

DESCRIPTION OF THE PREPARATORY STAGES OF THECLA HENRICI, GROTE.

By W. H. EDWARDS.

EGG.—Shaped like that of *Lycæna Pseudargiolus*, and marked very much in the same manner; the top flattened, and at micropyle depressed: about this last are three concentric rows of minute spaces, rhomboidal to irregularly pentagonal; the remainder of the surface is covered with a frosted net work, the meshes of which are triangular, and from each angle rises a low rounded knob: color whitish-green; this lace work seems to be separable, and in one case where the egg had been rubbed by a leaf, apparently, a film was turned up, and the real surface was seen to be delicate green. Duration of this stage, 5 or 6 days.

YOUNG LARVA.—Length, 4-100 inch; shape, oval; broadest anteriorly, the base flattened; dorsum high and sloping posteriorly; the summit of dorsum flattened for a little space, and on either side there is a row of long recurved white hairs; along edge of base is another row of similar hairs, bent down; color brownish-yellow; head obovoid, and smooth. Duration of this stage, 5 days.

AFTER 1ST MOULT.—Length, 8-100 inch; same shape; segments rounded, but on dorsum rather angular; a red-brown medio-dorsal stripe stopping at 12; on either side of this dull yellow-green, with a macular brown line next outer edge, and limiting the dorsal area; sides sloping, a little incurved, red-brown, with a broken yellowish line; a similar but continuous line along basal ridge; whole underside yellow-green; body much covered on upper side with short, stiff, brown hairs; head cordate, smooth, yellow-green. To next moult between 3 and 4 days.

AFTER SECOND MOULT.—Length, 12-100 inch; shape as before; the dorsum is considerably elevated, a tuberculous ridge across each segment, from 4 to 11; color red-brown and dull yellow-green; a red medio-dorsal band, tapering to a point posteriorly; through the band runs a green line; outside this band is a green one, containing a little red-brown space on each segment; sides red-brown, with a green longitudinal line in middle; basal ridge green. To next moult, 5 days.

AFTER THIRD MOULT.—Length, 3-10 inch; greatest breadth 12-100 inch; the dorsum from 4 to 11 presents a series of elevated ridges, one to each segment, narrow in front, broad behind; the summit of dorsum flattened and a little concave, and covered by a broad band, which is cut by a paler line; the remainder of the elevated ridges yellow-green, making two sub-dorsal macular green bands; sides sloping, nearly flat, red-brown, with an indistinct green line; segment 2 is a broad, elevated rolled collar, in which the head is concealed; 3 has a similar collar in front; basal ridge green, head yellow-green.

One day later, length 4-10 inch: the color has changed to port-

wine-red, the sub-dorsal area remained yellow-green, but was red-tinted on the posterior part of each segment; the sides same red; green; a pale red line along basal ridge; about the spiracle a little under side diluted wine color; body covered with short brown hair.

One day later, 5-10 inch; greatest breadth, 19-100; width, 14-100; same color as on previous day.

Next day, length 56-100, same color, stopped feeding, and 4 days later fixed for chrysalis. In about 24 hours pupated, at 8 days after 3d moult (as observed).

CHRYSALIS.—Length, 3-10 in.; breadth of abdomen, 2-10, at mesonotum 13-100; height of abdomen 19-100 inch; oval at both ends; the abdomen distended, narrowing anteriorly; the mesonotum rounded and sloping to top of head case; the under side almost straight from end to end; color black or brown black, with obscure red bands; there being on either side a narrow black stripe in middle of abdomen; on mesonotum this stripe disappears and the red remains; whole surface finely corrugated; the dorsum and sides much covered with short hairs, and along the venter is a line of longer ones. The chrysalis will pass the winter.

On 17th of May, 1880, I happened to be standing under a wild plum tree near my house, and with no special motive reached out my hand and plucked a young plum. On this there appeared an onisciform caterpillar with head and some segments of body buried in the side. Feeling sure it was of some butterfly, I searched long for more larvæ, but found none. I did see one of the plums on another tree which had been partly excavated. This caterpillar was in the penultimate stage, as it turned out, and I raised it to chrysalis, always feeding on the inner part of the plum. The chrysalis died during the winter, and before any color came to the wings of the pupa, so that I had no clue whatever to the species or even the genus. I hoped it might prove to be *Feniseca Tarquinius*, but thought it was a *Thecla*; it might be *T. Poas*, rather a common species here, and the food plant of which I had tried in vain to discover.

