

TECHNICAL PAPERS, 1940-41.

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ENTOMOLOGY DIVISION, NELSON.

Director: Dr. D. MILLER.

The work of the Division is referred to under the following headings:—

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| (1) Entomological service and routine. | (4) <i>Oryctes</i> sp. |
| (2) <i>Plutella maculipennis</i> (diamond-back moth). | (5) Grass grub. |
| (3) <i>Pieris rapae</i> (white butterfly). | (6) Cheese mites. |
| | (7) Clover thrips. |

(1) ENTOMOLOGICAL SERVICE AND ROUTINE.

The number of insects received for identification during the year is about 90, and of these, 60 were from the Fields Division, 4 from the Niue Islands, and the remainder from private individuals and Government departments. Of these insects, 20 were attacking stored products, 30 from agricultural crops and pastures, 15 from vegetable gardens, and the rest miscellaneous, in which group is included those attacking noxious weeds, timber, and linen flax, also animal pests. Many grubs and larvae of insects received have been bred through to the adult stage. All available information upon these has been supplied, together with advice regarding control measures or prevention.

Of the insects received, some are of special interest. *Coleophora spissicornis*, a small introduced moth is appearing as a likely pest of white clover. Last year the larvae appeared in large numbers on some clover crops in Hastings and North Auckland. It has been recorded as damaging clover in Denmark. *Aphodius tasmaniae*, a beetle, was evidently prevalent in Spotswood, North Canterbury, recently. This beetle occurs periodically in Canterbury, but it is of interest since it is a pasture pest in certain localities in South Australia. *Phaulacridium marginale*, a grasshopper, occurred in large numbers this summer in Mid-Canterbury and severely damaged turnip and rape crops. Last autumn *Cirphis unipuncta*, an army-worm, did considerable damage to maize areas in Hawke's Bay. Two stored product beetles, *Necrobia ruficeps* and *Silvanus surinamensis*, were heavily infesting a shipment of imported copra. A weevil was received from the Niue Islands and its host was bananas. It is of interest to note that cutworms have been recorded as attacking linen flax and hemp.

Two generations of a native species of Noctuid, *Leucania nullifera*, have been reared to maturity during the year. Its life-cycle is of interest, and also the fact that, although it normally feeds on a native plant, it readily attacks carrots, the large caterpillar living in the root.

A great deal of time has been spent during the year indexing lantern slides, photographic plates, also drawing up a list with information upon the economic insect pests in this country.

(2) *PLUTELLA MACULIPENNIS* (DIAMOND-BACK MOTH).

Two important parasites of the moth are now well established. These are *Angitia cerophaga* and *Diadromus collaris*.

Angitia cerophaga.—This parasite attacks the moth in the larval stage. It is now established in the Hawke's Bay, Manawatu, and Wairarapa districts in the North Island, and occurs from Nelson to south of Oamaru in the South Island, and will no doubt be found in Central Otago, where supplies were bred and liberated during the season.

This parasite was bred in large numbers during the first half of the season, but it was later decided to curtail this work temporarily, due to the activities of a hyperparasite, *Eupteromalus* sp. Although the hyperparasite reduces the efficiency of *Angitia* under laboratory conditions there is no reason to suppose that its activities will seriously interfere with the parasite in the field. All the material of *Angitia* bred for distribution was, with the exception of one consignment, sent to Alexandra. The following are the numbers of parasites sent out:—

District.	Pupae.	Adults.	Dates of Liberation.
Alexandra	7,800	300	26/9/40 to 28/12/40
Auckland	2,400	..	26/9/40 to 25/10/40
	10,200	300	26/9/40 to 18/12/40

During the season, supplies of a form of *Angitia cerophaga* from Canada were received. Although this strain was successfully bred for several generations it finally weakened and has now died out.