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DESCRIPTIONS OF NEW GENERA AND  
SPECIES OF MICROLEPIDOPTERA  
FROM PANAMA

WITH ONE PLATE

BY

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DESCRIPTIONS OF NEW GENERA AND SPECIES OF  
MICROLEPIDOPTERA FROM PANAMA<sup>1</sup>

BY AUGUST BUSCK

(WITH ONE PLATE)

The following descriptions of new forms of Microlepidoptera are published in advance of proposed papers, dealing with the lepidopterous fauna of Panama as a whole, based on material collected by the writer as a member of the Smithsonian Biological Survey of the Panama Canal Zone during the first half of the year 1911.

Two causes were operative in making the present paper merely preliminary: first, the prospect of obtaining additional material through another trip to Panama by the author in 1912 in continuation of the work done in 1911; secondly, the delay in the publication of Lord Walsingham's part of the *Biologia Centrali-Americana*, the completion of which now seems assured within a few months, for it was desirable that the priority of no part of this important work should be interfered with, and in the present paper no species is therefore knowingly described which is already dealt with in the remaining manuscript of the *Biologia*, with which the writer is intimately acquainted.

Family COSMOPTERYGIDÆ

The name *Cosmopterygidæ* is used here in the same sense as employed by Meyrick, *Trans. Ent. Soc. London*, 1909, p. 17, for the family, defined by the writer in *Proc. Wash. Ent. Soc.*, Vol. 11, p. 93, 1909, and for which I at that time accepted the name *Lavernidæ*, Walsingham and Durrant.

Mr. Meyrick's name and definition of the family were the first to appear together in print, and as the conception *Lavernidæ* has already been obscured by the admission of several alien genera in the *Biologia Centrali-Americana*, I adopt the more willingly the name *Cosmopterygidæ* as the one least likely to cause misunderstanding.

The essential characters of this group are as pointed out (l. c.), the long recurved and pointed labial palpi and the stalked (or coin-

<sup>1</sup> The present paper is the eighth dealing with the results of the Smithsonian Biological Survey of the Panama Canal Zone.

cident) veins 7 and 8 of the forewings, both terminating on the costal edge above apex.

I am disposed to regard this family as nearest to and derived from the Gelechiidæ, rather than from the Cœcophoridæ as suggested by Mr. Meyrick.

The genera *Pseudastasia* Walsingham, *Scelorthus* Busck, *Embola* Walsingham, *Lithariapteryx* Chambers, *Lamprolophus* Busck, *Helioidines* Stainton, and *Ætole* Chambers, included in the *Lavernidæ* in the *Biologia Centrali-Americana*, must be excluded from the present family.

The genus *Homaledra* Busck is rightly included, but the species described on p. 9 in the above-mentioned work as *H. knabi*, and the type of which is in U. S. Nat. Mus., is on further study found to belong to the genus *Batrachedra* Stainton, which is not Cosmopterygid, but related to *Coleophora* Hübner.

#### URANGELA, new genus

Labial palpi long, sickle-shaped; second joint with strong, pointed tuft; terminal joint slender, pointed, fully as long as second. Antennæ less than the length of the forewing; basal joint slender, smooth, without pecten. Forewings long and narrow; apex attenuate; with raised scales; 12 veins; 7 and 8 out of 6; 5 out of 6; cell open between 8 and 9. Hindwings very narrow, linear; veins 6 and 7 stalked; cell open; subdorsal vein not branched. Posterior tibiæ hairy.

Closely related to *Cosmopteryx*, which it strongly suggests in general habitus, but differing in the tufted labial palpi; and the degraded venation of the hind wing.

This genus would appear to be allied to or possibly even identical with the Australian genus *Trachydona* Meyrick, but not possessing specimens of this genus, I prefer to err on the safe side, considering the improbability of such identity.

Genotype: *Urangela pygmæa*, new species.

