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CONTRIBUTIONS
TO THE
NATURAL HISTORY
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LEPIDOPTERA
OF
NORTH AMERICA

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NOTES ON AUTOMERIS
REVISION OF GROTELLA
NOTES ON CUCULLIANÆ
NOTES ON DREPANA
NEW GENERA AND SPECIES

BY

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NOTES ON THE SPECIES OF AUTOMERIS FROM BOREAL AMERICA, WITH DESCRIPTIONS OF TWO NEW RACES

The recent addition of specimens of *A. io* race *coloradensis*, Ckll., necessitated the rearrangement of the case containing *A. io*. When this arrangement was completed two undescribed Geographical Races of *A. io* were found. These will be described in sequence, but it is thought best to place our ideas of the *Automeris* species and forms in the present paper. Only that part of the bibliography which may prove of interest is given.

AUTOMERIS PAMINA, Neum.

1882, Pap. II, 60, *Hyperchiria*; 1886, Sm., Proc. U. S. N. M., IX, 435, *Hyperchiria*; 1894, Neum. and Dyar, Jour. N. Y. Ent. Soc., II, 127, *Automeris*; 1903, Holl., Moth Book, p. 89, pl. IX, f. 6 (as *aurosea*) *Automeris*; 1914, Pack., Mon. Bomb. Moths N. A., III, 104, pl. XIX, ff. 1-6, LIX, 8-9, LXVII, 6-7, *Automeris*.

We place this as the form with the primaries not suffused with rufous, in accordance with specimens compared with types. We have this form from Yavapai Co., Prescott, Phoenix and Palmerlee, Ariz. *Type locality*, Prescott, Ariz.; Type ♂ and ♀. Collection Neumoegen.

AUTOMERIS PAMINA AUROSEA, Neum.

1882, Pap. II, 61, *Hyperchiria*; 1886, Sm., Proc. U. S. N. M., IX, 435 *Hyperchiria*; 1894, Neum. and Dyar, Jour. N. Y. Ent. Soc., II, 127, *Automeris*; 1914, Pack., (Ckll.), Mon. Bomb. Moths N. A., III, 105, pl. LXVII, ff. 8-9, *Automeris*.

We place this as the form with the primaries more or less suffused with rufous, in accordance with specimens compared with type. We have this form from Yavapai Co., Prescott and Palmerlee, Ariz. *Type locality*, Prescott, Ariz.; Type ♂ and ♀. Collection Neumoegen.

AUTOMERIS ZEPHYRIA, Grt.

1882, Can. Ent., XIV, 215, *Hyperchiria*; 1885, Snow, Trans. Kan. Acad. Sci., IX, 61, *Hyperchiria*, (biol.); 1886 Sm., Proc. U. S. N. M., IX, 436, *Hyperchiria*; 1894, Neum. and Dyar, Jour. N. Y. Ent. Soc., II, 127, *Automeris*; 1903,

Holl., Moth Book, p. 89, pl. VIII, f. 5, *Automeris*; 1914 Pack., Mon. Bomb. Moths N. A., III, 105, pl. LIX, f. 7, LXVIII, 1-2 *Automeris*.

We have this species from New Mexico (Snow) and High Rolls, N. Mex. There is considerable variation in the amount of rufous in the ground color, otherwise the species is quite constant.

AUTOMERIS IO, Fabr.

1775, Syst. Ent., p. 560, *Bombyx*; 1797, Abbot and Smith, Lep. Ins. Ga., I, 97, pl. XLIX, *Phalaena*; 1841, Harris, Rept. Ins. Mass. p. 284, *Saturnia*, (probably race *fuscus*, Luther); 1886, Sm., Proc. U. S. N. M., IX, 434, *Hyperchiria*; 1894, Neum. and Dyar, Jour. N. Y. Ent. Soc., II, 128, *Automeris*; 1903, Holl., Moth Book, p. 89, pl. IX, ff. 4-5, *Automeris*; 1914, Pack., Mon. Bomb. Moths N. A., III, 97, pl. XIX, f. 7, XX, 1, LIV, 5, LX, 3-4, LXVIII, 8, (ab).

Type Locality: "America".

COROLLARIA, Perry.

1810, Perry, Arcana, *Phalaena*. (*vide Neum. and Dyar*).

VARIA, Wlk.

1855, Wlk., Cat. Lep. Het. B. M., VI, 1278, *Hyperchiria*; 1864, Pack., Proc. Ent. Soc. Phila., III, 384, *Hyperchiria*; 1878 Stkr., Lep. Rhop. Het., p. 138, pl. XV, ff. 15 (ab), 16 (gynandromorph). *Type locality*: "North America?".

FABRICII, Bdv.

1875, Ann. Soc. Ent. Belg. XVII, 223, *Io*.

In this synonymy we simply follow the literature, especially Neumoegen and Dyar, and Packard.

AUTOMERIS IO ab. ARGUS, N. and D.

1893, Can. Ent., XXV, 123, *Automeris*; 1894, id., Jour. N. Y. Ent. Soc., II, 128, *Automeris*; 1914, Pack, Mon. Bomb. Moths N. A., III, 98, *Automeris*.

According to Packard this form is easily recognized by the immaculate wings showing only the large ocelli on the secondaries. We have no specimens. *Type locality*, Hoboken, N. J.

AUTOMERIS IO race FUSCUS, Luther.

1907, Jour. N. Y. Ent. Soc., XV, 131, *Automeris*; 1914, Pack., (Ckll, Dyar) Mon. Bomb. Moths, N. A., III, 98 pl. LX, ff. 1-2, *Automeris*; *lutheri*, Ckll. 1914, Packard's Mon. Bomb. Moths N. A., III, 99, *Automeris*.

Dr. Dyar states; according to Prof. Cockerell; that *fuscus* is the ordinary North Atlantic form of *io*. We have specimens which match the figures of the cotypes plated in Packard's Monograph. As might be expected, there is every intergrade between this race and that which goes under the name of

typical *io*. We wish to call attention to the fact, however, that there are several names in the synonymy of *io*, but until the true status of these names is carefully worked out, we are labeling our Northern forms, *A. io* race *fuscus*.

Should *A. fuscus*, Wlk. prove to be a true *Automeris* then the Northern race of *io* will have to go under the name of *lutheri*, Ckll; unless by that time one of the earlier names is found to be the same. Prof. Cockerell's name *lutheri* is simply intended to take the place of *fuscus*, Luther because of *fuscus*, Wlk. *Type locality*, Rhode Island.

AUTOMERIS IO race COLORADENSIS, Ckll.

1914, Packard's Mon. Bomb. Moths N. A., III, 99, *Automeris*.

The single female before us has the strong purplish suffusion to the secondaries mentioned by Prof. Cockerell in his original description. Three males differ considerably, one having nearly the color and maculation of *fuscus* but the reniform is only about one third normal size. In this specimen the ocelli of the secondaries make contact with the black lines. The two other males have the reniform larger, nearly normal and while the ocelli of the secondaries do not touch the black lines they are much closer to it than in typical *io* or *fuscus*. We strongly doubt, however, that this character will prove of much value. These two males have a tendency toward the reddish suffusion found in *lilith*, especially pronounced in one of them. Our specimens are all from Golden, Colo. (Oslar). *Type locality*, Boulder, Colo.

AUTOMERIS IO race LILITH, Stkr.

1878, Lep. Rhop. Het., p. 139, pl. XV, F. 17 (♀), *Hyperchiria*; 1886, Sm., Proc. U. S. N. M., IX, 434, *Hyperchiria*; 1894, Neum. and Dyar, Jour. N. Y. Ent. Soc., II, 128, *Automeris*; 1914, Pack., Mon. Bomb. Moths N. A., III, 102, pl. LX, ff. 5-6, *Automeris*.

This is perhaps the most distinct race of *A. io*; possibly worthy of subspecific rank. Messrs. Packard and Cockerell (1914, Mon. Bomb. Moths N. A.), have shown that the larvae presented differences from the larvae of *A. io*. Mr. Strecker described from females, but the name must stand as a "blanket name" for two different forms of males.

Some males have the primaries a deep yellow color, nearly as in "typical" *io* while others have the primaries suffused with brownish-rufous. Of course, either of these males could be assigned to the name and the other given a form name. This we dislike to do, however, for two reasons. One is that all intergrades are present in the

one locality and the junior author while in Mississippi reared both from one lot of larvae. The other reason is that we fear *corollaria*, Perry or *varia*, Wlk. may fit one or the other of the forms. The original description of *varia*, Wlk. rather sounds like the yellow form of *lilith*. Only accurate comparison with the types will ever enable anyone to give a logical synonymy for the various Eastern or Southern races and forms of *io* and *lilith*. *Type locality*, Atlanta, Ga. Types, 4 ♀ s, Field Museum (Collection Strecker).

In conclusion we venture to describe two new races, one from New Mexico and the other from Texas.

AUTOMERIS IO RACE NEOMEXICANA, NOV.

The females show the differences from the described forms and races of *A. io* in excess of those shown by the males; as is typical of all the races. Female: head and thorax similar to *coloradensis*, abdomen luteo-fuscous, each segment banded with deep rose cephalically. Primaries: t. a. and t. p. lines narrowly marked with blackish, which is bordered on the outside of the t. a. and inside of the t. p. with a conspicuous whitish line. Reniform but faintly distinguishable, outlined with a few whitish scales, centrally darker, almost making contact with the t. p. line. S. t. line pale, inconspicuous, but bordered internally by conspicuous triangular or subtriangular spots between the veins, these spots being of a deep grayish-purple color. Ground color of primaries deep fuscous brown heavily powdered with grayish-purple scales; medial and terminal areas darkest; due to more of the powdering; s. t. area somewhat paler, except for the triangular spots mentioned previously, basal and subbasal areas heavily clothed with long rufous hair. Secondaries as in *coloradensis* but with the purplish suffusion less pronounced, more nearly as in "typical" *io*.

Male: one specimen shows the ground color and maculation very similar to that of *fuscus*, another has somewhat the general cast of the yellow form of *lilith* while a third shows the distinct rufous cast quite strongly pronounced. The reniform is more conspicuously outlined in blackish than any specimens before us except some of the males of *lilith*.

We place this form between *fuscus* and *lilith*.

It is easily distinguishable in the female by the amount of dark powdering on the primaries combined with the dark patches between the veins; and in the male by the general resemblance to the yellow forms of *lilith* in maculation and often in color, and by the pronounced black ringed reniform.

Type locality and number and sexes of types: ♀ Holotype; ♂ Allotype; 2 ♂, 1 ♀ Paratypes; all from Jemez Springs, New Mex., and all June 8th-15th except one ♂ Paratype which is without date.

AUTOMERIS IO RACE TEXANA, NOV.

Female; as usual, more distinctive than the male. Head and thorax very deep purple with a few orange hairs. Ground color of the primaries deep gray-purple, a few yellowish, orange, and red hairs mesad of the t. a. line which is scarcely distinguishable except on costa—radius where it is marked by a few yellowish-white hairs. Medial, s. t. and terminal spaces concolorously deep gray-purple. Reniform showing mainly as deeper and more intense in coloration with a few bordering yellowish hairs. T. p. line similar in coloration. S. t. line pale, but decidedly inconspicuous altho somewhat marked internally by patches of deeper color between the veins. Veins crossing the s. t. and terminal areas, with a red cast. Secondaries similar to *lilith* but deeply suffused with gray-purple scales throughout the terminal areas, the subterminal band darker due to a gray-purple suffusion; and the orange surrounding the ocellus even deeper and more intense orange than in any specimen of *lilith* seen by the authors.

Male:—Almost intermediate in ground color between the yellow and the brownish-rufous forms of *lilith*, with similar maculation; lacking the gray shadings of the female.

We place this form last on the list of species, following *A. io* race *lilith*.

Type locality and number and sexes of types: ♀ Holotype, Brownsville, Texas, the date label reading 6-11 (which we take to mean June 11th), Geo. Dornier, Collector; ♂ Allotype, Black Jack Springs, Texas, Wm. Barnes, Collector; ♀ Paratype, San Benito, Texas, III-17.

Species and Forms Omitted as Exotic

AUTOMERIS ZELLERI, G. and R.

As per check list of B. & McD. Feb. 1917.

AUTOMERIS BOUCARDI, Druce.

We call attention to the original description and figures of this insect in the *Biologia Centrali-Americana*. Neither the text, the figures nor the type locality seem at all to fit *Automeris pamina aurosea* to which this species was sunk in the Check List, B. and McD., Feb. 1917. Should the insect eventually prove conspecific with *Automeris pamina* we venture the guess that it will certainly prove a decidedly valid race. While the course of the lines and the white markings on the primaries next to the thorax suggests *pamina* we have never seen *pamina* with the distinct shadings outside of the t.p. line shown in Druce's figures of *boucardi*.

A REVISION OF THE NOCTUID MOTHS HERETOFORE REFERRED TO THE GENUS GROTELLA, HARVEY

GROTELLA, Harvey.

Type: *Grotella septempunctata*, Harv. 1874, Harv., Bull. Buff. Soc. Nat. Sci., II, 278, *septempunctata*, Harv., sole species and therefore type.

Proboscis fully developed; palpi short, the second joint upturned and moderately scaled, the third porrect. Frons with a large hollowed-out process with corneous walls, and with an additional obliquely truncate central process, the tip of which is hollowed-out, its ventral margin being produced more than the dorsal. Eyes smooth, not ciliated, Antennae simple, in both sexes. Fore tibia with at least a long curved claw on the inner side and shorter claw or heavy spine on the outer. Mid tibia spined. Hind tibia usually with a spine between the spurs, often small and difficult to see. Abdomen and wings smoothly scaled. Primaries; veins; 3 (Cu_1) from before angle of cell, 5 (M_2) from above angle, 6 (M_1) from upper angle, 9 (R_3) from 10 (R_2) anastomosing with 8 (R_4) to form the areole, 11 (R_1) from cell. Secondaries; veins 3 and 4 (Cu_1 and M_3) from angle of cell, 5 (M_2) from about a third below the middle of the discocellulars, almost fully developed, 6, 7, (M_1 , R) shortly stalked from upper angle.

Genitalia: a paired, heavily chitenized organ arising from the dorso-caudal margin of the valves, present, extending to near the base of the uncus and supporting the aedeagus. This may be a part of the anellus or juxta. Penis bearing at least some heavy spines, usually a great many, (cornuti of Pierce). Uncus usually with the tip broadened, spoon-shaped, and bearing a spine at or near the end.

The armature of the tibiae is variable, but probably more or less constant specifically. The small slender spines on the fore tibiae above the spurs are often difficult to see, as is the presence or absence of the single spine between the spurs on each hind tibia. The authors desire to point out that the small spines are easily broken, and also that they are frequently so small and so intermingled with the tibial vestiture that it is practically impossible to tell the correct spinulation. The number of spines on the fore tibiae and the presence or absence of spines on the other tibiae, as seen thru an ordinary binocular microscope, is listed under each species.

The frontal processes are often slightly different between species and usually rather constant within a given species. This character is too comparative to be of much use except as a check on identifications.

The types of all species considered are in the Barnes Collection with the exception of *septempunctata*, *dis*, and "*Cisthene*" *lactea*, the

two first named being represented by compared specimens which are also probably topotypical.

The authors remove *colora* from *Grotella* and erect the genus *Grotellaforma* for this species, the tibiae being unspined. *Spauldingi* is also removed, and a new genus, *Neogrotella*, erected to contain it, along with two other species (new), i. e., *confusa* and *mcdunnoughi*. In these the central prominence is distinctly beak-like, not hollowed-out in front, as in *Grotella*.

The proposed genera for the species heretofore referred to the genus *Grotella* are:

- I. Fore and mid tibiae, at least, spined.
 - A. Central prominence of front obliquely truncate, and hollowed-out*Grotella*
 - B. Central prominence of front not obliquely truncate and hollowed-out; prominently beak-like*Neogrotella*
- II. Tibia unspined, fore tibiae without claws.....*Grotellaforma*

Keys are given before the specific descriptions under each genus, except *Grotellaforma* which contains the sole species *colora*, in the hope that they may serve to place the majority of the specimens. The occasional aberrant specimen will have to be carefully compared with accurately determined material; but the specific descriptions given herewith, may prove of some assistance in this regard. Rather than quote the original descriptions the authors have seen fit to redescribe the species because of the availability of the types.

KEY TO THE SPECIES OF THE GENUS GROTELLA

- I. Primaries with the ground color white or very pale cream-white,
 - A. Primaries marked by small black spots or dots only, never more than four in the medial—s. t. regions,
 - a. Primaries with the ground color satiny-chalk-white,
 - a¹. Fringe and terminal area (primaries) concolorously white,
 - a². With a medial line of four *distinct* black spots or dots*septempunctata*
 - b². The medial line with a maximum of three black dots or spots, the ordinary second spot outside of the cell in the t. p. line area; the black spots often obsolescent,
 - a³. Secondaries with the basal area, at least, not contrasting with the ground

- color of the primaries and with the medial band usually conspicuously fuscous on a paler ground *blanca*
- b³. Secondaries distinctly contrasting with the ground color of the primaries and with the medial band obscured on a dark-fuscous ground *dis.*
- b¹. Fringe (primaries) with more or less distinct black or blackish spots or dots at base,
- a². Expanse 21-24 mm., dots at the base of the fringe usually clean-cut, very distinct (Arizona) *sampita*
- b². Expanse 24-25 mm., dots at the base of the fringe not clean-cut, appearing as disconcolorous spots rather than as distinct dots (Colorado) *harveyi*
- b. Primaries with the ground color creamy-white; not bright satiny-chalk-white,
- a¹. Valve of male without heavily chitenized clasper-like projection (N. Mex. & Ariz.) *parvipuncta*
- b¹. Valve of male with heavily chitenized clasper-like projection,
- a². Valve characteristic, Nevada *vagens*
- b². Valve characteristic, So. Calif. *stretchi*
- B. Primaries conspicuously marked by black or brownish black spots formed into bands, always more than four in medial—s. t. regions,
- a. Primaries marked with black or brownish black only, on white or whitish ground, (two colors)
- a¹. With spots on veins 2 (Cu₂) and 3 (Cu₁) in s. t. area; hind wing with a broad fuscous terminal band *soror*
- b¹. Without spots on veins 2 and 3 in s. t. area; hind wing without broad fuscous terminal band *binda*
- b. Primaries marked with an additional distinctly brown band or line thru s. t. area, (three colors) *tricolor*
- II. Primaries darker; olivaceous, brown or yellow, *not* white,
- A. Ground color of primaries some shade of lemon-yellow *citronella*
- B. Ground color of primaries not lemon-yellow,
- a. Collar tinged with orange, disconcolorous with thorax; habitus Grotella-like *grisescens*
- b. Collar not tinged with orange, concolorous with thorax; habitus of a small *Nartheophora pulverea*,
t. a., t. p. and reniform usually visible *olivacea*

GROTELLA SEPTEMPUNCTATA, Harv. (fig. 1).

1874, Harv., Bull. Buff. Soc. Nat. Sci., II, 278, *Grotella*. 1882, Sm. Trans. Am. Ent. Soc., X, 218, pl. VIII, f. 8, *Grotella*. 1893, Sm., Bull. U. S. N. M., XLIV, 266, *Grotella*. 1903, Hamp., Cat. Lep. Phal. B. M., IV, 96, text fig. 31, *Grotella*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, #4, 11, pl. IV, f. 5, *Grotella*.

Front with a large hollowed out process with corneous walls with an additional obliquely truncate central process the tip of which is hollowed out, its ventral margin being considerably more produced than the dorsal. Fore tibia rather short, with a moderately heavy curved claw and two very slender spines on the inner side; and a heavy spine or short claw on the outer. Mid tibia moderately spined. Hind tibia with a single spine between the spurs, near the last pair.

Head, collar, thorax, abdomen and ground color of the primaries pure satiny white. The latter with seven distinct black dots on each, as follows; a transverse anterior row of three, and a medial row of four. Occasionally traces of two minute dots in the basal region. Secondaries; pure white in all specimens before the authors except one in which there is a few fuscous scales thru the costal region. Beneath; primaries suffused with fuscous, paler to nearly white in the anal region. Secondaries; pure white except for some fuscous scaling thru the costal region.

Expanse; 21-22 mm.

Uncus with a spoon-shaped tip, from the dorsal surface of which arises a heavy spine. Vinculum pointed. Penis with a large number of heavy spines which appear to half fill the aedoeagus sheath.

This species is represented in the Barnes Collection from Kerrville and Shovel Mt., Texas.

Type locality; Texas.

Type; British Museum, ♂.

GROTELLA HARVEYI, sp. nov. (fig. 2).

Front and legs similar to *septempunctata*.

Head, collar, thorax, and ground color of the primaries pure white, the latter marked with black spots, essentially as in *septempunctata* but the spots are much heavier, and there is a trace of black checkering in the fringe. The two small basal spots, vestigial in *septempunctata*, are well marked. Secondaries; slightly tinged with fuscous, especially toward the costa. Beneath: primaries deep fuscous; secondaries white, except along the costal margin which is fuscous, a spot on the discocellular vein and some fuscous shading extending from the costal region into the medial area outwardly from the ordinary spot.

Expanse: 24-25 mm. (A somewhat larger species than *septempunctata*.)

Genitalia: similar to *septempunctata* but the uncus spine is more apical and the vinculum more rounded, the tip not to as distinct a point.

This species is probably represented in the Barnes Collection by four specimens besides the types. One is a male, Colorado, (Bruce), but lacks the checkering to the fringe and is without an abdomen; the others are females, (1) S. W. Colo., Aug., (Oslar), but with the secondaries darker than in the types; (2) Colorado, without other data and apparently an imperfectly expanded specimen for the primaries are less trigonate than is normal in the genus, (3) Colorado, (Bruce), "Type" (Paratype) of *sampita*, but is almost certainly the present species.

Type localities and number and sexes of types: ♂ Holotype, Denver, Colo., (Oslar); ♀ Allotype, Colorado (Bruce).

GROTELLA SAMPITA, Barnes. (fig. 3).

1907, Barnes, Can. Ent., XXXIX, 93, *Grotella*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, #4, 11, pl. IV, f. 10, *Grotella*.

Front and legs essentially as in *septempunctata*, except that the claw on the inner side of the fore tibia appears to be very slightly longer and heavier.

Head, collar, thorax and ground color of the primaries pure white. Black spots present on primaries, as in *harveyi*, 2 basal, 3 transverse anterior, and 4 medial. A clean-cut row of black spots checker the fringe. Secondaries; fuscous, whitish toward the base and in the anal region; in occasional specimens, white. A trace of the medial band, usually so prominent in *blanca*, present, never pronounced. Fringe usually plainly checkered at base by a row of black spots. Beneath as in *harveyi*, but the fuscous and white more contrasting, except in the occasional pale specimens.

Expanse: 21-24 mm.

Genitalia: Similar to *blanca*, but the uncus has an even broader end, the spine is shorter and quite dorsal; and the vinculum, while of the same general pattern, has a spine-like tip.

This species is represented in the Barnes Collection from Redington; Palmerlee; Mohave Co.; and Paradise, Cochise Co., Arizona; besides the types. The Mohave Co. specimens are the ones that possess the pale secondaries. They may represent a race, or even a distinct species, but if so, are remarkably closely allied to *sampita* in genitalia.

Type localities and number and sexes of types: "Type", ♂, Southern Arizona, (Poling), which is hereby designated the Lectotype; "Type", ♀, Wilgus, Cochise Co., Ariz., (Allotype); also 1 ♀ "Type", Colorado, (Bruce), which is placed in *harveyi*.

GROTELLA BLANCA, Barnes. (fig. 4).

1904, Barnes, Can. Ent., XXXVI, 239, *Grotella*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, #4, 11, pl. IV, f. 18, *Grotella*.

Front and legs essentially the same as in *septempunctata*.

Head, collar, thorax and ground color of the primaries pure white. There are seven distinct spots and two small basal dots on each primary, as follows: three black spots in the t. a. region, extending in a diagonal line from the costa to the inner margin; whereas in all pure-white winged species except *dis*, the second spot is almost directly beneath the costal spot, or basad of it. The medial row contains only three spots, one on costa, one below the cell in the submedian fold and one on the inner margin, the usual second spot being in the transverse posterior region beyond the end of the cell. Secondaries: White, somewhat suffused with fuscous, especially apically; and with a more or less distinct, transverse, fuscous medial band. Some of the other white winged *Grotella* species show a trace of the medial band on the hind wing, but the present species is unique in usually possessing a distinct band. Beneath: as in *harveyi*, but the discocellular spot is not visible.

Expanse: 25-26 mm.

Genitalia: essentially as in *septempunctata*, but the vinculum is more pointed, tapering gradually to a very decided point. The uncus is slightly broader at the tip which is of the usual spoon-shape and possesses the dorsal spine. The valves are quite different, as may be seen from the figure.

This species is represented in the Barnes Collection from Palmerlee, and Babaquivera Mts., Pima Co., Arizona; besides the types.

Type localities and number and sexes of types: "Type ♂", Southern Arizona, July 15-30, (Poling), which we hereby designate the Lectotype. "Type ♀", (Allotype), Wilgus, Cochise Co., Arizona.

GROTELLA DIS, Grt. (fig. 6).

1883, Grt., Ann. Mag. Nat. Hist., (5), XI, 55, *Grotella*. 1883, Grt., Trans. Kans. Acad. Sci., VIII, 55, *Grotella*. 1893, Sm., Bull. U. S. N. M., XLIV, 266, *Grotella*. 1903, Hamp., Cat. Lep. Phal. B. M., IV, 96, pl. LVII, f. 10, *Grotella*. 1903, Holl., Moth Book, p. 220, pl. XXVII, f. 8, *Grotella*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, # 4, 11, pl. IV, f. 6, *Grotella*.

Front and legs essentially the same as in *septempunctata*.

Head, collar, and thorax same color as ground of primaries. Primaries: pure white, black dots present or absent, usually small, often vestigial; when visible as in *parvipuncta* and *blanca*. Secondaries: almost evenly suffused with fuscous, presenting a dark appearance, somewhat paler toward the anal region. Often a trace of a medial shade line, but very vestigial and difficult to see. Beneath: primaries heavily suffused with fuscous, only the fringe appearing white; secondaries white, dusky along costal margin and with a trace of a vestigial median band.

This species is very closely allied to *parvipuncta*; but, as pointed out by Barnes and McDunnough, easily separated by the white instead of cream-white color of the primaries.

Expanse: 22-27 mm.

Genitalia: almost identical with *parvipuncta*, except in the shape and size of the valves, and the fact that the chitenized flap is quite different in shape, as shown by the figure.

Apparently these two species are very closely allied, and probably one is of recent development from the other or they have originated from a common ancestor within a comparatively recent date.

This species is represented in the Barnes Collection from Jemez Springs and Fort Wingate, N. Mex.; White Mts., and Paradise, Cochise Co., Ariz.

Type locality: New Mexico.

Types in: Neumoegen and Snow Collections.

GROTELLA PARVIPUNCTA, B. & McD. (fig. 5).

1912, B. & McD., Can. Ent., XLIV, 19, *Grotella*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, # 4, 11, pl. IV, f. 19, ("Type ♀"), *Grotella*.

Front and legs essentially as in *septempunctata*, the claw on the fore tibia somewhat heavier.

Head, collar, thorax and ground color of the primaries creamy-white, not with the satiny chalk-white of *dis*. Spots seldom plain, usually vestigial; when present, spaced as in *blanca*. Secondaries: dusky. Beneath: primaries, fuscous; secondaries, creamy-white with some slight amount of fuscous along costal and outer margins.

Expanse: 23-24 mm.

This species is represented in the Barnes Collection from Jemez Springs, N. Mex.; and Mohave, and Plane Mine, Bill Williams River, Yuma Co., Ariz., besides the types.

The "type ♂" has the secondaries somewhat paler than the remainder of the type series, but we believe this is due to being a rather worn specimen. Our idea of a typical specimen of the species is represented by the figure of the "Type ♀" in the "Contributions." We prefer not to designate either the male or female "Type" as the lectotype until sufficient specimens have come to hand to prove, beyond doubt, that they are conspecific. The "Type ♂" lacks the body, so we cannot examine its genitalia.

Genitalia: similar to *blanca* and *dis*, but differing in the size and shape of the valve and the auxiliary flap-like structure on the basal third of the valve.

Type localities and number and sexes of types: "Type ♂", Fort Wingate, N. Mex., July 24-31; "Type ♀", Fort Wingate, N. Mex., July 1-7; "Cotype(s)" (Paratypes), 1 ♂, 1 ♀, Deming, N. Mex., Sept. 1-7.

GROTELLA STRETCHI, sp. nov. (fig. 7).

Front as in *G. septempunctata*. Fore tibia with long curved claw on inner side and about three small spines above; one curved claw-like spine on outer

side and two small spines above. Mid tibia spined. Hind tibia with a spine between the spurs.

Head, collar, thorax, primaries and their fringes concolorously white with a cream tinge, slightly more so than *parvipuncta*, but relatively pure white when contrasted with *spauldingi*. A small black dot, in submedian fold, takes the place of a t. a. line; a black dot at the end of the cell and another in the submedian fold take the place of a t. p. line. All of the black dots are very minute. Secondaries: smoky, paler thru anal region, especially basally. Beneath: primaries, smoky-fuscous, the costal, outer and inner margins paler; with the fringe white. Secondaries: pale, with a very slight fuscous suffusion. A trace of a fuscous spot present, beyond the cell. Fringe white. Sexes similar.

Expanse: 23-24 mm.

Genitalia: uncus with spoon-shaped tip, and an apparently apical spine. Vinculum broadly rounded, the tip rather bluntly pointed. Tegumen rather heavy. A spine patch on the penis, heavy, but comparatively very light for a *Grotella*, composed of long heavy spines at the base, with some short spines set on chitinous humps toward the caudal end; intermingled with these "ordinary" spines is a corona-like set of small heavy spines. The valves of this species and *vagans* are quite unique in the genus.

Type locality and sex of type: ♂ Holotype, Palm Springs, Riverside Co., Calif., April 16-23.

GROTELLA VAGANS, sp. nov. (fig. 8).

Front essentially as in *septempunctata*. Fore tibia with an outer short claw and two spines above, an inner heavy claw with two spines above, and an additional spine at the tip. Mid tibia heavily spinulated. Hind tibia with a spine between the spurs.

Head, collar, thorax and primaries concolorously white, the white grayed with a somewhat creamy tinge; *not* the satiny-chalk white of the *septempunctata* group. Black dots on primaries obsolescent, apparently nearly as in *parvipuncta*. Fringe white, darker at the base. Secondaries: somewhat variable, being rather heavily suffused with fuscous on a white ground, in one specimen appearing quite deep fuscous. Fringe white. Beneath: primaries blackish-fuscous; secondaries pale, not white, somewhat darkened by fuscous. Fringe white.

Expanse: about 23 mm.

Genitalia: similar to *stretchi*; uncus with the tip considerably broadened and spoon-shaped with a dorsal spine; vinculum with a definite point; penis armed with fewer spines than typical in the genus; valves similar to *stretchi*, but shorter and broader, the chitinous clasper-like projection extremely heavy and somewhat longer.

Type locality: Clark Co., Nev.; April 24-30.

Number and sex of types: ♂ Holotype; 2 ♂ Paratypes.

GROTELLA BINDA, Barnes. (fig. 9).

1907, Barnes, Can. Ent., XXXIX, 93, *Grotella*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, # 4, 11, pl. IV, f. 12, *Grotella*.

Front and legs essentially as in *semiempunctata*, but in the specimens before the authors there appear to be neither the small spines on the fore tibia nor any spine on the hind tibia.

Head, collar, thorax, and ground color of the primaries white, with a very faint yellowish tinge. A black spot present on costa, near base; four heavy black spots forming an only slightly interrupted t. a. line; a black spot on costa in medial area; a black spot substituting the reniform; an only slightly interrupted t. p. line of heavy black spots (7-9); a black spot on costa and another small one just below take the place of an s. t. line; a black band along the outer margin, broken into quadrilateral black spots by the white veins. Fringe: pale, slightly darkened terminally. Secondaries: pale, soiled with some fuscous scaling toward the apex. Fringe: white. Beneath: primaries yellowish fuscous, white along the inner margin; traces of the t. a., t. p., and reniform showing thru; a conspicuous, quadrilateral yellowish patch near apex; a terminal darker band broken by the veins into spots. Fringe pale, tipped with some fuscous. Secondaries: white, fuscous thruout costal region.

Expanse: 19-23 mm.

Genitalia: uncus without spoon-shaped tip, but dorsal spine present, pronounced; vinculum short, tapering rapidly as a circular triangle to a point; penis with a very heavy spine patch, the caudal spines being somewhat shorter and with their bases widened; the valves, radically different from all other species of the genus *Grotella*, examined by the authors, except *tricolor*, which seems to be the extreme. The armature of the valves is more hair-like, but similar to *tricolor*, and is omitted from the figure for the sake of clearness.

This species is represented in the Barnes Collection from: Santa Catalina Mts., Pinal Co., Arizona, Aug. 1-7; Chiricahua Mts., Cochise Co., Ariz.; San Bernardino Ranch, 3750 ft., Cochise Co., Ariz., Aug., (F. H. Snow); Redington, Ariz., Christmas, Gila Co., Ariz., So. Ariz.; Deming, N. Mex., Sept. 1-7; So. N. Mex., Aug. 23-30, (Poling); "N. Mex.", Aug.

Type localities and number and sexes of types: "Type", ♂, Santa Catalina Mts., (no date), hereby designated the Lectotype; "Type", ♀, Chiricahua Mts., (no date), to be considered the Allotype; "Type", ♀, So. Arizona, (Poling), which may be considered to have paratypical status.

GROTELLA TRICOLOR, Barnes. (fig. 10).

1904, Barnes, Can. Ent., XXXVI, 240, *Grotella*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, # 4, 11, pl. IV, ff. 16-17, *Grotella*.

Front similar to *septempunctata*. Fore tibia with a somewhat shorter inner claw, only about one-half to two-thirds of its length, and somewhat longer and heavier outer spine than in *septempunctata*. Two smaller spines are present on the inner side, and also what appears to be a vestige of two additional slender and minute spines. There are two additional slim spines on the outer side. Mid tibia with three or four spines on upper half only. Hind tibia with a small, slim, spine; near apical spurs; only visible in an occasional specimen.

Primaries: ground color pure white; with a black spot on costa near the base; a t. a. line of four black spots; a black spot on costa in medial region; a black spot near end of cell; t. p. line of black spots, some of which may be connected; followed by the s. t. band of the ground color, thru the center of which is a distinct brown shade line; s. t. line of eight or nine black spots, often partially conjoined; a short brown dash, near and parallel to outer margin above vein 2 (Cu_2); a terminal row of black spots in the female, continued onto the white fringe, causing it to be checkered; in the male the spots appear to be confined to a checkering of the fringe, but are very pronounced. Secondaries: fuscous, paler toward the base. A trace of a medial line present. Beneath: primaries heavily suffused with yellowish-fuscous over a white ground, white in anal region. A terminal yellowish shade, obscured toward inner margin, continued along costa, where it is broken by s. t. and t. p. fuscous shades. Fringe checkered. Secondaries: white, suffused with fuscous along costal and outer margins, with a fuscous medial shade line and discal spot.

Head, collar, and thorax same color as the ground of the primaries.

Expanse: 20-24 mm.

Genitalia: uncus without spoon-shaped tip, the point drawn out spine-like; vinculum short and rounded, only the very end somewhat pointed; penis with a very heavy dense spine-patch, toward the caudal end of which the spines become very short but very heavy and mounted on mound-like bases. The valves are exceptionally and radically different in shape from any other species known to the authors except *binda*. Probably *soror* will be found to have a similar valve. There are a quantity of spine-like hairs along the inner or dorsal margin of the valves and a very distinct hair-tuft from the cephalic edge of the inbent projection, near the center of the valve, which have been omitted from the figure for the sake of clearness.

This species is represented in the Barnes Collection from: Santa Catalina Mts., Pinal Co., Aug. 1-7, 24-30, and Redington, Arizona; Southern Arizona, (Poling); and "Arizona."

Type localities and number and sexes of types: "Type", ♂, Santa Catalina Mts., Aug. 24-30, hereby designated the lectotype; "Type ♀", So. Arizona, (Poling).

GROTELLA SOROR, B. & McD.

1912, B. & McD., Can. Ent., XLIV, 19, *Grotella*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, # 4, 11, pl. IV, f. 13, ("Type ♀"), *Grotella*.

Front essentially as in *septempunctata*, the central prominence possibly not as much produced. Fore tibia with a heavy inner claw and three or four spines, the outer side with a short spine only. Mid tibia with about four spines on upper half only. Hind tibia unspined (?).

The original description, plus the figure in the "Contributions" will serve to identify this insect. The brown abdomen may be the result of staining, but apparently is not. Most of the specimens of *binda* appear to have a brown abdomen due to staining, but in fresh specimens the abdomen matches the thorax.

The female type is a unique, so the genitalia are unavailable for study. The insect certainly seems closely associated with *binda* and *tricolor*, but is abundantly distinct. It differs from the former in the more even t. p. line, the presence of an apical brownish-black patch, and patches near the termination of veins 2 and 3 (Cu_2 and Cu_1), and the fact that the brownish-black checkering of the fringe does not extend backward into the terminal area of the wing itself as it does in *females* of *binda*. The secondaries are much more heavily suffused with fuscous, being slightly pale only along the basal portion of costa, and the lower basal half of the wing. A very broad deep-fuscous band along the outer margin, nearly extending inward to the middle of the wing, suggests the same band present in many species of *Oncocnemis* and is not present in any other *Grotella* known to us.

Expanse: about 24 mm.

Type locality: Redington, Ariz.

Type: "Type ♀", (Holotype), Unique.

GROTELLA GRISESCENS, B. & McD. (fig. 11).

1910, B. & McD., Jour. N. Y. Ent. Soc., XVIII, 157, *Antaplaga*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, # 4, 27, pl. XII, f. 10, ("Type ♀"), "*Antaplaga*", *Grotella*.

Front essentially as in *septempunctata*. Fore tibia with an outer claw-like spine and a very heavy inner claw, but the authors are unable to find any other spines. The mid tibia spined. Hind tibia unspined (?).

Head, thorax, and abdomen the same creamy-olivaceous color as the costal region of the primaries. Collar with at least some lemon coloring, usually pronounced; the disconcolorous collar a unique character in the genus as far as known to the authors. Primaries: with the ground color smoky-brown, heavily dusted with creamy-olivaceous scales, the ground color plainly showing only in the medial area in the space from below the cell to the inner margin; else showing faintly thru the olivaceous dusting especially where the scales have been rubbed. The olivaceous shade is strongest on the costa, being quite creamy in tone. Fringe: pale creamy-olivaceous. Secondaries: light smoky-brown, the fringes somewhat paler. Beneath: primaries, deep fuscous; secondaries: pale cream color without markings. Fringes somewhat paler.

Expanse: about 21-22 mm.

Genitalia: uncus with minute, almost vestigial, dorsal spine near tip, but with the tip semi-cylindrical, not spoon-shaped; vinculum tapering to a blunt point; heavy spine patch on penis; valves with sacculus at base, as shown in the figure, formed apparently by the way the valves are folded at the base, not a more heavily chitenized structure unaltering the width of the basal portion as in *Grotellaforma colora*.

Notes: four specimens only in the Barnes Collection, all from Deming, N. Mex.

Type: "Type ♀" (Holotype), Deming, N. Mex., Sept. 1-7.

GROTELLA OLIVACEA, B. & McD. (fig. 12).

1911, B. & McD., Jour. N. Y. Ent. Soc., XIX, 152, *Grotella*. 1912, B. & McD., Cont. Nat. Hist. Lep. N. A., 1, # 4, 11, pl. IV, f. 8, ("Type ♂"), *Grotella*.

Front essentially as in *septempunctata*, but the main process is projected somewhat further, is more cup-shaped; and the smaller central process exceeds the palpi. In consequence, the palpi are somewhat "folded". Fore tibia with a very heavy inner claw, and outer claw-like spine; but apparently lacking the two small spines on the inner side. Mid tibia spined. Hind tibia unspined (?).

Head, collar, thorax, abdomen and ground color of the primaries concolorous; variable in intensity, but always some shade of olive-brown. The primaries crossed by t. a. and t. p. lines of darker brown, variably distinct, the former straight below costa, obliqued strongly outward below cell, thence obliqued inwardly to the inner margin. T. p. line outcurved and dentate around end of cell, thence with a single incurve to the inner margin. Reniform present, usually distinct, as a pale dot or bar at the end of the cell. S. t. shade usually vague. Fringe: brownish, interlined with darker brown. Secondaries: fuscous-brown. Fringe paler, interlined with darker. Beneath: primaries with the ground color nearly as on the upper side, slightly paler apically. Secondaries: cream-color.

Habitus: greatly resembling a small *Nartheophora pulverea*; and is the only species of *Grotella* known to the authors, possessing such a habitus.

Expanse: 18-21 mm.

Genitalia: uncus with tip slightly spoon-shaped and with dorsal spine; vinculum tapering, but the point is much blunter than typical in the genus; penis with a large number of spines, but the ones near the basal end appear somewhat longer and heavier than in *septempunctata*, the total number of spines less but the bulk of the spination about the same due to the heavier spines.

This species is represented in the Barnes Collection from: "N. Mex.", Aug.; Santa Catalina Mts., Pinal Co., Ariz., Aug. 1-7, Sept.; So. N. Mex., Aug. 23-30, (Poling); Deming, N. Mex., March 16-23, Sept. 1-7.

Type locality: Deming, N. Mex., Sept. 1-7.

Number and sexes of types: "Type ♂", the specimen figured in the "Contributions", hereby designated the Lectotype; "Type ♀", (Allotype); and 2 ♀'s, "Cotype(s)", (Paratypes).

GROTELLA CITRONELLA, B. & McD. (fig. 13).

1916, B. & McD., Cont. Nat. Hist. Lep. N. A., III, #1, 5, pl. III, f. 13, ("Type ♂"), *Grotella*.

Front similar to *septempunctata*, but the central process is slightly more elongate and not as deeply hollowed out. Fore tibia: with a short heavy claw and three spines with the vestige of a fourth, on the inner side; a short heavy claw-like spine and three other spines on the outer. Mid tibia spined. Hind tibia with a spine between the spurs.

Head, collar, thorax and ground color of the primaries lemon-yellow. Fringes and abdomen somewhat paler. Each primary crossed by a black t. a. and t. p. line, the lines tending to become punctiform or obsolescent. Secondaries: smoky fuscous, slightly paler at the very base and in the basal part of the anal region. Beneath: the primary with a deep-fuscous central area bounded along costal, outer and inner margins by pale lemon-yellow. Secondaries: pale with a slight yellowish tinge.

Easily told by the lemon-yellow primaries, a color unique in the genus, as far as known.

Expanse: 19-20 mm.

Genitalia: rather unique; tegumen rather heavy and broad; the uncus without a definite base, the broad basal part gradually tapering to about the middle of the uncus proper, apparently somewhat flattened laterally to the tip, which is not spoon-shaped and bears a spine. The vinculum has a rounded tip. The penis possesses only about five spines; which, while they appear large for the normal Noctuid, are quite moderate for a *Grotella*. The valves are very primitive looking, with a short poorly developed sacculus.

Represented in the Barnes Collection from type locality and dates only.

Type locality: Palm Springs, Riverside Co., Calif.

Number and sexes of types: "Type ♂", no date, the specimen figured in the "Contributions", hereby designated the Lectotype; "Type ♀" (Allotype), April 16-23; Paratypes, 2 ♂'s, April 16-23, 1 ♀, April 8-15.

Neogrotella, gen. nov.

Type: *Neogrotella spauldingi*, B. & McD.

Proboscis fully developed; palpi short, the second joint upturned and moderately scaled, the third porrect. Frons with a large hollowed-out process with corneous walls, and with an additional beak-like central process. Eyes smooth, not ciliated. Antennae simple in both sexes. Fore tibia armed with a slim, more or less spine-like claw on the inner side and with more than two slim spines above; the outer side with a claw or claw-like spine and more than three slim spines above. Mid tibia spined. Hind tibia apparently unspined. Abdomen and wings smoothly scaled. Primaries: veins, 3 (Cu_1) from before angle

of cell, 5 (M_2) from above angle, 6 (M_1) from upper angle, 9 (R_3) from 10 (R_2) anastomosing with 8 (R_4) and 7 (R_5) to form the areole, 11 (R_1) from cell. Secondaries: veins 3 and 4 (Cu_1 and M_3) from angle of cell, 5 (M_2) from slightly below middle of the discocellulars, almost fully developed, 6, 7, (M_1 , R) stalked from upper angle.

Genitalia: a paired, heavily chitenized organ arising from the dorso-caudal margin of the valves, present, extending to near the base of the uncus and supporting the aedoeagus. This may be a part of the anellus or juxta. Penis bearing at least some heavy spines, (cornuti of Pierce). Uncus with the tip somewhat broadened; but not spoon-shaped; bearing a spine on or near the end.

KEY TO THE SPECIES OF THE GENUS NEOGROTELLA

Ground color of primaries some shade of cream with no maculation except for the t. a. and t. p. lines which are often obsolete; fringes *never* checkered, concolorous with, or lighter than, the primaries, *immaculate*.

- I. Expanse 24-26 mm.; fore tibia with about 1 claw and 5 spines on the inner side, and 1 claw and 4 spines on the outer—Colorado *confusa*
- II. Expanse 22-23 mm.; fore tibia with about 1 short spine-like claw and three spines on the inner side, and 1 claw-like spine and 4 spines on the outer—Utah *spauldingi*
 Ground color of primaries extremely variable, ranging from cream thru olive to blackish gray; often with some maculation besides t. a. and t. p. lines, i. e., a trace of the reniform or s. t. showing; fringes *usually* checkered, or at least not immaculate except in pale specimens.
- III. Expanse 18-21 mm.; fore tibia with about 1 claw and 4 spines on the inner side and 1 claw and 4 spines on the outer—Southern California *mcDunnoughi*

NEOGROTELLA CONFUSA, sp. nov. (fig. 14).

Front as in *spauldingi*. Fore tibia with about one claw and five spines on the inner side and one claw and four spines on the outer. Mid tibia missing in the three specimens before the authors. Hind tibia unspined (?).

Head, collar, thorax, abdomen and primaries concolorously cream. Traces of black spots, as in *parvipuncta*. Some smoky color showing thru the cream where rubbed. Fringes very slightly paler, unmarked. Secondaries almost unicolorously smoky-fuscous. Fringes contrastingly pure cream-white. Beneath: primaries, smoky fuscous edged with paler along costa, outer and inner margins, the veins slightly darker. Fringe nearly pure white, immaculate. Secondaries and their fringes concolorously nearly pure white, with a very faint cream tinge.

Expanse: 24-26 mm. (Larger than *spauldingi*.)

Genitalia: similar to *spauldingi*, but the uncus is slightly broader near the tip with a somewhat dorsal spine; the vinculum is produced to a very pronounced, long and recurved point. The spine patch of the penis appears to be somewhat smaller, and the spines, in general, somewhat longer and slenderer. The valves are differently shaped and considerably longer. The authors have observed considerable care in getting the valves very near to the same angle in all of the *spauldingi* group, as a very slight turning of such a simple valve immediately conveys the idea of a different shape.

Type localities and number and sexes of types: ♂ Holotype and 1 ♂ Paratype, Denver, Colo.; ♀ Allotype, "Colo.", (Osler). No dates on any of the specimens.

NEOGROTELLA SPAULDINGI, B. & McD. (fig. 15).

1913, B. & McD., Cont. Nat. Hist. Lep. N. A., II, #3, 105, pl. IV, f. 1 ("Type ♂"), f. 2 ("Type ♀"), *Grotella*.

Front as in *septempunctata*, but the central prominence is distinctly beak-like without an additional central hollow. Fore tibia with a short spine-like inner claw and about three slender spines above; on the outer side with a heavy claw-like spine, nearly as long and heavy as the inner claw, and with about four slender spines above. Mid tibia spined. Hind tibia apparently lacking the spine between the spurs.

Head, collar, thorax, and ground of the primaries cream color of varying intensity. T. a. and t. p. lines brownish-black, tending to become punctiform and usually partly obsolescent. Fringe pale, immaculate. Secondaries: smoky. Fringe pale, immaculate. Beneath: primaries, smoky with pale costal, outer and inner margins. Secondaries pale. Fringes *unchecked*, immaculate.

Expanse: 22-23 mm.

Genitalia: uncus very slightly broadened toward the tip, nearly cylindrical, the tip produced into a spine which is apical; the tegumen rather heavy; the point of the vinculum is not sharp; a patch of rather long spines present on penis, taking up about one-fourth of the aedoeagus; valves very simple, lobate, showing some thickenings and foldings of the chiten which ultimately may produce a form similar in genitalia to *G. stretchii*.

This species is in the Barnes Collection from type localities only.

Type localities and number and sexes of types: "Type ♂", Vineyard, Utah, VII-14, hereby designated the Lectotype; "Type ♀", (Allotype), Vineyard, Utah, VI-8; 7 "Cotype(s)", (Paratypes), all ♂'s, as follows, Provo, Utah, VI-30, Vineyard, Utah, VI-8 (3), VII-7, 9, and 11; all from Mr. Tom Spaulding.

NEOGROTELLA MCDUNNOUGH, sp. nov. (fig. 16).

1916, B. & McD., Cont. Nat. Hist. Lep. N. A., IV, #2, 92, pl. XVII, f. 16, *spauldingi*, *Grotella*.

Front as in *G. spauldingi*. Tibiae also similar, but the armature of the fore tibia is slightly different. There is a claw on the inner side with four very fine spines, above; and a claw on the outer, with four fine spines above. The entire armature is somewhat less heavy than in *spauldingi*.

Head, collar, thorax, abdomen, and ground color of the primaries concolorous, but extremely variable. The ground color ranges from the cream color of *spauldingi*, thru olive to blackish-gray. T. a., t. p., and s. t. lines present or absent; when present, blackish; the t. a. and t. p. lines often punctiform, with a course as in *spauldingi*. S. t. line as a shade, rather than as a clearcut line; not present in *spauldingi*. When present in *mcdunnoughi* very irregular from costa to inner margin, produced to points in radial and medial regions. Reniform present or absent; when present, pale, contrasting with the ground color, which is frequently heavily covered by a dusting of black scales. The fringe usually checkered, the checkering obsolescent in the very pale specimens. Secondaries: some shade of smoky to blackish-fuscous. Fringe somewhat lighter, interlined with darker, the interline being frequently broken and causing a checkered appearance. Beneath: primaries, some shade of smoky or fuscous; the costal, outer and inner margins paler. Fringe usually showing at least some trace of checkering, even if this is not visible on the upper side. Secondaries: uniformly pale cream, the fringe usually concolorous. In the darker specimens there is some black powdering of scales present on the wing surface and a trace of an interline on the fringe.

Expanse: 18-21 mm. (Slightly smaller than *spauldingi*.)

Genitalia: very similar to *spauldingi*; the uncus subcylindrical with a very slight broadening toward the tip; the spine present and almost apical; the vinculum somewhat longer and more tapered, the point rounded; the tegumen approximately the same in both species; apparently fewer spines on the penis; the valves slightly less modified, and only about seven-eighths as long, besides being of slightly different shape as may be seen from the figure. The genitalia of a number of specimens of *mcdunnoughi* can be made to *exactly* superimpose upon one another.

Apparently a very "close" species to *spauldingi*, but constant genitally and very variable in color and maculation, scarcely any two specimens in a long series being identical; whereas *spauldingi*, which appears confined to Utah, varies but little in color, and only in the strength of the t. a. and t. p. lines in maculation.

This species is in the Barnes Collection from Olancha, Inya Co., Calif., April 24-30, May 1-7, 8-15, June 8-15, 24-30; Palm Springs, Riverside Co., Calif., March 16-23, April 16-23; and from Dixieland, Imperial Co., Calif., March 1st to May 15th.

Type locality: Dixieland, Calif.; O. C. Poling, Collector, all 1922.

Number and sexes of types: ♂ Holotype, and ♀ Allotype, March 1-15. 91 ♂, 33 ♀ Paratypes, as follows: 22 ♂'s, 1 ♀, March 1-15; 50 ♂'s, 25 ♀'s, March 15-30; 5 ♂'s, April 1-15; 14 ♂'s, 7 ♀'s, April 15-30.

The Species of Known *Grotella* and *Neogrotella* from Boreal America are arranged in the Barnes Collection in the following order:

GROTELLA

- | | |
|-----------------------------------|----------------------------------|
| <i>G. septempunctata</i> , Harv. | <i>G. vagans</i> , sp. nov. |
| <i>G. harveyi</i> , sp. nov. | <i>G. binda</i> , Barnes. |
| <i>G. sampita</i> , Barnes. | <i>G. tricolor</i> , Barnes. |
| <i>G. blanca</i> , Barnes. | <i>G. soror</i> , B. & McD. |
| <i>G. dis</i> , Grote. | <i>G. grisescens</i> , B. & McD. |
| <i>G. parvipuncta</i> , B. & McD. | <i>G. olivacea</i> , B. & McD. |
| <i>G. stretchi</i> , sp. nov. | <i>G. citronella</i> , B. & McD. |

NEOGROTELLA

- | | |
|----------------------------------|----------------------------------|
| <i>N. confusa</i> , sp. nov. | <i>N. mcdunnoughi</i> , sp. nov. |
| <i>N. spauldingi</i> , B. & McD. | |

Grotellaforma, gen. nov.

