



## Month by Month With the Trees

By C. M. SCHERER

Principal of The Davey Institute of Tree Surgery, Kent, Ohio



Editor's note: Almost every greenkeeper has trees to take care of and loses a certain number every year. That's why we have enlisted the aid of Mr. Scherer, a nationally noted tree doctor, to tell us what happens to the trees through all seasons of the year. It's a precious work, saving trees, and we believe the greenkeepers of America will appreciate Mr. Scherer's contribution to our worthy cause.

**O**RDINARILY one thinks very little of trees during the month of January, however, trees are just as interesting in the winter as they are in the summer. At the same time they have their troubles and are deserving of attention as much now as at any other time.

In winter a sturdy oak, a stately elm or a graceful beech has a beauty all its own. A beauty which etched against the gray sky gives a picture which is hard to forget. As one looks across the golf course from the cozy confines of the club house, the trees stand sentinel waiting for the coming of spring.

Fortunately few of the enemies of the trees are abroad in the winter. The insects are inclosed in their cocoons or eggs and have no chance to do any harm. It is too cold for the fungus enemies to do any damage and one would feel that the trees are safe for a while, at least. In spite of their seeming security trees oftentimes suffer materially in winter time.

### *Extreme Cold Causes Frost Cracks*

One of the most serious troubles is the extreme cold. There are few, indeed, of my readers who have not at some time while riding through the woods on a cold winter night been startled by what at first seemed to be a gun shot. On second thought, however, they realized that it was only the report occasioned by the splitting of some tree because of the cold. All of us have seen the great seams and fissures in the trunks of trees and wondered what was the cause. These long narrow wounds in the trees are the result of having been split asunder during some preceding winter by the extreme cold. These wounds are ordinarily referred to as frost cracks.

Frost cracks commonly appear in trees when the temperature drops rapidly following a comparatively warm

period. The outer portions of the trunk of a tree cool quite rapidly; more rapidly in fact than do the inner portions. Naturally the rapid cooling on the outside causes a contraction of the wood which is more rapid than is the contraction of the interior portions of the tree. It does not take long to make the strain so great that the outer tissues split apart, and this splitting is accompanied by a loud report quite similar to a gun shot.

The following summer the tree tries to heal its wound and very often succeeds in completely covering it, but the damage has been done and the scar is so weak that only a slight strain is needed to split it open again the following winter. This succession of healing and splitting goes on over a period of years and frequently great ridges are built out on the sides of the tree trunks following the effort of the tree to heal its wounds.

Of course when the protective covering of bark has once been destroyed, an entry way is open for other enemies of the tree to gain admission. These enemies take advantage of every opportunity and it is not at all unusual to find the supporting wood of a tree being rapidly destroyed behind a frost crack by some wood-destroying fungus. It is only with the assistance of some one trained in the care of trees that the injured trunk can recover from its trouble.

### *How Freezing Affects Leaf Buds*

Besides the splitting of the trunks, there are still other damages caused by the cold. Most of us probably were taught that the buds of the trees were nice and warm, wrapped up in their covering to pass through the winter. This teaching of course is not true, because the buds get extremely cold and in fact freeze solid during the winter time. The protection is not against cold, but against the loss of water. If the water which is within the buds can be kept there and the water without the bud kept out, then the flowers and leaves for the coming season will be reasonably safe.



Some of the devices used by Mother Nature to accomplish this purpose are quite interesting. For example, the buds of a horse chestnut have all the appearance of having been dipped in varnish and the remarkable fact is that this varnish stays sticky during the entire winter. This stickiness of the horse chestnut buds is about the best way of distinguishing the horse chestnut from a buckeye. Wax is also used in the buds of the poplars and one of this family, the balsam poplar, gets its name from its sticky buds.

In the case of the black locust the protective covering is a mass of fine hairs quite comparable to velvet. These hairs are so closely interwoven that it is next to impossible for water to get either in or out. Some trees, like the bitternut hickory and the witch hazel do not have any special covering of the tiny leaves, but the little leaves themselves are covered with so tough a skin that the water will neither go in or out. The willows have a water-tight cap over each bud. This cap is made without any seams and can be picked off the bud in its entirety.

In spite of these various methods of protection, they are sometimes not enough, for the buds are injured and oftentimes killed. This killing occurs most severely when the trees have grown late into the fall so that the buds are not fully developed before cold weather comes. Some trees such as the willows and black locust continue to grow normally late into the season and never make any special preparation for withstanding the cold. As a result of this, the ends of the willow and black locust twigs are always frozen and invariably you find them dead and breaking off in the spring time. This is one reason why these trees, especially the locusts, are so irregular in shape.

#### *Evergreens Suffer from Cold*

Among the evergreens, the damage by cold is often quite severe. This is largely because of the fact that the evergreens hold their leaves throughout the winter and continue to evaporate large quantities of water in spite of the fact that the ground is so cold that the roots cannot replenish the water of the trees from the soil. When evaporation goes on to dryness, death is a sure result. There is probably no tree which shows the effect of this more than does the *Arbor vitae*. During the summer of 1926 hundreds and thousands of *Arbor vitae* trees turned brown and died because of the damage which was done by the cold winter of 1925-26.

Some trees freeze to death much more easily than others. Probably one of the best examples of freezing to death can be illustrated by the peach. This tree cannot ordinarily survive temperatures colder than 10 degrees below zero and since 10 degrees below is not at all uncommon in many sections of the country, it is next to impossible to have peach orchards in these colder regions.

There is no such outstanding example of the susceptibility to cold among the more common shade trees but these often suffer because of extreme cold and oftentimes one is unable to explain why a tree dies in mid-summer without any apparent reason other than the fact that it suffered from the cold of the preceding winter. Scientists generally agree that the extreme cold of the winter of 1917 and 1918 killed thousands of trees which did not succumb until from six months to two or three years later.

#### *Fall Watering Offers Protection*

Unfortunately it is next to impossible to do anything to help the trees survive the rigors of winter. Sometimes it is possible to protect some of the more important trees and this is quite often done, especially in the case of valuable evergreens. When a dry autumn occurs, great benefit is rendered the trees by watering them thoroughly once a week during the latter part of September, October and early November, so that they will go into winter as full of water as possible. The excess of water will help carry them through the winter in good shape.

Trees in winter have a distinctive beauty and character in many respects that by far surpasses their summer attractiveness. They are deserving of all the attention that is possible for one to give them. In spite of the fact that most of their enemies give them a respite, the weather is a never ending source of trouble and the unfortunate part of the whole situation is, that we can do little to help the trees over this rough spot in their lives.

Mr. John Morley  
Youngstown Country Club  
Youngstown, Ohio

Dear John:

I have read most carefully the prospectus you have drawn up of the National Association of Greenkeepers of America. It will be a splendid thing for golf in general if such an Association can be organized on the lines you suggest; as I have said before and I again repeat that the greenkeepers as a whole are a very intelligent and honest class of men.

The wonderful development of golf in this country is largely due to their unselfish efforts and hard work in improving the golf courses and making it possible for players to enjoy the game to the fullest extent.

I congratulate you on your work as a greenkeeper of outstanding ability and with leaders of your type an association will unquestionably be a great success, not only from the standpoint of the members, but also from the Clubs who employ them.

With my cordial regards,

Yours very truly  
Donald J. Ross