

variation which occurs in some species of Coccinellidæ and stated that in this family many species have the power of varying from the spotted to the unspotted form and to the melanic form, citing as an example species of *Hippodamia* and other allied genera. Many of the forms are considered good species by some of our writers on this family. Mr. Knab remarked upon the effect of temperature on the coloration of different forms and said that in Europe experiments have been made to show that the melanic form can be produced at will by subjecting pupæ to both extremes of temperature. He mentioned the fact that the melanic form of *Adalia bipunctata* always occurs in the fall. Prof. Piper spoke of the extensive breeding experiments carried on at Leland Stanford University by Prof. Kellogg. Mr. Ulke spoke on the variability of *Hyperaspis* and *Exochomus*. Mr. Schwarz stated that he believed all species of these genera are spotted and that the uniformly black ones are all variations. Mr. Webster noted the fact that some metallic green insects remain their natural color if dropped in potassium cyanide while the same species placed in alcohol would turn blue.

—Mr. Titus exhibited larvæ and adults of a sawfly (*Taxonus nigrosoma*). One of these larvæ was found by Mr. Couden in an apple purchased in Washington. It had made a short channel in one end and had evidently chosen this as a convenient place in which to hibernate. This species has been reared by Dr. Dyar from *Rumex* and *Polygonum* and by Mr. Titus from sugar beet. The habit of pupating in apples has also been reported by Dr. Fletcher in Canada.

—Mr. Barber exhibited specimens of a curious larva, with slides and photographs, and presented the following note:

ILLUSTRATIONS OF AN UNDETERMINED COLEOPTEROUS
LARVA.

BY H. S. BARBER.

On May 12, 1903, during a few hours collecting at Hesperia, Cal., under the dry bark of a dead tree-yucca (*Yucca arborescens*) the writer found a colony of queer larvæ which puzzled him greatly. They were placed in a small tin box with some

of the bark and débris which was near them and mailed to Washington. But unfortunately no observations were made regarding their natural food. The specimens were placed in a breeding-jar with part of the root of a small yucca cultivated in the grounds of the Department of Agriculture, and attempts were made to feed them, but without success. One by one they died till but one, the largest, was left. This one finally died in July, 1905, having been alive, in captivity, and without feeding, for twenty-six months, during which time probably two skins were cast, though no record was kept. The heads of the cast skins could not be found.

The larvæ are extremely slow in their movements, lying with the fringe surrounding their bodies closely appressed to the uneven surface of whatever they may be placed on, the tail extended, but if disturbed the head is slightly raised, and the tail bent forward over the back. This is the position in which most of them died.

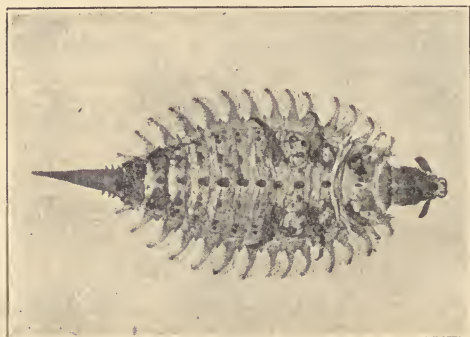


FIG. 11.—Undetermined coleopterous larva (enlarged about $5\frac{1}{2}$ diameters).

Slides were made from some of the dead specimens and the accompanying photomicrographs were taken from them.

No one has, as yet, satisfactorily placed the insect, but to all appearances it is coleopterous, as there are serious objections to its being placed in any other Order. The first opinion of several authorities has referred it to the Endomychidæ, but this has always been withdrawn on further examination and generally no opinion given in its place. In want of a more satisfactory location Mr. Schwarz suggests that it may possibly represent an unknown genus in the subfamily Phengodinae of the Lampyridæ.

The body is very flat, oval in outline, bearing a lateral fringe similar to that of an *Ascalaphus* (as figured by Westwood, *Trans. Ent. Soc. Lond.*, 1888, pl. 1), but more uniform; a dorsal row of tubercles, and a tapering tail, one-fifth as long as the body. The color is a dirty brown above, paler beneath. Length 7 to 10 mm.; width $3\frac{1}{2}$ to $4\frac{3}{4}$ mm.

