



## Month by Month With the Trees

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**M**ORE than three quarters of a century ago when Lowell the poet wrote, "And there's never a leaf nor a blade too mean, to be some happy creature's palace," he must surely have had in mind the thousand and one insects which live upon and in our plants and trees.

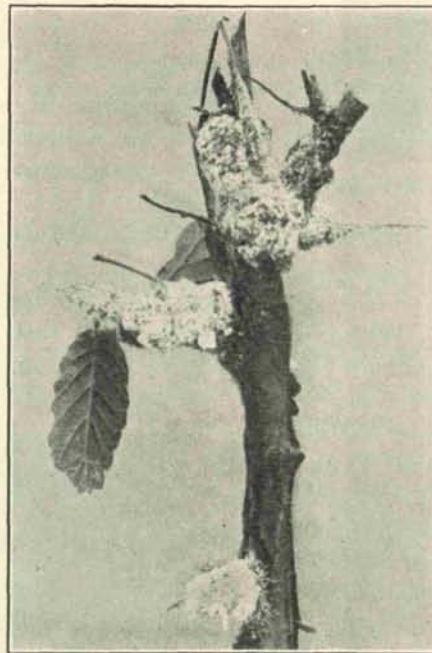
It is true, indeed, that it is exceedingly difficult if not impossible to find a leaf or a blade which is not the habitation of some insect. Fortunately many of the insects at least do no harm if they do not do some good. At the same time there is another great host of insects which are such evil-doers that they give their odious reputation to the whole family.

### *Three Classes of Evil Insects*

The evil-doers, or in other words the insects pests which prey upon our trees, can be divided into three great classes on the basis of the kind of damage which they do. First, there are those which stick their beaks into the plant tissues and thereby suck out the juices which are in a way somewhat similar to the blood in our bodies. One insect with which we are all familiar that illustrates this type, is the mosquito. All of us have felt the pain resulting from a mosquito plunging his beak into our flesh for the purpose of sucking out his food. The aphids and scale insects feed in practically the same manner as does the mosquito. The second class is made up of insects which bite and chew their food. There is none of us I imagine who has not at some time been bitten by an ant or a pinching "bug." Most all biting insects, especially of this second group, feed on the leaves of our trees. The third class is in a general way similar to the second, but instead of feeding on the leaves they center

their efforts on the wood of our trees and are called borers.

The type of damage which an insect does, to a large measure determines the method of attack which is to be used in an attempt to eradicate or at least control the pest. Those of the first class have to be controlled by applying some caustic substance which when it hits them burns them to death. Since the second class chew and swallow their food, they can be poisoned to death. The third class work in such a way that it is impossible either to hit them with some caustic substance or to kill them by applying some poisonous substance to their food. Sometimes it is possible to smother them to death by introducing into their burrows some poisonous gas, however, this is much more difficult than is the application in either the first or second class.



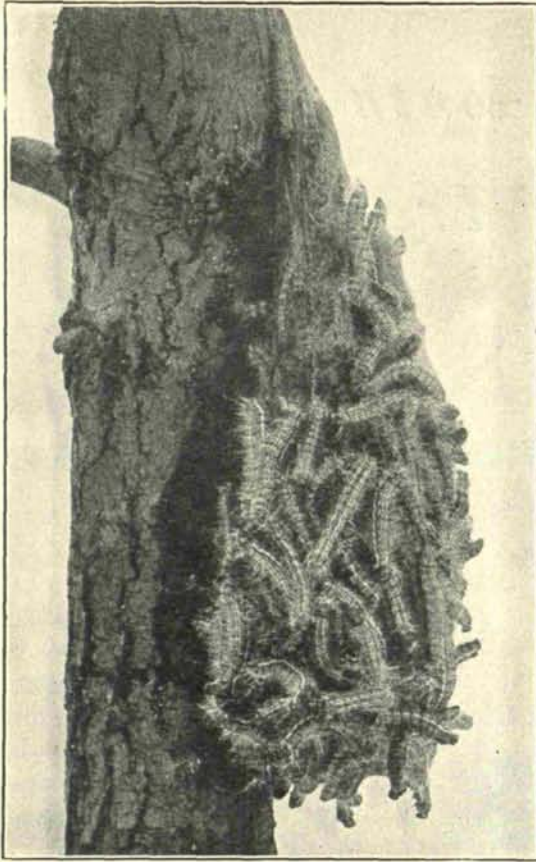
*Woolly aphids feeding on the bark of an elm twig*

The story of the life of the aphids and scales, the sucking insects, is very interesting. They are all very delicate and tender insects. The aphids continue to exist because of the remarkably prolific reproduction which is constantly in progress. The scales are not quite so prolific but as soon as a youngster has found a suitable residence it settles down and secretes over itself a waxy covering which acts as a protective shield or scale under which the insect spends the rest of its life.

