

Entomology.

The Wheat Midge.

SHORTLY before the issue of our last number, but too late for insertion in it, we received the following communication from Mr. Alex. J. Belch, Proprietor of the *St. Mary's Argus*. It was accompanied by a lump of clay containing an enormous number of small orange-yellow larvæ:—

(MR. BELCH'S LETTER.)

"A farmer of Blanshard has just handed me the enclosed lump of mud, containing the 'rare things' you notice in it, and which he and his brother farmers pronounce 'the weevil.' The handful was scraped up from a field in which was fall-wheat last year, and which contains wheat this year. The whole field is covered with these insects, discovered just after the late heavy rain, but none can be found on meadow land or in fields sown to peas and other grain last year. It is the opinion of farmers hereabout that the insects remain in the land all winter, from the fact that they are too far advanced in growth to be the product of the egg deposited by the fly this year. They are not found on land unaffected by weevil last year, nor upon land sown to other crops last year, or upon meadow land.

"Of course all depends upon whether the insects really are the weevil or something resembling it. I may say that all intelligent, observing farmers in this section, to whom the clay was shown, unhesitatingly pronounce it the weevil, and they feel so interested in the matter that I have thought it would be well to let you see a specimen, and ask you to ventilate the subject by enquiring through the *CANADA FARMER* whether the same deposit has been observed in other sections of the country. The investigation might possibly throw some clearer light upon the origin of that farmers' scourge, the weevil, than already exists."

We have given a very close and careful examination to a large number of the specimens contained in the portion of earth sent us, and can now state positively that the orange-yellow larvæ or maggots are the larvæ of the well-known wheat-midge (*Cecidomyia tritici*), an insect commonly, but erroneously, called "the weevil." To render us the more certain of the identity of the insect, there issued from the loose wrappings round the lump of earth, a single winged specimen which we had no difficulty in determining to be a male wheat-midge; the sex is remarkable, as, in general, myriads of females may be taken in the fields they infest, while a male is very rarely found.

With regard to the occurrence of these larvæ in the ground early in June, it is only what we should naturally expect for as we stated in an article on the 1st of May last, a large proportion of the larvæ descend into the ground to undergo their transformations, while some remain permanently in the ear. The specimens before us, in all probability, entered the earth last year before the crop was removed from the field, and there remained till the spring; the heavy rain referred to by our correspondent, quickened them into activity, and caused them to approach the surface of the earth; then the pupa state is assumed for a short time, from which they emerge in the form of winged flies, usually in the month of June, ready to lay their eggs in the blossoms of the new crop of wheat. We fear that the farmer from whose land were brought the specimens before us will obtain but a scanty crop of wheat this year, if the whole field is even half as thickly infested with the insect as the portion of earth sent to us. It is a great pity that wheat was again sown in the same field; the best plan would have been to have ploughed under the surface soil as deeply as possible, and then have grown upon it a totally different crop; the majority of the insects would thus have been either prevented from coming to maturity,

or so much retarded as to be unable to do much injury.

The effect of moisture upon these insects is very remarkable. During our examination of them, we took a few dry, motionless specimens, and laid them upon a piece of glass, where they remained perfectly still; then we dropped a little water upon them, and almost immediately they began to move about, crawling over the surface of the glass as long as the water surrounded them; after a time the drop evaporated, and very soon they became as still and motionless as before. This experiment we repeated several times, and always with the same result. Dr. Fitch has also observed somewhat similar effects, so much so that he speaks in one place of the larva as being amphibious in its nature.

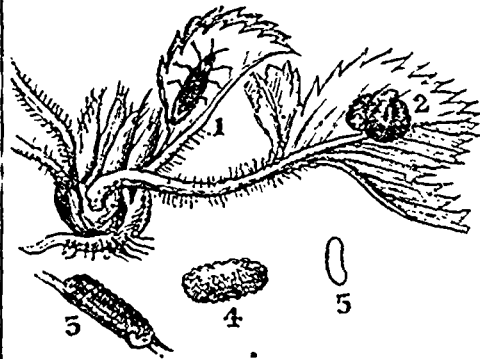
We shall be glad to learn from our correspondent what is the condition, from time to time, of the wheat field from which this earth was taken; we shall also be especially anxious to hear how the crop turns out, and whether the midge proves troublesome in the neighbourhood. It is only by gathering together information from different localities, and under different conditions and circumstances, that we can ever expect to understand completely the life history of our insect enemies; and to know thoroughly their nature and habits is the greatest help of all towards finding out an effectual remedy.

The Strawberry Worm.

(*Emphybus maculatus*.)