Type: "*Grotella*" *colora*, Barnes

Proboscis fully developed; palpi moderately and obliquely upturned, the second joint reaching to about the middle of the frons, the third joint short and porrect. Frons with a semi-rounded beak-like prominence, with a corneous plate below. Antennae practically simple in both sexes, minutely ciliated. Thorax clothed with hair and hair-like scales, and without crests. Tibiae scaled, unspined, no claws present. Abdomen, without crests, short, scarcely exceeding the secondaries. Primaries moderately trigonate, the apex rounded; veins 3, 4, 5 (Cu_1 , M_3 , M_2) from near angle of cell, 6 (M_1) from upper angle, 9 (R_3) from 10 (R_2) anastomosing with 8 (R_4) to form the areole, 11 (R_1) from cell. Secondaries; veins 3 and 4 (Cu_1 and M_3) from angle of cell, 5 (M_2) from about half way below the middle of the discocellulars, almost fully developed, 6, 7, (M_1 , R) stalked half-way to margin from upper angle, 8 (Sc) anastomosing with cell near base only.

This genus apparently will find a place between *Exyra*, Grt., and *Homologoa*, B. & McD. From the former it can easily be told by its shorter body, scarcely exceeding the secondaries (as well as by its general *Grotella*-like habitus); and from the latter by the shorter palpi, with the third joints porrect and short, instead of rather long and upturned.

Evidently this new genus is another of the links that connect the Agrotinae, the Acronyctinae and the Erastrinae. At some future time *Grotella* and *Grotellaforma* may be placed in a separate Heliothid

subfamily, together with a number of other genera of the present Agrotinae, Acronyctinae and Erastrianae. Until that time, we believe it best to follow Sir George F. Hampson's keys and structural classification as closely as possible; for they represent the only workable classification extant. From time to time changes will have to be made in this classification due to the misinterpretation by Hampson of an occasional character where he lacked proper material, and where fresh specimens of a species would, in consequence, run out of his keys; or where the present International Rules of Zoological Nomenclature compell a change in the nomenclature but, in reality, not in the true context.

Judging from the genitalic standpoint, the present genus (*Grotellaforma*) might well be an offshoot from *Grotella* or from a common ancestor. The uncus has a spoon-shaped tip which bears a somewhat dorsal spine near the end; the vinculum is pointed, tapering gradually; and on the penis is a dense mass of heavy spines; all of these characters being typical of *Grotella*; and what seems of far more importance to us is the fact that the same peculiar structure supporting the aedoeagus, described under *Grotella septempunctata*, is present. There is, however, a very well developed sacculus, and a ventral corona of spines not present in any of the species of *Grotella* which we have examined.

We append, herewith, a short description of *Grotellaforma colora*, which may serve to identify this species, should other congeneric species be found.

GROTELLAFORMA COLORA, Barnes. (Fig. 17)

1907, Barnes, Can. Ent., XXXIX, 68, 93, *Grotella*. 1917, B. & McD., Cont. Nat. Hist. Lep. N. A., I, #4, 11, pl. IV, f. 7 ("Type" ♂), *Grotella*.

Primaries pure white, with black spots, some or all of which may be vestigial. The black spots may be present as follows: t. a. region, one on costa, one below cell; medial region, one on costa; t. p. region, one on costa, one near end of cell, one just below vein 2 (Cu_2), and one on inner margin. Secondaries; usually fuscous, occasionally rather pale, but never white, with the fringe pure white or very nearly so. Beneath; wings smoky-fuscous, the secondaries paler in anal regions and toward the bases. A common medial darker line usually present, crossing the primaries and secondaries. Fringes white.

Expanse: 14-19 mm.

Genitalia: As described under the generic heading, and shown in the figure.

This species is represented in the Barnes Collection from the type localities only.

Type localities and number and sexes of types:

"Type"—Redington, Arizona; the specimen figured in the "Contributions" as listed above. Hereby made the lectotype. (♂).

"Type"—Redington, Arizona, (♂), an apparent true cotype, due to error in sexing the types, which must now be relegated to mere paratypical status.

"Cotype" (Paratype), (1 ♂), Redington, Arizona.

"Cotype(s)" (Paratypes), (2 ♂'s), labeled, Argus Mts., April '91, K.

Species Unknown to the Authors

"CISTHENE" LACTEA, Stretch.

1883, Stretch, Ent. Amer., I, 103, *Cisthene*. 1900, Hamp., Cat. Lep. Phal. B. M., II, 373, pl. XXIX, f. 26, *Illice*. 1902, Dyar, Bull. U. S. N. M., LII, 81, #818, *Clemensia*. 1906, Stretch, Jour. N. Y. Ent. Soc., XIV, 119, pl. III, f. 32, *Cisthene*?. 1917, B. & McD., Check List, p. 31, #893, *Clemensia*.

Hampson's figure, supposedly of the type, matches neither the original description, nor the figure given by Stretch in the Journal of the New York Entomological Society; both of which certainly characterize the habitus of a *Grotella*. However, no known *Grotella* fits either the description or the figure. The black spots on the primaries are quite characteristic and stable within each species of *Grotella*, but both the original description and the figure of *lactea* call attention to *three black spots on the costa*, one of which is in the medial region, the distal spot being in the t. a. region. This would seem to exclude all of the white winged species with the small black spots on the primaries, known to the authors. Of course, *lactea* may belong to the Arctiidae, or to the Erastrinae; but the general habitus presented by Mr. Stretch's figure so strongly resembles a *Grotella* that it is considered best to include the insect in this work as an unknown. For the sake of convenience, the original description is printed below.

"*Cisthene lactea*. Eyes black. Antennae brown. Palpi black. Tongue as long as the body. Entire insect otherwise white above and on the body parts, the underside of the wings being smoky, especially the primaries, on the latter are usually six small black spots, three on the costa equally spaced; one just outside the discal cell, and two in the space below the median vein, one of them being near the base, and the other near the outer margin.

Expanse of wings 0.70 inch. *Hab.* Providence Mountain, Bernardino Co., California.

This species may not strictly belong to *Cisthene* but the material is too scant to allow of dissection."

NEW SPECIES AND RACES OF CUCULLIANAE,
WITH NOTES ON THE GENERIC POSITION
OF LATHOSEA, GRT. AND RANCORA, SM.

LATHOSEA, Grt.

1882, Grt., Bull. Geol. Surv. Terr., VI, 270, *pulla*, Grt., sole species and therefore type.

RANCORA, Sm.

1892, Sm., Ent. News, III, 253, pl. X, f. 1, *strigata*, Sm., sole species and therefore type.

These two genera are doubtfully distinct. The main differences are that the eyes of *Lathosea* are more heavily ciliated than those of *Rancora*, and the latter always possesses a conspicuous black spot on the discocellular vein of each of the secondaries, below; which spot is connected to the base of the wing through the center of the cell by a heavy black band. The black spot and band reminds the authors of some of the secondary sexual structures in the Phycitinae, and perhaps it has some sexual or glandular significance in this case, although present and of equal intensity in both sexes. The maculation is mainly of a longitudinal character.

In *Lathosea* the eyes are so heavily ciliated that the cilia nearly meet from before and behind; while the black spot and dash on the secondaries, below, is but little developed and can be discerned in only about 40% of the specimens. The male antennae are somewhat more heavily pectinate than in *Rancora*, but a new species described below is somewhat intermediate in this character. The markings are both longitudinal and transverse.

The character on which these two genera are separated by Sir George Hampson, Cat. Lep. Phal. B. M., IV, is: "tegulae more or less strongly produced behind into a hood" for *Rancora* which he places as a subgenus of *Cucullia*; and, "tegulae not produced behind into a hood" for *Lithosea*. It is apparent, from a long series of specimens representing all known species of both genera that the moths have the power to raise or flatten the tegulae, a hooded effect being present or absent in the species of both genera.

Neither will the wing shape separate the two genera, for this appears to be a variable factor in specimens of the same species from the same locality in both genera.

We feel, however, that we do not care to place *Rancora* as a straight synonym of *Lathosea* for two reasons. The first is that we possess only a single specimen of the type species of the genus *Rancora* (*strigata*) and that is without a head. The second is the characters mentioned in our first two paragraphs which seem slight but constant.

The following arrangement is suggested:

Lathosea, eyes very heavily ciliated, considerable hair on palpi below, vestiture appearing very rough, black spot and bar on the secondaries below, developing, present or absent.

Rancora, eyes somewhat less heavily ciliated, at least some hair on the palpi below, vestiture intermediate to *Cucullia*, black spot and bar on the secondaries below always conspicuous.

Cucullia, eyes heavily ciliated but the cilia not as long as in *Rancora*, palpi somewhat hairy below often nearly as in *Rancora*, but the black spot and bar is very vestigial, only the barest trace of it appearing in some specimens of the darker species. The vestiture is also inclined to be smoother and the insects less heavy bodied than *Rancora* or *Lathosea*.

With these facts in mind *albida*, Sm. is withdrawn from *Cucullia* and placed in *Rancora*.

We will not be surprised if a revisional work will ultimately lump the three genera into one. Temporarily we consider it best to hold them separate, and in the order in which we here place them.

We do not care to discuss the probably generic position of *Brachionycha* (*Asterocopus*, Boisd.) as we have only four specimens of *borealis*, Sm. and one of the European *nebeculosa*. On these five specimens, however, the tegulae lay nearly flat, altho in the European specimen there is some tendency toward a slight pointing. *Nebeculosa* seems structurally congeneric with *borealis*, altho the primaries are slightly narrower and more pointed in the latter species in the four specimens in the Barnes Collection.

LATHOSEA SPAULDINGI, sp. nov.

Size and habitus of *pulla*, Grt. Ground color deep gray mixed with some white. A slim black basal dash present below the cell, extending almost to the t. a. line in the holotype and some paratypes; lost in a general cloudy

blackness in other paratypes. T. a. line black, sometimes bordered mesad by pale scaling, very irregular, produced to a point in center of cell, to a mesad point on cubitus, brought out to a point below vein 1 and then inward again to the inner margin. Claviform area a white blotch, tending to connect the t. a. and t. p. lines. T. p. line faint, black, irregular, rounded out to about vein 5 (M_2) and from thence brought inward to a point at the white claviform spot, from thence as a small semi-circle to inner margin. Outwardly bordered with pale scaling. A diagonal shade present from below apex to t. p. line. S. t. line not present. A short black dash present in anal angle in submedian fold. Fringe pale, checkered and interlined with gray-brown. The only other brown markings are a small spot suffusing the reniform, a little brown scaling in the diagonal shade below the apex, and a few brown scales above the black streak and in the median space in the submedian fold. Secondaries blackish, darkest thru the medio-cubital area along outer margin; paler costally and in the anal area. Fringe white, interlined by gray, except for the long hair on the inner margin, which is blackish. Beneath: fuscous gray and white with a silky luster, the veins somewhat darker, blackish. Discocellulars of the secondaries often with more or less distinct black spots, and bars running thru cells to bases of the wings.

Head, tegulae, patagia, and thorax blackish gray and white mixed; abdomen somewhat darker. Collar with some brown scaling.

Closely allied to *pulla*, Grt. from which it can easily be told by the general darker appearance and the almost total lack of brown shades, and by the blackish instead of brownish secondaries. The entire maculation has a tendency to be somewhat cleaner cut and more easily distinguishable than in the sixteen specimens of *pulla* before the authors, one of which was compared with type by Dr. J. McDunnough. The new species is placed after *pulla*, Grt.

We take pleasure in naming this species in honor of the collector, Mr. Tom Spaulding, to whose credit must be assigned much of our present knowledge of the Utah Lepidopterous fauna.

Type locality: Eureka, Utah.

Number and sexes of types: ♂, Holotype, IV-23; 9 ♂, Paratypes, II-28; IV-2; IV-20 (3); IV-21; IV-23 (2); IV-25; all 1922.

RANCORA KETCHIKANA, sp. nov.

Head brown, vertex pale and crossed by a black longitudinal stripe. Palpi black at the sides, pale below. Collar and tegulae in the form of a hood, pale gray, with a considerable sprinkling of dark hair-like scales thruout; tips blackish; a blackish streak just above center and another near base. Patagia dusky-gray with white tips. Center of dorsum brownish-gray. Abdomen deep fuscous-brown. Dorsal tuftings black. Primaries mixed whitish-gray and black. A black basal streak present, extending thru t. a. line in submedian fold, broken

in the medial area by white scaling, again present as a dash in anal angle above vein 1, and there underlined with whitish. T. a. line black, lined with pale inwardly, zigzag, slight points on subcosta and radius, produced to a long point in the cell where it nearly reaches to the center of the wing, from thence oblique inwardly to a point on cubitus, again outwardly oblique to a point of intersection with the black basal streak in the submedian fold, again outwardly oblique, ending on vein 1, about 4 mm. from body. A short black streak present near base of wing below vein 1, oblique, subparallel to basal part of the t. a. line of which it is probably a part. Another more or less suffused black streak near inner margin, almost connecting t. a. and t. p. lines. T. p. line represented as a poorly written black shade, somewhat dentate inwardly between the veins and excurved from the costa to vein 4 (M_3), thence inwardly dentate to below submedian fold, connected with the black streak in the median area. A few sagittate black dashes between the veins, at and near apex, causing an apical shade. The lowest of these dashes is produced into a long dash and crosses the t. p. line between veins 4 and 5 (M_3 - M_2). S. t. line ill defined. Fringe checkered gray and white. Secondaries: almost uniformly deep fuscous, scarcely paler toward the bases. Fringes white, with a checkered fuscous interline.

Beneath: primaries deep fuscous, slightly paler basally especially in the anal region. A trace of a spot present at the end of the cell. Hair in the cell somewhat deeper in color than the general ground. Secondaries: deep fuscous along the costal regions and around outer margin to near middle of the wings; basally pale. Conspicuous black spots present on the discocellulars connected by bars of the same color thru the cells to the wing bases.

Sexes: similar; the male as dark as the female.

Closely allied to *brucei*, Sm., but the t. a. and t. p. lines are strong enough to give the species almost the habitus look of a *Lathosea*. The male antennae are the most heavily pectinate in the genus *Rancora*, in this way approaching *Lathosea*. The overhanging cilia of the eyes are not as strong as in *Lathosea* and the smoother vestiture combined with the *conspicuous* heavy spot and dash on each secondary below places the species in *Rancora*. The species is placed before *strigata*, Sm.

Type locality: Ketchikan, Alaska; April 24th-30th.

Number and sexes of types: ♂, Holotype; ♀, Allotype; 1 ♂, Paratype.

LITHOMOIA SOLIDAGINIS, Hbn.

1827?, Hbn., Europ. Schmett., Noct., pl. LIII, f. 256, *Noctua*. 1825?, Hbn., Verz., p. 244, *Lithomoia*. 1834, Steph., Ill. Brit. Ent., Haust., IV, 390, *Cucullia* (*Euderaea*). 1839, Gn., Ann. Soc. Ent. Fr., VIII, 509, *Cloantha*. 1852, Gn., Noct., II, 115, *Cloantha* (*Lithomia*, Curt.). 1857, Wlk., C. B. M. Lep. Het., XI, 617, *Lithomia*. 1862, Curtis, Brit. Ento., pl. 683, *Lithomia*. 1871, Stgr., Catalogue, p. 120, #1682, *Calocampa*. 1901, Stgr. & Rebel, Catalogue, p. 211, #2182,

Calocampa. 1903, Spuler, Schmett, Europ., I, 262, pl. XLVII, f. 15 (adult), pl. XXXII, ff. 22a (larva), 22b (pupa), *Calocampa*. 1906, Hamp., Cat. Lep. Phal. B. M., VI, 240, *Cloantha*. 1909, Pierce, Genitalia Noct., p. 72, pl. XXVI, *Calocampa*.

LITHOMOIA SOLIDAGINIS GERMANA, Morr.

1874, Morr., Bull. Buff. Soc. Nat. Sci., II, 192, *Calocampa*. 1874, Grt., Bull. Buff. Soc. Nat. Sci., II, 198, *Lithomia*. 1878, Graef, Bull. B'klyn Ent. Soc. I, 10, *solidaginis*. 1883, Grt., Proc. Am. Phil. Soc., XXI, 150, 160, *solidaginis?*, *Lithomia*. 1890, Grt., Revised Check List, p. 29, "an *solidaginis?*", *Lithomia*. 1893, Sm., Bull. U. S. N. M., XLIV, 235, an sp dist.?, *Lithomoia*. 1895, Grt., Abh. Nat. Ver. Bremen, XIV, 97, "an *solidaginis?*", *Lithomia*. 1902, Dyar, Bull. U. S. N. M., LII, 169, #2077, *Lithomoia*. 1903, Holl., Moth Book, p. 206, pl. XXV, f. 12, *Lithomoia*. 1906, Hamp., Cat. Lep. Phal. B. M., VI, 240, *solidaginis*, *Cloantha*. 1917, B. & McD., Check List, p. 58, #2129, *solidaginis*, *Lithomia*.

SOLIDAGINIS, Auct. nec Hbn.

1857, Wlk., C. B. M. Lep. Het., XI, 759, *Lithomia*. 1874, Grt., Bull. Buff. Soc. Nat. Sci., II, 27, *Calocampa*.

Only that part of the bibliography which may be of interest to the American worker is quoted.

The names *solidaginis*, Hbn., and *germana*, Morr., have been a constance source of dispute among Lepidopterists since 1874. The former was described by Hubner from European specimens, while Mr. Morrison's type of *germana* came from the Adirondack Mountains of New York. Specimens from Ottawa, Ontario, would, therefore, probably represent the same race as the type of *germana*. In these the primaries are brighter and the markings, especially the t. a. line, much cleaner-cut than in the European *solidaginis*. The secondaries of both are pale, suffused with fuscous on veins, discal spot, and toward the outer margin.

British Columbia supplies a somewhat different race, with the primaries nearly as in the Ottawa specimens altho there is a tendency for the medial band to be somewhat heavier; but the secondaries are deep fuscous.

Alaska supplies a race closely allied to the British Columbia race by the generally fuscous secondaries, but the primaries are also considerably darker, with the markings nearly as in the European specimens.

Genitally the American specimens all agree in the shape of the uncus, which is narrower than in the European specimens. There

is enough difference between the valves of the European and Ottawa specimens to be considered possibly of specific value, were it not for the survival of the Alaska and British Columbia races; which are intermediate. The European form has a rather simple lobate valve, with a thickening of the chiten producing a small ridge and *small* projection near the tip, (the cucullus of Pierce). In the Alaska form the ridge is somewhat longer, as is also the projection which is armed with a definite spine at the tip, lacking in the European form, and the valves also are somewhat more modified being considerably constricted basally of the center. The British Columbia form merely carries the same pattern a little further, altho the spine at the tip of the projection is not as conspicuous, being somewhat flattened. The Ottawa form has the valve-shape nearly as in the British Columbia form, but the ridge and projection are considerably longer and heavier, the latter armed with a rather heavy spine at the tip.

To the Alaskan race, representing the extreme of variation in American forms is given the name *morrisoni*, certainly racially distinct from the European and Eastern forms; in color and genitalia. There is a very gradual gradation from the Eastern race, thru local Alberta, Manitoba and California races to the British Columbia race. It is considered best to fix no names to these, allowing them to stand as intermediates.

It is very probably that *solidaginis* spread from Europe into the United States thru Siberia and Alaska in comparatively modern times, geologically; in all probability since the Pleistocene glaciation, which would account for the similarity of the races.

The following synonymy is suggested, for the American lists:

Lithomoia solidaginis solidaginis, Hbn., Europe.

race *morrisoni*, nov., Alaska.

race *germana*, Morr. Eastern States to British Columbia.

Type localities and number and sexes of the types of morrisoni: ♂ Holotype and 1 ♂ Paratype, Chatanika; ♀ Allotype and 1 ♀ Paratype, Chatanika; 1 ♀ Paratype, Ramparts, Aug. 1-7; all Alaska.

XYLOTYPE ARCADIA, sp. nov.

Ground color pale whitish-gray. T. a. line black, double, filled in with white. T. p. and s. t. lines similar, the s. t. not plainly double, the white filling mesad of black line being bordered by a few scattered black scales. Terminal line composed of pale crescents edged outwardly with gray. Course of the basal,

t. a. and t. p. lines similar to *capax*; the s. t. in the male slightly more produced on the veins; in the female nearly as in *capax*. Orbicular and reniform large, surrounded by a thin black line, followed by a pale, whitish, line; with a few gray scales bordering the pale line internally. Center of the orbicular and base of the reniform with some dark scales, else the filling appearing pale. The base of the reniform is broader than in *capax*, and the orbicular somewhat diagonally elliptical, so that the two spots are nearly joined in the male and are actually fused in the female. Black dashes and shadings present, as in *capax*.

Secondaries: fuscous from outer margin to near middle, paler toward the base. Ordinary line present, rather indistinct.

Beneath: pale-cloudy, both wings with a common medial line. Primaries with s. t. line and paler terminal space. Discal dots present but inconspicuous on both wings.

Palpi gray; vertex with black streak thru pale scaling. Collar pale gray somewhat tinged with brown, crossed by a fine black streak near tip. Abdomen fuscous, pale near thorax, darker caudad. Some pale brownish scaling near genital region.

The male genitalia appear similar to *capax*, but the valves appear smaller and somewhat differently shaped.

The pale color, with the black and white markings, gives to this insect the habitus look of an *Anytus*, and we believe we have seen it elsewhere under the name *privata*. The tibiae are unspined. This species is placed after *capax*.

Size: 35-40 mm.

Closely allied to *capax*, but easily told by its much paler color and smaller size. The primaries, also, are more trigonate for the size of the insect.

Type locality and number and sexes of types: ♂, Holotype, Digby, Nova Scotia, 11-IX-1907, (J. Russell); ♀, Allotype, Neck Road, Digby, Nova Scotia, labeled 3/8/1906 which we take to mean 3-VIII-1906, (J. Russell).

PLEROMA OBLIQUATA race SMITHI, nov.

Similar to *obliquata*, Sm., in size and maculation. The ground color of the primaries is, however, somewhat paler, and more evenly gray, the transverse maculation and the black scaling on the veins appearing, therefore, more contrasting. The secondaries entirely lack all brown tint, being blackish-gray. The abdomen also is gray, instead of brown as in *obliquata*. Beneath: the brown tints of *obliquata* are entirely replaced by blackish-gray.

Type locality: Eureka, Utah; (Tom Spaulding).

Number and sexes of types: ♂, Holotype, IV-25; 11 ♂, Paratypes, IV-21 (3), 22 (5), 24 (1), and 25 (2).

PLEROMA ARIZONATA, sp. nov.

Palpi gray, somewhat darker at the sides. Front gray, mixed with long black hairs, with a patch of white hair-like scales on each side near the eyes. Vertex darker. Antennal bases white. Collar with a black stripe at base, a pale stripe above, a grayed area, another pale stripe, followed by a grayed area, and lastly with faintly white tips. Patagia gray. Dorsum of thorax black. Abdomen gray, with black dorsal tuftings. Ground color of primaries gray, nearly the same shade as in *obliquata*. Basal line only distinguishable as a few blackish scales on costa. T. a. line black, nearly as in *cinerea*, oblique from costa to radius, shot backward about one millimeter on radius, thence obliquely forward again to near the intersection of vein 2 (Cu_2) with the stem (base of Cu), oblique inwardly to submedian fold, where it is intersected by a basal dash which originates at the base of the wing. An oblique black median line present on costa, thru radius; appearing as an oblique dash. T. p. line indistinct from costa to near vein 4 (M_3), thence well marked to near the submedian fold where it is lost. It originates about three-fifths of the wing length from the base, is strongly outcurved around the reniform area, dentate inwardly on vein 2 (Cu_2), thence forming a small semicircle to slightly below the submedian fold, intersected in the fold by a black streak. S. t. line pale, indistinct. A terminal line slightly paler than the ground.

The area above the basal dash is pale and contrasting. Orbicular represented as a pale, contrasting, diffused spot. Reniform obscure and diffused. Median area darker below cubitus than above. S. t. area with dark filling, with dash in the submedian fold mentioned above, below which is a clear white bar connecting the s. t. and t. p. lines, and on the lower margin of the white bar is a conspicuous short black bar which starts at the s. t. line but reaches only about two-thirds across the s. t. space. Terminal area paler. Fringe dark gray, interlined with a pale line.

Secondaries: smoky-fuscous, with only the trace of a common line and spot. Fringe pale fuscous, interline darker.

Beneath: Primaries smoky, paler basally in anal region. Secondaries whitish, heavily dusted with blackish scales, the ordinary line present, distinct; as is also a small and nearly round dot on the discocellular vein.

Size: 39 mm.

Apparently an undoubted Pleroma, but readily distinguished from all others by its larger size, white bar in the submedian fold and smoky secondaries, combined with nearly the general markings of *cinerea*. It is placed between *obliquata* race *smithi* and *cinerea*.

Type locality: Palmerlee, Ariz.

Number and sexes of types: Holotype, ♀, unique.

ATETHMIA PAMPINA, Gn.

According to our notes the type localities are N. Y., and Baltimore, Md. The specimen which Dr. McDunnough compared with type is from Hymers, Ontario, and is somewhat paler than the average Eastern specimens. However, the species shows considerable variation and some Eastern specimens match it fairly well.

A smooth, pale looking female received from Mr. H. D. Merrick, (New Brighton, Pa.) has the wing margins entire, not crenulate, thus showing a close affinity to species of the genus *Parastichtis*; and to the European species of *Atethmia* which appear to have somewhat less crenulate outer margins to the primaries than in our normal Eastern *pampina*.

From Northward and Westward of the original type localities, the specimens received appear gradually lighter. The Alberta and Manitoba specimens showing a much greater range of variation than is to be found in Eastern material. A small series from Calgary are somewhat smoother and paler looking, representing what we consider about the limit in this direction for the Eastern form; some Pennsylvania and Massachusetts specimens matching them fairly well. Manitoba produces forms which range from very pale to as deep a color as the average Eastern specimens. British Columbia material greatly resembles some of these.

The paleness of these slightly different Western races reaches its apex in Colorado; and following Dr. Staudinger's work on the European species and forms, we give this extreme form a name.

ATETHMIA PAMPINA race GLENWOODI, nov.

Ground color of the primaries pale luteous, tinged with some rufous. Maculation as in the Eastern *pampina*, but fainter, not as contrasting with the ground. The ordinary spots are somewhat darker than the ground but not conspicuously so. The deeper colored, semiquadrate patch between the t. a. and t. p. lines below the submedian fold usually prominent in *pampina* is scarcely represented in the Colorado race altho, upon very close observation, a slight darkening due to a few rufous scales becomes visible. The thorax and abdomen are pale luteous instead of the deeper color found in *pampina*.

Type locality: Glenwood Springs, Colorado; Wm. Barnes, Collector.

Number and sexes of types: ♂, Holotype, Oct. 1-7; ♀, Allotype, Oct. 16-23; 3 ♂, 4 ♀, Paratypes as follows: ♂'s, Oct. 1, 1-7, 8-15; ♀'s, Sept. 8-15, Oct. 8-15, 16-23, and one undated.

NOTES ON THE SPECIES AND FORMS OF THE GENUS DREPANA, SCHRANK

DREPANA ARCUATA, Wlk.

1855, Wlk., Cat. Lep. Het. B. M., V., 1164, *Drepana*. 1862, Grt., Proc. Ac. Nat. Sci. Phila., p. 59, *fabula*, *Platypteryx*.

This is the common or normal form, with the median line almost evenly dentate inwardly on the veins below the subreniform and not conspicuously produced outward above vein 1. The subreniform is small reduced to a mere point and does not make contact with the median line.

The European *D. falcataria*, L. closely approaches this form but the t. p. line is more prominently shaded; the subreniform is larger, over one millimeter in diameter and makes contact with the median line, which is rather more irregular than in *arcuata* and has a prominent projecting outward tooth above vein 1. The banding on the secondaries is also more irregular.

The *type localities* of *arcuata* and *fabula* are Nova Scotia and New York, respectively. We have the form from Quebec, N. H., Mass., N. Y. and Ind.

DREPANA ARCUATA form GENICULATA, Grt.

1852, Grt., Proc. Ac. Nat. Sci. Phila., p. 59, *Platypteryx*.

A darker yellow, less distinctly marked form than *arcuata*; often somewhat smaller in size; the subreniform with a tendency to be somewhat larger, altho never more than about 1/3 mm. *Type locality*, N. Y. We have the form from Quebec, Mass. and Ind.

DREPANA ARCUATA race SICULIFER, Pack.

1872, Pack., Peab. Acad. Sci., IV, 87, *Drepana*.

This appears to either be a valid race or a species distinct from *arcuata*. The form is considerably larger than *arcuata*, measuring about 42 mm. as against 35 mm. for the average *arcuata*. The subreniform is conspicuous, nearly 1/2 mm. in diameter; in this character being closer to the European *falcataria*; and the course and character of the ordinary lines are somewhat different, and more intense. *Type locality*, Calif. Our specimens are from B. C. only.

DREPANA ARCUATA, race ALASKENSIS, nov.

This is the Alaska race of *siculifer*, and differs from ordinary *siculifer* in that the markings are more intense; and all of the shadings are more pronounced so that the central area of the primary is considerably darker than the basal or outer areas, giving the insect quite a different general appearance. Size. 40 mm.

Type locality and number and sexes of types: Ketchikan, Alaska, Holotype ♂, no date; Allotype ♀, July 8th-15th.

DREPANA ARCUATA ALASKENSIS form GROTEI, nov.

Primaries ground color deep brown, suffused with gray scales. All ordinary lines similar to *geniculata* but wider and more suffused. Subreniform large, about 1 mm. in diameter. Secondaries similar to *geniculata* but lack the yellow which is replaced by grayish-brown.

We take this to be the *geniculata* form of *alaskensis*. From Eastern *geniculata* it is easily separated by its larger size; about 35 mm. as against 28-30 mm.; its dark color, and large subreniform. From *alaskensis* it differs in the same way *geniculata* differs from *arcuata*.

Type locality and number and sexes of types: Ramparts, Alaska: Holotype ♂, 16th-23rd May; Paratype ♂, 24th-31st May.

DREPANA BILINEATA, Pack.

1864, Pack., Proc. Ent. Soc. Phil. III, 376, *Edapteryx*.

A very distinct species impossible to mistake for any other. The light yellowish to brownish coloration of the primaries and pale secondaries immediately separate it from its European ally *D. lacertinaria*, L. The primaries are deeply falcate below the apex, and covered with numerous brown strigae. *Type locality:* Mass. We have this form from Mass., N. H., and N. Y. There is also a Quebec specimen standing in the collection with the central area of the primaries conspicuously darker than the basal or outer areas, but it is a unique and unless more be obtained feel that we had best apply no name to it.

DREPANA BILINEATA form LEVIS, Hudson.

1893, Hudson, Can. Ent., XXV, 24, *Prionia*.

This form lacks the brown strigae on the primaries, and is generally somewhat smaller than the typical form. It is probably partially seasonal but we do not believe it is entirely so.

Type locality: Plattsburg, N. Y., 1 ♂, 1 ♀.

We have the form from N. J., Conn., and Quebec.

DREPANA RAMPARTENSIS, sp. nov.

Intermediate between the eastern *D. bilineata* and the European *D. lacertinaria* in general habitus.

The color is even darker than in the European species being a blackish brown. Head, thorax and abdomen dark brown. T. a. line black-brown, bordered internally by a light yellowish line or shade, oblique from costa curved inwardly from below median vein. T. p. line oblique outwardly from costa to vein 8, bent inwardly below, produced on vein 4, oblique to near vein 1 from whence it is somewhat excurved to inner margin. S. t. white, inconspicuous; an apical suffusion of deep red-brown and white. Reniform a dot, deep black-brown. Numerous dark brown strigae present. Veins conspicuously marked with dark-brown. Secondaries pale, silky, with grayed-over appearance due to a scattering of dark scales on the under side which show thru. Ordinary spot as in *bilineata*.

Underside entirely similar to *bilineata* but the yellowish and brown tints are replaced by dark gray-brown.

Size: 31 to 33 mm.

We might be tempted to consider this species a race of either the Eastern *bilineata* or the European *lacertinaria* but for the fact that the primaries are not as deeply falcate below the apex, nor are the marginal points so produced.

Type locality and number and sex of types: Ramparts, Alaska, Holotype ♂, 8th-15th June; 3 Paratype ♂'s, 16th May, 24th-31st May, 8th-15th June respectively.

DREPANA RAMPARTENSIS FORM HUDSONI, nov.

This is the form of *rampartensis* corresponding to *levis*, Hudson. The primaries are not crossed by the numerous strigae, and the size is smaller: 28 mm.

Type locality and sex of type: Ramparts, Alaska, Holotype ♂, 8th-15th June.

KEY TO THE SPECIES AND FORMS OF THE GENUS DREPANA

- I. Outer margin of primaries; except for the hooked apex; evenly curved, entire—(Drepana)
 - A. Subreniform seldom or never more than 1/3 mm. in diameter, usually little more than a mere dot; Eastern.
 - a. Pale ochreous to straw color; basal, t. a., and median lines usually clean cut*arcuata*
 - b. Darker, amber yellow; basal, t. a. and median lines usually somewhat suffused, with a tendency not to be clearly written;—form*geniculata*

- B. Subreniform usually about $\frac{1}{2}$ mm. in diameter; size larger than corresponding Eastern forms, (by about 5 mm.), Western and Alaska.
- a. Size 40-42 mm., basal, t. a. and median lines well written, conspicuous;
- a¹. Median area not shaded so as to appear contrasting darker,—race*siculifer*
- b¹. Median area shaded and appearing contrastingly darker,—race*alaskensis*
- b. Size 35 mm., basal, t. a. and median lines suffused, broadened, not well written,—form*grotei*
- II. Outer margin of primaries produced between the veins into rounded projections; not evenly curved and entire (*Falcaria*)
- A. Ground color of primaries light yellowish to brown, Eastern.
- a. Primaries covered with brownish strigae*bilineata*
- b. Primaries lacking strigae,—form*levis*
- B. Ground color blackish-brown, (projections between the veins somewhat less produced than in the eastern forms), Alaska.
- a. Primaries covered with dark-brown strigae*rampartensis*
- b. Primaries lacking strigae,—form*hudsoni*

NOTES: NEW GENERA AND SPECIES
NOCTUIDAE
AGROTINAE

RHIZAGROTIS POLINGI, sp. nov.

Male: front; pale, tinged with olivaceous-brown; vertex, with an olivaceous-brown bar between the antennal bases, passing above them to the eyes. Palpi: pale, more or less tinged with olivaceous, blackish on the sides of the last two joints. Collar: pale at base, followed by a lavender stripe, then a white stripe, with olivaceous-brown tips separated from the white basal region by a few black scales tending to form a distinct line. Patagia; pale at base, tipped with olivaceous-brown which is separated from the pale base by a line of black scales. Thorax and abdomen white, or nearly so.

Primaries: with the ground color evidently white. Costa white with a considerable suffusion of black scales. All veins marked conspicuously with white. At the point of origin, on the cell, of veins 3, 4, and 5 (Cu_1 , M_3 , and M_2), there is a conspicuous enlargement of the white scaling into a distinct blotch. A suffusion of black scales practically surround the median vein, above and below which are olive-brown shadings. A suffusion of black scales present above and below vein 1. The s. t. area, a distinct olivaceous-brown shade, bordered distally by a few black scales which form a faint s. t. line,—the only transverse line on the wing proper. The terminal area is violaceous. A whitish basal dash present, extending from base, below cell, about one-fourth the length of the wing, edged below by a few black scales. Fringe pale, with a double interline of olive-brown. Secondaries: white, with more or less fuscous along outer margin especially at the apex, the veins often marked with fuscous. Beneath: fore wing white, with some fuscous scaling above and below the median vein; discal dot present, strong; a few blue-black scales scattered over the ground. Fringe: white interlined with violaceous-black. Hind wing: white, with some few scattered violaceous-black scales. Fringe: white, with a trace of a darker interline.

Female: similar to male, but somewhat darker; primaries with the fuscous more intensified; secondaries nearly obscured by fuscous, with the veins darker. Fringe: white with a trace of an interline. Beneath: similar to the male, but with the fuscous more pronounced; the veins of the secondaries, somewhat darkened.

Expanse: 34-39 mm.; the females averaging slightly larger than the males.

The present species is closely allied to *biclavis*, Grt.=*demutabilis*, Sm., which occurs with it in the California desert-region, but is abundantly distinct. In *polingi* the front is less roughened; and the pri-

maries lack the orbicular and reniform, besides being much paler and possessing olive-brown tints not found in *biclavis*. The species might be referred equally well to *Porosagrotis*, *Feltia* or *Lycophotia*, which are mixed genera and upon which the authors will probably publish in the near future. It is not a "Carneades" ("Euxoa"), the clasper not being "bifurcate." It may well be recalled that Dr. Smith described *demutabilis* as *Peridroma*. The present species would key to *Lycophotia* in Hampson, Cat. Lep. Phal. B. M., IV, but is tentatively placed in *Rhizagrotis* following *cloanthoides*, pending revisional work in these mixed genera.

There are a number of topotypes in the Barnes Collection duplicates which have not been made paratypes because of their poor condition; also two specimens from Palm Springs, Riverside Co., Calif., March 7 and 8, 1921 (Karl R. Coolidge); and one, Clark Co., Nev., March 16-23, 1921 (O. C. Poling). The species is also represented in the personal collection of the junior author by two specimens from Indio, Calif., (E. Piazza) and in the Cornell University Collection from the same locality.

Type locality: Dixieland, Imperial Co., Calif., March 1 to April 15, 1922; O. C. Poling, Collector.

Number and sexes of types: ♂ Holotype, 1-15 March; ♀ Allotype, 1-15 March; 348 Paratypes, about equally divided as to sex.

ERASTRIANAE

Sexserrata, gen. nov.

Type: *Sexserrata hampsoni*, sp. nov.

Eyes: smooth, unciliated, round, large. Proboscis: fully developed. Palpi: obliquely porrect, extending beyond the vertex, first joint broadly scaled below, second joint moderately scaled below, the third joint smoothly scaled and about one-third the length of the second. Frons: with a cup-shaped prominence with raised edges and a bifurcate central horn composed of a moderately long lower point and an upper point, from near the edge of the prominence, nearly as long as the width of the eye; the edges of the cup-shaped prominence being also produced into two dorso-lateral horns and two ventro-lateral horns; making a total of six horns or serrations to the front. Antennae: simple in both sexes. Thorax: entirely clothed with scales, without crests. Abdomen: clothed mainly with scales, with a few hairs intermixed, without crests. Fore tibia: with the chiten drawn-out on the outer side into a claw-like projection; the length of the tibia being slightly greater than the metatarsus or one-half of the tarsus. Primaries: moderately trigonate, the apex rounded; veins 3, 4, 5 (Cu_1 , M_3 , M_2)

from near angle of cell, 6 (M_1) from upper angle, 9 (R_3) from 10 (R_2) anastomosing with 8 (R_4) and 7 (R_5) to form the areole, 11 (R_1) from cell. Secondaries: veins 3 (Cu_1) and 4 (M_3) stalked from angle of cell, 5 (M_2) practically fully developed and from more than half-way below the middle of the discocellulars, 6, 7, (M_1 , R) long-stalked from upper angle, 8 (Sc) anastomosing with cell near base only.

This genus, by the frontal structure is apparently closely allied to *Redingtonia*, B. & McD. and *Azenia*, Grt., and intermediate by the development of the claw-like projection on the fore tibia; but the venation is so nearly typically quadrifid that following Sir George Hampson's classification it must be placed within the *Erastrinae*. With this same classification in mind, *Azenia*, Grt., undoubtedly belongs in the *Acronyctinae*; and *Redingtonia*, B. & McD., is an intermediate, perhaps best left in its present place, temporarily, while *Sexserrata*, gen. nov. is placed between *Exyra*, Grt., and *Neotarache*, gen. nov.

The following generic order is observed in the Barnes Collection:

- Exyra*, Grt.
- Sexserrata*, gen. nov.
- Neotarache*, gen. nov.
- Grotellaforma*, gen. nov.
- Homolagoa*, B. & McD.
- Phoenicophanta*, Hamp.
- Xanthoptera*, Gn.

SEXSERRATA HAMPSONI, sp. nov.

Palpi, vertex, thorax, primaries, and ground color of secondaries concolorously satiny-white, the latter tinged with fuscous toward the apex. Fringes: white. Abdomen: creamy-tan above. Beneath: ground color white, the disc of the primaries suffused with pale-creamy-fuscous, with dots of the same color faintly checkering the fringes. A slightly paler discal spot barely distinguishable. Secondaries, white, their fringes showing a *trace* of checkering at the ends of the veins in the apical region. Thorax: white. Legs: white, marked with some brown on the tarsi and the fore tibiae. Abdomen: cream-color. Sexes: identical.

Expanse: about 23 mm.

Type locality: Dixieland, Imperial Co., Calif., O. C. Poling, Collector.

Number and sexes of types: ♂ Holotype, April 15-30; ♀ Allotype, May 1-15; 2 ♀ Paratypes, April 15-30, all 1922.

Neotarche, gen. nov.

Type: *Neotarache deserticola*, sp. nov.

Eyes: smooth, unciliated, round, not large. Proboscis: moderate, functional. Palpi: obliquely porrect, extending to near the vertex, first joint broadly scaled below, second and third joints smoothly scaled, the third joint about two-thirds the length of the second. Frons: with a cup-shaped prominence with raised edges, and an additional beak-like central prominence. Antennae: simple in both sexes. Thorax and abdomen: entirely clothed with scales, and without crests. Fore tibia moderate, without spines or claws, fore metatarsus with large heavy claw at tip and two heavy claw-like spines above; other metatarsi normal, not heavily spined. Veination identical with *Neogrotella*, described herein.

This genus is tentatively placed in the Barnes Collection before *Grotellaforma*. This is another remarkable instance of two apparently closely allied genera; possessing the same veination and frontal structure but apparently widely separated by the present classification; genera in which vein 5 (M_3) may be called intermediate; and therefore placed by the presence or absence of tibial spines. Wherever these genera may finally be placed, the present genus will be easily recognized by its veination and frontal structure coupled with the absence of spines or claws on the tibiae and the possession of claws and claw-like spines on the fore metatarsi.

NEOTARACHE DESERTICOLA, sp. nov.

Palpi: olive-brown, paler basally. Front: pale olive-brown, often nearly white. Collar: similar, slightly darker. Thorax: variable, olive-brown to white. Abdomen: variable, some shade of creamy-olivaceous-brown.

Primaries: rich olive-brown, with the following white markings on each. The entire *basal* region white, or the white stopping at the median vein; a transverse band present, apparently composed of several fused quadrilateral spots, running obliquely from the costa to the inner margin, that part or spot of the band that crosses the cell is set basad of the remaining portion; two fused white spots in the reniform-subreniform region; a subterminal white shade band, composed of a spot in apical region, coalescent with a subtriangular spot in the center of the s. t. space, and a disconnected spot in the anal angle. Fringe: white checkered by strips of the olive-brown ground color. Secondaries: fuscous, slightly paler toward their bases; with white, interlined, fringes. Beneath: cream-color, the markings on the primaries showing thru, but not distinctly. Fringes: as on upper side.

This species is represented in the Barnes Collection from Hualapai Mts., Mohave Co., Ariz., May 24-31; and Dixieland, Imperial Co., Calif., March 1-15, 1922 (O. C. Poling), besides the types.

Type localities and number and sexes of types: ♂ Holotype, S. Nevada, April; ♀ Allotype, S. Nevada, March 16-23; 8 Paratypes, as follows: S. Nevada, March 16-23 (4); S. Nevada, April (3); Clark Co., Nev., April, (1).

TARACHE CORA, B. & McD.

1918, B. & McD., Cont. Nat. Hist. Lep. N. A., IV, #2, 115, pl. XVII, f. 19 "Type ♂", f. 20 Paratype ♀ (err.), *Tarache*.

The "Type ♂" undoubtedly represents a different species than the "Type ♀" and the Paratype ♀'s; three male specimens, closely matching the females, having been received from Paradise, Cochise Co., Arizona. The "Type ♂", which is a unique, is therefore designated the lectotype for the name *Tarache cora*, B. & McD.; and the females, described in the "Contributions" as questionably the females of this species, are a new species; described below.

True *T. cora* is placed in the Barnes Collection between *expolita*, Grt., and *lucasi*, Sm.; distinguished from both by its larger size and different maculation, best visualized by a glance at the figure quoted above. Attention is called to the light mark on the center of the inner margin; and the white dash on vein 1, which half cuts thru the dark s. t. band; features possessed by neither *expolita* nor *lucasi*; as well as the widely disconnected dark patch on the fringe opposite the cell; and the lack of the large dark patch present in the anal angle of *lucasi*.

Expanse: 25 mm.

Type locality: Babaquivera Mts., Pima Co., Ariz.

Number and sexes of types: Lectotype ♂ ("Type ♂"), unique. ("Type ♀", Paradise, Cochise Co., Ariz., Sept.; 1 Paratype ♀, same locality; and 3 Paratype ♀'s, Redington, Ariz.; removed to the following species.)

TARACHE BELLA, sp. nov.

1918, B. & McD., Cont. Nat. Hist. Lep. N. A., IV, #2, 115, pl. XVII, f. 20, *cora* partim, *Tarache*.

Male. Palpi: first two joints white, the third joint tinged with fuscous. Front and collar: white. Patagia: white at base, the tips purple-brown. Thorax: largely purple-brown. Abdomen: pale creamy-brown. Primaries: fovea vestigial, not visible; ground color, white; a basal bluish-gray spot present; t. a. line originating as a purple-brown costal blotch, below which the color changes to olivaceous, somewhat drawn toward a point in the cell, thence as a crescent to the inner margin, near which the color again changes, to a somewhat bluish-gray, with an additional bluish-gray suffusion along vein 1 to near the base of the wing; orbicular, a round blue-gray spot; reniform, similar, larger,

encircled by white; a faint olivaceous-gray shade between the spots; outer area of wing, purple-brown, shaded with olivaceous and blue-gray, with a large, triangular, white, costo-apical spot; a strongly sinuate t. p. band bends around the reniform, largely olivaceous, bordered outwardly with some blackish and arising from a blackish blotch on the costa; irregular bluish-white shading subterminally; terminal area, white, broadest above the anal angle, narrowed to a point below the apex, bisected by a pale olivaceous-yellow shade; terminal dark dots of *cora* not present; fringe, white, with a slight apical dark shade, and a large dark shade opposite the cell. Secondaries: hyaline whitish, slightly darkened along outer margin; fringes, with outer half white, inner half brownish, a slightly darker interline between. Beneath: primaries, ochreous, with the darker maculation of the upper side showing thru to give them somewhat of a smoky-brown appearance; secondaries, cream-color.

Female. Larger, but very similar to the male. Primaries: with the maculation often somewhat more intense. Secondaries: variable, from slightly darker than those of the male to nearly entirely fuscous brown. As the secondaries darken, the interline of their fringes becomes darkened. Beneath, as in male; but the secondaries possess a small discal spot.

Both sexes have veins 3 (Cu_1) and 4 (M_2) stalked.

Expanse: ♂'s 22-25 mm. ♀'s 25-29 mm.

This species is represented in the Barnes Collection from "Arizona", and Redington, Ariz., (the three Paratypes of *cora*, listed under that species); besides the types. It is placed between *T. sedata cacola*, Sm., and *T. areloides*, B. & McD.

Type locality: Paradise, Cochise Co., Ariz.

Number and sexes of types: ♂ Holotype, June; ♀ Allotype, June; and 18 Paratypes, as follows: 1 ♂, June; 1 ♂, July; 1 ♀, June; 3 ♀'s, July 1-7; 5 ♀'s, July; 4 ♀'s, Aug.; 1 ♀, no date; 1 ♀, Sept., ("Type ♀" of *T. cora*); 1 ♀, no date, (Paratype ♀ of *T. cora*; which was figured in the "Contributions", as listed above.).

PSYCHIDAE

MANATHA NIGRITA, B. & McD.

1913, B. & McD., Cont. Nat. Hist. Lep. N. A., II, #4, 170, text fig., 2 (veination), pl. IV, fig. 3 "Cotype" (Paratype), *Manatha*.

The specimens heretofore placed under this name in the Barnes Collection appear to represent at least two species. The Texas specimens, discussed in the "Contributions" as listed above, have much less heavily pectinate antennae than the "Type ♂" of *nigrita* and five of the six "Cotypes". The sixth "Cotype", a specimen from Fort Myers, Florida, May 1-7, is placed with the Texas specimens, pending further

knowledge of the biology of the species, along with one specimen from Fort Meade, Fla., April, and three St. Petersburg, Fla., specimens, taken in April. None of the Texas specimens, of which there are forty before the authors, have the broadly pectinate antennae of the true *nigrita*. There is every indication that there may be two or three species or races represented in the Texas-Florida forms with the narrower antennae. The Florida specimens taken in April, and the Texas specimens taken in March and May seem to average slightly larger than those of later date. A single specimen from Brownsville, Texas, is very small. The authors have selected twenty specimens from San Benito, Texas, all taken during August, and all closely matching one another, as types of a new species, described below.

We are greatly indebted to Mr. Frank M. Jones for the gift of some Psychid material, and for highly valued notes, among which he agrees with the specific distinctness of the Texas forms from typical *nigrita*, and further states that in his specimens of the latter species the branch of the anal vein of the primaries which runs to the inner margin arises much nearer to the base of the wing than shown in the figure in the "Contributions." Examination of the "Type ♂" (Holotype) shows this vein split into three parts, none of which actually make contact with the inner margin. The venation in the Psychidae seems extremely variable.

Type localities and number and sexes of types of M. nigrita "Type ♂" and larval sack, Everglade, Fla., April 8-15; 3 ♂ "Cotype(s)" (Paratypes), Everglade, Fla., April 8-15; 1 ♂ "Cotype", Fort Myers, Fla., April 24-30; and the apparently not conspecific "Cotype", mentioned above; in the Barnes Collection; 1 ♂ "Cotype", Everglade, Fla., April 8-15, Collection F. M. Jones.
MANATHA JONESI, sp. nov.

Entirely similar to *M. nigrita*, B. & McD. in superficial appearance, perhaps averaging very slightly smaller. Antennae of the male less heavily pectinated than in *nigrita*, the pectinations being fewer, and little more than half as long. The venation appears variable, but in the specimens examined, *nigrita* shows the primary veins 4 (M_3) and 5 (M_2) connate from the cell; whereas in *jonesi*, these veins are stalked. This is probably a very undependable character, but seems to hold true in the majority of specimens.

Type locality San Benito, Texas.

Number and sex of types: ♂ Holotype, Aug. 1-7; and 19 ♂ Paratypes, all August.

PYRALIDAE

PYRAUSTINAE

NOCTUELIA ARIDALIS, sp. nov.

Palpi with the first joint white, the other joints olivaceous-brown. Patagia tinged with pink. Dorsum of thorax olivaceous-brown, the metathorax tinged with pink. Abdomen olivaceous-brown to pale fuscous. Primaries very variable, the ground color olivaceous-brown to bright pink. On the best marked specimens a distinct italic N is present on the right primary, and of course reversed on the left, of a pale-violaceous color. In suffused specimens, the space between the arms of the N is filled in with the same color, making the medial-subterminal portion of the wing unicolorously pale violaceous. When the N is suffused the ground color has a tendency to change to olivaceous-brown. All intermediates are present. There is a broad white or creamy basal dash, extending from the base of the wing to or nearly to the N. Secondaries: pale fuscous, with a darker band along the outer margin. Fringes of all wings pale fuscous, often with a paler interline; the fringes of the primaries sometimes being tinged with pink. Beneath: pale fuscous, the secondaries almost white, the primaries paler around the margins and where the basal dash shows thru.

Expanse: 14-16 mm.

The present species is closely allied to *pandoralis*, B. & McD., but the inner line of the N pursues a far more diagonal course from the costa to the inner margin, whereas in the former species this line is more nearly erect. In the three specimens of *pandoralis* before the authors the medial part of the N is missing, as is also the basal dash, but the course of the lines and markings appears more trustworthy in this group than their presence or absence.

Presumably the same species is represented in the Barnes collection by one specimen from So. Arizona (Poling), heretofore confused with *pandoralis*; and a single specimen from Southern Nevada, March 16-23 (Poling).

Type locality: Dixieland, Imperial Co., Calif.; O. C. Poling, Collector.

Number and sexes of types: ♂ Holotype, March 15-30; ♀ Allotype, April 1-15; 126 ♂, 4 ♀ Paratypes, dates ranging from March 1 to May 15, all 1922.

SCOPARIINAE

SCOPARIA BRONZALIS, sp. nov.

Belongs to the *basalis* group of the genus, to which it is closely allied in size and habitus. Primaries with an apparently light gray ground color, which is considerably darkened by a suffusion of darker gray scales, with a distinct

bronze cast. A trace of a basal dash is present. T. a. line pale, less curved than in *basalis*; the spot corresponding to the claviform is very distinct and pronounced; the orbicular, fainter. Reniform indistinct. Stigmata separate, unconnected by any bar or shade. T. p. similar to *fernaldalis*, pale. S. t. pale, bent inward in the median area, causing the subterminal space to be roughly figure of 8 shaped. The usual dark patch on the middle of the outer margin is present. Fringe basally checkered with gray and white, distally pale. Secondaries: smoky, paler at base. Fringe white, interlined with the color of the outer margin of the secondaries. Shape of wings as in *fernaldalis*.

Another female specimen which we consider the same species, from Loma Linda, San Bernadino, Co., Calif., shows traces of copper-red in the lower half of the figure of 8 shaped subterminal area.

Type locality: San Bernadino, Calif., October 8th-15th.

Number and sex of types: Holotype and 5 Paratypes, all ♀s.

SCOPARIA ALASKALIS, sp. nov.

