



Encouraging the "V-type" growth in this elm did not add to its natural beauty, and put additional strain on the main crotch.

BECAUSE of a seeming lack of foresight either on the part of power companies which did not put electric wires underground, or on the part of city street planners and tree planters, there exists today a major need for tree service companies to keep power lines free of encroaching vegetation. This job involves, for the most part, pruning or trimming tree branches so they do not grow into energized wires.

Pruning shade trees prevents, corrects, or improves an undesirable situation. With power line clearance, the problem is tree contact with elevated wires. Contact can: 1. break the wires; 2. cause the wires to "pit" and become weakened; 3. burn the tree; 4. cause a short circuit; or 5. otherwise cause power outage and lack of service.

While it is true that telephone companies are also concerned with tree plantings along their streetside rights of way, their interest is involved mainly with branches which can fall and break wires, and branches which rub wires. Reasons 1 and 5 apply to telephone line clearance

A Review of Shade Tree Pruning Practices

For Streetside Line Clearance

also, but it should be remembered that communication wires are not "hot" as are power lines and do not require clearance because of short circuit danger. Telephone wires are often cabled and covered with insulation so any light contact has no effect on transmission. While some operations are done only for electric power line clearance, others apply equally to communication line clearance. In this article, we will concentrate on power lines, because their reasons for streetside clearance are "broader."

Of the three prime reasons for shade tree pruning—(a) appearance, (b) safety, and (c) health—safety is the major reason trees near power lines must be periodically trimmed. In this safety category is included the maintenance of power service in addition to the well-being of people and property beneath the wires and trees.

An emphasis on safety pruning

does not give reason to ignore the appearance and health of trees being trimmed.

Five Basic Pruning Types

There are five basic operations which line clearance crews must perform in their routine work. 1. Cutting back ("topping") for overhead clearance. 2. Side trimming for adjacent clearance. 3. Undertrimming ("lifting") for clearance beneath limbs. 4. Directional trimming ("trimming through") to provide "windows" for wires through a tree interior. 5. Removal of dead overhang.

Here we shall use the phrase, "cutting back," as a trimming operation, as opposed to the term "topping," which sometimes denotes the same operation. Topping, however, more often implies the frowned-upon practice of drastic removal of a trunk leader and most of a shade tree crown. This operation seriously injures both appearance and health of a shade tree.

Here is a survey of some problems encountered in keeping streetside shade trees clear of utility lines. A result of another *Weeds and Turf* field research project, the article is meant as a refresher for "old pro's" and an introduction for neophytes or crewmen. *Photos are by Weeds and Turf.*



A saw, not a pole pruner, should have been used on this ragged maple. Snipping away rising twigs, the trimmer left many spindly ones dangling from heavy limbs above, some of which should have been selectively removed.

Cutting back is a procedure of selective removal of leaders from the crown of a tree. This prevents contact with energized wires above the tree. The operation is usually done with a pruning hook, hand saw, and sometimes with a chain saw, if the leader is particularly large. When done properly on an individual branch basis, cutting back becomes a highly refined type of tree trimming. It is both the most permanent and most inconspicuous type of pruning.

Severed leaders are drop-crotched (pruned off at a point flush with an adjacent leader) below the intended height of a tree. Cut back leaders are out of sight and are shaded by other smaller twigs which have simply been tip pruned. The full form of the tree is maintained.

Since the advent of the highly versatile aerial bucket lift, many trimming operations can be easily performed from outside the tree instead of inside. Some trimmers, however, when they get outside a tree, seem to forget what they learned about trimming a tree from the inside.

Ill-trimmed trees have all branch and twig ends snipped off at a common level. Unsightly bare wood of pruned branches protrudes through the sparse leaf cover atop a tree. Overall result of such practice is a bowl-

shaped or flat-topped tree which does indeed give overhead clearance, but which leaves the tree scalped and in need of repair. Cutting back can be effectively performed with an aerial bucket lift provided trimmers move in close to the crown to drop-crotch low enough.

