

# THE ESSENTIALS OF MUNICIPAL ARBORICULTURE <sup>1</sup>

by James T. Oates

The essentials of municipal arboriculture means the essentials of commercial arboriculture in its application to municipal conditions. I would like to relate problems that I have experienced in my municipal work. Any knowledge that I have of municipal arboriculture comes from what I experienced in the City of Richmond, Virginia and observed in other cities.

The one thing I consider most important in municipal arboriculture is the ability to prepare a budget that will present your needs so well that there will be no question that your requests are valid and justified. It will then be up to the budget committee to apportion the monies fairly among all the departments in the city.

If you fail to get what you need included in the budget, it is imperative that you be a good 'scrounger'. 'Scrounging' is the gentle art of being on good terms with the other departments, and being helpful when they are in a bind so they will help you when they learn of your needs. Hopefully, even before you ask for their help.

For instance, a piece of equipment they have used hard day in and day out may need to be replaced because it is no longer economical for them to use it, but it may be advantageous to transfer it to you. Your use of the equipment may be intermittent, though essential, and would not justify buying a new piece of machinery for the tree division. We have lived on scrounged equipment many times and gotten jobs done that would have gone undone otherwise.

Next to scrounging, the importance of having trained personnel cannot be over-emphasized. You will be compelled to do your own training almost entirely on the job. A good way to begin this is to assemble the major hand tools on boards, in order to acquaint new personnel with their use. It would be ideal if every tree man

could use each of the hand tools and the materials of tree care effectively.

It is essential that proper cuts be made if trees are to survive and thrive and at the same time look well. Show the new men how to make these cuts, preferably by the use of slides, before they go out for field training. It makes a lasting impression. If you could present your entire work program in this manner, it would pay dividends.

*(Slide, wound treatment)*

It is essential that mechanical wounds be protected. More trees are made unsightly, are disfigured or exposed to infection by mechanical injuries than from any other one thing.

My recommendations for treatment may not agree with some current thinking. After tracing the area adjacent to the cambium it should be disinfected with bichloride of mercury in alcohol, 1:1000 parts. The entire tracery is then coated with shellac, cut four pounds to the gallon. When this is dry, a coat of Spar varnish is applied and the opening sealed with emulsified asphalt to which has been added one ounce of the copper sulfate as a fungicide. Following this treatment I have always had excellent healing.

*(Slide, filled cavity)*

Cavity work is one of the finest features of municipal tree preservation that can be used. It will prolong the life of as many trees as will the care of mechanical injuries. After hearing Dr. Alex Shigo at Lubber Run in Arlington, Virginia, I gathered he thought cavity work was ineffective. My experience has been otherwise.

Cavities installed by trainees 12 years ago were tested above and below the points at the back and on the sides of the cavity. We found no evidence of decay. When we sent material to our plant pathology laboratory, their findings were the same as ours.

<sup>1</sup>Presented at the 50th International Shade Tree Conference in Atlanta, Georgia in August, 1974

Cavities were installed in this tree. Twenty-six years later at the time this picture was made in Mexico, they were free of decay. This healed cavity was put in when I was at the University of Virginia 40 years ago and it is still sound. The secret is to do the work right.

It is essential to apply nutrients to as many trees as time and your budget will permit. According to some, the perforation method is as effective without nutrients as with them. Some will say that throwing nutrients on top of the ground is an effective method. I cannot buy these ideas.

*(Slide, transplanted tree)*

This newly planted tree, with some rotted cow manure and straw around it, has green grass around it, while the other grass is brown and seared. There is not enough nitrogen in the manure, nor enough straw as a mulch to make this difference. I have gotten the same results with organics on a large scale.

*(Slide, oak decline)*

Commercial arborists often advise against treating oak decline. They say the oaks will not respond. These trees, treated the year before by someone else, were given up as dying and we were ordered to remove them. Instead, we pruned, treated, and fed these trees by the perforation method with a combination of inorganic and organic nutrients. Within two seasons, they had a full crown.

*(Slide, live oak)*

Eighteen-inch switches of live oaks were sent to an amateur plant breeder who lived where live oaks were not native—in the northeastern part of Arkansas. This oak, the lone survivor of severe flooding, was at least 12 feet high when it was four years old. After ten years, the height was 25 or 30 feet, and the caliper was 12 inches. Trees planted at the same time in Virginia measured five inches in caliper and were approximately 15 feet tall. I believe that it is essential in municipal arboriculture to keep trying old methods on new ideas and new methods with old ideas.

