

a broken-up beetle was observed in the path. A closer examination revealed a number of dead and rotting grubs in the newly packed soil. A close watch was then kept while the Japanese dug up some 50 or more yards of new trail. The results so far as obtaining adult beetles were concerned were very meagre, only four being secured alive. The grubs, however, were present in large numbers, certainly not less than 500 of various sizes being turned over. The grubs occurred from two to eight inches beneath the surface in the loose soil about the forest trees, but no definite evidence of feeding was observed.

On June 12th while following the auto road from Halemanu to Puu Ka Pele, 3,300 feet elevation, I was surprised to notice two live beetles in the dust in the auto tire track. They were lying on their backs and seemed unable to turn over and escape. Close watch was then kept and in a distance of about a mile a number of beetles were found in this same position, though most of them were crushed and worthless. In all, eleven of these found along the road were in good enough shape for preservation.

At Puu Ka Pele in digging with a small hand trowel about the roots of a clump of old Koa trees a half-dozen grubs of *Apterocyclus* were found, while the remains of dead beetles were found in the trash and debris under the trees.

From these few facts it would seem that instead of being rare the beetles of this genus are quite abundant, and furnish an interesting subject for further study. The Puu Ka Pele specimens appear to be a different species from those obtained in the Kauaikinana Valley.

### Some New Hawaiian Lepidoptera.

BY O. H. SWEZEY.

During the past five years specimens of new species of moths have been accumulating. These have mostly been reared specimens from caterpillars found in various places, and from

that reason have the greater interest. I now give descriptions of a number of these that they may go on record. The type specimens are deposited in the collection of the Hawaiian Entomological Society.

#### CARADRINIDAE.

##### *Euxoa wikstroemiae* n. sp.

♀. Head and thorax pale brownish grey; antennae and palpi of the same color, but the median joint of the palpi dark brown on the outer side except at the apex. Legs nearly uniformly concolorous with the thorax; abdomen concolorous, but paler.

Forewings pale brownish grey; subbasal, first, and second lines paler, but a little darker edged; the first line strongly waved; second line feebly waved, very indistinct; orbicular and reniform partially outlined with pale brown; a median browner shade clear across the wing; two black spots near termen, one on each side of vein 5, the anterior spot the larger. Hindwings nearly uniform pale brownish grey, paler than the forewings; a fuscous discal mark and a terminal series of blackish dots; underside with a distinct dentate post medial line, the discal mark also showing plainer than on upper side. Expanse, 39-40 mm.

Quite distinct from all other endemic Hawaiian species of the genus. Described from 2 ♀♀ reared from two small caterpillars found on a *Wikstroemia* bush at top of west wall of Waimea Canyon, Kauai, at an elevation of about 1500 feet, February 14, 1915 (Swezey). The caterpillars obtained their full-growth and entered soil to pupate March 24th, and the adult moths appeared April 22nd.

Caterpillar. The full-grown caterpillar was 40 mm. in length; nearly uniformly dark fuscous, minutely spotted with paler, whitish on ventral surface; head light ferruginous; cervical shield black with a broad yellow discal patch widest posteriorly, a median white line which extends indistinctly onto the two following segments; setae very short, pale, each in a black dot; anal shield black with several yellow spots; spiracles oval, entirely black.

Pupa. 20 mm. long; yellowish brown, infuscated on dorsum of metathorax and abdomen; a dorsal transverse band of small pits near anterior margin of 5th, 6th, and 7th abdominal

segments; wing-sheaths, antennae-sheaths and posterior leg-sheaths extend to apex of 4th abdominal segment; cremaster with two short diverging spines, thick at base, dark reddish, apical half whitish.

I have found apparently the caterpillars of the same species, but failed to rear them, at the following places on Oahu, and always on *Wikstroemia*: October 25, 1914, on the ridge back of Alewa Heights; April 30, 1916, on Waialae Nui ridge; July 9, 1916, on the east side of Mt. Kaala near the top. The caterpillars are found on their food-plant in the daytime, a different habit from the other species so far as known. Having a tree for food-plant is also an unusual habit for the moths of this kind in Hawaii.

***Euxoa kerri* n. sp.**

♂, ♀. Head and thorax grey, collar with a slight brownish tinge; palpi somewhat sprinkled with fuscous on the outer side; antennae grey, that of male shortly bipectinate for about two-thirds of its length; legs pale grey, tibiae and tarsi marked with fuscous; abdomen pale grey, anal tufts slightly yellowish.

