

At the close, Professor Prince proposed a vote of thanks appreciatory of the treat Dr. Hjort's lecture afforded, and he expressed the hope that Dr. Hjort would be able to continue his work in Canada for another year. Dr. C. Gordon Hewitt seconded the motion and pointed out that an illimitable market for fish food would arise as a consequence of the present war, and Canada should prepare to supply the vast demand that would arise. Professor Macallum, of Toronto, added a few words of commendation, and the President (Mr. Arthur Gibson), in putting the motion added his own appreciation of Dr. Hjort's valuable address. The stereopticon, it may be added, was skilfully operated by Mr. J. S. Harterre.

E. E. P.

NOTES ON THE PREPARATORY STAGES OF
PROSERPINUS FLAVOFASCIATA ULALUME STRH.*

BY ARTHUR GIBSON.

In 1905, eggs of this sphingid moth were received from Mr. J. W. Cockle, of Kaslo, B.C. Oviposition took place at Kaslo, on May 30, and the eggs hatched at Ottawa, on June 12. In 1904, Dr. Dyar published† descriptions of the egg and the five larval stages. My notes agree on the whole with such descriptions, but as further information is given on certain points, it seems excusable to present them in their entirety. They are as follows:

Egg.—Elliptical in shape, size 1.2 mm. by 1 mm. by 1 mm.; pale green, shining, smooth; length of egg state as above indicated 12 days. In 1910, a female of *ulalume* was received from Agassiz, B.C. During the journey to Ottawa, seven eggs were laid. These hatched on May 25, but unfortunately the larvæ died soon afterwards.

Stage I.—Length at first 4 mm. Head pale greenish, mandibles brownish. Body pale greenish, cylindrical, plump; segments of body wrinkled (8 wrinkles); no markings on body. Caudal horn 0.5 mm. long, pale at base, darkened towards and at tip. Feet concolorous with body.

Most of the specimens moulted on June 16 and 17.

Stage II.—Length 8 mm. Head slightly bilobed, with a yellowish tinge; ocelli black. Whole body washed with white, giving the larva a glaucous-green appearance. Dorsal vessel showing down the centre of the dorsum as a narrow dark line, from the head to the base of the horn. Subdorsal stripe white,

*Contribution from the Entomological Branch, Department of Agriculture, Ottawa.

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conspicuous, narrowly margined above with yellowish-green. Horn black, like body washed with white. Spiracles very small, dark, in a pale ring. Thoracic feet and proleg concolorous with body.

Three specimens moulted the second time on June 19.

Stage III.—Length 17 mm. Head rounded, slightly bilobed. Whole body pruinose, as though powdered with flour. Dorsal vessel inconspicuous. Subdorsal stripe white, broadly margined above with clear green. Caudal horn nearly 2 mm. in length, black, reddish at base, lined with black in front. Spiracles pale yellowish, inconspicuous. Feet concolorous with head.

Two specimens passed third moult on June 21.

Stage IV.—Length 23 mm. Almost the same as Stage III. Head 2.5 mm. wide. Body pale green thickly dotted with white, pruinose as before—a bluish-glaucous shade. Dorsal vessel hardly distinguishable. Subdorsal stripe clear white bordered above with dark green, almost as wide as the white stripe. Caudal horn 3 mm. long from front edge to tip, very wide at base, the upper half black, the lower half about equally divided in colours, yellowish-white at the base and above ringed with orange; ornamented in front with a black rather oval-shaped spot, the whole base of horn being broadly ringed with black. On segments 5 to 13 inclusive is a medio-ventral series of dark gray, almost black, elongated blotches, one in the middle of each segment. Spiracles yellow, very narrowly ringed with black. Feet paler than body.

Larvæ moulted for the fourth time on June 27 and 28.

Stage V.—Length 33 mm. Head 3.8 mm. wide, rounded, slightly bilobed, blackish-brown, clypeus rather paler; mouth parts pale yellowish-white. Body blackish-brown, bearing innumerable small black dots, particularly on sides and dorsum. A series of much larger subdorsal spots are also present on segments 3 to 11 inclusive. Midway between these latter spots and the spiracles is a rather indistinct, broken, black band more apparent on the middle and posterior segments. A rather inconspicuous dorsal stripe is also present. Spiracles bright and conspicuous, yellow-ochre rimmed with black. Caudal horn much reduced, now being a blunt wart-like elevation about 0.5 mm. high posteriorly, shining black in colour, the base bordered with a bright ring of yellow and a wider ring of velvety black. Thoracic feet and claspers of prolegs pale greenish.

One larva in this stage which moulted at 10 a. m. was green rather densely dotted with black. The dorsal vessel was almost obscure, but the subdorsal band was wide, even, and very distinct. The head was green washed with black. By noon, however, the specimen was blackish-brown.



Gibson, Arthur. 1915. "Notes on the Preparatory Stages of Proserpinus flavofasciata ulalume Strh." *The Ottawa naturalist* 28(10), 143–144.

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