



Month by Month With the Trees

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MANY years ago when for some unknown reason the trees or even plants in general over a certain area of country, withered and died, people had the idea that an evil spirit had visited them. Sometimes they considered the trouble a plague and gave as its cause, unfavorable weather and when this did not account for the malady, they were at a total loss and could in no way explain the causes.

Present day science has shed enough light on the causes of plant diseases, that now it is exceedingly rare when it is impossible to give the definite cause for the passing on of any plant. However, the diagnosis usually has to be made by some one trained in recognizing and interpreting the various symptoms. While to laymen, diseases of plants are still more or less of a mystery, the terms, blight, withering and the like, are still in general use, but their meaning is rather vague and indefinite.

Unfortunately, the study of plant diseases is so new that most of the time of the scientists has been taken up with the investigations of the troubles affecting food and forage crops so that there is still a tremendous field for investigation of tree diseases. However, there is enough information available so that it is usually possible to give the definite cause for the dying of many trees. Since the hot and usually dry months of July, August and early September are especially trying times for trees, we can expect many of them to die within the next two months.

The various diseases causing the death of trees can on one basis be divided into two classes. First, there are those which are caused by fungi. Second, there are those which are caused by some other agency, such as malnutrition, drought, freezing and the like. A fungus of course is a low type of plant life which either never had any green coloring matter or else at some time in its ancient past, lost the green coloring. Any plant which does not have green color cannot do its own work and consequently has to steal its food from either living or dead plants or animals. Ordinarily, these fungous plants

reproduce by means of spores which in a general way are quite similar to seeds. However, spores are almost all microscopic in size and are very often called germs, by those to whom the word spore is unknown.

Fungi Attack Root, Trunk, Branches and Leaves

The various fungi attacking trees can roughly be divided into three classes. Those which confine most of their operations to the roots. Those which attack the trunk and branches and those which attack the leaves. Of these three classes, those attacking the leaves are probably the best known because they are the most conspicuous. At the same time they are usually the least serious because of the fact they do attack the leaves which ordinarily last for one year and are replaced the succeeding year by an entirely new, healthy set of leaves.

Diseases of Tree Roots

There are a number of diseases which attack the roots, but of the many, one stands out as the most serious and destructive one of all. This disease is the so called Mushroom root rot, caused by the fungus, a mushroom, *Armillaria mellea*. This fungus lives in the ground and gathers its food material from decaying roots, sticks and other organic material present in the soil. It can grow and flourish on the manure in the soil or on leaf compost which may be applied. However, it much prefers to attack living roots of trees. When the fungus does come in contact with the living root, it spreads a sort of mold-like mass over the roots, secretes a liquid capable of dissolving the bark and sends sucker-like growths into the wood from which it absorbs the food material refined by the tree and intended for the support and growth of the tree. In a comparatively short time the roots die and become a soft mass of dirty white rotten wood. The affected tree begins dying at the top and some times in a surprisingly short while, is completely dead and falls over in a storm or occasionally of its own

weight. The disease will attack almost any tree but those suffering most, are oaks and apples.

When a tree has once been infected, the Mushroom root rot is exceedingly difficult if not impossible to cure or control. Most study has been made in trying to control the disease in apple orchards. Here careful examinations are made of the roots and diseased ones are removed and the resulting wounds are treated with a strong fungus destroying material, such as copper in some form and the surrounding soil is sterilized. The idea, of course, is to completely eradicate the fungus from the vicinity of the tree. Even this procedure when carefully followed does not always prove successful, in fact it is questionable if even it is worth the effort and expense necessary in trying to save the tree attacked by root rot.

Canker of Trunk and Branches

Next in importance to the root diseases, are those attacking the trunk and branches. These of course are permanent parts of the tree and when once destroyed, they cannot or at least with great difficulty can be replaced. The trunk and branch disease which has received more publicity than any other one is that which is causing the death of our chestnut trees. This disease attacks the trunk and branches through wounds of various kinds. A wound made by the falling of a leaf, by the claw of a squirrel or the bite of an insect, is sufficiently large for the spores of the chestnut bark disease to readily gain entrance. After the spores are once inside, they germinate in almost exactly the same way as does a seed. The parts of the fungus which correspond to the roots in other plants spread out under the bark, absorbing food and killing the tissues of the tree as they go. In a few weeks little pimples arise on the dead bark and in these pimples are developed new spores to carry the disease on to other trees. The dead area of the bark is called a canker and as soon as it has girdled the trunk or branch on which it is growing, those parts of the tree above the canker wither, turn brown and die. Unfortunately there is no control for this disease and a tree once attacked is almost surely doomed to death. A gentleman near Wilmington, Delaware had his chestnut trees sprayed every two weeks for eight years. At the end of the period his chestnuts were still living while those of his neighbors were dead. Results, however, were so poor that he gave up the battle against this scourge of the chestnut trees and started planting other varieties to replace his dying ones.

