

The Ohio Naturalist,

PUBLISHED BY

The Biological Club of the Ohio State University.

Volume IV.

JANUARY, 1904.

No. 3.

NOTE.—Titles on pages 49 to 62 inclusive, are Papers and Abstracts given at the Annual Meeting of the Ohio State Academy of Science for 1903. Not all titles appear in table of contents. Each author appears once.

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NOTES ON THE INTRODUCTION OF THE ASIATIC LADYBIRD (*Chilocorus similis*) IN OHIO.

A. F. BURGESS.

It is now a little over two years since the first shipment of this insect was made to this country. Mr. C. L. Marlatt, First Assistant Entomologist to the United States Department of Agriculture collected the beetles while making explorations in Japan and China to ascertain the native home of the San Jose scale. In northern China he found that this scale was present on native trees and also on the fruit exposed for sale in the markets; very few scales were found on the fruit and the trees were not seriously infested. Ladybirds of this species were very common and were frequently found feeding on the scales.

Three shipments were sent to Washington, D. C., but only two of the beetles survived the winter of 1901-1902. They were placed on trees infested with *Diaspis pentagona* and a large number of adults had developed late the following summer so that a few shipments were made to different points in the United States.

Chilocorus similis is a small black lady beetle, the distinctive markings being a dark red and somewhat circular spot on each elytron. The adults resemble our native species *Chilocorus bivulnerus*, so closely that it is almost impossible to distinguish between them in this stage. The larvae and pupae, however, have char-

acteristic differences, hence it has been found that this is the easiest way of determining the species. The imported species appears to be more prolific than its native congener and when food was abundant about five generations were produced annually at Washington, D. C., according to Mr. Marlatt.

On August 12, 1903, through the courtesy of Dr. L. O. Howard, Entomologist to the United States Department of Agriculture, a shipment of twenty of these beetles was sent to the writer. Unfortunately, it was not received until August 17, and only three of the insects were alive. The beetles were immediately taken to an orchard infested with the San Jose scale near Withamsville in Clermont county. One of these escaped from the box before arriving at the orchard but the other two were placed on an infested peach tree. They were observed for some time after being liberated and, although they were quite active, made no attempt to fly away. After crawling about for some time both beetles began to feed upon the scales and young lice.

Owing to the fact that only two individuals were placed in the orchard it was feared that they might disappear, but five days after they were liberated the orchard was visited by Mr. Otto H. Swezey, one of my assistants, and both beetles were found feeding upon the scales on the same tree where they had been placed. No further observations were made until October 28, when a hasty examination revealed twelve adults present on the tree where the planting was made. Empty larval skins and pupa cases were also noted, but no beetles or larvae could be found on any of the adjoining trees in the orchard.

Another shipment of this insect was made to Mr. P. J. Parrott, Entomologist to the Ohio Experiment Station, and were placed in an orchard in Danbury, Ottawa county. I am informed by Mr. J. S. Hauser, Assistant Entomologist to the Station, that none of the beetles were found at the time the last examination was made.

It is interesting to note that this species will breed in southern Ohio, but the question of its ability to survive the winter is still to be determined. Colonies have successfully passed the winter at Washington, D. C., and Marshallville, Georgia, but I understand that no shipments were placed last fall at a latitude north of the former locality.

Although this ladybird, if it succeeds in surviving the winter season, will add another insect to the list of beneficial species in Ohio, it is still an open question whether it will prove as beneficial in holding the San Jose scale in check as it does in its native home. For this reason it would be very unwise for any orchardist to neglect to treat his trees that are infested with the San Jose scale until the efficiency of the work of the beetles has been thoroughly demonstrated.

Columbus, Ohio.