Forewings brownish ochreous to brownish fuscous, the paler portions at base and termen; subbasal, first and second lines whitish, edged with brownish fuscous; first line strongly waved, much bent inwardly on vein 1; second line slightly waved, strongly bent outwardly on vein 1; orbicular oval, brownish outlined, in one specimen (♂) filled with pale ochreous, in the other (♀) partially filled with fuscous; reniform partially brownish outlined, pale ochreous in the male, partially filled with fuscous in the female. Hindwings of male pale grey, the veins somewhat fuscous; of female light fuscous, paler towards the base. Expanse, 38-42 mm.

Described from a male and female reared from two small caterpillars found on plants of *Boerhaavia tetrandra*, collected by Dr. Wm. Kerr of the U.S.S. "Rainbow", on French Frigate Shoals, October, 1914. These caterpillars were fed on *Portulaca oleracea* and grew to maturity, and pupated on January 5th and 14th respectively. The moths appeared on January 20th and February 8th.

Caterpillar. Length when full-grown about 50 mm. It resembles the caterpillar of *Agrotis crinigera* except that the head

is paler, almost entirely pale yellowish testaceous with slender black line along paraclypeal suture where *crinigera* has quite a wide blackish mark. The cervical shield is also paler than that of *crinigera*.

Pupa. Similar to that of *crinigera*; length, 20 mm.

#### SPHINGIDAE.

##### *Celerio perkinsi* n. sp.

Head and thorax olive brown, a lateral stripe on head and margins of patagia whitish to ochreous. Antennae dark fuscous, apex whitish except the very tip, which is fuscous. Palpi concolorous with the head, paler at base. Legs greyish brown. Abdomen nearly black above, with a median streak of the same color as the thorax, the posterior margins of segments with fringe of white scales except in region of the median streak. Thorax and abdomen below ochreous, with faint pinkish tinge. Forewings dark brown, much suffused with greyish and ochreous scales and hairs; lines fuscous brown, first line indistinct except near costa, preceded by a triangular very dark fuscous dorsal patch; median line curved inwardly towards costa and outwardly towards dorsum; second line nearly parallel with median but closer to it dorsally, with outward crenulations between the veins; dark fuscous marks at terminations of the veins; an inwardly oblique short blackish bar at apex; a discal brownish fuscous mark and another at end of cell; a large somewhat triangular brownish patch with its base on dorsum between second line and tornus; cilia dark fuscous at ends of veins, paler between, ochreous towards tornus. Hindwings very dark fuscous or nearly black, with a median band of pink which is nearly obsolete towards costa, wide at anal angle; cilia ochreous. Under side of wings with a pinkish tinge, most intense towards dorsum of each wing. Expanse of wings, 57-65 mm.

Somewhat resembles *wilsoni* in the pattern of the forewings, but differs from that species particularly in the white segmental marks on the abdomen, instead of orange as in *wilsoni*, and the pink band on the hindwing where it is orange in *wilsoni*. It is also of smaller size.

HAB. Palolo Crater, Oahu, Sept. 3, 1906, one specimen collected while at rest on a tree trunk (Swezey); one specimen collected on lower part of Mt. Tantalus at upper part of Manoa Valley, Oahu, Oct. 5, 1919 (Bryan); one specimen reared from a small caterpillar given me by Mr. J. A. Kusche, who found it feeding on leaves of *Straussia*, Mt. Tantalus, Oahu, Oct. 11, 1919. This caterpillar was fed on *Straussia* leaves, and finished its growth by Oct. 25, when it

spun up in moss of the breeding jar. It pupated four days later, and the moth emerged Nov. 19, after three weeks in the pupal stage.

I have named this moth for Dr. Perkins, who was with me when I found the first specimen, and at once recognized it as different from the known species. The specimen, however, was too much battered and abraded for description. This is now made possible by the reared specimen in good condition, and the fairly good specimen collected by Mr. Bryan.

NOTE.—Recently the Bishop Museum has received, by way of exchange, a pair of *Celerio galli intermedia* Kirby from Mr. B. Preston Clark of Boston. These specimens were collected in Alaska. The species is widely distributed in North America.

Comparing these with the Hawaiian *Celerios*, there is a striking similarity in the color patterns of the wings, and the abdominal markings. The similarity is most striking with our *C. calida* (Butler). It seems to me to indicate the American origin of the ancestors of the Hawaiian *Celerios*. Mr. Clark, in letter, also concurs in the belief that the Hawaiian Sphingidae are allied to those of America.

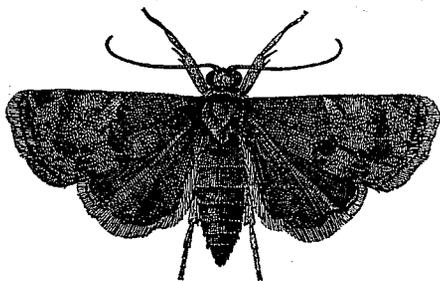
#### PYRAUSTIDÆ.

