Entomologists—under the name of the Destructive Midge (*Cecidomyia destructor*). "This insect—Dr. Fitch relates—as a general rule passes through two generations annually. The first of these occupy the autumn, winter and fore part of spring, and is reared at the roots of the young grain slightly under the ground. The second occupies the remainder of the spring and summer, and is nurtured in the lower joints of the straw. The time when its several changes occur, however, is not perfectly uniform, being varied by the climate, the state of the weather and perhaps other contingencies, and it is not improbable that individual specimens, placed in circumstances unfavourable to their developement, in some instances have their growth so much retarded as to require even a whole year to complete their metamorphoses. In the ordinary course of nature, therefore, our crops of winter wheat are liable to two attacks of the Hessian fly, one generation reared at its roots produeing another which occupies the lower joints of the stalks. Thus the larvæ and pupæ are present in it almost continually, from the time the tender young blades appear above the ground in autumn till the grain ripens and is harvested the next summer. Our spring wheat, on the other hand, can rear but one brood of these insects; they consequently resort to it but little if at all. Nor can the Hessian fly sustain itself except in districts where winter wheat is cultivated, in which to nestle during the autumn and winter."

The eggs of the autumn generation are deposited by the female fly generally early in September, in the young fall wheat, in a crease of the leaf. Twenty or thirty eggs are laid on a single leaf, and these hatch out in about four days if the weather be warm. Mr. Tilghman, of Maryland, has published in *The Cultivator*, of May, 1841, the following minute and interesting account of the mode in which the eggs are laid: "By the second week of October, the first sown wheat being well up, and having generally put forth its second and third blades, I resorted to my field on a fine warm forenoon to endeavour to satisfy myself by ocular demonstration whether the fly did deposit the egg on the blades of the growing plant. Selecting a favourable spot to make my observation, I placed myself in a reclining position in a furrow, and had been on the watch, but a minute or two before I discovered a number of small, black flies alighting and sitting on the wheat plants around me, and presently one settled on the ridged surface of a blade of a plant, completely within my reach and distinct observation. She immediately began depositing her eggs in the longitudinal cavity between the little ridges of the blade. I could distinctly see the eggs ejected from a kind of tube or sting. After she had deposited eight or ten eggs, I easily caught her upon the blade and wrapped her up in a piece of paper. After that I continued my observations on the flies, caught several similarly occupied, and could see the eggs uniformly placed in the longitudinal cavities of the blades of the wheat, their appearance being that of minute reddish specks." These eggs are computed to be about one-fiftieth part of an inch in length.

When hatched from the egg, the next proceedings of the insect are thus related by Mr. Herrick:—"The little wrinkled maggot or larva creeps out of its delicate membraneous egg skin, crawls down the leaf, enters the sheath, and procceds along the stalk, usually as far as the next joint below. Here it fastens lengthwise, and head downwards, to the tender stalk, and lives upon the sap. It does not gnaw the stalk, nor does it enter the central cavity thereof; but as the larva increases in size, it gradually becomes embedded in the substance of the stalk. After taking its station the larva moves no more, gradually loses its reddish colour and wrinkled appearance, becomes plump and torpid, is at first semi-translucent, and then more and more clouded, with internal white spots; and when near maturity the middle of the intestinal part is of a greenish colour. In five or six weeks (varying with the season) the larva begins to turn brown, and soon becomes of a bright chestnut colour, bearing some resemblance to a flax-seed." Two or three larvæ, thus embedded in a stalk, serves to weaken the plant and causes it to fall down, or to wither and die.

In this condition, the "flax-seed state," as it is usually termed, the insect remains all winter. Regarding the structure and formation of this peculiar appearance there has been much controversy, into which we need not enter here. Suffice it to say, that some have held the opinion that the larva spins its cocoon which bears this form; others, that it is the hardened outer integument of the worm, separated from the insect, which remains within; others again, and notably, the late Mr. Walsh, that the pupal cocoon is exuded from the larva. Whatever may be the process, in this condition it remains till the warm days of spring arrive, when the insect completes its pupal state, and finally comes forth as a tiny two-winged fly. (Fig. 50.)