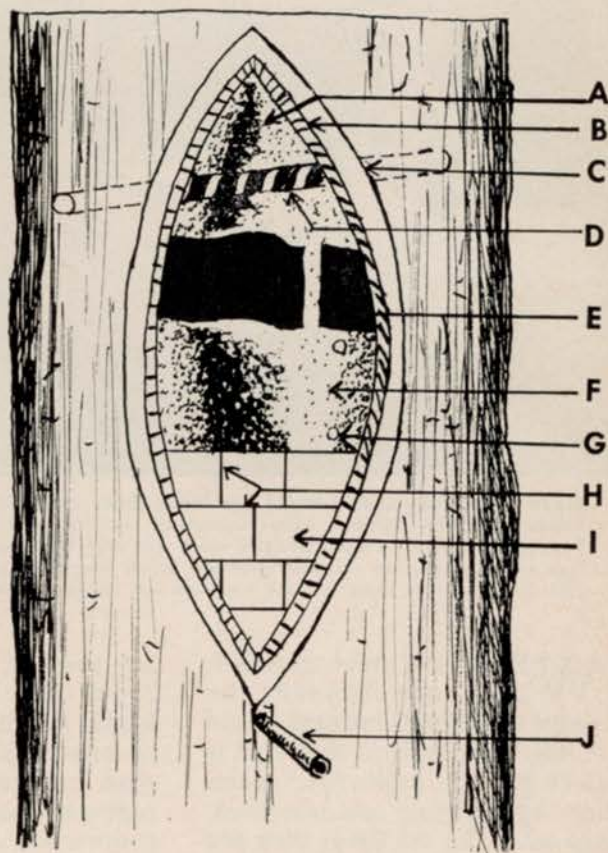


TREE CAVITY WORK

needs to be based
on judgment
of the professional

Filling a cavity is a step-by-step procedure. Shown in the illustration are the common steps and materials: A. Sapwood; B. Cambium and bark; C. Shellac cambium; D. Screw rod bracing; E. Asphaltum paint; F. Felt asphalt layer; G. Tacks; H. Asphalt or tar paper; I. Sectional filling; and J. Drainpipe.



TREE cavity work, properly done by the professional, can add years of life to a tree. But with old, weakened trees, it is often a questionable practice. Whether to fill the cavity depends on the good judgment of the tree care specialist. He relies on experience and also considers the worth of the tree in its particular location.

Veteran tree men know when old, slow-growing trees with advanced decay are better left alone. Good rolls of callus growth around large cavities are strong. Removing callus rolls may weaken a tree structure and actually interfere with an important means of sap flow. Such trees can best be treated by bracing the cavity area and fertilizing the tree.

Only vigorous trees should be

treated. When trees are weakened by changes in grade, excision of roots, gas leaks or chemical injury, cavity filling needs to be delayed until the tree overcomes the condition causing loss of vigor and is again in a healthy state. Experience is the greatest help in deciding whether to fill the cavity.

Filling of cavities is seldom done on such trees as gray birch, white birch, cherry, chestnut, black locust, mountain ash, or Lombardy poplar. Only the most vigorous of trees among catalpa, poplars other than Lombardy, willows and old specimens of black oak and silver maple should be treated. For example, in Maine*, linden and maple having cavity treatments after early to mid-September often have the bark around cavities

killed back, or the fillings forced out. Normally, it is unwise to do cavity work in maples during the dormant period.

When the decision is made to fill the cavity of the tree, proper tools are needed. These include sharp chisels, gouges and knives. Diseased areas need to be treated by removing all decayed material back into sound, normal wood. It is almost impossible, without structurally weakening a tree, to remove all the fungus strands. These may extend well beyond the visible margin of decay. However, shallow sapwood decay or decay in small branch stubs can generally be eliminated. Exterior shape of the excavation needs to follow the natural lines of sap flow. If the bottom of the cavity is near the

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Tree Cavity Work

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ground, then shape of the excavation should be extended to the ground.

Large cavities, or those in or near crotches need to be braced. For this task, use screw rods or bolts. A single rod may be inserted through the cavity. When side walls are thin, crossbraces are necessary. With long cavities, rods or bolts are needed about every 24 inches from well below, through, and to well above the cavity.

