

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.

A BRIGHT sunshiny morning a few days ago, I was entering the city of Philadelphia over the Pennsylvania railroad. As I looked out the car window a crystal world greeted my vision. Instead of being "ridged inch deep with pearl" each tree and shrub was ridged with diamonds.

Fortunately, the Philadelphia ice storm was not severe enough to cause any appreciable damage and consequently the marvelous beauty of the landscape was not marred by the wrecks of broken trees. However, the scenes did serve to remind one of the great havoc sometimes wrought by the seeming demon ice. Trees of Massachusetts in the fall of 1921, those of Wisconsin and Michigan in the spring of 1922, and those of Missouri and western Illinois in the winter of 1925 did suffer terribly, and the sparkling beauty of a few days was bought at a price which defies comprehension.

At this time of year it is not at all uncommon to have ice storms of greater or less severity. Those which do no damage are welcome because they furnish beauty which is appreciated by the most prosaic. The heavy ice storms are among the worst enemies of our tree life.

Occasionally conditions of the atmosphere exist which are favorable for ice storms. The air near the surface of the earth is at a temperature a few degrees below freezing while the cloud laden air several hundred feet above the ground is at a temperature a few degrees warmer than freezing. The rain falls and as it strikes objects on the surface of the earth, it wets them and this water freezes into ice. If by good fortune the duration of the rain happens to be short a light ice storm is the result. If for any reason the rain continues for a considerable length of time, the ice storm becomes heavy with disastrous results.

Nature is almost profligate in building beyond the normal requirements of strength. However, during severe ice storms twigs and branches of trees increase their weight tremendously. Cases have been known where twigs increased their weight as much as one hundred twenty-five to one hundred fifty times.

Some trees break early and come down with a thundering crash, while others bend under the weight resting their heads upon the ground thereby gaining valuable support to save their bodies.

Soft Wood Trees Often Victims

With a few exceptions, the soft wooded trees are the ones which go first. Silver maples are not only soft wooded, but are so constructed that all their branches come out at, or near a common point and consequently are unable to withstand such severe conditions. They go early and it is not at all unusual when the ice has disappeared to see only stumps remaining. Whole tops are often destroyed. The limbs are broken and torn completely out of the trees leaving jagged stubs and hideous gaping wounds.

Basswoods are usually almost as hard hit as are the maples. The wonderfully beautiful round and oval headed trees are mutilated almost beyond recognition. In a like manner Lombardy poplars, those stately spire shaped trees, are reduced to little more than poles. Their giant relatives, the Cottonwoods, succumb to the same fate. The balsam poplars seems to have strength enough to ordinarily withstand the test. They neither bow their heads or drop their arms, but seemingly square their shoulders and stoicly bear their burdens.

Ice Splits Many Elms

In spite of their reputed strength and toughness, the American elms suffer almost as badly as do their weaker neighbors. Unfortunately the American elm has the habit of growing in the shape of a gigantic vase. The outer tips of the branches are broken up into thousands of small twigs which in the most beautiful specimens hang down for several feet. As the thousands of twigs gather their load of ice, the strain becomes too great and the trees are split asunder. The toughness of the wood prevents the branches from being torn from the trunk, but they rip down leaving tremendous gaping wounds.

Among the deciduous trees there are some which show marked ability to resist the depredation of ice. Strange as it may seem, the willows are very proficient. Their long slender, drooping branches bend until they rest upon the ground and thereby shift the burden before the breaking point is reached. The sturdy oak here makes good its reputation. It bears its load and seems to defy the elements to do their worst. The walnuts, the catalpas, the hawthorns and some others are able to pass through the ordeal almost unscathed.

We ordinarily think of the hickory as one of the strongest of trees, however, the test of the ice storm is too much for these. In a similar manner we think of the birches as possessing a resistance equal to or possibly superior to that of the willows, but the birches cannot stand the strain and give way long before the willows are materially injured.

Young Trees Are Resistant

Age appears to have a decided influence on the resistance of trees to ice storm damage. Many instances where large maples, elms and other trees are reduced to an almost unrecognizable mass of debris, young trees of the same variety in the immediate vicinity come through intact.

The size of the twigs also seem to have a direct bearing on the amount of suffering. The maples, the elms, the basswoods, the birches and others have small lacy twigs while the oaks, the walnuts, the catalpas and others have strong large twigs. Notable exceptions to this, are the willows among the small twig trees and the hickories among the larger twig trees. Those trees which usually have broad spreading or rounded tops suffer more than the trees with the more nearly conical sharp pointed tops.

Evergreens Bend When Others Break

When one considers the fact that the conifers have not only their branches and twigs, but also their leaves to

collect loads of ice during the winter, one would expect tremendous damage among these most beautiful trees. The reverse of this logical conclusion is true. The conifers suffer less than any other trees from ice injury. This may be because of the fact that the natural home of the conifers is to a large extent in the cold ice and snow ridden sections of the country, and consequently they have developed this remarkable resistance in order to survive in their natural home.

Pines can become almost solidly incased in ice, with their branches bending to the ground under the weight, without any damage being done to the tree. This is largely due to the fact that the pine sends up one central shaft to the very top and from this central shaft slender willowy branches extend out to form a conical top. This character of the pines is equally applicable to the other evergreens. Their long lower branches bend down and rest on the ground, then the

next branches above rest on the lower ones and so on until the entire top is supported by the ground.

In the case of the vounger evergreens. their main trunk is flexible enough to bend to the ground without breaking and once they have become so bent, they remain until the ice has melted and then regain their upright position.

Strengthen Elms and Maples

Unfortunately it is impossible for lovers and owners of trees to

Upper Left, Gates Elm at Framingham, Massachusetts, Protected by Propet Bracing, Still Perfect. Lower Right, Beauty of Ice Storm Leaves Destruction in its Wake.

prevent the occurrence of ice storms. They can, however, prepare their trees to resist the ice scourge when it comes. Since many of our most beautiful trees are elms and maples it is decidedly worth while to give them the consideration which they merit.

The trees which have a weak structure as is so excellently illustrated by the elm can be examined for their weaknesses and wherever these weaknesses are found mechanical braces can be installed which will relieve the strain at the weakened point.

One famous tree, the mammoth Gates elm near Framingham, Massachusetts, was so prepared to withstand not only ice storm depredation but also damage from other sources. This tree passed through the terrific ice storm of 1921 with the loss of only a few comparatively unimportant branches.