### *First Spring Hatch Aphids All Female*

The aphids spend the winter in the form of eggs on the plants which they inhabit. With the first warm days of spring the eggs hatch and the remarkable fact about the aphids is that all of them are females. Within a





*Nest of black walnut caterpillars resting on trunk of tree before molting*

week's time these females have reached maturity and have given birth to living young and again all the youngsters are females. Surprisingly, so long as the food supply lasts, none of these females develop wings but continue the reproductive process without moving away. When the food supply is exhausted, the females develop wings and fly to other plants and another abundant food supply. This process is continuously in progress until fall. At that time the females give birth to a generation made up of both winged males and females. The winged forms fly away on their nuptial flights. In a short time the female lays one egg and provisions have thus been made to carry over the unfavorable winter conditions which are now at hand. It is little wonder with this method of reproduction that many of our plants become sick and die following an attack of aphids.

It is usually quite easy to recognize an aphid attack. One symptom is the appearance of a sticky, moist substance which is known as "honey-dew." This is secreted by the aphids and occasionally it is so abundant that walks under the tree remain moist all the time, even in hot, dry weather. Ants are attracted by the honey-dew and feed upon it to a marked degree. The ants become so interested in the aphids that they often times protect them against their enemies.

#### **Control Aphids With Black-Leaf-40**

The control of aphids is comparatively simple but

must be followed religiously in order to gain perfect results. The material used in controlling these insect pests is a tobacco product, nicotine sulphate, most commonly appearing on the market as Black-Leaf-40. The nicotine sulphate is mixed with soapy water and applied to the pests by means of a spray or by washing the affected parts. Occasionally aphid injured leaves curl badly so that the aphids are housed within the curled leaves. It is then exceedingly difficult to hit them with the spray mixture and sometimes it becomes necessary to dip the branches in the solution.

This method of course applies only to small plants which can be readily handled.

Along with this artificial control of the insects, we have the help of their many natural enemies. Probably the most persistent enemy they have is the "lady bug" or as some prefer to call it, lady bird beetle. Both the adult and immature beetles feed almost entirely on aphids. Besides the beetles there are aphid lions, certain flies, spiders and numerous other insects which gain almost their entire subsistence from eating aphids.

#### **Spray for Scale Insects When Trees Are Dormant**

The scale insects do not produce quite so rapidly as do the aphids, there being only three or four generations in a growing season, but because of their waxy covering they are protected from many of the ills of the aphids and consequently are almost if not quite as destructive pests.

In controlling scales it is necessary to spray with some substance which is strong enough to either dissolve or penetrate the waxy covering and kill the insect underneath. Any such substance is strong enough to kill the leaves at the same time and consequently it becomes necessary to spray for scale insects at a time when the



*Pine Leaf Scale*



*Scurvy Scale*

leaves are not on the trees. The materials ordinarily used are lime-sulphur or an oil of some kind. The lime-sulphur is mixed with water one to eight while the oils are usually diluted one part to fifteen. These are sprayed or washed into the scale infested plants and the death of the scale results.