When treating crotch cavities, use crossbraces through the cavity as well as above the crotch (See WTT, May, 1967, Page 21). Never install braces closer than within 2 inches of the lips of the cavity. Screw rods serve well when there is at least 3 inches of sound wood on each side. When the side wall is thin and does not contain plenty of sound wood, use bolts with counter-sunk washers and nuts. When cavity treatment is completed, fertilize the tree to speed recovery.

The so-called open method of treating large cavities is common on old, slow-growing trees and in resinous trees. During excavation, it is important to prevent drying and killing of the cambium. This can be done by keeping the cambium area at the edges of the cavity covered with shellac over-coated with plastic asphaltum.

With the open method, the cavity is pointed at the top and bottom, and the sides regularly and evenly shaped. Slope the bottom outward for drainage.

After excavation, and when the cavity is braced and the interior dried, the heartwood needs to be sterilized with creosote and given two coats of asphaltic wound dressing. Dress the entire area of all exposed surfaces. Renew the dressing as it weathers.

Favored cavity treatment for medium-sized and crotch cavities is the filled method. Though filling does not strengthen the tree, it does improve the looks of the tree and serves as a surface for the callus to heal across. The process is the same as for the open method except the inside of

the cavity needs to be larger than the mouth of the cavity to retain the filling. A small depression cut deeper into the wood, or use of wood or lath strips nailed in place, about 3 inches inside the mouth of the cavity will also help retain the filling.

Grooves Provide Cavity Drainage

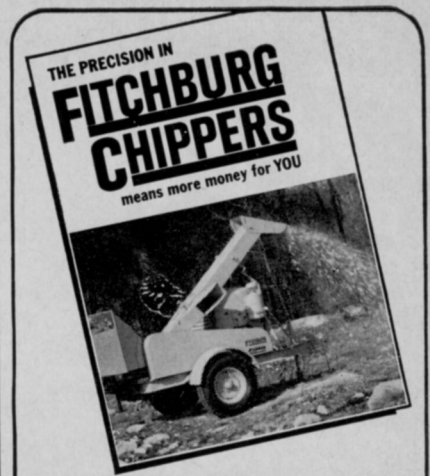
Drainage grooves need to be made on the inside face of the cavity. These are made in a form typical of the grooves in a steak platter, with the main groove ending in a depression at the bottom of the cavity. A drainpipe installed from this depression to the outside of the tree trunk just below the cavity will provide drainage. After dressing and bracing of the cavity, 3-ply asphalt felt tacked in place will keep the drainage grooves clear.

Actual filling is the final step and there are a number of suitable materials which can be used. Most common material is cement. For this type filling, use one part cement to 2 or 3 parts of clean sand (do not use ocean sand). Mix just enough water to form a stiff mortar which will hold its shape when squeezed into a lump. Such a mixture can easily be inserted into the cavity by using a trowel. Tamp thoroughly as the cavity is filled. As concrete sets, work the surface with the trowel until it is moist and smooth.

Small cavities filled with concrete can be done in a single section. But for large cavities it is best to allow for some tree movement. With these larger cavities, fill in sections and separate them with tar or asphalt paper. To permit growth of the callus, fill only to within $\frac{1}{8}$ th inch of the cambium. Once cement is hardened, waterproof the surface with tar or asphalt.

At times, tree men prefer to use a more flexible material than concrete for filling cavities. Other common materials include asphalt with dry hardwood sawdust, excelsior, or shavings added. Creosoted wood strips or blocks may be roughly fitted for

(Continued on page 25)



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Tree Cavity Work

(from page 17)

the cavity and set into a heavy lining of asphalt or coal tar. The surface is then faced with asphalt.

Besides these more common methods, a number of tree care companies have their own filling materials and methods. (Editor's Note: If you have a special material or method for filling cavities

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which you would like to share with other tree professionals, send it to WTT for use in a future issue).

*Recommendations for this WTT Tree Care Report are based on technical material of the Maine Forest Service. Illustrations likewise are based on Maine recommendations for preserving shade trees and supplied by Maine State Entomologist Robley W. Nash, Augusta.

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