

5. THE JOINT-WORM (*Isosoma hordei*, Harris.)

HYMENOPTERA—CHALCIDIDÆ.

The wheat crops in the United States, and probably in Canada also, are frequently attacked by a minute insect in the stem, close to the first or second joint from the root. The effects of the attack are so like those produced by the Hessian Fly, that it is very often confounded with the latter insect, and not suspected to be a different enemy, belonging to a widely different order of insects. As it is so likely to be overlooked, we say that it has *probably* wrought mischief among the wheat fields in this country as well as in the neighbouring States; that it certainly has affected barley in this Province, we can testify from our own observation.

This insect, popularly termed, from its habits, "the Joint-worm," first attracted attention in Virginia about the year 1848, while the first published account of its depredations appeared in the *Southern Planter* in 1851, the editor of which gave the following description of its ravages*:—"A new and most destructive enemy to wheat has appeared under the name of the Joint-worm. Many crops in Albemarle are hardly worth cutting in consequence of its attacks, and all that we have seen or heard of, except one, are badly hurt by it. In the area it has traversed, and the completeness of its devastation within it, it has no rival amongst insects in this country. The dreaded Hessian Fly is nothing to it, and no atmospheric calamity can pretend to a comparison. It sweeps whole districts, and everywhere, we hear, has done great damage, and, it is feared, will do much more before it is checked or destroyed." Prof. Cabell, of the University of Virginia, afforded similar testimony, stating that "in 1851 some farmers did not reap as much as they sowed," and that the loss occasioned by this insect often amounted to one-third of the average crop. In 1860—to quote an account in the *American Entomologist* for April, 1869—"the rye crop was considerably injured by this pest in Lycoming Co., Pennsylvania, and according to Mr. Norton, the species is very common upon rye in Connecticut, and probably the other New England States. As long ago as 1829 it had been noticed in various parts of the New England States to attack the barley, causing it in some places 'to yield only a very small crop, and on some farms not much more than the seed sown,' although since that date it does not appear to have been materially troublesome in that region. But in Central New York, formerly the great barley-growing district of America, it has been ruinously destructive to the barley since about 1850. In the words of Mr. George Geddes, the late President of the N. Y. State Agricultural Society, 'Formerly we expected forty bushels of barley to the acre; now we cannot rely on more than twenty.' And he goes on to state that this falling off is principally due to the depredations of the Joint-worm, and that, unless some relief from it is found, the farmers of Central New York will have to discontinue raising this crop." In the years 1866 and 1867 it was found by our friend, Mr. Pettit, to be abundant upon barley in the neighbourhood of Grimsby, in this Province. (See *Canada Farmer*, 1867, pp. 238, 267.)

From the foregoing notices it will be seen that this insect attacks not only wheat, but also rye and barley, and that where it occurs it inflicts very great damage upon the crop. Some have supposed that these different crops are attacked by different, though very similar species; but it has been satisfactorily shewn by Mr. Walsh that all these Joint-worms, even though they present occasional variations in colour, are to be referred to the species described by Dr. Harris under the name of *Eurytoma* [*Isosoma*] *hordei*. With regard to the genus of the insect (the first of the two scientific names), there has been much discussion also; but in a report of this character it is unnecessary to trouble the reader with it. We shall merely state that we hold the opinion that the insect belongs to *Isosoma* (to which also pertains the grape-seed insect [*I. vitis*, Saunders], described by our coadjutor, Mr. Saunders, in last year's Report, p. 109), and not to *Eurytoma*, a genus of parasitic flies.

The Joint-worm is a tiny footless grub or maggot, about one-eighth of an inch in length, of a pale yellow colour and with dark brownish jaws. It occupies a little swelling or cell

*Quoted by Dr. Fitch, 7th N. Y. Report, p. 145.