Primaries: ground color pale gray, heavily suffused with dark gray scales. Basal dash present. T. a. line white, curved as in *basalis*. A conspicuous patch of black scales following this line almost obscure the slightly darker spot in the claviform area. The orbicular is a clean cut round black dot. Reniform as usual in the *basalis* group, shaded to the costa, followed by pale scaling. A black spot present on costa between this paler scaling and the t. p. line, which is pale and in general follows the course of that line as represented in *basalis* and *pacificalis*. It is, however, slightly straighter, making the species intermediate to *commortalis* in this respect. S. t. line white, bent inward on median area, subdividing the subterminal space into two dark patches. The lower of these patches possesses a distinct white spot in the anal angle, caused by a very considerable inflection of the s. t. line on vein 1. The usual black patch outside of the s. t. line is present, but considerably less pronounced than in *basalis*. A row of dark spots cause a checkered appearance to the fringe. Secondaries: pale fuscous, slightly darker externally. Fringes pale with a darker interline.

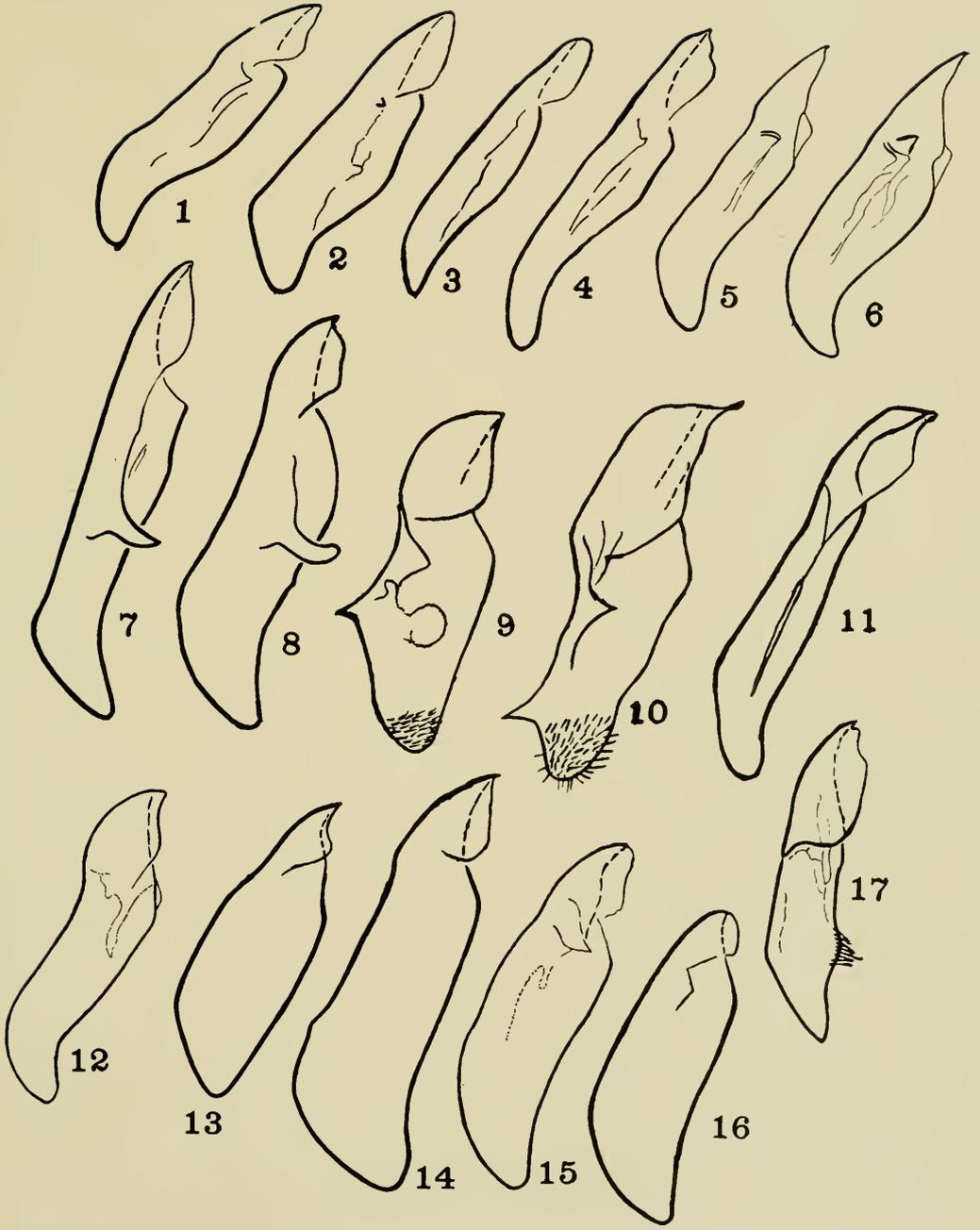
As usual with Alaskan species or forms, the present form resembles Eastern material in markings and Western in size.

Type locality: Ketchikan, Alaska, July 8th-15th.

Number and sex of types: ♂, Holotype; 1 ♂, Paratype.

PLATE I

- Fig. 1. *Grotella septempunctata*, Harv., Kerrville, Texas.
Fig. 2. *Grotella harveyi*, sp. nov., (Holotype), Denver, Colo.
Fig. 3. *Grotella sampita*, Barnes, Paradise, Cochise Co., Ariz.
Fig. 4. *Grotella blanca*, Barnes, Babaquivera Mts., Pima Co., Ariz.
Fig. 5. *Grotella parvipuncta*, B. & McD., "Cotype" (Paratype), Deming, N. Mex.
Fig. 6. *Grotella dis*, Grt., Jemez Springs, N. Mex.
Fig. 7. *Grotella stretchii*, sp. nov., (Holotype), Palm Springs, Riverside Co., Calif.
Fig. 8. *Grotella vagans*, sp. nov., (Paratopotype), Clark Co., Nev.
Fig. 9. *Grotella binda*, Barnes, (Topotype), Santa Catalina Mts., Pinal Co., Ariz.
Fig. 10. *Grotella tricolor*, Barnes, (Topotype), Santa Catalina Mts., Ariz.
Fig. 11. *Grotella grisescens*, B. & McD., (Topotype), Deming, N. Mex.
Fig. 12. *Grotella olivacea*, B. & McD., "N. Mex."
Fig. 13. *Grotella citronella*, B. & McD., (Topotype), Palm Springs, Riverside Co., Calif.
Fig. 14. *Neogrotella confusa*, sp. nov., (Paratopotype), Denver, Colo.
Fig. 15. *Neogrotella spauldingi*, B. & McD., (Topotype), Vineyard, Utah.
Fig. 16. *Neogrotella mcdunnoughi*, sp. nov., (Paratopotype), Dixieland, Imperial Co., Calif.
Fig. 17. *Grotellaforma colora*, Barnes, (Topotype), Redington, Ariz.



CONTRIBUTIONS
TO THE
NATURAL HISTORY
OF THE
LEPIDOPTERA
OF
NORTH AMERICA

VOL. V
No. 2

NOMENCLATURE
NOTES AND NEW SPECIES

BY

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Read Spalding and *spaldingi* thruout instead of Spaulding and *spauldingi*. The following pages and lines are involved: page 9, line 4; page 15, line 5; page 20, line 33; page 21, lines 21, 31, 41; page 22, lines 1, 7, 12, 41; page 23, lines 1, 4, 7, 9, 10, 23, 24, 32, 34; page 24, line 13; page 50, fig. 15; (Neogrotella). Page 29, line 35; (Lathosea); which changes this name to *Lathosea spaldingi*. Page 30, line 30; page 34, line 37; (Spalding instead of Spaulding). *Lapsus calami*; the addition of the letter "u".

NOMENCLATURE

In the course of preparation of a Synonymical Catalogue of the Lepidoptera, several rather difficult points of nomenclature present themselves—and the authors consider that their present ideas should be published, placed before the Entomological public so that criticism and discussion will precede the publication of the Catalogue. It is their desire to have this work comply as nearly as possible with the present International Rules of Zoological Nomenclature. Criticisms and suggestions will be very welcome.

Thanks are due to Dr. C. W. Stiles for his kindness in reviewing parts of this paper, and for his personal opinions thereon.

In the *Systema Naturae*, "Characteres Insectorum", Linnaeus divides the Insects into seven divisions (Orders ?); Coleoptera, Hemiptera, Lepidoptera, Neuroptera, Hymenoptera, Diptera, and Aptera; each of which are divided into genera numbered consecutively with the genera in other classes,—the whole work beginning with genus 1, Homo, and ending with the genus 353, Furia; 230 being Thrips, 231 Papilio, 232 Sphinx, 233 Phalaena, and 234 Libellula.

At the back of the work is found "Nomina Generica" which includes Sphinx, Papilio and Phalæna but does *not* include the names of the subdivisions of Phalæna, i. e., Noctua, etc.

Further, Linnaeus places all of the names Noctua, Attacus, etc., in *italics* whereas his Phalæna is represented by an ordinary Roman capital P., and his specific names "atlas", etc., by ordinary Roman type.

Additional proof along the same line is that the species in each genus throughout the work are numbered consecutively,—in Phalæna #1 being "P. Atlas atlas" and #460 being "P. *Alucita hexadactyla*".

As regards the status of Bombyx, Noctua, Geometra, etc., the authors feel they cannot do better than to quote from a letter received from Professor J. Chester Bradley of Cornell University, in which Professor Bradley substantiates their views:

"Also, he (Linnaeus states that Bombyx, Noctua, Geometra, etc., are Phalanges into which Phalaena is divided. It is perfectly evident that he uses those terms exactly in the sense that we use subgenera to-day, and I think we can and must treat them exactly as if they had been proposed as subgenera which, to all intents and purposes, they were. That is to say they were proposed as a minor division of the genus given uninomial group name. This interpretation is further substantiated by a study of this genus Sphinx, because in that genus he divides off the first group of species as *Sphinx legitima*. That is to say, they represent the typical subgenus and he gives subgeneric names to the other groups included under Sphinx, such as *Sesia*. He did not do this in Phalaena but gave a different subgeneric name to each of the groups into which he divided it. It is evident that that is the reason that Phalaena, as a name, has been disregarded. Each subgeneric name as proposed by Linnaeus was accepted eventually as a genus, and the name that

Linnaeus proposed used for it with the result that there was no use left for the name *Phalæna*."

The following quotations are from a letter received from Miss A. Ellen Prout; and no doubt characterizes the general advanced European opinion. The authors have the greatest admiration and respect for Miss Prout and her esteemed brother; but regret they cannot agree with the views expressed.

"*Phalæna Noctua*', employed by some of the older authors, seems to be a name for the *group* (almost for the *family Noctuidæ*) & cannot therefore be regarded as having any generic significance; it seems rather doubtful whether we ought even to use *Noctua* LINN. or whether the genus should rather be referred to one of the later authors who uses the name."

"*Noctua*: Latreille gives *pronuba* L. as type (1810). Unless anything we have overlooked invalidates this, or any earlier choice of type can be brought forward, *pronuba* therefore becomes the type of *Noctua*."

"Unfortunately *pronuba* appears to be also the true type of *Triphæna* Ochs. (see Dup. Pap. Fr. VII. 2. p. 71, 1829); in which case *Triphæna* must sink as a synonym of *Noctua*."

"*Nænia* Steph. appears to be the oldest generic name known for *typica*, which was placed by Ochs. (Schmett. Eur. IV. 70, 1816) in his undescribed genus *Mormo* together with *maura* Linn. Treits. (in 1825) characterized the genus (renaming *Mania*), retaining the same two species. Meig. (Eur. Schm. III, p. 213) restricts *Mania* to *maura* in which he is followed by subsequent authors. Treits. places *typica* in *Amphipyra*. *Nænia* appears to be the only genus in which *typica* has appeared as type; therefore the synonymy appears to be *Nænia* Steph., t. *typica*, L. or, if Stephen's diagnosis is insufficient, then *Nænia* HMPSN., t. *typica*."

The authors believe that the tenth edition of Linnaeus' *Systema Naturæ*, 1758, is consistent in the general application of the binomial system of nomenclature; (see Article 26, International Rules of Zoological Nomenclature). In accordance with the proofs given above, they believe it absolutely necessary to recognize the name *Phalæna* as a genus. As no species is definitely designated as type, the type of the genus must be *typica*. This is in accordance with Article 30b of the International Rules which definitely states: "If in the original publication of a genus, *typicus* or *typus* is used as a *new* specific name for one of the species, such use shall be construed as 'type by original designation'".

The authors also believe that the names suggested by Linnaeus as divisions of his genus *Phalæna* must be regarded as subgenera and credited to him. Following Articles 6 and 7 of the International Rules, these names can be used in the generic sense.

Following Article 9 of the Rules, the name *Noctua* becomes a synonym of *Phalæna*, because the typical subgenus must have the same name as the genus; and the same Rule which makes *typica* the type of *Phalæna* also makes it the type of *Noctua*.

Following Articles 4 and 5 of the Rules which state respectively, "The name of a family is formed by adding the ending *idae*, the name of a sub-

family by adding *inae* to the stem of the name of its type genus.”; “The name of a family or subfamily is to be changed when its type genus is changed.”; the authors suggest the name *Phalænidae* to be used in place of *Noctuidae*.

In the division of the family *Phalænidae* into subfamilies, one of these subfamilies must obviously be named *Phalæniinae*. Here a difficulty presents itself. *Phalæna typica* is placed by Hampson in the subfamily he called *Agrotinae* because of the spined tibiae. It almost appears as if Linnaeus deliberately selected a species for the name *typica* which would represent, as nearly as possible, the great group of Nocturnals, Sphinx omitted; for *typica* while having spined tibiae possesses the genitalia, habitus, and general external structure of those moths assigned by Hampson to the subfamily “*Acronyctinae*” in Volume VII of the *Cat. Lep. Phal. B. M.*, 1908, i. e., *Hadena*, *Auct.* = *Parastichtis*, *Trachea*, *Oligia*, etc. of Hampson.

While, therefore, the authors are cognizant of the fact that *Phalæna typica* is an intermediate form, best placed with *Hadena*, *Auct.*; they, nevertheless, adhere to their decision expressed in *Cont. Nat. Hist. Lep. N. A.*, V. #1, pp. 24-25, to disturb the true context of Sir George F. Hampson’s admirable work as little as possible, and still follow the present International Rules of Zoological Nomenclature.

Following this course, the name *Phalæniinae* must be substituted for the name *Agrotinae* of Hampson. Should *Phalæniinae* eventually take the place of either the first part or all of Hampson’s *Acronyctinae* then *Agrotinae* may be restored for the bulk of the trified *Phalænidae* possessing spined tibiae, with the generic type *Agrotis segetis* (Hbn., 1806, *Tentamen*).

Naenia Steph., possessing *typica* as type becomes synonymous with *Phalæna* and *Noctua*.

The lengthy bibliographies under the name *Phalæna* and *Noctua* are by no means complete, and are only of historical interest. They are printed merely to show how some of the more noted authors regarded these genera; and are set in small type, as being unimportant.

PHALÆNA, Linn.

Type *Phalæna* (“*Noctua*”) *typica* Linn.

1758, Linn., *Syst. Nat.*, Ed. X.¹

1767, Linn., *Syst. Nat.*, Ed. XII, Vol. II, genus 233, pp. 808-900, *typica* n. sp. named, #186, p. 857, no other type designated or implied and hence type.

1761, Linn., *Fauna Svecica*, p. 291-371, lists 360 species. 1762, Geoffroy, *Hist.*, *Ins. Paris*, makes no use whatever of *Noctua*, simply using *Phalæna* with unnamed subdivisions: (vide *Auct.*, et Grote 1902). 1763, Scopoli, *Entomologica Carneolica*, pp. 191-258, lists 194 species; name used as a genus with subdivisions *Bombyces*, *Geometrae*, *Tortrices*, *Pyrales*, *Tiniae*, and *Alucitae*, but no *Noctua*; the species Linnaeus placed under *Noctua* that are mentioned are placed under *Bombyces* which are subdivided into *A. Elingues*,” “*B. Spirilingues*”, under the latter heading *libatrix*, *pronuba*, *quadra*, etc., are listed. 1764,

¹ Same as the 1767 edition, in this respect, except for pagination.

Linn., Mus. Ludov. Ulr. Reg., pp. 181-399 again divides the Lepidoptera into three genera (p. 381); pp. 366-399 *Phalæna*. 1775, Fabr., Syst. Ent., pp. 619-644; uses *Phalæna* as a genus and lists 144 species, mostly Geometridæ and Pyralidæ. 1776, Schiff., Schmett. Wein., uses *Phalæna* in the Linnæan sense, Ph. Noctua, etc. 1781, Fabr., Spec. Ins., II, pp. 241-275, uses *Phalæna* as a genus; lists 198 species, mostly Geometridæ and Pyralidæ. 1781-83, Knoch, Beit. Ins., uses *Phalæna Bombyx*; *Phalæna Noctua*; etc. 1787, Fabr., Mantissa Insectorum, II, pp. 184-224, uses *Phalæna* as a genus; lists 325 species, mostly Geometridæ and Pyralidæ. 1792-94, Bork., Natur. Europ. Schmett., IV & V, uses *Phalæna* with *Noctua* and *Geometra* as in Linnaeus. 1794, Fabr., Ent. Syst., III, part 2, pp. 129-242 uses *Phalæna* as a genus; lists 427 species, mostly Geometridæ and Pyralidæ. 1797, Latrille, Prec. Carac. Gener. Ins., p. 143, uses "*Phalène. Phalæna*" as a genus (#10) but gives no species. 1801, Lamarck (Latrille), Syst. Anim. sans Vert., p. 286, uses "*Phalene. Phalæna*"; *P. syringaria* designated type(?). 1805, Latrille, Hist. Nat. Crust. Ins., XIV, 221, uses genus "*Phalene. phalæna*" for Geometridæ. 1806, Hbn., Tentamen; name not used. 1810, Latrille, Consid. Gen. Arach. Ins., p. 441, "*Phalène. Phalæna*"; "*Sambucaria, Fab.*" designated type. 1809-22?, Hbn., Zutr. Exot. Schmett.; name not used. 1816-27, Hbn., Verz.; name not used. 1829, Steph., Syst. Cat. Brit. Ins., II, 37, uses *Phalæna* in sense of a division of the Lepidoptera, placing it as a synonym of "*Lep.-Nocturna Latr.*" (See *Noctua*.) 1829, Steph., Illus. Brit. Ent. Haust., III, *Phalæna* not used in generic sense. 1840, Westwood, Intro. Mod. Class. Ins., II, 93 & 98, does not use *Phalæna* in the Linnaean sense; places *Phalæna* Haw. as a synonym of *Stilbia* Steph., with type *Ph. anomolata* Haw. 1850-58, H. S., Sammlung. aussereurop. Schmett.; does not use *Phalæna*. 1854-66, Wlk., Cat. Lep. Het. B. M., I-XXXV, no genus *Phalæna*. 1857, Gn., Hist. Nat. Ins., Spec. Gén., I; Uran. et Phal., I, has no genus *Phalæna*, but uses family name *Phalénites* (*Geometra* Linn.). 1876, Pack., Rept. U. S. Geol. Surv. Terr. (Mono. Phal. N. A.), X, p. 7, credits *Phalæna* to Fabricius (1793) and uses *Phalænidæ* (for Geometridæ). 1893, Sm., Bull. U. S. N. M., XLIV; disregards *Phalæna*. 1895, Meyrick, Handb. Brit. Lep.; disregards *Phalæna*. 1896, Hulst, Trans. Am Ent. Soc., XXIII, 248, states *Phalæna* of Fabricius is a synonym of *Geometer* Linn.; *Phalæna* Linn. "nearly equal to the *Heterocera* as now used". 1898, Hamp., Cat. Lep. Phal. B. M., I, 1, uses *Phalæna* in place of *Heterocera* for all of the moths; apparently makes no use of the term or any derivative in a generic sense. 1901, Staud. & Rebel, Cat. Lep. Palae.; disregard *Phalæna*. 1902, Dyar, Bull. U. S. N. M., LII; disregards *Phalæna*. 1903, Sm., Check List Lep.; disregards *Phalæna*. 1910, Prout, Genera Insectorum, CIII, p. 1, *Phalæna* Linn. spoken of as a genus, other divisions as subgenera; pp. 1 & 2 state family name of Geometridæ should be *Phalænidæ* because of Fabricius' restriction (1775). 1917, B. & McD., Check List; disregards *Phalæna*.

NOCTUA, Linn.

Type *Phalæna* ("*Noctua*") *typica* Linn.

1758, Linn., Syst. Nat., Ed. X.

1767, Linn., Syst. Nat., Ed. XII, Vol. II, uses as a subdivision, "*Phalæna* (for *Phalænae*) *dividendae*" p. 809; pp. 833-858, #82-#193 of *Phalæna*.

1761, Linn., Fauna Svecica, includes 75 species under (*P.*) *Noctua*. 1761, Poda, Ins. Mus. Graec., pp. 81-91; cites the following Linnaean species, *iacobaeae*, *quadra*, *dominula*, *pacta* (= *nupta*, Linn.), *pronuba*, *gamma*, *exclamationis*, *fscalis*: (vide Grote 1902). 1762, Geoffroy, Hist. Ins. Paris, (See *Phalæna*). 1763, Scopoli, Entomologica Carneolica, (See *Phalæna*). 1764, Linn., Mus. Ludov. Ulr. Reginae, gives the following species, *strix*, *crepuscularis*, *occidua*, *punctigerata*, *virgo*, *decora*, *fulvia*, *ornatrix*, *heliconia*, *rubricollis*, *fraxini*, *pelle*, *lectrix*; *fascelis* merely listed as *Phalæna* without *Noctua*. 1775, Fabr., Syst. Ent., pp. 590-619, lists 122 species. 1776, Fabr., Genera Insectorum . . . Mantissa Specierum (Gen. Ins. Mant.), lists 6 species only, none of the original Linnaean species; "*Phalæna*, Linn. Geoff." cited equivalent to *Noctua*, Fabr. 1776, Schiff., Schmett. Wein., (See *Phalæna*). 1781, Fabr., Spec. Ins., II, pp. 209-241, lists 150 species under *Noctua*.

1781-83, Knoch, *Beit. Ins.*, (See *Phalæna*). 1787, Fabr., *Mantissa Insectorum*, II, pp. 135-184, lists 309 species under *Noctua*. 1792, Bork., *Natur. Europ. Schmett.*, IV, pp. 1-809 (See *Phalæna*). 1794, Fabr., *Ent. Syst.*, III, part 2, pp. 8-126, lists 380 species under *Noctua*. 1797, Latreille, *Prec. Carac. Gener. Ins.*, p. 143, uses "*Noctuelle. Noctua*" as a genus (#9) but gives no species. 1801, Lamark, (Latreille), *Syst. Anim. sans Vert.*, p. 286, "*Noctuelle. Noctua. F.*"; *sponsa* designated type (?). 1805, Latreille, *Hist. Nat. Crust. Ins.*, XIV, 198, uses genus "*Noctuelle. noctua*", for *fraxini, elocata, nupta, sponsa, electa, maura, pronuba, lunaris, batis, italica, chrysitis, aceris, alchymista, myrtilli, festucae, brassicae, delphinii, meticulosa, verbasci, ganna, chi, psi, persicariae, trapezina, segetis*. 1806, Hbn., Tentamen; name not used. 1810, Latreille, *Consid. Gen. Arach. Ins.*, p. 441, "*Noctuelle. Noctua*"; "*pronuba, F.*" designated type. 1809-22, Hbn., *Zutr. Exot. Schmett.*; name not used. 1816-27, Hbn., *Verz.*, name not used in generic sense. 1807-16, Ochs., *Schmett. Europ.*, has no genus *Noctua*. 1816-35, Treits., *Schmett. Europ.*, has no genus *Noctua*. 1829, Boisd., *Europ. Lep. Index Method.*, pp. 63-67, cites "*Agrotis et Noctua, Treits.*" and "*Agrotis et Graphiphora, Ochs.*" as synonyms; includes 75 species. 1829, Duponchel, *Hist. Nat. Lep. Noct.*, VII, part 2, p. 71, *exclamationis* designated type. 1829, Steph., *Syst. Cat. Brit. Ins.*, II, pp. 37, 43, 44, 53, 60, 62, 68, 70, uses *Noctua* in the synonymy, credited to various authors; not in the sense of a Linnean genus; but creates the family *Noctuidae*, p. 62. 1829, Steph., *Illus. Brit. Ent. Haust.*, II, p. 87, pp. 100-200, III, pp. 1-140, follows the nomenclature of his Catalogue and uses the family *Noctuidae*. 1832, Meigen, *Europ. Schmett.*, includes 155 species under *Noctua*, with *Hadena, Orthosia*, etc., as subgenera: (vide Grote, 1902). 1840, Westwood, *Intro. Mod. Class. Ins.*, II, 93-98, places "*Ph. Noctua, L.*" as a synonym of *Triphaena Ochs.*, with type *pronuba* Linn.; and "*Noctua, Haw.*" as a synonym of each of the following; *Orthosia Ochs.*, with type designated as *Ph. N. litura* Linn.; *Mythimna* Steph., with type *turca* Linn.; *Rhizolitta* Curt., with type "*N. lambda, F.? Haw.*"; *Mamestra Ochs.*, with type *Ph. N. persicariae* Linn.; *Trachea Ochs.*, with type *Ph. atriplicis* Linn.; *Diptera* Hbn., with type *N. orion* Esp.; *Thyatira Ochs.*, with type *Ph. batis* Linn.; *Cosmia Ochs.*, with type *Ph. trepezina* Linn.; *Xanthia, Hbn.*, with type *Ph. fulvago*, Linn.; *Gortyna Ochs.*, with type *N. flavago* W. V.; *Nonagria*, with type *N. typhae* Ochs.; *Simyra Ochs.*, with type *N. nervosa* W. V. 1850-58, H. S., *Sammlung. aussereurop. Schmett.*, pp. 4 & 67, uses *Noctuina* as a family name; *Noctua* as a genus. 1852, Gn., *Hist. Nat. Ins.*, *Spec. Gén.*, V, *Noct.*, I, uses *Noctua* (Linn.) as a genus for *lubricans, bicarnea, c-nigrum*, etc.; lists as synonyms *Graphiphora Ochs.*, *Chersotis, Segetia*, & *Orthosia* Bdv. 1854-66, Wlk., *Cat. Lep. Het. B. M.*, I-XXXV; Vol. X uses genus *Noctua*. 1857, Lederer, *Noct. Europ.*, no genus *Noctua*. 1893, Sm., *Bull. U. S. N. M.*, XLIV, pp. 70-78, uses genus *Noctua* (Linn.) for *bicarnea, c-nigrum, plecta*, etc.; pp. 31-424, family *Noctuidae*. 1895, Meyrick, *Handb. Brit. Lep.*, disregards *Noctua* entirely, using families *Caradrinidae* (p. 43), and *Plusiadae* (p. 144) in place of *Noctuidae* Auct. 1901, Staud. & Rebel, *Cat. Lep. Palae.*, part I, pp. 130-258, use family *Noctuidae*, but no genus *Noctua*. 1902, Dyar, *Bull. U. S. N. M.*, LII, pp. 134-135, uses genus *Noctua* (Linn.) for *bicarnea, c-nigrum, plecta*, etc.; pp. 98-247, family *Noctuidae*. 1902, Grote, *Proc. Amer. Phil. Soc.*, XLI, paper entitled "Results Obtained from A Search for the type of *Noctua* Linn. and conclusions as to types of Huebnerian *Noctuid* Genera Represented in the North American Fauna", pp. 4-12, questions the validity of *Noctua* as a genus of *Lepidoptera* because of preoccupation in *Mollusca*, by Klein, 1753; or if valid, cites *pronuba* Linn. type. 1903, Hamp., *Cat. Lep. Phal. B. M.*, IV, 4, *Noctua strix* Linn. designated as type (first species principle). 1903, Sm., *Check List Lepid.*, pp. 32-33; pp. 24-60, same usage as in 1893. 1917, B. & McD., *Check List*, follows Hampson and considers genus *Noctua* exotic; pp. 37-92, family *Noctuidae*.

NAENIA, Steph.

Type *Phalæna typica* Linn.

1829, Steph., *Syst. Cat. Brit. Ins.*, II, 77, lists synonyms "*Lemures p, Hbn.*; *Mormo p, Ochs.*; *Mania p, Treit.*"; *typica* Linn. sole species and therefore type; no further description than quotations of previously named genera and species. 1829, Steph., *Illus.*

Brit. Ent. Haust., II, 165-167, *typica* Linn. sole species. 1840, Westwood, Intro. Mod. Class. Ins., II, 98, (see Mormo). 1852, Gn., Hist. Nat. Ins., Spec. Gén., VI, Noct., II, p. 417. (See Mania). 1857, Lederer, Noct. Europ., pp. 35 & 116, *typica* Linn. sole species. 1857, Wlk., Cat. Lep. Het. B. M., XIII, 1019, lists synonyms "Hadena, p. Hbn., Mormo, p. Ochs., Mania, p. Treit., Lemuris, Curt."; redscribes the genus and lists *typica* only. 1901, Staud. & Rebel, Cat. Lep. Palae., part 1, p. 185; list *typica* Linn. and *cor-taminata* Wlk. 1903, Hamp., Cat. Lep. Phal. B. M., IV, 618, *typica* Linn. designated type.

LEMUR, Hbn.

Type *Phalæna maura* Linn.

1806, Hbn., Tent., p. 2, *maura* Linn. sole species and therefore type.

MORMO, Ochs.

Type *Phalæna maura* Linn.

1816, Ochs., Schmett. Europ., IV, 70, lists as synonym Lemures Hbn.; lists *maura*, Linn.; *typica*, Linn. = *venosa*, Hbn., = *excusa*, Esp. Obviously erected to take the place of Lemur Hbn. 1825, Hbn., Verz., p. 275, *maura* Linn. sole species. 1829, Steph., Syst. Cat. Brit. Ins., II, 111, lists synonyms "Mormo p, Och., Hemigeometra p, Haw., Lemurer p. Hbn., Mania p, Treit.; cites *maura*, "Och." sole species. 1829, Steph., Illus. Brit. Ent. Haust., III, p. 129, describes Mormo Ochs. (in a restricted sense) placing *maura* as sole species. 1840, Westwood, Intro. Mod. Class. Ins., II, 98, lists synonym Hemigeometra Haw.; *Ph. maura* Linn. designated type. 1857, Lederer, Noct. Europ., pp. 35 & 116, lists *maura* Linn. as sole species. 1857, Wlk., Cat. Lep. Het. B. M., X, 1021, lists as synonyms "Mormo, p., Ochs., Mania, p., Treit.;" redscribes the genus and lists *maura* sole species. 1908, Hamp., Cat. Lep. Phal. B. M., VII, 49, (listed *non descr.*), *maura* Linn. cited as type.

MANIA, Treits.

Type *Phalæna maura* Linn.

1825, Treits., Schmett. Europ., V, part 1, 294, lists synonyms Lemures Hbn., Mormo Ochs.; lists *maura*, Linn., *typica*, Linn. 1829, Boisd., Europ. Lepid. Index Method., p. 69, lists synonym Mormo, Ochs.; lists *maura*, *typica* = *venosa*. 1829, Duponchel, Hist. Nat. Lep. Noct., VII, part 2, p. 71, *maura*, Linn. designated type. 1852, Gn., Hist. Nat. Ins., Spec. Gén., VI, Noct., II, pp. 416-418 lists synonyms Mormo Ochs., Hemigeometra Haw., Terrificae Bork.; Group I = *Naenia* Steph.; Group II, *Mania maura* sole species and designated type. 1901, Staud. & Rebel, Cat. Lep. Palae., part 1, p. 185, *maura* sole species. 1908, Hamp., Cat. Lep. Phal. B. M., VII, 49, *maura* Linn. cited as type.

The genus *Mania* Treits. was obviously erected to cover Lemur Hbn. and Mormo Ochs. which were evidently considered undescribed.

The authors consider both Lemur Hbn. and Mormo Ochs. described; following Article 25 of the International Rules. The quotations of older and well known species are at least "an indication" of what the genus represented. Following Article 30f of the Rules, which states:

"In case a generic name without originally designated type is proposed as a substitute for another generic name, with or without type, the type of either, when established, becomes *ipso facto* type of other.;"

Mormo, Ochs., and *Mania*, Treits. therefore take the same type as Lemur, Hbn.; i. e., *Phalæna (Noctua) maura*, Linn., and are synonymous.

"*Noctuae terrificae*" Bork. was evidently not intended as a genus, the author using "Phal. Noctua" as the genus for *maura* (1792, Natur. Europ. Schmett., IV. 1).

Boisd., 1829, Index Method., p. 69 states, "Genus Mormo adhibuit Illiger in ornithologia: Vid. Nouv. Dict. d'Hist. Nat., t. XXI." Probably the citation refers to "Prodromus Systemates Mammalium et Avium, Berol. 1911". The authors possess neither of these works but consider the matter of little importance if the Tentamen is accepted, Lemur Hbn. having priority.

Lemur Hbn. with the synonymous genera Mormo Ochs. and Mania Treits. are merely incorporated herein because of the fact that the early authors (until Stephens, 1829) considered *typica* and *maura* congeneric.

LATHOSEA, Grt.

Type *Lathosea pulla* Grt.

1881, Grt., Bull. Geol. Surv., VI, 270, *pulla*, sole species and therefore type. 1890, Grt., Revised Check List Noct., p. 14, #425, *pulla* placed as preoccupied (?), *pullata* sole species mentioned. 1893, Sm., Bull. U. S. N. M., XLIV, 163, *pullata* sole species mentioned, *pulla* placed as invalid. 1895, Grt., Abh. Nat. Ver. Bremen, XIV, 97, type designated *L. pulla* but *pulla* listed "nom. rej. Auct." and *pullata* substituted as species #852. 1898, Sm., Can. Ent., XXX, 324, refers a new species, *ursina* to *Lathosea*. 1903, Sm., Check List Lepid., p. 42, lists two species, *pullata* Grt., *ursina* Sm. 1905, Hamp., Cat. Lep. Phal. B. M., V, 362, places *ursina* Sm., in *Trichopolia*. 1906, Hamp., Cat. Lep. Phal. B. M., VI, 205, cites *pulla* as type. 1917, B. & McD., Check List, p. 57, place *pulla* with syn. *pullata* as sole species. 1922, B. & Benj., Contr. Nat. Hist. Lep. N. A., V, #1, 28, quote *pulla* Grt. sole species and therefore type; p. 29-30 a second species described, *spauldingi* in err. for *spaldingi*.

The type of *Lathosea* and the validity of *pulla* or *pullata* presents a complex problem. In 1881, Grote described the genus *Lathosea* with the sole species *pulla*. In 1890, Grote discarded the name *pulla* without stating why, for *pullata*. He probably discarded it as a homonym of *pulla* Schiff., a European insect referred by Hampson, to *Cloantha*. *Pulla* Schiff. has been placed in many genera by various European workers but the authors can find no trace of it ever having been placed in *Lathosea*; nor does *pulla* appear to have ever been placed in any other genus than *Lathosea*. It would therefore seem that *pulla* Grt. could never have been a homonym of *pulla* Schiff.

The authors believe they have somewhere seen a statement by Prof. Grote that he created the name *pullata* because of *pulla* Schiff. but a search of the literature has failed to find such a statement. Such cases, it is hoped, will be eventually settled by the proposed Synonymical Catalogue. Meanwhile, without proof that *pulla* Grt. has even been a homonym of *pulla* Schiff. there is apparently no reason to discard the earlier name for the Oregon-Colorado species of *Lathosea*. If, however, it can eventually be shown that Grote's name *pulla* was a homonym; that the name was ever placed in the same genus as *pulla* Schiff.; then *pullata* will have to be used.

Such a condition would then leave a genus with a homonym as type. In this particular case, the solution would be comparatively easy as at the time

of description of the genus, Grote had only one species before him, and a single specimen of that. In 1890, before any other species had been added to the genus, he changed the name *pulla* to *pullata*; so there can be no question but that the genus is monotypical.

Under Opinion 46 of the International Commission it is clear that a generic name will hold if no species are mentioned. Therefore if *pulla* Grt. was a homonym, it was invalid from the start and had no place in nomenclature. Thus, from the first species subsequently described under the genus would have to come the genotype. Hence, *pullata* would automatically become the type of *Lathosea*.

What would happen if a species that was the genotype for a large genus become a homonym? The rules do not seem clear upon this point. In the case of *Lathosea* it is fortunate, that whether or not *pulla* Grt. or *pullata* Grt. stand, the identical species will be the genotype.

PAPAPEMA PURPURIFASCIA G. & R.

1868, G. & R., Trans. Am. Ent. Soc., I, 341, pl. VII, f. 51, (mixed type series), *Gortyna*. 1873, Grt., Bull. Buff. Soc. Nat. Sci., I, 110, *Hydroecia*. 1874, Grt., Can. Ent., VI, 216, *Gortyna*. 1875, Grt. Check List Noct., p. 11, #392, *Gortyna*. 1875, Grt., Bull. Buff. Soc. Nat. Sci., II, 19, *Ochria*. 1881, Grt., Bull. Geol. Surv., VI, 269, *Gortyna*. 1882, B'klyn Ent. Soc., Check List, p. 14, #1769, *Hydroecia*. 1882, Grt., New Check List, p. 29, #568, *Gortyna*. 1883, Grt., Proc. Am. Phil. Soc., XXI, 147, *Gortyna*. 1890, Grt., Rev. Check List Noct., p. 20, #611, *Gortyna*. 1891, Sm., List Lepid., p. 45, #2221, *Hydroecia*. 1893, Sm., Bull. U. S. N. M., XLIV, 176, *Hydroecia*. 1895, Grt., Abh. Nat. Ver. Bremen, XIV, 85, #602, *Gortyna*. 1897, Sling., Can. Ent., XXIX, 161, pl. VI (adult and larva), (biol.), *Hydroecia*. 1898, Bird, Can. Ent., XXX, 130, (biol.), *Hydroecia*. 1899, Dyar, Jour. N. Y. Ent. Soc., VII, 70, pl. II, f. 4 (setae), *Hydroecia*. 1899, Sm., Trans. Am. Ent. Soc., XXVI, 33, pl. II, f. 36 ♂ genitalia, *Hydroecia*. 1900, Sm., 1899 List Ins. N. J., p. 416, *Hydroecia*. 1902, Dyar, Bull. U. S. N. M., LII, 176, #2178, *Papaipema*. 1903, Sm., Check List, p. 43, # 2392, *Papaipema* (*Hydroecia partim*). 1903, Holl., Moth Book, p. 213, pl. XXVI, f. 7, *Papaipema*. 1906, Forbes, Field Tables Lepid., p. 140, (two sp. in err.), *Papaipema*. 1907, Bird, Can. Ent., XXXIX, 317, *Papaipema*. 1910, Sm., 1909 Rept. State Mus., Ins. N. J., p. 464, *Papaipema*. 1910, Hamp., Cat. Lep. Phal. B. M., IX, 76, pl. CXXXVIII, f. 25, *Papaipema*. 1914, Bird, Can. Ent., XLVI, 69, pl. III, (adults and larva), (biol.), lectotype designated, *Papaipema*. 1917, B. & McD., Check List, p. 70, #2683, *Papaipema*.

leucostigma Harris (a homonym).

1841, Harris, Ins. Inj. Veg. Mass., p. 320, *Gortyna*. 1852, Harris, Ins. Inj. Veg. Mass., p. 341, *Gortyna*. 1860, Morris, Cat. Lep. N. A., (Smith. Misc.), p. 28, *Gortyna*. 1862, Harris, (3rd Ed., by Flint), p. 440, *Gortyna*. 1862, Harris, ("New Ed." or Flint Ed.), p. 440, *Gortyna*. 1864, Grt., Proc. Ent. Soc. Phila., II, 432, *rutila* syn., *Gortyna*. 1865, Grt., Proc. Ent. Soc. Phila., IV, 324, *cataphracta?*, *Gortyna*. 1873, Grt., Bull. Buff. Soc. Nat. Sci., I, 111, *rutila?*, *Hydroecia*. 1875, Grt., Check List Noct., p. 11, #391, *rutila*, *Gortyna*. 1881, Grt., Bull. Geol. Surv., VI, 268, *harrisii?* or *rutila?*, *Gortyna*. 1891, Sm., List Lepid., p. 45, #2220, *cataphracta*, *Hydroecia*. 1893, Sm., Bull. U. S. N. M., XLIV, 177, *rutila*, *Hydroecia*. 1895, Grt., Abh. Nat. Ver. Bremen, XIV, 177, *rutika*, *Hydroecia*. 1898, Bird, Can. Ent., XXX, 130, *purpurifascia*, *Hydroecia*. 1899, Sm., Trans. Am. Ent. Soc., XXVI, 33, *purpurifascia*, *Hydroecia*. 1907, Bird, Can. Ent., XXXIX, 317, *purpurifascia*, *Papaipema*. 1914, Bird, Can. Ent., XLVI, 70, *purpurifascia*, *Papaipema*.

The name *leucostigma* Harris appears to have caused considerable confusion in the past. Part of the bibliographies of this name and *purpurifascia*

G. & R. are given above. Several of the latest lists simply omit Harris' name. *Leucostigma* Harris, when described, was a homonym of *leucostigma* Hbn. which had been placed in Gortyna by Treits., 1825, Schmett., Europ., V, 330. Subsequently *leucostigma* Harris was discarded by Grote (1865) as preoccupied. The name *purpurifascia* will therefore stand as the correct name for the American species boring in Columbine. See International Rules, Articles 35 and 36.

NOTES AND NEW SPECIES
LYCAENIDAE
THECLINAE

MITOURA GRYNEUS Hbn.

1818, Hbn., Verz., p. 74, (n.n. for *damon* Cram.), *Lycus*.

damon, Cram. (homonym).

1782, Cram., Pap. Exot., IV, 208, pl. CCCXC, ff. C, D, *Papilio*;

1818, Hbn., Verz., p. 74, *gryneus*, *Lycus*;

1823, Godt., Ency. Method., IX, 640, n. n., *gryneus* homonym, *Polyommatus*;

1867, Hewitson, Ill. Diur. Lep., I, 94, pl. XXXVII, f. 100, *Thecla*;

1889, Scud., Butt. East. U. S., II, 861, pl. VI, f. 17, *Mitoura*;

1898, Skin., Syn. Cat. N. A. Rhop., p. 48, #286, *Thecla*;

1898, Holl., Butterfly Book, p. 246, pl. XXIX, f. 32, *Thecla*;

1920 (1922), Draudt, Seitz Macrolepid. World, Exotica part 237, Fauna Amer. part 90, p. 798, pl. CLVIII, *Thecla* (*Mitoura*).

damastus, Godt. and Latr.

1823, Godt. & Latr. Ency. Method., IX, 640, *Polyommatus*.

auburniana, Harris (partim.)

1862, Harris, Ins. Mass. Inj. Veg., Ed. III, 277, *Thecla*.

form *SMILACIS* Bdv. & Lec.

1833, Bdv. & Lec., Lep. Am. Sept., p. 107, pl. XXXIII, ff. 5-6, *Thecla*;

1872, Scud., 4th Rept. Peab. Acad. Sci., p. 52, *Mitouri* err. for *Mitoura*;

1889, Hy. Edw., Bull. U. S. N. M., XXXV, 32, biol., *Thecla*;

1891, Maynard, Manual N. Am. Butt., p. 141, *gryneus* and *castalis* in err., *Thecla*.

auburniana, Harris (partim.)

1862, Harris, Ins. Mass. Inj. Veg., Ed. III, 277, *Thecla*.

patersonia, Brehme.

1907, Brehme, Ent. News, XVIII, 82, *damon* var., *Thecla*.

race *CASTALIS*, Edw.

1871, Edw., Trans. Am. Ent. Soc., III, 208, *Thecla*;

1889, Scud., Butt. E. U. S., II, 861, *damon*, *Mitoura*;

1898, Skin., Syn. Cat. N. Am. Rhop., p. 47, #285, *Thecla*;

1916, B. & McD., Contr. Nat. Hist. Lep. N. A., III, #2, 106, *Mitoura*.

discoidalis, Skin.

1897, Skin., Can. Ent., XXIX, 156, *damon* var., *Thecla*;

1898, Holl., Butterfly Book, pl. XXIX, f. 29, *damon* var., *Thecla*;

1920 (1922), Draudt, Seitz Macrolepid. World, Exotica part 237, Fauna Amer. part 90, p. 798, *damon* form, *Thecla* (*Mitoura*).

The name *gryneus* Hbn. will apparently stand as the correct name for the ordinary eastern or "type" form of this species. Hübner sunk the name *damon* Cram. creating the name *gryneus*. There is no statement of why this was done, altho Hübner undoubtedly considered *damon* Cram. a homonym. The Encyclopédie Méthodique definitely states "Nota. Nous avons changé le nom de Cramer pas qu'il y a un autre polyommate qui porte le nom de *Damon*." It was not recognized that Hübner had already given a second name to this species and while this action undoubtedly sunk *damon* Cram. as a homonym of *damon* Schiff. the insect had another name which could be used. The International Rules of Zoological Nomenclature definitely state that a rejected homonym can never again be given status (Article 36). The name *damastus* simply remains a synonym but should be credited to Godt. & Latr. While Latreille in the introduction to volume IX of the Encyclopédie Méthodique appears to credit the work on "Papilio" to Godart, he states also, "M. Godart a toujours demandé mes conseils dans tout les difficultés qu'il a rencontrées." In the quotation given above which sinks *damon* Cram. as a homonym, *nous* is used and not *je*, evidently intending Latreille should have joint authorship.

The form with the dark brown nearly unicolorous upper surface from the east will have to be called *smilacis*. The original description and figure while poor show beyond question that this was the form before Boisduval and Leconte.

Specimens in the Harris Collection, apparently the types of *auburniana*, represent both *gryneus* and *smilacis*.

The eastern race appears to range at least as far west as the Mississippi River, one specimen of *M. gryneus* in the Barnes Collection being from Vicksburg, Miss.

In Texas the western race *castalis* Edw. is found. It is very "close" to the eastern race. The main difference seems to be in the position and shape of the inner medial spot on the secondaries below.

In true *damon* this spot is strongly outcurved, crescent shaped, lying in the cell well outside of the costal spot. In *castalis* this spot is very slightly crescent shaped, nearly straight, not outcurved as far into the cell, nearly underneath the costal spot.

MITOURA GRYNEUS race CASTALIS form BREHMEI NOV.

The western race also gives rise to a form with dark upper surface corresponding identically to *smilacis* but with the under side of *castalis*. To this form the authors apply the name *brehmei*. Four of the paratypes have traces of the lighter brown showing thru the dark upper surface.

Type localities: Shovel Mt., and Kerrville, Texas.

Number and sexes of types: Holotype ♂, Allotype ♀, 3 ♀ Paratypes, Shovel Mt.; 2 ♀ Paratypes Kerrville.

The following may be substituted for #377 of the B. & McD. Check List:

377 *gryneus* Hbn.

damon Cram.

damastus Gdt. & Latr.

auburniana Harris (partim.)

Form *smilacis* Bdv. & Lec.

auburniana Harris (partim.)

patersonia Brehme

a *castalis* Edw.

discoidalis Skin.

form *brehmei* B. & Benj.

CALLOPHRYS DUMETORUM Bdv.

1852, Bdv., Ann. Soc. Ent. Fr., (2), X, 291, *Thecla*;

1891, Maynard, Manual N. Am. Butt., p. 145, (several sp. and forms in err.?) *Thecla*;

1898, Skins., Syn. Cat. N. Am. Rhop., p. 50, #303 (partim.), *Thecla*;

1898, Holl., Butterfly Book, p. 249, (partim.), pl. XXX, ff. 1-2, *Thecla*;

1900, Barnes, Ent. News, XI, 330, (*apama* race *homoperplexa* in err.) *Thecla*;

1901, Dod, Can. Ent., XXXIII, 165, (in err.?), *Thecla*;

1905, Wright, Butt. West Coast, p. 212, pl. XXVIII, ff. 335-335b, *Thecla*;

1912, Haskin and Grinnell, Ent. News, XXIII, 3-8, (partim.), *Thecla*;

1913, Oberthür, Et. Lep. Comp., IX, (1), pl. CCXXXVI, f. 1926 (type), *Thecla*;

1914, Comst., Jour. N. Y. Ent. Soc., XXII, 35, *Thecla*;

1914, McD., Ent. Record, XXVI, 196-7, (partim.), *Callophrys*;

1919 (1922), Draudt, Seitz Macrolepid. World, Exotica part 231, Fauna Amer. part 84, p. 763, (partim.?), *Thecla* (*Callophrys*).

viridis Edw.

1862, Edw., Proc. Acad. Nat. Sci. Phila., p. 223, *Thecla*.

The typical form has the upperside blackish-gray in the male sometimes faintly tinged with rufous; the female is similar but with the rufous cast often quite distinct. Beneath: sexes similar with some white dots tending to form a band across at least the secondaries and in about 90% of the specimens across both primaries and secondaries. A gray-copper suffusion extends along the inner margin to the apex, but is seldom continued nearer the costa than to about the discal cell. The fringes are outwardly predominantly white usually with some checkering.

This species appears quite distinct from the European *C. rubi*.

Distribution: As far as shown by a long series of specimens in the Barnes Collection, one of which was compared with the type; California, only from a region somewhere north of San Diego.

CALLOPHRYS DUMETORUM race PERPLEXA, NOV.

1898, Holl., Butterfly Book, p. 249, (as *affinis* partim.), *Thecla*;

1905, Wright, Butt. West Coast, p. 212, pl. XXVIII, ff. 336, 336b (as *affinis*), *Thecla*;

1912, Haskin & Grinnell, Ent., News, XXIII, 3-8, (as *dumetorum* partim.), *Thecla*;

1914, McD., Ent. Record, XXVI, 196-7, (as *dumetorum* partim.), *Callophrys*.

This appears to be a valid geographical race of *C. dumetorum*, corresponding to the lower Austral vs. Gulf Strip races in the East of many species.

It can be distinguished from typical *C. dumetorum* by the complete or almost complete absence of white markings on the underside. Some specimens show two or three small dots but these form no line across the wings. The gray-copper on the inner margin of the primaries is usually more pronounced than the green and extends almost to the costa thus nearly dividing the primary, while the green shows distinctly only at the apex and base, the two green areas being connected by some green along the costo-radial region. The fringes are either checkered or darkened, not pure white outwardly.

This form has been mainly confused with the Colorado race of *C. apama* and with the Utah race of *C. sheridani*.

It is represented in the Barnes Collection only from the vicinity of San Diego, Calif. Records from Colorado and Utah probably refer to the races of other species described herewith.

Type locality: San Diego, California.

Number and sexes of types: Holotype, ♂, 21 March 1908, Allotype ♀, 21 March 1908; 24 ♂, 9 ♀, Paratypes, 6th-28th March 1908-1921 W. S. Wright, E. Piazza and Geo. H. Field, Collectors; 1 ♂, Paratype, 9 April 1921, (Piazza).

CALLOPHRYS AFFINIS Edw.

1862, Edw., Proc. Acad. Nat. Sci. Phila., p. 223, *Thecla*;

1891, Maynard, Manual N. Am. Butt., p. 144, *Thecla*;

1898, Skin., Syn. Cat. N. Am. Rhop., p. 50, #302, *Thecla*;

1898, Holl., Butterfly Book, p. 249, (partim.), pl. XXX, f. 3, *Thecla*;

1912, Haskin & Grinnell, Ent. News, XXIII, 3-8, (as *dumetorum* partim.), *Thecla*;

1914, McD., Ent. Record, XXVI, 197, *Callophrys*;

1919 (1922), Draudt, Seitz Macrolepid. World, Exotica part 231, Fauna Amer. part 84, p. 763, (*sheridani* race *neoperplexa* in err.?), *Thecla* (*Callophrys*).

This is apparently quite a stable species the ground color of the upper side in *both* sexes being conspicuously red-brown. There is a slight dusky shading along the inner margin beneath and one specimen shows a single faint white dot. The green is usually unmarked by any white. The fringes are outwardly pure white.

This species is represented in the Barnes Collection from "Utah"; Silver Lake (Topotypes), and Eureka, Utah.

Large females are likely to be confused with an occasional red female of *C. dumetorum* race *perplexa* but can be separated by the fringes; and in practically all cases by the lack of the gray-copper suffusion, on the primaries below, *extending* nearly to the costa.

CALLOPHRYS SHERIDANI Edw.

1877, Edw., Field and Forest, III, 48, (as *sheridoni* err. typ.), *Thecla*;

1891, Maynard, Manual N. Am. Butt. pp. 146 & 218, (as *sheridani*) *Thecla*;

1898, Skin., Syn. Cat. N. Am. Rhop., p. 50, #305, *Thecla*;

1904, Skin., Suppl. Syn. Cat. N. Am. Rhop., I, p. 18, *Thecla*;

1919 (1922), Draudt, Seitz Macrolepid. World, Exotica part 231, Fauna Amer. part 84, p. 763, *Thecla* (*Callophrys*).

The typical form of this species has the upper side dark-gray and the under side darker green than the other species of the genus. Both wings, beneath, are crossed by bands of white composed of fused or nearly fused dots on the primaries, while the dots on the secondaries are, in the main, actually fused so they no longer appear as dots. This band is quite wide and, at least on the secondaries, inwardly lined by a distinct black line. The fringes are practically pure white outwardly.

The typical form is represented in the Barnes Collection from the region around Denver, Colorado, in April.

CALLOPHRYS SHERIDANI race NEOPERPLEXA nov.

1919 (1922), Draudt, Seitz Macrolepid. World, Exotica part 231, Fauna Amer. part 84, p. 763, (prob. extreme of this form in err. as *affinis*), *Thecla* (*Callophrys*).

This is the Utah race of *C. sheridani*. On the upper side the ground color is a slightly paler gray and the fringes do not show pure white outwardly. Beneath the difference is more conspicuous in that the band is reduced to a diagonal row of dots or entirely lost on the primaries while the broad band on the secondaries has been reduced to a faint line which tends to become broken and obsolescent.