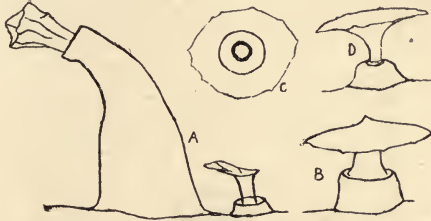


FIG. 12.—Undetermined coleopterous larva: A, lateral spine of tail with small scale-bearing tubercle such as cover tail and head, at base; B, D, side views of mushroom-like scales and tubercles, from body; C, top view of D.



FIG. 13.—Middle leg and fringe of meso- and meta-thorax and first abdominal segment of undetermined coleopterous larva (enlarged about 27 diameters).

The vestiture is so remarkable as to deserve special mention. It consists of hairs modified in a manner unknown to me in any other insect. A very few of the simplest ones are found in unexposed places and appear as simple flat scales, generally truncate, but a few are sharp pointed, set in a shallow pit,

around which the chitin is somewhat thickened. They are better developed wherever the surface of the larvæ is exposed, reaching their extreme development in the lateral fringe, and on the three lateral spines of the tail. For the commoner type—that which covers the greater part of the upper surface of the body—the thickened ring supporting the modified hair is produced into a tubercle in the hollow apex of which is set the hair which broadens out after a short stalk into a flaring funnel- or umbrella-shaped organ, not unlike some fungi.



FIG. 14.—Head and prothorax of undetermined coleopterous larva enlarged about 16 diameters.

Those on the sides of the head point slightly forward and only the forward part of the flaring lip is produced, and the reverse is true of the tail. The three lateral spines of the tail (Fig. 12, A) and the teeth of the lateral fringe (Fig. 13) represent the most exaggerated form of this vestiture—the tubercles being lengthened to about four times their width, and supporting an irregularly fluted, triangular scale.

The head (Fig. 14) tapers anteriorly and is slightly constricted about the middle, with a single ocellus in the constriction on the side just behind the antennæ, which are apparently two-jointed; basal joint very small; second joint extremely large, flattened, concave, smooth, and without vestiture on the under side; its upper surface slightly convex and sparsely studded with coarse, scale-bearing tubercles similar to those on the body.

There is, however, a third joint situated at the apex of joint ii, which is so reduced in size as to be easily overlooked, being only about one-third the length of the scales with which the second joint is clothed.

Labrum small, trapezoidal, widest in front and supporting four regularly placed spines on the front edge. Mandibles simple, sickle-shaped, sharp-pointed, grooved on upper surface. Maxillary palpi four-jointed, second joint very large, terminal joint very small, cylindrical.¹ Maxillæ very small, almost hair-like, about one-fourth as long as palpi, very inconspicuous. Labium small, trapezoidal, bearing two-jointed palpi which project almost as far as the maxillary palpi.

There is nothing extraordinary about the legs, which each bear a single large simple claw, the latter apparently not being articulated with the tibia.

In addition to the median row of dorsal tubercles there are three main lateral rows of chitinized spots on the abdominal segments, which become confused and irregular on the thoracic segments. I am unable to see spiracles on the thoracic segments or the last two segments of the abdomen, but there is a very distinct spiracle near the outer edge of each of the first seven dorsal abdominal segments just in front of the outer chitinized spot.

The last abdominal segment is produced into a conical tail which bears on each side at base three lateral spines each surmounted by a triangular scale (Fig. 12, A). The upper surface of the tail shows a row of about nine tubercles.

Perhaps the most conspicuous characteristic is the lateral fringe which is about one-sixth of the entire width and is composed of fourteen lobes on each side, two on each thoracic segment and one on each abdominal segment except the last. Each lobe consists of a curved central stalk from either side of which arise four to twelve curved processes, the tip of each being truncate and bearing a fluted, triangular scale. These processes are homologous with the tubercles and modified hairs, described above, which cover the whole body.

It is hoped that future observations will solve the mystery connected with this interesting larva.

Mr. Knab presented the following communication:

¹In one of the specimens there is a queer deformity, the second joint giving rise to an extra third and fourth joint on the upper surface.