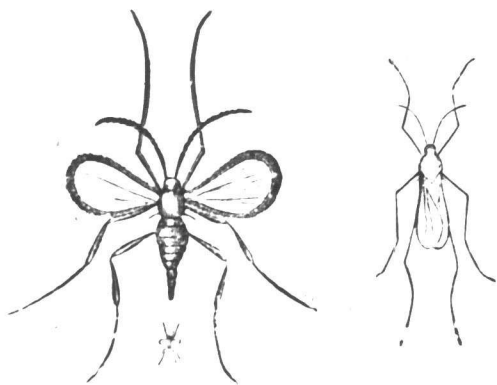


## FERNDAL SCHOOL.

NO. XIV. THE WHEAT MIDGE AND HESSIAN FLY.  
(*Cecidomyia* [Diplosis] *tritici*, Kirby;  
and *C. destructor*, Say.)



WHEAT MIDGE, magnified, (real size shown under the one with expanded wings.)

TEACHER. Come up one by one and look at this wheat midge under the microscope. Notice its orange color, its yellowish feet, its transparent wings.

JACK. That is what they call the "weevil."

T. The "weevils" are beetles with long beaks — and there are several different species of them. The local name of "weevil," for the "midge," is incorrect, and therefore misleading.

S. This small fly must have come from a very small cocoon.

T. Yes. About as small as a mustard seed. And now, when the wheat is in blossom, the female on calm evenings can be seen placing clusters of from two to a dozen or more eggs between the chaff envelopes of the opening flowers. In a little over a week these eggs hatch out as minute, transparent grubs, which draw nourishment from the growing wheat germ, and by the first of August are full grown, nearly an eighth part of an inch in length, and orange. They moult their skins in the ear, but sometimes in the earth, to which they finally descend, then weave their tiny cocoons an inch, perhaps, below its surface.

S. Sometimes these tiny orange specks are very abundant in the dust with the chaff after threshing.

T. Correct. Myriads of moulted skins and of the mature larvæ are taken into the barns in the ears, when harvesting. What should be done with such chaff?

S. It wouldn't do to let it be thrown out on the ground, as the larvæ then could all pupate, and come out as midges next June. Burn the chaff, at least the dusty portion containing the orange grubs.

T. Very good. This midge causes the loss of millions of bushels of wheat each year in America. It is important, then, to know how to treat it.

JACK. If every one in Nova Scotia stopped sowing wheat for one year, what would become of the midges when they would come out of their cocoons and find no flowering ears of wheat?

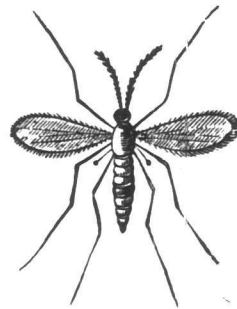
T. They would take to "couch-grass," or "kill-all," which is a species of wheat, and if they did not find enough food, as is very probable, there would be a tremendous midge famine, and very few cocoons for next year. To what order of insects does the midge belong?

CHORUS. To the diptera.

T. Yes. And to a group called the Cecidomyidæ, or gall-flies. Have you ever noticed a large cone-shaped cluster of leaves on the end of a willow twig, or large, curious swellings on the young twigs of various plants, or on leaves?

CHORUS. We have.

T. Well, very many of these were caused, probably, by some flies of this group, which pierced minute holes through the tender skin of the bud, twig or leaf, with its sting-like ovipositor, and placed eggs in them. This irritation caused the curious growth. And in the midst of the growth, when quite fresh and cut open we can find the young hatched larvæ feeding.



THE HESSIAN FLY (magnified).

Here is another of them, which is very destructive to wheat. Hence the name *Cecidomyia destructor*. It was brought over to America in straw by the Hessian troops under Sir William Howe, during the war of independence, 1776. It was first found on Staten Island, near New York, where these soldiers landed, and seemed to proceed inland at the rate of nearly twenty miles a year, destroying millions of dollars worth of wheat.

S. Is it like the wheat midge?

T. Very much; only it is more or less black; the wings also being dark and less transparent.

S. How does it hurt the wheat?

T. The egg is deposited in the angle of the leaf. The larva moves down finally to the joint, where it assumes the form of a flax seed in the pupa state. The supply of nourishment to the ear of wheat is checked, and the straw often breaks at the joints, under the influence of the wind.