

and general appearance, a grain of the ordinary flax seed. In that state it continues for a considerable period, and it is carried from the field to the granary while in this condition. It is a very much-discussed point as to what this 'flax-seed' stage exactly is. It is looked upon as a pupa stage, but how it is produced—being so different from the form common among insects—has not been determined upon by entomologists, some thinking that the 'flax-seed' covering is the pupa stage, and others that it is an exudation from the body. The Hessian fly attacks the stalk solely, never the ear."

Numerous parasites attack the Hessian fly, and to them is probably due, more than to any other cause, the curtailment of its ravages. As means to the same end, Mr. Bethune suggests the following artificial remedies:—

"The artificial remedies I would recommend would be the abandonment of fall wheat *pro tem.*, or to sow as late as practicable in the autumn, in order that the larvæ may not find the plant sufficiently advanced for their attacks at the roots before winter sets in. An additional remedy—if it may be so called—is to practise thorough cultivation, in order to make the plant as strong and healthy as possible, that it may the better withstand the attacks of the fly. I have not observed that the Hessian fly is attracted by moisture in the same manner as the midge. Its *habitat* in the summer is a very dry one, being under the close envelope of leaves which protect the stalk above the first or second joint."

The Chinch bug, although found in Canada, is scarcely known here as a destructive insect, although a great pest to the farmers of the Western States. The insects represented in the illustration (see Fig. 6) are largely magnified, the lines below indicating their natural size. It attacks various kinds of grain, is a persistent and incessant feeder throughout the whole of its existence and at every stage of its growth. Brood after brood appears, and no living article of vegetation is safe from their attacks. Wet weather is a check to its mischief, "a heavy thunderstorm," says Mr. Bethune, "being worth millions to the farmers of the Western States during the season of its ravages." It is, however, assailed by lady birds, lace-winged flies and *syrphus* flies, very effectively, and thus, to some extent, restrained in its depredations.

The Aphidæ, or Plant Lice (see Figs. 7 and 8) are a well-known family of insects, and are found on a large number of plants. As a rule the Aphidæ are not very injurious to grain, but there are occasions when their propensities for mischief take that direction. Mr. Brodie, of Toronto, says in his evidence on that point:—

"Among the Hemiptera, the grain-aphis, the cabbage-aphis, the apple-aphis, and the oyster shell bark louse, have all done a great deal of injury. In 1863 the oat crop in North York was injured by the grain-aphis to such an extent, that the average weight of oats that season was only fifteen pounds per bushel, and the yield per acre very small."

Of the habits of the Aphidæ, Mr. Bethune says:—

"In the early part of the summer, the Aphidæ may be found in great abundance, and they continue very numerous until towards the close of the season. It has been found, by close observation, that the females require only to be fertilized by the male once during a very large number of generations,

that is to say, one impregnation by the male will last through the descendants of the original female for perhaps twenty-five or fifty generations. The males, consequently, are not required very frequently, and they make their appearance usually towards the close of the season. The males possess wings.

"The excessive fertility of this insect may be imagined, when I mention that each female produces about four young ones a day, and these young ones are all females and able to produce offspring in like proportion when three days old, so that it has been calculated that, in twenty days, the progeny of one female—provided there were no disease or accident in the family—would amount to 2,000,000 individuals. If it were not for the various checks imposed upon them, in a very short space of time the whole habitable portion of the earth would be covered by these insects, and man would be quite driven off. There is probably no kind of vegetation that is exempt from their attacks.

"Some few of these insects pass the winter in hiding places out of doors. The impregnated females lay eggs in the autumn that survive the winter, and these hatch out in the spring. It is my opinion that these eggs all then hatch females, and the series of females continues until about the close of the season, when the males make their appearance.

"The insect's mode of life is the same from the time it is born until it dies,—it has, as a rule, its proboscis inserted into the plant on which it lives, pumping out its juices; in fact, needs a constant supply of food to live, and if it were detached it would die. This does not, however, apply to the winged specimens; their object is to establish new colonies, and to perpetuate their kind.

"In feeding, this insect takes in such a large supply of liquid that it cannot assimilate it all, and is consequently obliged to part with some of it. This, dropping upon the surrounding leaves of the plant, is a sweet, sticky substance, called 'honey-dew,' and ants and other sweet-loving insects are excessively fond of it.