##### *Mestolobes chrysomolybdoides* n. sp.

♀. Head, thorax and abdomen dark leaden-fuscous; palpi light yellow; antennae dark fuscous; legs greyish-fuscous, tarsi whitish ringed. Forewings nearly black, almost completely suffused with shining leaden scales except at first and second lines; first line near middle of wing, slightly curved, black with a short yellow streak in costal half; second line near termen, broad, black, outwardly curved and broader a little beyond middle; cilia to middle of termen white, dark fuscous at base, beyond middle of termen grey, dark fuscous at base. Hindwings dark fuscous-brown, basal half a little paler; cilia white, fuscous-brown at base. Expanse of wings, 12-13 mm.

HAB. Mt. Kaala, Oahu, about 2500 feet elevation, March 4, 1917, two specimens reared from larvae in moss on tree (Timberlake).

Near *M. chrysomolybda* Meyr., but the palpi are wholly yellow, and the leaden coloration is not broken up into four distinct fasciae as in that species, and the latter does not have the white cilia of the forewings.



*Mestolobes chrysomolybdoides.*

***Mestolobes quadrifasciata* n. sp.**

♂, ♀. Head brownish fuscous, a vertical white line extending forward from base of each antenna, a few white scales on outer side and behind insertion of antennae, collar white; antennae brownish fuscous spotted with white, in male thicker in diameter and finely and densely pubescent; palpi clothed with long loose scales, brownish fuscous, with a line of white scales continuing from the white collar, and some white scales nearer the apex. Thorax brownish fuscous, pronotum with posterior line of white scales, patagia bordered with white outwardly. Legs ochreous, tarsi fuscous, ringed with white. Abdomen ochreous to greyish fuscous, apical margins of segments paler. Forewings ochreous, with fuscous scales somewhat mixed and a tendency to border the four transverse white fascia representing the subbasal, first, median and second lines; subbasal line at one-fourth of costa, angled outwardly at middle; first line at one-third of costa, a little outwardly curved at middle, sometimes interrupted a little beyond middle; median line a little beyond middle of wing, hardly reaching dorsum; second line at three-fourths of costa, nearly evenly curved outwardly, reaches dorsum very close to tornus; a costal white dot just before apex; a terminal series of white dots among fuscous scales; cilia pale fuscous, dark fuscous at base. Hind-wings greyish fuscous, cilia the same, a little darker at base. Expanse of wings, 9-11 mm.

A small species, distinguished by the four nearly complete transverse white fasciae on the forewings.

**HAB.** Palolo, Mt. Olympus, Mt. Konahuanui, and Kau-muahona, Oahu, 1908-1914 (Swezey). A common species in the mountains near Honolulu.

## HYPONOMEUTIDÆ.

***Semnoprepia pittospori* n. sp.**

♂ Head and thorax white, face and patagia fuscous; palpi with middle joint fuscous on outer side, terminal joint whitish; antennae dark fuscous; legs with femora pale ochreous, fore and middle tibiae and tarsi dark fuscous; hind tibiae pale ochreous, hind tarsi marked with fuscous. Abdomen very light fuscous, anal tufts pale ochreous. Forewings dark fuscous brown, with a whitish streak on dorsal margin; a short dark fuscous mark in the fold and just at the middle of the anterior edge of the dorsal whitish streak; apical cilia dark fuscous, cilia at tornus whitish, between this and apex spotted, fuscous alternating with whitish. Hindwings pale grey, cilia whitish. Expanse, 13 mm.

Described from 3 ♂♂ reared from dead *Pittosporum* wood, Kuliouou, Oahu, June 25, 1916 (Swezey).

***Semnoprepia coprosmae* n. sp.**

♂, ♀. Head, thorax and palpi ochreous brown; antennae dark fuscous, basal fifth nearly black; legs with femora ochreous, fore and middle tibiae and tarsi dark fuscous, hind tibiae ochreous, hind tarsi marked with fuscous; abdomen ochreous. Forewings nearly uniformly ochreous brown; three conspicuous dark fuscous spots, one on middle of fold, one in the cell at middle of wing, one at end of cell; a series of small dark fuscous marginal spots extending around apex of wing; cilia ochreous. Hindwings pale grey without markings; cilia pale ochreous. Expanse, 18-23 mm.

Described from seven specimens (type ♂) reared from larvae feeding in live wood of *Coprosma longifolia* at Malamalama, a ridge on the windward slope of Mt. Konahuanui, Oahu, October 8, 1916 (Swezey).