#### URANGELA PYGMÆA, new species

Tuft on second joint of labial palpi black; terminal joint silvery. Face silvery, strongly iridescent. Antennæ dark brown with a broad white band at apical third. Head and thorax black with strong metallic reflections; two silvery, metallic, longitudinal lines on head and patagiæ. Forewings black with a violet sheen; a strongly iridescent metallic line from base to the middle of the cell; three

tufts of raised metallic scales across the middle of the wing and a broad violet metallic line around entire apical edge. Hindwings dark fuscous. Abdomen and legs metallic black; tips of tarsi light ochreous.

Alar expanse: 8 millimeters.

Habitat: Porto Bello, Panama, March.

Type No. 14529, U. S. Nat. Mus.

#### MORILOMA, new genus

Labial palpi long, recurved, reaching vertex; both joints slightly roughened in front; terminal joint shorter than second, acute. Head flattened, face strongly retreating. Antennæ  $\frac{3}{4}$ , basal joint without pecten. Forewings with scale tufts; costa nearly straight, slightly concave; dorsal edge nearly parallel with costal; termen oblique; apex pointed; apical cilia heavy, making the apex appear blunt. 12 veins; 11 from beyond middle of cell; 7 and 8 stalked; 7 to costa; 3, 4, 5 and 6 nearly equidistant; 2 from well before the end of the cell. 1b furcate at base and at tip.<sup>1</sup>

Hindwings half as broad as forewings, sickle-shaped with 8 veins; 8 long; 6 and 5 stalked; 7 connate with their stalk; cell open between 4 and 5. Posterior tibiae clothed with rough hairs above.

The genus is nearest *Synalagma* Busck, which differs in having only 11 veins in the forewings and the apex caudate, and *Psacaphora* Herrich-Schaeffer, from which it differs in the flattened head and the rough posterior tibiae.

*Blastodacna* Wocke differs in the absence of one cubital vein.

Genotype: *Moriloma pardella*, new species.

#### MORILOMA PARDELLA, new species

Labial palpi light ochreous. Face silvery ochreous. Head and thorax dark greenish brown. Forewings dark greenish brown with a large light ochreous curved streak from the middle of dorsum to the end of the cell, where it forms an arrow-point with a similarly colored short dash on the cell; a light ochreous costal dash just before apex; a tuft of darker raised scales at tornus; terminal edge silvery; apical cilia light brown, dusted with black, extreme tip black with a white line preceding it. Hindwings dark brown;

<sup>1</sup> This latter character, effected by the anastomosis of vein 1b, is found also in a few other related genera, *Psacaphora* Herrich-Schaeffer, *Synalagma* Busck, and *Blastodacna* Wocke.

abdomen dark brown above; entire body silvery ochreous on the under side; legs ochreous with broad dark brown bars.

Alar expanse: 7 millimeters.

Habitat: Porto Bello, Panama.

Type No. 14530, U. S. Nat. Mus.

Food plant: *Conostegia* sp. probably *xalapensis* Don.

The larvæ make irregular red blotch-mines on the upper side of the leaves and at maturity cut out the upper and lower epidermis, forming a nearly circular cocoon about 6-7 millimeters in diameter, which falls to the ground. Imagos issued late in March. Several mines may be found in a single leaf.

#### Family COLEOPHORIDÆ

##### TOCASTA, new genus

Labial palpi long, recurved, smooth; second joint slightly thickened towards apex; third joint less than half the length of second, acute. Antennæ longer than the forewings, with well developed pecten on the basal joint. Forewings narrow, elongate, pointed; cell very long; 11 veins; vein 2 obsolete (a trace of it barely discernible); all veins separate; 7 to costa; 1b shortly furcate at base. Hindwings half the width of the forewings; 8 veins: 5 and 6 connate; rest separate. Posterior tibiæ hairy.

Most nearly allied to, but lower in the phylogeny than, *Batrachedra* or *Coleophora*.

Genotype: *Tocasta priscella*, new species.

