

The Onion Maggot (*Anthomyia ceparum* or *Phorbia ceparum*) is reported from Salmon Arm and Victoria.

The onion maggot is closely related to the cabbage maggot, to which it is similar in life-history and habits. The adult is a two-winged fly, which deposits its small white eggs on the bulbs or lower leaves of the young plants. About a week later the eggs hatch into young larvae that bore into the bulbs, absorbing the succulent substance. When one bulb is consumed they pass on to another. The full-grown larvae are nearly half an inch long, of a dull white colour, and pointed at the mouth or front end. They complete their larval growth in about two weeks, and then leave the onions and enter the surrounding earth, where they change to the pupa state within brown puparia. A fortnight later the flies emerge to lay eggs for another brood.

Professor Cook states that the most practical method of preventing the injuries of this insect is to change the position of the onion bed every year, putting it each time some distance from where it was the preceding season. Wherever the conditions are such that this can be done, this is probably the best preventative measure. Miss Ormerod reports that if the bulbs are kept covered with earth they are not attacked by the maggots.

Onion Maggot.

Bot Flies.

Bot flies (*Estrus equi*) are reported from Quamichan, Sooke, Metchosin, Okanagan and Mission, no doubt present in many other localities.

"The larvae of the *Estrus equi*, a species of gad-fly, are often found in large numbers, attached by a pair of hooks with which they are provided, to the cardiac extremity of the stomach; they are rarely met with in the true digestive portion of this organ, but sometimes in the duodenum or jejunum in small numbers. * * Sometimes nearly all the cardiac extremity of the stomach is occupied with them, the intestines being occupied by little projections which are caused by those that have let go their hold, and have been expelled with the food. It often happens that a meddling groom, when he sees them expelled from or hanging to the verge of the anus, as they often do for a short time, thinks it necessary to use strong medicine, whereas, in the first place he does no good, for none is known which will kill the larvae without danger to the horse, and, in the second, if he will only have a little patience, every bot will come away in the natural course of things, and until the horse is turned out to grass, during the season when the *Estrus* deposits its eggs, he will never have another in his stomach.

"The *Estrus equi* comes out from the pupa state in the middle and latter part of summer, varying according to the season, and the female soon finds the proper nidus for her eggs in the hair of the nearest horse turned out to grass. She manages to glue them to the sides of the hair so firmly that no ordinary friction will get rid of them, and her instinct teaches her to select those parts within reach of a horse's tongue, such as the hair of the forelegs and sides. Here they remain until the heat of the sun hatches them, when, being no larger in diameter than a small pin, each larva is licked off and carried down the gullet to the stomach, to the thick epithelium, to which it soon attaches itself by its hooks. Here it remains until the next spring, having attained full size during the course of the first two months of its life, and then it fulfils its allotted career by letting go and being carried out in the dung. On reaching the open air, it soon assumes the chrysalis condition, and in three or four weeks bursts its covering to become the perfect insect.

"From this history it will be evident that no preventative measures will keep off the attacks of the fly when the horse is at grass, and, indeed, in those districts where they abound, they will deposit their ova in the hair of the stabled horse if he is allowed to stand still for a few minutes. The eggs are, however, easily recognised in any horse but a chestnut, to which colour they closely assimilate, and as they are never deposited in large numbers on the stabled horse, they may readily be removed by the groom. Unlike other parasites, they seem to do little or no harm, on account of the insensible nature of the part of the stomach to which they are attached, and moreover, their presence is seldom discovered until the season of their migration, when interference is unequalled for. On all accounts, therefore, it is unnecessary to enter into the question whether it is possible to expel them; and even if by chance one comes away prematurely, it will be wise to avoid interfering by attempting to cause the expulsion of those left behind."

How Propagated.

Preventions Discussed.