"Ants are so intelligent that they make a regular business of looking after the aphidæ, and getting them to part with their 'honey-dew,' just as we obtain milk from the cow. They may be often seen pressing the body of the aphid at the hinder part of the abdomen, thus forcing the latter to part with little drops of 'honey-dew,' of which they immediately make use. Indeed, aphidæ used for this purpose have been known to be enclosed in a regular pasture, over which the ants keep watch to ward off intruders."

Happily, not only such casualties as storms and climatic changes reduce the aphidæ in numbers, but they are also preyed upon by numerous parasites.

MANURE heaps should always be kept scattered with plaster, to arrest the ammonia. Plaster saves one-half of the virtue of manure, which otherwise escapes as gas in the air: therefore always keep manure covered with it, whether in the heap or thrown on the field. Should always be used for the same purpose to stable and hen house—it saves the valuable ammonical urine. *These combinations make the richest manure in the world.* It also has a sanitary effect by purifying the atmosphere.

A. GOODWIN, of the Maitland concession, Goderich township, has sold lot 77, 55 acres, to A. Beadore, for \$2,400.—Michael Heffernan has purchased the 50-acre farm of Wm. Nash, McKillop, for \$1,955.—Matthew Parcell purchased from John O'Sullivan 50 acres on east half of lot 13, con. 3, McKillop, for \$2,175.

CURRENT NEWS ITEMS.

THE Toronto Industrial Association have decided to open the exhibition on the 11th of September, and continue it till the 23rd.

THE Foresters of Listowel have given the widow of the late John Welsh, of that place, a cheque for \$1,000, in accordance with the rules of Forestry.

SOME of the horsemen about Clinton have been very unfortunate this year. W. J. Ferguson, Smith's Hill, lost three stallions on the voyage out from Scotland, which is the more to be regretted as they cannot be replaced this season.

A JOINT stock company is about to be organized in Toronto, with a capital of \$10,000, under the style of "The Ontario Poultry Breeding and Stock Association." The company is said to have purchased several acres of ground in close proximity to one of the suburbs of the city, and they intend erecting suitable buildings immediately.

A PROMINENT Biddulph farmer gives the following reasons for wishing to dispose of his fine old homestead. He says:—"As the owner is now over three score and ten, and the heir for whom it was designed has been so stunted with hard toils on the farm, that when seventeen (his last birthday), he was only a little over six feet high, and though healthy as an ox, he is not quite so strong, and does not care to work."

THE number of emigrants who arrived in Toronto during March were 362 English, 165 Irish, 103 Scotch, 154 Germans, and two Scandinavians. Of this number 439 remained in the Province of Ontario, 197 went to Manitoba, and 140 Germans passed on to the Western States. The returns for the corresponding month last year were 149 English, 174 Irish, 23 Scotch, one German, and one Scandinavian. Three hundred and thirty-eight remained in Ontario, and twelve went to Manitoba. The class of emigrants that arrived last month were superior to that of former years. Many of the new arrivals possessed considerable means.

THE Elora correspondent of the Guelph *Mercury* says:—"Mr. Rhodes Letson, of Alma, is decidedly impressed with the idea that he has been 'done' by one of the numerous travelling agents, who may in the present day be fairly classed amongst the pests of the farm. A fellow came to him, asked permission to put up a sample hay lifter in his barn, which would never be removed therefrom, and of which he might have full use, 'free, gratis, for nothing.' Mr. Letson told him to 'send her along,' and Mr. Agent asked to be permitted to send ten others, to be sold by Mr. Letson on commission, at \$25 each, and a profit of \$5 each to Mr. L. 'All right,' said Mr. L., and then graciously signed a paper binding the bargain. A few days ago, the forks arrived, and with them another agent, who demanded cash on the nail for the whole lot, and drew from his pocket Mr. Letson's promise to pay on demand. Mr. Letson demurred. The forks are still at the Alma station, and Mr. Letson possesses a lawyer's letter demanding his note at six months, or threatening an immediate suit. Mr. L., it is presumed, will look twice before signing another order."