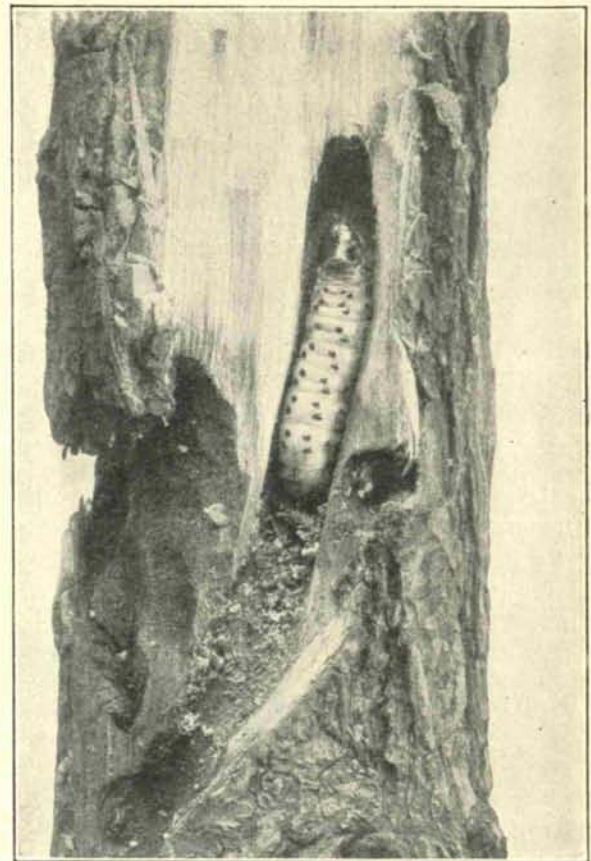


### *Control Canker Worms With Tangle-Foot*

Among the worst offenders in the second class of insects is the canker-worm or measuring worm as some call it. These insects appear early in the spring and start eating the leaves almost before they are full grown. It is not at all unusual to see the leaves so full of holes that they appear as if a charge of shot had gone through them. Canker-worms are one of the few insects which can be controlled by banding the tree with tangle-foot. It happens that the female canker-worm moth has no wings and she has to crawl up the tree in order to deposit her eggs. The journey is made during the first warm days of the year, sometimes in late February and surely during early March. If the tangle-foot is not applied when these first warm days arrive, then it is of little use to apply it later.

Another serious leaf eater is the tussock moth caterpillar which usually appears in late June or early July. These pests are very destructive and possibly among the most aggravating of all our insects. After they have spent a part of their life on the tree they come down and wander around into the houses, on the fences, in fact they go almost everywhere. When they find a suitable place they spin their cocoons and in a few weeks come out as moths.

Almost everyone is acquainted with the web-like nests which appear on the trees, usually in August. These webs are the home of a very voracious leaf eater, the fall web worm. These caterpillars are the young of a very beautiful, almost snow white moth. They live entirely within their web. As they grow larger and need more food they enlarge their web to include more leaves.



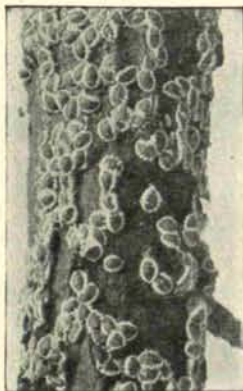
*Larvae of the destructive leopard moth*

### *Slugs Skeletonize Leaves*

There is still one other leaf eater which certainly should be mentioned because it is so common and attacks so many different kinds of trees.

These are the so-called slugs. They look very much like miniature tadpoles and are the young of wasp-like insect. They eat the substance off the leaves but do not eat the veins so that an injured leaf is in appearance only the skeleton of a leaf. Because of this type of injury the insects are sometimes called leaf skeletonizers.

Since all this class of leaf eaters chew and swallow their food the control measures are the same for the whole group. A poison in the form of a spray forms a protective covering for the leaves so that when the insect takes a bit of leaf it gets some poison and subsequently dies. There are many poisons which are applied but of all of them arsenate of lead is the best. This is usually mixed with water at the rate of two to three pounds for fifty gallons of spray and is applied to the leaves just before or just as the insects start to feed.



*European Elm Scale*



*Oyster Shell Scale*

Besides the very common leaf eaters which have been mentioned there are still others such as the gypsy moth caterpillar, the brown-tail moth caterpillar, the bag worm, elm leaf beetle, spiny elm caterpillar, the various leaf miners, satin moth and many others of lesser importance.

### *Borers Very Destructive*

The third type of insect is the so-called borer. These instead of eating the leaves eat the wood and burrow within the trunks of trees. The one which is attracting

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most attention at the present time is the Bronze birch borer, which attacks birch trees. It gets within the branches and trunks and in a comparatively short time girdles the tree. Of course when the tree is girdled, it dies and at the present time birch trees are dying very rapidly in many sections of the country.

A few years ago the hickory bark borer killed most all the hickory trees throughout the eastern United States. The locust borer is playing havoc with the locust trees in many sections of the country. Another very serious borer pest is the young of the leopard moth. These attack large branches especially on trees which are not in the best of health.

All told there are hundreds of insect pests which do their damage by boring and gnawing into the wood of trees and since they are inside it is impossible to get at them with any substance which will kill them. No spray of any kind is effective. Sometimes by enclosing the affected part of the tree, it is possible to force a poisonous gas into the holes and by so doing suffocate the insects but the so-called gasing of borers is usually more or less ineffective and not very satisfactory.

When one considers that there are so many insects so difficult to control it becomes more and more astounding that our trees continue to thrive and flourish in spite of their many enemies.



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