

# Treating Decay Is Job That Highest Talent

By MARTIN

This stately red maple started to decay. A limb, sawed off years ago, was improperly treated. Nature struggled valiantly to heal the wound, as shown by the callous growth, but red fungi attacked the heartwood and decay started.

**O**N ALMOST every golf course there are some trees which are particularly valuable, either because they beautify the clubhouse or because they are growing at strategic points. Such trees deserve the most careful attention and good business demands that they get it. They should not only be pruned, fed, and kept free from pests but they should also be examined for cavities caused by decay. If the tree surgeon is called in time, the cavities can be treated and the tree saved; otherwise, the decay will spread and ultimately the tree will be destroyed.

Some persons believe that decay in trees is caused by the wood ants, grubs and beetles which crowd and squirm when the cavity is opened and they are exposed to the light of day. This, of course, is not the case. These dwellers in the decayed wood are classed as scavengers and they merely live on the wood which already has been partially broken down and destroyed by rot fungi, a low form of vegetable life which tears down and consumes other forms of vegetable life.

## Cause of Decay.

As I explained in a former article, the fungous growths at a certain time of the year produce fruiting bodies resembling toad-stools. These fruiting bodies, in turn, produce a multitude of tiny microscopic seeds called spores. The spores float through the air and many of them fall to the ground and perish. But some find lodgment in open wounds in trees and start their work of destruction.

Once established in a tree, the fungi send

*\*President, The Davey Tree Expert Co.*



# Calls for Tree Surgeons' and Carefulness

L. DAVEY\*

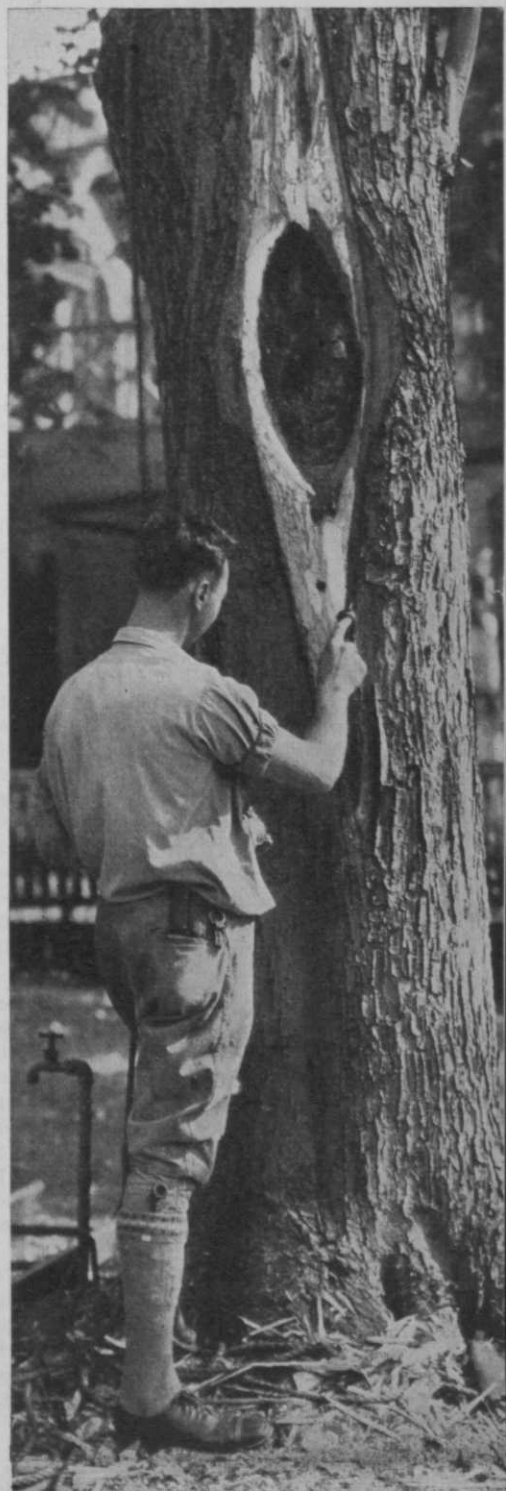
The tree surgeon has outlined the cavity. Holes bored deep into the trunk determine the extent of the cavity. Notice shape of cavity—sides cut to parallel sap flow and ends pointed to make possible rapid healing after cavity is filled.

out little thread-like tentacles which spread in all directions and penetrate from one cell to another, consuming the cell structure because that is their food. They continue their greedy destruction of one cell after another until the entire interior is a mass of decay and the tree has become so weak that it crashes to the ground, an easy victim to a wind storm.

The tree surgeon, in fighting the fungi, has certain definite things to accomplish. He must remove every bit of the decay and every trace of infection. He must replace, as far as possible, the mechanical support lost because of the decay. He must provide a surface over which healing can occur. He must protect the tree from reinfection. To do all this correctly requires as much skill and scientific training as a dentist needs to fill a tooth.

Before treating a decay cavity, the tree surgeon makes a complete diagnosis of the tree to determine the tree's general condition. Sometimes its vitality is so low that money would be wasted if cavity fillings were made. In such cases, the tree is given plenty of food and water, and if it responds satisfactorily, the decay is attacked. If necessary, the tree also is sprayed to kill insects and diseases which are sapping its strength and occasionally it is braced and cabled to prevent injury in storms.

