PERARTHRUS, *Lec.*

Contains one species.

P. **vittatus** J. A. P. ser. 2, II, p. 102. Length .55 in.=14 mm. Hab. Cal.

"Black, deeply punctured, clothed with erect gray hairs; thorax strongly transverse, narrowed at apex, convex, bi-sinuate at base, rounded at the sides. with a small shining callosity at the middle and a basal spot each side golden pubescent; elytra black with two smooth elevated yellow lines; legs red, tarsi black. The scutellum is covered with dense yellow hair; the exterior vitta of elytra abbreviated at each end and the anterior portion of epipleurae yellow."

(To be continued.)

## New Species of Geometridae, No. 2.

By Geo. D. Hulst.

1. **Tetracis jubararia**, sp. nov.

Expands 42 mm. The size and much the shape of *T. aurantiacaria* Pack. The head and thorax are ochreous, palpi dark ochreous, dark brown at tip. Antennæ and abdomen light ochreous. The wings are orange ochreous, quite uniform. The t. a. line is rounded, angulate at the middle, the t. p. line oblique, sinuate; both dark brown and heavier than usual. There is also a basal cross line of the same color, starting at costa and running straight across reaching inner margin at t. a. line. Fringe reddish brown. The wings are much marked with brownish striations on the outer third. Hind wings lighter ochreous, darkest without. Outer line on the inner half of the wing. All discal spots present and prominent above and below. Beneath hind wings ochreous, loosely but definitely striated with brown, fore wings light ochreous, and without striations along inner margin. T. p. line very dark and heavy on the anterior half only of all wings.

1 ♀, Wash. T. Coll. Holland. Between *T. aurantiacaria* Pack. and *T. mellitularia* Hust.

2. **Leucula lacteolaria** sp. nov.

Expands 36 mm. Head light ochreous. Body and wings thinly scaled pure silky milk white. On the fore wings are two jet black, very fine, slightly wavy lines, running parallel with each other, and the outer margin. The apex is very rounded, outer edge very retreating, the wing itself very narrow, so the lines are very oblique. There is an indicated basal line present. Fringes black along margin between veins. Beneath as above with lines fainter but distinct. Legs light ochreous or white, black in front.

1 ♀, Ariz. Coll, Hulst.

Differs from Guenee's species in that the veins are not marked with gray. The wings are much narrower. The lines are waved black much finer and more oblique, and the legs differ in color.

3. **Heterolocha ephelidaria** sp. nov.

This insect is of the same size and shape as *H. edwardsaria* Pack. of which it may be a variety. It is cream white in color, generally with-

out any striations and these always few and faint. It has no outer or inner darkening of color. It ordinarily has no indications of the t. p. line, though this when evident runs as in *H. edwardsaria.* I have seen specimens of *H. edwardsaria* where the marginal band was very faint but the color of the wings always remained yellow.

1 ♂, 1 ♀, Nev. Coll. Hulst.

4. **Drepanodes syzygiaria** sp. nov.

Expands 27 mm. Wings of a nearly uniform warm yellowish fawn. T. a. line wanting; t. p. line silky white, unmargined, very fine, réflected to costa at a right angle. Wings beyond t. p. line violet shaded. Beneath as above with indication of a marginal darker band. Discal spots black, small above on all wings, below on hind wings. Fore wings broad, hardly falcate almost rectangular. Costa strongly arched; antennæ strongly pectinated, very long.

2 ♂, Fla. Coll. Neumœgen, Hulst. Near *D. olyzonaria* and *D. perizomaria* but may be known especially by the much lengthened antennæ and nearly rectangular fore wings.

5. **Geometra illustraria** sp. nov.

Expands 38 to 44 mm. The form found in Cal. and referred to by Dr. Packard, (Geom. Moths p. 394), but not by him thought worthy a name. It seems to me however to be different from the eastern species. It is uniformly of much greater size; it is in color uniformly of a very different shade of green; the cross lines are narrower, not edged with yellowish or purplish, are much straighter; there is not the same tendency to a whitening of the veins on the submarginal space: there is none of the bluish cast upon the submarginal space. Till further knowledge is had, I think it must be considered a valid species.

Cal. Coll. Hy. Edwards, Hulst.

6. **Anaplodes festaria** sp. nov.

Expands 30 mm. Differs from *A. pistacearia* Pack. in being of a lighter more vivid silky green; by having two cross lines on all wings; by having the fringe pink, and a narrow margin of bright red on wings; by having the wings more extended and pointed. The green of the wings is much striated with white in long very fine silky lines, Cross lines fine, white, the inner rounded near base, the outer parallel with the outer margin.

1 ♂, 5 ♀ Cal. Ariz. Coll. Hy. Edwards, Neumœgen, Hulst.

