PREPARATORY STAGES OF LAPHYGMA FLAVIMACULATA,
HARV., AND OTHER NOTES.

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Laphygma flavimaculata, Harvey.

Determined by Prof. J. B. Smith. Eggs of this species occurred to me in the Hawaiian Islands at Kaawaloa, Kona, Hawaii and at Honolulu, Oahu.

Egg.—Nearly spherical, flattened at base, densely striated vertically; of a flesh-coloured tint, and covered with gray down; diameter, 0.6 mm. Deposited in a large mass on a grass stem.

First stage.—Head rounded, slightly bilobed, shining black, labrum whitish; width, 0.3 mm. Body small, the feet perfectly normal, the thoracic ones black, the others whitish like the body. Warts arranged much as in *Arctia*, concolorous with the body, inconspicuous, each with a single stiff black hair. Larva walks rapidly, with a slightly geometri-form motion.

Second stage.—Head shining blackish-brown, much paler in front over the clypeus and mouth; width 0.55, mm. Body enlarged at joint 12; bluish green, the tubercles distinct, black, each with a black seta. Dorsal, subdorsal and lateral whitish lines, distinct, even; subventral space whitish, but with no distinct line. Feet normal, all pale, the thoracic ones slightly testaceous. Cervical shield largely shaded with black or brown.

Third stage.—Head dark brown, nearly black, shining; a paler stripe over the ocelli; a few hairs; width, 0.8 mm. Body blackish-green; distinct dorsal, subdorsal and lateral pale green lines, the lateral one narrower than the others. Subventral space and venter pale, defined above by a pale green subventral band, which contrasts with the dark colour of the dorsum, but is only a shade lighter than the venter. Piliferous dots black, distinct, each with a minute black seta.

Fourth stage.—Head entirely black; width, 1.2 mm. Body velvety black, green centrally on the venter, with very narrow, broken, double dorsal, single subdorsal and lateral, and broad, greenish-white subventral lines, the latter not reaching to the last segment. Setæ short, black, the dots no longer distinguishable. Feet pale green, tipped with blackish. Spiracles white. The larva curls spirally when at rest.

Fifth stage.—Head shining black, a little mottled with pale brown on the sides; width, 1.8 mm. Body deep sooty black; the space between

the two narrow dorsal lines is paler, giving the appearance of a broad, pale band with defined edges; subdorsal line triplicate, narrow, faint; lateral line single, more distinct than the others; subventral one not broad, but distinct, yellowish with a green shade centrally. Spiracles white. Venter pale green; feet pale, all tinged with testaceous.

Sixth stage.—Head rounded, shining black, the sutures of clypeus and antennæ white. A pale brown, mottled lateral band. Width, 2.7 mm. Body sooty black to the venter, which is pale whitish, tinged with red, the subventral region less deeply black than the dorsal. On joint 2, a distinct, narrow, white dorsal and subdorsal line, the dorsal absent on the rest of the body. A super-stigmatal, fine, white line, with a series of five very narrow, faint lines above it bluish-white, and broken minutely into dots. Above these two more lines, further apart than the five are from each other, more distinct and continuous. The upper one of these lines joins the subdorsal line on joint 2, but is much narrower than it is. Spiracles white. Subventral line broad, its edges irregular; pale yellow with a central dull greenish or reddish shade. Subventral space mottled with yellowish. Feet pale, greenish outwardly and tipped with reddish. Setæ present, short, dark. As the stage advances, the dorsal line appears, resembling a shining black band against the sooty black ground colour. Subventral space blackish, densely mottled with round, pale spots.

At end of this stage the larvæ enter ground.

Pupa.—Of normal shape; cremaster of two separate, rather distinct, slender points, directed backward. Colour uniformly light brown. Length, 13 mm.; width, 4 mm.

Food plants.—Grasses.

Teniocampa pacifica, Harvey.

Four stages observed (full number, six?) with the following widths of head:—1.1 mm., 1.5 mm., 2.[2] mm., 3.2 mm.

Mature larva.—Head whitish-green with a few black piliferous dots. Body enlarged at joint 12; feet normal in all the stages observed. Body green, speckled with white; piliferous dots small, black. Narrow dorsal, faint subdorsal, stigmatal and faint subventral white lines, the upper two connected on joint 12 by a broad white band on the hump. The stigmatal line passes on to the anal feet. A white line on anterior edge of cervical shield. Another larva, probably the same, had its head brownish-testaceous, mottled with whitish, clypeus whitish, with a large black shade on each side. Body velvety brown, darker on the anterior portion

on the segments and minutely mottled with pale. A very broad, distinct, white stigmatal line, enclosing the black spiracles and shaded faintly on each segment with pink and yellow, passing very narrowly on to anal foot. On joint 12, on the anterior part of the hump, a dark brown subdorsal shade, defined on its posterior side, diffuse before. There are traces of dorsal, subdorsal and lateral whitish lines. Found on maple and wild cherry.

Larvæ from Yosemite, California.

Forms a firm cell in the ground without silk.

Xylina oregonensis, Harvey.

Head moderately bilobed, smooth, shining green, mottled obscurely with yellowish-green; mouth parts pale, whitish; jaws dark; ocelli brown; width, 3.7 mm. Joint 12 not enlarged; joint 13 small. Lustreless yellowish-green, closely covered with little, short, irregular yellow lines, resembling mottlings. Narrow, broken, almost dotted dorsal, subdorsal and stigmatal lines, the latter passing obscurely on to anal foot. Lines of equal width and much resembling the mottlings. Spiracles small, white with narrow black edge. Piliferous dots distinct, white, each with a single, short, pale seta. Tips of abdominal feet pale. Later in the stage the markings become more distinct, the stigmatal line pale yellow, spotted with red.