Municipalities will plant trees, whether they practice arboriculture or not. For years, the arborist has been trying to get the right tree in

the right place. Where the wrong tree has been in the wrong place he has endeavored, in so far as possible, to curtail the growth, both above and below the ground. This can be done scientifically, with little adverse effect on the tree.

Little thought has been given to the welfare of the people as a whole in the selection of trees to use in the urban environment because of the trouble and politics involved. Trees wholly unsuitable for the location have been allowed to be planted. Plants with poisonous leaves and twigs have been put out anywhere. Trees which allergy sufferers cannot endure have been planted where they make people miserable.

We have those who have taken upon themselves such titles as landscape engineers or city planners who have decided what will be planted and where. Many foresters are fumbling and scrambling to find out what they were supposed to do in municipal situations. It is essential that you know where and what to plant, and that you have the ability to stonewall for what is proper.

Some examples. These locusts were put under a traffic light by a firm of consulting landscape engineers. Here selection of the form of the material leaves much to be desired.

An arborist was ordered to plant five trees in 3-foot openings in a sidewalk. Three utility poles were already forcing pedestrians to step out into the street to pass. Diplomacy paid off. The works department closed the sidewalk openings and the trees were not planted.

The chairman of the planning commission ordered these 3-inch caliper sugar maples planted underneath the utility wires. They were already in the utility wires in some places when they were planted. These *Acer amurense* could have been used in place of the sugar maples, and in one season they would have been very shapely trees.

These sugar maples of 1½-inch caliper were planted bare-rooted on an intersecting street and are shapely, well branched, and strong. Already they are a credit to the street. They cost \$27.00 from the maintenance budget. They are as satisfactory as 3-inch trees which cost \$150.00.

It is imperative that the arborist establish a

good working relationship with utilities. They are businessmen, and good ones. If possible they will buy any idea which will make for better community beautification and public relations. These poles on the median strip were unsightly. It was the concensus that something should be done. Going underground was neither feasible nor economically possible. It seldom is. To place them in the tree lawn meant mutilation of the trees. Placing them on the property side of the trees meant taller poles. The utilities could not cover these expenses in their budget, but they were able to work out a cost-sharing basis with the city. This resulted in immediate aesthetic improvement. The continuing development of this median strip is an example of utility and municipal cooperation.

Your nurseryman is also a good businessman, and it is essential that you work with him in your beautification programs. He will help keep your feet out of the grease and will find what you want even if he doesn't have it. One nurseryman helped me in selecting these red-veined crabapples. They have never blighted and have required very little maintenance. A sterile variety, Spring Snow, is also a hardy and beautiful tree.

This street of *Sophora japonica* was colorful, but the working men living on that street objected to the blossoms falling on the sidewalk. There are times when I would rather switch than fight. We removed them with the understanding that they would not be replaced with any species of tree as long as I was arborist.

Over-arching streets are beautiful, cool, and inviting. Maintenance of this street is not a

great deal more expensive than for this street of Kwanzan cherries and purple-leaved plums. Expensive or not, a street of Kwanzan cherries will raise your grade points.

It is essential that you accent your centers of interest, such as bodies of water. You can plant trees so large that they will cover up rather than accentuate the beauty of such a spot, so use discretion. Sometimes you may not want to use trees at all. Azaleas are perfect in some locations.

In malls, azaleas are beautiful but they take a beating. Kwanzan cherries do surprisingly well and *Sophora japonica* are beautiful. They thrive in planters, too. The goldenrain tree is also a thing of beauty. In large planters, where growing anything is difficult, native trees such as the willow oak in Virginia are a must. We found that they would grow where flame ash would seem to thrive, but doesn't.

The same operations will not be considered essential in all cities. For instance, some cities have discontinued spraying; others regard that as a very necessary part of their operation. Some municipalities find large equipment essential and economical in their work, while others get along without it, either through choice or necessity. The observations and suggestions described in this paper are, in my opinion, the essentials of municipal arboriculture.

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## ABSTRACT

Shigo, A. L. 1972. **The beech bark disease today in the northeastern U.S.** J. Forestry 70(5): 286-289.

The beech bark disease, as it exists in the northeastern United States, is caused by fungi infecting minute feeding wounds made by scale insects in the bark of beech. The principal fungus is *Nectria coccinea* var. *faginata*. The beech bark disease was known in Europe before 1849, and except for a few outbreaks, little damage was caused by it. The beech scale was introduced into Halifax, Nova Scotia, about 1890. But the first recorded outbreak of the disease was not until 1920. Many beech trees are killed and weakened in infected stands, although some trees seem to have a natural resistance to the disease. There was little real concern about the disease in the U.S. until the last few years, when industries learned to use beech profitably. Now there is a need for better understanding of the disease.