If the tree surgeon finds the vitality of the tree is good, he proceeds to determine the extent of the cavity. This is a painstaking operation. Holes are bored deep into the wood above and below the points of infection. The cavity opening must be large enough to remove all decay and in-





Cavity opened, exposing mass of rotten wood. The tree surgeon has to remove every bit which shows the slightest trace of infection—if any rot fungi remain they will start to work again.

ected wood and its size can be determined only by the boring tests.

### No Halfway Measures.

The layman often is surprised at the size of the opening. All he sees, perhaps, is a small hole in the trunk in which he can put his hand and pull out a few pieces of decayed wood. Almost invariably he begins conjecturing about the size of the opening the surgeon will make, and almost invariably he watches the surgeon proceed to make an opening twice as large. This is because the surgeon knows he must remove every bit of the infected wood because otherwise the remaining fungi will keep on working and another cavity will be formed.

After the tree surgeon determines the extent of the decay, he proceeds to outline the cavity opening which he intends to make. This looks like a simple operation but it requires unusual skill. The wood is removed with sharp chisels and the surgeon must make sure that at the edges of the cavity, the bark is left undisturbed. If it is sprung loose from the tree, it invariably dies back, prevents healing, and exposes the tree to reinfection.

The shape of the cavity opening is determined by the course of the sap flow, the sides of the cavity being as nearly parallel to the sap flow as possible. This permits a rapid, uniform growth of new bark, or *callus*, over the filling. Usually the sap

flows in straight lines up and down the trunk and along the limbs. Occasionally, however, its course twists and curves, and in such cases, the edges of the cavity must be twisted and curved accordingly.

### Promote Even Healing.

In outlining the cavity, the tree surgeon also makes sure to shape it so that the top and bottom will terminate in sharp points. These points so divert the sap flow that there will be even healing along the sides.

After the cavity is outlined and the edges of the bark traced, the tree surgeon begins to remove the decayed and infected wood. This is the laborious phase of the operation, particularly if the wood is tough and hard. Sometimes the wood is removed with a mallet and chisel; sometimes air driven tools are used. The same results are obtained by either means.

When the cavity is opened, the true extent of the decay is revealed. The mass of rotten wood can be seen and also the infected wood, still solid, through which the fungi have permeated in much the same way as mold works its way through a Roquefort cheese.

After the cavity is thoroughly cleaned out, there are still a few more things for the tree surgeon to do before he can start filling it. He must retrace the bark along the edges, making sure that it has been cut in straight, clean lines, as any jagged cuts



Concrete filling being installed. Steel reinforcing rods restore the tree's structural strength. Cavity filling is being installed in sections, separated by layers of joint material.

are sure to retard healing. He also must make sure that the bark has not been injured. If it has been bruised or loosened, the sun and air will dry up the cells of the cambium and sapwood which lie below it and they will die. Consequently, if the bark is not just right, the surgeon must go back and reshape the cavity, enlarging it so that the edges can be cut properly.

### Reinforcing a Science.

If the cavity opening is comparatively small, a concrete filling alone is sufficient to restore the tree's structural strength. In many cases, however, it is necessary to supplement the filling with reinforcing rods. Sometimes a few horizontal rods are enough; again, both horizontal and vertical rods are essential, depending upon the size and shape of the opening. These rods serve the same purpose as the beams in the framework of a house, uniting the walls and distributing the stresses and strains caused by the wind.

After the reinforcing rods are installed, the tree surgeon carefully paints the walls of the cavity with a strong disinfectant to kill any fungi spores which may have lodged there during the progress of the operation. He next applies a waterproofing solution and when that is on, he is ready to put in the concrete filling.

To be satisfactory, the substance used for filling the cavity must have great mechanical strength to resist the tremendous strains which result when the tree sways back and forth; it must be durable; it must provide a proper surface for callus growth to creep over it; and it must be comparatively inexpensive and easy to install. Concrete, installed in sections separated by a special joint material, has been found to be ideal for the purpose. The sections function in much the same way as the vertebrae of a person's



Another valuable tree saved. Eventually, the filling will be entirely concealed by bark which will grow over it from either side.

backbone, providing strength and yet yielding to twisting and bending.

When the filling is completed, the surface is carefully smoothed off and finished in such a way that the concrete is just level with the wood but not as high as the bark and the original contour of the tree is restored. A preparation is then put on to seal the cavity on the edges.

Within a few months, the bark begins to grow over the filling from the edges and eventually the bark from the sides meet. All traces of the filling are then concealed but it is still there, providing the mechanical strength which will enable the tree to stand for generations to come.

*(Editor's Note: This is the fifth of the series of articles on tree care written for GOLFDOM by Martin L. Davey, President of the Davey Tree Expert Company.)*

### Cite Harlow's Pro Management as Example for Britons

**T**ROUBLES of the P. G. A. of Great Britain in controlling its personnel come out in the open with the case of Henry Cotton. Young Cotton did not want to abide by the British P. G. A. ruling on keeping its Ryder Cup team together in the U. S. instead of permitting the team's members to pick up exhibition money individually. Consequently, his P. G. A. promptly denied him a place on the team.

In commenting on the case, *Golfing Monthly* paid a tribute to Bob Harlow's management of the American tournament players. The British journal said:

" . . . in the management of a team the rules must be definite, and we know that in handling the American team which came to this country Mr. Robert Harlow, one of the sanest and soundest of men, was often confronted with problems which required delicate handling. Therefore, going out as a team and coming back as a team was the British order.