Side trimming to accommodate wires close to the edge of a tree is delicate work and should be done with ingenuity and artistry. Reasoning behind side trimming is that indentations can be cut into tree crowns and softened by judicious pruning above and below the indentation. This is done when wires are not actually traveling through the tree interior. Side trimming allows trees and wires to exist side by side.

Tree trimmers simply invite trouble when they mistakenly remove a lateral limb as a side "trim" to accommodate wires which would get along perfectly well with light side trimming. Limb removal leaves a "window" from the outer crown to the main trunk. Although this practice may be thought of as an easy way to avoid trimming a particular tree for a few years, disfigured trees along roadsides generate criticisms of utility companies, frequently the tree trimmer's best customers.

Trees with upright habit, such

as elms and sycamores, that are tall enough, can have their lower crown lifted so wires can clear beneath the tree. Since these trees normally grow tall, they should not be suppressed beneath wires, rather guided around them. Once undertrimmed, overhead cutting back is no longer needed each year; retrimming is minimized except for dead overhang removal.

Directional pruning is probably the most skillful and most desirable pruning from the standpoint of both trees and wires. When wires are strung through a tree's interior, skilled trimmers can make "windows" through the street trees to give wires free passage. This is desirable along city streets because both trees and wires are accommodated with minimum injury or displacement of either.

The amount of trimming for directional pruning must be conservative and well thought out before cuts are made. Removal of a single branch instead of two smaller twigs may make too large a gap and defeat the whole purpose of trimming through, which is to make the operation as inconspicuous as possible. Trimming through the top of a tree may eventually cause too great a "V" and weaken the main crotch of the tree.

Dead limb overhang removal is usually an undertrimming operation, though sometimes trimmers must prune stagheads high in a crown. Dead limbs must be removed not always because they are touching wires, but because they may break and fall onto wires, thus interrupting power service.

Dead limbs should be pruned (drop-crotched) to a point behind dead wood tissue. Removal of only part of a dead limb is purposeless. When dead wood overhangs energized wires, it must be moved away from wires and lowered by ropes.

One rope can be used if limbs can be crotched so they don't hang over electric wires. When the limb is cut, it will swing away from wires. When a single rope is used, more than one groundman should hold the rope

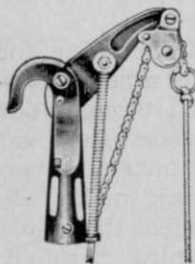
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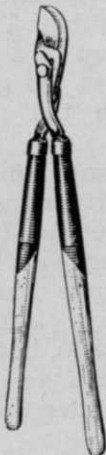
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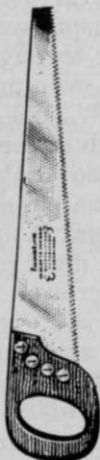
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or else the line should be snubbed (wrapped) around the tree trunk a couple of times to increase the amount of holding resistance. One man can usually control the lowering speed of a snubbed rope.

Attaching a single lowering rope to a dead limb in a position where it will be somewhat balanced can be dangerous for a climber because dead wood is structurally weak. Rope should be tossed over the limb and pulled in with a pole; then a running bowline knot, pulled taut, secures the rope to the limb.

A man in an aerial bucket lift can more easily attach a lowering rope, if such a lift is available. Trimmers on aerial lifts should remember that the whole weight of large limbs should never be tied onto the lift bucket.

If an overhang cannot be swung away from power lines with a single rope, two lowering ropes must be used along with one or two guide lines. One line, the butt, is tied to the thick end of the limb and passed over a sturdy crotch, then to the ground. The second line, or fall line, is attached to the far end of the limb. One or two guide lines are fastened in the middle or on both ends respectively. Climbers must not attempt to hold or control either lowering ropes or guide lines after cuts are made and the limb swings free; this is the groundmen's job.