##### TOCASTA PRISCELLA, new species

Labial palpi blackish fuscous with lighter tip. Antennæ light ochreous with brown annulations. Face and head dark ochreous fuscous. Thorax dark ochreous fuscous. Forewings shining ochreous fuscous, indistinctly dusted with slightly darker scales. Hindwings ochreous fuscous with lighter cilia. Abdomen dark fuscous with lighter anal tuft and with the basal joints velvety ochreous above. Legs ochreous, dusted with fuscous.

Alar expanse: 18 millimeters.

Habitat: Cabima, Panama; May.

Type No. 14562, U. S. Nat. Mus.

## Family GELECHIIDÆ

**DOLIDIRIA**, new genus

Labial palpi long, recurved, reaching beyond vertex; second joint thickened with smoothly appressed scales; terminal joint shorter than second, slender, acute. Tongue well developed, scaled at base. Maxillary palpi rudimentary. Antennæ three-fourths of the wing-length, rather stout, slightly serrated and pubescent; basal joint thickened with heavy scaling. Forewings elongate elliptical; apex evenly rounded; 11 veins; 7 and 8 coincident to costa; rest separate; 2 and 3 from well before the end of the cell; 2 opposite 10. Hindwings broader than the forewings; costa straight; apex blunt; termen slightly sinuate; 8 veins; 6 and 7 stalked; 3 and 4 stalked; 5 cubital. Posterior tibiæ rough-haired above.

The genus is nearest to and a direct development from *Durrantia* Busck, differing only in veins 7 and 8 of the forewings being coincident instead of stalked. The diagnosis of the genus *Durrantia* was purposely widened so as to admit the present form, of which at the time only an undescribed species from Texas was known.

There are however no good grounds to continue this lumping and *Durrantia* should be restricted to the forms agreeing with the type (*piperatella* Zeller) in having 12 veins in the forewings, while the present genus will include those closely allied species with very similar general habitus, which have but 11 veins in the forewings, caused by veins 7 and 8 becoming coincident.

Genotype: *Dolidiria arcanella*, new species.

**DOLIDIRIA ARCANELLA**, new species

Labial palpi white; second joint shaded externally with ochreous brown. Face and head white. Antennæ light golden fuscous with darker annulations. Thorax white, tinged with ochreous. Forewings ochreous white, with first and second discal spots deep black, edged with ochreous brown, and with sparse single black scales, scattered irregularly over the wing; costal edge golden brown; cilia white. Hindwings silvery white with an ochreous sheen; cilia white. Abdomen and legs light ochreous; tarsal joints dusky.

Alar expanse: 13-14 millimeters.

Habitat: Cabima and Trinidad River, Panama. May.

Type No. 14531, U. S. Nat. Mus.

Very similar in general appearance to the species of the genus *Durrantia* and about the size of *D. acompsa* Walsingham, described

from material collected by the writer in Panama in 1907 and which was also secured in 1911, but *arcanella* can be at once differentiated from this species by its black scaling.

Family GECOPHORIDÆ

**GONADA CABIMA**, new species

Second joint of labial palpi white; terminal joint tinged with red. Lower part of face reddish white; vertex, head and thorax light reddish brown, antennæ reddish ochreous. Forewings reddish brown, rather lighter towards the terminal edge and strongly suffused with ochreous on basal half of dorsum. First and second discal spots, small, inconspicuous black dots; a similar plical dot on apical third of the fold; cilia brown. Hindwings light reddish ochreous; cilia yellow. Abdomen above reddish brown, each joint with a light ochreous transverse line posteriorly. Entire under side of body silvery white. Legs silvery white; anterior tibiæ with a red longitudinal line in front.

The oral characters and the peculiar wing-form are identical with those of the type of the genus, *falculinella* Busck; the venation differs slightly in the forewings in having the protruding lower part of the cell narrower and veins 4 and 5 short-stalked, but the two species cannot be separated generically; though rather similar also in size, the two species are amply differentiated specifically by color and pattern.

Alar expanse: 23 millimeters.

Habitat: Cabima, Panama, May.

Type No. 14532, U. S. Nat. Mus.