7. **Aplodes zygotaria** sp. nov.

Expands 28 mm. Head ochreous in front, white on vertex. Antennæ white. Wings, body, aud anterior portion of abdomen deep pea green. Costa narrowly white. Fringes green. Lines white very like *A. mimosaria* two on each wing. Beneath all wings lighter green. Fore tibiæ green; otherwise legs white.

1 ♂, 6 ♀, Texas. Coll. Graef, Hulst.

8. **Racheospila xysteraria** sp. nov.

Expands 19 mm. Head and palpi red; antennæ and between antennæ white. Thorax light green; abdomen pink dorsally, white laterally and beneath. Tufts on abdomen white edged with red. Wings light green, two faint rather broad white lines on fore wings. Fore wings red at base of costa. Costa towards apex, and out-

er edge of all wings edged with red; hind wings red also on anal margin. At the middle of fore wings at margin, and at outer angle is a large red spot, also at middle of hind wings at margin. The red margin of hind wings broadens at anterior and anal angle. Discal spots red, annulate, white within. Fringe alternating white and red. Beneath nearly white, the red showing at apex, discal points, and marginal blotches.

1 ♀, Fla. Coll. Hulst.

9. **Nemoria tepperaria** sp. nov.

Expands 18 mm. Head, body, and wings dull ochreous green very much as in some specimens of *N. subcroceata* Wlk.; the antennæ and head between lighter. Palpi pink on last segment. Wings crossed outwardly by a very faint white line, determinate principally on the veins, parallel to the outer margin; an inner line very faintly indicated on fore wings; hind wings quadrate, undulate on outer margin, with a very prominent angle at middle. All wings with a very narrow brown marginal line. Beneath much lighter, unicolorous. Legs very light ochreous, except fore tibiæ which are pink.

1 ♂, 1 ♀, Ga. N. Car. Coll. Edwards, Tepper.

This insect has the general appearance of *Nemoria subcroceata* Wlk. but is easily recognised by the undulating outer margins, and exaggerated angle on hind wings, and dark brown marginal line.

10. **Eucrostis hollandaria** sp. nov.

Expands 27 mm. Front ochreous, antennæ and vertex white, palpi very long as in *Racheospila*, bright red. Thorax and wings deep green. Costa white, fringe and narrow marginal line red, interrupted by green at end of veins. No cross lines present, but in their place near base of fore wings are three brownish red points forming a curve, and outwardly a row of points of same color, nearly parallel with edge of wing, one on each vein. Near anal angle two are very much enlarged (the anterior one much the larger) become confluent, and inclose each a pure white space. On hind wings an outer bent row of same colored points, one on each vein, with the one nearest inner margin much enlarged, annulate, inclosing white space. Discal points distinct, brownish. Beneath light green, fringes as above. The annulate spots above are reproduced though less distinct; discal spots as above, but less distinct. Other points very faint or obsolete.

1 ♀, Fla. Coll. Holland.

**Eucrostis jaspidiaria**, sp. nov.

Size and markings of **E. hollandaria** differing principally in that there are no annulate spots on any of the wings. Color a darker green. Wings more pointed, less rounded.

2 ♂, Fla. Coll. Hy. Edwards, Hulst. I name this with a strong suspicion it may prove to be the ♂ of the preceding species. But the prominent point of difference the annulate spots is remarkable, and so far as I know unique, and till further knowledge is obtained I must regard the species as distinct.

12. **Eucrostis saltusaria** sp. nov.

Expands 20 to 26 mm. Front bright green, palpi, tibiæ, and femora of fore legs, red. Vertex and antennæ white, the latter ochreous beneath. Thorax and base of abdomen bright green. Posterior part of abdomen white. Wings rather a dull deep green. Fore wings with a narrow white basal line, zigzag with two sharp angles outwardly. Discal spots long, white, angular, those on hind wings forming a

continuation of basal line on fore wings. Outer line much bent on both wings, towards and below middle scalloped with points on veins and these continued on veins to a marginal white line broader below apex and at inner angle, the latter space inclosing a deep red somewhat broken spot, which in the ♂ is continued part way along the edge as a marginal line. Hind wings as fore wings, with inclosed red spot at anal angle, connected along edge as a marginal red line. Fringes dull white. Beneath very pale green, lines very faintly reproduced.

2 ♂, 2 ♀. Fla. Coll. Hy. Edwards, Neumoegen, Hulst.

This insect has very strongly the appearance of a *Phoradesma*, but the tibial amature of *Eucrostis*.

13. **Chlorosea græfiaria** sp. nov.