In an eastern section of the country, the white pines are going almost as rapidly as did the chestnuts because of a disease which attacks them in much the same way. In some sections of the country the poplar trees are being wiped out. Apple trees have a disease that is nearly as bad.

Causes of Well Known "Heart Rot"

Besides the canker diseases, there are others which attack the wood within the tree. These diseases break down the supporting strength usually without seriously interfering with the health of the tree. It is because of such troubles that we so often see trees which to outside appearances are perfectly healthy, breaking over in storms or sometimes just from their own weight. Examples of this kind of trouble can be supplied by the brown checked wood rot or by the white wood rot. The first is caused by the sulphur fungus and the second is caused by the tinder fungus. Both these fungi attack through wounds in the tree, break down the supporting heart wood and destroy the strength of the tree. When the trouble is discovered in time, the diseased areas can be chiseled out of the tree and replaced by a filling similar to that used by a dentist in treating a decayed tooth. Usually, however, the disease progresses to a point where it is beyond control before it is discovered. Then we can only hope for the tree to stand as long as possible but it is doomed to go sooner or later.

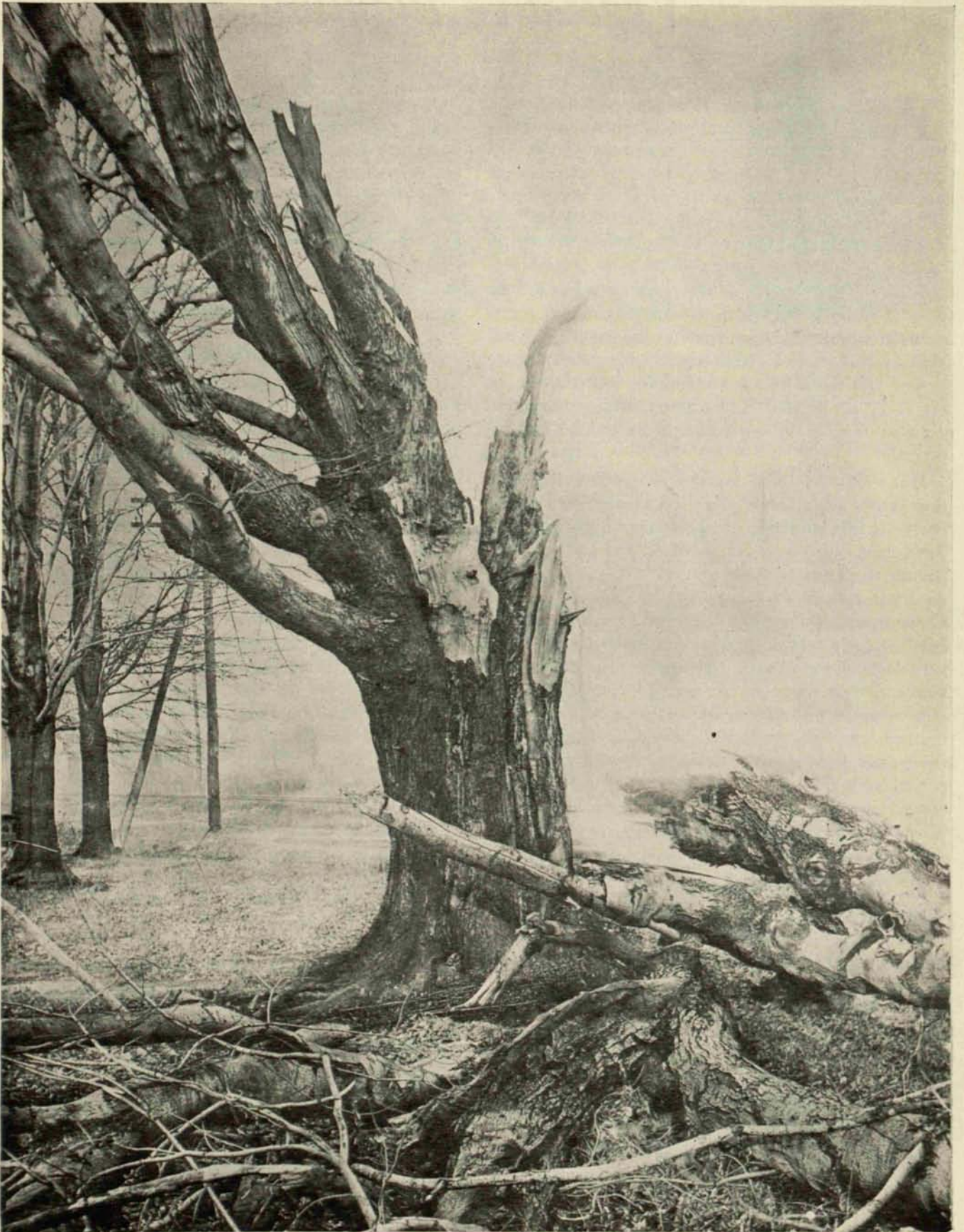
Leaf Mildew

Because the leaf diseases are so conspicuous, they have probably received more study as a class than any of the others and among the leaf diseases, the mildews are probably as well known as any because they attack not only trees, but also many other plants such as roses, chrysanthemums, onions, corn, wheat and many other plants of tremendous importance. When the leaves are attacked by mildews, they look as if they had been covered with a white powder. They become more or less deformed and stunted. When the disease is serious, they wither and die. Fortunately, by dusting with sulphur most of the mildew troubles can be cured. Even spraying with a sulphur solution or with a copper solution helps, but dusting is usually considered the best.

Anthraxnose Prevalent on Sycamores and Maples

Another type of disease is known as anthracnose. When the trees have this particular trouble, they wither, turn brown and die, so that the tree has the appearance of having been scorched by fire. The oaks, the sycamores and the maples are the trees most commonly affected with this disease. During the spring and early summer of 1927, thousands of sycamore trees were so badly diseased that they lost all of their leaves. After the first set of leaves were lost a new set was developed, providing of course, the trees had sufficient vitality. If the trees were none too strong to begin with, the loss of the leaves proved fatal with death resulting. The same fungus attacks the oaks and in many cases is very nearly as serious. Anthracnose of the maples is caused by a different fungus and a recurrence of the trouble during two or three succeeding years, often times proves

