

the whole side gray tinged and the borders of the dorsal stripe of clear color outlined by gray touches; a dorsal line of clearer color indicated on the anterior joints; between joints 3 and 4 and between 4 and 5 on the dorsum a yellow transverse stripe that is hid when the larva is at rest; the head is less distinctly marked than at the other stage; the lateral fringe pink tinted. The dorsal stripe is more of a distinct red than the general ground color.

An interesting parasite was bred in this stage from one of these larvae, but at the time of writing it is misplaced so that I can not now say what it is. Its manner of pupation was as follows: When ready to spin its cocoon it burst open the under side of the host so that the skin of the dead *Heteropacha* larva formed a cover for the upper side of the cocoon. The ends of the dead larva were shrunken, but the middle where used as a cover for the cocoon was three times as broad across as the living larva had been. The pupal period of the para-

site was 8 days, from May 20 to May 28.

Last stage—Length, 1.05 inches. Striped with 7 yellow stripes, a dorsal, subdorsal, suprastigmatal, and substigmatal, the first two quite dark almost orange, the other two paler and much narrower. The space between the dorsal and subdorsal black; a white patch between the joints breaks the subdorsal stripe and extends almost to the dorsal. Sides gray. Venter pale yellow, dull, a black patch to each joint. Head black, a short transverse buff streak in front; top of joint 2 black; short hair all over the body but not enough to very much obscure the colors, the hair on the upper part of the body mostly black but that along the sides above the legs gray.

The pupal period of the moth was 15 days, from May 22 to June 6. This was the period of the first one that pupated. Several others were raised but their periods were not noted. They continued to hatch to July 17, some being in the larva state when the first one emerged as an imago.

SMERINTHUS ASTYLUS.—A brood of twenty-four raised this past season, showed some variations from those of last year.

Eggs laid July 29th and 30th.

Hatched—Aug. 8th.

1st moult—Aug 16th.

2nd moult—Aug. 22d.

3rd moult—Aug. 29th.

4th moult—Sept. 5th.

Most stopped eating Sept. 14th, and pupated Sept. 18th to 30th, varying much in length of time required for this change. All these periods were shorter in 1890 than in 1889, except that between 2nd and 3rd moults. But three of the larvae kept on feeding till Oct. 15th—one dying just before that date. There was much greater variation

in color in this brood. Twenty were much more marked with red than those of last year, while four had no red, even on the caudal horn! Three of these four were the three which continued feeding after the others had pupated. Every one lost the "bifid tip" of the caudal horn so that, in the last stage, no one could imagine that it had ever been bifid. *Ida M. Eliot, Caroline G. Soule.*

PROTHORACIC WINGS.—M. Charles Brongniart of Paris has just published in the Bulletin of the Société philomathique two plates representing three insects, differing considerably in structure, found in the rich carboniferous beds of Commentry, France, two of which show, besides fully developed meso-



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