Food plant.—Oak (*Quercus Kelloggii*).

Determined by Prof. Smith from two crippled specimens.

Xylomiges perlubens, Grote.

Egg.—Spheroidal, flattened, closely reticulated, the depressions between forming vertical rows, at the micropyle forming a radiating circular row of smaller cells. There are about 40 rows around the egg. Colour, sordid, pearly white, not shining; diameter 0.7 mm. Laid in a mass, two layers deep, on the back of a leaf.

First stage.—Head pale testaceous, shining; mouth brownish, eyes black; width, 0.3 mm. Body pale whitish, subtranslucent, with large black piliferous dots. Only the last three pairs of abdominal feet are distinct, and the larvæ "loop" about very actively.

Second stage.—Head pale whitish testaceous, densely spotted with black; mouth brown; width, 0.5 mm. Body pale, soft green, joint 12 enlarged, the two anterior pair of abdominal feet smaller than the rest. Piliferous dots large, black. A broad, evident, white stigmatal line, besides narrower dorsal, subdorsal and lateral ones. Setæ black.

Third stage.—Head pale white, with large, black, piliferous spots; width, about 0.9 mm. Body blackish green. Lines white, the stigmatal a little greenish centrally. Piliferous spots large, black, faintly encircled with white.

Fourth stage.—As before. Width of head, 1.2-1.4 mm. A broad, dull red band appears in the centre of the stigmatal band.

Fifth stage.—Head shining pale whitish, reticulated with brown, and bearing a number of large, black piliferous spots; ocelli black; a blackish streak at vertex of each lobe; width 1.9 mm. Body dull green, heavily mottled with black, especially at the sides, where it is nearly entirely velvety black. Dorsal and subdorsal lines narrow, white; stigmatal line sordid reddish, bordered above and below by white. Piliferous dots black, with white centres. Feet pale.

Sixth stage.—Head pale whitish, with a tinge of green, a patch of brown reticulations on each lobe, bordered above and below by a broad, dark brown streak; a number of large, black piliferous dots; width 2.8 mm. Body enlarged slightly at joint 12, feet normal, joint 13 divided by a distinct suture. Colour blackish-green, consisting of black reticulations on a greenish ground. A narrow, black-edged, white dorsal line, interrupted by a series of black intersegmental shades, double on joint 12; a reddish tinge subdorsally; a narrow, black-edged, white subdorsal line; a broad, black, lateral shade; a broad, dull red stigmatal band, bordered with white. Venter paler, mottled with brown. Piliferous dots white, the subventral ones black. Feet pale. Setæ pale, about 1 mm. long. Spiracles white, with a narrow black edge.

Seventh stage.—As before, but the piliferous dots smaller, and the green colour is nearly all replaced by a pale brown.

Cocoon.—A cell in the ground with compact hardened walls, without any web.

Pupa.—Cylindrical, abdomen slightly enlarged centrally, cases moderately prominent; a slight depression between thorax and abdomen. Cremaster very short, consisting of two fused spines, separated at their tips, and two others outside of, but in line with these. Colour light brownish-yellow, unicolorous, but darker in the abdominal sutures. Length of pupa, 14 mm.; width, 5.5 mm.

Food plant.—Wild gooseberry (*Ribes*).

Prof. Smith has kindly determined the moth from some imperfect, undeveloped specimens.

TWO MORE OF WALKER'S "BOMBYCIDS."

Col. Chas. Swinhoe, of Oxford, has very kindly employed an artist to draw figures of *Heterocampa thyatiroides*, Wlk., and *Cingilia humeralis*, Wlk., for me. The latter is a synonym of *Caterva catenaria*, Cram., though I presume that the genus *Cingilia* (Trans. Ent. Soc., Lond. (3), i., 76, 1862,) antedates *Caterva* (new check list, 1882), and this geometrid must be called *Cingilia catenaria*. It stands in the Liparidæ in Kirby's catalogue. The other name antedates its synonyms, and we have :—

DASYLOPHIA THYATIROIDES, Walker.

1862—Walker, Trans. Ent. Soc., Lond., (3), i., 79.

interna, Packard.

1864—Packard, Proc. Ent. Soc., Phil., iii., 363.

tripartita, Walker.

1865—Walker, Cat. Brit. Mus., xxxii., 419.

signata, Walker.

1865—Walker, Cat. Brit. Mus., xxxiii., 758.

THREE NEW WEST AFRICAN MOTHS.

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Syntomis hilda, n. sp.

♂.—Antennæ, head and thorax black ; first and fifth segments of the abdomen white, the rest metallic green ; primaries dark brown with three ovate vitreous spots on the sub-apical area ; discal space has two large triangular vitreous spots, the largest being near the inner margin.

Secondaries dark brown, with two small elongate vitreous spots near the base and one small round spot of the same colour in the discoidal area. Underside the brown is a little lighter than above, otherwise it is the same.

♀.—Similar to the male, except that the antennæ are tipped with buff, and the fifth segment of the abdomen is not white, thus leaving the whole abdomen metallic green except the first segment, which is white on the upperside ; the vitreous spots in the wings are the same as in the male, but much larger.

Underside same as above, except that there is a large white spot on each side of the thorax, and the first two segments of the abdomen are creamy white ; legs in both sexes are dark shining brown. Exp. of ♂, 14 mm. ; ♀, 16 mm.

One male and three females in my collection. This lovely species was first taken by Mrs. Hilda Nasmyth at Cape Palmas, Liberia, West Africa, and I esteem it an honour to name it after her.