

eggs, and destroys the prospects of another generation. A fertile, thoroughly-cultivated, and well-drained soil is as effectual a means of escaping loss from the attack of this insect as any, probably, that can be mentioned. Benefit may also be derived from the sowing only of an approved flinty-stemmed variety of wheat, which is thus more capable of resisting the fly's attacks upon it. But after all the chief reliance for immunity is to be placed upon the labours of the parasitic insects mentioned above.

### 3. THE CHINCH BUG (*Micropus leucopterus*, Say).

#### HEMIPTERA-HETEROPTERA—LYGÆIDÆ.

The two species of insects that we have already described—the Wheat-midge and the Hessian fly—are undoubtedly the worst foes that the Canadian wheat growers have to contend against; but in the Western and Southern States the farmer has another pest that inflicts, if possible, even more injury upon his grain crops, of all descriptions, than these do in this country. The name of "Chinch Bug" has, in the west especially, as appalling a sound in the ears of the agriculturist as that of the "midge" has ever had amongst us. Happily, the creature is but little known in this Province, and, from its habits, is not likely ever to be so destructive here as in its own more congenial regions beyond the lakes; still it may obtain a foothold amongst us, and prove a source of evil, as it has already been observed in Ontario. It appears desirable then, that we should give some information respecting its nature and habits when describing the special enemies of the wheat plant.

As far as we have been able to ascertain, the Chinch Bug was first observed in the Province of Ontario in the autumn of 1866, by Mr. Johnson Pettit, of Grimsby—a most zealous and efficient Entomologist, whom we have often had to thank for valued and interesting specimens of rare insects; to whom, indeed, we owe many of the most highly prized specimens in our cabinet. In October of that year, Mr. Pettit sent us a number of specimens of the Chinch Bug that he had found hidden away for the winter under the bark of old logs, and thus afforded us an opportunity of giving the creature a minute inspection. Since that time we have not heard of its occurrence in any other part of the Province. That so little is known of it in this country ought to be, to us, a subject of sincere congratulation, especially when we read of its ravages elsewhere. Dr. Fitch has spoken of it as "unquestionably one of the most pernicious insects which we have in the United States; the locusts of Utah and California are the only creatures of this class which exist within the bounds of our national domain whose multiplication causes more sweeping destruction than does that of this diminutive and seemingly insignificant insect."

In the United States, it was first noticed as long ago as the year 1783, at the close of the War of Independence, when it committed some ravages upon the wheat of North Carolina. It was then supposed to be identical with the Hessian fly, and for fifty years afterwards—possibly even to this day—it was supposed by the rural inhabitants of that State to have been left by the British soldiers as they passed through the country. For some years they continued excessively numerous in North Carolina, and destroyed the grain to such an extent that the sowing of wheat had to be abandoned for a considerable time. In 1831 the insect was scientifically described for the first time by Mr. Say, the great entomologist of the period, who captured a single specimen in Virginia. In 1839, and for some successive years, it was again numerous and destructive in the Carolinas and Virginia. About the same period, also, it was observed in the Valley of the Mississippi, and as far north as the State of Illinois, where it was known as the "Mormon Louse," from the absurd supposition that it was introduced by these fanatics when they commenced their establishment at Nauvoo, in 1840. Since that time they have been a permanent plague to the farmer in the west, appearing every few years in perfectly incredible numbers, and sweeping everything before them almost as completely as a swarm of locusts. The following vigorous and unvarnished account of their proceedings, by an Illinois farmer (it is only one out of many that we might quote), will convey to the reader some idea of the havoc they create:—

"There never was a better 'show' for wheat and barley than we had here the 10th of June, and no more paltry crop has been harvested since we were a town. Many farmers did not get their seed. In passing by a field of barley where the chinch bugs had been at work for a week, I found them moving in solid column across the road to a corn field on the opposite side, in such numbers that I felt almost afraid to ride my horse among them. The road and fences were alive with them. Some teams were at work mending the road at this spot, and the bugs covered men, horses and scrapers till they were forced to quit work for the da