

themselves. These methods of reducing the insect's ravages are now so familiar to all our intelligent agriculturists, and are so simple in themselves, that we may be excused for dwelling but briefly upon them. (1.) Be careful to burn all the "screenings" of the wheat after it has passed through the fanning-mill; these, when the midge is prevalent, often contain thousands of the yellow larvæ, which will live through the winter, and produce flies for another crop, if not thus destroyed. (2.) Plough deeply in the fall any field that has been attacked by the midge during the previous summer, and take care to occupy it with some totally different crop during the following year. (3.) When the midge is in the neighbourhood sow only the improved "midge-proof" varieties of wheat. (4.) If spring wheat, sow as late as is consistent with safety, in order that the plant may not come into blossom until after the midge's period of active operations is over. (5.) If fall wheat, sow early, in order to anticipate the appearance of the midge. (6.) Avoid sowing wheat upon low, damp ground, as it especially favours the midge. (7.) Thoroughly prepare and cultivate your ground, in order that you may obtain as strong and healthy a growth as possible. After all this has been done, we may add (8), put your trust in Providence. As we may at any time be afflicted with another visitation of this scourge, though probably not for some few years now, remember—when it does threaten—that there is much truth in the old adage, "An ounce of prevention is worth a pound of cure!"

## 2. THE HESSIAN FLY (*Cecidomyia destructor*, Say).

### DIPTERA—TIPULIDÆ.

As we have already remarked, when treating of the wheat-midge, the Hessian fly, together with a number of other most destructive insects, has come to us from the other side of the Atlantic. European entomologists have repeatedly maintained that it must be a native of America, as no such insect was observed amongst their wheat-fields during a long series of years; and Mr. Curtis has even gone so far as to call it "the American wheat-midge," in contradistinction to what he terms "the British wheat-midge" (*C. tritici*). It is now, however, generally admitted that it is of European origin, and it is almost certain that it was first brought to this continent in some straw used for the purpose of packing, by the Hessian troops, under Sir William Howe, during the American War of Independence. These soldiers landed on Staten Island, and on the west end of Long Island, in the year 1776, and in this neighbourhood the fly was first observed; hence it obtained its popular name of "Hessian Fly." Having multiplied in these places—as Dr. Harris relates—"the insects gradually spread over the southern parts of New York and Connecticut, and continued to proceed inland at the rate of fifteen or twenty miles a year. They reached Saratoga (two hundred miles from their original station) in 1789." Proceeding in this manner, the tiny pest gradually spread over the country, and has been found in almost every locality where wheat is grown. In the old world, also, its depredations have been sufficiently great to attract notice in England, France, Germany, Austria, Switzerland, Italy, Russia,—in fact in almost every country where this grain is cultivated to any extent. Our own Dominion, though frightfully devastated in subsequent years, was not invaded by the pest till about the year 1816, when it became prevalent in Lower Canada. It appears to have been first noticed in this Province in the year 1846. (For a detailed history of its progress in this country and the neighbouring States down to the year 1854, see Prof. Hind's Essay, pp. 42-46.)

So much has been said and written respecting the Hessian fly, and so many descriptions of it have appeared in agricultural and scientific publications, that we feel disinclined to attempt any new account of it or repeat once more "an oft told tale." As we have no new light to throw upon the subject, and, with the exception of some specimens received from Ancaster during the past summer, have had no opportunity for some years of investigating its habits, we shall not hesitate to make free use of the writings of others, especially those which are not likely to be accessible to the majority of our readers. In every case we shall, of course, make due acknowledgment of the source from which the information is derived.

The Hessian fly, though known for its destructive qualities for some time before, was first scientifically described by Mr. Say—one of most eminent of the early American Entomologists—under the name of the Destructive Midge (*Cecidomyia destructor*). "This

insect—Dr. first of these the young gr spring and s changes occu weather and placed in ci growth so mu In the ordin tacks of the the lower join from the tim and is harves brood of these fly sustain its the autumn a

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When ha rick:—"The crawls down t joint below, upon the sap. as the larva in After taking i kled appearan more clouded, part is of a gr to turn brown. flax-seed." T it to fall down

In this winter. Reg much controver the opinion th ed outer integ again, and not Whatever may when the insect (Fig. 46.)