At the outset of this article we pointed out that line clearance is safety pruning, and that the other two reasons for pruning, appearance and health, cannot be neglected. There is a problem which limits the amount of conscientious work tree trimmers can do; this is contract restriction.

Many Agencies Trim Trees

Problems arise when tree expert companies are contracted to service trees interfering with power lines. Their contracts and permits usually state only that they will clear limbs and branches away from wires. Power line tree trimmers cannot do any extra work requested by property owners even when

asked. Once the lines are free, the job is finished.

Most tree companies take the time to make their trimming job as neat as possible, but if trees are on public property it becomes the job of city tree crews, not power company employees, to beautify them. If trees are privately owned, individual residents must purchase private service to have complete pruning.

Therefore, since power line tree crews are not permitted to service whole trees, the jobs they do must be as neat as possible. Tree crews who leave a privately owned tree in need of corrective pruning, when the tree truly did not need pruning at all (were it not beneath power wires), create ill will among the utility's customers.

Private power companies usually receive blanket permits from cities to trim municipal trees when power lines are erected on tree lawns, parkways, or other city property. Where only municipal power lines and municipal trees are involved, an interagency understanding is all that is needed for tree trimmers to perform their work. No extra permit is needed from streetside residents.

Trimmers usually refrain from trimming trees when homeowners complain that they don't want the trees trimmed. Even though the residents have no legal complaint, the trimmers usually pass the trees by and report the location so a city man can call and "keep peace in the family."

When lateral electrical wires extend over private property, however, rights of way must be obtained by a power company or municipality trimming crew from each resident. This is a time-consuming job done to comply with law and preserve power company customer good will.

That more than one crew must work on a tree (in some instances) is unfortunate. But line clearance crews cannot work for two employers at the same time, and wires must be cleared more

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Streetside Tree Pruning

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often than private homeowners are willing to pay for.

Tree crews have a double duty to protect the good will of their contract employer, and, just as important, the good reputation of their own company.

Consider Health of Street Trees

Health of a tree cannot be overlooked even when trimming for safety. All pruning cuts under 1-inch diameter should be made neatly so they will heal rapidly. In the case of limb removal (over 1-inch diameter), flush cuts of laterals heal faster when no stubs or heels protrude. Stubs tend to decay and pave the way for invading insects and fungi. Deep cavity wounds are sometimes caused by stubs left when trees are trimmed.

Limbs are removed with four separate saw cuts. The initial undercut, 12 to 18 inches from the parent limb or trunk, is followed by a jump cut 1 or 2 inches farther out. This procedure removes the bulk of the limb by natural breaking and prevents saw binding. Undercutting keeps the bark from peeling when the cuts are made without lowering ropes. The stub is sawed flush by two cuts, first under then over; this should be made as near the parent limb as possible without sawing the bark of the parent limb. All cuts over 1-inch diameter must be painted over with a wound dressing. Dressing must completely cover the exposed wood but should not be applied onto the live bark.

Heavy-duty, compressed-air pruning hooks used with aerial lifts can sever branches larger than 1 inch very easily. Because these cuts ("shiners") are made with a pruning device does not, however, mean that they need not be painted with wound dressing.

Another point to consider about tree health is internal disease. This consideration is especially important when trimming trees such as the London Plane, *Platanus acerifolia*. The possibility that a tree is diseased

with cankerstain organisms should not be overlooked.

Tools can be sterilized in denatured alcohol after each tree is pruned to prevent the spread of internal disease to other trees. A trimmer who prunes a diseased tree (in any season), and then goes on to trim healthy trees, may infect the tree with every saw cut, because of the disease organisms on his saw, pruners, and in his scabbard.

Pruned limbs from diseased trees or disease-suspect trees

should be disposed of separately from normal trees. Experts advise that diseased Plane trees, for instance, be burned as near the site of cutting as is feasible.

In summary, tree expert companies under contract to power companies perform what is commonly called safety trimming along home-lined streets. They cannot for the sake of the trees, their customers, or employers, neglect the overall appearance and lasting health of the trees they prune.

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