

As to the *army worm*, it may be remarked that for almost a century it had been known that in this country was a kind of worm whose habit it was to suddenly appear in particular spots in such immense numbers as to wholly consume the herbage over an extent frequently of several miles, and then abruptly vanish, nothing being seen of it afterwards. Thus it was one of the most singular and almost one of the most formidable and alarming creatures of this class that was known to be in the world. Yet, what kind of worm this was, and what insect produced it, remained wholly unknown down to the present day. Appearing here and there all over the country, the past season, this army worm became the object of the deepest interest; and from Illinois on the one hand and Massachusetts on the other, specimens of the moths bred from these worms were sent to me, for information as to what the name of this insect really was. To these inquiries I was able to give an answer so full and explicit that there has been a general acquiescence in the correctness of my decision on this subject.

With regard to the *wheat midge*, I would observe that, in a lecture before the Society a few years since, I stated that in this country injurious insects were much more numerous than in Europe, occasioning us far greater losses than are there experienced. I was assured of this fact from carefully comparing the statements of foreign authors respecting the depredations of particular insects, with what we know of the same insects here. But I did not suppose it would be possible to show by any more decisive proof that the facts were as I stated. A year ago, however, I received from France a vial filled with insects as they were promiscuously gathered by the net in the wheat fields of a district where the midge was doing much injury. It then occurred to me that, by gathering the insects of our wheat fields here in the same manner, it would furnish materials for a very accurate comparison of the wheat insects of this country with those of Europe. As the result of a comparison thus made, I find that in our wheat fields here, the midge formed 59 per cent. of all the insects on this grain, the past summer; whilst in France, the preceding summer only 7 per cent. of the insects on wheat were of this species. In France, the parasitic destroyers of the midge amounted to 85 per cent.; while in this country, our parasites form only 10 per cent. And after the full investigation of the subject which I have now made, I can state this fact with confidence—we have no parasites in this country that destroy the wheat midge. The insect so common on wheat, and which resembles the European parasites of the midge so closely that, in the New York Natural History, it is described as being one of that species, and in the Ohio Agricultural Reports it is confidently set down as another of them,—I find has nothing to do with the wheat midge, but is the

parasite of an ash gray bug which is common on grain and grass, laying its eggs in the eggs of this bug, and thus destroying them.

In my lecture a year ago, I stated to the Society that the wheat midge had wholly vanished the previous summer; not one of its larvæ could I find, on a careful search over an extensive district around me. But the past season this insect appeared in the wheat again, as numerous as usual. This has led us into important changes in our views of the habits of this insect. How was it possible for it to utterly disappear from the wheat one year, and be back in it in swarms the next year? Obviously it must have other places of breeding than in the wheat. And, therefore, if no wheat was grown in this country for a few years, as has often been proposed, it would not starve and kill out this insect. The insect would resort to these other situations, and would sustain itself there, returning into the wheat again as numerous as before, when its cultivation was recommenced. And what could it be that banished this insect from the wheat in 1860, and brought it back again in 1861? The remarkable difference in the weather of these two years furnishes an answer to this question. When the midge fly came out to deposit its eggs in June, 1860, the weather was excessively dry; in 1861, it was very wet and showery. And thus we learn the fact that these flies cannot breathe a dry, warm atmosphere; they are forced to retreat to places where the air is damp and moist. When the uplands, the plowed fields, are parched with drouth, the midge cannot abide in them; it must go to the lowlands along the margins of the streams, where it must remain so long as the drouth continues. Here it must lay its eggs and rear its young, depositing them probably in the grass growing in these situations. And hence we also learn that if the last half of June is unusually dry, or wheat that year will escape injury from the midge; but if the last half of June is very wet and showery, this crop will be severely devastated. Time forbids my pursuing this subject further.

Yours truly,

ASA FITCH.

(From the Mark Lane Express.)

### Experiments on the Potato Disease

So multifarious and vague have been the notions of this widely-spreading disease, that it has now become almost habitual, especially in the districts, to regard a solution of its supposed vagaries as hopeless, and a moderation of its active progress as an absolute impracticability. Now, however, that it has assumed so considerable an importance in a social, moral, medical, economical, and even political point of view, are impressed with the desirability of directing the results of a series of investigations as to the nature of the disease, the laws it observes, &