ENTOMOLOGICAL.

SOME USEFUL INSECTS.

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COCCINELLA TASMANII.

THIS beetle may be called here the 'Yellow-spotted Ladybird.' Although many similarly marked species occur in other parts of the world, the name now proposed is not likely to cause confusion within the colony itself. It has been known to me for thirty years, but, until lately, two or three specimens were all that could be secured during a day's collecting in the bush, and these were usually found under logs and stones. Now, however, luckily for farmers and gardeners, it seems to have abandoned its former retiring habits, and promises to become better and more widely known as a friendly insect.

DESCRIPTION OF THE PERFECT BEETLE.

Size, about ¼ part of an inch; of almost quite rounded outline, convex, glossy; colour black, ornamented with eighteen, more or less angular, yellow spots; two of these are

Ladybirds, Chrysalis, Egg, and Grub. Natural size and magnified.

situated between the eyes, there is one at each front angle of the thorax, and there are fourteen on the hind-body, or elytra. The yellow marks on the hind-body are so arranged as to form three transverse series, four in each; the two remaining spots are near the apex. The eggs are deposited the day after the sexes unite.

EGGS.

The eggs are about 1·24th of an inch in length, rather more elongate than oval. At first they are clear yellow, but later on they become greyish and the dark immature larvæ may be seen inside. The numbers laid by the females vary. In one instance nine were deposited during confinement in a glass-top box. These hatched in six days, and the young larvæ began to feed on some of the American woolly blight with which I supplied them. The eggs are attached endways to a leaf or twig.

LARVA.

Larva very active; from ⅛ to ¼ of an inch in length according to age and development; greatest breadth 1-10th inch. The twelve segments, exclusive of the head, distinctly marked off, transversely convex and uneven; of a dull sooty colour; the head and legs, however, are generally shining black. The following yellow marks are apparent:—one near each side of the first segment, two on the fourth, and four on the seventh. Sometimes there is one on each side of the third. All these yellow spots are more or less elevated and irregular. The terminal segment is narrow; the third and fourth are the widest.

Some of the larvæ, but not all, moult once, the cast off skin being secured to a leaf, or to the side of the box in which they are confined. One fully matured larva under observation attached its hind end to the side of the box, and in half an hour burst through its skin and emerged as a pupa.

PUPA.

The pupa when it has forced its way through the front of the larval envelope is then all yellow, the larval marks being of a more vivid yellow. In about an hour it becomes blackish with the yellow spots present in the larval stage; the old skin adheres to the original place, but shrivels to 1-5th of the former length, and the end of the pupa remains within it. On the tenth or twelfth day the perfect beetle emerges from the puparium, so that in rather less than a month the insect has undergone all its metamorphoses.

HABITS.

This native ladybird has become very valuable to farmers and gardeners by preying upon the aphis pests that would otherwise destroy their crops of cucumbers, melons, etc. I have seen it at work at Port Albert, Tauranga, Ohaupo, and other places. To the orchardist also it will be useful, as, when studying its life history, I reared specimens of the beetle and larvæ from the egg upwards, entirely on the 'woolly blight' of the apple, and Mr G. Edgecumbe, of Hamilton, informed me that he had seen it on some apple trees in his orchard doing the same useful work.

COCCINELLA 11-PUNCTATA.

This European beetle is popularly known as the 'Eleven spotted ladybird.' We do not know how or when it was introduced. All I can say is that I received specimens from Otago about sixteen years ago, and Mr Colenso, of Napier, who described it as a new species (*Coccinella novæ Zealandiæ*) in volume XX 'Transactions New Zealand Institute,' p. 40, stated that it had long been known to him, but that he had noticed only about a dozen in the course of fifty years.

DESCRIPTION OF PERFECT LADYBIRD.

Nearly quite oval, about 1 6th inch in length by 1·10th inch in breadth; the male rather smaller than the other sex. The head is black, with two pale yellow dots. The thorax also is black, with a large irregularly-formed yellow spot near each front angle. The hind-body or elytra, is red or orange-coloured, and bears eleven black spots, one of which, at the middle of the base, seems duplicate. The underside, legs, and antennæ are almost wholly black. The female usually deposits the ova on the day following the union of the sexes.

EGGS.

The eggs are clear yellow, elongate oval, about the 1·24th of an inch in length. Each female lays about twenty-four eggs, generally in clusters of eleven and thirteen, attached endways to a leaf or twig. On the third or fourth day the young larvæ come forth and begin feeding.

LARVA.

First stage, elongate, tapering towards both extremities, with six footless legs, each of which is provided with a claw-like appendage; body sub-depressed, 1·24th inch long, colour smoky brown, with numerous darker raised specks and many erect pale hairs.

Second stage—full grown, 1-3rd of an inch long and about 1 10th broad, appearing nearly flat, but with the segments transversely convex. Head shining, half the width of the following segment. Body variegate, of a dark slate or brown colour. On the fifth and eighth segments (reckoning the head as the first) there are four pale or reddish marks; on the third and fourth there are two large transverse dark spaces; on segments 6, 7, 9, 10, 11, and 12 there are four raised dark spots bearing upright hairs. Two similar spots appear near the middle of the fifth and eighth. The sides of segments 2 to 10 are almost similarly marked and prominent; the apical (thirteenth) segment is only half the breadth of the preceding one. Legs moderately stout, without feet, terminating with small claws. The larva is full grown in about a fortnight.

PUPA.

Puparium about one-sixth of an inch in length by one-tenth in breadth, sub-oblong, curvate above, its hinder portion enveloped in the larval skin, which is firmly attached to a leaf or branch; colour, tawny and brown, the latter hue forming many large, irregular spots. It passes about a week in the inactive pupal stage.

The beetle, just after it quits the pupal envelope, is often quite yellow and unspotted above, and then the head, thorax, and legs, as well as a row of large spots along the sides of the abdomen, are blackish. The insect goes through all the different stages of its existence within a month.

HABITS.

This beetle is a very valuable importation. It has the power of reproducing itself rapidly, and is the inveterate enemy of aphis pests. On one occasion, whilst studying its life history, I visited a large nursery garden in which were thousands of young orange and lemon trees, all of which were badly infested with the black aphis, and appeared sick and unsightly. On visiting the place a few weeks afterwards the trees presented a totally different aspect. They were clean and healthy, free from the aphis pest, and looked beautiful. The change had been chiefly affected by this ladybird. There were also, it is true, some larvæ of syrphus flies at work, but these were not numerous enough to make much impression on the aphis multitude. The ladybird also destroys what gardeners call the green fly, the aphides on the plum, the cauliflower, the rose, chrysanthemum, and the stock, and gardeners are aware that they would seldom succeed in growing carrot seed without the aid of this friendly beetle. It has also been observed attacking the woolly aphis of the apple. The above is a pretty good record for one insect, so good indeed that one might suppose that all farmers, fruitgrowers, and gardeners would study the descriptions of its different stages, so that they might recognise their little friend. This step is necessary, as in more than one instance I have caught people in the act of destroying the larvæ in the belief that they were dealing with a new pest.