CODIT AND TREE CARE IN SCANDINAVIA[1]

by Niels Hvass

Seven years ago, at the ISA conference in Atlanta, Georgia, I proudly spoke at a luncheon meeting about the new rotacutters for cleaning out decayed wood in old trees. It was an improvement in tree surgery because it more rapidly and more effectively could take out all dead and decayed wood down to fresh timber-like wood.

Various rotacutters were sold in rather large numbers in Europe, and since then other manufacturers have made even better machines. I do not regret this initiative although now I know that rotacutters may have brought about more problems than they solved for the trees.

Whenever discussion arises as how to do proper tree surgery, it has traditionally been mentioned that all decayed or fungal-attacked wood should be removed. Having worked for many years with tree surgery and felled many trees, I began to doubt whether this ideal was obtainable in the size of cavities we took care of. I took the opportunity to dissect many trees and concluded that sometimes the decay or discolored wood was spread much farther into the trunk than we could reach from a cavity entrance unless the hole was enlarged tremendously.

Sometimes the decay began from an old wound, which, from the outside, looked to be a deep cavity, but was in reality only decayed and discolored a short distance from the surface. Cavity work then seemed to be of little necessity. The largest number of decayed areas were found when I made longitudinal cuts of the stem behind overgrown old wounds and stumps. The spreading of the decay seemed to have come to a stop naturally, and it did not look as if any help from tree surgeons was needed.

It is out of my field to follow decay development from wounds in living trees. Also, I had some doubt about the trees' abilities to stop the development of decay following treatment, since I could not see inside the same living tree the next year.

Large cavity work, with large wounds and big openings deep into the wood, has been shown to me in some European countries, and we have done some in Scandinavia. But, it is becoming more and more obvious that the secondary effect caused by the severe wounding exceeds the possible value obtained by getting rid of the decayed wood.

The Journal of Arboriculture brought at the same time information across the ocean in articles written by Dr. A.L. Shigo in such a properly scientific way that I, after a couple of years' consideration and after a visit to the Northeastern Forestry Experiment Station, was convinced that cavity work we did was wrong for the tree but our clients in many books. It seems as if many of the older recommendations for cavity work and pruning have been made by men working in practice, like Davey in the U.S.A. and Maurer in Germany. It was not until our generation, as late as ten years ago, that we brought in independent, scientific research. One must say that this is very late compared with other natural sciences that have been far more developed in the past.

It became a serious problem for me since I was running a tree expert company with a rather profitable tree surgery division and a rotacutter pro-

Fig. 1. Cutting up trees in cross sections as well as longitudinal sections gives information on the development of decay.

[1]Presented at the annual conference of the International Society of Arboriculture at Boyne Falls, Michigan in August 1981.

duction. I then knew that part of the remarkable work we did was wrong for the tree but out clients (mostly local authorities) were acquainted with these procedures, and they wanted cavity work done. It took me two years to bring the rotacutters to a stop, and I had to say, and sometimes still have to say, that it is temporary until full proof for stopping cavity filling has been declared.

For a couple of years we lost money in our tree work department because cavity work was quite profitable since it more or less could be done under all weather conditions. It also could be done in the summer, when little pruning traditionally was done. Today we still miss this work and have cut the number of employees down by 30 percent. However, we are not sure that this is caused entirely by lack of cavity work. Some of the reason has to be found in the reduction of public expenditures due to the depression. Approximately 80 percent of our service is done for public authorities.

In Scandinavia there is no school for arboricultural training and no research is carried out that can be compared with the research work that has been done in the U.S.A.

When looking into European literature and periodicals there also seems to be little arboricultural research compared with the other natural sciences. I believe that the few of us in Scandinavia, who are members of the ISA, are very pleased to receive the Journal of Arboriculture in order to have the latest results in science and reports within the business. It is our wish to know more about how to treat wounds and cavities, because many people and clients are focusing on this subject, and there are tremendous differences in attitudes and treatments.

It is obvious to anyone who cuts wood with old wounds in sections and polishes the surfaces that the tree is able to set up a defense against its

