
THE IDENTITY OF THE CARNATION MAGGOTS OF BRITISH COLUMBIA

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At a previous meeting of this Society (in 1928) I made brief mention of an Anthomyid fly which was destroying large numbers of young carnation plants in the spring of 1927, in a greenhouse in New Westminster. The insect appeared shortly afterwards in the greenhouses of the University at Point Grey. At this time it was identified for me by Dr. H. Hockett of Long Island Vegetable Research Station, New York, the North American authority upon Anthomyid flies, as *Hylemyia brassica* Bouche and under this name I reported it in the Proceedings of this Society.

At the International Congress of Entomology at Ithaca, New York, in 1928, I met Dr. F. W. Edwards of the British Museum, who stated that carnations in England are commonly attacked by a specific carnation maggot, *Hylemyia brunnescens* (Zetterstedt), and that the insects in question in British Columbia were most probably of this species.

Later on, in 1930, another infestation broke out in the University greenhouses among young carnation plants grown from cuttings, and it developed that the plants were being attacked in two ways. In the first case, injury was the same as in previous instances, consisting of the eating-away of the stem underground and slightly above ground, both from a side and up through the centre, precisely as the cabbage maggot eats young cabbages. But the second type of injury was a new one in that the maggots were working altogether away from the soil in the leaf-heads of the growing plants, eating away the bases of the leaves and the tips of the stems and burrowing down a short distance into the stem so that the leaves fell asunder and the plants withered and died from the tips downwards.

As many maggot-infested stems as could be found at the time were collected and caged above one of the larger pots of earth in which they had been growing, so that the maggots when full grown could pupate in the soil. Some pupated in the soil and some in the dead and dried heads of the stems. Within a month, but at varying intervals, a series of large and small Anthomyid flies emerged and were pinned. From the fact that emergence occurred over a period of time, I gathered that several larvae had entered the soil before the second series had been placed in position.

This whole second series of flies was sent to Dr. Hockett and his identification has just come to hand. The larger flies are the true carnation maggots of Great Britain as foretold by Dr. Edwards,

namely *Hylemyia brunnescens* (Zett.), but the series of smaller ones falls into three species of which one, *Helina duplicata* (Meigen), is represented by one specimen only, while the rest belong to two species, *Hylemyia florilega* (Zett.) and *Caricea humilis* (Meigen).

At the time of caging the maggots there was no suspicion of more than two species being present and until further rearing has been done, the identity of the species most concerned with the injury to the leaf tips, can only be suggested.

The largest number of small flies obtained was of the species *Caricea humilis* (Meigen), but of this species Dr. Hockett says, "I have frequently seen this species in greenhouses; I believe the larvae feed on grass roots and underground stems." Accepting this suggestion, we must rule out this species. The second largest number of flies reared were of the species *Hylemyia florilega* (Meigen) and I am inclined to believe that this is the species most concerned, unless both species are involved.

Since 1930, no further reports of maggot injury to carnations have come to hand from any source. It would appear that *H. brunnescens* (Zett.) is sporadic in its outbreak or else is imported afresh, and that none of the other three species mentioned need be greatly feared for their attack upon carnations in the Vancouver district.