**LUPERCALIA**, new genus

Labial palpi very long, slender, curved; second joint slightly thickened with smoothly appressed scales; terminal joint as long as second joint, slim, acute. Antennæ longer than the forewings, finely ciliated (1), and towards the tip serrated; basal joint with well developed pecten. Forewings long and narrow; costa and dorsum straight and nearly parallel; termen oblique; apex bluntly pointed. 12 veins; 7 and 8 stalked; 7 to apex; 9 out of stalk of 7 and 8; 2 from well before the end of the cell; 3 and 4 stalked from the end of the cell. Hindwings somewhat broader than the forewings; costal edge straight; termen oblique; apex bluntly pointed; 7 veins; 3 and



4 coincident; 5 approximate to (3 and 4); 6 and 7 parallel; 8 free. Posterior tibia hairy above.

Allied to *Filinota* Busck, with which it agrees in having 3 and 4 stalked in the forewings and coincident in the hindwings as well as in the long antennæ; but differing in the presence of the antennal pecten; in the longer terminal joint of the palpi, and in the stalking of vein 9 in the forewings with 7 and 8.

Genotype: *Lupercalia ignita*, new species.

#### LUPERCALIA IGNITA, new species

Labial palpi light golden yellow. Face silvery white. Antennæ golden with a broad black band beyond the middle and with black tips. The scales on the head, which are rather loosely applied, are yellow and carmine. Collar and posterior tip of thorax silvery white; a median transverse band dark lead-colored. Patagina yellow edged with carmine. Forewing grayish white with a broad costal edge reaching around apex bright golden yellow and lined with carmine and black scales. There are three conspicuous transverse silvery white blotches, one obliquely placed at base, edged with black, another perpendicular on dorsal edge just beyond the middle of the wing, edged with black and carmine, and a third and largest adjoining the golden apical area; this also is black-lined. Hindwings silvery white. Abdomen silvery white. Legs golden yellow.

Alar expanse: 16 millimeters.

Habitat: Trinidad River, Panama. May.

Type No. 14533, U. S. Nat. Mus.

#### PELEOPODA REGIELLA, new species

Labial palpi brick-yellow shaded externally with carmine. Face carmine. Head and thorax straw-yellow. Antennæ reddish ochreous with light yellow basal joint and cilia. Forewing with costal edge carmine; on the outer half of costa this color covers a broad margin and is gradually blended with a light purple occupying the middle of the apical part of the wing; this latter color is again gradually displaced with deep rich greenish golden yellow, which covers the greater part of the wing; basal part of the wing, except for the narrow costal edge, light straw-yellow. Cilia golden. Hindwings pale carmine with lighter golden cilia. Abdomen deep carmine; legs reddish ochreous; tuft on tibia and tarsi brighter ochreous. The forewings have vein 9 out of stalk of 7 and 8; 10 connate therewith.

Alar expanse: 26 millimeters.

Habitat: Cabima, Panama, May.

Type No. 14534, U. S. Nat. Mus.

Closely allied to *P. maroniella* Busck, and *P. notandella* Busck, though at once distinguished by its gorgeous coloration.

#### Family HEMEROPHILIDÆ

##### ORDRUPIA FANNIELLA, new species

Labial palpi dark brown; the terminal joint is deflected forwards, tortricia-fashion, and this may be the natural position also in the type of genus *friserella*, Busck. Face whitish ochreous. Head and thorax dark purplish brown. Forewings dark brown with a rich satin lustre; the scaling on the basal half of the wing is heavy and uneven, producing an undulating effect similar to that found in the forewings of certain limacodid moths; this is heightened by the tips of the scales appearing lighter-colored in certain lights. Hindwings dark brownish fuscous. Abdomen dark brown; lighter brown on the under side; legs brownish fuscous.

Alar expanse: 36 millimeters.

Habitat: Cabima, Panama, May.

Type No. 14535, U. S. Nat. Mus.

Closely allied to the type of the genus *O. friserella*, but larger, darker and with more rounded wings.

