

Mr. James Hammond, of Hammond P. O., Perth Co., writes under date of 7th of August as follows: "I noticed some time ago that something was doing considerable damage amongst my fall wheat (silver chaff variety). I mentioned the fact to some of my neighbours, telling them that it appeared to be cut at, or near the ground, but they appeared to be equally ignorant with myself as to the cause, and I thought little more about it until I saw your letter in the last issue of the *Weekly Globe*, when I examined some stalks, and find from your description that it is the genuine Hessian Fly. I enclose herewith samples of the insect in stalk, from which you will be able to judge of the correctness of my conclusion." These stalks from Mr. Hammond contained the insects in the flax seed state.

Judging from these letters which may be taken as fair samples of the correspondence, the estimate formed was, I think, rather under than over the mark, and the aggregate loss to the farmers of Ontario from the depredations of this insect during the past season must be a very large sum, as the area of land under wheat was very extensive.

Through the kindness of Mr. John Wallis, I have been enabled to compare the weight and appearance of the grain in the ears of the injured stalks with that of those of the healthy ones. I find that 100 of the kernels from the healthy plants which presented a plump appearance and a firm structure weighed 120 grains, while the same number taken from diseased stalks present a shrivelled appearance and a structure much less firm, and weighed only 59 grains, a difference of a little more than 100 per cent. By late sowing as recommended in my annual address to the Entomological Society in August last, Mr. Wallis now has a field of fall wheat in excellent condition, occupying the same ground as that on which the wheat was most injured last season. In order to test the value of this recommendation, he has departed from his usual course of rotation of crop so as to give the insects a fair chance, and judging from appearances at the present time it promises an abundant yield.

HOMOPTERA.—THE HARVEST FLIES AND THEIR ALLIES.

By JAMES FLETCHER, OTTAWA, ONT.

The Cicadæ or Harvest Flies belong to that order which is known to Entomologists under the name of Hemiptera, (from two Greek words $\eta\mu\iota$ = half, and $\piτερόν$ = a wing).

It is to this order of insects, alone, that the name—bug—properly belongs. Although now generally applied to all kinds of insects, it appears formerly to have been used for any object of terror, real or imaginary, and also as a term of contempt for something disagreeable and hateful; we have a remnant of its original meaning in the word "bug-bear." Perhaps the name was applied more distinctively to the Hemiptera on account of the disgusting odour which many of the Heteropterous members of the order have the power of emitting when disturbed.

In their earlier stages the Hemiptera have what are known as Incomplete Metamorphoses—that is, they do not entirely change their conditions during each of the different periods of their existence, as the Lepidoptera and Coleoptera do, where there is first of all the egg that hatches into an active larva which when full grown passes into a quiescent pupal state, previous to the fully developed imago condition.

The pupæ of the Hemiptera are active and very similar to the larvæ; in fact the only noticeable change which takes place in the form of these insects, from the time the egg hatches until they attain the perfect shape, is a gradual development of their wing covers and wings, and the growth of their bodies which makes it necessary for them to frequently cast their skins. When all the transformations have been completed, the imagines (perfect insects) generally possess four wings; the superior pair or hemelytra which are attached to the mesothorax, have the basal part or *corium* opaque and of a leathery consistence and the apical portion membranous and transparent; the inferior pair are attached to the metathorax and are entirely membranous and generally transparent and capable of being folded when the insect is in repose.

The whole of these insects are *Suctorial*—that is, live on fluids. To enable them to do this their mouth parts consist of a more or less slender beak or *promuscis*, which varies