Males of this form might easily be confused with small and poorly marked males of *C. dumetorum* which probably gives rise to Utah records for that species.

One specimen from Cloudcroft, N. Mex., is somewhat intermediate to the typical race but better referred here.

Type localities and number and sexes of types: Holotype ♂, Eureka, Utah, 16 April 1911; Allotype ♀, Utah; 3 ♂, 2 ♀, Paratypes, all Utah, as follows: 3 ♂, Stockton, 30 March 1907, 31 March 1907, 10 April 1907; 1 ♀, "Utah", 1 ♀, Silver Lake, 12 July 1899.

CALLOPHRYS APAMA Edw.

1882, Edw., Pap., II, 137, *Thecla*;

1891, Maynard, Manual N. Am. Butt., p. 146, *Thecla*;

1898, Skin., Syn. Cat. N. Am. Rhop., p. 50. #304, *Thecla*;

1905, Wright, Butt. West Coast, p. 212, *Thecla*;

1914, McD., Ent. Record, XXVI, 197, *Callophrys*;

1919 (1922), Draudt, Seitz Macrolepid. World, Exotica part 231, Fauna Amer. part 84, p. 763, *Thecla* (*Callophrys*).

The ordinary Arizona race (typical form) of this species cannot be confused with any other species known to the authors. The upper side of the males is grayish, often with a strong coppery tint, while in the female the central areas of both wings show strongly copper (red-brown) and are crossed by blackish veins. The under surface affords the best specific characters. The primaries are similar to *C. dumetorum* race *perplexa* in coloration but with the white markings more pronounced than in the best marked specimen of typical *C. dumetorum* and usually lined with a red-brown band somewhat darker than the patch of the same color which extends nearly to the costa from the inner margin. The secondaries are unique, the white band composed of nearly coalescent crescent shaped spots very strongly angled outward at the middle of the wing, while this band is rendered very conspicuous by black inwardly, followed by a strongly disconcolorous red-brown band. The fringes are quite dark, only at the lower angle of the secondaries being marked by any pure white.

CALLOPHRYS APAMA RACE HOMOPERPLEXA NOV.

1900, Barnes, Ent. News, XI, 330, (as *dumetorum* in err.), *Thecla*;

1898, Skin., Syn. Cat. N. Am. Rhop., p. 50, #303, (as *dumetorum* partim.), *Thecla*;

1912, Haskin & Grinnell, Ent. News, XXIII, 3-8, (as *dumetorum* partim.), *Thecla*.

This is the Colorado race of *C. apama* which has given rise to the Colorado records of *C. dumetorum*. It is a parallel development in maculation with *C. dumetorum* race *perplexa*. On the upper side the males are redder than any other species or race in the genus except *C. affinis* from which they are easily told by the copper or red-brown patch on the fore wing below, being similar to *C. apama* or *C. dumetorum* race *perplexa*.

The females have copper or red-brown primaries, (upper side), causing a striking resemblance to *C. affinis* which is lost when the under side is examined; the conspicuous red-brown patch on the primaries being totally lacking in *C. affinis*.

The normal specimens of this race differ from typical *C. apama* in the great reduction of the white lines and their corresponding black and brown bands, the spots being usually quite disconnected but lined with some black and brown showing the relationship to *C. apama* and not to *C. dumetorum*. When these spots are entirely missing, as they are in many specimens, the resemblance of the females to occasional reddish females of *C. dumetorum* race *perplexa* is very striking. It is practically impossible to point to any final distinction between the converging extremes of the two forms; whereas the typical forms

of both are the two least allied species in the genus. This is unfortunate but cannot be helped, any series at all will immediately put these extremes in their proper places.

Specimens from the vicinity of Durango, Colo. show a tendency to "throw" intermediates to the type form in the banding of the underside; specimens from Turkey Creek Cannon, Colo. (Oslar) show the upper side dark and the under side as in typical specimens of the Colorado race thus producing an insect which often very closely matches the southern California race of *C. dumetorum*; but material from the vicinities of Denver and Boulder seem to produce few if any, intermediates to typical *C. apama*.

Type localities and number and sexes of types: Holotype ♂, Golden, 24-30 May; Allotype ♀, Golden, 8-15 June; 36 ♂ 5 ♀ Paratypes representing the following localities and dates: Golden, Boulder and Denver, and neighboring cañons, May to August.

SPHINGIDAE

ARCTONOTUS LUCIDUS race CLARKI nov.

Similar to *A. lucidus*, but the maculation is more intensified, and the ground color of the primaries and secondaries much deeper in tint; thus creating a considerable difference in appearance. Beneath: much deeper fuscous than typical *A. lucidus*; the central area of the primaries and secondaries tinged with red, the red on the secondaries obsolescent in some specimens.

Specimens appear considerably larger than *A. lucidus lucidus*, due to being heavier bodied and broader winged, the breadth of the primaries being approximately one millimeter more than the typical form.

Expanse: About 51 mm.

This is apparently what Rothschild and Jordan consider typical *A. lucidus*, but Boisduval's type came from San Francisco and sixteen specimens before the authors, ranging in distribution from Humbolt Co. to San Diego Co. represent only a single race.

The authors wish to acknowledge with thanks the loan of seven specimens of typical *A. lucidus* by Dr. E. P. VanDuzee.

Type locality: Pullman, Washington.

Number and sexes of types: Holotype ♂, 21 March 1901; 2 ♂ Paratypes, 14 and 21 March 1901.

SATURNIIDAE

HEMILEUCA MAIA ab. LINTNERI Ckll.

1914, Ckll., (in Pack., Mono. Bomb. Moths N. A., Part 3), Memo. Nat. Acad. Sci., XII, # 1, 117, pl. LXVII, f. 11, *maia* ab., *Hemileuca*.

Omitted from the 1917 Check List B. & McD. The authors are indebted to Prof. T. D. A. Cockerell for calling attention to this omission.

HEMILEUCA LUCINA ab. LUTEA Reiff.

1910, Reiff, Psyche, XVII, 31, *lucina* ab., *Hemileuca*;

1914, Ckll., (in Pack., Mono. Bomb. Moths N. A., part 3), Mem. Nat. Acad. Sci., XII, #1, 120, *lucina* ab., *Hemileuca*.

Also omitted from the 1917 Check List B. & McD.

PHALAENIDAE

PHALAENINAE

?LYCOPHOTIA SERVILLII Duponchel.

1826, Duponchel, Hist. Nat. Lepid. Fr., VI, 25, pl. LXXIII, f. 3, *Noctua*;

1829, Boisd., Europ. Lepid., Index Method., p. 67, ————;

1871, Staud., Cat. Lepid. Europ. Faune., part 1, p. 86, *puta*(?), *Agrotis*.

Boisduval states: "*Nota*. Cl. Duponchel, Lepidoptères de France, tom. VI, pl. 73, f. 3, specimen novam nomine *Servillii* appellavit. Hæc vero *Noctua* habitat in Georgia Americæ et nequaquam in Gallia."

The colored figure in Duponchel shows an insect with the habitus of a *Lycophotia* near *L. infecta* Ochs. The absence of the black collar brings the resemblance closer to *L. pellucidalis* Grote than to *L. infecta* but the clean white transverse banding on the primaries is unique. The authors know of no insect which fits either the figure or the description, and suggest the Boisduval was in error regarding the correct habitat of the species.

Guenee does not list the species in his Hist. Nat. Ins., Spec. Gen.. Noct.; Staudinger places it questionably as a synonym of the *European "Agrotis" puta* Hbn. "(Sp. valde aberrans)" but omits it entirely from his 1901 Catalogue; Hampson appears to have omitted the name from the Cat. Lep. Phal. B. M.

Any information regarding this insect will be greatly appreciated.

HADENINAE

ANARTA STAUDINGERI Auriv.

- 1891, Auriv., Nord. Fjär., p. 176, *Anarta*;
 1901, Staud., Cat. Lep. Pal., part 1, p. 219, #2290b, *leucocyclus* var., *Anarta*;
 1905, Hamp., Cat. Lep. Phal. B. M., V, 38, pl. LXXIX, f. 12, *Anarta*;
 1917, B. & McD., Check List, p. 49, #1627, *Anarta*.

Well characterized by Hampson, (Cat. Lep. Phal. B. M., V), and apparently quite variable within narrow limits, principally in the amount of pale or white coloration present on both primaries and secondaries.

Genitalia: Uncus with broad tip, not heavily chitenized; anus membranous; valves bilaterally symmetrical; corona present; true claspers apparently as mere folds at the cucullus; sacculus extending in a long arm; an additional clasper-like flap of membrane present, projecting past the edge of the valve, near the base of which is a second lobate flap; clavus unarmed except by sensory hairs; peniculus, absent; juxta not heavily chitenized, its caudal end invisible; penis armed with a heavy spine, without bulbous base, and a heavy row of smaller spines.

Specimens of *A. staudingeri* are before the authors from Messrs. Staudinger and Bang-Haas. Hampson's figure appears rather brightly marked, more nearly like *A. moeschleri*. Is there another unnamed *Anarta* in Lapland corresponding to *Anarta moeschleri* from Labrador or is the latter species circumpolar? This must be left to the European Entomologists to decide. *A. moeschleri* appears distinct.

It is doubtful if *A. staudingeri* actually occurs in North America, but the species may be circumpolar, so the authors hesitate to remove the name from the List. The Colorado species which has been placed in collections as *A. staudingeri* is described on the following pages.

ANARTA MOESCHLERI Staud.

- 1901, Staud., Cat. Lep. Pal., part 1, p. 219, #2290a., *leucocyclus* var., *Anarta*;
 1905, Hamp., Cat. Lep. Phal. B. M., V, 38-39, *staudingeri* ab. 1, *Anarta*;
 1917, B. & McD., Check List, p. 49, #1627a, *staudingeri* race, *Anarta*.

Dr. Staudinger's original description, "al. ant. cinereo-pictis, al. post. albidis, fusco-marginatis", placed as a variety, under *Anarta leucocyclus* is incomplete enough to warrant the following description from specimens received from Messrs. Staudinger and Bang-Haas.

Antennae of male minutely serrate and fasciculate. Head and thorax variable, brownish to black mixed with some white. Abdomen gray-brown. Primaries: ground color brownish-black mixed with some white; basal line distinct from costa to submedian fold, black, preceded and followed by pale scaling which partly fills the basal and t. a. areas; t. a. line black, waved from costa to claviform, drawn inwardly V-shaped in submedian fold; claviform bordered by a black line, with pale filling; orbicular white filled, surrounded by a faint black line; reniform kidney-shaped, not distinct, bordered by pale scaling, dark filled especially toward its base, the pale scaling bordering the reniform marked by slight black crescents, one in cell and one outwardly; t. p. line black, bent outwardly below costa, dentate, incurved below vein 4, bordered outwardly by a distinct line of white scaling; s. t. line pale, defined by a series of faint black lunate marks on inner side, these black marks sometimes suffused into the ground color of the s. t. space; a terminal row of faint black bars between the veins, bordered inwardly by pale scales; fringe black and white checkered, with a trace of an interline. Secondaries: variable, white, more or less suffused by fuscous especially in the female, a brownish-black discal spot present and connected by a bar of the same color to the base of the wing; outer margin with a brownish black band; a trace of a medial band present, pronounced in the female; fringe white with a trace of a pale faint interline. Beneath: appearing pale; primaries somewhat suffused, discal spot present as is also a distinct spot on costa at beginning of the s. t. line, below which the line is faintly marked; outer margin suffused with brownish-black, fringe checkered; secondaries, pale, marked by a blackish discal spot, basally of which in the cell is a small blackish bar, a trace of a medial line present, especially marked on the veins in the male, distinct in the female, outer margin with brownish-black band; fringe pale with a faint interline.

Expanse: About 26-28 mm.

Genitalia: Similar to *A. staudingeri* except in the following details; uncus with a slightly bifurcated tip, heavy, strongly chitenized; harpe narrower and more elongate; arm of the sacculus broader, its tip armed with an additional finger like projection; the second, lobate flap of membrane bears a long tuft of hairs; penis armed with heavy row of secondary spines only.

ANARTA DOLOSA sp. nov.

Antennae of male strongly serrate and fasciculate. Palpi clothed with long black-brown, black and white hairs; on the inner sides quite pale. Head and thorax clothed with long black and olivaceous-white hairs. Abdomen, clothed with black and whitish hairs. Primaries: ground color, obscure dull slate-gray with a brownish cast, mixed with white; basal line oblique, waved, from costa to inner margin, t.a. line suffused, its exact course indistinct, waved, defined by gray inwardly; orbicular, rounded, faintly black ringed with pale center; reniform, small, not well defined, with a small black, lunate mark inwardly and some black scaling outwardly, and center paler; t.p. line bent outward below costa, dentate, incurved below vein 4, bordered outwardly by pale

scaling; s.t. line as a shade rather than a definite line, strongly bent in almost touching t.p. line near vein 5; fringe deep slate-gray with some white, but not definitely checkered. Secondaries: pale, suffused with fuscous basally, the veins somewhat tinged with fuscous, with crescent shaped discal spot and broad outer black band; fringe nearly pure white with a faint interline toward the base. Beneath: presenting a pale appearance; the primaries somewhat suffused, with blackish discal lunule and trace of s.t. and t.p. lines; the secondaries white, with some fuscous hairs basally, black discal lunule, trace of a median line formed by fuscous scales on the veins, and an outer blackish band.

Expanse: 26-28 mm.

Genitalia: Uncus sharply pointed, heavily chitenized; anus membranous; valves bilaterally symmetrical; corona present; true claspers apparently as mere folds at the cucullus; sacculus extending in a long, rather broad arm, its caudal edge serrate, with an additional finger-like projection; an additional clasper-like flap of membrane present only as a fold near the cucullus (see *Anarta staudingeri*) near the base of which is a second lobate flap; clavus unarmed except by sensory hairs; peniculus, absent; juxta not heavily chitenized, its caudal end invisible; penis armed with a heavy row of small spines only.

The present species, because of the serrate antennae is tentatively placed at the head of the genus *Anarta*. It is apparently closely allied to *Anarta staudingeri*. It has heretofore been confused with *A. staudingeri* in the Barnes Collection. A series of fine specimens have been received thru the kindness of Mr. George P. Engelhardt, which show considerable variation in color and minute details of maculation, but in general the species presents a homogenous appearance.

Type localities: Bullion Peak, Hall Valley, Colo., 13,000 ft., (Engelhardt); Colo., (Bruce).

Number and sexes of types: Holotype ♂, Allotype ♀, 5 ♂ 7 ♀ Paratypes, all 30-VIII-22, Bullion Peak; 2 ♂ Paratypes, Colo.

Types in: Barnes Collection; 2 ♂ 4 ♀ Paratypes, Brooklyn Museum.

ANARTA POCA sp. nov.

Antennae of male moderately serrate and fasciculate, yellowish. Head and thorax variable; olivaceous in male, grayish in female; mixed with brownish, black and white. Abdomen whitish-gray in female, somewhat more luteous in male. Ground color of primaries blackish, mixed with a considerable dusting of white scales. Basal line obscured; t. a. line black, waved from costa to claviform, drawn inwardly V-shaped in submedian fold; white edged mesally, the white faintly edged by a few black scales, thus tending to make a geminate t. a. line; claviform bordered by a black line, filled with ochreous; orbicular white, surrounded by a faint black line, and with a grayish center; median shade present, black, almost lost in the dark ground color; reniform whitish, kidney

shaped, not distinct, surrounded by a faint black line, with a grayish center; t. p. line black, bent outwardly below costa, dentate, incurved below vein 4, bordered outwardly by a distinct line of white scaling; s. t. line pale, defined by black on the inner side; a terminal row of dots between the veins; fringe black and white, checkered, with a strong black interline. Secondaries: whitish with a considerable suffusion of fuscous; a heavy black discoidal spot present; outer margin with a broad black band; medial band present. Fringe pale with a blackish interline. Beneath: pale, whitish, heavily dusted with fuscous; with black discoidal spots, median shade lines, and broad outer bands prominent. Fringes; as above.

Expanse: 27-31 mm.

Closely allied, by the heavy maculation of the secondaries, to *A. hampa* under which name it had been standing in the Barnes Collection; but abundantly distinct by its yellowish and more heavily serrate antennae.

There is a pair of specimens apparently representing this species in the Canadian National Museum from Mt. Cheam, B. C.

Type locality: Alberta.

Number and sexes of types: Holotype ♂, 15 June 1917; Allotype ♀, 14 June 1917, both Pocahontas, Alta.; Paratype ♂, whose locality label is unreadable other than "Alta., 13-VIII-01, Mrs. Nichall, Collector", from Dod Collection.

Types in: Barnes Collection; Paratype in Canadian National Museum.

LASIONYCTA ALBERTA sp. nov.

Eyes hairy, heavily ciliated. Antennae of male very heavily serrate and fasciculate; of female, ciliated. Thoracic vestiture of mixed hair and hair-like scales. Primaries appearing blackish due to a very heavy black irroration over a blue-gray ground; basal line present, obscured; t. a. line blue-gray edged with black on outer side; orbicular variable, usually clearly outlined with blue-gray and with some central black scaling; reniform often obscured, when visible, outlined with blue-gray, and with some black filling especially in the lower part; a trace of a medial blackish shade present, sometimes obscuring the space between the stigmata; claviform prominent, outlined with black,—sometimes connected to the t. p. line by a black bar; t. p. line blue-gray edged with black, inwardly produced to points on the veins; s. t. line obscure, with a tendency to be broken; heaviest between the veins where it produces sagitate dashes which partially cross the s. t. space; terminal space usually somewhat paler than the rest of the wing, marked at the base of the fringes by obscure black dots between the veins. Fringe pale, checkered with black, and with a black interline. Secondaries: dull blackish fuscous, only slightly paler basally, their fringes pale, heavily interlined with dull fuscous.

Beneath: Primaries almost uniformly blackish fuscous, the veins slightly darker, some scattered pale scaling along costal region; secondaries somewhat paler than above but heavily suffused with scattered blackish scales. A dark discoidal spot prominent. At least a trace of a common line crosses both pair of wings.

Expanse: 31-37 mm.

The present species belongs to the *perplexa* group of *Lasionycta* with which it is almost identical in superficial appearance, but it is easily separated from the other species of the group by the more heavily serrate male antennae. Attention is called to the transfer of *perplexa* to *Lasionycta* by Barnes and Lindsey, 1921, Psyche, XXVIII, 157.

In addition to the types, the Barnes Collection possesses four specimens from Laggan, Alta. which probably belong to this species.

Type locality: Nordegg, Alta.

Number and sexes of types: Holotype ♂, July 10; Allotype ♀, July 30; 7 ♂ Paratypes, July 3, 13, 14 (2), 17, 18, 19; 3 ♀ Paratypes, July 14, 17, 19, (Dr. J. McDunnough, Coll.), all 1921; 1 ♂ Paratype, 11 July 1919, 1 ♀ Paratype 17 July 1918.

Types in: Barnes Collection, except 3 ♂, July 11 (1), 14 (2), 1 ♀ July 17, in Canadian National Collection.

CUCULLIINAE

?COPICUCULLIA CUCULLIODES sp. nov.

Head and thorax mixed black and white scales. Tegulae crossed by a distinct black line. Primaries: ground color whitish, heavily powdered with black scales and appearing gray. Lines and ordinary spots obsolescent except a black terminal line. T. a. line, when traceable, produced to points in the cell and the submedian fold. A thin, short, black, basal dash present below cell. A distinct black dash in submedian fold from near the apex of the submedian point of the t. a. line to the outer margin. A gray apical shade present. Some black shading along inner margin. Fringe gray. Secondaries: white, suffused with fuscous along outer margin and on the veins. Fringe white. Beneath: white, more or less heavily powdered with gray.

Expanse: 28-31 mm.

Obviously belongs to the *eulepis* series of *Copicucullia*, both the habitus and genitalia affirming this relationship, but the claws on the fore tibiae are poorly developed; being mere outgrowths of chiten, and covered with scales, so that the insect might easily be placed in *Cucullia*.

Differs obviously from all other described species of the *eulepis* group, being paler and less contrastingly marked. In this regard, it might be well to point out that *bistriga* is possibly a distinct species from *eulepis*, characterized by darker primaries with the dash in the submedian fold so long that it almost coalesces with the basal dash.

Besides the types of *cucullioides*, the Barnes Collection possesses specimens from St. George, Utah, Clark Co., Nev., and Inyo Co., Calif. The series shows little variation and there is no approach to the darker primaries and longer dashes of *bistriga*.

Type localities and number and sexes of types: Holotype ♂, Mohave Co., 1-7 Sept.; Allotype ♀, Mohave Co., 8-15 June; 1 ♂ 2 ♀ Paratypes as follows, Mohave Co., 16-23 Sept.; Hualapai Mts., Mohave Co., 24-31 May; Enroute from Dewey to Salome, April; all Arizona.

CERAPODA STYLATA race ARIDA nov.

Head, tegulae, patagia and thorax mixed creamy-white, black, and brown. Ground color of primaries pale cream-white tinged with some brownish; more or less powdered with scattered black scales. S. t. line oblique from costa to inner margin, produced to a W-mark on veins 3 and 4. Other lines obsolescent. Orbicular and reniform pale ill-defined blotches. Claviform absent. Terminal space suffused with blackish scales, appearing gray. Similar scaling on the costa; in the cell between the stigmata; and around the stigmata. Secondaries: white, with a few black scales marking the veins along the outer margin. Beneath; white, with a line of black dots on the veins across both pair of wings.

Expanse: 34-35 mm.

Similar to *C. stylata* Smith, and apparently a pale desert race of that species. The type of *stylata*, from Colorado, in the National Museum, has the primaries blackish gray; agreeing with a series from Montana, Utah and New Mexico in the Barnes Collection.

Type localities: Olancho and Round Valley, Inyo Co., Calif.

Number and sexes of types: Holotype ♀, Olancho, 8-15 June; Allotype ♂, Round Valley, 24 June 22; 3 ♀ Paratypes, 24-30 June (2), no date (1).

Types in: Barnes Collection; except the Allotype received from Mr. C. A. Hill for identification and returned to him.

HOMOANARTA gen. nov.

Type *Homoanarta* ("*Papaipema*") *peralto* Barnes.

HOMOANARTA PERALTO Barnes.

1907, Barnes, Can. Ent., XXXIX, 14, *Papaipema*;

1912, B. & McD., Contr. Nat. Hist. Lep. N. A., I, #4, 7, *Dryobota*;

1917, B. & McD., Check List, p. 57, #2095, *Pseudanarta*;
1921, Dyar, Ins. Insc. Menst., IX, 40, *Rhizotype*.

The placing of this insect in collections appears to be somewhat in dispute. Examination of a series of twenty-five specimens, including the types, in the Barnes Collection shows weakly lashed eyes, with an almost hood-like crest on the prothorax, and a spreading crest on the metathorax. Vestiture mainly of narrow scales, and some hair, rough; abdomen with at least two dorsal crests in fresh specimens, but apparently easily lost. The outer margin of the primaries are crenulate, the tip falcate. The secondaries are not always a uniform brown but are sometimes lighter and tinged with faint yellowish basally. The insect while unique in the genus *Pseudanarta* because of the brown secondaries, and crenulate outer margins of the primaries is nevertheless closely related to *falcata*, Neum. which also possesses falcate tips to the primaries. The crenulate outer margins are vestigial in *falcata* and the species of the genus *Pseudanarta*. The almost hooded prothorax shown by fresh specimens of *peralto* is nearly duplicated in *falcata*, which however, sometimes shows this crest bifurcate at the tip whereas in members of the genus *Pseudanarta* the crest is not so greatly produced, but is a normal, spreading, somewhat divided, crest. The vestiture is more "hairy" in these two species, the scales also being narrower, than in species of *Pseudanarta*.

The authors cannot agree with the placing of *peralto* in *Rhizotype*, the genotype of which it matches in neither structure nor habitus; viz.—palpi, vestiture, tuftings and shape of the primaries.

In *Entomologica Americana*, V, Dr. Smith called attention to the fact that *falcata* probably deserved a new genus; and as a proper genus for *peralto* appears to be in dispute the authors erect the genus *Homoanarta*, genotype *peralto* for *falcata* and *peralto*; distinguished from *Pseudanarta* mainly by the falcate tips of the primaries, but also by the vestiture and tuftings mentioned above. Notwithstanding the crenulate outer margins of the primaries of *peralto* and the lack of the yellow and black banding of the secondaries in *peralto* present in *falcata*, the authors do not feel that these two species should be separated generically. Attention is called to a similar yellow and black condition vs. fuscous on the secondaries of the species of the genus *Lampra*.

ACRONYCTINAE

SEPTIS ARCTICA ab. FORMOSUS Ellsworth.

1918, Ellsw., *Lepidopterist*, II, 22, "n. sp. or var.", *Hadena*.

Thru the kindness of Mr. S. E. Cassino the authors were enabled to examine the unique type of *formosus*; which bears no label other than "5" and a printed label "NOCTUIDÆ *Hadena arctica* No.—".

The type represents a smooth dark female of *S. arctica*; from the primaries of which all whitish coloration has disappeared, its place being taken by dull slate-gray. All of the masculation is traceable, and identical with *S. arctica*. The s. t. line is quite distinct altho a little darker than typical. The secondaries and abdomen are almost uniformly fuscous with a decided reddish tinge. The "metallic lustre" of the original description seems mainly a matting of the scales produced by treatment with benzine or some similar fluid. Beneath; the specimen presents an almost uniform fuscous appearance; with discal spot and median band of secondaries distinct but inconspicuous, uncontrasting.

FOTA ARMATA Grt.

1882, Grt., *Can. Ent.*, XIV, 175, *Fota*.

The typical form of this insect according to both the original description and a specimen compared with the type possesses gray primaries, a black shade connecting the orbicular and reniform, and another black shade below the cell. The black shades appear to be partially sexual, altho forms with and without the shades occur in both sexes. In general the males are more contrastingly marked than the females.

FOTA ARMATA FORMI MEDIOALBA NOV.

1922, B. & McD., *Contr. Nat. Hist. Lep. N. A.*, I, #4, 18, pl. VII, f. 20, *armata* form, *Fota*.

Simply a color form of the above, the areas at the base and below the cell whitish, contrasting. No trace of a black dash below the cell. This form presents a remarkably different appearance from the type form altho present with it in about equal numbers. Intergrades occur.

Type localities and number and sexes of types: Holotype ♂, Paradise, 24-30 May; Allotype ♀, Redington, (specimen figured in B. & McD., *Con-*

tributions, I, #4, pl. VII, f. 20); 5 ♂, 6 ♀, Paratypes, Paradise, Nogales, Huachuca Mts., Babaquivera Mts., May, June and July; all Arizona.

FOTA ARMATA form BRUNNEOGRISEA nov.

Another color form of *F. armata*. The basal area of the primary brown, contrasting with the gray ground. A brown streak usually present from reniform to apex, some of the brown tinting the reniform. Black streaks connecting the brown basal area with the orbicular and that spot with the reniform, a long black streak below the cell, present in all males and one female. To keep the type series uniform the females unmarked by black are not made types.

The contrast between the brown and the gray markings gives this form an entirely different appearance from the typical form. Like form *medioalba* it apparently represents neither sex, season nor race; but is considerably less common than the type form.

Type localities and number and sexes of types: Holotype ♂, Paradise, 24-30 May; Allotype ♀, Paradise, July; 2 ♂ Paratypes, Nogales, 24-30 May and Paradise, July; all Arizona.

LEUCOCNEMIS VARIABILIS B. & McD.

1918, B. & McD., Contr. Nat. Hist. Lep. N. A., IV, #2, 106, pl. XVII, ff. 13-14, *Leucocnemis*.

As stated by Barnes and McDunnough, this species is extremely variable, showing forms ranging from practically pure white to forms possessing the type of maculation found in *L. fuscimacula*. Additional specimens have come to hand, now making the total of thirty-nine before the authors.

The males are usually much more poorly marked than the females but the "Type ♂" is the specimen spoken of by Barnes and McDunnough as nearly matching the females. An average male and female are illustrated by the figures quoted above. The average male has at least considerable gray dusting of scales which does not show well in the photograph.

Mr. C. A. Hill recently submitted a specimen which is practically immaculate and which he evidently considered a new *Grotella*. The superficial resemblance to *Grotella* is quite startling and notwithstanding numerous structural differences the genera undoubtedly belong much closer together than they are now placed. (See remarks Vol. V, # 1, p. 25, of this work).

In order to prevent the misidentification of the occasional white form of this species and because of the usual custom of naming immaculate forms the authors apply the name

LEUCOCNEMIS VARIABILIS form ALBA nov.

Immaculate and practically pure white specimens.

Type localities and number and sex of types: Holotype ♂, 24-30 June; Paratypes: 1 ♂, 16-23; 1 ♂, 24-30, June, all Paratypes, of *L. variabilis*; 2 ♂, 24-30 June; 1 ♂ no date, all the foregoing from Olancha, Inyo Co., Calif., in Barnes Collection; 1 ♂ Paratype from C. A. Hill labeled "July 1, 1922, Round Valley, Inyo Co., Cal. 4500 ft., at light" (O. C. Poling), in Mr. Hill's Collection.

PRODENIA ORNITHOGALLI Gn.

1852, Gn., Spec. Gén., V, Noct., I, 163, *Prodenia*.

lineatella Harv.

1875, Harv., Bull. Buff. Soc. Nat. Sci., II, 275, *Prodenia*.

form EUDIOPTA Gn.

1852, Gn., Spec. Gen., V, Noct., I, 164, *Prodenia*.

flavimedia Harv.

1875, Harv., Bull. Buff. Soc. Nat. Sci., II, 274, *Prodenia*.

commelinæ Riley, nec S. & A.

1871, Riley, 3rd Rept. Ins. Mo., p. 113, f. 48c, *Prodenia*.

A common, decidedly variable, species; the bibliography of which would cover pages.

While in Mississippi the junior author noticed that both *ornithogalli* and *eudiopta* were taken together at light, sugar and on flowers; and that intermediates occurred. No larval difference could be found. The genitalia are identical.

PRODENIA PRAEFICA Grt.

1875, Grt., Can. Ent., VII, 44, *Prodenia*.

This is the Pacific Coast species or race which in California takes the place of *P. ornithogalli*. The insect is somewhat heavier bodied and slightly broader winged than *P. ornithogalli*. The only genitalic difference seems to be in the clasper which in this species extends to, or nearly to, the edge of the valve; about one-quarter longer than in *P. ornithogalli*.

According to literature and a specimen compared with the type by Dr. McDunough the type form is very similar to *P. ornithogalli* but shows a slightly paler central area on the primaries and a trace of a discal spot on the secondaries.

A form of this, exactly corresponding to *eudiopta* occurs with the typical form and as the species is of economic importance, a name may prove of some value. To this parallel development to *eudiopta* the authors apply the name

PRODENIA PRAEFICA form EUDIOPTOIDES nov.

Practically identical in superficial appearance to *P. ornithogalli* form *eudiopta* Gn. but obviously a form of *P. praefica* by the heavier build and the clasper of the male genitalia; discussed above.

Type localities and number and sexes of types: Holotype, ♂, San Diego, 25 Aug. 1921; Paratypes, 10 ♂, San Diego, July to Sept.; 3 ♂, Loma Linda, 8-15 April, 8-15 Oct., 16-23 Oct.

NAMANGANA COSTA sp. nov.

Head and palpi blackish-brown; tegulae blackish-brown with paler extreme tips. Patagia blackish-brown. Thoracic crests pale-brown contrasting with the dark head, tegulae and patagia. Abdomen fuscous, the basal segments paler at the joints. Primaries; ground color whitish tinged with brown, but so heavily suffused from base to apex and from costa to below cell with the same blackish-brown of the patagia as to appear dark with a contrasting inner margin; basal line obscured; t. a. line single with a few pale scales basad, waved, slightly rounded out to vein 1 where it is bent inward to a point, thence oblique outwardly to inner margin where it is most strongly marked; orbicular obsolete; reniform obsolete, with dark center, edged with some pale scaling; t. p. line single with some pale scaling distad, outwardly oblique from costa, waved and bent outward around the reniform, bent inwardly about on vein 5, waved to near vein 1 where it is produced to a point, thence as a heavy crescent to inner margin; three pale dots present on costa between t. p. and s. t. lines; s. t. obscurely marked by pale scaling; a series of light points present on the ends of the veins, the space between being occupied by dark dots; fringe long and mottled. Secondaries hyaline, heavily suffused with fuscous from near middle to outer margin, the veins darker; fringe pale fuscous with a trace of an almost orange interline. Beneath: primaries: obscure fuscous, paler and tinged with orange-yellow toward outer margin, with but a trace of a discal dot; secondaries: hyaline-white powdered with fuscous, the outer margin heavily suffused with fuscous, discal dot present but faint, with a trace of a median line.

Expanse: 29-31 mm.

This species is placed before *N. continens* Hy. Edw. to which it is closely allied. It had been standing as an unnamed form of that species in the Barnes Collection, but is quite distinct with its longitudinal instead of transverse dark shade, its pale inner primary margins, and in the absence of shading in the claviform area which appears constantly present in *N. continens* except in specimens so suffused that it is obliterated by the dark brown suffusion; also the t. a. and t. p. lines are only about $\frac{2}{3}$ the distance apart that they are in *N. continens*.

Type locality and number and sex of types: Holotype ♀, Huachuca Mts., Ariz.; Paratype ♀, Paradise, Cochise Co., Ariz.

NAMANGANA TAPETA Sm.

1900, Sm., Proc. U. S. N. M., XII, 467, *Hadena*;

1902, Dyar, Bull. U. S. N. M., LII, 115, #1196, *Hadena*;

1908, Hamp., Cat. Lep. Phal. B. M., VII, 378, pl. CXVII, f. 25, *Oligia*;

1916, B. & McD., Contr. Nat. Hist. Lep. N. A., III, #3, 165, *Namangana*;

1917, Grossbeck, Bull. Am. Mus. Nat. Hist., XXXVII, 56, *Hadena*;

1917, B. & McD., Check List, p. 69, #2618a, *continens* race, *Namangana*.

Described from a single male from Dr. Schwartz captured at Coconut Grove, Florida. It has the habitus of an *Oligia* (Hampson) or *Hadena* (Smith) rather than *Perigea*; not the habitus of *N. continens*.

It is placed in the genus *Namangana* mainly because of lack of characters. A single male, compared with the type in the National Museum by Dr. Barnes is in the Barnes Collection; from St. Petersburg, Fla., April.

This species is readily separated from *N. continens* not only by the entirely different habitus but by different palpi; those of *N. continens* being much more closely scaled and clavate.

Tentatively the authors place this species following *N. continens* for want of a better resting place. It will probably eventually be placed in some other genus, *Namangana* containing a mixture of forms which lack characters rather than being a single group of closely allied species.

NAMANGANA TEXANA Sm.

1900, Sm., Proc. U. S. N. M., XXII, 476, *Perigea*;

1902, Dyar, Bull. U. S. N. M., LII, 112, #1131, *Perigea*;

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 558, pl. CXXXVII, f. 12, *Namangana*;

1917, B. & McD., Check List, p. 69, #2623, *Namangana*.

Type localities: Round Mt., and Shovel Mt. Texas.

Number and sexes of types: 8 ♂, 1 ♀.

Types in: National Museum; Barnes Collection, "Type ♀, 1 ♂", "Cotype"; Rutgers College, 4 ♂ "Cotype(s)".

NAMANGANA TEXANA race CONSORS Sm.

1900, Sm., Proc. U. S. N. M., XXII, 477, *Perigea*;

1902, Dyar, Bull. U. S. N. M., LII, 112, #1132, *Perigea*;

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 558, pl. CXXXVII, f. II, *Namangana*;

1917, B. & McD., Check List, p. 69, # 2623a, *texana* race, *Namangana*.

Type locality: Phoenix, Ariz.

Number and sexes of types: 2 ♂, 1 ♀.

Types in: National Museum, "Type ♂"; Rutgers College, "Type ♀"; Barnes Collection, 1 ♂ "Cotype".

Specimens from Arizona possibly represent a distinct race from the Texas form, judging from minor differences in the genitalia of the single male available for examination. This race has been named *consors* by Dr. Smith and the authors hesitate to sink the name as a synonym of *texana* until they have had the opportunity to examine more Arizona material. It is quite possible that the genitalia of the Arizona specimen examined were those of a "freak".

The California desert region and Southern California possesses a form very similar to the Texas form, with genitalia so nearly identical that the authors cannot even consider the Texas and California specimens distinct races, in view of the fact that the species varies greatly in superficial appearance in all localities.

The slight difference in size (25-27mm vs. 27-30mm) and the black filling of the cell used by Smith to differentiate *consors* from *texana* completely vanishes when a series of *texana* are examined; all degrees of size, and filling to the cell being present or absent in specimens from the same locality.

STIRIA HILLI sp. nov.

Head and thorax pale-olivaceous mixed with white. Abdomen creamy-olivaceous. Primaries: ground color pale-olivaceous, sprinkled with whitish

scales. In the best marked specimens three obsolescent whitish bands cross the primary in place of t. a., t. p., and s. t. lines; the "t. a." is slightly rounded out on costa-radius and then crosses the wing at nearly the exact perpendicular to the inner margin; the "t. p." is oblique outwardly from costa to about the middle of the discocellular vein thence inwardly oblique to inner margin; the "s. t." shows in the best marked specimen only as a faint irregular whitish shading nearly parallel to the outer margin but produced at apex into a faint apical pale patch. Fringe: pale outwardly but so interlined with the ground color that it is uncontrasting. Secondaries: pale, somewhat tinged with olivaceous-fuscous outwardly. Fringe: white with a faint interline. Beneath: pale, immaculate, white tinged with cream; primaries somewhat darker than the secondaries.

Expanse: 26-28 mm.

This species is closest to *S. virida* B. & McD. but distinct from all of the green or olivaceous species of *Stiria* by the "t. a." line being almost perpendicular to the inner margin, when visible, instead of strongly inwardly oblique; and by the pale secondaries.

Type locality: Riverside Co., Calif.

Number and sexes of types: Holotype ♂, 23 Oct. 1921; Allotype ♀, 28 Oct. 1921; 7 ♂ Paratypes; Oct. 21 (1); 22 (2); 24 (1); 27 (3) all from Indio, E. Piazza, Collector, in Barnes Collection; 1 ♀ Paratype, 3 Nov. 1921, Palm Springs, (Hill), in Mr. Hill's Collection.

Notes: The authors take pleasure in naming this insect in favor of Mr. Charles A. Hill.

ERASTRIINAE

TARACHIDIA ALBITERMEN B. & McD.

1916, Cont. Nat. Hist. Lep. N. A., III, # 1, 16, pl. III, f. 6, *Tarachidia*.

The "Type ♂", from Arizona, proves to be a different species from the "Type ♀", from California; and the "Type ♂" is hereby designated the Lectotype for the name *Tarachidia albitermen*.

A single female specimen, topotype, has been received, dated March 24-30. It is very similar in all respects to the male but with a slightly lighter ground, the subterminal band showing more distinctly.

Type localities and number and sexes of types: "Type ♂", (Lectotype), Paradise, Cochise Co., Ariz. "Type ♀", (Allotype of the new species described below).

GRAEPPERIA MCDUNNOUGHII sp. nov.

1916, B. & McD., Cont. Nat. Hist. Lep. N. A., III, # 1, 16, *albitermen* (partim.), *Tarachidia*.

Head, thorax, abdomen, and ground color of the primaries creamy-olivaceous, the latter overlaid with a suffusion of sparse violaceous-white scales. T. a. line scarcely discernable, excurved, marked only by a deepening of the violaceous-white scaling, its course difficult to follow. Orbicular a minute black speck. Reniform scarcely discernable, apparently marked costally and basally by a few black scales. T. p. line scarcely discernable, rounded out on cell, incurved to inner margin, marked by a deepening of the violaceous-white scaling. S. t. line violaceous-white, lost in the radial region by a suffusion of the same color which extends as a terminal filling to vein 1. A terminal row of minute blackish dots present. Fringes: of the same color as the ground of the primaries, interlined with darker. Secondaries: whitish, somewhat suffused with pale fuscous principally along the outer margin. Fringes white, with a trace of an interline. Beneath: primaries, somewhat suffused with fuscous on a pale shiny ground; the secondaries nearly pure white. Fringes: concolorous, with traces of interlines.

The present species has the frontal prominence of a *Graeperia*, and not of a *Tarachidia*, whereas *albitermen* has the front of a *Tarachidia*.

Type localities and number and sexes of types: ♂ Holotype, Indio, Calif., 6 June 1921, (E. Piazza); ♀ Allotype, (the "Type ♀" of *T. albitermen*), Palm Springs, Riverside Co., Calif., April 16-23; 2 ♂ 3 ♀ Paratypes as follows: 1 ♂ Indian Wells, Calif., 7 May 1921; 1 ♂, S. Nevada, 16-23 March; 2 ♀, Indio, Calif., 6 June 1921 and no date (E. Piazza), 1 ♀, S. Nevada, April.

Types in: Barnes Collection, except 1 ♂ Paratype, Indian Wells, Calif., in U. S. National Museum.

HEMISPRAGUEIA gen. nov.

Type *Hemispragueia* ("*Cerathosia*") *idella* Barnes.

Proboscis fully developed; palpi porrect, extending scarcely to the frons, the 2nd joint broadly fringed with scales below, the 3rd short; frons with a slightly rounded somewhat roughened prominence with a corneous plate below it; eyes large, round; antennae simple, scarcely ciliated in both sexes; thorax clothed entirely with scales and without crests; tibia without spines or claws; abdomen without crests. Fore wing elongate with the apex rounded, the termen evenly curved; veins 3 and 5 (Cu_1 and M_2) from near angle of cell, 6 (M_1) from near upper angle, 7 (R_3) very short stalked with 8 (R_4) from apex of aereole, 9 (R_5) and 10 (R_2) anastomosing with 7 (R_3) and 8 (R_4) to form the aereole, 11 (R_1) from cell. Hind wing with veins 3 and 4 (Cu_1 and M_2) stalked from lower angle of cell, 5 (M_1) practically fully developed from well

below middle of discocellulars (quadrifid) 6 and 7 (M_1 and R) short stalked from upper angle, 8 anastomosing with cell to near middle.

H. idella, originally described as a *Cerathosia* seems to have caused some trouble in classifications. It was questionably placed as a *Cerathosia* by Sir George Hampson, 1910, Cat. Lep. Phal. B. M., X, 643. It was removed in the Check List Lep. Boreal Amer., B. & McD., 1917, to *Spragueia*. Here it cannot remain because the venation of the secondaries is quadrifid; and not tried with 5 (M_2) obsolescent. The frontal prominence is so poorly developed that *H. idella* might almost be considered congeneric with the African genus *Pseudosterrha*; but as there are no described Erastrian genera from the Boreal America possessing an aerole, with smooth front and untufted abdomen, the authors prefer to consider the frons as rounded out, especially as it is roughened. Also *Pseudosterrha* has the apex of the fore wing produced and the wing itself more or less trigonate, whereas in *H. idella* the apex is rounded and the primaries elongate. Such a combination of characters would place the insect remarkably close to the genus *Tarache*; but an entirely different habitus and minor structural characters seem to render a new genus desirable. From *Tarache*, the new genus may be distinguished by the simple antennae in both sexes, shorter palpi, less curvature to the front, smoother scaling and lack of crests on the thorax, from the largest group of *Tarache* by the stalking of veins 3 and 4 (Cu_1 and M_3) on the secondaries and from all known species of *Tarache* by the stalking of veins 6 and 7 (M_1 and R) of hind wing. This last character coupled with the elongate primaries immediately separates *Hemispragueia* from *Tarache*.

The new genus is placed after *Tarache* because of the structural characters mentioned above but this separates it from apparently closely allied genera, *Cerathosia* and *Spragueia*; an unfortunate circumstance, but one which often occurs due to a list of species or genera only having the dimension length, whereas phylogeny branches in all directions.

NOTODONTIDAE

HETEROCAMPA CUBANA Grt.

- 1865, Grote, Proc. Ent. Soc. Phila., V, 252, pl. IV, f. 7, *Heterocampa*;
 1918, B. & McD., Contr. Nat. Hist. Lep. N. A., IV, #2, 128, pl. XX, f. 14,
Heterocampa;
 1921, Dyar, Ins. Insc. Menst., IX, 139, *Disphragis*.

The authors call attention to the above bibliography of this insect; Dr. Dyar evidently overlooking the notation of Barnes and McDunnough, (1918), listing the species from Venice, Fla.; Paradise Key adds another locality.

HETEROCAMPA AMANDA B. & L.

1921, B. & L., Psyche, XXVIII, 150, *Heterocampa*.

The original description of this species does not mention the Allotype ♀, Mohave Co., Ariz., Aug. 8-15, which is listed as a Paratype.

Although the authors do not believe in subsequent allotypes, which are apparently allowed by the International Rules; the present case is an error overlooked in the manuscript so the specimen which bears the original Allotype label is hereby designated the Allotype. By way of description attention is called to the original description listed above.

HYPARPAX VENUS Neum.

1892, Neum., Can. Ent., XXIV, 226, *Hyparpax*;

1893, Palm, Jour. N. Y. Ent. Soc., I, 20, pl. I, f. 4, *Hyparpax*;

1894, Neum. & Dyar, Trans. Amer. Ent. Soc., XXI, 186, *Hyparpax*;

1894, Neum. & Dyar, Jour. N. Y. Ent. Soc., II, 114, *Hyparpax*;

1895, Pack., Mono. Bomb. Moths, part I, 187, pl. VII, f. 18, *Hyparpax*;

1903, Holl., Moth Book, p. 229, pl. XXXIX, f. 3, *Hyparpax*.

One specimen marked "type", from Bruce, together with a specimen compared with the type in the Neunoegen Collection, and a long series of both sexes from Colorado are in the Barnes Collection. Topotypical material shows little variation.

Type locality: Colorado (Bruce).

Number and sex of types: ?, ♂.

Types in: Neunoegen Collection, 1 ♂; ? Barnes Collection, 1 ♂.

HYPARPAX VENUS race MINOR nov.¹

A local race occurs in the vicinity of Kerrville, Texas. It is considerably smaller than the type form, 30-31 mm. against 35-37 mm. This race, unlike the type form, shows considerable variation; and also differs from the typical form in the t. a. and t. p. lines being much closer together; while, as an average, the ground color is somewhat less pinkish.

¹ Thanks are due Dr. H. G. Dyar for examination of material in the U. S. National Museum and comparison with types.

While undoubtedly runty specimens of the typical form might be confused with the Texas race, the authors believe the two racially distinct.

Type locality: Kerrville, Texas.

Number and sex of types: Holotype ♀, June 1902; 4 ♀ Paratypes, June 1916, Sept. 1900, and 2 without dates.

Types in: Barnes Collection; except 1 Paratype, without date, U. S. National Museum.

GEOMETRIDAE

LARENTIINAE

LYGRIS PROPULSATA Wlk.

1862, Wlk., Cat. Lep. Het. B. M., XXV, 1389, *Cidaria*.

packardata, Lint.

1878, Lint., Ent. Cont., IV, 113, 30; = Rept. N. Y. State Cabinet, p. 225, *Cidaria*.

ximena, Ellsworth.

1918, Ellsw., Lepidopterist, II, 21, *Neolexia*.

Thru the kindness of Mr. S. E. Cassino the authors were enabled to examine one of the types of *ximena* Ellsw. The specimen is a male with no other label than "10.044 A.". It is the dark form of the species favorably matching specimens compared with the types of *propulsata* and *packardata* by Dr. J. McDunnough.

COSSIDAE

COSSINAE

COMADIA, B. & McD.

Type C. bertholdi Grote.

1911, B. & McD., Contr. Nat. Hist. Lep. N. A., I, #1, 26, type designated *C. bertholdi* Grote.

The species of this genus seem to have a very unstable veination; the hind wings of some specimens having a cross vein between the veins 7, or 6 and 7, and 8; and in one specimen a small auxiliary cell is developed by an additional vein connecting the cross vein and the apex of the cell. In some specimens veins 6 and 7 arise separately, in others they are connate, and in others stalked, while in a single

specimen vein 6 on one side is subdivided into two veins which proceed as longitudinal veins to the outer margin. These differences in veination of the secondaries seem to bear no relation to specific distinctions.

Two series of specimens received from Mr. Tom Spalding, referable to *bertholdi* of collections; made a review of Comadia necessary.

Through the kindness of Messrs. Doll and Englehardt of the Brooklyn Museum, the authors have been enabled to examine the male types of *bertholdi* and *edwardi* and take pleasure in naming two new species in grateful appreciation of assistance.

The genitalia of the males are very primitive and apparently of little value specifically within the Cossidae. Those of the female occasionally show valid characters in the genital plate; but, unfortunately, females are not as common in collections as the males.

As in most of the Cossidae, the maculation is somewhat variable; and especially in Comadia the amount of black and brown shadings on the primaries is quite unstable. Size, and wing-shape also, is somewhat variable, within limits. The only character which seems a stable factor is the thoracic vestiture which appears to be of specific value. The use of this character requires a long series of specimens in good condition, especially as grease curls the scales so that they appear narrower than they really are. Habitus is another factor of great importance but impossible to express properly in words.

The species appear more local than at first believed.

COMADIA ENGELHARDTI sp. nov.

Ground color of primaries whitish, dusted with black scales, but the insect nevertheless presenting a pale appearance. Median vein black; often with some black scaling in the cell; but veins 2, 3 and 4 not black. In the better marked specimens there is a diffuse brown shading below the median vein, extending somewhat past the discocellulars. Secondaries: ground color pale; sometimes heavily powdered with fuscous and appearing dark, averaging somewhat smaller than typical *bertholdi*. Poorly marked specimens might easily be confused with *C. dolli* except that the reticulations on the primaries are not present in *engelhardti*; and the thoracic vestiture is composed of scales which are broad,—not at all hair-like; a character which separates it from all other described species in the genus.

The holotype represents one of the better marked forms of the species.

Two specimens from Eureka, Utah (Spalding) apparently belong to this species, but a longer series is necessary to be certain.

Expanse: 31-34 mm.

Type locality: Callao, Juab Co., Utah; (Tom Spalding).

Number and sexes of types: Holotype ♂, 27 June 22, 14 ♂ paratypes, 19-23 June 22, Barnes Collection; 1 ♂ Paratype, 19 June 22, Spalding; 1 ♂ Paratype, 23 June 22, Brooklyn Museum.

COMADIA DOLLI sp. nov.

Ground color of primaries creamy-white. Primaries dusted with blackish scales which tend to form distinct reticulations. Veins faintly black-marked, the black strongest on the lower discocellular vein. In the best marked specimens, the reticulations are quite distinct; in others almost lacking, because the blackish markings are faint, not because of a heavier suffusion of black, nor a dispersal of the black scales, but only because of their absence. Secondaries gray.

The thoracic vestiture is similar to typical *bertholdi* but there is a smoother appearance to the thorax.

Expanse: 28-35 mm.

A series of 6 ♂ 3 ♀ from St. George, Utah, 24 May to 7 June, may represent this species; altho being in general somewhat more heavily marked and less heavily reticulated. If they represent a distinct species, that species is so closely allied to *dolli* that fresh material is almost imperative to properly separate it.

Type locality: Clark Co., Nev. (1-7 June).

Number and sexes of types: Holotype ♂, 8 ♂ Paratypes, Barnes Collection; 1 ♂ Paratype, Brooklyn Museum.

COMADIA STABILIS sp. nov.

Ground color of primaries pale, so heavily dusted with scattered black scales as to appear quite gray. Veins, especially the median vein, blackish; this marking most pronounced on the lower discocellular. Area above the cell and below the costa somewhat paler than the rest of the wing. Secondaries dull fuscous brown, veins darker. Averaging considerably narrower winged and lighter bodied than typical *bertholdi*; thus appearing smaller. Thoracic vestiture with scales a little broader and less hair-like, more as in *intrusa*. The palpi are somewhat less hairy than usual within this genus, their vestiture more closely appressed.

A single specimen from Eureka, Utah, (♂), 9 July, appears identical in every respect with the type series in which there is very little variation.

Expanse: 35-37 mm.

Type locality: Trout Creek, Juab Co., Utah, (Tom Spalding).

Number and sexes of types: Holotype ♂, 4 July 22; 15 ♂ Paratypes, 4-7 July 22, Barnes Collection; 1 ♂ Paratype, 4 July 22, Spalding; 1 ♂ Paratype, 4 July 22, Brooklyn Museum.

COMADIA SUBTERMINATA sp. nov.

Ground color of primaries white, so heavily obscured by scattered black scales that the appearance is dark-gray, while some of the black scaling takes the form of distinct reticulations on the primaries. In some specimens a faint band crosses the primaries in a subterminal position, and the discocellulars are usually heavily marked with black. Secondaries fuscous.

While Arizona and New Mexico presents apparently the same form from various localities, in fifteen specimens before the authors; the types are restricted to a male and female from Redington. The remaining specimens in the Barnes Collection being, not fresh enough, greased, or matted, so that further types would result in the possibility of a mixed series. The vestiture appears almost intermediate between *bertholdi* and *intrusa*.

Expanse: ♂ 37 mm.; ♀ 49 mm.

Type locality: Redington, Ariz.

Number and sexes of types: Holotype ♂, Allotype ♀, Barnes Collection.

COMADIA BERTHOLDI Grote.

1880, Grote, Bull. B'klyn Inst., III, 45, *Hypopta*;

1893, N. & D., Jour. N. Y. Ent. Soc., I, 33, *Hypopta*;

1894, N. & D., Jour. N. Y. Ent. Soc., II, 165, *Hypopta*;

1897, Rivers & Dyar, Psyche, VIII, 10, larva, *Hypopta*;

1903, Holl., Moth Book, p. 379 partim., (pl. XII, f. 2), *Hypopta*.

form EDWARDI N. & D.