As this delicious fruit is now so universally cultivated, it is well for us to be acquainted with its enemies that they may be prevented from such undue multiplication as to become a universal curse.

There are two caterpillars which, by their very destructive attacks on this plant have of late years attracted attention in the West. One of them is a true caterpillar—the larva of a moth—rather more than one and a half inches long of a pea green color, smallest at the first, and largest at the last segment: curling itself up in a ball and falling to



the ground whenever the plant is touched. The other is a false caterpillar—the larva of a four-winged fly—much smaller, but more destructive, and it is the history of this last that I will now elucidate.

This insect is, in all probability, quite generally distributed throughout the West, as it occurs in the southern portion of this State, and I have found it in this county. Complaints of its ravages have also been sent me from Berrien County, Mich., and Mr. W. H. Castor, of Niles, had great difficulty with them last year.

In the month of May, in this latitude, numerous flies may be seen hanging to, and flying about the vines, in fields which have been previously infested. They are dull and inactive in the cool of the morning and evening, and at these hours are seldom noticed. They are of a puffy black color, with two rows of large transverse dull whitish spots upon the abdomen. The female, with the saw-like instrument peculiar to the insects of this family, deposits her eggs, by a

the plant, clinging the while to the hairy substance with which these stems are covered. The eggs are white, opaque, and 0.03 of an inch long, and may be readily perceived upon splitting the stalk, though the outside orifice at which they were introduced is scarcely visible. They soon increase somewhat in bulk, causing a swelling of the stalk, and hatch in two weeks—more or less according to the temperature—and by the middle of May (speaking of Northern Illinois) the worms attract attention by the innumerable small holes which they make in the leaves. Their colors are dirty yellow and gray-green, and when not feeding they rest on the under side of the leaf, curled up in a spiral manner, the tail occupying the centre, and fall to the ground at the slightest disturbance. After changing their skin four times they become full-grown, when they measure about $\frac{3}{4}$ of an inch.

At this season they descend into the ground, and form a very weak cocoon of earth, the inside being made smooth by a sort of gum. In this they soon change to pupæ or nymphs, from which are produced a second brood of flies by the end of June and beginning of July. Under the influence of July weather, the whole process of egg-depositing, etc., is rapidly repeated, and the second brood of worms descend into the earth during the fore part of August, and form their cocoons, in which they remain in the caterpillar state through the fall, winter and early spring months, till the middle of April following, when they become pupæ and flies again, as related.

The accompanying illustrations represent the insect in various stages: fig. 1, showing the perfect fly, natural size; fig. 2, the larva at rest; fig. 3, the larva crawling; fig. 4, the cocoon; and fig. 5, the egg enlarged.

And now, knowing the facts in the case, it will be no difficult matter for any one interested to make war in his own way. Their habit of falling to the ground enables us to destroy them with coal oil, or any other decoction, without sprinkling the vines; while, knowing that they are in the earth during the fall and early spring, when there is no fruit, the ground may be stirred and poultry turned in with good advantage.

This insect belongs to the order HYMENOPTERA, the family Tenthredinidae, the genus, *Emphybus*, and, as I learn from Mr. Walsh was named *maculatus* by Norton, in consideration, no doubt, of the spots above referred to.—C. V. Riley, *Prairie Farmer*.

The Black Currant Caterpillar.

To the Editor of THE CANADA FARMER:

SIR.—For the first time during the life of, or rather during the time the writer has been able to observe anything, the black currant has become affected with a worm or devourer apparently peculiar to itself. The first time it was observed was last summer, 1867, when suddenly the whole of a long row of black currant bushes became covered with innumerable light-coloured moths. There were a few worms followed, but not many, and some holes were eaten in the leaves; but the worms were very hard to find, and they did not come at all in proportion to the number of the moths.

The moths were white and ash-coloured, feathery and soft, with small black spots on the wings. They were very active and busy during the day, more so than in the evening, although they appeared in the evening also. There appeared to be so little difference between the males and the females that they could not be distinguished, and we could not trace any eggs on the leaves. This year, however, 1868, on the 13th June the worms first showed themselves, and they bid fair to strip the trees.

The worm is light in colour, white or ash-coloured, with longitudinal yellow stripes down the back, with black spots; the back whiter than the side. It is a "measurer," and moves the hinder parts close up to the fore set of legs, arching its back and bringing the extremities together. The skin of the worm is not hairy. It is very active; it is a spinner also, and when disturbed throws itself down, holding on to a short web which exudes from the mouth, similar to the worm which at times devastates the oak forests in England; indeed, both worm and moth are very similar to the oak worm and moth, but it does not spin so long a thread.