside trees weakened by decay are especially dangerous to traffic. Uninjured bark or prompt and proper treatment of an injured area usually prevents the entrance of organisms causing decay.

If an untreated wound of several years' standing has developed a considerable area of decayed wood or bark, the first question to be considered is whether the tree or limb involved is of sufficient value to warrant the expense of properly treating it. Should it be decided to undertake the work, the too common mistake of neglecting portions that are difficult to reach should not be made. Under ordinary conditions it should be a thorough, complete, and sanitary job, or else nothing whatever should be attempted. If a tree is badly decayed or injured, it may be better to remove it and set a healthy one in its place; or it may be braced or guyed to prevent breakage in a violent storm; or the decayed matter may be removed and the cavity treated in accordance with directions given in this bulletin. When large areas of rotted wood have been excavated and the cavities either filled or left open, the wounds will rarely heal completely. Careful and thorough cavity work on the trunk of a tree is of much greater importance than on a limb, primarily because the limb often may be cut off later well behind the diseased area, if need be, without materially impairing the general health of the tree.

Many people still fail to realize the full extent to which properly located, healthy, and well-kept trees enhance the value of real estate, particularly for residential purposes. From this point of view alone, it is wise to keep

* By J. Franklin Collins, formerly Senior Pathologist, Division of Forest Pathology, Bureau of Plant Industry. Extracted from U S. Department of Agriculture Farmers' Bulletin No. 1726 of August, 1934.

trees in a healthy and vigorous condition. Oftentimes historical association, scientific value, economic importance, or rarity of the species outweighs all other considerations. For various reasons trees are unquestionably a real asset whether on private, semiprivate, or public property, including highways and byways.

It costs comparatively little to treat recent wounds properly. Such treatment contributes greatly to the health, beauty, usefulness, and value of the trees in years to come. This is one of the great economic lessons connected with the care and treatment of trees.

Occasionally, in this country, but more frequently in Europe, an old or irregular cavity is regarded as more ornamental and picturesque if left untreated. Undoubtedly the inrolling callus in such cavities contributes very materially to the strength of the trunk, in much the same manner that H-and I-beams strengthen a building or a bridge. It is usually advisable to reduce the size of the crown when a trunk is much weakened by decay, whether or not the decayed matter is removed and the cavity filled. This is done by cutting off a considerable portion of all the main limbs, which produces a more compact crown and lessens the strain on the weakened trunk.

## PREVENTION BETTER THAN CURE

Preventing the formation of a pocket of decay or preventing a disease from getting started on a tree is far better and much more economical than trying to cure either in later years.

If trees are located along driveways or streets, or in other situations where horses can easily reach them, they should be protected by tree guards. If a limb is so located that it crowds or rubs another, one of them usually should be removed. Cut out the one that is least essential to the tree, from whatever standpoint is considered most important, such as size, vigor, location, symmetry, etc.

Although the remaining pages of this bulletin are concerned mainly with pruning and cavity work, the significant fact should always be borne in mind that proper feeding and watering of diseased, decayed, or otherwise weakened trees often are of much greater importance. It usually is an excellent rule to feed all trees that have been subjected to much pruning or cavity work, in order to stimulate prompt callus formation over the edges of all wounds, and it is quite essential to do so in the case of weakened trees.

If injuries remain untreated, decay may penetrate into the interior of the tree and increase from year to year until large limbs, or the trunk itself, become so weakened that they break in a violent wind. It requires comparatively little time and money to clean and paint a freshly made injury. It often requires much time and money to treat properly the same injury after it has been neglected for a few years. Moreover, an injury promptly treated will heal and cover the scar more quickly and effectively. Almost every large decayed area has resulted from an injury that would have required comparatively little time and effort to clean, sterilize, and dress at the time it occurred. The most economical and effective method of preventing a decayed area in a tree is to attend to the injury that

may eventually give rise to it as soon as the injury occurs, perhaps 20 or 30 years before it would become a real menace to the tree. This fact should be remembered by tree owners and persons charged with the care of trees. If acted upon, it may mean an ultimate saving in later years of many hundred per cent. in the cost of keeping the trees in good condition.