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How "heart-rot" affects the most beautiful of our trees and destroys them annually by the thousands

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fatal or the vitality of the tree is so reduced that it becomes an easy prey to one or more of its other enemies.

Most Leaf Diseases Controlled by Spraying

Besides the diseases mentioned in the preceding paragraphs, there are many leaf spots and blotches which although not ordinarily serious, do destroy the beauty of the trees and give the owners material concern. There are hundreds of fungi causing these various spots and blotches and most of them have been so little studied that practically nothing is known of their lives and habits. One of the best known of these diseases is the leaf blotch of horse chestnuts which usually puts in its appearance about the middle of July. Large areas of the horse chestnut leaf turn brown and die and sometimes when the leaf is badly diseased, it falls off.

Fortunately many of the leaf diseases can be controlled by spraying with a sulphur or copper solution properly mixed and applied. The time of the spraying depends almost entirely on the life history of the fungus. After it has once gained entrance to the leaf, spraying will do no good. In order to control leaf diseases, it is necessary to get the spray on the leaves before the fungus has attacked. Then the moisture, which is necessary for the fungous spores to germinate, dissolves some of the spray material and when the spores do germinate they find themselves in a copper or sulphur solution which proves fatal.

The more one is informed of the troubles which beset trees the more one is amazed at the health and vigor possessed by most of our beautiful specimens. At the same time one realizes that in order to keep that health and beauty permanent, all possible assistance must be given to the trees in their struggles to overcome their enemies.

Plant Your Native Trees

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flowers. This is a perennial and should be lifted every few years and the clumps divided. This should be done after it is through blooming.

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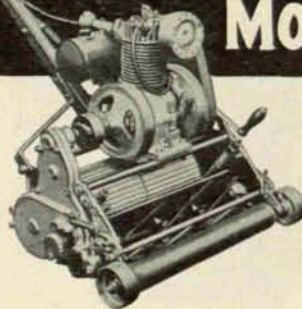
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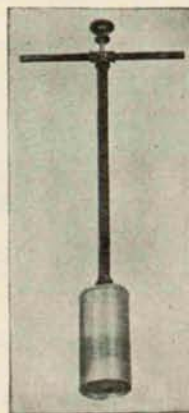
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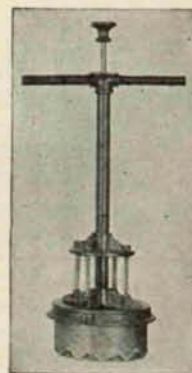


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