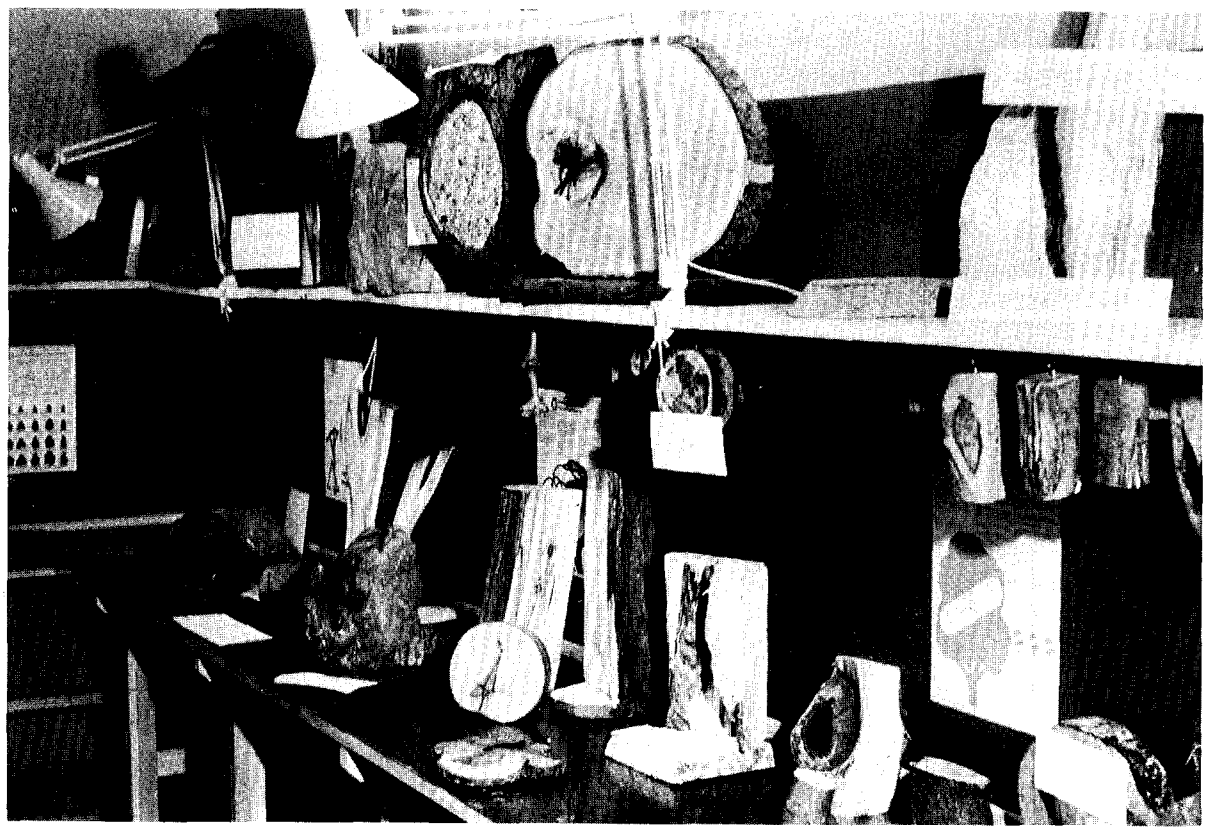

Fig. 2. By polishing the sections the compartment becomes more visible.

enemies as is normal for living creatures to do, and so far, the best explanation of what happens in the wounded tree is given by Dr. A.L. Shigo as described in the CODIT system.

It is easy to find walls 2, 3, and the barrier zone, wall 4, but the next step of importance to tree surgeons must be to find out how and where we can benefit the tree and help it to a longer life.

We must respect the science that tells us how the patient tries to work out the problem, but we need further recommendations about what we can do to help the walls in the compartment to be effective and recommendations for the work procedures that we must use in order not to break the laws of nature.

To me it looks like most cavity work should be forsaken, at least for a while. I am not certain of this when dealing with very old trees or trees that are rotting away from the inside and growing well at the outside, when you have a demand from your client that the tree shall be preserved for as long as possible, possibly for historical reasons. The walls in the compartment are likely to be on the decline, and one's thoughts return to the direction of the traditional treatment of wood and timber, with wood preservatives, tree paint, etc. It hurts me that I do not know what to recommend to be honest both to the tree and to the business.

As a result of arboricultural research it was a pleasure to receive the unequivocal information about cutting off the branch outside the collar, where this is present. I have seen many flush cuts all over Europe leaving very big wounds, and sometimes they are painted with a super product that is believed to be artificial bark.

In order to spread more information about tree care, the first Interscandinavian Tree Care Conference was arranged in Malmo, Sweden in August 1980. There were 250 participants, and Gordon King, A.L. Shigo, and Erik Jorgensen from the U.S.A. and Canada were invited as speakers. The conference went on for two days and came out with a profit. Part of the profit has been sent to the ISA research trust with the wish that it shall be used to bring the results from science into the hands of the European arborist.

Scandinavian Instant Trees
Hellerup, Denmark

ABSTRACT

BLACK, KIM. 1980. **How to protect plants against heat.** Am. Nurseryman 152(12): 68-74, 89.

The growth of plants is restricted to a definite temperature range. Growth proceeds smoothly within the optimum range and begins to decline once that range is surpassed. In the case of plants, there is a rapid increase in growth in the 40° to 60° range, followed by a steady increase above 60° until the optimum range 65° to 85°? is reached. Temperatures above 85° lead to a decline in growth, the rate of which increases as the thermal death point is approached. Plants must be protected from these excessive temperatures if they are to survive and flourish. Leaf temperatures can have a tremendous impact on plant growth. When leaf temperatures are in the optimum range, plant activity increases, which is turn stimulates growth. The opposite is true when leaf temperatures rise too high. Adequate soil temperatures must be maintained if the roots are to develop and grow properly. Optimum root growth generally occurs when the soil temperature is between 75° and 85°. The previous discussions on leaf and root temperatures show what damage can result when these influences are left unchecked. Learning how to safeguard against these problems is critical if plantsmen are to obtain the results they desire.