Due to my absence, while the paper was in press, the generic name *Ordrupia* was misspelled three times in the original description (Proc. U. S. Nat. Mus., Vol. 40, p. 228), twice through the omission of the letter "r" and once by substituting an "A" for an "O." The first of these misprints was unfortunately repeated in the table of contents to the bound volume of the Proceedings.

#### Family TINEIDÆ

##### PARATHYRIS PERSPICILLA Stoll.

Uitlandsche Kapellen, Vol. 5, p. 74, pl. 16, fig. 3. 1791.

In this remarkable genus the females have large feathered antennæ similar to those of the male Saturniidæ, while those of the males are much smaller and simpler in form. This anomalous condition is not known elsewhere among the Lepidoptera, if in any other insects. Normally the males of the insects have the more specialized and larger antennæ. It would be interesting to learn whether this reversed development of the antennæ in *Parathyris* is

reflected in the biology of the species—in other words, whether the females seek the males for copulation instead of vice versa, as is the normal condition among insects.

The genus is not closely allied to any other known forms, but may be included in the family Tineidæ, from which it is an early branch, which has not been developed further. The reversed sexual dimorphism of the antennæ, which has not been perpetuated in any other Lepidoptera, is indicative of this.

As nothing has hitherto been known of the life history of *Parathyris*, it was particularly pleasing to find the larvæ of the present species in Panama. The larvæ feed on a woody fungus (*Polyporus*) in which they make long, irregular, silk-lined tunnels, to the opening of which is attached a large, cylindrical, somewhat flattened case, made of tough silk interwoven with dark-brown particles of the fungus. The cases are open at both ends; the anterior opening, attached to the fungus, is a round hole, which eventually is pulled close and woven over, when the larva is mature and prepares to pupate; the other opening is a transverse slit, kept closed by the elasticity of the walls of the case; through this slit the imago emerges, leaving the empty pupa skin protruding half-way from the case and held tightly in the slit.

The larvæ are gregarious, several cases being found protruding from the same fungus. The larger female cases are  $1\frac{1}{2}$  inches long and nearly  $\frac{1}{2}$  inch in width; the smaller male cases are about  $\frac{3}{4}$  inch long by  $\frac{1}{4}$  inch wide.

The full-grown larva is  $1\frac{1}{4}$  inches long, cylindrical, slightly tapering at both ends, with normal well-developed thoracic and abdominal feet, the latter with a circle of hooks only broken by a short hookless space on the inner side. The head is yellow with black mouth parts. The body is white with black spots; on first thoracic joint is a yellow shield, divided longitudinally, edged by 6 black dots anteriorly and by two black lines posteriorly, and with a small black dot in the yellow on each side. On the second thoracic joint is a narrow transverse yellow shield broadly edged on all sides with black except on the median line. The third thoracic joint has two pairs of black dots above, the larger of which has a yellow center. Each of the abdominal joints has two pairs of small but conspicuous black dots above, three lateral black dots on each side and four small ventral dots. Anal plate is yellow.

I first met with these larvæ in April near Alhajuella and later found them some miles back of Paraiso, but in neither case did I succeed

in rearing the moth, though one larva pupated and the pupa gave the clue to the genus, through the large antennal cases and the venation of the forewings, plainly observable through the pupa skin. From the Paraiso lot was bred the parasite, which proved to be a new genus and species and which will be described in a forthcoming paper by Mr. H. L. Viereck.<sup>1</sup>