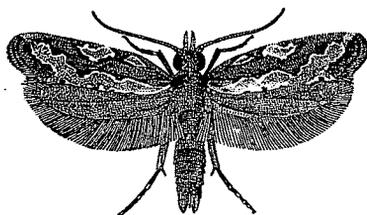
The larvae of this genus are elongate and whitish and usually feed in dead wood; but the larvae of this species were found in the live wood and were quite abundant in the trees of the locality. The injury by them caused dead places in the tree trunks and branches, and a very rough, gnarled appearance where the growing of the tree had partially overgrown the injuries. Pieces of branches containing larvae were brought in, and the moths issued November 20 to December 14. A series of 18 *Sclerodermus semnoprepiae* Bridwell also issued from this material, and cutting up some of the wood, it was

demonstrated that this parasite had bred on the larvae of *Semnoprepiae*. It was found to be a new species and described later by Mr. J. C. Bridwell.

PLUTELLIDAE.

*Plutella capparidis* n. sp.

♂, ♀. Head, thorax and abdomen dirty white. Antennae dirty white, with dark fuscous spots on apical half. Palpi brownish fuscous on outer side. Patagia brownish fuscous. Forewings brownish fuscous, with a wide dorsal streak of creamy white, having an oblique extension from near the tornus to the costa a little before apex, this streak irregularly sinuate on the anterior edge, the anterior edge nearly white and the brownish fuscous area of the wing has black scales on the edge bordering this streak, there are also a few scattered black scales on the dorsal margin; a narrow creamy white spot in basal third of costa, a larger some-



*Plutella capparidis*.

what triangular patch at middle of costa, each of these having black scales in the edge of the surrounding brownish fuscous area and the larger spot has a small spot of black scales on costa; cilia light fuscous mixed with paler scales, and a black line at the base. Hindwings and cilia very light fuscous. Anterior and middle legs dark fuscous, tibiae and tarsi with white rings; posterior legs dirty white, tarsi fuscous marked. Expanse of wings, 8-8.5 mm.

A very distinct species from *P. maculipennis* and *P. albo-venosa*, the other species known to occur here. Described from 20 specimens reared from larvae found by Mr. J. C. Bridwell feeding on the leaves of *Capparis sandwichiana*.

HAB. Ewa Coral Plain, Oahu, June 8, 1919 (Bridwell).

The light green larvae feed mostly on the surface of the leaves, eating one epidermis and the parenchyma and leaving the other epidermis, which shows as dead spots in the leaves.

and posteriorly; legs ochreous, anterior and middle tibiae and tarsi and posterior tarsi fuscous marked. Forewings brownish fuscous, with three dorsal outwardly-oblique white streaks widened at base and margined with a few black scales, somewhat curved apically, the third one nearly connected with a white slender outwardly-oblique black-margined line at three-fourths of costa, beyond this white line three or four white costal spots; a round black spot at apex with a few pale bluish scales, a few pale bluish scales between this spot and the third dorsal white streak, sometimes this area ochreous; apical and terminal cilia brownish, paler near base and black at extreme base, tornal cilia very pale brown. Hindwings and cilia pale brown. Abdomen pale brownish. Expanse of wings, 7.5-8 mm.

Resembles *epibathra* Walsm. and *hibiscella* Sw., but a smaller species, the ground color of forewings darker, and slight differences in apical markings. Described from 6 specimens reared from mines in leaves of *Neraudia melastomaefolia*.

HAB. Two specimens Punaluu, Oahu, June 11, 1916, and 4 specimens Waiahole, Oahu, August 13, 1916 (Swezey). A series of five specimens reared from leaves of *Pipturus albidus* at Pahoā, Puna, Hawāii, September 20, 1918 (Swezey) seems to be the same species. *Neraudia* and *Pipturus* are near related trees, and it is not unlikely that the same species might attack both plants, tho of three species of *Philodoria* mining *Pipturus* leaves, not one of them has yet been found mining *Neraudia* leaves.

**Miscellaneous Notes on Hymenoptera, 2nd Paper, With Descriptions of New Species.**

BY JOHN COLBURN BRIDWELL.

25. *BATHYMETIS* sp., A CRYPTINE PARASITE OF SIPHONA STIMULANS AND OTHER DUNG FLY LARVAE.

Among the parasites of dung flies secured by Mr. A. Koebele in Germany and Switzerland in his search for parasites of the hornfly and sent to Honolulu for liberation, was a species of *Bathymetis* which the literature at hand does not permit us to identify. Specimens in the collection of the