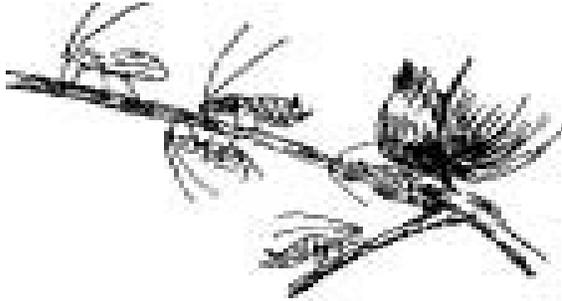


The Aphids

Now, let us go in search of the aphids, or aphides, as they are also called. We shall not have to search far.



In a very dry season we generally need not search at all. All we need do is to examine the nearest weed to find plenty of aphides.

Yes, they are the little plant lice that seem at times to cover every growing thing.

Sometimes they are green, sometimes brown, or gray, or reddish, in color.

They are tiny creatures, but what they lack in size they more than make up in numbers.

Go now, and find some aphides.

Ah, here you all come, each bearing a leaf or a twig on which are aphids.

There was no trouble in finding them!

They do not hop like the jumping plant lice when they are disturbed. They remain where they are unless they are very much shaken up.

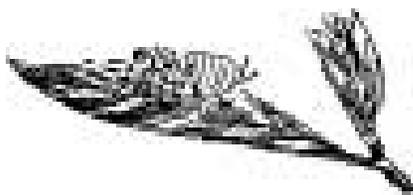
See, most of them are without wings, though here are a few with beautiful transparent wings.

Antennæ they have, long and threadlike. And see, the knowing little eyes!

They seem to be anchored to the leaf.

Hold the leaf up to the light, and see if you can discover what they are doing.

Ah, see those mouth tubes firmly stuck into the leaf. There they stand all day long and suck out the juice.



Ned says he should think they would burst.

But they do not; they grow. And they also get rid of a large part of the superfluous sap in a curious way.

QUESTIONS:

In what season will you find the most aphides?

What color are aphides?

What does the aphid do all day?

They use what they need to grow on, and the rest escapes from the insect's body in the form of "honey dew." It is a sweet liquid of which ants and bees are very fond.

What, John, you have heard that the aphids give out honey dew from two little horns near the tip of the abdomen?

Let us see if we can find these horns. Yes, we can see them plainly, and *very* plainly with a magnifying glass.

But now listen; the honey dew does not come from the horns. On the end of some of the horns, or tubes, we can see a drop of clear liquid.

For a long time people believed this was honey dew, but instead, it is a waxy substance which is not sweet.

It has been very carefully studied by wise men who tell us it contains no sugar and is probably used as a means of defence, as aphides have been seen to smear the faces of insect enemies with this wax.

There are a great many species of aphides, and not all of them have the little tubes or horns on their backs. But probably many that have no horns give forth honey dew.

It is really a waste substance from the body of the aphid.

Ants are so fond of the honey dew that certain species of aphides have been called the *ants' cows*, because the ants take care of them for the sake of the honey dew.

Some ants protect the aphids from their enemies. They drive off those insects that would devour the aphids, and when winter comes these ants carry the aphids down into their warm nests underground, and keep them safe through the cold weather.

The aphides cannot stand wet weather, but after a long spell of dry weather they will be found in great abundance.



Sometimes they eat so fast and so much that the honey dew falls like a shower from the trees upon which they are. It covers the ground beneath and the leaves of plants, and makes everything very sticky and disagreeable to the touch. The dust settles on it, too and a growth something like mould often turns it black—as we find to our discomfort.

QUESTIONS:

What is the sweet liquid of which ants and bees are very fond?

Where does the honey dew come from?

What is the honey dew for?

Ants are so fond of the honey dew that certain species of aphides have been called the _____ because the ants take care of them for the sake of the honey dew.

What kind of weather do the aphides dislike?

But when the honey dew is fresh the bees love it. They collect large quantities of it and make it into honey. Squirrels like it to.

It is great fun to watch the nimble squirrel folk sitting in the trees and holding a leaf between their little hands while they lick off the honey dew.

Children sometimes suck the honey dew from the leaves in back country places, where sugar is scarce and where candy is seldom to be had.

Which side of the leaf does the aphid prefer?

Yes, it is on the underside always.

I wonder why.

John says the aphides would be better protected in case of a shower.

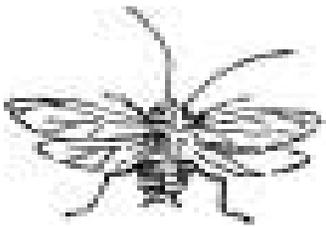
Ned says the skin is tenderer on the under side and easier to pierce.

Mollie thinks they want to be in the shade out of the hot sunshine.

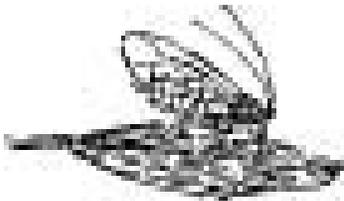
I should not wonder if all of these reasons were right.

My little aphid, how many wings have you when you have any?

Yes, little Nell, they have four of the daintiest, prettiest little wings you ever saw.



True enough, most of them have no wings at all.



John thinks those must be young ones.

Sometimes they are, but not always. Many of the adult aphids have no wings.

The aphids are very curious insects, and when you are older I hope you will remember to study them carefully.

No, John, not all species of aphides make honey dew.

Some form instead a white, powdery substance that is seen scattered over the body.

May says that must be the kind she has.

Let us see. Yes, May's aphids produce the white powder instead of honey dew.

That is *their* way of getting rid of the waste matter.

May says she is glad to know that; she thought her aphids had something the matter with them. They seemed to be falling to pieces.

No, May, they are not falling to pieces; that powder can all be rubbed off, and there are your aphids whole and sound beneath it.

Do you know that some species of your funny little tree hoppers secrete honey dew also, and even have ants to attend them? See if you can find some of these this summer.

Sometimes aphids live on the roots of plants as well as on the leaves.

Yes, indeed, May, they are very destructive insects. We have to spray our house plants to get rid of them, and often our garden flowers as well, and they do a great deal of damage to fruits and vegetables, and one of them, the phylloxera, has nearly destroyed the vineyards of France. It lives on the leaves of some species of grapes and on the roots of others. We have to be very careful about getting grape vines from Europe to plant in this country on account of the phylloxera.



What have you found now, John? Ah, yes, an alder branch, with a white, cottony substance on it. You have been poking into it with a little stick, and you think there are insects beneath it.

What, May, you always thought that white stuff was a plant growth, like mould?

We can easily find out. Get out some of the little things inside if you can, John. It is not easy to separate them from their cottony covering without crushing them, but now we can see quite well with the magnifying glass—and yes—you see they are little insects.

We call them the woolly aphids.

They also secrete honey dew.

You say the ground below the alder bush was all sticky and black, John?

That was the honey dew, blackened by a little plant something like mould, that grows on it.

We often see woolly plant lice in the summer-time on different plants, and one species injures apple trees. It gets on the roots as well as on the tender bark of young trees and kills them.

Yes, indeed, Mollie, the aphids are bugs. They belong to the bug order, which is a very large and important insect family, and contains some members that are exceedingly troublesome to us.

Questions:

Which side of the leaf does the aphid prefer?

Do all aphides have wings?

What do aphids live on?

Yes, indeed, Mollie, the aphids are _____. They belong to the _____ order, which is a very large and important insect family, and contains some members that are exceedingly troublesome to us.

Do all species of aphides make honey dew?