

## PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF NOVA SCOTIA FOR 1918.—

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In this volume we again have proof of the vigorous condition of our Maritime Branch. It contains 13 papers, many of which are important contributions to Canadian Entomology. Six of these papers deal mainly with the life-histories of particular insects, four with general questions of natural and artificial control, while only one is strictly taxonomic.

The following is a list of these papers:—

*A few notes on ant history and habits.* By Rev. H. J. Fraser. Pp. 6-9.

*The meaning of Natural Control.* By John D. Tothill. Pp. 10-14. An analysis of the factors operating in the natural control of Lepidoptera, with special reference to the Forest Tent Caterpillar and the Fall Webworm in New Brunswick. Tables are given, showing the average history of an egg-mass of each of these species during certain years.

*Further notes on the Apple Maggot (1918).* By W. H. Brittain. Pp. 15-23. In this paper tables are given to show the dates of emergence of 640 adults during the season of 1918, with maximum and minimum temperatures and associated climatic conditions. The time of emergence in early spring is practically the same, whether the season is early or late. Two other tables give dates of emergence according to the variety of apples infested. Experiments were also made to determine the length of the pre-oviposition period, under conditions of control in cages and in the open. It is shown that in certain orchards formerly infested by the apple maggot, but which were rid of the pest by spraying, these insects are now increasing, owing to the orchards having been untreated for two years.

*The Salt Marsh Caterpillar (Estigmene acraea Drury).* By H. G. Payne. Pp. 24-31. A detailed account of the life-history of this "woolly-bear," with descriptions of all the stages and a table giving dates of hatching, lengths of instars and other data on the seasonal history. The paper is illustrated by an excellent half-tone from a photograph.

*A Copper Dust.* By G. E. Sanders and A. Kelsall. Pp. 32-37. Gives the results of experiments with a mixture of powdered dehydrated copper sulphate, arsenate of lime and hydrated lime, containing 5 per cent. of metallic copper and 2 per cent. of metallic arsenic. Methods of preparation, storage and cost are also discussed. According to laboratory tests this mixture does not decrease the killing value of arsenicals to the same extent as liquid Bordeaux. Late potato blight was effectively controlled by it.

*Notes on the life-history and immature stages of three common Chrysomelids.* By W. E. Whitehead. Pp. 38-50. The species discussed are *Disonychia 5-vittata*, *Chrysomela scalaris* and *Gastroidea polygona*, all of which are illustrated on plates 2 and 3. Full data on the seasonal history of each is given in tabulated form.

*A modified Bordeaux mixture for use in apple spraying.* By G. E. Sanders and W. H. Brittain. Pp. 51-61. An extended discussion of the properties and actions of the various formulæ used in the preparation of Bordeaux mixture, particularly with reference to the proportion of lime in its effect on the mixture as a fungicide. Conclusions believed to be correct for Nova Scotian conditions are given on pp. 59-60.