Practically all cavities might have been prevented if the original injury had been properly treated as soon as it occurred, so that the healing tissues could have grown over the sterilized and protected wound. Because this has not been done to any extent in the past, a demand has been created for tree-surgery methods—methods which often cost today, through past neglect, many times the amount that it would have cost to forestall the decay 10 or 20 years earlier. Moreover, an injury promptly treated might today be entirely or relatively inconspicuous. Neglect for 10 or more years means that the decayed area will be conspicuous and unsightly for years to come, if not during the entire remaining life of the tree.

## WHAT TREES ARE WORTH TREATING

Most shade and ornamental trees with only a few dead limbs are unquestionably worth attention. Others that have many dead limbs or decayed areas may not be worth the expense, particularly if they are rapid-growing short-lived trees. This point should be considered very carefully before any work is undertaken. Under no circumstances should a badly diseased or insect-infested tree be allowed to remain as a menace to nearby trees that are in a more healthy or entirely healthy condition. All diseased or insect-infested bark, wood, or leaves should be removed and all freshly cut surfaces properly treated, or the entire tree should be removed. In most cases the diseased portions should be burned immediately; in case of doubt as to the contagious character of the diseased portions, it is better to err on the safe side and burn them. No one can decide better than the owner whether a tree is worth the expense of trying to save it, because the actual commercial value of an ornamental or shade tree usually has nothing to do with the decision. It is generally a question of esthetic value, or historic associations, or rarity of species, or location for shade. A man who has had experience in caring for mutilated or diseased trees may be able to say definitely whether it is possible to prolong the life of the tree, but the owner, who has to do the work or pay the bill, is the one who will have to decide whether the tree is worth the expense of treatment. Often the owner will be better satisfied in the end to have a badly diseased or mutilated tree replaced by a healthy, perfect one. In expert hands the moving of comparatively large trees is no longer a hazardous undertaking, although it may be expensive.

## TREATMENT

By far the most important operation is to treat all injuries as soon as possible. All splintered or loose wood and bark should be removed with a sharp cutting instrument and the cut edges shellacked, and, a day or two later, the whole wound properly dressed, as described below.

When a wound has developed an area of decay, all of this should be removed and the cavity treated the same as any freshly made wound.

If decay has progressed for some years it may be impossible to remove all of the fungus causing it without so weakening the tree that it will be a menace to life and property. This is one of the penalties of not attending to injuries as soon as they occur. If all the decayed tissues are not removed the fungus may continue its work of destruction.

In treating tree wounds a few fundamental principles must be observed, in order to secure permanently good results. These may be summarized briefly as follows:

(1) Remove all decayed, diseased, or injured wood or bark. When it is on a limb this can often be done best by removing the entire limb; if it is on a large limb or on the trunk it may be necessary to cut out the decayed matter, leaving a cavity.

(2) Sterilize all cut surfaces. This may be omitted if a good sterilizing dressing is used.

(3) Protect all cut surfaces from external moisture and other injurious external agencies by also applying a more permanent dressing over the sterilized surface.

(4) Leave the work in the most favorable condition for rapid healing; this may sometimes necessitate filling deep cavities.

(5) Watch the work from year to year for defects, and if any appear, repair them immediately.

The simplest type of work consists in removing dead or dying limbs or neglected or decayed stubs and in treating the wounds so as to prevent the entrance of decay-producing organisms and moisture while the healing is taking place. A more complicated type consists in digging out decayed and diseased wood and treating the freshly cut surfaces of the cavities, and sometimes in filling the cavities with suitable material. The artificial filling of an ordinary cavity does not usually increase the strength of the trunk or limb. An improperly filled cavity is probably always a menace to a tree.

## SOME THINGS TO BE AVOIDED

The careless use of a long pruning hook or other implement to break off small dead twigs should be avoided, as every bruise may become the point of entrance of disease or decay. Climbing spurs produce wounds that are very easily and frequently infected. Spurs should never be used except on a tree that is soon to be removed or destroyed. A man who insists on using climbing spurs in tree-repair work should never be allowed to work on trees. Nails and hard leather soles and heals on shoes often cause injury. Rubber-soled tennis shoes, or "sneakers", or some similar soft-soled shoes that will not slip should be worn when it becomes necessary to climb a tree.

Limbs or trees should never be guyed by passing wires, chains, or ropes tightly around them. These may eventually strangle the portions above the encircling band. Encircling fence wires, telegraph wires, or clotheslines may act in the same way, killing all parts of the tree beyond the ligature if they remain tightly drawn around the limb or trunk for any great length of time, often in less than a year.