Expands 34 mm. Palpi white, front reddish brown, antennæ white ochreous below. Thorax and forewings white faintly tipped with green. Abdomen and hind wings pure white the latter along the outer margin very faintly tinged with green. All fringes green. A single outer somewhat broad white line on fore wings, oblique, nearer outer edge than in *C. nevadaria* and starting from costa nearer apex. Beneath pure white with very faint greenish tinge on fore wings along costa. Legs white.

2 ♀, Nevada, Coll. Graef, Tepper.

14. **Cheimatobia bruceata** sp. nov.

While describing the above *Geometridæ* I wish to call attention to what is to me a very interesting addition to insect history. One of our common Geometers is the so called *Cheimatobia boreata* Hubn. The insect described under this name is common in Europe. It has been rather remarkable that, till very lately, the ♀ has never been discovered in America. Dr. Packard says in his Monograph the ♀ has never yet been taken, and till last spring I heard no account of it. At that time I received a letter from Mr. Bruce of Brockport N. Y., saying he had carried larvæ through to imagines, and that the ♀ was entirely different from *C. boreata* Hubn. of Europe, and that this insect, which had been looked upon as identical with another, was a very different thing. Mr. Bruce asked me to give it a name, which I do by giving it the specific name of *bruceata*, after the veteran and successful Lepidopterist who ascertained its history.

The ♀ of this species, (I have several before me), is almost entirely wingless. It has just the merest rudiments of wings. And from its color and size, I have no doubt that it has, if taken, been looked upon as the ♀ of one of the species of *Anisopteryx*. It is of a grayish black color. Antennæ and legs annulated with white. Thorax and abdomen marked above more or less with blackish. It is rather small, the dried specimens being 5 to 7 mm. in length.

After knowing that they are not the same, it is easy to note differences in the males of these two hitherto confused species. In *C. bruceata* the cross lines are finer, more distinct, more evenly scalloped, and more numerous in the average of specimens than in *C. boreata*. The wings

are more uniform in color, and show less of a tendency to a band; the veins are more distinctly lined and the outer angle is less rounded and retreating. The submarginal line on the fore wings is less rounded in at the costa, and on the hind wings is much nearer the outer margin.

The ♀ of *C. bruceata* can not be *Phigalia cinctaria* French, Ills. Reports Vol. VII, p. 241, described from the ♀ only, as the wings are much more developed in *cinctaria*, and the insect is more than twice as large apart from differences in details.

## Note on Quadrina diazoma, *Grote.*

By John B. Smith.

In Mr. Grote's catalogue of 1882, *Quadrina diazoma* is placed in the "*Hemileucini*" and is associated with *Hemileuca*, *Hyperchiria* and *Coloradia*, which are all typical *Bombycids*. The genus and species had been a great puzzle to me, and being unrepresented in N. Y. collections I wrote Prof. Snow, for information. On a recent visit to Washington, Prof. Snow kindly brought me the unique type which is in poor condition. I saw at a glance thatthe insect was wrongly placed in the catalogue, and very little study decided me in placing it with the *Cossidae*, with strong tendencies in appearance to *Hepialus*-a tendency which the venation of the primaries emphasizes, while the secondaries are *Cossid.* Primaries with 12 veins, the 1st or only internal being sinuate. The cell is very short, and the median vein gives rise to 2 near its inception; to 3 at about its middle, and to 4 and 5 close together at the tip: 6 and 7 are on a stalk from the end of the subcostal vein: 8 arises near the tip, 9 and 10 are on a stalk about one third from tip, and vein 10 runs to the apex: v. 11 runs from the middle of the sub-costal to the costa about one-fifth from tip. The cell is closed by an angulated vein at tip. On the secondaries there are two internal veins. The cell is shorter than in the primaries and is closed in the same way; 2 arises from the middle of cell, 3, 4 and 5 close together at the tips: 6 is straight from the upper angle of cell and a direct continuation of the sub-costal: 7 arises from the sub-costal close to base and is connected near its inception by a cross vein with the costal vein, which is sinuate and has a short spur at base. Essentially this is also the venation of *Gloveria*. There appears to be no frenelum. The tongue is obsolete and the palpi are short. The antennæ are moderately long the joints very short, lengthily bipectinated. There appear to be no ocelli. The legs are moderately long, the median and hind tibiæ each with a pair of short terminal spurs. The anterior tibiæ have the epiphyses reduced to a small tubercle in a shallow depression. The tarsi are strongly spined and the claws are simple. In color the insect is a dull, even luteous red with traces of an outer broken black band. Altogether this is a remarkable insect, and the genus is probably a good one, nearly related to *Gloveria* but belonging to the *Cossidæ*.

Hulst, George Duryea. 1886. "New species of Geometridae, No. 2." *Entomologica Americana* 2, 120–124.

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