

THE LIFE HISTORY OF *ADELOCEPHALA QUADRILINEATA* (SATURNIIDÆ)

by RICHARD HEITZMAN

During a collecting trip in June 1960 WILLIAM HOWE mentioned taking several fine specimens of *Adelocephala quadrilineata* Grote & Robinson. He remarked that as far as he knew the life history was unrecorded. I asked him to save the next female caught, and if eggs could be obtained I would try to rear the larvæ.

On 18 June a female was taken at black light in Ottawa, Kansas. She was placed in a large shoe box, and between June 19-22 almost 50 eggs were laid. On 26 June I received the eggs, and the following results are herewith recorded.

I thought that some species of locust would be the best bet as a food plant. Honey Locust (*Gleditsia triacanthos*) was readily accepted. A number of other trees and shrubs were offered, including Rose-Acacia (*Robinia hispida*), but all were refused. All larvæ left on any other plant than Honey Locust died within 24 hours.

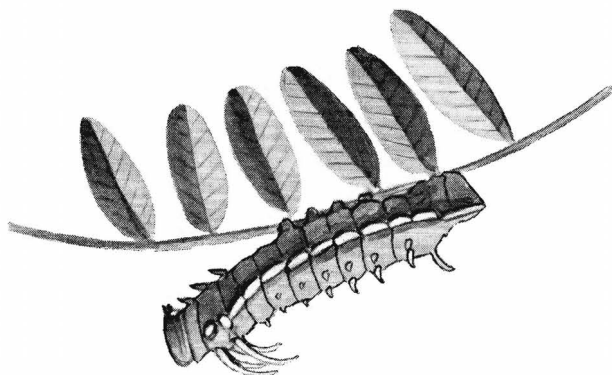
Detailed descriptions were made of the larvæ in each instar and these follow. Descriptions are taken from five larvæ taken from the group and raised separately for closer observation.

Egg: Bright green and rather flat in appearance. 1.6 mm. wide 1 mm. high. Eggs were laid singly or in clusters. In one case five eggs were laid on top of each other.

1st instar (June 27-29): The emerging larva eats from one fourth to nearly all of the eggshell. The body color is pale yellow. Small bristles cover the body. There is a brown spiny caudal horn tilted forward and four pairs of tubercles that arise subdorsally from the second and third thoracic segments. These are quite spiny and very long, at least half the length of the body; when at rest they are held together and pointed forward over the head. When touched the larva spreads all the horns wide apart and thrashes the body from side to side. After two days of feeding the body becomes a medium green in color with a narrow white substigmatal line traversing the sides of the body from the base of the outer tubercles on the third thoracic segment to the tip of the upper edge of the anal plate. The larva in this instar spins a strong silken thread as it moves around, and several of the larvæ were found hanging an inch or two below the food plant on this thread.

2nd instar (July 2-3): The body is medium green. The caudal horn is spiny, a medium brown color, tilted forward. The eight thoracic horns are still long compared to the body. They are medium brown with dark brown knobs, the entire tubercle very spiny. The white substigmatal side line is very prominent. The head is medium green with a lighter green and brown stripe vertically on each side of the head, the mandibles brown, and the thoracic legs brown.

3rd instar (July 9-11): The body is bright apple green. The caudal horn is spiny, tilted forward, and reddish brown in color. The thoracic horns are very thin and spiny, tan in color. The substigmatal side line is now light yellow in color, offset



dorsally at each abdominal segment. The thoracic segments between horns and the abdominal segments above the substigmatal lines are covered with tiny yellow warts. On the fourth and sixth abdominal segments are four flat horn-like protuberances, two on each side one below the other, pointing upward and slightly forward, and pearl colored. The head is dull green with vertical side stripes greenish white, the mandibles, thoracic legs and lower part of the prolegs light brown.

4th instar (July 17-19): The thoracic segments, anal prolegs, and abdominal segments above the substigmatal side lines are bright apple green, and the abdomen is dull grayish green. The head is dull grayish green with the vertical stripes grayish white, and the mandibles light brown. The thoracic horns now curve backward, and are green at the base and tips and reddish brown in the center. The caudal horn is reddish brown, green at the base, curving backwards. The substigmatal side lines are yellow with brown upper edges; they protrude as they cross a segment and are sharply indented at each intersegmental fold. Abdominal segments 2 through 8 each have four flat horn-like appendages, two on each side rising one above the other, the lower ones rising just above the substigmatal side lines; they are glistening pearl-colored outwardly and coral red inwardly. On some larvæ these flat protuberances are present only on the fourth and sixth segments, the other segments having only a raised yellow area with two tiny points. The first thoracic segment is ringed dorsally from spiracle to spiracle with a row of larger yellow warts. The thoracic and prolegs are gray green. The entire body is speckled with tiny yellow and white warts. As pupation time approaches the larva turns a dull reddish on the dorsal area of the body and becomes very restless. Full grown larvæ measure from 46 to 51 mm. The larvæ went into the ground from 23 to 26 July. Each larva went about one-half inch into the ground. The larvæ remain in a torpid condition for almost three days before pupation. Just before pupation the body loses almost all color contrast, being now a dull watery green. After pupation the pupæ work back to the surface.

Pupa. Dark reddish brown. 28 - 30 mm. long. Cremaster jet black, 4 mm. long, forked with two sharp points.

The moths emerged from 10 to 20 August, the first ones being males and the last ones females. All specimens are smaller than those that were collected at black light. It is therefore probable that larvæ found in nature will be slightly larger than the above description.

The drawing of the full grown larva which is included with this description was done by WILLIAM HOWE.