

A landscape superintendent in one of the Chicago suburban towns recently stated that he thought Dutch elm disease had peaked in 1968 because "we have reached the point where there are hardly any more elm trees left to die."

The statement wasn't quite accurate, but it did emphasize that the disease had taken an alarming toll in 1968, far higher than in the last six or seven years. The Dutch elm blight was first detected in the Chicago area in 1955, but not until 1962 did it start making serious inroads into the elm tree population. (The disease was first detected in the East in the early 1930s, and by the early 1940s was causing widespread destruction east of the Appalachians.) Each year since then the casualty count has been of crisis proportions; last year the word "catastrophe" was associated with it and by now, with the exception of the Far West and Southwest, few areas of the country have been spared.

A sampling of the casualty figures gives an idea of what has been happening around Chicago in the last few years: Lincoln Park, located on the lake front, in the last three years lost two-thirds of the 3,000 elms that once stood there, most of them victims of the blight. In 1968, 1,100 trees were lost. Most of them were at least 50 years old.

Evanston, north of the city, thought it was hard hit in 1965 when 500 trees were marked for destruction. Last year the toll was even higher; more than 650 trees were condemned.

To the south of the city, Homewood reported losses of only about 3 per cent in 1968, but since 1965 more than 550 elms have died. An estimated 3,000 remain.

West of Chicago there is a belt of five contiguous towns that is re-

ferred to as "the tree towns." Elms, oaks and maples are indigenous in this sector and grow in abundance. But the elms are being cut down. The public works department in one of these towns, Elmhurst, reported that losses in 1968 ran to 725 trees. That's approximately 5 per cent of the elm population, and losses last year were four or five times greater than five years before. Glen Ellyn, at the western edge of the tree town sector, reported that nearly 500 of its 10,000 elms were infected in 1968, the highest amount on record. Of an estimated 60,000 elms in the Elmhurst-Glen Ellyn belt, about

ferred to as sanitation by forestry people. Since chemicals haven't yet been compounded that destroy either the beetle or its fungus, the only holding action possible against the spread of Dutch elm appears to be sanitation. After the trees are removed they should be burned. Otherwise, the beetles aren't going to be destroyed.

Golf courses that surround Chicago are faring somewhat better than municipalities in the battle against the beetle. Their elm tree losses in 1968 probably didn't exceed 3 per cent, although a few superintendents reported that from 5 to 10 per cent of their trees were denuded. Practically

## DUTCH ELM: WHAT IS IT? WHAT CAN BE DONE ABOUT IT?

By JOE DOAN

3,000 were lost.

According to entomologists, a beetle that is about one-tenth of an inch long and capable of flying relatively long distances is causing the havoc. It either transports a fungus or a fungus is spawned from its eggs. The fungus then infests the tree's circulatory system and chokes off the flow of moisture to its branches. Usually within a few weeks the leaves wilt, turn yellow, curl and drop off. When this happens there is no chance that the tree can be saved. It should be removed as soon as possible so that surrounding trees aren't infected.

Removal of dead trees is re-

all of the superintendents agree that last year was the worst for the disease.

Courses along the north shore of Lake Michigan seem to be hardest hit of the Chicago clubs. Probably this is because there are more elm trees concentrated in this district than west or south of the city. Joe Dinelli, superintendent of North Shore CC, reported that he lost 46 elms in 1968, almost exactly 5 per cent of the number still left on his course. In five previous years a total of 110 elms at the club succumbed to the beetle. Big holes are beginning to appear in the wooded areas at

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*The fungus-carrying elm bark beetles tunnel (right) to the water-conducting vessels of a once-healthy elm tree (left). Result: fallen leaves in midsummer (center).*



Dutch elm disease continues to take its toll. In the hard-hit Chicago area, superintendents are carrying on a desperate fight using insecticides and replacement programs



## DUTCH ELM

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North Shore and several trees, strategic to play, have had to be cut down.