About middle of April, 1881, Mr. T. L. Mead visited me, and on several days brought in examples of *Thecla Henrici*, and confined some of the females on whortleberry and oak, the former suggested by Scudder's list of food plants, published in *Am. Nat.*, 1869, but got no eggs. On opening one of these females the eggs were found fully formed. Finally it occurred to me to try wild plum, and the bag was tied over the end of a branch still in flower. No eggs were observed till the fourth day, when I found fifteen had been laid in a bunch, all but one at the base of a flower stalk, on the upper side. Although watching these carefully, the branch having been cut off and set in a bottle of water, they hatched when I was not at home, and all but six of the caterpillars were lost by dropping off. The egg shells were eaten scarcely more than enough to permit egress. To prevent further

loss I laid the young caterpillars on the floor of a tin box among some plums, and they soon found the stalks and climbed up. The plums were but just from the blossom and tender enough for so minute a caterpillar. Evidently the eggs are laid just at the right season for the caterpillars to seize the newly-formed plums. A little too early or a little too late might be fatal. So also the eggs are laid at just the right spot, on the bark at base of the stalk, and instinctively the little creatures ascend to their food. They grow with the plums, and when the caterpillars are matured the plums are of large size. The attack was made at once on the side of the plum and a hole was eaten out large enough for the head to enter, and thereafter the caterpillar spent most of its time with head in the cavity. I brought fresh plums as often as the old ones wilted, and transferred the caterpillars to them, but from one cause or other, probably from feeding in this artificial manner, all died excepting one. When a moult approached it came out of its burrow and rested either on the side of the plum or on the leaf. At one-quarter inch long, *i. e.*, when half grown, it seemed to have its head and shoulders buried at least from 6 A. M. one day till 9 P. M. the next, with no withdrawal observed by me, and I looked at it frequently. Cutting open the plum the excavation would be found reaching quite across and around the pulpy stone, which in the earlier larval stages was not eaten. But after 3d moult this was eaten and the entire plum excavated. In no case was the skin eaten except at the entrance. I placed damson plums in the box, but the wild ones were always preferred.

I am confident that the caterpillar of 1880, before spoken of, was of this species, although the color differed greatly. That was wholly green, in shades, except for two subdorsal brown stripes. The caterpillar of 1881 was port wine-red. But they were of same size, same shape, and the habits were precisely alike. In *Lycæna Violacea* some of the caterpillars are nearly white, some are green, and some are wine-red. Perhaps hereafter on raising a brood of the caterpillars of *Henrici* both red and green ones will be found.

The caterpillar of 1880 is described thus:

MATURE.—Length 5-10 inch; shape as of *Henrici*, color yellow-green, yellow predominating on the sides; the dorsal elevations have the summits yellow, the outsides greenish; the medio-dorsal stripe green, edged on either side by a brown line.

NOTE.—In my Catalogue, 1877, I gave *Henrici* as a marked variety of *T. Irus*. I am inclined to regard the two as distinct species, though nearly allied. Both are found here, and at the time Mr. Mead confined females of *Henrici* over whortleberry and oak, he treated *Irus* in same manner. Also, afterwards, I tried these over plums, but in no case were eggs obtained. Fresh specimens of *Henrici* are of a delicate yellow-green color beneath, and this fades somewhat soon after death.

NEW MOTHS FROM ARIZONA, WITH REMARKS ON CATOCALA AND HELIOTHIS.

BY A. R. GROTE.

The following moths, collected at Tucson, are in the collection of Mr. Berthold Neumoegen. We do not know enough, as yet, of the lepidopterous fauna of Arizona to decide upon its character. There are found within its limits Southern species which we have also from Texas; Western, from Illinois to Colorado; while it offers a number of strange beauties of its own. It will be one of the richest fields for the collector for sometime to come.

In what I have written here as to the conduct of Mr. Hulst, and Mr. Strecker, I have tried to speak for the good name of our science, no less than to vindicate names proposed by myself and insure a correct synonymy.

AMERIA UNICOLOR. Robinson.

Also from Texas. The genus may be referred to the Lithosians, and seems to fall in between *Euphanessa* and *Crocota*. The wing structure is like *Euphanessa*; the color is that of *Crocota*. The ocelli are wanting. I have regarded *Crocota* as belonging to the Arctians, and, in my arrangement, inaugurating that subfamily, the ocelli are present. This species of *Ameria* is frail, unicolorously orange, the wings partially transparent, or subdiaphanous; the antennæ are blackish.

The specimen is from Prescott, as also *Cymatophora Pulmonaria*, and *Grotella Sexseriata*, described in this paper. The others are generally from Tucson.

CHARADARA PALATA. Grote.

♀. The female of this species has the hind wings gray, not white, as in the male type from Colorado.

APATELA EDOLATA. n. s.

♂ ♀. Allied to *Xyliniformis*, but much larger, and darker, shaded with black. Hind wings white, veins a little soiled in the female. Forewings with a white, vivid, acutely dentate, t. p. line, as in its ally. Below the median vein, the wing is shaded from the base outward, longitudinally, diffusely with black, and again from opposite the disc to outer margin. *Expanse*, 38 to 40 mil.

In this form the blackish thorax and primaries are very different from *Perdita*, *Persuasa* and *Afflicta*. The species belongs to another group.

AGROTIS TEXANA. Grote, Proc. Ent. Soc., Phil., 2, Pl. 6, fig. 2.

A specimen from Arizona belongs evidently to this species, though it is less strongly marked than my figure. The forewings are yellowish brown, the hind wings whitish. The size is about that of *Pastoralis*. Whether this is the same as the



Edwards, William H. 1881. "Description of the preparatory stages of *Thecla henrici*, Grote." *Papilio* 1(9), 150–153.

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