

THE PUPA.

Length 10.5 mm. Width at widest part 3 mm. General colour pitchy black, shiny. Wing-cases shallowly wrinkled, more marked on posterior third. Abdominal segments more or less coarsely pitted, dorsal half of each bearing two rows of short spines. Spiracles prominent, pimple-like, rounded to oval, jet black. Cremaster furnished with numerous reddish-brown spines, each terminating with an incurving hook.

ORIGINAL DESCRIPTION OF ADULT.

Olethreutes consanguinana Wlsm. III. Lep. Het. Brit. Mus. IV. 30, 1879.

"*Penthina consanguinana*."—"Palpi short, obtuse; antennae slightly pubescent; thorax mottled white and brown fuscous, with a raised umber brown tuft behind it. Fore-wings with a costa evenly arched, apical margin oblique, not indented, rather yellowish white, with an oblique narrow fascia near the base and a rather oblique broad central fascia, convex at its outer edge and much widened towards the dorsal margin, mottled with brownish fuscous, the space between them as well as the base of the wing being almost obscured by brownish fuscous streaks and mottlings; three small costal spots are conspicuous between the fasciæ; beyond the outer fascia are four or five grey costal spots and a triangular grey shade at the apex, which is continued in a broken line along the apical margin; before this is a greyish fuscous horseshoe-shaped spot, conspicuous upon the plain ground colour of the wing, sometimes connected at its outer edge with the apical margin; a pale fuscous line runs within the base of the cilia, the points of which are also touched with fuscous. Hind wings whitish stone-grey, with paler cilia. Abdomen and anal tuft slightly ochreous. 3, 2. Expanse of wings 21 millims."

"This species differs from *P. variegana* Hubn. (No. 937, Woche's Cat.) in having no grey shading on the plain apical portion of the wing, with the exception of the one horseshoe-shaped spot, also in the larger and more dilated costal spots and more defined central fascia. It lacks the strong ochreous tint of *P. ochroleucana* Hubn. (No. 939, Woche's Cat.) and has paler hind wings than that species; and it may be at once distinguished from *P. capraena* Hubn. (*P. moestana*, Woche; No. 931, Woche's Cat.), by the convex (not concave) outer edge of the central fascia. In a considerable series from California obtained in May, June and July, I have found no specimen which could not at once be separated from the numerous nearly allied European forms, at least so far as I am acquainted with them.

"*Penthina nimbata* Clem., which is the *Penthina contratiana* of Walker, differs from *consanguinana* in its smaller size and in the almost unspotted white apical portion of the wing, which contains no horseshoe mark."

ACKNOWLEDGMENTS.

The writers wish here to acknowledge the work of the late Mr. J. C. Shipton, who acted as assistant in the laboratory in 1913, and who has since died while serving with Canadian Expeditionary Forces in France.

To Mr. C. H. Richardson, Jr., they are indebted for determining hymenoptera, and to Mr. August Busck for determining reared specimens of *Argyroplote consanguinana* and *Recurraria nana* la.

To Messrs. S. B. Chute of Berwick, N.S.; R. S. Eaton, of Kentville, N.S.; A. Fitz Randolphs of Bridgetown, N.S. and Geo. Hoyt of Annapolis, N.S., they are indebted for the use of orchards for experimental work.