Two years ago, Dinelli stepped up replacement of trees that had had to be removed. Nearly a hundred five- and six-inch maples, locusts, lindens and hackberries were planted in 1967 and 1968 to replace the dead elms. Trees at North Shore are sprayed twice a year with DDT and one-quarter of the 2,700 trees on and adjoining the course are trimmed each year as part of a continuing pruning

program. In the last two years the club has spent \$16,000 on tree maintenance.

Like most superintendents, Dinelli is wary of the anti-fungal products that have been introduced in recent years. There is little evidence that they have been very effective in arresting the spread of Dutch elm disease. Their toxicity is feared in many quarters. (See "DDT Panic," June *GOLFDOM*, page 42.) The North Shore superintendent has reached the conclusion that more dependence should be placed on nature to check the blight. As far as sanitation, it is Dinelli's opin-

ion that as little time as possible should be lost in removing dead trees. If they are allowed to stand until the end of the season, when it is more convenient to dispose of them, surrounding trees may become infected. Elm trees often die in clusters, undoubtedly because of the delay in getting rid of those that die first.

GlenView CC and Evanston CC, both of which are fairly close to North Shore, had about the same loss experience in 1968 as the latter club. It was the highest either of these clubs have recorded since the onset of the blight six or seven years ago. Westmoreland CC, another in the immediate North Shore area, lost about 3 per cent of its elms in 1968, twice as many as it had ever lost before. Julius Alspaugh, the superintendent there, has been using a helicopter service to spray his trees. He and about 10 other superintendents in the Chicago district, who use an airborne spraying service, say it is not only far more effective than ground equipment, but about half as expensive.

Fred Opperman of Elmhurst CC, a Westside club, lost about 4 per cent of his elms in 1968, as many as he lost in five previous seasons. Wes Updegraff of Oak Park, which is near Elmhurst, lost about 20 trees, rather alarming considering that an average of five had died each year in the last five years. Updegraff doesn't spray, but gets rid of dead trees immediately, grinding up as many of their roots as possible. Both clubs are in the middle of tree replacement programs.

Opperman favors different varieties of maple, hackberry, ginkgo and oak. He plants two-inch trees, figuring that in eight or 10 years they will catch up with the more expensive five- and six-inch trees that many superintendents prefer. Updegraff plants mainly red and pin oaks, which are prac-

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## What's being done

The Elm Research Institute, headquartered in Waldwick, N.J., is a non-profit organization dedicated to the preservation of the American elm. It offers to its members services which range from counseling on elm care to field testing of new products for elm disease control. It will furnish stocks from its nursery for replanting for the cost of packing and mailing. It also provides, when requested, member groups with a talk and color film on elm conservation and maintains a library from which members can draw material.

One of the major ways the Institute combats Dutch elm disease is by giving research grants to entomologists and plant pathologists. Currently, four universities are researching the problem through grants made by the Institute:

Cornell University with a grant of \$75,000 is studying and indentifying characteristics of disease-resistant strains as a prelude to a program of selective breeding of an American elm with natural resistance to Dutch elm disease.

The University of Wisconsin, which received \$30,000 from the Institute, is doing research on altering the chemical code through

which certain tree species either attract or repel feeding by specific insects.

Michigan State University with \$3,000 is breeding tiny wasps, imported from Europe. The hatch larvae or pupae feed exclusively on the larvae of the elm bark beetle.

Iowa State University with a grant of \$5,000 is studying the responses in the tissue and chemistry of elms to infection by the pathogens of Dutch elm disease.

A film that will dramatize the urgency for support of the Institute's crash program is currently under production. It will follow the westward sweep of the disease, present current methods of coping with the disease and dramatize the effort now being made under the Institute's auspices.

Special stamps are available in any quantity from the Institute. One stamp costs 10 cents; sheets of 18 stamps are \$1; pads of 12 sheets (196 stamps) cost \$10. Write: Executive Secretary, Elm Research Institute, 60 W. Prospect St., Waldwick, N.J. 07463.

These are only a few of the current services and programs in which the Elm Research Institute is engaged.

## DUTCH ELM

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tically immune to disease and rot.

