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## AN AQUATIC NOCTUID LARVA.

*Arzama Melanopyga* Grote, new species.

BY PROF. J. HENRY COMSTOCK, OF CORNELL UNIVERSITY.

During the month of January, 1880, I found the larva of a Noctuid moth very common in the leaf-stalks of pond lily in Lake Beresford, Florida. The larva bores a hole from the upper side of the leaf into the petiole, which it tunnels in some instances to the depth of two feet or more below the surface of the water. The species was very common, a large proportion of the leaves of the lily in that lake being infested. There was, however, but a single larva in each leaf. When full grown the larva measures from 50 mm. to 70 mm. in length, and it is a little more than 5 mm. in diameter. The color of the dorsal surface is dark olive gray, and of the ventral surface pale olive gray; its head is light reddish brown. Some specimens are much lighter in color, being quite transparent. These larvæ are well known to the people living near the lake, who use them for fish bait, and call them "bonnet worms;" the term "bonnet" being applied to the large leaves of the lily.

From larvæ which I collected at that time and sent to Washington, two moths were reared. These were referred to Mr. A. R. Grote, who determined them as an undescribed species of *Arzama*, and kindly prepared a diagnosis of the species under the name of *A. Melanopyga* for publication in my report as Entomologist of the Department of Agriculture. As I was unable, for want of time, to prepare an article on the subject, I did not include Mr. Grote's description in my report. I now, therefore, in justice to him, hastily pen this note, in order to put on record his description, which I have already withheld too long.

I have recently found a larva in considerable numbers in the



leaf stalks of our common yellow pond lily (*Nuphar Advena*) at Ithaca, N. Y., which I believe to be *A. Melanopyga*. These I have now under observation in aquaria in my laboratory. And I hope ere long to be able to give a detailed account of them. I will now briefly record a few of the more interesting points already observed.

The larva is furnished with nine pairs of spiracles, each of which, excepting the ninth, occupies the usual position. The ventro-dorsal diameter of the last segment is much less than that of the remainder of the body, this segment appearing as if the dorsal half had been cut away. The spiracles of the penultimate segment are situated in the dorsal part of the posterior end of the segment; which, on account of the peculiar shape of the last segment, is free. These spiracles are much larger than the others, and are doubtless the ones chiefly used while the larva is in its burrow. The position and direction of these spiracles remind us of the arrangement of the respiratory system in many Dipterous larvæ, which live either in water or masses of decaying matter. Frequently these lily-borers remain with only the caudal tip of the body projecting from the water, evidently using the posterior spiracles as just indicated. They can, however, descend below the surface of the water and remain there a long time. My observations on this point are limited, but I have seen a larva remain entirely under water voluntarily for the space of a half hour. The tracheæ of these larvæ are unusually large. May they not serve as reservoirs of air for the use of the insect while under water?

These larvæ are able to pass on the surface of the water from one leaf to another. This they do with a motion similar to that of a water snake.

Associated with the larvæ of *A. Melanopyga* in Florida, I found another Lepidopterous larva, a somewhat smaller insect, living more upon the surface of the leaf. This species I failed to rear to the adult state.

The following is Mr. Grote's description:

ARZAMA MELANOPYGA, n. s.

♀. Allied to *Vulnifica*, with very similar markings and color, but the thick anal tuft of the female is discoloured and black or blackish. Front unarmed, smooth. This character separates *Sphida Obliquata* from *Arzama Diffusa*, *Vulnifica* and *Melanopyga*. According to Mr. Butler, who has kindly examined Mr. Walker's type of *Arzama Densa* from Georgia in the British Museum, the type of the genus agrees in having the front smooth. The two genera are allied, but the characters of the clypeus are decidedly of generic value in the moths; upon these several genera are founded, and we can thus separate *Ochria* (*Gortyna* Led.) and *Gortyna* (*Hydroecia* Led.). Both *Arzama* and *Sphida* are internal feeders; the chrysalids of *Obliquata* have been taken in stumps



under circumstances which lead to the belief that the larva may be a wood-feeder like *Scolecocampa*. The horned clypeus is evidently correlated with function in these internal feeders. In *Melanopyga* the thorax and forewings are dusky yellow; the stigmata concolorous; the lines oblique, uneven, the posterior line dentate, the median shade indicated. In color the lines are dark, with a reddish tinge; the terminal space shaded with dusky without the dentate subterminal line. In color this species is paler than *Vulnifica*, the abdomen more grayish. The hind wings are stained with reddish; in one specimen the border remains grayish. *Expanse* 40 mil. Two ♀ specimens reared by Prof. Comstock from larva boring in leaf-stalks of pond lily. I have a specimen of *Vulnifica* ♀, collected by Mr. Schwarz in Florida with pale anal tuft. I might be inclined to consider the paler color and black anal tuft varietal characters, but the transverse posterior line is less rounded and more acutely angulated below costa in *A. Melanopyga*.

## A LITTLE BEAUTY FROM NORTHERN ARIZONA.

BY B. NEUMOEGEN.

### SPHINX (HYLOICUS) DOLLII. n. sp.

Head light gray, with two black spots near antennæ. Antennæ brownish with light gray pectinations. Collar light gray, but thorax and patagiæ whitish gray, with two broad dark gray stripes along tegulæ, accentuated with black at their commencement at collar.

Primaries light gray shading off into whitish towards base. Costal edge darker gray. Fringes whitish with darker gray spots alternately at the intersection of the veins. A blackish dash from apex pointing diagonally towards base and fading away in discoidal veins. Two short blackish dashes between 1st and 2d and 2d and 3d median veins, parallel with the neurulation.

Secondaries uniform brownish gray with fringes alternately dark gray and white.

Beneath uniform cinereous with the blackish trace of the apical, diagonal dash of primaries. Fringes as above.

Abdomen light gray, with a black dorsal line and black and white lateral intersections at segments.

Expanse of wings, 1.15-16 inch.

Habitat: Prescott.

Type ♂, Coll. B. Neumoegen.

This little beauty is gratefully dedicated to my faithful factotum, Mr. I. Doll, who, undaunted by the strain of a torrid zone and the attacks of Indians, pursues his duty of collecting material for our Science.



Comstock, John Henry. 1881. "An aquatic Noctuid larva *Arzama melanopyga* Grote, new species." *Papilio* 1(9), 147–149.

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