1893, N. & D., Jour. N. Y. Ent. Soc., I, 32, *Hypopta*;

1894, N. & D., Jour. N. Y. Ent. Soc., II, 165, *Hypopta*;

1911, B. & McD., Contr. Nat. Hist. Lep. N. A., I, #1, 28, an sp. dist.?,
pl. VII, f. 3, *Comadia*.

It is impossible to definitely state what species are represented in the bibliography listed above. Rivers and Dyar, and Holland's figure, probably represent the Californian species described herein. B. & McD's. figure as *bertholdi* probably represents *C. bertholdi* race *fusca*, described herein.

Typical *C. bertholdi* was described from specimens received by Neumoegen from Bruce labeled "Colo.". The primaries are whitish, heavily suffused with fuscous-brown scales. The "blackish" on the median vein, spoken of in the original description, is a very deep brown; as is, also, the diffuse shading between the median nervules. There is a single male in the Barnes Collection which matches this type and it is from "Colo., Bruce".

Two specimens from Glenwood Springs apparently are the same species being but slightly paler and more contrastingly marked.

Form *edwardi* N. & D. apparently represents simply a nearly immaculate form of true *bertholdi*, probably an aberration. The unique type, "Colo., Bruce", appears similar to the type of *bertholdi* in wing-shape, size, habitus, and thoracic vestiture.

COMADIA BERTHOLDI race FUSCA nov.

Twelve specimens from Durango, Colo. are apparently *bertholdi*, or a very closely allied species, but possess the primaries more heavily powdered with brownish-black; the maculation heavier and darker, practically blackish with brown tints only occasionally showing. Secondaries fuscous-brown. To this darker form which the authors consider a local race but which may be a distinct species the above name is applied.

Expanse: 34-35 mm.

Type locality: Durango, Colo.

Number and sexes of types: Holotype ♂, 1-7 June; 9 ♂ Paratypes, 24 May—15 July, Barnes Collection; 1 ♂ Paratype, 1-7 June, Brooklyn Museum.

COMADIA INTRUSA sp. nov.

So closely allied to *bertholdi* that the description would read almost the same for both species. In general the insect appears somewhat larger and heavier bodied, and the suffusion between the median nervules more pronounced, brownish as in typical *bertholdi*, while between veins 2 and 3 there is a conspicuous darkening and concentration of the suffusion, creating in most individuals a distinct blotch which is independent of any mark on the lower discocellular vein. Secondaries brown.

The thoracic vestiture is composed of brown spatulate hair-like scales which are, however, considerably broader than in all Colorado material examined; a fact which, coupled with the heavier appearance of the insects, leads the authors to place it as a distinct species.

Expanse: ♂ 37-41 mm., ♀ 37-47 mm.

Type locality: "Southern Cala."

Number and sexes of types: Holotype ♂, Allotype ♀, 4 ♂ 9 ♀ Paratypes, Barnes Collection; 1 ♂ 1 ♀ Paratypes, Brooklyn Museum.

The majority of specimens may be separated by the following key:

- I. Thorax clothed with scales*engelhardti*
- II. Thorax clothed with hair-like scales;
 - A. Primaries with some reticulations;
 - a. Appearing whitish*dolli*
 - b. Appearing gray*subterminata*

- B. Primaries not reticulate;
- a. Primaries so heavily powdered with black scales as to appear gray, the only contrast being black veins; no brown tinge*stabilis*
 - b. Primaries appearing pale to dark, gray to brown, more or less contrasty; with some brown tinge, often obsolescent;
 - a¹. Shade between veins 2 and 3 of the primary not more conspicuous and contrasting than the dark discocellular and median vein,
 - a². Pale appearing, except for the dark veins, brown shading usually obvious*bertholdi*
 - b². Darker; primaries heavily suffused with brownish-black; brownish tinge present but often obsolescent—*bertholdi* race*fusca*
 - b¹. Shade between veins 2 and 3 of the primary often concentrated into a distinct rounded spot; the most conspicuous shade present; except occasionally some shading outwardly from the discocellular*intrusa*
 - c. Primaries appearing almost immaculately pale — *bertholdi* form*edwardi*
- III. Thorax clothed with hair;
- A. Primaries practically immaculate*manfredi*
 - B. Primaries with brown shades*henrici*

PRIONOXYSTUS ROBINIÆ Peck.

1818, Peck, Mass. Agr. Rept. & Jour., V, 67, pl., *Cossus*;

1911, B. & McD., Contr. Nat. Hist. Lep. N. A., I, #1, 34, bibliography, pl. VI, f. 9 ♂, (f. 10 ♀ = *mixtus* race nov.), *Prionoxystus*.

crepera Harris.

1835, Harris, Cat. Ins. Mass., p. 72, *Cossus*.

plagiatus Wlk.

1856, Wlk., Cat. Lep. Het. B. M., VII, 1515, *Cossus*.

race ZABOLICUS Stkr.

1898, Stkr., Lep. Rhop. Het., Sup., I, 5, *Cossus*.

ab. RETICULATUS Lint.

1878, Lint., 30th Rept. N. Y. State Mus., XXX, p. 242, *Cossus*;

1911, B. & McD., Contr. Nat. Hist. Lep. N. A., I, #1, 34, pl. VII, f. 1 (type), *robiniae* ab., *Prionoxystus*.

ab. QUERCUS Ehrm.

1893, Ehrm., Can. Ent., XXV, 257, *robiniae* ab., *Prionoxystus*.

P. robinia shows remarkable variation; but usually specimens from a given locality present a similar appearance, probably because the heavy bodies of the females hinder rapid distribution and intermingling of local races. In the Barnes Collection the species is represented by 38 males and 40 females from various parts of the United States. Arranged according to localities, differences are at once apparent.

Florida females average slightly darker hind wings than typical eastern material and to this minor race the name *sabolicus* Stkr. may be applied.

P. robinia ab. *quercus* Ehrm. is an aberration of the normal eastern female; possessing yellowish secondaries.

P. robinia ab. *reticulatus* Lint., described from a female from Texas, has the primaries reticulate, with only the median patch visible and that is reduced. The males presumably are like the normal Texas race, which is intermediate between the eastern and western races. Reticulate aberrations occur in all of the races, but seem scarcely worthy of separate names.

From Texas westward the males show more yellow on the secondaries, the black not reaching the inner angle as in the eastern races; altho two males from Palm Springs, Calif., approach eastern material in this respect. Arizona material shows little black on the male secondaries. Texas males have the primaries somewhat paler than eastern males, but the females are very similar. Colorado, and parts of Arizona (Yuma and Mohave Cos.), produce a paler race than the east. Two females from the Huachuca Mts. of Arizona are quite similar to eastern females. Cochise Co., Ariz., produces a form in which both males and females are very dark, the secondaries of the females obscured by black and very slightly tinged with yellow in some specimens. Inyo Co., Calif., produces a form in which the secondaries of the males appear more rounded at the anal angle than in the other forms, thus approaching the wing shape of the females, while the secondaries of the females are tinged with yellowish. Nevada produces forms similar to Inyo Co., intermediate to the pale Colorado forms.

Racial forms might be named in quantity but the authors prefer to name only the conspicuous extremes; allowing the others to stand as intermediates.

PRIONOXYSTUS ROBINIÆ RACE MIXTUS NOV.

1911, B. & McD., Contr. Nat. Hist. Lep. N. A., I, #1, 34, pl. VI, f. 10 as ♀ *robinia*, *Prionoxystus*.

Distinguished from *P. robinia* by the generally paler aspect of both primaries and secondaries. While the types are restricted to six females from Colorado; the Holotype apparently having been figured by B. & McD., 1911; the name is intended to cover the paler western forms of the species. The Colorado females are selected as an extreme; and to this form the name must apply in case of dispute; altho females from Nevada tend to be still paler—but these are considered intermediate to the race from California described herein. The males of *mixtus* apparently have the black restricted to the extreme basal, costal, and outer margins of the secondaries.

Type localities and number and sexes of types: Holotype ♀, Glenwood Springs, Colo., 16-23 July; 4 ♀ Paratypes, Glenwood Springs, Colo., June, 16-23 July (2), 24-30 July; 1 ♀ Paratype, Denver, Colo., no date.

PRIONOXYSTUS ROBINIÆ RACE SUBNIGRUS NOV.

Distinguished from *robinia* by its darker appearance; similar to *zabolicus* Stkr. but even darker; by the black on the secondaries of the male being restricted to the basal, costal and outer margins of the secondaries and the blackish secondaries of the females with a faint yellowish tint.

While the types are restricted in case of dispute; the name is intended to cover all of the dark southwestern forms.

Type locality: Paradise, Cochise Co., Ariz.

Number and sexes of types: Holotype ♂, June; Allotype ♀ May; 2 ♀ Paratypes, May, June.

PRIONOXYSTUS ROBINIÆ RACE FLAVOTINCTUS NOV.

Distinguished from *robinia* by being paler in color; as in race *mixtus*; the males, however, with the black markings on the secondaries intermediate in amount to the typical *robinia* but with the inner angle rounded approaching the female in this respect. The female has a considerable yellowish tinge to the secondaries stronger than in race *subnigrus* and thus approaches *quercus* Ehrm.

Type locality: Olancha, Inyo Co., Calif.

Number and sexes of types: Holotype ♂, 24-30 June; Allotype ♀, 24-30 June; 2 ♂ 1 ♀ Paratypes, 24-30 June.

The named races may be separated as follows:

- I. Secondaries of males with the black basal area extending to, or nearly to, the inner angle,
 - A. Secondaries of females usually not heavily obscured by black—(eastern)*robinia*

- B. Secondaries of females usually heavily obscured by black—
 (Fla.)*zabolicus*
- II. Secondaries of males with the black basal area not extending to
 the inner angle,
- A. Secondaries of males with the inner angle rounded; of
 females conspicuously tinged with yellow; both sexes paler
 than typical *robinia*—(Inyo Co., Calif.)*flavotinctus*
- B. Considerably paler than typical *robinia*; secondaries of
 females with distinct whitish tints,—(W. & S. W.)*mixtus*
- C. Considerably darker than typical *robinia*; secondaries of
 females blackish, often with an additional faint yellowish
 cast,—(vicinity of Cochlise Co., Ariz.)*subnigrus*

CONTRIBUTIONS
TO THE
NATURAL HISTORY
OF THE
LEPIDOPTERA
OF
NORTH AMERICA

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NOTES AND NEW SPECIES

BY

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AND

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NYMPHALIDAE

BASILARCHIA WEIDEMEYRII race NEVADÆ nov.

Not conspicuously different from some narrow banded specimens of *weidemyrii* on the upper side, but quite uniformly narrow banded, practically as in the normal form, *angustifascia*, of the Aroniza race *sinefascia*¹. The under side is conspicuously different from the described races, the normal red and orange-red markings being replaced by dull brown, those of the primaries being obsolescent and almost lost in the blackish ground.

Expanse: ♂, 57-66 mm.; ♀, 65-70 mm.

Type localities and number and sexes of types: Holotype ♂, Clark Co., Nev., 24-30 June; 28 ♂ Paratypes, id., 24-30 June (22), no date (6); 22 ♂ Paratypes, Charlestown Mts., Southern Nevada, 24-30 June (9), no date (13); 7 ♀ Paratypes, id., (no date).

RHIODINIDAE

APODEMIA PHYCIODOIDES sp. nov.

Head, thorax and abdomen black, clothed with sparse fulvous hair. Primaries: ground color bright orange-yellow; suffused with black along costa, and basally; veins black; a double black "t. a." line; a black mark corresponding to a reniform in the cell; a single, heavy, black "t. p." line composed of spots between the veins, irregular, and connected by the black on the veins; a similar black "s. t." line nearly parallel to the outer margin followed by an outer row of black spots connected in the male; unconnected, between the veins, in the female; a black terminal line, more or less broadened into triangular spots at the termen of the veins; two white spots in the costo-radial part of the s. t. space; fringe black, more or less checkered with white. Hind wings similar to the primaries in color and maculation, the black banding continuous but without white spots, except in the fringes. Beneath: primaries; similar to upper side but with the black markings narrower and clean cut, the veins, costa, and basal area, not conspicuously blackened; additional white spots along outer margin between veins 1-2 and 3-4; secondaries; not yellow but banded with brown and white, the brown bands outlined by black; the basal area pale brown followed by a narrow white band, which is again followed by a brown band and a white band, then a median wide brown band followed by a subterminal wide white band and a terminal wide brown band, the last interrupted between veins 3-4 by a whitish patch.

¹In order to comply with the International Rules, apparently the Arizona race of *B. weidemyrii* will have to be listed as *B. weidemyrii sinefascia*; but *sinefascia* is an aberration of the form subsequently named *angustifascia* by Barnes and McDunnough, so that the normal form of the Arizona race becomes, *B. weidemyrii sinefascia* form normal *angustifascia*.

Sexes similar; the male somewhat more heavily marked than the female.
Expanse: ♂, 24 mm.; ♀, 26 mm.

Somewhat similar in general habitus to some of the species of *Phyciodes*. The present species is not in the collection of the National Museum from Mexico or South America; neither do the authors find any species in the *Biologia*, nor in Seitz, which at all resembles it.

Type localities and number and sexes of types: Holotype ♂, Chiricahua Mts., Cochise Co., Ariz.; Allotype ♀, Paradise, Cochise Co., Ariz.

MEGATHYMIDAE

MEGATHYMUS MARIAE sp. nov.

♂. Head, thorax and abdomen mixed with blackish-brown, fulvous, and grey. Ground color of primaries deep blackish-brown; basal area covered with fulvous hair; a fulvous spot near costa at end of cell; an irregular fulvous s. t. band composed of spots as follows, an outwardly oblique patch on costa, one spot above and one below vein 5, parallel to outer margin, followed by a disconnected band of three spots parallel to outer margin, placed respectively between veins 4-3, 3-2, 2-1. Secondaries: ground color deep blackish-brown; basal area covered with fulvous hairs; a s. t. fulvous band, broken by the black veins. Fringes of all wings fulvous and black checkered. Beneath: disc of primary brownish-black; fulvous spots as on upper side, the apical spot obscured by a conspicuous, apical, whitish-grey shade, which is continued thru the terminal area to the inner margin, so that only the spot at the end of the cell and the spots between veins 4-1 are distinct: secondaries blackish, suffused with whitish-grey shadings; a whitish spot above cell; an obsolescent band below cell, connecting in the anal region with a whitish s. t. band which is practically a duplication of the s. t. band of the upper side, but whitish instead of fulvous. Fringes as on upper side, but with the fulvous replaced by whitish.

♀. Similar to male, but with the fulvous markings larger; primary with the spot at the end of the cell almost joined to the transverse s. t. band, which is only interrupted by the black veins; apical grey shade on underside of primary not conspicuously obscuring the apical spots.

Expanse: ♂, 44-48 mm.; ♀, 45-54 mm.

Genitalia: similar to *neumocogeni* and *polingi*; uncus furcate, forming two distinct hooks; the harpes and their appendages quite different in shape from allied species.

In habitus intermediate between *polingi* and *neumocogeni*; from the former it may easily be distinguished by the fact that the widest spot of the fulvous s. t. band is between veins 2-1; whereas, in a series of thirty-six *polingi* before the authors, the spot between veins 2-1 is narrower than the spots between veins 3-2 and 4-3; the female

differs from the females of both *neumoegeni* and *polingi* in that the spot at the end of the cell of the primary, while almost joined to the s. t. band, is enough disconnected so that it appears as a spot in the cell, instead of appearing as a fork of the band; the male differs by the conspicuous grey apical shade on the under side of the primary.

Type locality: El Paso, Texas, (J. G. Bonniwell).

Number and sexes of types: Holotype ♂, Oct.; Allotype ♀, Oct.; 16 ♂ Paratypes, Oct. (15), Nov. (1); 9 ♀ Paratypes, Oct. (6), Nov. (3); all 1920, ex-larvae.

SPHINGIDAE

PROSERPINUS GAURÆ A. & S.

1797, A. & S., Lep. Ins. Ga., I, 61, biol., pl. XXXI, *Sphinx*.

circa Hy. Edw.

1882, Hy. Edw., Papilio, II, 9, *Proserpinus*.

1886, Grt., Can. Ent., XVIII, 131, (as *circae*!), *Pogocolon*.

1903, R. & J., Rev. Sphing., II, 609, *gaurae*, *Proserpinus*.

1910, B. & McD., Psyche, XVII, *gaurae* form, *Proserpinus*.

PROSERPINUS DECEPTIVA sp. nov.

gauræ Auct. (nec A. & S.).

1859, Clem., Jour. Ac. N. S. Phila., p. 133, (partim.), *Proserpinus*.

1888, Sm., Trans. Am. Ent. Soc., XV, 115, (partim.), *Lepisesia*.

1902, Beut., Bull. Am. Mus. N. H., XVI, 396, larva, *Lepisesia*.

1903, R. & J., Rev. Sphing., II, 609, (partim.), *Proserpinus*.

1903, Holland, Moth Book, p. 72, (partim.) pl. II, f. 11, *Proserpinus*.

1910, B. & McD., Psyche, XVII, 204, (partim.), *Proserpinus*.

There is considerable confusion in the literature regarding the present species. Abbott and Smith's description and plate clearly show true *gauræ* to have brownish secondaries with a paler median band and a blackish outer band; which is what Mr. Henry Edwards described as *circa*, a specimen having been compared with the type (Neumoegen Collection). The type locality of both names is Georgia. There are three specimens in the Barnes Collection, and another before the authors thru the kindness of Mr. B. Preston Clark, all from Alabama. Another specimen was purchased from a small boy at Agricultural College, Mississippi, by the junior author, the specimen having

been caught at flowers, flying in the bright sunlight, on the college campus.

Apparently because of the rarity of true *guaræ*; the Southern and Central Texas form, with a similar larva has been generally identified as *gauræ*; and true *gauræ* identified as *circa*.

Genitalic slides of two Alabama specimens of *gauræ* show slightly narrower valves than those shown by two slides of the common Texas species, but the difference is not great, the valves of the Texas species show some variation, and the larvae of both are similar in maculation and possess a caudal horn. With these facts in mind, the authors considered the Texas specimens a race of *gauræ*, but Mr. Clark considers them a distinct species. Occasional Texas specimens may be referable to true *gauræ*, as Mr. Clark informs the authors that he possesses a single specimen from Paris, (Northern) Texas with brownish secondaries.

P. deceptiva is similar to *gauræ* with the primaries tending to be somewhat darker and the secondaries strongly tinged with yellow, similar to *juanita*, a fact which in the past has caused considerable additional confusion. The larvae of *juanita*, however, are quite distinct from those of *gauræ* and *deceptiva* by not possessing a caudal horn.

Type localities and number and sexes of types: Holotype ♂, Harris Co., June; Allotype ♀, id., June; 2 ♂ Paratypes, id., 24-30 June, and Hastings, June '98; 2 ♀ Paratypes, Harris Co., June, and Kerrville, June '00, in Barnes Collection; 2 ♂ Paratypes, Harris Co., No. 874, and Blanco Co., No. 3614, loaned to the authors by Mr. B. Preston Clark and returned to the Clark Collection; all Texas.

SYNTOMIDAE

PYGOCTENUCHA PYRRHOURA Hulst.

1881, Hulst, Bull. B'klyn Ent. Soc., III, 77, pl. IV, f. 4, *Ctenucha*.

Notes made by the junior author read: "Do not think this (*P. terminalis*) same as male type "*Ctenucha*" *pyrrhoura* Hulst in N. Y. The wings of the type are much narrower and differently shaped, smaller, also lack most of the blue sheen, being duller purple-gray. The fringes of the primaries are *white*, not as in our specimen. Veins 4 and 5 of the primaries are shortly stalked in *pyrrhoura* and free in *terminalis*."

Hampson states that the "cilia" of the primaries of *terminalis* are white. Arizona specimens possess blackish-brown "cilia". It is

possible that there are several closely allied species confused in collections.

With a difference in size, wing-shape, venation, and color; it would be well to hold the name *pyrrhoura* distinct until Colorado (topotypical) material is available for study, to determine if the type of *pyrrhoura* is a freak or if a set of constant characters exist between Colorado and Arizona specimens.

ARCTIIDAE LITHOSIINAE

CISTHENE (=Illice) PACKARDII Grote.

- 1863, Grote, Proc. Ent. Soc. Phila., II, pl. II, f. 5, *Hypoprepia*.
 1893, N. & D., Jour. N. Y. Ent. Soc., I, 115, *subjecta*, *Cisthene*.
 1900, Hamp., Cat. Lep. Phal. B. M., II, 368, *subjecta* ab. 1, *Illice*.
 1918 Draudt, in Seitz, Macrolepid., Sect. I, Exot. 269, Fauna Amer. 115,
 p. 259, *subjecta* form, *Illice*.

Judging from Prof. Grote's figure *packardii* is closely allied to *conjuncta* B. & McD., possessing the same type of primary maculation, rather than the maculation of *subjuncta*.

Tentatively, it had best be held "an sp. dist." from both *subjecta* and *conjuncta*.

The authors will be glad to receive any information regarding the type of *packardii*, which came from Pennsylvania, or to learn of the existence of other specimens resembling Grote's figure.

ARCTIINAE

HALISIDOTA LURIDA Hy. Edw.

- 1887, Hy. Edw., Ent. Amer., III, 91, *Halisidota*.
 1901, Hamp., Cat. Lep. Phal. B. M., III, 154, pl. XL, f. 19, *Halisidota*.

race OTHO Barnes.

- 1901, Barnes, Can. Ent., XXXIII, 53, *Euhalisidota*.

lurida Auct. (nec Hy. Edw.).

- 1912, B. & McD., Contr. N. H. Lep. N. A., I, (4), 11, pl. IV, f. 3 (type ♀ *otho*), *Halisidota*.
 1920, Hamp., Cat. Lep. Phal. B. M., Suppl. II, 273, *Halisidota*.

Notes on a specimen compared with the types of *lurida* by the senior author read: "Not *lurida*, ours good species".

Notes on a specimen compared by the junior author read: "Not *lurida*, ♂ ♀ types, Jalapa, Mex., very yellow and almost entirely lacking all the black shading on both wings, the secondaries are heavier scaled, immaculate, vs. the grey buff and black shades of Arizona specimens."

Tentatively the name *otho* may be preserved for Arizona specimens, at least as a distinct race.

EUBAPHE INTERMEDIA Graef.

1887, Graef, Ent. Amer., III, 42, *Crocota*.

1893, N. & D., Jour. N. Y. Ent. Soc., I, 156, *Eubaphe*.

1901, Hamp., Cat. Lep. Phal. B. M., III, 192, pl. XLII, f. 11, *Holomelina*.

1919, Seitz, Macrolepid., VI, 294, pl. XXXVIII, b, *Eubaphe*.

The type, in the Brooklyn Institute, has primaries similar to those of *parvula*, the secondaries with the black marginal band wider, similar to *lacta* race *treatii* (*rubropicta* Pack.).

race PARVULA N. & D.

1893, N. & D., Ent. News, IV, 140, *intermedia* var., *Crocota*.

1893, N. & D., Jour. N. Y. Ent. Soc., I, 156, *intermedia* var., *Euphaphe*.

1919, Seitz, Macrolepid., VI, 294, *intermedia* form, *Eubaphe*.

1920, Hamp., Cat. Lep. Phal. B. M., Suppl. II, 316, *Eubaphe*.

cocciniceps Schs.

1901, Schs., Ann. & Mag. N. H., (7), VII, 269, *Holomelina*.

1901, Hamp., Cat. Lep. Phal. B. M., III, 189, pl. XLII, f. 10, *Holomelina*.

1919, Seitz, Macrolepid., VI, 294, *intermedia* form, *Euphaphe*.

1920, Hamp., Cat. Lep. Phal. B. M., Suppl. II, 316, *parvula*, *Eubaphe*.

According to specimens recently compared with the types of *parvula* (Brooklyn Institute) and *cocciniceps* (National Museum), these names represent only a single race of *intermedia*, differing from *intermedia* in that the black band on the hind wings is narrower. The type of *cocciniceps* is larger than the type of *parvula*, but apparently that is the only difference.

Hampson (1920) has already published this synonymy, but lists *parvula* as a distinct species from *intermedia*.

ECPANTHERIA SUFFUSA Schaus.

- 1889, Schaus, Ent. Amer., V, 190, *Arachnis*.
 1892, Kirby, Syn. Cat. Lep. Het., I, 219, *Arachnis*.
 1897, Druce, Biol. Centr.-Amer., Het., II, 378, pl. LXXV, f. 11, *Arachnis*.
 1901, Hamp., Cat. Lep. Phal. B M., III, 386, text fig. 162, *Ecpantheria*.

Two males and one female have been received from the Baboquivari Mts., Pima Co., Ariz., O. C. Poling, 1-4 Aug., 1-15 Aug., 1-15 Sept., 1923.

Mr. Schaus has compared these specimens with the type at the U. S. National Museum.

Very possibly "*Arachnis*" *semiclarata* Stretch will prove conspecific.

PHALAENIDAE

PHALAENINAE

MELICLEPTRIA FASCIATA Hy. Edw.

- 1875, Hy. Edw., Proc. Calif. Ac. Aci., VI, 134, 139, *Melicleptria*.
 1883, Sm., Trans. Am. Ent. Soc., X, 246, pl. VIII, f. 63, *Heliaca*.
 1893, Sm., Bull. U. S. N. M., XLIV, 291, *Heliaca*.
 1906, Sm., Jour. N. Y. Ent. Soc., XIV, 17, "*H.*"
 1910, Hamp., Cat. Lep. Phal. B. M., IX, 465, pl. CXLVI, f. 29, *Heliothodes*.

sabulosa Sm.

- 1906, Sm., Jour. N. Y. Ent. Soc., XV, 16, *Melicleptria*.

A specimen compared with the type of *fasciata* (Hy. Edw. Coll.) by the senior author agrees with the " δ type" of *sabulosa* (Barnes Coll.).

Smith's figure and description of *fasciata* (1883) probably refer to *Heliothodes diminutiva* form *suffusana* Strand. Hampson's figure (1910) appears either poor or not this species.

There are only two specimens in the Barnes Collection and their legs are not in the best of condition but, on both, the fore tibiae show a short outer claw and a longer, curved, inner claw. The specimen compared with the type of *fasciata* possesses weak, but distinct, spines on the mid and hind tibiae.

"POROSAGROTIS" VETUSTA Wlk.

- 1856, Wlk., Cat. Lep. Het. B. M., IX, 78, *Mythimna*.
 1882, Grt., Ill. Essay, p. 41, *Mythimna vetusta*=*Agrotis*; *muraenula*?,
Agrotis.
 1890, Sm., Bull. U. S. N. M., XXXVIII, 125, ?=*muraenula*, *Porosagrotis*.
 1893, Sm., Bull. U. S. N. M., XLIV, 85, *Porosagrotis*.
 1895, Grt., Abh. Nat. Ver. Bremen, XIV, 65, *muraenula*, "*vetusta*", *Agrotis*
 (*Porosagrotis*).
 1903, Dyar, Bull. U. S. N. M., LII, 139, No. 1552, *Porosagrotis*.
 1903, Hamp., Cat. Lep. Phal. B. M., IV, 145, text fig. 55, *Porosagrotis*.
 1903, Holl., Moth Book, p. 187, pl. XXII, f. 25, *Porosagrotis*.
 1917, B. & McD., Check List, p. 40, No. 1234, *Porosagrotis*.
Type locality: Nova Scotia.
Type: 1 ♀, in British Museum.

muraenula G. & R.

- 1868, G. & R., Trans. Am. Ent. Soc., I, 352, pl. VII, f. 48, *Agrotis*.
 1869, Beth., Can. Ent., I, 86, *Agrotis*.
 1875, Harv., Bull. Buff. Soc. N. S., III, 73, pl. III, f. 3, *Agrotis*.
 1882, Grt., Ill. Essay, p. 41, *Mythimna vetusta*=?*muraenula*, *Agrotis*.
 1890, Sm., Bull. U. S. N. M., XXXVIII, 125, ?*vetusta*, *Porosagrotis*.
 1893, Sm., Bull. U. S. N. M., XLIV, 85, *vetusta*, *Porosagrotis*.
 1895, Grt., Abh. Nat. Ver. Bremen, ="*Vetusta*", *Agrotis* (*Porosagrotis*).
 1903, Dyar, Bull. U. S. N. M., LII, 139, No. 1552, *vetusta*, *Porosagrotis*.
 1903, Hamp., Cat. Lep. Phal. B. M., IV, 145, *vetusta*, *Porosagrotis*.
 1903, Holl., Moth Book, p. 187, *vetusta*, *Porosagrotis*.
 1917, B. & McD., Check List, p. 40, No. 1234, *vetusta*, *Porosagrotis*.
Type locality: Atlantic District.

Notes: Described from "♀" which should be in the Collection of the Academy Natural Sciences, Philadelphia.

race CATENULOIDES Sm.

- 1910, Sm., Jour. N. Y. Ent. Soc., XVIII, 88, *Porosagrotis*.
 1917, B. & McD., Check List, p. 40, No. 1234 a; *vetusta* race, *Porosagrotis*.

‡*catenula* Auct. (nec Grt.).

- 1890, Sm., Bull. U. S. N. M., XXXVIII, 125, *Porosagrotis*.
 1893, Sm., Bull. U. S. N. M., XLIV, 85, *Porosagrotis*.
 1910, Sm., Jour. N. Y. Ent. Soc., XVIII, 88, *catenuloides* n.n.=*catenula*
 Sm. nec Grt.

Type localities: Rocky Mountain Region-Westward.

Notes: No types; — *nom. nov.* for species determined as *catenula* Grote by Smith in error.

race *MUTATA* nov.

"*Porosagrotis*" *vetusta* Wlk. and race *catenuloides* Sm. present a difficult problem, varying in habitus, structure, and genitalia, often within a limited area, generally running to local forms in various localities. In short, the species is a distinctly unstable one from the evolutionary standpoint.

"*P.*" *vetusta vetusta*: in the east the males have rufous to grayish primaries, with the maculation, or some of it at least, usually obscure. The secondaries are usually immaculate, occasionally marked by some fuscous in both sexes.

"*P.*" *vetusta catenuloides* is generally slightly larger than typical *vetusta*, the males usually with pure white secondaries, the veins and outer margins sometimes tinged with a few fuscous scales. The females seldom have the crescent-shaped spots on the secondaries altho the margins and veins are sometimes tinged with fuscous, the transverse maculation is usually more distinct than in *vetusta*, while the abdomen, especially basally is more densely hairy. The ground color of the primaries is variable, as in *vetusta*, but is frequently much paler. British Columbia produces a race which shows dark grey primaries and complete, or nearly complete, maculation in both sexes; even the orbicular being at least indicated, and often with a few fuscous scales on the veins and along the outer margins. The females are similar but usually show crescent shaped black marks on the secondaries between the veins along the outer margins. Washington produces a similar form. The bodies are hairy as in *catenuloides* rather than *vetusta*. Manitoba produces a dark form apparently a parallel development to the British Columbia-Washington form, but the body seems smoother, nearly as in Eastern *vetusta*.

Some entomologists would advocate the sinking of the name *catenuloides* to *vetusta* for there are all gradations when material is examined in quantity. However, the present tendency is to split rather than lump, which the authors believe is a good thing if not carried to excess with insufficient material. Therefore they believe that *catenuloides* may be retained for the ordinary western race of *vetusta*. This will leave the extremely dark forms from British Columbia and Washington described above, without a name, for which is proposed the name *mutata*. This race corresponds in its relation to

catenuloides in the same way that *Lampra* (*Abagrotis*) *erratica* race *ornatus* corresponds to typical *erratica*.

Type localities and number and sexes of types: Holotype ♂, Kaslo, B. C., 30 July 1905; Allotype ♀, id., no date; 24 ♂, 27 ♀, Paratypes from Kaslo, Arrowhead Lake, Vernon, Vernon Dist., Okanagan Landing, and Lillooet, B. C., various collectors; dates July to September.

Types in: Barnes Collection; Paratypes in Barnes, U. S. National, Canadian National, and E. H. Blackmore Collections.

Notes: the authors are indebted to Dr. H. G. Dyar for the gift of five male and five female specimens, which were made paratypes.

"EUXOA" CINCTA sp. nov.²

Head, collar, thorax, patagia and ground color of primaries concolorous, violaceous-grey, in some specimens with a rufous cast. Tegulae crossed by two obsolescent lines of black scales. Abdomen ochreous, powdered with black, paler basally. Primaries: basal line black, double, obsolescent except on costa and in submedian fold; t. a. line black, double, slightly excurved, waved; orbicular obsolete or obsolescent, when visible appearing as a slightly paler round spot, not definitely defined and nearly filling the cell from the t. a. line to the median shade; which is strong, wide, black, oblique from costa to base of reniform thence erect to inner margin, its mesial edge waved, distally tending to produce a black suffusion which in some specimens extends to, or nearly to the t. p. line; claviform absent; reniform not well defined, kidney shaped, usually more or less blurred by a rufous suffusion; t. p. line black, erect on costa, strongly excurved around cell, incurved below vein 4, produced to points on the veins; followed by a more or less obsolescent parallel narrow black shade which tends to produce a "double" t. p. line in the best marked specimens; s. t. line of the ground color, only slightly produced on veins 3, 4, bordered mesially by a black shade and distally by the terminal space which is darkened by a black powdering except near the apex; a terminal line of black dots between the veins, more or less connected; fringe rufous-yellow at base, else grey interrupted by a narrow, more or less obsolescent, pale interline. Secondaries: fuscous, somewhat paler basally especially in the males; veins darker; a disco-cellular blackish crescent present; fringe yellowish-white intersected by a grey interline. Beneath: primaries pale fuscous-grey, some of the marking of the upper side faintly showing thru; secondaries similar, paler basally, with distinct discocellular black crescent. Fringes as on upper side.

Allied to *annulipes* and *recticincta* but darker than either, with more heavily serrate antennae. More closely allied to *lucida*, somewhat darker, the antennal shaft somewhat heavier but the serrations nearly the same. Differs from all allied species in the valves of the

²*Euxoa* is here used in the sense of Hampson. *Agrotis* type *segetum*, Hübner, 1806, *Tentamen*, will probably eventually be substituted.

male being narrower and possessing a peculiar uncus which is armed by minute spines. The uncus of *lucida* is somewhat similar with longer spines. A single specimen had been identified as *recticincta* by Dr. J. B. Smith, and the species may be present in other collections under that name.

Expanse: 31-35 mm.

Type localities and number and sexes of types: Holotype ♂, Paradise, Cochise Co., Ariz., Aug.; Allotype ♀, id., Aug. 3; 3 ♂ Paratypes, id., Aug. (1), no date (2); 6 ♀ Paratypes, id., June (1), Aug. (3). Sept. (1), no date (1); 1 ♀ Paratype, So. Ariz., (Poling), no date.

EUXOIA DISSONA Möschl.

1860, Möschl., Wein. Ent. Mon., IV, 365, pl. IX, f. 4, *Agrotis*.

1901, Stgr. & Rebel, Cat. Lep. Pal., I, 149, No. 1368, *Agrotis*.

1903, Hamp., Cat. Lep. Phal. B. M., IV, 274, LXV, f. 7, *Euxoa* (*Euxoa*).

1903, Holland, Moth Book, p. 189, pl. XXIII, f. 5, *Euxoa*.

1922, Bang-Haas, Deut. Entom. Zeit. Iris, XXXVI, 8, pl. XIV, f. 20 (type ♀), *Agrotis*.

‡*rara* Auct. (nec *rava* H.-S.).

1868, Pack., Proc. Bost. Soc. N. H., XI, 38, *dissona*, *Agrotis*.

form OPIPARA Morr.

1874, Morr., Proc. Bost. Soc. N. H., XVII, 165, *Agrotis*.

1901, Stgr. & Rebel, Cat. Lep. Pal., I, 149, No. 1368a, *dissona* ab., *Agrotis*.

1903, Hamp., Cat. Lep. Phal. B. M., IV, 272, pl. LXV, f. 5, *Euxoa* (*Euxoa*).

1914, Warren, in Seitz, Macrolepid., III, 32, pl. VI, i, *Euxoa*.

labradoriensis Stgr.

1881, Stgr., Stett. Ent. Zeit., XLII, 419, *islandica* var. *Agrotis*.

1901, Stgr. & Hebel, Cat. Lep. Pal., I, 149, No. 1368a s., *dissona* ab. *opipara*, *Agrotis*.

1903, Hamp., Cat. Lep. Phal. B. M., IV, 272, *opipara*, *Euxoa* (*Euxoa*).

1914, Warren, in Seitz., Macrolepid., III, 32, *opipara*, *Euxoa*.

1922, Bang-Haas, Deut. Ent. Zeit. Iris, XXXVI, 8, pl. XIV, f. 21 (♂ type), *dissona* var. *opipara*, *Agrotis*.

‡*islandica* Auct. (nec Stgr.).

1901, Stgr. & Rebel, Cat. Lep. Pal., I, 149, No. 1368a s., *dissona* ab. *opipara*, *Agrotis*.

1903, Hamp., Cat. Lep. Phal. B. M., IV, 272, *opipara*, *Euxoa* (*Euxoa*).

?norwegica Stgr.

1861, Stgr., Stett. Ent. Zeit., XXII, 383, *Agrotis*.

1901, Stgr. & Rebel, Cat. Lep. Pal., I, 150, No. 1374, *Agrotis*.

1903, Hamp., Cat. Lep. Phal. B. M., IV, 272, *opipara*, *Euxoa* (*Euxoa*).

1914, Warren, in Seitz, Macrolepid., III, 32, *?=opipara*, *Euxoa*.

A photograph of the type of *dissona* (Staudinger Collection) shows the name to represent that form of the species with a slight black shade between the spots and with a slight median shade line; but the claviform is not extended by dark shading to the t. p. line, nor are the dark shadings much intensified. Holland's figure (1903) is not quite typical.

The name *rara* is unavailable in any capacity, being a misidentification of, and a *lapsus calami* for, *rava* H.-S.

The type of *opipara* is in the British Museum, and according to Hampson (1903) has the claviform connected to the t. p. line by a black shade. Hampson's figure apparently represents either the type or a typical specimen. The name may be saved for the form with the blackish shade markings generally intensified, and the claviform connected to the t. p. line by a black shade. The figure in Seitz (1914) is apparently a copy from Hampson, but is rather poor and conveys an erroneous impression.

A photograph of the type of *labradoriensis* (Staudinger Collection) shows the same markings as the type of *opipara*. The name was sunk as a synonym by Staudinger and Rebel (1901), Hampson (1903), Warren (1914), and Bang-Haas (1922).

The name *islandica* Auct. nec Stgr. is the result of various misidentifications of *islandica* Stgr. by authors. Staudinger & Rebel list the figure of *islandica* Auriv. nec Stgr. (Bihang Vet.—Akad. Handl., XV, 15, pl. I, f. 5) as being *opipara*, and in this are followed by Hampson. Either the figure is poor or probably refers to some other species. Hampson also lists *islandica* Pack. nec Stgr. (1874, Ann. Rept. U. S. Geol. Surv., (1873), 555, pl. —, f. 10), but evidently did not study the figure as his reference is erroneous being "1878. Bull. U. S. Geol. Surv., IV, 555". This figure appears to be a *Chorizagrotis*. Packard states "three larvae which I refer doubtfully to this species . . ." (*islandica* Pack. nec Stgr. = *?Chorizagrotis* sp.); are credited by Hampson to Packard as a description of the larvae of *opipara*, and

apparently simply redescribed by Dyar, in Hampson, (1903). In view of Packard's figure, these larvae probably are not *dissona* or form *opiþara*.

The name *norvegica* Stgr. is included here only on the strength of the citations by Hampson (1903) and Warren (1914). The name may refer to a European species not found in North America.

Genitalic slides and intermediate specimens indicate that *opiþara* is only a maculation form of *dissona* which is a very variable species in color as well as maculation, varying from pale violaceous-grey to deep slate-grey. Two violaceous-grey males in the Barnes Collection are tinted with rufous one female is deep red-brown, another is deep slate-grey.

CHORIZAGROTIS SOCORRO Barnes.

1904, Barnes, Can. Ent., XXXVI, 171, *Rhizagrotis*.

1912, B. & McD., Contr. N. H. Lep. N. A., I, (4), 16, pl. VI, f. 20, (type ♀), *Rhizagrotis*.

1917, B. & McD., Check List, p. 44, No. 1380, *Chorizagrotis*.

pampolycala Dyar (partim. ♀ nec ♂).

1912, Dyar, Proc. U. S. N. M., XLII, 57, *Lycophotia*.

form PAMPOLYCALA Dyar (partim. ♂ nec ♀).

1912, Dyar, Proc. U. S. N. M., XLII, 57, *Lycophotia*.

socorro Barnes (partim.).

1904, Barnes, Can. Ent., XXXVI, 171, *Rhizagrotis*.

The authors are indebted to Prof. M. Draudt for calling this synonymy to their attention. Mr. Schaus has kindly compared two of the types of *socorro* with the type ♂ and type ♀ of *pampolycala* in the National Museum.

The types of *socorro* mainly represent the form with the space in the cell between the stigma filled with black. One type lacks the black filling between the stigmata. A lectotype is hereby designated, one specimen, a male with black filling between the stigmata, agreeing with the female figured by Barnes and McDunnough (1912), except that the secondaries are somewhat paler. The figured specimen represents the form which is apparently the normal Arizona female. The male lectotype represents the corresponding male.

The name *pampolycala* should be restricted to the male type which lacks, or practically lacks, the black filling between the stigmata, so that the name will not represent a straight synonym. The female type has the black filling between the stigmata and is the normal form of *socorro*.

Such restriction of names leaves four males and four females of the original types of *socorro* under that name; and one of the original male types under the form name *pampolycala*.

The species has a non-tuberculate but strongly roughened frons, simple, ciliated male antennae and a bifurcate male clasper. Reference to *Chorizagrotis* appears correct.

CHORIZAGROTIS SALINA Barnes.

1904, Barnes, Can. Ent., XXXVI, 172, *Rhizagrotis*.

1915, B. & McD., Contr. N. H. Lep. N. A., I, (4), 21, pl. IX, f. 3, (type), *Rhizagrotis*.

1917, B. & McD., Check List, p. 44, No. 1381, *Chorizagrotis*.

arabella Dyar.

1910, Dyar, Proc. U. S. N. M., XXXVIII, 237, *Euxoa*.

A peculiar species with no close affinity. There are three specimens of *salina* in the Barnes Collection which show considerable variation and the authors are able to match all of the maculation of *arabella* except the reniform which is a little larger in Dr. Dyar's type. The three aforementioned specimens of *salina* and the type of *arabella* are all of the specimens known to the authors.

This species has a non-tuberculate but strongly roughened frons and simple ciliated antennae in the males. Reference to *Chorizagrotis* is therefore preferable to *Euxoa*, if Smith's subdivisions are followed.

RHIZAGROTIS PROCLIVIS Sm.

1887, Sm., Proc. U. S. N. M., X, 453, *Agrotis*.

1903, Hamp., Cat. Lep. Phal. B. M., IV, 320, pl. LXVII, f. 9, *Euxoa* (*Rhiacia*).

oaxacana Schs.

1898, Schs., Jour. N. Y. Ent. Soc., VI, 107, *Agrotis*.

1903, Hamp., Cat. Lep. Phal. B. M., IV, 320, *proclivis*, *Euxoa* (*Rhiacia*).

This species is known to the authors only from Arizona and Mexico. A specimen has been compared with the "♂ type" of *proclivis* (Tepper Collection) by Dr. McDunnough, its label reading "exact". Specimens have been compared by both authors with the "♀ type" of *proclivis* (Neumoegen Collection). The type of *oavacana* (National Museum) is a female; and has been matched with an Arizona specimen by the junior author. Hampson is correct listing it as a synonym.

RHIZAGROTIS NEOCLIVIS sp. nov.

Head blackish. Thorax ochreous mixed with some black; the tegulae darker, crossed by a narrow black line; patagia pale ochreous mixed with some black. Abdomen ochreous, more or less considerably suffused with black, the tip yellowish. Primaries: ground color pale ochreous suffused and powdered with black; basal line obsolescent; t. a. line indistinct, double, black, wavy; orbicular pale ochreous with central blackish powdering, elongated, nearly making contact with the reniform; which is similar in color, kidney-shaped, upright, with central fuscous crescent in which there is some pale scaling; clavi-form minute, outlined by black, with a fuscous filling; basal and medial areas below submedian fold strongly suffused with black; t. p. line black, with a tendency to be double, produced to points on the veins, bent outward below costa, incurved opposite the cell, excurved to vein 4, thence incurved to inner margin; some pale ochreous ground color showing in the s. t. space which is otherwise blackish; s. t. line mainly represented by short whitish-ochreous streaks in the interspaces, these streaks more or less conjoined to form a wavy line; terminal area blackish; a terminal series of minute black points between the veins; fringe checkered black and ochreous. Secondaries: fuscous-brown, paler basally, with dark fuscous-brown over the distal half, the veins strongly tinged with fuscous-brown; fringe yellowish at the base, a fuscous-brown interline, and white tips. Beneath: primaries nearly unicolorously fuscous-brown; secondaries with paler central disc, fuscous-brown margins and veins, and a blackish discocellular dot.

Sexes similar; the secondaries of the females slightly darker than those of the males.

Expanse: 37-41 mm.

Very similar to *proclivis*, but easily separated from that species by the pale ochreous ground color instead of dark brown. It is possibly a Texas race of *proclivis* but there are no intergrades in the Barnes Collection, nor are there any intergrades in any collection examined by the authors.

Type locality: Kerrville, Texas.

Number and sexes of types: Holotype ♂, Sept. '06; Allotype ♀, Aug. '06; 6 ♂ Paratypes, Sept. '00 (1), Sept. '08 (2), no date (3); 1 ♀ Paratype, no date.

RHIZAGROTIS DEFECTIPES Dyar.

1921, Dyar, Ins. Insc. Menst., IX, 63, *Cerapoda*.

This insect is not a *Cerapoda* but represents a *Rhizagrotis* probably conspecific with *albalis*. The secondaries are a little darker than typical for *albalis* which is however a very variable species. The Barnes Collection possesses a single specimen from Montana (Miles City) which had heretofore been placed as *albalis*. More material from Montana will be necessary in order to form a conclusive opinion.

FELTIA VOLUBILIS form DENTILINEA Sm.

1890, Sm., Trans. Am. Ent. Soc., XVII, 45, *volubilis* form, "S."

1917, B. & McD., Check List, p. 44, No. 1409 form, *volubilis* form, *Feltia*.

No specimens were found labeled type in either the National Museum or Smith Collections and apparently the types were either not labeled by Smith or have been lost. No locality is given by Smith in the original description and the name appears to have been overlooked by him (1893, Bull. U. S. N. M., XLIV), by Dyar (1903, Bull. U. S. N. M., LII), and by Hampson (1903, Cat. Lep. Phal. B. M.).

In the Smith Collection two specimens are placed a little to one side of the series of *volubilis*. One is labeled "Ct.", and somewhat resembles *musa* without the t. p. line so distinct, but with the costa of *volubilis*. The other specimen is labeled "Colo." "Hulst" and appears to be the Colorado representative of *acneipennis*, but is longer winged. Probably neither of these represent the "type" of *dentilinea* which was described from "a number of specimens".

Judging from the inadequate description of *dentilinea* the name might well represent typical *volubilis*, and *stigmosa* Morr. might be available for the slightly duller form. This, however, appears to be splitting too finely. The name *dentilinea* may tentatively remain on lists as an unknown form of *volubilis*.

The authors are indebted to Messrs. Schaus and Ilg for carefully checking the negative result of the attempt to locate types of *dentilinea* at the National Museum and Smith Collections.

AGROTIS TRIPHÆNOIDES Dyar.

1912, Dyar, Proc. U. S. N. M., XLII, 58, *Lycophotia*.

orbipuncta B. & McD.

1916, B. & McD., Cont. N. H. Lep. N. A., III, (1), 6, pl. I, f. 2, (type), *Rhynchagrotis*.

1921, Benj., Bull. S. Calif. Ac. Sci., XX, 136, *Agrotis*.

The authors are indebted to Prof. M. Draudt for calling this synonymy to their attention. Mr. Schaus has kindly compared one of the paratypes of *orbipuncta* with the type of *triphænoides* in the National Museum.

The abdomen of the type of *triphænoides* is laterally compressed by shipment in paper. The types of *orbipuncta* show a dorsally flattened abdomen. The species may tentatively be placed in *Agrotis* Hampson and Auct. nec Hübner, falling in Hampson's keys between *subporphyrea* and *larga*.

EPIPSILIA PYRSOGRAMMA Dyar.

1916, Dyar, Proc. U. S. N. M., LI, 9, *Episilia* (!).

A single female, compared with Dr. Dyar's type by Messrs. Heinrich and Schaus is in the Barnes Collection from the Huachuca Mts., Arizona.

EPIPSILIA BOLLII Grt.

1883, Grt., Bull. U. S. Geol. Surv., VI, 160, *Agrotis*.

hilaris Grt.

1880, Grt., Can. Ent., XII, 153, *Agrotis*.

1903, Hamp., Cat. Lep. Phal. B. M., IV, 472, pl. LXXII, f. 16, *Episilia* (!).

1917, B. & McD., Check List, p. 46, No. 1470, *Epipsilia*.

In proposing the name *bollii*, Mr. Grote states, "N. B.—There is already a European species *hilaris*", thus sinking *Agrotis hilaris* Grote as a homonym of *Agrotis hilaris* Frr.

Under the present International Rules of Zoological Nomenclature a name sunk as a homonym can not be resurrected. The present species should be placed on the North American lists as *E. bollii*.

EPIPSILIA MANIFESTA Morr.

1875, Morr., Proc. Bost. Soc. N. H., XVIII, 116, *Pachnobia*.

impingens Dyar.

1920, Dyar, Ins. Insc. Menst., VIII, 101, *Episila* (!).

A type of the former in the Neumoegen Collection agrees well in color and maculation with the type of the latter in the National Museum except that the orbicular is missing in the type of *manifesta*. Morrison's original description mentions that the spot is "sometimes absent"; and "anterior wings gray". "Its color varies considerably, in some specimens being mixed with brown."

With the original description in mind, it seems impossible to even hold the name *impingens* as a form. Fifteen specimens before the authors show a considerable range of color variation.

MATUTA YOUNGII Sm.

1902, Sm., Can. Ent., XXXIV, 29, *Semiophora*.

The name should be restricted to the "♀ type" as the male type appears to be a small specimen of *janualis*. The "♂ type" and the "♀ type" are in the Smith Collection, Rutgers College. A female "cotype" in the Barnes Collection is the same form as the "♀ type".

LAMPRA (LAMPRA) EXSERTISTIGMA form EMARGINATA Grt.

1876, Grt., Bull. Buff. Soc. N. S., III, 82, *Agrotis*.

inclegans Sm.

1890, Sm., Trans. Am. Ent. Soc., XVII, 43, *Agrotis*.

A specimen compared with the type of *inclegans* (National Museum) is practically identical with a specimen compared with the type of *emarginata* by Sir George Hampson (British Museum); (see Benj., 1921, Bull. S. Calif. Ac. Sci., XX, pp. 108 et seq. for bibliography). *Faculana* Strand, (1915, Archiv fur Naturgesch., A, (12), 146), a name applied to *formalis* ab. 4 of Hampson (1903, Cat. Lep. Phal. B. M., IV, 632), may also fall into this synonymy.

LAMPRA (LAMPRA) EXSERTISTIGMA form MORRISONISTIGMA Grt.

1875, Grt., Bull. Buff. Soc. N. S., III, 79, pl. IV, f. 8, ?*exsertistigma*, an sp. dist.?, *Agrotis*.

binominalis Sm.

1887, Sm., Proc. U. S. N. M., X, 451, *Agrotis*.

crenulata Sm.

1887, Sm., Proc. U. S. N. M., X, 451, *Agrotis*.

An examination of the supposed type of *morrisonistigma* in the Museum of Natural History reveals the fact that the specimen labeled as presumable type is a male with an Oregon label on the pin. This may or may not be the type, for Grote states his type came from California, but fifty years ago less attention was paid to locality labels, and an erroneous label may have gotten on the pin. At any rate, this specimen, altho not in the best of condition, appears to be the same form figured by Grote, and agrees well with specimens recently compared with the type of *crenulata* (National Museum); and a prior comparison with the ♂ type (nec ♀) of *binominalis* (Tepper Collection) by Dr. McDunnough; (see Benj., 1921, Bull. S. Calif. Ac. Sci., XX, pp. 108 et seq. for bibliography).

HADENINAE

ANARTA MAGNA sp. nov.

Head and thorax olivaceous-white mixed with fuscous. Abdomen fuscous, with a considerable olivaceous-white admixture. Primaries: ground color olivaceous-white, tinged with violaceous-grey and sprinkled with fuscous; basal line black, strong, somewhat rubbed on the specimens before the authors and its exact course indeterminate, t. a. line black, strong, oblique from costa, connected to the orbicular by a black shade in cell, produced to points above and below vein 1; claviform not well defined, outlined by a few black scales; true orbicular absent, its place being taken by a violaceous-grey shade extending from costa to base of vein 2; a patch of fuscous in cell connecting the "orbicular" with the reniform; reniform not well marked, whitish, kidney-shaped, faintly surrounded by black and with a fuscous central crescent; t. p. line black, produced to points on the veins, excurved from costa, incurved below vein 4, distally bordered by pale scaling; s. t. line faint, whitish, well marked mesially by sagitate black dashes between the veins, the black dashes more or less conjoined into a decided s. t. shade, nearly parallel to the outer margin; a terminal line of elongate black dots between the veins; fringe checkered black and white. Secondaries: white, with a narrow black terminal line and a broad black terminal band occupying one third of the area of the wing except for a white patch at the anal angle, a trace of a black median shade, considerable heavy fuscous suffusion on the inner and basal areas, and with a large black discoidal spot; fringe white except along the inner margin. Beneath: white, powdered with scattered black scales; forewing with black discal spot, t. p. line marked on costa, a suffused black s. t. shading and a terminal row of black dots between the veins, fringe white, faintly marked with black; hind wing with a black discal spot connected to

the base by a strong black bar, a terminal line of black dots between the veins, and a suffusion of black powdering tending to produce a faint terminal band, fringe white.