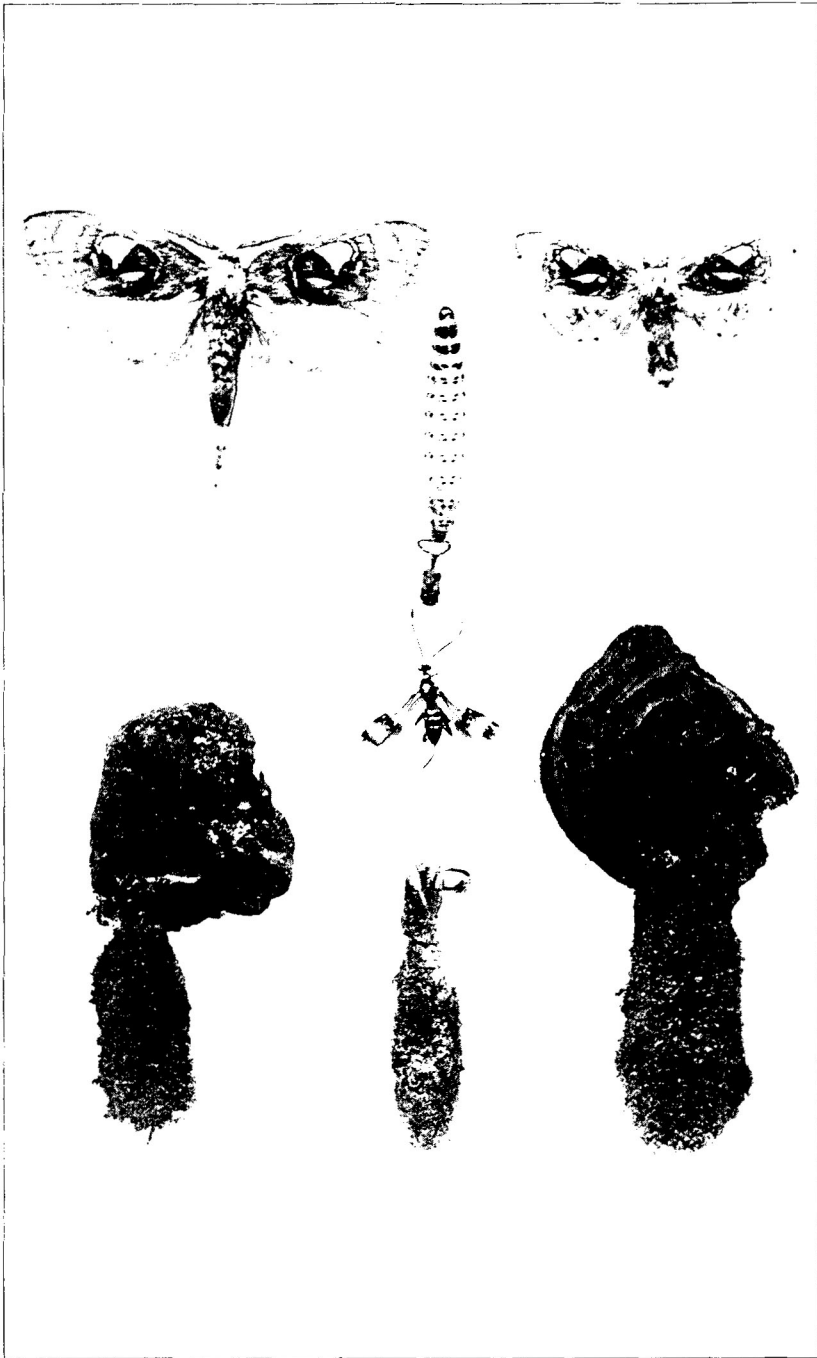
After my return to Washington, my friend Mr. Chas. P. Crafts of the Sanitary Department of the Canal Zone, who is himself an enthusiastic and successful collector and breeder of Lepidoptera, was good enough to send me fresh, nearly mature larvæ, from which I succeeded in rearing the imago in January, 1912, thus establishing the identity of the species.

I am under obligation to Mr. T. W. Smillie of the U. S. National Museum for the successful photograph, which shows, life-sized, this interesting insect, its larva, work, and parasite.

Structural figures of the new genera described in this paper will be published in a proposed complete paper on the collections of Microlepidoptera from Panama.

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<sup>1</sup> Smithsonian Misc. Coll., Vol. 59, No. 5.



PARATHYRIS PERSPICILLA Stoll

FEMALE, MALE, LARVA, PUPA, COCOONS AND PARASITE