The story at Southside Chicago clubs is pretty much the same as the Westside story. A survey shows that more trees were stricken in 1968 than ever before, with the average loss running a solid 3 per cent. At most Southside clubs this means about 20 trees. At Ravisloe CC, where Roy Nelson is the superintendent, 18 elms were removed last fall. He estimates there are about 600 elms on his course, considerably less than the number of oaks. Nelson doesn't spray because he thinks spraying methods are inefficient. He further points out that clubs that do spray haven't had any better luck in containing the beetle than Ravisloe. He is another who advocates quick sanitation. He has had a replacement program going for the last three years, planting about 100 silver and hard maples, ash and linden to fill in where elms have died.

Does Nelson feel that there should be a heavy swing to oaks as a replacement for dead elms? Definitely not. Oaks apparently are living up to their reputation for being mighty and durable, but if there was to be a glut of them they'd probably go the way of the dying elms. "Part of the trouble we're having with elm is due to overgrowth of the species," Nelson says. "Nature may be thinning them out for us and restoring a proper balance. We have enough oak trees now and should be planting other varieties. In recent years there has been talk of an oak wilt that may turn out to be as devastating as the Dutch elm blight. Maybe it would be wise to hold off on oaks for a while and see what is going to happen."

Some superintendents feel that Dutch elm disease has gotten out of control because municipalities and other government agencies haven't taken proper measures to check it. Spraying in some local-

ities has been completely neglected, or at best is sporadic. In some communities dead elms have been allowed to stand for several years before being removed. One course on the west side of Chicago, which backs up to a forest preserve, has had heavy losses, according to the superintendent, because the county had done little or nothing to combat the blight. "If they'd remove the dead trees over there," says the superintendent, "it would make it a lot better for us. They wouldn't have to spray—just remove the beetle."

The county's reply is that in deep wooded areas it is too costly to take the preventive spraying measures necessary to protect the elms. And, removing the dead trees is impossible because of a lack of funds.

The indictment of municipal and county agents by the superintendent is not a blanket one. The village of Homewood, near which Ravisloe CC is located, is doing a good job of trying to check the disease spread. According to Roy Nelson, the city has a spraying program and it cuts down the diseased trees as quickly as it can get to them. "What shouldn't be overlooked," Nelson points out, "is that it takes a lot of time for the towns to certify that a tree is dead, and a good deal of red tape is involved before permission can be obtained to cut down trees that have died."

Talk to any municipal official and he'll tell you that it takes adroit budget maneuvering to provide for tree maintenance. Taxpayers are generally aware that trees are dying, but they can't figure why it costs money to remove them. With most towns and cities, tree care traditionally has been extracurricular to the work that a department such as public works or park and recreation performs. The attitude always has been, if it gets done—fine; if not—don't worry about it. The Dutch elm plague should have changed this attitude in recent years, but

in most communities it hasn't.

The Village of Glen Ellyn, located about 30 miles west of Chicago, like most towns and cities is doing what it can to suppress the blight with limited funds. On a villagewide basis its record is as good or maybe slightly better than that of surrounding communities. About two years ago it put into effect a test program that has been widely praised but not widely copied because it is costly to carry out. On the south side of Glen Ellyn a mile square control area has been established. Recommended practices for combating Dutch elm disease are carried out. Trees are sprayed with DDT twice a year and when an elm tree dies, it is removed as quickly as the public works department can get to it. The result has been that the loss has been restricted to less than one-half of 1 per cent, even in 1968.

There is no known cure for Dutch elm disease. Researchers, foresters and arborists agree on this. One Chicago chemical company that carried on research of the disease for several years backed off about a year ago, conceding the beetle was too much for it. The anti-fungal products it developed were too toxic to put on the market and no effective way of treating trees with them was found. Determining critical dosages for the different products also proved to be quite tricky.

So, until the beetles become surfeited or a curative found, it looks as if Dutch elm disease is going to be around. Superintendents apparently are doing as much as they can to live with it and, at the same, are containing it by fighting it where and however they can. Maybe 1968, which was excessively dry around Chicago in the early part of the year, was the peak year for the disease. And, possibly as Roy Nelson has suggested, the beetles are doing man a favor by cutting back the elm population to what nature has intended it to be. □