Expanse: about 38 mm.

The present species is closely related to *A. richardsoni* but presents an entirely different habitus, is larger, lacks all trace of orange and ochreous scaling, while the whole appearance of the primaries is more suffused and less contrasty; beneath, the strong black bar, on the secondaries, connecting the discal spot with the wing base is only faintly indicated on some males of *richardsoni*.

A single specimen has been in the Barnes Collection for many years. Mr. Engelhardt captured another specimen, which he gave to the authors.

Type localities and number and sexes of types: Holotype ♀, Bullion Peak, Hall Valley, Colo., 13,000 ft., 30-VIII-22 (George P. Engelhardt); Paratype, ♀, "Colo. Bruce", probably taken by Barnes and Bruce on Bullion Peak.

ANARTA LAGGANATA sp. nov.

Head and palpi dull smoky-brown with an admixture of some white. Thorax dull smoky-brown. Abdomen dull smoky-brown paler toward the tip. Primaries: dull smoky-brown; basal line obsolete; t. a. line obsolescent, visible as a slightly darker, outwardly oblique shade; orbicular practically obsolete; claviform obsolete; reniform obsolescent, visible as a darker blotch at the end of the cell; t. p. line not well defined, outwardly oblique from costa to about vein 6, slightly excurved around cell, thence nearly parallel with the outer margin to the inner edge of the wing; terminal line obsolescent; fringe concolorous with the primary. Secondaries: disc white; a broad smoky-brown terminal band; considerable smoky-brown scaling on the basal area and along the inner margin; some smoky-brown scaling on the veins; discal dot, distinct, large, erect, elongate, blackish-brown; fringe smoky-brown at the extreme base, else white. Beneath: white; the primary marked by smoky-brown along the costal and outer margins and with some smoky-brown scattered suffusion over the disc, reniform showing through, marked by blackish-brown, fringe as on upper side; the secondary white with scattered smoky-brown suffusion mainly on the basal area, discal spot, terminal band, and fringe as on upper side.

Expanse: ♀, 32 mm.; ♂, 28 mm.

The present species is tentatively placed in the genus *Anarta* because the eyes are somewhat constricted, but they are not as much constricted as in many species of *Anarta*, being less than twice as long as wide. It is not at all unlikely that further specimens may show that the insect is more closely related to some species of *Lasiestra*,

the primaries being not dissimilar to a small specimen of *L. uniformis*. In the genus *Anarta* its closest ally appears to be *quadrilunata* which has rather similar maculation, and similar eyes, but is quite distinct. The type was submitted to Dr. McDunnough to see if he could match it with other material, but the specimen he submitted is not a very good match, being somewhat darker, especially on the secondaries, when normally one would expect the secondaries of the male sex to be somewhat paler. This specimen, also, is not in the best of condition, the fringes rather ragged, and the antennae missing. Otherwise the authors would have made the male the holotype.

Type localities and number and sexes of types: Holotype ♀, Laggan, Alta., above 7000 ft., 23 July 1889; Allotype ♂, Laggan, Alta., Slate Mt. above timber line, about 6500 ft., 8 Aug. 1900, (F. H. W. Dod).

Types in: Barnes Collection; Allotype ♂, Canadian National Collection.

LASIONYCTA MARLOFFI Dyar.

1922, Dyar, Ins. Insc. Menst., XI, 167, *Anytus*.

This insect, described as an *Anytus* is a *Lasionycta* close to *L. perplexa* Sm. and *L. alberta* B. & Benj., but presumably distinct on minor genitalic characters as shown by topotypical specimens.³

SCOTOGRAMMA Smith.

Type *S. submarina* Grt.

1887, Sm., Proc. U. S. N. M., X, 469, *submarina* Grt. designated type.

1895, Grt., Abh. Nat Ver. Bremen, XIV, 74, *phoca* Mösch, designated type.

1905, Hamp., Cat. Lep. Phal. B. M., V, 24, *submarina* Grt. designated type.

Proboscis fully developed; palpi oblique, the 2nd joint fringed with hair in front, the 3rd moderate, porrect; frons rounded out, roughened, with or without a slight vertical ridge, sometimes nearly heart-shaped due to the vertical ridge becoming heavy and a slight indentation being produced at its base; a corneous plate below; eyes moderate to large, rounded; antennae of male ciliated; head and thorax clothed with hair and scales, pro- and metathorax with spreading crests; abdomen with a dorsal series of crests which are weak and easily lost and weak lateral fringes of hair. Fore wing with veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with veins 3, 4, from angle of

³Thanks are due to Messrs. Doll and Marloff for furnishing topotypes of *marloffi*; and to Mr. Carl Heinrich who made genitalic slides while the junior author examined types in the National Museum.

cell; 5 obsolete from near middle of discocellulars; 6, 7 from upper angle; 8 anastomosing with cell near base only.

Scotogramma is a very "weak" genus, containing forms possibly of separate ancestry. The above description is based largely upon Hampson but with corrections, mainly in the nature of the front.

S. submarina, the genotype, possesses a front only slightly rounded out, about one-fourth the width of the eye, roughened, with a corneous plate below it. This is absolutely the same as *densa* and *megæra* referred by Hampson to *Polia* (which has a smooth shining front).

S. orida shows a trace of a lump in the center of the frons indicating its close relationship to *Craterestra*; *S. defessa* with a similar genitalia does not possess the lump; while the front of *S. gatei* shows a raised inverted V in the center, below which the frons is very strongly excised, with a strong corneous plate below it.

S. fervida shows an *indentation* on the front making a nearly heart-shaped prominence.

S. trifolii and allies including *S. morana* show the barest trace of a *raised* central ridge, strongly excised below and produced to the corneous plate. The front *S. trifolii* is variable, depending on the strength of the central ridge. When this ridge is strong an almost heart-shaped prominence is produced, allying this group of *Scotogramma* to *Cardepiæ*.

S. francisca, also must be placed within *Scotogramma* rather than *Polia* (Hamp.) possessing the front rounded out about one-fourth the width of the eye and very rough, excised to a corneous plate below. *Stretchii* probably is its only ally.

The species belonging to this genus have been so scattered and generally misidentified; and some are so closely allied that a revisional paper is necessary. Pending this paper, which the authors hope to soon complete, the following new species and forms of *Scotogramma* are published in order that the names may be available.

SCOTOGRAMMA FERVIDA race PROXIMA nov.

Maculation as in *S. fervida*, paler, the deep brownish or reddish ground color of *S. fervida* being replaced by brownish-gray.

Genitalia: identical with *S. fervida*.

Besides the types there are a pair of specimens from Colorado (Bruce) in the Barnes Collection which the authors are inclined to place here.

Type localities and number and sexes of types: Holotype ♂, Vineyard, Utah, 6 June 1918; Allotype ♀, Eureka, Utah, 9 May 1910; 5 ♂, 9 ♀ Paratypes from Stockton, Vineyard and Eureka, Utah, various dates April, May, June, August, (Tom Spalding); 1 ♀ Paratype, Beaver Valley, Utah, Aug.

SCOTOGRAMMA HARNARDI sp. nov.

Head and thorax clothed with hair, flattened hair, and bifurcate narrow hair-like scales only, dull rufous-brown with a sprinkling of black. Primaries: similar, all of the markings obscured; the reniform area slightly darkened, marking the place where the actual spot should be; the s. t. line only marked by the terminal area being very slightly paler; fringe pale ochreous interlined with darker. Secondaries: almost uniformly dark and closely matching the primaries, the veins slightly darker and the basal area slightly lighter; fringe, as on primaries.

Beneath almost the same color as above, the secondaries slightly paler basally, both wings with a slightly paler outer margin, fringes as above.

Expanse: about 33 mm.

Genitalia: Similar to *S. densa* except in details of shape; clavus pointed, heavily armed with minute spines and sensory hairs, juxta only slightly armed with minute teeth on the caudo-ventral end.

Named in honor of Prof. R. W. Harned, Entomologist, State of Mississippi, whose assistance and kindness in many ways the authors wish to acknowledge.

Type locality: So. Utah (Poling).

Number and sex of types: Holotype ♂; 1 ♂ Paratype.

SCOTOGRAMMA ADDENDA sp. nov.

Ground color dull oliveaceous gray; basal line from costa to vein 1, geminate, obscured; t. a. line double on costa, the space between of nearly the same shade as the ground color, in cell as a slight outward W-mark, strongly bent outward in claviform area, inwardly produced to a point on vein 1, outwardly produced below and then slightly inwardly oblique to inner margin but not forming a very definite V; orbicular and claviform absent; reniform poorly defined, lost in a suffusion of median shade line which runs thru it from costa to inner margin; t. p. line dark, from costa to inner margin, produced to points on the veins, rounded out to about vein 4, thence incurved; s. t. line a barely discernible shade. A terminal series of small dots between the veins; fringe not checkered and with a double interline. Secondaries: dark, paler basally; veins darker; medial line almost lost in the dusky outer area; fringe pale, interlined with a heavy fuscous line. Beneath: discal spot prominent on the primary, followed by a prominent extra discal line and darker subterminal shade, the extreme terminal area but slightly lighter; the secondaries with the discal dot minute, practically obsolete; a medial shade line, forming with the extra discal line of the primaries, a common line; followed by terminal gray shading.

The present form while closely approaching *S. submarina* is unique in possessing longer spines to the hind tibiae at least; these spines, especially terminally, about as long as the width of the joints. Unfortunately no fore tibiae

are present in the single specimen before the authors. The eyes are heavily lashed behind, which with the narrower and longer wings shows a tendency in the direction of those other forms placed by Smith in *Scotogramma*, but now placed in *Lasiestra* and *Lasionycta*.

Expanse: about 35 mm. (Slightly longer than *S. submarina* but appearing much longer due to the narrower wings.)

Genitalia: essentially of the same pattern and structure of *S. densa* but differing from all species of the group in being much larger; so much larger that no microscope is necessary to see that difference; also there are differences in the uncus, juxta, clavus and claspers.

Type locality: "Colo." (Bruce).

Type: Holotype ♂, unique.

SCOTOGRAMMA OREGONICA Grt.

1881, Grt., Can. Ent., XIII, 239, *trifolii* var., *Mamestra*.

"Under this name I register Oregon specimens which appear to belong to *Trifolii*, but differ by the concolorous fore wings, wanting the dark dashes to the subterminal line which has no M-mark, or but a faint one. The hind wings have a faintly yellowish tone. The claviform is reduced and rounded. The dark reniform entirely contrasts. Otherwise I see no differences and we have to do probably with a geographical variety. Kansas specimens are somewhat intermediary. Five specimens of the variety are before me."

The original description of *oregonica* is quoted above. Considerable confusion exists in regard to the use of the name. Apparently Grote had two species or forms confused under this name, labeling one specimen of each "Type". One of these types is now in the British Museum, and is a female. The other is in the Neumoegen Collection, and is a male. No definite fixation of type seems to have been made, and as it appears the privilege of a subsequent worker to select a lectotype from a mixed series, the male type in the Neumoegen Collection is hereby designated the lectotype for the reason that females in this group are most easily placed by matching to the corresponding males.

Morana Sm. is closely allied, with the markings slightly more intensified on a paler ground.

Obesula Sm. and *ortruda* Sm. fall into the same group of *Scotogramma*, rather than into *Polia*.

This arrangement of names leaves the species common in Alberta nameless.

SCOTOGRAMMA ALTA sp. nov.

Superficially differs from *oregonica* in the almost complete lack of rufous on the primaries, being grey with a slight luteous tinge. The maculation is much more intensified. On the under side of the secondaries the discal spot is nearly a clean round dot instead of a triangular mark. The differences in color and brighter maculation are conspicuous when a series of both species are examined.

Type localities and number and sexes of types: Holotype ♂, 12 June 1921; Allotype ♀, 10 June 1921; both Nordegg, Alta., (J. McDunnough); 34 ♂, 1 ♀, Paratypes, Nordegg and Pochontas, Alta., (J. McDunnough and K. Bowman).

SCOTOGRAMMA SUBALBIDA sp. nov.

Not dissimilar to typical *oregonica*, smaller, the under side conspicuously paler, almost whitish.

The male genitalia lack the ordinary spine and bulb in the penis, but are armed with a plate of serrate teeth instead.

Type locality: Whitehorse, Y. T., (Alaska).

Number and sexes of types: Holotype ♂, "6.4./16", unique.

SCOTOGRAMMA CASTRAE form ULTRA nov.

The types (♂ ♀) of *castrae* correspond to the *albifusa* form of *trifolii* in the possession of contrasting maculation and a pale area from the costa thru the orbicular to the t. p. line.

The present form is much less contrasty, lacking the median pale area, presenting a uniform appearance, its habitus at first suggesting a distinct species.

Type locality: Jemez Springs, N. Mex.

Number and sexes of types: Holotype ♂, 24-31 July; Allotype ♀, 8-15 July; 1 ♂ Paratype, 24-31 July; 1 ♀ Paratype, 8-15 July.

POLIA PARVULA H.-S.

1868, H.-S., Corresp.-Blatt. zool.-min. Ver. Regensb., p. 118, *Mamestra*.

1905, Hamp., Cat. Lep. Phal. B. M., V, 63, pl. LXXX, f. 4, *Polia* (*Haderonia*).

distributa Möschl.

1886, Möschl., Abh. Senck. Ges., XIV, 46, *Mamestra*.

Four specimens received from Fort Lauderdale, Fla., through the kindness of Mr. D. M. Bates, agree with Hampson's characterization of the species and match the series in the National Museum. The name should be placed on North American lists.

POLIA SERENA Schiff.

- 1776, Schiff., Wien. Verz., p. 84, *Noctua*.
 1905, Hamp., Cat. Lep. Phal. B. M., V, 170, *Polia* (...).

repentina Morr.

- 1875, Morr., Proc. Bost. Soc. Nat. Hist., XVIII, 118, *Mamestra*.
 1875, Grt., Check List Noct., p. 8, No. 246, unident., *Mamestra*.
 1881, Grt., Can. Ent., XIII, 130, ignot., *Mamestra*.
 1882, B'klyn Ent. Soc., Check List Macro-Lepid., p. 27, No. 1576, *Mamestra*.
 1882, Grt., New Check List N. A. Moths, p. 27, No. 384, *Mamestra*.
 1890, Grt., Rev. Check List Noct., p. 13, No. 389, *Mamestra*.
 1891, Sm., Proc. U. S. N. M., XIV, 242, (exotic?), *Mamestra*.
 1891, Sm., List Lepid., p. 41, No. 1920, *Mamestra*.
 1893, Sm., Bull. U. S. N. M., XLIV, 123, (exotic?), *Mamestra*.
 1900, Sm., 1899, Ins. N. J., p. 412, *Mamestra*.
 1903, Dyar, Bull. U. S. N. M., LII, 153, No. 1818, *Mamestra*.
 1903, Sm., Check List, p. 37, No. 2026, *Mamestra*.
 1905, Hamp., Cat. Lep. Phal. B. M., V, 33, ignot., ?*Scotogramma*.
 1910, Sm., 1909, Ins. N. J., p. 457, *Mamestra*.
 1917, B. & McD., Check List, p. 49, No. 1623, *Scotogramma*.

The type is, almost undoubtedly, a specimen labeled *Mamestra repentina* Morr., in the Julius E. Meyer Collection purchased by the Tring Museum from the Kny-Scheerer Company.

Dr. Karl Jordan has been kind enough to examine the specimen, reports in one letter that it is the "common European *Polia serena*", and states in another letter, "I am sending a specimen of *Polia serena* which agrees fairly closely with the type of *repentina*. In the Meyer Collection there is a ♂ labeled *Mamestra serena* Europa; this specimen evidently came from the same source as the type of *repentina*, the coloring and style of setting being the same. They are, probably, Austrian specimens, like the one I am sending. We have a few single specimens from various places in the Alps which agree more or less with *repentina*."

HELIOPHOBUS Bdv.

- Type *H. saponaria* Esp.
 1829, Bdv., Ind. Method., I, 69, lists *saponaria* (*typica* Hbn., *calcatrippæ*), *popularis* (*lolii*, *graminis*), *leucophæa* (*fulminca*, *vestigatis*), var. *hirta* Hbn. nec Dup., *lichenca*, *argillaceago*, ?*neurodes*.
 1829, Dup., Hist. Nat. Lep., VII, (2), 71, type designated *saponaria*.
 1840, West., Gen. Syn., p. 95, type designated *popularis*.
 1852, Gn., Spec. Gen., V, Noct. I, 168; p. 170 type designated *popularis*.

Neuria Gn.

Type *N. saponaria* Esp.

1841, Gn., Ann. Ent. Soc. Fr., (1841), p. 241, *grammiptera* (*cancellata*), *saponaria*.

1852, Gn., Spec. Gén., V, Noct., I, 166, *saponaria* (*calcatrippa*, *typica* Hbn. *marginosa*), *dentigera*.

1905, Hamp., Cat. Lep. Phal. B. M., V, 208, type designated *reticulata* (presumably for synonym *saponaria*).

1916, McD., Ent. News, XXVII, 393, *Neuria* Gn. "may be used" in place of *Hadena* Schrank [partim. nec fixation type *cucubali* Schiff. by Grote, 1895, Ent. Rec., VI, 78] as used by Hampson.

Dargida Wlk.

Type *D. graminivora* Wlk. ("lapsus calami" for *graminivora*).

1856, Wlk., Cat. Lep. Het. B. M., IX, 201 *grammivora* ("lapsus calami" for *graminivora*) sole species and therefore type.

1905, Hamp., Cat. Lep. Phal. B. M., V, 208, type designated *graminivora*.

Eupsephoactes Grt.

Type *E. procinctus* Grt.

1873, Grt., Bull. Buff. Soc. N. S., I, 138, *procinctus* sole species and therefore type.

1874, Grt., Bull. Buff. Soc. N. S., II, 17, type designated *procinctus*.

1905, Hamp., Cat. Lep. Phal. B. M., V, 208, *Eupsephoactes* (!) in err., type designated *procincta*.

Duponchel's fixation of *saponaria* (according to European authorities a synonym of *reticulata*) as type of *Heliophobus* Bdv., makes it necessary to use this generic name in place of *Hadena* Schrank (partim.) used by Hampson (1905) and *Neuria* Gn. used by McDunnough (1916).

HELIOPHOBUS GRAMINIVORA Wlk.

1890, Butler, Trans. Ent. Soc. Lond., (1890), p. 672. *grammivora* lapsus calami, *graminivora*, *Dargida*.

1905, Hamp., Cat. Lep. Phal. B. M., V, 210, pl. LXXXIV, f. 10, *Hadena*.

‡*grammivora* Wlk. (*lapsus calami*).

1856, Wlk., Cat. Lep. Het. B. M., IX, 202, *Dargida*.

1889, Druce, Biol. Centr.-Amer., Het., I, 270, *Dargida*.

Two specimens from Hereford, Ariz. (Biederman) agree with the series of *graminivora* in the U. S. National Museum (vide Schaus); and match Hampson's figure.

CARDEPIA FLORIDA Sm.

- 1900, Sm., Proc. U. S. N. M., XXII, 465, *Mamestra*.
 1902, Dyar, Bull. U. S. N. M., LII, 156, No. 1869, *Mamestra*.
 1905, Hamp., Cat. Lep. Phal. B. M., V, 15, pl. LXXXVI, f. 1, *Dicestra*.
 1917, B. & McD., Check List, p. 48, No. 1609, *Dicestra*.

Examination of the unique ♂ type, in the National Museum, from Biscayne Bay, Florida (Mrs. Slosson) showed an insect structurally better placed in *Cardepi*a than in *Dicestra*.

XYLOMYGES PERLUBENS Grt.

- 1881, Grt., Can. Ent., XIII, 132, *Xylomyges* (!).
 1892, Sm., Proc. U. S. N. M., XV, 72, *Xylomyges* (!).
 1893, Sm., Bull. U. S. N. M., XLIV, 234, *Xylomyges* (!).
 1894, Dyar, Can. Ent., XXVI, 67, (biol.), *Xylomyges* (!).
 1895, Grt., Abh. Nat. Ver. Bremen, XIV, 98, *Xylomyges* (!).
 1903, Dyar, Bull. U. S. N. M., LII, 158, No. 1896, *Xylomyges* (!).
 1903, Holland, Moth Book, p. 197, pl. XXIV, f. 21, *Xylomyges* (!).
 1905, Hamp., Cat. Lep. Phal. B. M., V, 397, pl. LXXXIX, f. 19, *Xylomania*.
 1905, Dyar, in Hamp., Cat. Lep. Phal. B. M., V, 397, (larva), *Xylomania*.
 1911, Sm., Jour. N. Y. Ent. Soc., XIX, 140 (= ♂ *rubrica*), (*partim.*), *Xylomyges* (!).

subapicalis Sm.

- 1887, Sm., Proc. U. S. N. M., X, 462, *rubrica* var., *Mamestra*.
 1892, Sm., Proc. U. S. N. M., XV, 73; 74; pl. III, f. 7 ♂ harpe, *perlubens*, *Xylomyges* (!).
 1893, Sm., Bull. U. S. N. M., XLIV, 234, *perlubens*, *Xylomyges* (!).
 1895, Grt., Abh. Nat. Ver. Bremen, XIV, 98, *perlubens*, *Xylomyges* (!).
 1903, Dyar, Bull. U. S. N. M., LII, 158, No. 1896s., *perlubens*, *Xylomyges* (!).
 1903, Holland, Moth Book, p. 197, *perlubens*, *Xylomyges* (!).
 1905, Hamp., Cat. Lep. Phal. B. M., V, 397, *perlubens*, *Xylomania*.
 1911, Sm., Jour. N. Y. Ent. Soc., XIX, 140, an sp. dist., *Xylomyges* (!).
 1913, B. & McD., Contr. N. H. Lep. N. A., II, (1), 20, pl. IX, f. 16, an sp. dist.?, *Xylomania*.
 1917, B. & McD., Check List, p. 53, No. 1891s., *perlubens*, *Xylomyges*.

The synonymy given in the Barnes and McDunnough Check List (1917) was derived from specimens compared with the types.

The male antennae are more heavily serrate than in *rubrica*, and the valve of the male genitalia shorter, the clasper longer, as shown in Smith's figure (1892, as *subapicalis*) which is fairly accurate. The

figure of the valve of *rubrica* was evidently drawn from a more ventral aspect, and while essentially correct, conveys an erroneous impression. Superficially this species may be separated from that form of *rubrica* (*rubricoides* nov.), with which it has been frequently confused, by the rounded orbicular in the present species versus a decidedly elongated oblique orbicular in the *rubrica* forms. It cannot be told by size, being closely paralleled by *rubricoides*.

Specimens are in the Barnes Collection from B. C., Vanc., Wash., Calif., Utah, and Colorado.

XYLOMYGES RUBRICA Harv.

- 1878, Harv., Can. Ent., X, 58, *Graphiphora*.
 1882, Grt., New Check List, p. 31, *Xylomyges*(!).
 1887, Sm., Proc. U. S. N. M., X, 462, *Mamestra*.
 1892, Sm., Proc. U. S. N. M., XV, 73, pl. III, f. 6 ♂ harpe, *Xylomyges*(!).
 1893, Sm., Bull. U. S. N. M., XLIV, 234, *Xylomyges*(!).
 1895, Grt., Abh. Nat. Ver. Bremen, XIV, 98, *Xylomyges*(!).
 1903, Dyar, Bull. U. S. N. M., LII, 158, No. 1895, *Xylomyges*(!).
 1905, Hamp., Cat. Lep. Phal. B. M., V, 393, pl. LXXXIX, f. 14, *Xylomania*.
 1911, Sm., Jour. N. Y. Ent. Soc., XIX, 140, *Xylomyges*(!).

‡*perlubens* Auct.

- 1911, Sm., Jour. N. Y. Ent. Soc., XIX, 140, (partim.), *Xylomyges*(!).

race RUBRICOIDES nov.

‡*perlubens* Auct.

- 1911, Sm., Jour. N. Y. Ent. Soc., XIV, 140, (partim.), *Xylomyges*(!).

race MUSTELINA Sm.

- 1911, Sm., Jour. N. Y. Ent. Soc., XIX, 141, *Xylomyges*(!).
 1913, B. & McD., Contr. N. H. Lep. N. A., II, (1), 20, pl. IX, f. 15, *Xylomania* (*Xylomyges*(!)).

race PULCHELLA Sm.

- 1894, Sm., Trans. Am. Ent. Soc., XXI, 81, pl. V, f. 2, *Xylomyges*(!).
 1894?, Danby & Green, Bull. N. H. Soc. B. C., (1893), pp. 17-18, pl. I, *Xylomyges*(!).
 1903, Dyar, Bull. U. S. N. M., LII, 158, No. 1897, *Xylomyges*(!).
 1903, Holland, Moth Book, p. 197, pl. XXIV, f. 21, *Xylomyges*(!).
 1905, Hamp., Cat. Lep. Phal. B. M., V, 399, pl. LXXXIX, f. 20, *Xylomania*.

1922, Caudell, Ins. Insc. Menst., X, 112, (authors D. & G.), *Xylomiges* (!).

1923, B. & Benj., Ins. Insc. Menst., XI, 130, (author Sm.), *Xylomiges* (!).

The antennae and genitalia of all of the above forms are identical.

There is a slight variation in the breadth of the tip of the uncus but this appears to be individual. The presence or absence of the sub-apical blackish shade is sexual, only an occasional male possessing it. The shape of the orbicular can be used to sort this species from *perlubensis* as noted under that name. At first it would seem that *pulchella* must be a distinct species. The Barnes Collection possesses seven males, eleven females, of typical *pulchella* from B. C., Vanc., Calif. and Alta.; but two males and a female from Vancouver, a male from Wellington, B. C., and another from Okanagan Falls, B. C., have the basal area darkened, altho not black as in *pulchella*, being intermediate to *rubrica*.

Mustelina is represented in the Barnes Collection by two male, two female, paratypes; a total of ten males, two females, from Wash., Calif. and Colo. It is the reverse of *pulchella*, in the male appearing almost evenly uncolorous, typically without trace of the dark basal and subterminal areas.

According to notes by Dr. McDunnough, the type of *rubrica*, altho stained, apparently represents an intermediate form which is variable in color and maculation; but is, typically, contrastingly marked, altho varying from forms close to typical *pulchella* to smooth forms indistinguishable from typical *mustelina*. The Barnes Collection contains thirty-six males, twenty-one females, from B. C., Vanc., Ore., and Calif.

Rubricoides race nov., is, apparently, the main cause of the existing confusion between *perlubensis* and *rubrica*. It is the form usually found in Colorado and Utah. It is usually larger, heavier, and paler than *rubrica* with more of a tendency for the transverse maculation to be obsolete.

Expanse: 33-40 mm.; 33 mm. being a runt from Utah, the average specimen measuring 40 mm.

This form had, at some prior date, been sorted as a new species in the Barnes Collection.

Type localities and number and sexes of types: Holotype ♂, Glenwood Springs, Colo., 1-7 May; Allotype ♀, id., no date; 17 ♂ 2 ♀ Paratypes, id., various dates Apr., May, June; 1 ♀ Paratype, Colo. (Bruce); 5 ♂ 1 ♀ Paratypes, Vineyard, Utah, April and May; 1 ♂ Paratype, Eureka, Utah, 29 May; 2 ♂ Paratypes, Provo, Utah, 18 April.

XYLOMYGES PATALIS RACE FLETCHERI Grt.

1888, Grt., Can. Ent., XX, 130, *Xylomyges* (!).

1892, Sm., Proc. U. S. N. M., XV, 76, *patalis*, *Xylomyges* (!).

Smith sunk *fletcheri* as a synonym of *patalis* (1892) and it has remained unquestioned in the synonymy.

The type came from Vancouver, (Dr. Fletcher) but apparently is not in the British, U. S. National, or Canadian National Museums.

Presumably the name is well worthy of retention as a race. The Barnes Collection contains three males, five females, from B. C., Vanc., Wash., and Alta. These are much more strongly marked than any specimens in a long series from California before the authors, one of which has been compared with the type of *patalis* by Dr. McDunnough. Sorted to sexes, the secondaries of the more northern race, *fletcheri*, are more heavily suffused with fuscous than those of the more southern race, *patalis*. Female *patalis* is similar to male *fletcheri* averaging somewhat darker.

PERIGRAPHA PRÆSES FORM STIGMATA NOV.

1913, B. & McD., Contr. Nat. Hist. Lep. N. A., II, (1), 18, pl. VIII, ff. 1 & 3, *præses*, *Perigrapha* (*Graphiphora*).

Similar to typical *præses*, the ground color almost black; but differing by having a contrasting ochreous filled orbicular, reniform outlined by ochreous, and an ochreous terminal space.

This insect has stood as an unnamed form of *præses* in the Barnes Collection for many years. It has been illustrated as quoted above. The specimen used for figure 1 now being made the holotype of *stigmata*.

Type localities and number and sexes of types: Holotype ♂, Duncans, Vancouver Is., 19 March 1911, (Hanham); Allotype ♀, Duncans, Vancouver Is., 1-7 Sept., (Hanham); 16 ♂ Paratype as follows: Duncans, Vancouver Is., various March dates, (Hanham), (13); id., Wellington, B. C., "3. 4. 03", (2); Quamichan Lake, Vancouver Is., 23 March 08, (1); 1 ♀ Paratype, Eldridge, Calif., 9 March (ex. Coll. J. Doll).

ORTHOSIA FERRIGERA Sm.

1894, Sm., Trans. Am. Ent. Soc., XXI, 78, *Graphiphora*.
strigatteria Hill.

1923, Hill, Bull. S. Calif. Acad. Sci., XXII, 17; p. 19, ♂, ♀; *Perigrapha*.

form PUNCTICOSTATA Dyar.

1921, Dyar, Ins. Insc. Menst., IX, 138, *Perigrapha*.

The authors have examined the types of *ferrigera* and *puncticostata* at the National Museum, and Mr. Hill's photograph of *strigatteria* appears excellent. All names are apparently conspecific, there being only one known species from Boreal America in the *Perigrapha-Orthosia* groups possessing the costal white spots.

The crest on the dorsum of the first abdominal segment is a very evanescent character; all fresh specimens of the various species appear to possess it and all rubbed specimens to lack it.

In general, California specimens are somewhat lighter in build with the markings somewhat less intensified than on Vancouver specimens, but intermediates occur; in fact hardly any two specimens are absolutely identical.

The name *puncticostata* may be used for the form with reduced or poorly defined maculation and no trace of dark scales on the veins of the primaries, the veins of the type of *ferrigera* being somewhat darkened.

ORTHOSIA MEDIOMACULA sp. nov.

♂: Antennae shortly bipectinate. Head, palpi, tegulae, patagia, thorax and abdomen ochreous; somewhat tinged with rufous and dulled by gray. Primaries: grayish-fawn color, very even and smooth in appearance, the costal margin slightly tinged with ochreous; basal line not present; t. a. faint, geminate, blended with the ground, mainly visible due to slightly lighter filling but even this obscure; appearing as a semicircle from costa to inner margin; claviform and orbicular absent; median shade black, strong, rather broad, waved, oblique outward from costa thru base of reniform to the lower end of the cell, thence inwardly oblique to inner margin; the only conspicuous marking on the insect; t. p. line similar to t. a. line, but somewhat more distinct, obliquely and outwardly rounded to vein 4, thence obliquely and inwardly rounded to the inner margin; reniform thin, upright, constricted centrally, outlined by pale; s. t. line indistinct, marked by faint dots; fringes slightly paler than the ground color with a faint ochreous cast. Secondaries: unicolorously fuscous with a darker discal mark and pinkish fringes. Beneath, grayish tinged with some ochreous and rufous, with an indistinct common line; and black discal marks, the discal marks on the secondaries distinct.

Genitalia: valve lobate, without the dorso-caudal prolongation common to most species of this group.

♀: Antennae very finely clothed with appressed cilia, with longer setae to the joints, which are bead-like, but not serrate. Head, palpi, tegulae and

thorax chestnut-brown. Abdomen fuscous tinged with brownish-rufous. Primaries: chestnut-brown in color, else similar to male. Secondaries similar to male.

Expanse: 32-34 mm.

Closely allied to *O. tenuimacula* B. & McD. with which it was confused in the Barnes Collection. The antennae, vestiture and type of maculation are similar, but *O. mediomacula* is considerably smaller and less heavy bodied; the palpi are considerably shorter; and the valve of the male genitalia is much less elongated, more lobate, and lacks the dorso-caudal prolongation present in *O. tenuimacula*.

Type locality: Paradise, Cochise Co., Ariz.

Number and sexes of types: Holotype ♂, 1-7 Oct.; Allotype ♀, no date.

ORTHOSEA NONGENERICA sp. nov.

♂: Antennae shortly bipectinate. Head, palpi, tegulae, patagia, thorax and abdomen ochreous, violaceous, or rufous. Primaries: ground color variable but concolorous with the thorax, in the holotype, violaceous; the costal margin slightly tinged with ochreous in some specimens; basal line not present; t. a. line faint, black, geminate, often blended with the ground; claviform and orbicular absent; median shade black, more or less strong, rather broad, waved, oblique outwardly from costa thru base of reniform to the lower end of the cell, thence inwardly oblique to inner margin; t. p. line similar to t. a. line, but somewhat more distinct, obliquely and outwardly rounded to vein 4, thence obliquely and inwardly rounded to the inner margin; reniform moderate, upright, constricted centrally, outlined by pale; s. t. line pale, nearly parallel to the outer margin, inwardly marked by a black shade on the costa and a row of black dots; fringe, ochreous basally, fuscous outwardly. Secondaries: unicolorously fuscous, with a slightly darker discal mark, and pinkish or ochreous-pink fringes. Beneath: greyish, tinged with some ochreous and rufous, with an indistinct common line, and more or less distinct discal marks.

♀: Antennae very finely clothed with appressed cilia with longer setae to the joints which are bead-like, but not serrate. Head, palpi, tegulae, thorax and ground color of the primaries chestnut-brown.

Expanse: 34-36 mm.

Closely allied to *O. tenuimacula* and *O. mediomacula*. From the former it is at once distinct by the difference in the valve of the male genitalia, in this respect, being like *mediomacula*, from which it differs by possessing a different shaped clasper. None of these species fit well into *Orthosia*. They all seem to lack the distinct crest to the tegulae, and in reality have overhanging cilia from in front of the eyes. According to Hampson's keys they would fall into *Scriptania* or

Strigania, with which they do not appear even closely allied. Considering the eyes not lashed they would fall to "*Monima*" (*Orthosia*) or to *Hyssia*, to which latter they are not unallied. The vestiture is mainly of fine hair-like scales so that the authors feared these species might have been described from Mexico in *Eriopygodes*. However, Mr. Schaus has kindly examined specimens of *mediomacula* and *nongenerica* and reported that there was nothing like them in the National Museum.

Type localities and number and sexes of types: Holotype ♂, High Rolls, N. Mex., Sept.; Allotype ♀, id., Sept.; 1 ♂ Paratype, id., Aug., (all from Mr. J. G. Bonniwell); also 2 ♂, 1 ♀, Paratypes labeled "N. Mex., VII, Bon." received from Mr. Jacob Doll for identification, probably "Bon." on the labels standing for Bonniwell, the specimens therefore presumably coming from High Rolls, N. Mex.

Types in: Barnes; Paratypes, Brooklyn and National Museums.

CUCULLIINAE

COPICUCULLIA HEINRICHI sp. nov.

Head dull grey, white, and black mixed, thorax similar, central area darkest, patagia paler; ground color of primaries dull grey powdered with black and mixed with some whitish; basal line obsolete; t. a. line black, single, not strong, outwardly produced to long points in cell and on vein 1; orbicular obsolete; reniform obsolescent, only visible as a slight darkening of the discocellulars; t. p. line black, single, not strongly marked except below vein 2, followed by a faint pale shade line excurved from costa to about vein 4, thence inwardly oblique to submedian fold, produced to long points on the veins, outwardly produced to a point above inner margin, heavily shaded with black between vein 2 and the submedian fold and connected to the t. a. line by a few black scales presumably representing the claviform; s. t. line obsolete; an anal black dash connecting vein 1 with the termen of vein 2; faint black dashes on the outer margin between veins 2-3, 3-4; fringe grey, obscurely interlined and marked with faint white spots at the ends of the veins. Secondaries white, only the veins and a faint terminal line with a few fuscous scales, fringe white with an obsolescent interline composed of a few fuscous scales. Beneath: primaries dull-grey, powdery; secondaries white with a slight powdering of fuscous scales along costal margin on veins, and as a faint terminal line; fringes as on upper side.

Expanse: about 39 mm.

Closely allied to *incresa* Smith, the male of which has similar white secondaries, but lighter in color, with the transverse markings more distinct and lacking the orbicular and reniform, with the anal

dash and the shading along the inner margin less heavy. Some specimens of *increta* show a tendency for the orbicular and reniform to become more or less indistinct but the t. p. line of that species, when visible, is scarcely produced to points on the veins, whereas the t. p. line of *heinrichi* is produced to longer points than in any described North American species. Messrs. Schaus and Heinrich have kindly compared the type with the National Museum Mexican Collection and inform the authors that the species is unrepresented.

Type locality: Mohave Co., Arizona.

Number and sexes of types: Holotype ♂, no date, unique.

SUPRALATHOSEA gen. nov.

Proboscis fully developed but not long; palpi obliquely porrect to just beyond the frons and fringed with long hair below; frons slightly roughened but without any processes or raised edges, rather flattened, clypeal corneous plate scarcely developed; antennae of male bipectinate from base to tip, the branches long; of female simple; head and thorax mainly clothed with scales; tegulae produced into a hood which may or may not be erected; tibiae fringed with rather long hair, unarmed; tarsi unarmed except for the usual spines; abdomen with a slight crest on basal segment only, rather smoothly scaled and without fringes of hair. Fore wing long and narrow, the apex somewhat produced, the termen obliquely curved; veins 3, 5 from near angle of cell; 6 from areole; 7 shortly stalked; 9 from 10 anastomosing with 7 + 8 to form the areole; 11 from cell. Hind wing with veins 3, 4 from angle of cell, 5 obsolescent from only slightly below middle of discocellulars; 6, 7 shortly stalked from upper angle; 8 anastomosing with the cell near base only. Discal dot on underside of hind wing distinct, small, unconnected to the base of the wing by any black scales. May be placed between *Copicucullia* and *Lathosea*, (see 1922, B. & Benj., Contr. N. H. Lep. N. A., V, (1), 28-29).

SUPRALATHOSEA BABOQUIVARIENSIS sp. nov.

♂. Head, thorax and abdomen dull grey, mixed with some black and white. Primaries: ground color dull grey more or less suffused and irrorated with white. All ordinary lines and spots more or less obsolescent, not easily distinguishable; fringe nearly concolorous, obsolescently interlined with whitish and checkered with black. Secondaries: nearly pure white; a faint discal dot; some fuscous scales scattered over the costal region, on the veins, and along outer margin which is also marked by black dots between the veins. Beneath: primaries dull whitish-grey, fringe as on upper side; secondaries and their fringes as on upper side but with the discal dots black, small, distinct, points.

♀. Similar to the male; darker; more or less suffused with black rather than white; the transverse maculation obsolescent but better marked than in

male; secondaries with more fuscous along costal and outer margins and on the veins. Beneath: correspondingly darker.

Expanse: 31-34 mm.

Mr. Schaus informs the authors that there is nothing like the present species in the National Museum from Mexico, and that it is unknown to him.

Type locality: Baboquivari Mts., Pima Co., Ariz. (O. C. Poling).

Number and sexes of types: Holotype ♂, 1-15 Aug.; Allotype ♀, 1-15 Oct.; 2 ♂ Paratypes, 1-15 and 15-30 July; all 1923.

LEUCOCHLÆNA Hamp.

Type *L. hispida* Geyer.

1906, Hamp., Cat. Lep. Phal. B. M., VI, 132, type designated *hispida*.

LEUCOCHLÆNA HIPPARIS Druce.

1887, Druce, Biol. Centr.-Am. Het., I, 272, pl. XXVI, f. 19, *Heliophobus*.
1906, Hamp., Cat. Lep. Phal. B. M., VI, 135, *Leucochlæna*.

A single specimen (♂) in the Barnes Collection from Douglas, Ariz., 15-23 May, agrees with Druce's figure, and with the series of *hipparis* in the National Museum. There seems no doubt regarding the authenticity of the locality label, so the species may be recorded on Boreal American lists.

LEPIPOLYS Gn.

Type *L. perscripta* Gn.

1852, Gn., Spec. Gén., VI, Noct., II, 173, *perscripta* sole species and there-type.

1906, Hampson, Cat. Lep. Phal. B. M., VI, 143, type designated *perscripta*.

Hampson is erroneous in the statement that the frons of *Lepipolys* is smooth. The type species, *L. perscripta*, apparently has a frons varying from roughened to a definite conical corneous prominence.

Guenée, in the original description, calls attention to the prominence, "J'appelle l'attention sur le front, qui représente un entonnoir très-évasé, ou plutôt un couvercle conique, . . .".

L. behrensi appears to possess merely a roughened frons; so that in the genus *Lepipolys* there is a gradual transition from those specimens of *perscripta* possessing a distinct frontal prominence thru specimens of the same species in which this prominence becomes reduced

to a small point or is lost in a general frontal roughness, to the roughened frons of *behrensi* which, in some specimens, is not conspicuously roughened. Some species now assigned to *Oncocnemis* possess a frons not much different from that of *behrensi*.

The character used by Hampson to separate *Lepipolys* from *Oncocnemis*; i. e., "tegulae produced to a slight dorsal ridge", is evanescent, some specimens of many species assigned to *Oncocnemis* could be placed by this character in *Lepipolys*, while many specimens of *perscripta* and *behrensi* might be assigned to *Oncocnemis*.

At the present time, bearing in mind the tuberculate or roughened frons, it seems inadvisable to sink *Lepipolys* to *Oncocnemis*. Additional work may show that *lepipoloides* McD. and some other species, especially those placed near the end of *Oncocnemis*, such as *dunbari* and *griscicollis* (= *gerdis*), fall into *Lepipolys*.

?ONCOCNEMIS POLIAFASCIES Dyar.

1911, Dyar, Proc. U. S. N. M., XXXVIII, 248, *Homococnemis*.

antonito Barnes, partim. (♀ nec ♂).

1907, Barnes, Can. Ent., XXXIX, 14, (partim.), *Mamestra*.

1915, B. & McD., Can. Ent., XLVII, 21, *antonito* ♀ nec ♂, nom. nov. *barbara*, ?*Leucocnemis*.

barbara B. & McD.

1915, B. & McD., Can. Ent., XLVII, 21 ?*Leucocnemis*.

The National Museum possesses the unique ♀ type of *poliafascies*. The Barnes Collection possesses the "type ♀" of *antonito* Barnes, renamed *barbara* by B. & McD.

The junior author saw the type of *poliafascies*, and recognizing it was probably conspecific with *barbara* requested a colored figure. This figure agrees well with *barbara* except for slightly less orange-yellow on the primaries of the type (♀) of *barbara*.

A single male specimen labeled "possibly Chiricahua Mts., Ariz." appears to be conspecific with the female type (*barbara*) but possesses considerable more orange-yellow on the primaries while the secondaries have the veins and outer half fuscous, the basal half pale. This specimen was submitted to the National Museum for comparison with the type of *poliafascies*, and Mr. Schaus states that it matches their type

but has more orange-yellow on the primaries. The peculiar broad flattened reniform is an almost unique character.

The lashes had been lost from the type of *barbara* which caused Barnes and McDunnough to tentatively place the insect in *Leucocnemis*. The thoracic vestiture is composed of broad scales mixed with some hair which precludes placement in *Homoncocnemis* (type *fortis*).

The frons is roughened as in *Lepipolys behrensi* and some species now assigned to *Oncocnemis* such as *griseicollis*. Tentatively *poliafascies* may be placed questionably in *Oncocnemis*, until additional material and study determines if a new genus is represented, or if it should be placed in *Lepipolys*.

ONCOCNEMIS CORUSCA Sm.

1899, Sm., Jour. N. Y. Ent. Soc., VII, 40, *Oncocnemis*.
ate Dyar.

1921, Dyar, Ins. Insc. Menst., IX, 41, *actura* s.sp., *Pseudanarta*.

The types are in the National Museum and are practically identical. The species is best referred to *Oncocnemis*. *Actura* is a true *Pseudanarta*.

ONCOCNEMIS MACKIEI sp. nov.

Primaries: dull grey tinged with some brownish; ordinary lines obsolescent or obsolete; t. a. marked by a small black oblique line on costa; t. p., when visible, outwardly oblique from costa, only slightly curved around cell, thence oblique to about the center of the inner margin; veins of subterminal-terminal spaces marked by black, interrupted in some specimens by an obsolescent whitish s. t. line; a basal black dash below cell, strong; making contact with an elongate, pale-filled claviform; which is usually faintly outlined by black scales; orbicular elongate, pale filled, with dusky center, outlined by black scales, making contact with reniform; which is short, broad, dusky centered, surrounded by whitish and sometimes faintly outlined by a few black scales; a thin pale line at base of fringe; which is interlined grey and white and appears nearly concolorous with the primaries. Secondaries: fuscous, paler basally, veins darker, a faint discal mark on the discocellulars; fringe white interlined with fuscous. Beneath: wings pale basally, with some scattered fuscous scales; outer and costal margins of primaries strongly tinged with fuscous; outer margins of secondaries with a fuscous band, veins somewhat darkened, rounded discal spots on all wings; fringes as on upper side.

Expanse: 31-34 mm.

Closely allied to *colorado* Sm. (*chandleri* Hamp., Grote partim., nec Grote) but a much smoother looking species, lacking the black shadings around the claviform, the blackish filling to the ordinary spots, and the generally patchy, black and white appearance, of *colorado*.

Two specimens have been standing for several years in the Barnes Collection as *colorado*; a third specimen was submitted by Mr. Mackie for identification; and a fourth, by Mr. Bowman.

Type locality: Edmonton, Alberta, (D. Mackie and K. Bowman).

Number and sexes of types: Holotype ♂, 20-VIII-17; Paratype ♂, 23-VIII-17; in Barnes Collection; Paratype ♂, 16-VIII-22; in Mackie Collection: Paratype ♂, 18 Aug. 1922, in Bowman Collection.

ONCOCNEMIS IBAPAHENSIS sp. nov.

Primaries: ground color whitish, heavily dusted with black and appearing pale grey; ordinary lines obsolete except the s. t. which is indicated by black and white sagitate dashes and a narrow black terminal line broken by the veins; basal dash black, short; claviform elongate but not narrow, pale filled, surrounded by a thin black line, a continuation of the basal dash faintly indicated thru its center; orbicular and reniform not prominent; the former elongate, grey filled, surrounded by white and black, making contact with reniform; which is indistinct, upright, short, broad, grey filled, faintly outlined by white; this white forming a distinct spot on the caudal end of the reniform and is continued as streaks on veins 3, 4, nearly to s. t. line; s. t. space somewhat less powdered with black than the remainder of the wing and hence appearing paler; fringe marked by a basal white line, then alternate grey and white lines. *Secondaries*: basal two-thirds whitish, tinged with pale yellowish-brown, the veins darker; discal spot faintly indicated, elongate; the outer third a black band; fringe yellowish-white at base, a fuscous interline, and pure white tips. *Beneath*: all wings with pale bases and wide black outer bands; primaries tinged with yellowish, with scattered black scales along costal margin and distad of the cell, with small black discal dots; secondaries with the basal portions decidedly yellow, a few scattered black scales along costal margins; fringes as on upper side.

Expanse: ♂, 29 mm.; ♀, 30 mm.

Closely allied to *chandleri* Grote (*poliochroa* Hamp.), smaller, paler in color, lacking all brownish tints on the primaries, more uniform in appearance; veins 3, 4, more marked by white; beneath lacking the discal spot on the hind wing, both wings more strongly yellow tinged.

The valves of the ♂ genitalia appear more lobate and lack the strong ridge along the dorsal margins which is present in *chandleri*.

The present species is probably local. *O. chandleri* has a wide distribution and is represented in the Barnes Collection from Utah, Colorado, Wyoming, California and Alberta.

Type locality: Trout Creek, Ibapah Mts., Utah (Tom Spalding).

Number and sexes of types: Holotype ♂, 21-IX-22; Allotype ♀, 11-IX-22.

ONCOCNEMIS UTAHENSIS sp. nov.

‡*extranea* B. & McD. (nec Sm.).

1912, B. & McD., Contrib. N. H. Lep. N. A., I, (4), 10, pl. III, f. 14, *Oncocnemis*.

Very closely allied to *extranea* in superficial appearance; but much paler in color, the primaries lacking strong brownish tints; an s. t. line often faintly indicated by white dots; somewhat smaller in size. The above mentioned plate, which is good, will serve to show the maculation.

Expanse: 30-31 mm.

The valve of the male genitalia is much narrower and less blunt caudally; and altho there appears to be considerable variation in both species, this character seems to hold. In addition, there is some difference in the corona.

Besides the types, there is a single specimen in the Barnes Collection from Stockton, Utah, (ex. Coll. J. Doll).

Type locality: Eureka, Utah (Tom Spalding).

Number and sexes of types: Holotype ♂, 19-VIII-11, (the specimen figured, as above listed); Allotype ♀, 22-VIII-11; 25 ♂, 13 ♀, Paratypes, various August and September dates.

ONCOCNEMIS SECTILIS Sm.

1894, Sm., Trans. Am. Ent. Soc., XXI, 86, pl. VI, f. 3, *Oxycnemis*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 222, pl. CXXVIII, f. 11, (type), ignot., ?*Leucocnemis*.

This species is closely related to *griseicollis* and may tentatively be placed in *Oncocnemis*.

ONCOCNEMIS SECTILOIDES B. & McD.

1913, B. & McD., Contr. N. H. Lep. N. A., II, (1), 28, pl. XIII, ff. 15 & 17, *Leucocnemis*.

subtilis B. & McD.

1913, B. & McD., Contr. N. H. Lep. N. A., II, (3), 114, pl. V, f. 13, *Leucocnemis*.

This is another species closely related to *griseicollis* and may tentatively be placed in *Oncocnemis*. It was first figured as *sectiloides* and contrasted to *sectilis*; but afterward described and figured as *subtilis*.

COPANARTA Grote.

Type *C. aurea* Grote.

1895, Grote, Abh. Nat. Ver. Bremen, XIV, 111, type designated *aurea*.

1910, Hampson, Cat. Lep. Phal. B. M., IX, 492, type designated *aurea*.

Apparently this genus is very closely allied to *Oncocnemis*. *O. corrusca* may eventually be placed in it; or the two genera may be united, as Smith placed them (1903, Jour. N. Y. Ent. Soc., XI, 10).

The eyes are lashed after the fashion of *Oncocnemis*; only a slight difference in the claws on the fore tibiae separating it. Hampson may have possessed poor material from which the lashes had been rubbed, as he placed *Copanarta* in the "Acronyctinæ" = Apatelinae.

Tentatively it seems best to hold the two genera distinct, placing *Copanarta* directly after *Oncocnemis* in the Cuculliinae.

COPANARTA NIGERRIMA Sm.

1903, Sm., Jour. N. Y. Ent. Soc., XI, 10, *Oncocnemis*.

1910, Hamp., Cat. Lep. Phal. B. M., IX, 493, *aurea* ab. 1, *Copanarta*.

1912, B. & McD., Contr. Nat. Hist. Lep. N. A., I, (4), 55, pl. XXVI, f. 6, "*Copanasta (Pseudanarta)*" (!).

1917, B. & McD., Check List, p. 74, No. 2865a, *aurea* race, *Copanarta*.

Appears to be a distinct species.

STYLOPODA Sm.

Type *S. cephalica* Sm.

1891, Sm., Trans. Am. Ent. Soc., XVIII, 131, *cephalica* sole species and therefore type.

STYLOPODA CEPHALICA Sm.

1891, Sm., Trans. Am. Ent. Soc., XVIII, 131, *Stylopoda*.

This species possesses small, somewhat ovate, heavily lashed eyes; and should be placed in the *Cuculliinae*.

The genus appears an offshoot of *Oncocnemis* or some similar ancestry and may be placed after *Copanarta* following *Oncocnemis*.

"*Oncocnemis*" *aterrima* Grote may fall into *Stylopoda*, or may be a *Pseudacontia*.

"*Stylopoda*" *anxia* Smith appears to be a *Pseudacontia*.

The authors are indebted to Messrs. Schaus and Heinrich for comparing a specimen with the type of *cephalica*.

COPIPANOLIS STYRACIS Gn.

—, Abbot, Ms. pl. CIII, —.

1852, Gn., Spec. Gén., V, Noct., I, 357, (larva); id., VII, III, 392, *Tæniocampa*.

1856, Wlk., Cat. Lep. Het. B. M., X, 430, *Tæniocampa*.

1893, Sm., Bull. U. S. N. M., XLIV, 206, ignot., *Tæniocampa*.

1895, Grt., Abh. Nat. Ver. Bremen, XIV, 91, *Graphiphora*.

1903, Dyar, Bull. U. S. N. M., V, 613, No. 2045, *Graphiphora*.

1905, Hamp., Cat. Lep. Phal. B. M., V, 613, unrecog., *Tæniocampa*.

1917, B. & McD., Check List, p. 54, No. 1914, *Orthosia*.

This species was described from a manuscript plate of Abbot; which Hampson (1905) states is in the Boston Society of Natural History. Guenée (1852) lists food plants, *Styrax Americana* (Noct. I), and *Styrax laevigatum* (Noct. III).

Plate No. 103 of the Abbot manuscript plates in the Boston Society figures both larva and adult of a *Copipanolis* form which agrees with Guenée's description, except that on this plate the food plant has been labeled *Styrax grandifolium*, very probably subsequent labeling; and there seems little doubt, in view of the fact that no plate in the British Museum appears to represent this insect, and no other plate could be found in Boston which agreed with Guenée's description, that this Boston plate was the one from which Guenée described the species. The adult figured is a female *Copipanolis* form, the primaries with greyish outer and inner areas, median area browner, the whole figure brown rather than grey. No specimens were available for direct comparison with the figure, and Mr. Cassino twice attempted to photograph the plate, but poor light rendered the photographs of little value. The figure does not appear to represent typical *cubilis*, but a form closely allied to *fasciata* which may prove to be a straight synonym.

Form *fasciata* occurs with form *cubilis* in Pennsylvania, New York, and Illinois. *Stigma* very probably represents a distinct subspecies or race. Eastern *cubilis* is very variable in maculation and

color, hardly any two specimens being absolutely identical as evidenced by a series of over fifty specimens before the authors mainly from New York, Pennsylvania and Massachusetts, mostly obtained thru the kindness of Messrs. Merrick, Doll, and Engelhardt.

Tentatively, it appears best to hold the names *cubilis*, *borealis*, *fasciata* and *stigma* as forms of a variable species which must take the name *styracis*.

GRAPTOLITHA CONTRA sp. nov.

Head and thorax purplish brown sprinkled with fuscous. Thoracic tuftings rich rufous-brown, conspicuously divided on the prothorax. Abdomen dull greyish-brown with conspicuous black dorsal tufts larger than in allied species. Primaries: ground color violaceous-grey tinged with rufous-brown, basal line obsolete; t. a. line black, double, more or less obsolescent, produced to long points in submedian fold and below vein 1; orbicular, claviform and reniform obsolete; t. p. line obsolescent thruout costo-radial region, only distinct as an inwardly oblique mark between vein 2 and the submedian fold where it is double with an included whitish space; this dash is followed by a distinct, contrasting, brownish-fuscous blotch, apparently not a part of the s. t. shade which is faintly indicated by rufous-brown shadings oblique inwardly from below the apex, subparallel to the outer margin below vein 4; a terminal line of dark brownish dots between the veins which are lined with a few fuscous scales; fringe violaceous-grey strongly marked by rufous-brown. Secondaries: whitish, powdered with fuscous; veins darker, marked by a few fuscous scales, discal spot a fuscous blotch. Beneath: whitish; primaries with some fuscous in cell and along veins, with a fuscous discal blotch, a few terminal small fuscous points which tend to be produced onto the fringe, checkering it; secondaries with a very few scattered fuscous scales mostly marking the veins, and tending to form a faint fuscous terminal line, a discal fuscous blotch; fringe white.

Expanse: 47 mm.

Apparently most closely allied to *gausapata* Grote but distinct from all described species by the dash formed by the t. p. line with its following dark blotch.

Type locality: Paradise, Cochise Co., Ariz.

Number and sexes of types: Holotype ♀, 1-7 May.

?CONISTRA ADULTA Gn.

—, Abbot, Ms. pl. —, —.

1852, Gn., Spec. Gén., VII, Noct., III, 393, (larva), *Cerastis*.

1860, Morris, Cat. Lep., p. 41, *Cerastis*.

This species was described from a manuscript plate of Abbot; was mentioned by Morris, 1860, but not 1862, (Syn. Cat.); and seems to have been omitted by subsequent authors.

From the description, it is probable that *adulta* is one of the *Glaea-Conistra* series.

A manuscript plate was found in the Boston Society, plate number 101, which figures a species similar to *C. viatica* Grt., but the larva is figured feeding on a weed and not on oak. Guenée gives the food plant, *Quercus nigra*. Probably another plate, possibly in the British Museum, is involved. Mr. S. E. Cassino twice attempted to photograph the Boston plate, but poor light rendered the photographs of little value.

Tentatively the name may be added to Boreal American lists as an unknown *Conistra*.

PARASTICHTIS LOTA Linn.

1758, Linn., Syst. Nat. ed. X, p. 513, *Phalana* (*Noctua*).

1905, Hamp., Cat. Lep. Phal. B. M., VI, 478, text. fig. 163, *Amathes* (*Agrochola*).

americana Morr.

1875, Morr., Proc. Ac. N. S. Phila., (1875), 434, *Orthosia*.

1893, Sm., Bull. U. S. N. M., XLIV, 219, *Orthosia*.

1906, Hamp., Cat. Lep. Phal. B. M., VI, 489, ignot., *Amathes* (*Dyschorista*).

1907, Sm., Trans. Am. Ent. Soc., XXXIII, 361, *lota*, *Orthosia*.

1910, Sm., Ins. N. J., (1909), 465, (European), *Orthosia*.

1917, B. & McD., Check List, p. 60, No. 2228, *Parastichtis*.

A colored figure of the type of *americana* agrees well with European specimens of *lota*. The type of *americana* is presumably a European specimen, an unscrupulous dealer, living in New Jersey, labeled and distributed many European specimens "West Hoboken", "N. J."

Dr. Smith appears to have been correct; and the name *americana* should be dropped from North American lists.

APATELINAE

Apatela Hbn., 1806, Tentamen, *aceris* sole species and therefore type, must take the place of *Acronicta* Ochs., 1816, Schmett. Europ., IV, 62, (usually spelt *Acronycta*) with type *leporina* designated by Curtis, 1826; Duponchel, 1829; Grote, 1873, 1874, 1875, 1876, 1895; Hampson, 1903, 1909; Guenée's fixation of *euphrasia*, 1852, "ultra vires": if the Tentamen is accepted.

As a result of *Apatela* replacing *Acronicta*, the name of the subfamily Acronyctinae of Hampson will change to Apatelinae.

PSEUDOHADENA VULNEREA Grt.

1883, Grt., Can. Ent., XV, 29, *Homohadena*.

1891, Sm., Proc. U. S. N. M., XIII, 398 & 402, ignot., *Homohadena*.

1893, Sm., Bull. U. S. N. M., XLIV, 157, *Homohadena*.

1903, Dyar, Bull. U. S. N. M., LII, 125, No. 1322, *Homohadena*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 552, pl. CXXXVII, f. 5, *Namangana* (*Namangana*).

1917, B. & McD., Check List, p. 69, No. 2628, *Namangana*.

Because of the possession of curved claw-like spines on the outer side of the fore tarsi, *vulnerca* Grt. cannot remain the genus *Namangana* Staud., and would fall to *Pseudohadena* Alph. (1889, Rom. Mem., V, 163, *armata* Alph. sole species and therefore genotype), in Hampson's key to the subfamily Acronyctinae (1908), Cat. Lep. Phal. B. M., VII). Specifically it would key to *P. sergia* Püng, possessing a similar black streak below the cell, and three obliquely placed subterminal black streaks; a decidedly peculiar combination of characters.

Ultimately a new genus may have to be erected for *vulnerca*, as all of the joints of the fore tarsi are armed with claw-like spines; but as the amount of armature is variable in other genera based on similar characters, (*Epia*, *Trichoclea*, etc.), *vulnerca* may tentatively be placed in *Pseudohadena*.

Grote's statement (1883), that the eyes are lashed is erroneous from the modern standpoint, the lashes being from behind the eyes.

Heretofore only recorded from Arizona, this species is in the Barnes Collection from Parowan Cañon and St. George, Utah; Esmeralda Co. and Clark Co., Nev.; Olancho, Inyo Co., and San Diego, Calif.; Santa Catalina Mts., Baboquivari Mts., Phoenix and Tucson, Ariz.

PERIGEA ALBIGERA Gu.

1852, Gn., Spec. Gén. V, Noct. I, 228, *Perigea*.

1908, Hamp., Cat. Lep. Phal. B. M., VII, 328, pl. CXVI, f. 14, *Perigea*⁴.

Two male specimens from Brownsville, Texas, and one male specimen from Chokoloskee, Florida, were sent to Mr. Schaus for determination, the palpi being peculiarly modified as in some other tropical species assigned to *Perigea* by Hampson.

The present species would fall between sections II and III of *Perigea* according to Hampson's tables (1908, Cat. Lep. Phal. B. M., VII; the antenna being ciliated, possessing longer bristles, the shaft not distorted; but the palpus has the basal joint large, the second joint very long, unfringed in front but fringed in back practically its entire length by long hair and hair-like scales, the third joint rather large and similarly fringed.

Mr. Schaus' note reads: "*Perigea albiger* ♂ Guen.- was described from 2 ♀ ♀. I have a ♀ (Aroe, Venez.) compared with type and agreeing with description. If Hampson had the true ♂ I am surprised he did not notice the palpi . . . Our specimens are from F. Guiana, Venezuela, Panama, Costa Rica, Guatemala, Cuba, Jamaica."

The Barnes Collection also possesses a female from Black Jack Springs, Texas (probably collected by Dr. Barnes).

PERIGEA THYATIROIDES sp. nov.

Male without peculiar secondary sexual characters. Antennae heavily ciliated. Head and palpi brown, mixed with some black. Collar black or black and brown. Patagia variable, pale ochreous to dark olivaceous. Prothoracic and metathoracic crests mainly black. Primaries: ground color variable, pale ochreous, brownish, or dark olivaceous; basal line single, black obscured from costa to submedian fold by a black patch connecting it to the t. a. line; t. a. line black, only distinct between the costal-basal black patch and a smaller triangular black patch on the inner margin, distally outlined by white, mesially outlined by violaceous-white between the black patches; orbicular large, round, concolorous, outlined by violaceous-white; reniform large, semicircular, black, with an inner crescent of ground color, the whole more or less outlined by violaceous-white; an oblique black blotch on costa, above cell, extending obliquely

⁴Hampson figures a male from Paraguay. It is surprising if he had the true male he did not notice the palpi which are quite conspicuous. He lists *intermittens* Wlk. and *berinda* Druce (partim.) in the synonymy. It now seems best to await further work on this group before listing these as synonyms.

to the reniform; a smaller black spot, and considerable violaceous-white along costa above the reniform; the disc of the wing more or less striated and irrorated; t. p. line single, black, excurved from costa to vein 4, thence inwardly oblique to inner margin, irregular, produced to small points on the veins; a black filling between the t. p. and s. t. lines, from costa to about vein 7, and interrupted on the costa by three violaceous-white points; a black blotch between the t. p. and s. t. lines on, above, and below vein 5; another black blotch below vein 2; s. t. line irregular, waved, violaceous-white; a terminal row of black crescents between the veins; fringe of ground color, checkered with black, and with a darker interline. Secondaries: fuscous, with a silken sheen; with obsolescent discal mark and median shade; marginal line paler, but with a blackish line at the base of the fringe; fringe pale luteous, interlined darker. Beneath: primaries, fuscous, with black orbicular and reniform, black t. p. line, a wide black band in s. t. space, and black dots between the veins, the whole wing strongly tinged with purple-rufous; fringe luteous, checkered and interlined by black: secondaries; similar, a black discal spot, median line, s. t. shade, and terminal row of dots between the veins, the whole strongly tinged with purple-rufous; fringe luteous, interlined with fuscous.

Expanse: 42-43 mm.

A peculiar species, at first sight suggesting a Thyatirid. According to Hampson's tables (Cat. Lep. Phal. B. M.) it would fall to *Paratrachea*; but its closest affinities seem to be in the genus *Perigea*, group *cupentia*. There it is temporarily placed, with the knowledge that subsequent study of minor tufting characters will probably eventually cause it to be placed differently. Specimens were sent to the National Museum in the belief that the species might have been described from tropical America, but Mr. Schaus reported "quite unknown to me".

The holotype has a pale ochreous-brown ground color.

Type locality: Hereford, Ariz. (Biederman).

Number and sexes of types: Holotype ♂, 9-VII-23; 3 ♂ Paratypes, no date.

PERIGEA THYATIROIDES form HABROSYNOIDES NOV.

Similar to the typical form but the ground color of the primaries dark olivaceous, so much darker that it scarcely appears conspecific.

Type localities and number and sexes of types: Holotype ♂, Hereford, Ariz., no date (Biederman); Allotype ♀, Baboquivari Mts., Pima Co., Ariz., 1-4 Aug. 1923, (O. C. Poling).

EREMOBIA HANHAMI SP. NOV.

‡*albertina* Auct.1913, B. & McD., Contr. N. H. Lep. N. A., II, (1), 28, pl. XIII, f. 4,
Eremobia.

Head and thorax white irrorated with black. Abdomen pale fuscous. Primaries: ground color white, suffused and irrorated with black and some brownish; basal line black, double, marked only on costa; a black basal dash below cell; t. a. line black, double, outwardly oblique from costa to orbicular, which intercepts the course of the line, inwardly oblique to median vein, thence as an excurved crescent to vein 1, below which it appears as an excurved crescent to inner margin; orbicular white, edged by a thin black line, with some fuscous or brownish-fuscous central scaling, variable in size, shape and color, rounded, usually somewhat oblique; claviform large, filled with fuscous or fuscous-brown, often narrowly edged with white, the whole outlined by black, nearly making contact with, and connected to, the t. p. line by a black shade bar; median shade present, sometimes obsolescent, blackish, diffuse, filling the space between the stigmata, interrupted by the reniform, thence obliquely incurved, closely parallel to the t. p. line, to the inner margin; reniform moderate, upright, kidney-shaped, white, with a fuscous or brownish central crescent the center of which is often luteous white, the whole faintly outlined by black scales except mesially where these scales are denser, taking the form of a distinct black crescent in the cell; space between the reniform and the t. p. line often marked by some luteous; t. p. line with a tendency to be double, its outer line more or less obsolete or obsolescent, its inner line strong, black, produced to strong points on the veins, excurved from costa to about vein 4, thence incurved; s. t. line appearing as a fuscous shade, outwardly marked by white, inwardly oblique from costa to vein 7, interrupted, somewhat waved, produced to a small W-mark on veins 4-3; veins more or less marked by black and white; tornus pale shade practically obsolete in the males, in some females more marked; a thin black terminal line, broken by the veins into dots; fringe blackish-grey checkered by white at the ends of the veins. Secondaries: whitish, heavily suffused with fuscous black and appearing greyish, the fuscous suffusion tending to form a subterminal band; veins more or less marked by black; a narrow black terminal line broken by the veins; fringe luteous at the base, with a fuscous interline and white tips. Beneath: pale, the primaries heavily suffused with fuscous and appearing grey, with the reniform, t. p. and s. t. lines marked as suffused shades; secondaries, more or less irrorated and suffused with fuscous, with a tendency for the development of a distinct discal spot, median and subterminal shades; fringes as on upper side.

Expanse: 34-36 mm.

This is the species figured by Barnes & McDunnough, 1913, as *albertina*, "a rather paler form than specimens from type locality".

Examination of the genitalia shows that typical *albertina* possesses a strong fold below the corona practically separating this structure and the tip of the valve from the remaining portion; the present species practically lacks this fold, only a vestige of it appearing along the ventral edge of the valve.

It is not impossible that *hanhami* will ultimately prove to be a race of *hillii* a single female specimen of the latter, a topotype, labeled "Lewis Co., N. Y., July 31, 78, W. W. Hill, Coll." being in the Barnes Collection. Judging from this single specimen, which agrees well with Hampson's figure, (1908, Cat. Lep. Phal. B. M., VII, 413, pl. CXVIII, f. 19), *hanhami* is a distinct species, heavier, larger, its wings longer and less trigonate, the contrasts between the maculation and the ground color not so pronounced, the under side much less heavily suffused with blackish.

Type locality: Duncans, Vancouver Island.

Number and sexes of types: Holotype ♂, 8 Sept., (the specimen figured, 1913, B. & McD., Contr. N. H. Lep. N. A. II, (1), pl. XIII, f. 4); Allotype ♀, 1-7 Oct.; 4 ♂ Paratypes, 20, 25 Aug., 8, 24 Sept., 8 ♀ Paratypes, 14 (2), 20 (3), 24 Sept., 1, 2 Oct.

Notes: collected by Mr. A. W. Hanham in whose honor the authors take pleasure in naming the species.

MEROBLEON Dyar.

Type Merobleon cosmion Dyar.

1924, Dyar, Ins. Insc. Menst., XII, 21, *cosmion* sole species and therefore type.

Proboscis aborted, minute; palpi obliquely upturned, the second joint short, rather broadly scaled, the third moderate; frons smooth, rather flattened; eyes large, round, naked; without overhanging cilia from the front, rear, or antennal base; antennae of male "minutely serrate, with small fascicles of hair", fide letter from Mr. William Schaus; of female simple, ciliated; thorax clothed chiefly with rough spatulate scales, with a slight admixture of spatulate hair and hair; prothorax with an obsolescent spreading crest, practically uncrested; metathorax with a large spreading crest occupying most of the dorsum of that segment; tibiae unarmed with spines or claws, fringed with long hair; tarsi unarmed with claws, the ordinary spines small; abdomen dorsally crested on first, fourth, fifth and sixth segments, the crests on the first and sixth segments small, on the fifth moderate, on the fourth large, no crest on the second or third segments; fore wing normal, not elongate, with the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from the accessory cell distad of the upper angle of the discal cell; 7 connate from the accessory cell with 8-9; 9 from 10 anastomosing with 8 to form the accessory cell (areole);

11 from discal cell; hind wing with veins 3, 4 from angle of cell; 6 obsolescent from about one-third below middle of discocellulars; 6, 7 shortly stalked from upper angle; 8 anastomosing with cell near base only. End of female abdomen with a dorsal and a ventral furcate plate.

The present genus would key to *Bryomoea* Staud., in Hampson, Cat. Lep. Phal. B. M.; from which it differs in possessing much shorter palpi; lack of crests on the second and terminal abdominal segments; heavier build; veins 6 and 7 of the hind wing stalked instead of connate; besides possessing an entirely different wing-shape and habitus; and other more or less minor features.

Hampson's diagnosis of *Acherdoa* Wlk. (= *Varina* Neum.) is erroneous in several respects; veins 6 and 7 of the secondaries are stalked, not connate; the tibiae are not conspicuously fringed with hair, but are rather densely clothed with scales with only a few hairs intermixed; and the metathorax possesses a very strong tuft. The genus appears distinct from *Bryomoea*, to which it would fall in Hampson's key, by the stalking of veins 6 and 7 of the hind wings, much shorter palpi, and bipectinate male antennae.

Meropleon differs from *Acherdoa* by possessing very hairy tibiae; the largest dorsal abdominal tuft being on the fourth instead of the third abdominal segment, while the female possesses on the end of the abdomen dorsal and ventral furcate plates similar to those of *Archanara* Wlk.; the larvae being borers, similar in appearance to those of *Archanara* sp., while the larvae of *Acherdoa* are apparently open feeders. There are additional differences in the frons and vestiture, but the male antennae, the female genitalia and the hairy tibiae will probably prove the easiest characters to use.

MEROPLEON COSMION Dyar.

1924, Dyar, Ins. Insc. Menst., XII, 21, *Meropleon*.

Head and palpi dark rufous-brown; collar similar, but with an additional violaceous-grey tinge; patagia rufous-brown, outlined by black; center of thorax violaceous-grey; metathorax mainly occupied by a large spreading rufous-brown crest edged with darker brown and black; abdomen ochreous-rufous sprinkled with black scales. Primaries: ground color violaceous-grey, suffused with rufous-brown, blackish-brown, and black, and dusted with scattered black scales; costal area as far as the t. p. line violaceous-grey, the same shade occupying the basal area above the median vein, marking the median vein as far as the end of the reniform; the orbicular of the same shade, more or less ovate, oblique, its cephalic mesiad. conjoined to the costal shade, its caudal part distad and conjoined to the shade along the median vein; reniform crescent shaped, obsolescent, more or less marked by a few black scales, its center rufous,

mesially bordered by an excurved violaceous-grey crescent in the cell, connecting the costal and median vein shades; basal line obsolete; t. a. line obsolescent, double, faintly outlined by a few black scales, strongly excurved in submedian space; t. p. line obsolescent, variable in intensity, in some specimens outwardly marked with black, pale, bounded mesially by brownish shades, strongly excurved from costa to about vein 4, running about half way between the discocellulars and the outer margin, incurved below vein 4; a row of dots marking the veins in the s. t. space; true s. t. line obsolescent, pale, waved, its course indistinct; terminal line a brown band mesially and distally marked with a few black scales; a small brown patch between the basal area and the orbicular; a large brown patch filling the cell between the orbicular and the crescent bordering the reniform; a strong, inwardly oblique brown shade from the costa near the apex, fused with a similar shade below the cell which there occupies most of the basal area to the inner margin; s. t. and terminal areas violaceous-grey dusted with black scales, strongly disconcolorous with the brown areas; fringe with a broad, pale-rufous interline. Secondaries: pale ochreous, dusted with scattered black scales and tinged with pink; fringe pinkish in appearance. Beneath: pale ochreous, dusted with black scales, more or less suffused with pink and violaceous-grey; primaries with terminal line and fringe as on upper side; secondaries with a strong black discal spot, fringe as on upper side.

Expanse: 33-36 mm.

Described by Dr. Dyar in the Cuculliinae. The present genus and species are apparently not very closely allied to any described species from anywhere. The general habitus is decidedly Bombycid, similar in this respect to *Acherdoa ferraria* Wlk., only heretofore recorded from Florida, but which the junior author has captured at light in Southern Mississippi. Dyar's types were bred from a grass (*Erianthus saccharoides*). Specimens were bred from pinkish larva boring in Sugar Cane, by Mr. E. K. Bynum, Inspector, Mississippi State Plant Board; and the species had been put into manuscript by the authors, under another name. Because Mr. Dyar's description is rather short, and Mr. Bynum desires a detailed description for future work on this new pest, the authors publish their manuscript, omitting their manuscript name.

APATELA FRAGILIS race FRAGILOIDES NOV.

‡*fragilis* B. & McD.

1913, B. & McD., Contr. N. H. Lep. N. A., II, (1), 28, ("a very large form"), pl. XIII, f. 9, *Acronycta*.

Much larger and brighter than typical *fragilis*, none of the specimens before the authors showing any tendency for the suffusion and loss of macu-

lation common to the eastern race. Notwithstanding the considerable difference in size, 26-31 mm. versus 34-38 mm., no difference in genitalia between the two races could be found.

Expanse: 34-38 mm.

A. fragilis fragiloides is not like *A. minella* Dyar; the type of the latter, in the National Museum, being a dark, suffused, specimen, and probably representing another race of *fragilis*.

Type localities and number and sexes of types: Holotype ♂ Duncans, Vancouver Island, 10 July 1914; Allotype ♀, id., 14 June 1911 (the specimen figured, 1913, B. & McD., Contr. N. H. Lep. N. A., II, (1), pl. XIII, f. 9); 2 ♂ Paratypes, id., 10 June, no date; 13 ♀ Paratypes, 12, 15, 17, 19, 28 (2), June, 3 (2), 5 (3), 7, 10, July; 1 ♂ Paratype, Quamichan Lake, Vancouver Island, 21 May 1910; all collected by Mr. A. W. Hanham except the last mentioned male.

APATELA FUNERALIS form FUSCALIS NOV.

Entirely similar to *funeralis*, but a melanic form, with the ground color of the primaries heavily suffused with brownish-black, in this respect only, similar to *wanda*, *similana* and *tonitra*. This is a parallel development to form *steinerti* of the European *alni*.

Type locality: New Brighton, Pa., (H. D. Merrick).

Number and sexes of types: Holotype ♀, 9 May 1903; 1 ♀ Paratype, 28 Aug. 1910.

CATABENA PRONUBA B. & McD.

1916, B. & McD., Contr. N. H. Lep. N. A., III, (1), 10, pl. III, f. 11, *Catabena*.

nanuscula Dyar.

1923, Dyar, Ins. Insc. Menst., X, 168, *Cucullia*.

The authors are in receipt of a male from the type lot of *nanuscula* donated by Mr. Fred Marloff, which has been compared with the type by Mr. Schaus, and also possess a colored figure of the type.

A female in the Barnes Collection has the secondaries rather heavily suffused with fuscous. The single types (males) representing both names have pure white secondaries.

Jemez Springs, N. Mex., is the only known locality.

The species may best be retained in *Catabena*.

NACOPA gen. nov.

Type *N. bistrigata* B. & McD.

Proboscis absent; palpi slightly porrect, hardly reaching beyond the frons and clothed with rough hair; frons with a rounded roughened prominence, the dorsal edge much protuberant, sloped caudo-ventrally so that the region above the clypeal plate is nearly flat; a corneous clypeal plate present; eyes large, round, antennae of male bilamellate, ciliated; thorax clothed chiefly with rough scales, the pro- and metathorax apparently with spreading crests; tibiae fringed with very long hair; abdomen apparently without crests. Fore wing narrow, the costa excised beyond the middle, the apex rounded, the termen obliquely curved and not crenulate; vein 3 from near angle of cell; 5 from well above angle; 6 from below upper angle; 9 from 10 anastomosing with 8 to form a small areole; 11 from cell. Hind wing with a rather long cell; veins 3, 4 from angle; 5 obsolescent (nearly obsolete) from almost the exact middle of the discocellulars; 6, 7 from upper angle; 8 anastomosing with cell near base only.

The present genus, *bistrigata* sole species and type, is one of those peculiar Heliothid forms which lack the spines on the tibiae, in build and habitus being close to some of the *Schinia* species, especially *tobia* and *biundulata*.

In Hampson's tables, it falls to *Acoxa* but is abundantly distinct; being of heavier build; the abdomen much shorter; the frontal prominence practically the reverse of that of *Acoxa*, being most protuberant near the vertex; and vein 5 of the primaries is much nearer the center of the discocellulars.

ACOPA Harv.

Type *A. carina* Harv.

1875, Harv., Bull. Buff. Soc. N. S., II, 279, *carina* sole species and therefore type.

1895, Grt., Abh. Nat. Ver. Bremen, XIV, 105, type designated *carina*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 410, type designated *carina*.

‡*Grypotes* Dyar.

Type *G. dentifer* Dyar.

1917, Dyar, Ins. Insc. Menst., V, 66, *dentifer* sole species and therefore type.

1920, Dyar, Ins. Insc. Menst., VIII, 50, preoc.

Zatilpa Dyar.

Type *Z. dentifer* Dyar.

1920, Dyar, Ins. Insc. Menst., VIII, 50, nom. nov. for *Grypotes* Dyar preoc. *Grypotes* Fiber, 1866, Verh. zool.-bot. Ges. Wien, XVI, 503

Sir George Hampson is in error, and Dr. Dyar is correct, in regard to the frontal prominence.

"ACOPA" PACIFICA Hy. Edw.

1884, Hy. Edw., Pap., IV, 46, *Acoxa*.

1893, Sm., Bull. U. S. N. M., XLIV, 265, *Acoxa*.

1909, Hamp. Cat. Lep. Phal. B. M., VIII, 410, ignot., ?*Acoxa*.

The authors did not find the type in either the Brooklyn Institute or the American Museum. Apparently Smith could not find the type (1893); it is not listed by Dr. Ottolengui in *Entomological News*, "Types in the Neumoegen Collection", and is unknown to Hampson (1909).

The original description is quite obviously not of any species congeneric with the known species of *Acoxa*, but agrees perfectly with *Oxycnemis advena* Grote (= *baboquivaria* Smith). Tentatively, the authors are placing *pacifica* as an unknown *Oxycnemis*, probably synonymous with *advena*.

The remaining species and forms assigned to *Acoxa*; except *bistrigata* B. & McD., which is not congeneric; may be separated into two groups. The first group has the t. a. line outwardly oblique, no matter how much or how little that line may be indented or produced to points. This group includes only the single species, *carina*.

The second group has the t. a. line very nearly erect, produced to long points in the cell and at the claviform. This group contains the names *perpallida*, *incana*, *borealis*, *dentifer* and *pura*.

ACOPA CARINA Harv.

1875, Harv., Bull. Buff. Soc. N. S., II, 279, *Acoxa*.

1903, Holland, Moth Book, p. 163, (partim. nec plate), *Acoxa*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 410, text fig. 107, (type ♂), *Acoxa*.

Apparently Harvey and Hampson are correct in that this species is sexually dimorphic. A series of two males and thirteen females are in the Barnes Collection from various Texas localities only. The males are much suffused with blackish-brown. The females are much paler than the males, with paler secondaries, and at first glance appear specifically distinct. No two specimens are absolutely identical, especially in the amount of brownish suffusion on the primaries.

ACOPA PERPALLIDA Grt.

1878, Grt., Can. Ent., X, 68, *Acopa*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 412, pl. CXXXII, f. 30, *Acopa*

incana Hy. Edw.

1882, Hy. Edw., Pap., II, 128, *Acopa*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 411, pl. CXXXII, f. 29, *Acopa*

‡*carina* Auct. (nec Harv.).

1903, Holland, Moth Book, (partim., plate nec text), pl. XIX, f. 16, *Acopa*.

borealis Dyar.

1917, Dyar, Ins. Insc. Menst., V, 67, *dentifer* var., *Grypotes*.

form DENTIFER Dyar.

1917, Dyar, Ins. Insc. Menst., V, 66, *Grypotes*.

form PURA B. & L.

1922, B. & L., Bull. B'klyn Ent. Soc., XVIII, 74, *Acopa*.

Specimens have been compared with the types of *incana* (Brooklyn Institute) by the senior author, *dentifer* and *borealis* (National Museum) by the junior author, *perpallida* (British Museum and Snow Collection) by Dr. McDunnough. The unique type (♀) of *pura* (Barnes Collection) is before the authors.

The type of *dentifer* represents a well marked form with considerable dark powdering on the primaries, thus approaching, in this character, the normal male of *carina*. The authors know the form only thru the single male type in the National Museum and two males in the Barnes Collection.

The type of *pura* represents a form practically lacking all powdering to the primaries; the basal, s. t., t. p. and terminal lines thin, black, contrasting; the claviform absent; the reniform reduced to a black point. The authors know the form only thru the unique female type.

The remaining names assigned to the species: *perpallida*, *incana*, and *borealis*, are intermediate between *dentifer* and *pura*.

Scarcely any two specimens are absolutely identical, especially in the amount of suffusion to the primaries, nor are the two types of *incana* identical with each other. Apparently the same holds true for the types of *perpallida*.

With such a variable species, little is to be gained by retaining names other than can be fitted to the two extremes and to the intermediates, especially as these names apparently do not refer to well marked, to seasonal forms, or to local races. Holland's figure of "*carina*" (1903) appears referable here. If it is desired to split further, lectotypes will have to be designated for the names *perpallida* and *incana*.

PARAMIANA gen. nov.

Type *P. lactabilis* Sm.

Proboscis fully developed; palpi upturned, short, the second joint somewhat fringed with hair in front, the third moderate; frons with a strongly rounded prominence with a corneous plate below it; eyes large, rounded, with a few cilia from behind and a tuft of hair-like scales on the base of the antennal shaft resembling lashes; antennae of male minutely laminate, almost simple, setae and cilia short; of female, simple, setae and cilia short; head and thorax clothed chiefly with scales, the pro- and metathorax with spreading crests; tibiae moderately fringed with hair; abdomen with a strong dorsal crest on base only. Fore wing with the apex rounded, the termen evenly curved, slightly crenulate; veins 3 and 5 from near angle of cell; 6 from upper angle; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with veins 3, 4 from angle of cell; 5 obsolescent from somewhat below middle of discocellulars; 6, 7 from upper angle; 8 anastomosing with cell near base only.

Apparently "*Cerma*" *marina* Sm. and "*Trachea*" *smargdina* Neum. are strictly congeneric with *lactabilis* and must be placed here.

"*Namangana*" *canoa* Barnes possesses similar characters but apparently has a somewhat shorter tongue. The type and one other specimen in the Barnes Collection are the only specimens known to the authors. Until more material is available it seems best to tentatively place *canoa* in *Paramiana*.

Amiana Dyar, type *miama*, used by Hampson for *lactabilis* is an Erastriid.

NAMANGANA NIVEIRENA Harv.

1876, Harv., Can. Ent., VIII, 53, *Perigea*.

1893, Sm., Bull. U. S. N. M., XLIV, 154, *Perigea*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 557, pl. CXXXVII, f. 10 type (♀), *Namangana*.

pohano Sm.

1899, Sm., Jour. N. Y. Ent. Soc., VII, 38, ?*Oncocnemis*.

1906, Hamp., Cat. Lep. Phal. B. M., VI, 172, pl. C, f. 13 type, ignot.,
Oncocnemis.

The figures in Hampson's Catalogue; a recent figure of the unique type of *pohano*; and a specimen compared with both the type of *pohano* in the National Museum and the type of *niveirena* in the Henry Edwards Collection, show *pohano* synonymous.

The type of *niveirena* in the Henry Edwards Collection is somewhat faded, and hence browner than the specimen compared with it. Another type is in the British Museum.

Reference to *Namangana* is tentative. The fore tibiae are unarmed, so the species cannot be placed in *Oncocnemis*. It is generically related to *perolivalis* B. & McD., and *albimacula* B. & McD., both of the latter species having been described in *Namangana*. These three species form a group with the eyes ciliated from behind, and from the antennal bases; and are related to that group of *Bryomima* containing *falsa* Grt. (*fallax* Hamp.), *perolivalis* having almost the identical maculation of *falsa*, but they lack the cilia from in front of the eyes. Also, the valve of the male genitalia in the *falsa* group is narrow and rather pointed, while the opposite is true with the related species placed in *Namangana*.

N. niveirena appears to be widely distributed, but not common. It is represented in the Barnes Collection from Shasta Co., and Loma Linda, San Bernadino Co., Calif.; Mohave Co., and Paradise, Cochise Co., Ariz.; and Eureka, Utah. It was described from Vancouver Island, B. C., and California. The type of *pohano* came from the High Sierras of California.

NAMANGANA LEUCORENA Sm.

1900, Sm., Proc. U. S. N. M., XXII, 477, *Caradrina*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 556, pl. CXXXVII, f. 8, *Namangana* (*Namangana*).

The male type is in the U. S. National Museum, and is labeled "Los Angeles County, California, Coq. collector." Besides the male type, seven females were before Dr. Smith when he described the species. One of these is in the British Museum; one, in the Barnes Collection; and three, in the Smith Collection at Rutgers College.

The name should be restricted to the male type to avoid confusion with the "female type"; as there are two closely allied species most easily separable on the male antennae.

Hampson's figure is poor, and conveys a wrong impression in regard to the nature of the s. t. line, which, while often obsolescent, is bent inward in the space opposite the cell between veins 6-4. The antennae of the male are simple with short cilia.

NAMANGANA ANDRENA Sm.

1911, Sm., Jour. N. Y. Ent. Soc., XIX, 135, *Perigea*.

This species is closely allied to *leucorena*; but the antennae are heavily beaded, with long cilia. The exact course of the s. t. line is not well shown in the three specimens (one a "cotype") before the authors, but it appears to be nearly as in *leucorena*.

NAMANGANA REVELLATA sp. nov.

Antennae of male beaded, with moderate cilia. Head and thorax brown mixed with grey, the scales pale tipped. Abdomen somewhat paler. Primaries: ground color luteous-brown, heavily dusted with blackish scales and appearing greyish; ordinary lines only slightly darker than the ground color and more or less obsolescent; t. a. line double, drawn in to a point on vein 1, its course not discernible; t. p. line excurved around cell, incurved below; small obsolescent dots in the s. t. space on the veins; s. t. line rather indistinct, erect between costa and vein 7, thence bent at a right angle toward the outer margin a distance of nearly half the terminal space, thence nearly parallel to the outer margin, without conspicuous indentation, to the inner margin; a thin black terminal line; orbicular U-shaped, incomplete, with paler outline; reniform normal in shape, not distinct, its base marked by white due to some white scaling on the intersecting median vein; claviform obsolete; fringe luteous interlined and tipped with fuscous. Secondaries: whitish; with scattered fuscous scales, fuscous marked veins and margins; a thin black terminal line; fringe, luteous at base, followed by a fuscous interline, the outer part white. Beneath: primaries fuscous crossed by a slightly darker t. p. line; fringe as on upper side: secondaries; white, heavily suffused with fuscous along the costal and outer margins, this suffusion darkening about one-half of the area; veins slightly darker distally; a thin blackish terminal line; fringe luteous at base, interlined darker, tips white somewhat tinged with grey.

Expanse: 32-37 mm.

A dull, poorly marked species, difficult to describe satisfactorily; similar to *leucorena* and *andrena* but differing from both of these; the s. t. line clearer and more nearly parallel to the outer margin below

vein 7; the antennae of the males intermediate between the nearly simple, short ciliated antennae of *leucorena* and the heavily beaded, long ciliated antennae of *andrena*.

Type localities and number and sexes of types: Holotype ♂, Paradise, Cochise Co., May; Allotype ♀, Mohave Co., 8-14 July; 1 ♂ Paratype, Redington; 4 ♀ Paratypes, Mohave Co., 8-15 June, 1-7 July, 8-14 July, and Redington, all Arizona.

NAMANGANA MORSA Sm.

1907, Sm., Trans. Am. Ent. Soc., XXXIII, 141, *Perigea*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 155, ignot., *Namangana* (*Namangana*).

This species, unknown to Hampson, considerably resembles brownish-grey specimens of *Perigea sutor* Gn., but because of the nature of the abdominal tuftings may be placed in *Namangana* following the *leucorena*, *andrena*, *revellata* group.

NAMANGANA IGNOTA sp. nov.

Antennae, palpi, legs, head, thorax, abdomen, and primaries concolorous, cream color with a brownish-tinge. Primaries with all maculation obsolete or obsolescent, the reniform indicated by a faint pale blotch at the origin of veins 3-4 from the cell, t. p. line faintly indicated, slightly darker, apparently single, and produced to long points on the veins; veins slightly darkened in terminal space. Secondaries white. Beneath: primaries cream-colored; secondaries white tinged with cream-color along costal margins.

Expanse: 25-26 mm.

Closely related to *N. begallo* Barnes; but the antennae is simple, ciliated, instead of serrate and fasciculate. Hampson is incorrect in stating that *begallo* has simple antennae.

The present species has been standing unnamed for years in the Barnes Collection. Mr. Schaus examined one of the types and reported that it was unknown to him from Mexico.

Type locality: Kerrville, Texas (H. Lacey).

Number and sexes of types: Holotype ♂, April; Allotype ♀, Sept.; 1 ♀ Paratype, no date.

APAMEA FLAVOSTIGMA sp. nov.

Antennae of male minutely serrate and fasciculate. Head, thorax, palpi, patagia, tegulae and abdomen, rufous. Primaries: ground color dull brown strongly tinted with rufous, the lines deeper in color; basal line indistinct; t. a.

line geminate, its parts widely separated, oblique outwardly from costa to cell, inwardly to median vein, outwardly to submedian fold, inwardly to vein 1, thence rounded outwardly to inner margin; claviform outlined by rufous its distal point making contact with the median shade; orbicular nearly round, in one paratype filled in with ochreous; median shade obscure, diffuse, oblique outwardly from costa to median line, where it touches the base of the reniform, thence oblique inwardly to inner margin; reniform obliquely kidney-shaped, filled with ochreous; t. p. line geminate, its parts widely separated, produced to slight points on the veins; s. t. line oblique from costa, somewhat waved, closely parallel to t. p. line below vein 4; terminal line distinct; fringes similar to ground color of the primaries, their tips purplish. Secondaries; pale, heavily tinged with rufous, with a faint rufous terminal line and pale rufous fringes. Beneath: tinged with rufous, the secondaries paler toward the inner margin and basally.

Expanse: 40 mm.

Closely allied to "*Gortyna*" *senilis* Smith, which also has the reniform filled with ochreous, but better marked and deeper in color. The only Colorado specimen of *senilis* in the Barnes Collection is a female, compared with Smith's type by Dr. Barnes. A male from Southern Utah (Poling) appears to match this female in all details. From external examination the male genitalia of this Utah specimen shows the valve edge less curved ventrally.

Type locality: High Rolls, N. Mex.

Number and sexes of types: Holotype ♂, 20 Sept. (at light); 2 ♀ Paratypes, 20 Sept. (at light), and no date; J. G. Bonniwell Collector.

GORTYNA INTERMEDIA sp. nov.

Antennae of male strongly serrate and fasciculate. Head, thorax, tegulae, and patagia dull rufous-brown. Abdomen brownish-ochreous. Primaries: ground color rufous brown. Basal line obscure, geminate, darker brown; t. a. line brown, geminate, as an oblique inwardly facing V in the subcostal cell, thence oblique to near claviform whence it is slightly rounded to inner margin; claviform ill defined, margined by a darker line above and below, appearing as a slightly paler streak; orbicular and reniform poorly defined, almost lost in the ground color; t. p. line outwardly bordered with pale, slightly rounded out at costa, oblique inwardly to vein 2, with a slight outward bend on submedian fold, and thence more acutely oblique inwardly to inner margin; s. t. line pale, faint, waved, nearly in a parallel course to the t. p. line except in costal region where it is obscured; terminal line dark brown; fringes dark brown with a paler line at their bases. Secondaries; pale-ochreous, tinged with some rufous-fuscous, the veins darker, and with a distinct rufous-fuscous median shade line; fringes pale. Beneath: ochreous-brown, the secondaries paler toward

their bases and inner margins; both sets of wings crossed by a common dark medial shade line, and with distinct discal marks.

Expanse: 42 mm.

This species bears a closer resemblance to *medialis* than to *palescens* in color and course of the t. p. line, while the type of claviform is similar to *palescens*. The antennae are less heavily serrate than in either of the allied species placing the insect in Group III of Hampson's *Hydræcia*, (Cat. Lep. Phal. B. M., IX).

Type locality: Ft. Calgary, "N. W. Brit. Columbia."

Number and sexes of types: Holotype ♂, "VIII, 16".

GORTYNA OBLIQUA Harv.

1876, Harvey, Can. Ent., VIII, 53, *Gortyna*.

1881, Grote, Bull. Geol. Surv., VI, 268, (partim.), *Gortyna*.

1893, Smith, Bull. U. S. N. M., XLIV, 175, *immanis*, *Hydræcia*.

1899, Smith, Trans. Amer. Ent. Soc., XXVI, 23, *Hydræcia*.

1910, Hamp., Cat. Lep. Phal. B. M., IX, 39, (partim.), *Hydræcia*.

This insect has been the cause of considerable dispute in the past. In the Henry Edwards Collection three specimens were found under the name *obliqua*. Two of these were labeled "4410" which is the Henry Edwards number given by Harvey in his original description. One of these specimens, bearing a name label, "*Apamea obliqua* Harv." agrees well with the description except in size, being 46 instead of 36 mm. which may be due to a typographical error.

None of the Harvey or Grote material remains in Buffalo, according to Dr. William Alexander, who is in charge at the Buffalo Academy.

Grote, (1881), mentions the receipt of a pair of specimens of *obliqua* from Henry Edwards. The male and female under the label *obliqua* in the British Museum almost undoubtedly represent this pair; and not the original specimen sent to Harvey. Hampson's description of them (1910) apparently represents *G. ximena*, described in this paper. The British Museum specimens certainly do not answer the original description of *G. obliqua*.

The third specimen in the Henry Edwards Collection, mentioned above, is from "Sier. Nev. Cal", apparently agrees well with a specimen from Truckee in the Barnes Collection and these two specimens constitute the types of *G. ximena*, n. sp.

A further incompatibility of labels appears in the fact that the original catalogue of Henry Edwards lists number "4410, San Francisco dist.", whereas the specimens bearing the number 4410 are labeled "Mendocino Co. California".

Nevertheless, as the number 4410 agrees with the number given in the original description of *G. obliqua*; and the specimen bearing the label "*Apamea obliqua* Harv." agrees with the description except in being 46 instead of 36 mm. in expanse; coupled with no other apparent type being known, especially in the British Museum where most of the Harvey types are deposited; the authors propose that this specimen be considered the type.

Smith's references (1893, 1899) probably represent mixed series and the genitalia figured (1899) not that of true *obliqua*.

GORTYNA XIMENA sp. nov.

‡*obliqua* Auct., (nec Harv.).

1881, Grote, Bull. Geol. Surv., VI, 268, (partim.), *Gortyna*.

1910, Hamp., Cat. Lep. Phal. B. M., IX, 39, (partim.), text fig. 11, *Hydræcia*.

Antennae of male heavily serrate and fasciculate. Head, thorax, patagia, tegulae and abdomen cream-color. Primaries: ground color cream, tinged with pale rufous, maculation pale rufous; t. a. line outwardly oblique from costa to claviform, thence slightly inwardly oblique to inner margin; claviform filled with rufous, outlined by slightly darker rufous; *not* a pale streak; orbicular filled with cream color; reniform not well defined; t. p. line preceded by a deeper rufous shading, itself slightly bent outwards on costa, slightly rounded throughout radial region, and thence oblique to inner margin; s. t. line a faint shade, its course almost parallel to the outer margin; fringes pale. Secondaries: pale cream-white, slightly suffused by rufous which is most prominent on the veins, with an evanescent median shade; fringes pale. Beneath: almost concolorously pale cream-color, with faint median shade evanescent on the secondaries, the veins somewhat tinged with rufous.

Expanse: 45-50 mm.

Closely allied to *palescens* but larger and paler. The antennal shaft is heavier than in that species but the serrations are shorter, placing the insect in Hampson's Group III of *Hydræcia* (Cat. Lep. Phal. B. M., IX).

The thoracic vestiture is composed of hair and scales, the scales much narrower than in *obliqua*.

Type localities: Truckee and Sierra Nevada, California.

Number and sexes of types: Holotype ♂, Truckee, 17 Sept. 1913, (Miss Ximena McGlashan, Collector), Paratype ♂, Sierra Nevada, No. 16715, Hy. Edwards.

Types in: Barnes Collection; Paratype, Museum of Natural History, New York.

GORTYNA COLUMBIA sp. nov.

Antennae of male strongly serrate and fasciculate. Head, thorax, patagia, tegulae and abdomen rufous-brown mixed with cream-yellow. Primaries: ground color dull rufous-brown; basal line obscure, geminate, darker brown; t. a. line obscure, geminate, brown, bent outward on median vein, thence rounded and oblique inwardly to inner margin; claviform ill defined; orbicular and reniform poorly defined, almost lost in the ground color; t. p. line outwardly bordered with pale, only slightly rounded out at costa, oblique inwardly to vein 2, with a slight bend on submedian fold, but not more acutely oblique inwardly to inner margin; s. t. line pale, somewhat waved, nearly in a parallel course to the t. p. line; the s. t. space heavily dusted with grey scales; terminal line dark brown; fringes dark brown with a paler line at their bases. Secondaries: fuscous, somewhat paler basally, crossed by a dark median line; fringes pale. Beneath: ochreous-brown, the secondaries paler toward their bases and inner margins; both sets of wings with more or less powdering of scattered black scales, crossed by a common median dark shade line, and with discal spots; on the primaries the discal spot is suffused and appears to touch the median shade; there is also a dark subterminal shade present.

Expanse: nearly 41 mm.

This species bears some resemblance to *medialis*, but it is smaller, narrower winged and the antennae are less heavily serrate, placing the insect in Group III of Hampson's *Hydræcia*, (Cat. Lep. Phal. B. M., IX). Its closest ally is *G. intermedia* from which it differs in being narrower winged; possessing a more oblique t. p. line, the course of which is nearly continuous above and below vein 2; in having conspicuous gray powdering in the s. t. space; and fuscous secondaries.

Type localities and number and sexes of types: Holotype ♂, Saanich Dist., B. C., 18 Sept. 1916 (W. Downes); Paratype ♂, Duncans, B. C., "3-9-07".

Types in: Barnes Collection; Paratype, received from Mr. E. H. Blackmore for determination and returned to him.

A superficial key, following as closely as possible the characters used by Hampson, based on specimens in the Barnes Collection, may help to separate the species.

- Sect. I. Antennae of male bipectinate with long branches, the apex ciliated;
- A. Secondaries rufous or pale;
 - a. Reniform, orbicular and claviform marked with white....*serrata*.
 - b. Reniform, orbicular and claviform marked with ochreous form*ochrimacula*.
 - B. Secondaries fuscous*repleta*.
- Sect. II. Antennae of male bipectinate with very short fasciculate branches; (Extremely heavily serrate?);
- A. Claviform a prominent pale streak; median area of primaries usually contrasting and darker than the remainder of the wing*pallescens*.
 - B. Claviform a pale streak but not conspicuous; median area of the primaries usually not conspicuously contrasting with basal area*medialis*.
- Sect. III. Antennae of male strongly serrate and fasciculate;
- A. Thoracic vestiture composed mainly of elongate bi- and tridentate scales; primaries decidedly brownish or rufous-brown; secondaries tinged with at least some fuscous;
 - a. S. t. space with little gray powderings; secondaries tinged with fuscous; primaries normal, not conspicuously elongate and narrow;
 - (a) Claviform a pale streak, faintly marked by darker color above and below*intermedia*.
 - (b) Claviform normal, faintly outlined by darker color*obliqua*.
 - b. S. t. space conspicuously gray powdered, contrasting; secondaries strongly tinged with fuscous, paler basally; primaries elongate, narrow*columbia*.
 - B. Thoracic vestiture composed of hair and hair-like scales with a mixture of very narrow bidentate and a few tridentate scales; primaries cream tinged with pale rufous; secondaries pale cream-white slightly suffused with rufous*ximena*.
- Sect. IV. Antennae of male minutely serrate and fasciculate;
- a. Hind wing with a dark postmedial line (median shade);
 - (a) Size large, 42-60 mm; spines on tarsi very heavy....*immanis*
 - (b) Size moderate, 37-50 mm; spines on tarsi lighter; European, introduced into Nova Scotia.....*micacea*

This is the common Arizona species and is represented in the Smith Collection by a series of specimens. *L. venatus* is larger and with more of the pinkish-red on the primaries. It is represented in the Smith Collection by the unique type (♀) from Santa Fe, N. Mex. The frontal structure is the same in the types of both names. It is possible that *venatus* may be a very large red variety or race of *radiatus*, but the authors are not yet willing to propose this synonymy.

Hampson's figure (1910) is correct. Barnes and McDunnough's figure of "*venatus*" (1912, Contr. N. H. Lep. N. A., I, (4), 49, pl. XXIII, f. 8, *Lythrodus*.) is *radiatus*.

CHRYSOECIA Hamp.

Type *C. scira* Druce.

1910, Hamp., Cat. Lep. Phal. B. M., IX, 182, *scira* sole species and designated type.

CHRYSOECIA SCIRA Druce.

1889, Druce, Biol. Centr.-Am., Het., I, 301, pl. XXVIII, f. 5, *Anthæcia*.

1910, Hamp., Cat. Lep. Phal. B. M., IX, 183, text fig. 66, *Chrysoecia*.

Several specimens have been received from Baboquivari Mts., Pima Co., Arizona, (O. C. Poling), dates 15-30 August and 1-15 September, which agreed well with Druce's and Hampson's figures. Specimens were sent to the National Museum for comparison, and agreed with a single specimen in that Collection, except in size, being slightly smaller, 28 vs. 29 mm. Hampson lists the unique female type as measuring 34 mm. There is little doubt but that the Arizona and Mexican specimens are conspecific, altho it is possible that further material from both the United States and Mexico may show that the Arizona specimens are worthy of a racial name founded on size alone.

Hampson's diagnosis of *Chrysoecia* is apparently in error in that the frons has a raised ring, with a small central tubercle connected to the vertex edge of the raised ring by a slight vertical ridge, while below this tubercle there is a horizontal raised ridge; followed by the corneous clypeal plate. The fore tibia is armed with a distinct claw nearer the inner than the outer side and which is more or less hidden by the tibial vestiture. Such characters would cause the genus to fall in Hampson's keys somewhere between *Chalcopygaster* and *Stiria*; but abundantly distinct. It is closely related to *Polcanta* (type *tepperi*). The exact position of the claw on the fore tibia; inner side versus

outer side is a difficult and not a very satisfactory character. The claw of *P. tepperi* is quite small and apparently on the inner side. "*Polenta*" *gladiola* Barnes is an intermediate species between *Chrysoecia* and *Polenta* and may best be tentatively placed in *Chrysoecia* with which it agrees in tibial armature and possesses a not dissimilar habitus. There is a slight difference in the frons, notably in the lack of connection between the central tubercle and the raised ring, while the horizontal plate below the tubercle is stronger. The authors do not, at this time, consider this slight difference in the frons of any special significance.

The authors are placing *Chrysoecia* between *Stiriodes* and *Polentia*.

HEMINOCLOA gen. nov.

Type *H. mirabilis* Neum.

Proboscis fully developed, rather long; palpi upturned, closely scaled, the second joint reaching somewhat above the clypeal plate, the third joint short, about one-half the length of the second joint, and reaching to the center of the frons; which has a large corneous prominence with raised edges and a central horn which is more or less connected to the dorsal margin of the prominence by rough chiten; a corneous plate below it; eyes large and round; antennae of male almost simple; thorax clothed chiefly with scales, with some admixture of spatulate scales, flattened hair and hair, the prothorax with a slight spreading crest, the metathorax with a well developed spreading crest; patagia not markedly curled upward at extremities; tibiae moderately fringed with hair, unarmed; tarsi armed only with thin or normal spines the fore tarsi rather long; abdomen with dorsal crest at base only. Fore wing with the apex rather acute but rounded, the termen evenly curved and slightly crenulate, the tornus with slight scale-tooth; veins 3, 5 from near angle of cell; 6 from slightly below upper angle; 7 connate with 8 + 9 from end of areole; 9 from 10 anastomosing with 8 to form the areole; 11 from cell. Hind wing with veins 3, 4 from angle of cell; 5 obsolescent from about one-third below middle of discocellulars; 6, 7 connate from upper angle; 8 anastomosing with cell near base only.

The present genus apparently belongs between *Nocloa* and *Oslaria*. It possesses a central process to the corneous prominence somewhat as in *Nocloa*; altho this central process is not truncate; but the fore tarsi are normal in length and are not armed with short heavy spines or very short claws as in *Nocloa* (type *plagiata*). The normal length of the fore tarsi are probably responsible for *mirabilis* being placed by other authors in *Basilodes* where it cannot remain

because of the unarmed fore tibiae. The species was heretofore very rare in collections, which helps to account for its misplacement. There were only two specimens in the Barnes Collection and none in the U. S. National and British Museums. Last season Mr. O. C. Poling sent the authors nineteen specimens from the Baboquivari Mts., Pima Co., Ariz., 15-30 Aug., and 1-15 Sept.

OSLARIA Dyar.

Type *viridifera* Grt.

1904, Dyar, Jour. N. Y. Ent. Soc., XII, 41, *viridifera* sole species and designated type.

1910, Hampson, Cat. Lep. Phal. B. M., IX, 257, *viridifera* designated type.

Hampson's diagnosis is in error in that *viridifera* possesses a small spreading prothoracic crest; and the tongue is not aborted, being over twice the length of the eye.

OSLARIA PURA B. & McD.

1911, B. & McD., Can. Ent., XLIII, 319, *Oslaria*.

Seems to be a true *Oslaria*.

THURBERIPHAGA Dyar.

Type *catalina* Dyar.

1920, Dyar, Ins. Insc. Menst., VII, 188, *catalina* sole species and therefore type.

THURBERIPHAGA DIFFUSA Barnes.

1904, Barnes, Can. Ent., XXXVI, 238, *Alaria*.

1912, B. & McD., Contr. N. H. Lep. N. A., I, (4), 27, pl. XII, f. 1, *Alaria*.

1912, B. & McD., Contr. N. H. Lep. N. A., I, (4), 55, pl. XXVI, f. 3, "*Alaria*", "near *Nocloa*".

1917, B. & McD., Check List, p. 72, No. 2781, *Oslaria*.

1923, Dyar, Ins. Insc. Menst., XI, 18, *Thurberiphaga*.

catalina Dyar.

1920, Dyar, Ins. Insc. Menst., VII, 188, *Thurberiphaga*.

1923, Dyar, Ins. Insc. Menst., XI, 18, *diffusa*, *Thurberiphaga*.

Dr. Dyar (1923) is correct; a specimen agreeing with the type of *catalina* (compared by Mr. Schaus) also agrees with the type of *diffusa*.

Perfect specimens agree with the genotype of *Oslaria*, *viridifera*, in possessing a small spreading thoracic crest and a divided metathor-

acic crest. *Thurberiphaga* appears distinct from *Oslaria* on frons, antennae, habitus, and minor characters.

The authors are not cognizant of the relation it bears to "*Oslaria rhodoxantha* Dogn.; which, according to Hampson (1910, Cat. Lep. Phal. B. M., IX, 258) has normal fore tarsi.

T. diffusa is the Pink Boll Worm of Wild Cotton (*Thurberia*). Economic entomologists may be interested in distributional records. There is a long series in the Barnes Collection from the following Arizona localities: Huachuca Mts.; Chiricahua Mts.; Santa Catalina Mts.; Baboquivari Mts., and Redington; dates August and September. The species appears not uncommon, Mr. O. C. Poling having sent about one hundred and fifty examples taken in the Baboquivari Mts., August and September, 1923.

HEMIOSLARIA gen. nov.

Type *H. pima* sp. nov.

Proboscis fully developed but not long; palpi, short, upturned, rather closely scaled; the second joint only reaching to about the corneous clypeal plate; the third joint short, but two-thirds the length of the second joint; frons with a large, heart-shaped corneous prominence with raised edges and an additional, central, vertical ridge, connected to the center of its ventral edge; a corneous plate below it; eyes large, round, margined caudally by a row of short black scales which take the place of the cilia found in that position on those Apatelinae (=Acronyctinae) assigned by Hampson to *Trachea* and allied genera; antennae yellow, of male laminate, with short cilia, almost simple; of female, with short cilia, simple; thorax clothed with scales and hair mixed, prothorax with a slight spreading crest which is easily lost, metathorax with a spreading crest; patagia tending to be slightly curled upward at extremities; tibiae moderately fringed with hair, the fore coxae long, fore tibiae short, fore tarsi armed with very heavy long claws; unguis rather large; abdomen with dorsal crest at base only. Fore wing with the apex rounded, the termen evenly curved and not crenulate; veins 3 and 5 from near angle of cell; 6 from slightly below upper angle; 9 from 10 anastomosing with 8 to form the areole; 7 connate with 8 + 9 from the end of the areole; 11 from cell. Hind wing, veins 3, 4 from angle of cell; 5 obsolescent from about one-third below middle of discocellulars; 6, 7 from upper angle; 8 anastomosing with the cell near base only.

HEMIOSLARIA PIMA sp. nov.

Antennae yellow, dorsally partly covered with white scales, basal segment completely covered. Palpi black and white. Head: clypeal region whitish; frons black; vertex white. Thorax white. Abdomen bright orange-yellow with

a single white basal tuft. Primaries: ground color shining white; basal line indicated by a small black mark on costa; t. a. line indicated by a small black mark on costa and a narrow black waved line from submedian fold to inner margin; t. p. line indicated by a small black mark on costa, a black dot just below vein 2, and a thin incurved black line from submedian fold to the inner margin; all other maculation obsolete; fringe white. Secondaries: black, whitish toward the extreme bases; fringe white with a fuscous basal line. Beneath: in general, black; the primary white along inner margin, its fringe white with a fuscous basal line; caudo-mesial half of the secondary white, fringe as on primary.

Expanse: 33-36 mm.

A specimen was submitted to Mr. Schaus on the chance that the species might have been described from Mexico; but it was unknown to him.

Type locality: Baboquivari Mts., Pima Co., Ariz. (O. C. Poling).

Number and sexes of types: Holotype ♂, 15-30 Aug.; Allotype ♀, 15-30 Aug.; 12 ♂ Paratypes, 15-30 Aug. (7), 1-15 Sept. (5); 7 ♀ Paratypes, 15-30 Aug. (5), 1-15 Sept. (2); all 1923.

BELLURA Walker.

Type *B. gortynoides* Wlk.

1865, Wlk., C. B. M., XXXII 465, *gortynoides* sole species and therefore type.

Arzama Walker.

Type *A. densa* Wlk.

1865, Wlk., C. B. M., XXXII, 465, *gortynoides* sole species and therefore type.

Sphida Grote.

Type *S. obliquata* Grote.

1879, Grt., Bull. U. S. Geol. Surv. Terr., IV, 179, *obliquata* sole species and therefore type.

Arzamopsis Dyar.

Type *A. diffusa* Grote.

1922, Dyar, Ins. Insc. Menst., X, 50, *diffusa* designated type.

Judging from specimens compared with types, Dr. Dyar has obviously misidentified *gortynoides*, which is a species close to, and possibly synonymous with *melanopyga*; with the result that *Arzamopsis* is a synonym of *Bellura*.

Apparently the frontal tubercle on the clypeus is usually absent in *diffusa*; and usually present, strong, in *obliqua*. In *densa* and

melanopyga it appears variable, a fact which probably accounts for several synonyms and many misidentifications.

It is quite likely that subsequent workers may desire to separate these borers into two genera upon habitus combined with larval and life-history characters; but if such a division is made, it apparently must be as suggested by Barnes and McDunnough, (1914, Contr. Nat. Hist. Lep. N. A., II, (5), 200). For the present, the authors are inclined to agree with Dr. Forbes, (1914, Jour. N. Y. Ent. Soc., XXII, 28), that there is little use of now separating into two genera; and propose that the oldest name, *Bellura*, be used.

BELLURA OBLIQUA race PALLIDA nov.

Primaries: pale luteous-brown; whitish shade at base of costa present; orbicular more or less obscured, tinged with red; reniform rather elongate, oblique, reddish filled; median shade absent; t. p. line produced to points on the veins; s. t. line sinuate, marked by black dots on the veins; terminal area pale purple. Secondaries: similar, tinged with pink; with a somewhat darker discal spot. Clypeal tubercle present, strong. Anal tuft of female white.

Expanse: about 44 mm.

The present is the antonym of *brehmei* B. & McD., the blackish shades and markings reduced. From the characters now used, this might be considered a valid species; but the authors prefer to tentatively list it as a western race of *obliqua* Wlk.

A male and female from Colorado, (Osler), may be the same; altho some specimens collected in Colorado by Bruce are as dark as some of the paler eastern *obliqua*. A single specimen from Edmonton, Alberta, sent by Mr. D. Mackie for identification is presumably the same as the types of *pallida*.

Knowing that careful study of life-histories will be a necessary factor in determining what constitutes specific characters in these insects, and to avoid the chance of a mixed type series, the types are restricted as follows.

Type locality: Vineyard, Utah, (Spalding).

Number and sexes of types: Holotype ♀, Paratype ♀, both 16 Aug. 1912.

ANTAPLAGA HILLI B. & Benj.

1923, B. & Benj., Contr. N. H. Lep. N. A., V, (2), 83, *Stiria*.

1923, Hill, Bull. S. Calif. Acad. Sci., XXIII, 19, ?*Antaplaga*.

calliente Hill.

1923, Hill, Bull. S. Calif. Acad. Sci., XXIII, 17, *Antaplaga*; id; p. 19, pl. ♂, ♀; footnote = *Stiria hilli*, ?*Antaplaga*.

The present species does not fit well into any genus. Tentatively, because veins 6 and 7 are slightly stalked instead of connate, the authors follow Messrs. Dyar and Hill in questionably placing the species in *Antaplaga*; but this removes it from its obvious allies in habitus, i. e. *Stiria hutsoni*, *S. olivalis*, and *Stirodes virida*. In reality the insect appears intermediate between *Stiria* and *Stirodes*, possessing a front similar to *rugifrons*, the genotype of *Stiria*, with an additional central chitenization; and the thoracic characters of *obtusa*, the genotype of *Stirodes*.

Antaplaga is a general "dumping ground" for species which do not fit well elsewhere, and *hilli* scarcely seems congeneric with *dimidiata*, which is the genotype. It might be well to mention that fresh specimens of *dimidiata* show a spreading metathoracic crest, a character overlooked by Hampson, so that the genus is not unallied to *Stiria* and *Stirodes*.

ANTAPLAGA PLESIOGLAUCA Dyar.

1912, Dyar, Proc. U. S. N. M., XLII, 68, *Antaplaga*.

Several specimens have been received from the Baboquivari Mts., Pima Co., Arizona, (O. C. Poling), dates 15-30 August and 1-15 September. Specimens were compared with the unique female type by Mr. Schaus.

CEPHALOSPARGETA Möschl.

Type *C. elongata* Möschl.

1890, Möschl., Abh. Senck. Ges., XVI, 120, *elongata* sole species and therefore type.

1892, Kirby, Syn. Cat. Lep. Het., I, 378, *elongata* designated type.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 224, *elongata* designated type.

CEPHALOSPARGETA ELONGATA Möschl.

1890, Möschl., Abh. Senck. Ges., XVI, 120, *Cephalospargeta*.

1909, Hamp., Cat. Lep. Phal. B. M., VIII, 224, text fig. 49, *Cephalospargeta*.

Two specimens from Brownsville, Texas, match the series in the National Museum and agree with Hampson's figure, which is apparently taken from the male type.

The insect was originally described from Porto Rico as a Lithosiid, and listed by Kirby as a member of that (sub)family. Hampson lists it as a "Noctuid" ("Acronyctinae") because vein 8 of the hind wing anastomoses with the cell near the base only.

The venation shown by Hampson is incorrect in that the primaries possess an accessory cell. According to his keys the insect would fall to *Rhosus*⁵; but the present genus is abundantly distinct, vein 8 of the secondaries being approximated to the cell to about the middle, showing an apparently close relationship to the *Lithosiinae*; whereas *Rhosus* shows a decided relationship to the *Agaristidae*. Wing shape, habitus, antennae, and other venational differences seem to point to the conclusion that *Cephalospargeta* is a unique genus, with no described close relatives in the Apatelinae (=Acronyctinae); and which, possibly, may be placed in the Lithosiinae.

PSEUDACONTIA MODESTELLA B. & McD.

1917, B. & McD., Contr. N. H. Lep. N. A., IV, (2), 110, pl. XVI, f. 13, *Pseudacontia*.

1922, Dyar, Ins. Insc. Menst., X, 11, *cephalica*, *Pseudacontia*.

Dr. Dyar sunk *modestella* as a synonym of (*Stylopoda*) *cephalica* as noted above. Specimens compared with the type of *cephalica* prior and subsequent to Dyar's paper show *modestella* to be a distinct species rather closely related to *groteana*; and not at all closely related to *cephalica* which is a member of the *Cuculliinae* as stated on a prior page.

PSEUDACONTIA SEXPUNCTATA B. & McD.

1916, B. & McD., Contr. N. H. Lep. N. A., III, (1), 14, pl. III, f. 17, *Copanarta*.

The placement of *Copanarta* in the *Cuculliinae* would apparently leave *sexpunctata* without an available generic name.

As there is only a very slight difference in the claws on the fore tibiae, this species may well be placed in *Pseudacontia*.

⁵*Mystrocephala* (type *quadrinacula*, synonym of *postica*) according to the present International Rules apparently takes priority over *Rhosus* (type *posticus*).

ERASTRIINAE

COBUBATHA INQUESITA sp. nov.

Head brownish; thorax violaceous tinged with brown; abdomen fuscous-brown. Primaries: ground color violaceous-grey more or less obscured by brownish and blackish shades; basal area strongly brown tinged; t. a. line brownish, single, thin, slightly waved, nearly parallel to the outer margin; t. a. space and basal half of median area violaceous-white; outer half of median area brownish, containing a thin, black, median line; orbicular absent; reniform small, violaceous-grey with a fuscous center; t. p. line black, double, outer line faint, included space violaceous-grey, outwardly oblique from costa to beyond end of cell, bent at an acute angle, inwardly oblique to near submedian fold, thence almost erect to inner margin; s. t. line white, well marked from costa to opposite end of cell, the s. t. space for this distance filled in with dark brown and black, beneath which the s. t. line is more or less obsolescent; small black dashes inwardly mark the s. t. line in the costo-radial and medial regions; terminal line thin, black, inwardly bounded by a white shade line; fringe violaceous, more or less marked by fuscous brown and black. Secondaries: unicolorously fuscous-brown; fringe whitish with a fuscous-brown interline and a tendency toward brown tips especially toward the apex. Beneath: whitish; the primaries so heavily dusted with black that they appear quite grey; the secondaries not as heavily powdered as the primaries; with faint, small, discal dots: both sets of wings with a broken black terminal line; and with whitish fringes interlined and marked by violaceous-black.

Expanse: 11 mm.

The present species possesses the essential characters of *Cobubatha*, i. e., tongue, frons, wing-shape, venation, legs, and tuftings, but differs considerably from the other members of the genus, in habitus more closely resembling some species of *Ozarba*.

The authors failed to locate it in Hampson (Cat. Lep. Phal. B. M.) or in the Biologia. The junior author took a specimen to Brooklyn to compare with the type of "*Lithacodia*" *distincta* Grt., but it is not that species; it was taken to Washington where Mr. Schaus informed the junior author that it was unrepresented in the National Museum tropical material.

Type locality: Paradise, Cochise Co., Ariz.

Number and sexes of types: Holotype ♂, May; Allotype ♀, May.

AMYNA BULLULA Grt.

1873, Grt., Trans. Am. Ent. Soc., IV, 299, *Pteraeotholix*.

mexicana Strd.

1910, Hamp., Cat. Lep. Phal. B. M., X, 461, *bullula* ab. 1, *Amyna* (*Pteractholix*).

1916, Strd., Archiv fur Naturgesch., A, (2), 35, *bullula* ab., *Amyna*.

form CONCOLORATA nov.

1873, Grt., Trans. Am. Ent. Soc. IV, 299, "unusual" *bullula*, *Amyna*.

1910, Hamp., Cat. Lep. Phal. B. M., X, 461, text fig. 130, *bullula* form norm., *Amyna*.

In the original description of *bullula* Prof. Grote calls attention to "the most prominent feature of the ornamentation of this species and one which unites both sexes is the prominent white or whitish reniform spot." He adds that, in a single specimen the spot is dark filled but that this is "evidently unusual".

The name *bullula* must therefore apply to the form with white in the reniform; and if Hampson is correct in considering Mexican specimens conspecific, *mexicana* Strd. is a synonym.

The form without the white in the reniform, and which Hampson considers the normal form may be called *concolorata* form nov.

Type locality: Kerrville, Tex.

Number and sexes of types: single ♀.

CHAMYRIS CERINTHA ab. OBSCURA Dyar.

1923, Dyar, Ins. Insc. Menst., XI, 19, *Chamyris*.

Both the junior and senior authors have studied the type of *obscura* and believe it to represent nothing more than an aberration of *cerintha* with dusky secondaries.

There is a single specimen in the Barnes Collection from Decatur, Ill., which was compared with Dr. Dyar's type by the senior author and which appears intermediate between *cerintha* and *obscura*.

CATOCALINAE

CATOCALA CONSORS S. & A.

1797, S. & A., Lep. Ins. Ga., II, 177, pl. LXXXIX (♂, ♀, larva, pupa), *Phalacna*.

pensacola Reiff.

1919, Reiff, Lepidoptera, III, 75, *consors* subsp., *Catocala*.

race *SORSCONI* nov.

‡*consors* Auct. (partim.).

- 1874, Stkr., Lep. Rhop. Het., 75, (partim.), pl. IX, f. 10, *Catocala*.
 1902, Beut., Bull. Amer. Mus. N. H., XVI, 391, pl. III, f. 18 (larval head).
Catocala.
 1913, Hamp., Cat. Lep. Phal. B. M., XII, 33, (partim.), pl. CXCIII, f. 10,
Catobaptia.
 1903, Holland, Moth Book, p. 266, pl. XXXIV, f. 3, *Catocala*.
 1918, B. & McD., Mem. Amer. Mus. N. H., N. S., III, (1), Illus. N. A.
 Sp. Gen. *Catocala*, p. 6, pl. III, f. 7, pl. XII, f. 16 (larva), pl. XVIII,
 ff. 7, 8 (claspers), *Catocala*.
 1919, Reiff, Lepidoptera, III, 75, (typical form), *Catocala*.

Mr. Reiff obviously neglected to glance at the Smith and Abbot plate when he described *pensacola*, which apparently is a straight synonym. As might be expected, the Florida and Georgia forms agree, being members of the Gulf Strip division of the Lower Austral Faunal Zone.

Mainly to correct this error, the authors propose the anagram *sorsconi* for the more northern race of *consors*.

As Reiff points out, this race possesses a wider median yellow band on the hind wing; the black central band and the outer black marginal band more approximated; and the basal area darker; than in the southern race; the latter usually more prominently marked with violaceous distad of the t. p. line of the primaries, which are, in general, brighter. Texas specimens in the Barnes Collection have primaries similar to the northern race; secondaries somewhat intermediate, nearly as in northern specimens; and may best rest under the name *sorsconi*.

Type localities and number and sexes of types: Holotype ♂, Maine, July; Allotype ♀, New York; 2 ♂ Paratypes, New York.

CATOCALA SUEBA Cassino.

1919, Cassino, The Lepidopterist, III, 99, *Catocala*.

Described from "Type ♂ and ♀, 8 ♂, 7 ♀ paratypes from Jemez Springs, N. Mex. The presumable types are in the Barnes Collection, Mr. Cassino having given Dr. Barnes a ♂ and ♀ type from Jemez Springs, N. Mex., exactly corresponding to the original description of *sheba*, but labeled another manuscript name, and informing the junior author that these specimens were the true types of one of the recent species, but that the actual name under which they had been described was forgotten.

C. sheba is presumably a valid species of the *grotiana* series, with but little white on the primaries and at first glance closely resembling some specimens of eastern *briseis*.

PANTHEINAE

MELENETA Sm.

1908, Sm., Ann. N. Y. Acad. Sci., XVIII, (2), 92; p. 93, *antennata* sole species and therefore type.

Zazunga Dyar.

Type *Z. opinor* Dyar.

1911, Dyar, Proc. U. S. N. M., XXXVIII, 251, type designated *Z. opinor*.

MELENETA ANTENNATA Sm.

1908, Sm., Ann. N. Y. Acad. Sci., XVIII, (2), 93, *Meleneta*.

1917, B. & McD., Check List, p. 95, No. 3679 syn., *oslari*, *Aflia*.

moës Dyar.

1920, Dyar., Ins. Insc. Menst., VIII, 100, *Zazunga*.

Examination of the type of *antennata* in the Smith Collection and of *moës* in the National Museum shows that *moës* is a synonym. *M. antennata* was erroneously placed as a synonym of *Aflia oslari* Dyar in the Check List; which, perhaps, led Dr. Dyar into error.

The authors possess no specimens of the Mexican species, *opinor*, the type of the genus *Zazunga*.

Dr. Dyar's diagnosis of the genus omits characters referring to the eyes, but the characters that are given are duplicated in *Meleneta*. The untufted abdomen and serrate but not ciliated yellow antennae are a peculiar combination. Dr. Dyar's placement of *moës* in *Zazunga* seems confirmation of the fact that *opinor* and *antennata* (= *moës*) are apparently congeneric.

HYPENINAE

MACRISTIS Schaus

Type *M. geminipunctalis* Schaus.

1916, Schaus, Proc. U. S. N. M., L, 276, type designated *M. geminipunctalis*.

MACRISTIS BILINEALIS B. & McD.

1912, B. & McD., Contr. Nat. Hist. Lep. N. A., I, (5), 30, *Dercetis*.

Apparently a *Macristis* instead of a *Dercetis*. Neither the "Type ♂" nor the "Type ♀" possess an areole, but the "Cotype ♂" possesses a small areole on one primary, while on the other primary this areole is so flattened that the veins are almost fused.

MACRISTIS SCHAUSI sp. nov.

Head, collar, thorax, abdomen, and ground color of primaries concolorous, variable, dark brown to yellowish brown; t. a. and t. p. lines nearly parallel, dark brown, bent outwardly below costa, thence strongly oblique inwardly, and somewhat curved, to inner margin; orbicular not present; reniform a small round dot, whitish or yellowish, without definite bounding line and with no central darker shade; s. t. line, when present, ochreous, slightly waved, parallel to outer margin, shaded mesially with smoky-brown; a terminal row of small black dots; fringes concolorous, with a trace of a pale line separating them from the primaries. Secondaries: whitish; with traces of waved median and subterminal lines; a broken black terminal line; and smoky fringes. Beneath: yellowish, tinged with rufous and ochreous, powdered and suffused with fuscous; primaries with faint discal dot and median line; secondaries with a minute intensely black, discal point, and faint blackish median and s. t. shade lines.

Expanse: ♂, 12 ½-13 mm.; ♀, 15-18 mm.

Closely allied to *bilinealis* B. & McD., but; besides being generally smaller and differing slightly in palpi, antennae, wing shape, and vestiture of the thorax; the t. p. line of *bilinealis* is slightly produced to blunt points in the radial-medial region, while the t. p. line of the present species is narrower, clearer cut, and not so produced. The easiest character to use to separate the two is the reniform, which in *bilinealis* is elongate and possesses a darker central line, while in the present species the reniform is a small round dot possessing no central darker line or shade.

The authors are indebted to Mr. Schaus for information that this species has not been described from the tropics.

Type localities and number and sexes of types: Holotype ♂, San Benito, 8-15 Sept.; Allotype ♀, id., Aug.; 8 ♂ Paratypes, id., 24-31 (July (1), Aug. (4), 8-15 Sept. (2), and Brownsville (1)); 6 ♀ Paratypes, San Benito, 16-23 July (1), 24-31 July (1), Aug. (1), 8-15 Sept. (1), no date (1), and Brownsville (1); all Texas.

MACRISTIS SCHAUSI form FLAVIPENNIS nov.

A single specimen possesses such strikingly bright yellow coloration that, compared with the holotype of *schausi* which is dark brown, it appears superficially a distinct species; but it is similar in all respects except in color; and in that the maculation tends to be obsolescent, only the costal half of the t. a. line, the t. p. line, and the terminal dots being distinct on the primaries; while only the terminal dots are visible on the secondaries. It would appear that heretofore color has been one of the main characters used to separate some of the exotic species. Intergrades to typical *schausi* are present but have been placed under the specific name.

Expanse: 17 mm.

Type locality: San Benito, Tex.

Number and sexes of types: Holotype ♀, 1-7 Aug.

NOTODONTIDAE

DATANA PERSPICUA race DISCALIS Dyar.

1923, Dyar, Ins. Insc. Menst., XI, 10, *perspicua* race, *Datana*.

cileena Dyar.

1923, Dyar, Ins. Insc. Menst., XI, 11, *perspicua* race, *Datana*.

form INFUSA Dyar.

1923, Dyar, Ins. Insc. Menst., XI, 11, *perspicua* race *discalis* dim. form, *Datana*.

form PERFUSA Dyar.

1923, Dyar, Ins. Insc. Menst., XI, 11, *perspicua* race *discalis* dim. form, *Datana*.

The Barnes Collection possesses four larvae from San Diego which agree with Professor Cockerell's description of the larvae of *mesillae*. A single adult from Deming, N. Mex. is the same as Arizona and California specimens, all representing a single race. Over forty specimens from California and sixty specimens from Arizona are before the authors.

In view of the fact that the authors do not know the location of the type of *mesillae* and hence cannot examine it; and possess no material from the region of Mesilla, N. Mex.; the name *discalis* is temporarily retained for the southwestern race of *perspicua*.

The name *infusa* may be retained as a very dark color form of race *discalis*.

The type of *perfusa* has not been matched; and is listed as a form of race *discalis* simply because it was described as a dimorphic form of *eileena*. Apparently the male and female types are quite different in color and strength of maculation.

Mr. Schaus has compared specimens with the types of *discalis*, *infusa* and *eileena*; a California specimen agreeing best with *discalis*; and an Arizona specimen, with *eileena*; the reverse of the localities of the types.

LITODONTA GIGANTEA sp. nov.

Head and thorax dull grey, black, and white, mixed. Primaries: ground color violaceous-grey-white so heavily dusted with black scales that the insect appears nearly a uniform dull grey; all ordinary lines obsolete except the s. t. which is very faintly indicated by a darker shading; a black basal dash bordering the costal side of vein 1, surmounted by a violaceous-white shade; discocellulars marked by a long, thin, black, erect crescent; veins marked by black scales; fringe grey interrupted by a continuation of the black veins. Secondaries: pale dirty brown with somewhat darker veins; fringe similar in color, checkered with darker brown at the extremities of the veins. Beneath: primaries pale dull grey, the veins somewhat darker, no other distinct maculation, fringe checkered with darker grey at the extremities of the veins; secondaries; whitish, veins slightly darkened by a few fuscous brown scales at the outer margin; fringe whitish checkered by fuscous-brown at the extremities of the veins.

Expanse: 43 mm.

The present species is, apparently, an aberrant member of the genus *Litodonta*, with which it agrees in all essential characters except size and the accessory cell which arises from the extremity of the discal cell, vein 6 arising one-third the length of the accessory cell from the discal cell.

Type locality: Palmerlee, Ariz.

Number and sexes of types: Holotype ♂, no date, unique.

HETEROCAMPA Dbldy. vs. DISPHRAGIS Hbn.

The authors are cognizant of the fact that the Rules of the International Zoological Congress apparently would substitute *Disphragis* for *Heterocampa*; but pending an answer to an inquiry addressed to Dr. Stiles, the secretary of the International Commission regarding the status of certain Hübnerian names, it appears safer to use the well known genus *Heterocampa*, with haplotype *H. astarte*.

HETEROCAMPA SIMULANS sp. nov.

Antennae yellowish. Head and thorax greyish-rufous. Abdomen fusco-luteous, paler beneath. Primaries: ground color deep violaceous tinged with rufous; veins somewhat marked by fuscous; a slight basal dash present: basal line double, black, obsolete below the basal dash; t. a. line double, black, waved from costa to inner margin, preceded by a rufous shade; discal spot crescent shaped, black, slightly edged by rufous; t. p. line black, waved from costa to inner margin; s. t. line poorly defined, marked mesially by fuscous and rufous shades; followed by a subapical pale shade; terminal line black, single. Secondaries: white, with the fringe checkered by black at the extremities of the veins. Beneath: primaries; ground color white, marked by a fuscous medial shade, shadings along costal and outer margins, and on the veins: secondaries white, only slightly marked by fuscous on costal margins, and on veins; and with small dots in the fringe at the extremities of the veins.

Expanse: 48 mm.

Closely allied to *rufinans* Dyar and possibly a race of that species. Dr. Dyar saw the type, which bears an old label "*Heterocampa obliqua* Pack. Identified by Dyar"; and considers it a distinct species. It is quite possible that the locality label "West Iowa" may be erroneous, but apparently there is no described exotic or native species of *Heterocampa* at all closely related except *rufinans*. The Barnes Collection possesses seven males and two females of *rufinans* from the vicinity of Glenwood Springs, Colo., June, July and Aug., which agree well with Dr. Dyar's type and show little variation.

Type locality: West Iowa.

Number and sexes of types: Holotype ♂, unique.

HETEROCAMPA INCONGRUA sp. nov.

Antennae brownish-yellow. Head and thorax mottled olivaceous and black. Abdomen: light yellowish-brown above, overlaid by some grey, tufts black; below, cream colored. Primaries: ground color olivaceous, strongly tinged with rufous brown and green; veins more or less marked by black; a trace of black basal dash present; t. a. and t. p. more or less obscured, suffused, blackish, double, waved from costa to inner margin; s. t. line obscure, marked by a series of sagitate black spots between the veins; discal mark crescent shaped, strong, black, outlined by rufous-brown. Secondaries: white, the veins and margins somewhat marked by black. Beneath: ground color of all wings white; primaries more or less suffused with black and appearing grey especially along the costal and outer margins; secondaries nearly pure white except for a patch of black scales at the anal angle and black dots checkering the fringe at the ends of the veins.

Expanse: ♂, 43-47 mm.; ♀, 53 mm.

The present species might well be placed in the genus *Hardingia* Schaus as vein 7 is short stalked with 8 and 9 from the apex of the accessory cell. Considering the facts, that no species of *Hardingia* are reported from Boreal America, the variability of the accessory cell in the North American species of *Heterocampa*⁶, and the apparent close relationship of the present species to various described species of North American *Heterocampa*; the authors consider it best to describe as an aberrant *Heterocampa*.

Besides the types this species is represented in the Barnes Collection by two males from High Rolls, N. Mex., July, (Bonniwell).

Type localities and number and sexes of types: Holotype ♂ and Allotype ♀, Yavapai Co., Ariz., (O. Buckholz, ex Coll. Jacob Doll); Paratype ♂, Prescott, Ariz., Aug.

HETEROCAMPA MASTA Schaus.

1892, Schaus, Proc. Zool. Soc. Lond., p. 241, *Rifargia*.

1898, Druce, Biol. Centr.-Amer., Lep., Het., II, 469, pl. XCII, f. 9, *Rifargia*.

1901, Schaus, Trans. Ent. Soc. Lond., p. 304, *Heterocampa*.

A single specimen labeled "S. W. Arizona" from the Doll Collection is in the Barnes Collection, and has been compared with the type by Mr. Schaus. It is possible that the locality label is erroneous, and the authors do not wish to officially record the insect from Arizona.

It is also not impossible that this represents the female of the true *belfragei* Grote, a species unknown to the authors except for a colored figure of the type male. Further information will be welcome.

HETEROCAMPA AVERNA B. & McD.

1910, B. & McD., Can. Ent., XLII, 213, *pulverea* var., *Heterocampa*.

1912, B. & McD., Cont. Nat. Hist. Lep. N. A., I, (2), 23, pl. X, f. 4 type, *pulverea* var., *Heterocampa*.

pasathelys Dyar.

1921, Dyar, Ins. Insc. Menst., IX, 141, *Disphragis*.

1922, Dyar, Ins. Insc. Menst., X, 9, *averna*, *Disphragis*.

H. averna, described from Redington, Ariz., was, for a considerable time, represented by the unique female type in the Barnes Collection.

⁶In *H. manteo* the accessory cell is long and narrow; in *rufinans* vein 7 appears very shortly stalked with 8 and 9 rather than connate.

The sorting of miscellaneous Bombycids has yielded five males and three females; with the addition of the following localities: Palmerlee, Paradise, Chiricahua Mts., and Jerome, Ariz.; and High Rolls, N. Mex.

The authors agree with Dr. Dyar that the species is apparently quite distinct from *pulverea*; and that *pasathelys* is a synonym, a specimen having been compared with the type of the latter name by the junior author.

SCHIZURA BIEDERMANI B. & McD.

1911, B. & McD., Jour. N. Y. Ent. Soc., XIX, 81, *Schizura*.

1912, B. & McD., Contr. Nat. Hist. Lep. N. A., I, (4), 23, pl. X, f. 3 ♂ "cotype", f. 8 ♀ type", *Schizura*.

clammenhoa Dyar.

1914, Dyar, Proc. U. S. N. M., XLVII, 387, *Dicentria*.

A male "cotype" of *biedermani* matches the types of both *clammenhoa* and *biedermani*.

Males of this species are not unlike large *S. leptinoides* in both wing shape and pattern. Not possessing specimens of the various species referred to *Dicentria*, the authors retain *biedermani* in *Schizura*. Should the species be placed in *Dicentria*, apparently *leptinoides* will also have to accompany it.

CERURA OCCIDENTALIS race GIGANS McD.

1922, McD., Can. Ent., LIV, 139-141, *occidentalis* race, biol., *Cerura*.

deorum Dyar.

1922, Dyar, Ins. Insc. Menst., X, 174, *occidentalis* s.sp., *Cerura*.

Dr. Dyar's type came from Manitou, Colo. The Barnes Collection contains specimens apparently *gigans* from Calgary, Alta.; Arrowhead Lake, B. C.; and Boulder, Colo. There appears no tangible difference between specimens from these localities. Dr. Dyar's type has been matched with a specimen from Arrowhead Lake. A paratype of *gigans* is before the authors.

CERURA CINEREA race WILEYI Dyar.

1922, Dyar, Ins. Insc. Menst., X, 174, *cinerea* s.sp., *Cerura*.

There appears no tangible difference between specimens from Montana and Colorado as far as can be told from the bad condition of the types of *wileyi*. The Colorado race was in manuscript and paratypes supplied to Dr. Dyar. The name is now withdrawn. The authors cannot agree with Dr. Dyar that *wileyi* represents anything distinct from the ordinary Colorado race of *cinerea* which appears to range from Montana thru the Rocky Mountains into New Mexico; with a very similar, altho usually slightly smaller form, probably unworthy of a separate name, occurring in Texas.

CERURA SCOLOPENDRINA race PLUVIALIS Dyar.

1922, Dyar, Ins. Insc. Menst., X, 174, *scolopendrina* s.sp., *Cerura*.

Dr. Dyar's types are in such bad condition that they are of little value in comparisons. The Barnes Collection possesses two specimens from Vancouver, B. C., (Blackmore), which appear to match the types of *pluvialis*. Apparently this form is intermediate in some respects between true *scolopendrina* and *aquilonaris*. The name *albicoma* Strecker, in the type of which the dark band across the primaries is hour-glass shaped, is as apparently worthy of retention as either *pluvialis* or *aquilonaris*. All three names represent very minor deviations from *scolopendrina*, and in a long series from almost any locality all types can be matched. Tentatively, as the general tendency in the Bombycids seems to be to split, the authors would list the described *scolopendrina* forms as follows:

- C. scolopendrina* Bdv., Calif.
- a.—*pluvialis* Dyar, Ore. and B. C.
- b.—*albicoma* Stkr., Colo. and Utah.
- c.—*aquilonaris* Lint., East. States.
- d.—*modesta* Hudson, cooler parts of East. States.

CERURA NIVEA Neum.

1891, Neum., Can. Ent., XXIII, 124, *Harpyia*.

The type is from St. George, Utah; and is in the Museum of the Brooklyn Institute of Arts and Sciences. A single female from St. George, Utah, in the Barnes Collection, is a good match for the type; which is a large, broad-winged, nearly immaculate form; and is, in general, rare in collections.

CERURA NIVEA race NIVEATA NOV.

The Arizona race of *nivea*, which is commonly identified as *nivea*, and which probably will show intergrades to true *nivea*, is another large, broad-winged form, but may be distinguished from true *nivea* by the possession of more or less distinct maculation. The heavy transverse band is somewhat constricted on the median vein and in one specimen broken into two patches; the t. a. is composed of five dots; the t. p., a distinct line of dots; apical-s. t. dots on the outer margin of both primaries and secondaries.

The authors are inclined to associate *nivea* and *niveata* more closely with *scolopendrina* than with *cinerea*, because of the antennae and habitus, but the possession of five dots forming the t. a. line, instead of four, apparently allies *niveata* with *cinerea*. Tentatively, the authors would list the described form of *nivea* as follows:

- S. nivea* Neum., So. Utah.
 a.—*niveata* nov., So. Ariz.
 b.—*meridionalis* Dyar, Texas.

Type localities and number and sexes of types: Holotype ♂, Allotype ♀, and 3 ♂ Paratypes, "So. Ariz." (Poling); 1 ♀ Paratype, Douglas, Ariz.

LIPARIDAE

LIPARIS Ochs.

Type *L. monacha* Linn.

1810, Ochs., Schmett. Europ., III, 186, lists *morio*, *detrita*, *rubea*, *monacha*, *dispar*, *salicis*, "*v. nigrum*" (*nivosa*), *chrysorrhoea*, *auriflua*.

1892, Kirby, Cat. Lep. Het., I, 475, lists as preoccupied under *Porthetria*.

1892, Hamp., Fauna Br. Ind., Moths, I, 459, lists as preoccupied, under *Lymantria*.

1922, Swinhoe, Ann. & Mag. N. H., (9), X, 450, type designated *monacha*.

1923, Swinhoe, Ann. & Mag. N. H., (9), XI, 424, type designated *monacha*.

Apparently *Liparis* Ochs. has been sunk as a homonym of *Liparis* Artedi, a pre-Linnean genus, (1738).

Porthetria Hbn.

Type *P. dispar* Linn.

1820, Hbn., Verz., Bek. Schmett., p. 160, lists *lunata*, *dispar*, *beatrice*, *brotea*.

1892, Kirby, Cat. Lep. Het., I, 475, type designated *dispar*.

1892, Hamp., Fauna Br. Ind., Moths, I, 459, lists as synonym of *Lymantria*.

1923, Swinhoe, Ann. & Mag. N. H., (9), XI, 424, type designated *dispar*.

Lymantria Hbn.

Type *L. monacha* Linn.

1820, Hbn., Verz. Bek. Schmett., p. 160, lists *monacha*, and *eremita*; the latter is a form of the former, hence the genus is monotypical.

1892, Kirby, Cat. Lep. Het., I, 477, type designated *monacha*.

1892, Hamp., Fauna Br. Ind., Moths, I, 459, type designated *monacha*.

1897, Dyar, Can. Ent., XXIX, 15, type designated *monacha*.

1922, Swinhoe, Ann. & Mag. N. H., (9), X, 450, type designated *monacha*.

1923, Swinhoe, Ann. & Mag. N. H., (9), XI, 424, type designated *monacha*.

Psilura Steph.

Type *P. monacha* Linn.

1829, Steph., Ill. Br. Ent., Haust., II, 57, *monacha* sole species and therefore type.

1892, Kirby, Cat. Lep. Het., I, 477, lists as synonym of *Lymantria*.

1923, Swinhoe, Ann. & Mag. N. H., (9), XI, 424, type designated *monacha*.

Presumably, under the present International Rules the family name does not have to be taken from the oldest generic name, which in the present family is apparently *Leucoma* Hbn., (1806, Tentamen), type *auriflua*. *Dasychira* Hbn., type *pudivunda* is on the following line of the "Tentamen".

The family has usually been called either Lymantriidae or Lipariidae. At the present time the authors follow Swinhoe (1922-1923) in the use of the name Lipariidae. Besides the above generic synonymy, Swinhoe lists, (1923, Ann. & Mag. N. H., (9), XI, 424), the following synonymy of *Liparis*, the type species of which are unknown to the authors: *Pegalla* Wlk., type *curvifera* Wlk.; *Barhona* Moore, type *carneola* Moore; *Leptocneria* Butl., type *binotata* Butl.

HEMERICAMPA INORNATA Beut.

1890, Beut., Psyche, V, 300, *Orgyia*.

The male type, in the American Museum of Natural History, lacks all white shadings.

"*Orgyia*" *falcata* Schaus, listed as a synonym by Barnes and McDunnough, Check List, 1917, is more heavily marked and probably represents a distinct species.

OLENE GRISEFACTA Dyar.

1911, Dyar, Proc. Ent. Soc. Wash., XIII, 20, *Olene*.

1913, B. & McD., Contr. N. H. Lep. N. A., II, (2), 75, pl. II, ff. 8-9, *plagiata* race, *Olene*.

A slight difference in the shape of the valves of the male genitalia; less triangularly scaled palpi; coupled with more elongate scales on the primaries; lead the authors to consider this species distinct from *plagiata* Wlk. (= *pinicola* Dyar).

OLENE BONNIWELLI sp. nov.

Palpi triangularly scaled, brownish marked with black. Head and collar brownish, intermixed with black. Thorax black mixed with brownish. Primaries; ground color pale grey, tinged with brownish, and heavily powdered with black; basal line black, outwardly oblique from costa to *inner* margin; a black basal dash below the cell extending nearly to the t. a. line; t. a. line broad, black, somewhat waved, but without prominent angles, slightly oblique, outwardly, from costa to inner margin; reniform large, outlined by black, with a brownish center, the whole more or less surrounded by a patch of pale grey; t. p. line strongly excurved from costa around cell, thence strongly incurved in submedian fold, nearly forming the letter S on the left side, reversed on the right, only slightly waved, without inward angle on vein 1; a large black spot in the submedian fold bordered distally by whitish; s. t. line a diffuse shade, more or less obsolescent, outwardly oblique from costa to below vein 7, thence inwardly oblique, waved, irregular, in all specimens before the authors obsolescent below vein 3; a black terminal line interrupted by the veins; fringe brownish-grey slightly checkered by paler grey. Secondaries: nearly uniform dark-brown, with a large but obsolescent discal spot; fringe concolorous, slightly checkered by paler brown. Beneath: dull brown, powdered with black, costal areas of all wings and inner area of primaries paler; primaries with the cell more or less filled with fuscous, t. p. line and reniform showing: secondaries with a diffuse fuscous median shade, and discal spot with a bar of scales in the cell.

Expanse: 39-40 mm.

The series before the authors shows very little variation.

The present species is allied to *grisefacta* and *plagiata* (= *pinicola*), the scales on the primaries similar to those of *grisefacta* but the coloration darker, the palpi more triangularly scaled, and numerous small differences in the various lines and spots; palpi, maculation and color somewhat similar to *plagiata* but lacking the usual whitish shade following the s. t. line, while the scales on the primaries are much narrower and more elongate.

While the genitalia of the various species of *Olene* do not present strikingly different characters, the valves of the present species appear different from those of its allies, while lobate being considerably in-

dented laterally, the indentation surrounded, especially dorsally, by strong chiten.

Type locality: High Rolls, N. Mex. (Bonniwell).

Number and sexes of types: Holotype ♂, Aug.; 8 ♂ Paratypes, July (6), Aug. (2).

GEOMETRIDAE GEOMETRINAE⁷

PITYEJA PICTA Schaus.

1898, Schaus, Jour. N. Y. Ent. Soc., XI, 145, *Pityeja*.

caudata Dogn.

1911, Dognin, Het. Nouv. L'Amer. du Sud, Fasc. III, 47, *Nematocampa*.

A single specimen is in the Barnes Collection from Paradise, Cochise Co., Ariz., 8-15 June.

The authors are indebted to Mr. Schaus for the identification and synonymy.

PSYCHIDAE

EURUKUTTARUS POLINGI sp. nov.⁸

♂. Antennae 28-30 joints, bipectinate to tips; branches long and heavily ciliated; both shaft and branches clothed on upper side with closely appressed,

⁷Geometrinae in the sense used by Barnes and McDunnough, 1917, Check List; Ennominae of most authors.

⁸The authors prefer to describe the present species in the genus *Eurukuttarus* Hamp. (commonly spelt *Eurycyttarus*) with the knowledge that a new genus will probably be erected for this insect and *carbonaria*.

In a recent paper by Dr. Dyar, 1923, Ins. Insc. Menst., XI, 2 et seq., that author places a number of American species in "*Pachythelia*" Westwood (originally spelt *Pachythelia*).

Considered only from the standpoint of venation, *Pachythelia* would have to fall to *Canephora* Hbn. If the vestiture be considered, some of the North American species are certainly as densely clothed as *unicolor*, genotype of *Canephora*, and would fall to that genus, Dr. Dyar considering the names of the Tentamen available.

But none of the described American species known to the authors possess the "spine" (epiphysis?) on the fore tibia which is one of the characters of *Canephora* and *Pachythelia*, apparently never before disputed as being of generic value.

Tentatively, it seems best to consider the 11-7 veined U. S. species, except *Hyaloscotes fumosa* Butl., as belonging to *Eurukuttarus*, bearing in mind that these are subject to division into several groups, probably genera, on characters such as venation, vestiture, and wing-shape, correlated with distinct larval habits and cases.

Mr. Jones has kindly furnished the author with drawings of the venation of the types of *H. fumosa*; and while the nature of the anal veins seems to indicate that the species is a member of Psychinae; as defined by Hampson, Strand, and others; the size, palpi, antennae, and vestiture, if the original description is at all correct, seem to exclude the possibility of it being congeneric with *Eurukuttarus*.

flattened, scales. Fore tibiae slender, unarmed. Head clothed with long black and white hairs. Thorax clothed with long white hairs with some admixture of black, appearing whitish. Abdomen mainly clothed with black hairs. Primaries deep black with a bronze sheen, the scales rather broad, not as heavily scaled on the distal third as on the mesial two-thirds; fringe pure white. Secondaries entirely similar in coloration to the primaries. Beneath: similar to upper side.

Expense: 19-21 mm.

Venation: essentially the same as in *Canephora unicolor* Hufn., (see 1906, Spuler, Schmett. Europ., II, 174), but in the specimens of both species examined by the authors, the basal half of vein 1c of the primaries is somewhat stronger in *polingi*, being about half the strength of a normal vein. Fore wing with 11 veins, 1a anastomosing with 1b in the central third of the wing and then running toward the inner margin. Hind wing with 7 veins; with a bar between veins 7-8 near middle of cell; 4, 5 variable, stalked or connate.

Differs from *E. carbonaria* Pack. by the paler thorax, bronze sheen and broader scales on the wings, the more translucent distal portions of the wings, and the white fringes, primaries with outer margin straighter, more oblique, the apical angle more acute.

Mr. F. M. Jones has kindly donated a freshly bred specimen, and case, of *carbonaria*, taken within a few miles of Mr. Belfrage's collecting ground in Texas.

Mr. O. C. Poling, in whose honor the present species is named, collected cases of a Psychid on "tar-weed" in the immediate vicinity where he caught the long series of *polingi*, and stated in a letter that he believed these cases furnished some of the adults he had caught. The cases are very similar to those collected in Texas by Mr. Jones, and from which he bred specimens of *carbonaria*. These two species, altho distinct, are structurally closely allied and differ from the remainder of the described North American forms.⁹ It is, therefore, likely that Mr. Poling is correct in his association of bag and adult.

Bags: presumably of *E. polingi*. About 34 mm. in length, by 3 mm. in diameter at the widest part which is about 10-12 mm. from the larval cephalic end; from this widest part, tapering somewhat cephalically, and to almost a point, about 1½ mm. in diameter, at the caudal end; thatched with very small fragments of what appears to be chewed bark or wood, the fragments so small

⁹According to correspondence between Dr. Burrows, who examined the type of *edwardsii* Heyl., and Mr. Jones, the name represents a very close ally to the European *C. unicolor*, but the scaling is fine and hairlike. The original description states that the fringes are black, and give Texas as the locality. Mr. Jones, Mr. Dyar, and the authors are now in accord that this name will probably prove conspecific with *carbonaria*, and will have priority.

and so thoroughly fastened in place that the bag bears the resemblance of a twig closely covered with scale-insects; the silk appears to be pale grey in color, but is so densely covered with fragments that it is impossible to see it except at the two ends of the bag; the caudal end of the bag is evidently too small for the male moth to simply push a round hole through it, and this end is split in two places for a length of about 3 mm.

Type locality: Sells P. O., Indian Oasis, Pima Co., Ariz. (O. C. Poling).

Number and sexes of types: Holotype ♂, 1-15 April 1923; 27 ♂ Paratypes, 1-15 April 1923; 51 ♂ Paratypes, 15-30 April 1923; six of these last having been deposited in the collection of Mr. F. M. Jones.

PLATOECETICUS JONESI B. & Benj.

1922, B. & Benj., Contr. N. H. Lep. N. A., V, (1), 47, *Manatha*.

1923, Dyar, Ins. Insc. Menst., XI, 4, "*gloverii*"?, or *nigrita*?, *Psyche*.

Dr. Dyar states that he sees no difference between "*gloverii*" and *nigrita*; and that the authors stated the antennae of *jonesi* were more shortly pectinated than those of "*gloverii*". This is incorrect; the authors did not mention the name *gloverii* in volume V, number 1, of the Contributions. *Nigrita* has longer pectinations on the antennae and different genitalia from any other described species from Southern United States formerly placed by the authors in *Manatha*.

Apparently none of the original Glover Psychid material is in existence, either in Boston, Cambridge or Washington¹⁰; and until 1922 no one else had reported rearing a small Psychid from Orange.

Prior to that date, however, the junior author had had specimens of cases found on *Satsuma* in Southern Mississippi, and during the latter part of the season obtained living larvae¹¹. These cases agree well with those of the Glover manuscript figure, being covered with rather small fragments and appearing nearly naked. Twenty males emerged and are similar in antennal structure to *jonesi* but black like *E. confederata*, practically lacking the brown tints of *nigrita* and *jonesi*. The larvae at first refused to eat any of the leaves of orange (*Satsuma*), osage-orange, maple, elm, grass, etc., and for several days

¹⁰Mr. Louis Swett has searched the Packard Collections, i. e., Cambridge and the Boston Society of Natural History. Messrs. Schaus and Heinrich have searched thru the material of the National Museum. Apparently no specimens of any of the original material in any stage, labeled or otherwise, is in existence in these institutions.

¹¹Thanks are due to Mr. Kimball Harmon, who spent many hours searching orange groves for this insect and found larvae in various *Satsuma* groves at Gulfport, Mississippi, and vicinity. It is entirely due to Mr. Harmon's keen eyesight and desire to assist, that the authors were enabled to obtain specimens.

ate the rind of an orange. Finally they commenced eating the buds of the blossoms of hawthorn, then the leaf-buds and finally fed upon tender leaves. However, the cases remained the same as when on orange.

The cases of the common southern Psychid, which may or may not be distinct from *jonesi* (see 1922, B. & Benj., Contr., V, (1), 47), and which is a general tree-feeder, do not resemble the cases figured by Glover, except in size.

Until evidence tending to disprove is submitted, it is proposed to restrict the name *gloverii* to the blackish, Gulf-strip, orange-feeding, species; whose bags agree with the Glover figures. With such fixation of the name *gloverii*, the genus *Platoeceticus* (type *gloverii*) may be used for the North American forms hereto listed as *Manatha*, until some worker studying the European forms finds valid characters on which to base the genera. It may well be that *Psyche* should be used, but temporarily *Platoeceticus* seems safer.

PYRALIDAE

PYRAUSTINAE

EDIA MINUTISSIMA Sm.

1906, Sm., Can. Ent., XXXVIII, 234, *Lythrodus*.
coolidgei Dyar.

1921, Dyar, Ins. Insc. Menst., IX, 143, *Edia*.

A specimen from Palm Springs, Calif. (topotype of *coolidgei*) was compared with the type of *coolidgei* by the senior author. It agrees well with a "cotype" of *minutissima* in the Barnes Collection, where the species is represented by a long series of specimens from Yavapai Co. and Mohave Co., Ariz.; Clark Co., Nev.; San Bernadino Co. and Riverside Co., Calif.

NYMPHULINAE

ARGYRIA RILEYELLA Dyar.

1913, Dyar, Ins. Insc. Menst., I, 113, *Argyria*.

Described by Dr. Dyar from a single specimen from an unknown locality. The Barnes Collection contains four specimens from Southern Pines, N. Car., June and Aug.

The authors are indebted to Dr. W. T. M. Forbes for calling attention to this species; a specimen of which has been compared with the type by the senior author.

CATACLYSTA PLEVIE Dyar.

1917, Dyar, Ins. Insc. Menst., V, 78, *Elophila*.

Originally described from Maine.

Two specimens from Southern Pines, N. Car., are in the Barnes Collection, one of which has been compared with the type in the National Museum.

CATACLYSTA LONGIPENNIS Hamp.

1906, Hamp., Ann. Mag. Nat. Hist., (7), XVIII, 381, *Cataclysta*.

A single female in the Barnes Collection from Oak Creek Cañon, Ariz., 6000 ft., Aug., F. H. Snow, agrees with a paratype of *longipennis* in the National Museum. There seems no reason to doubt the locality label, so the species should be placed on N. A. lists.

NYMPHULA SERRALINEALIS sp. nov.

♂. Closely allied to *N. gyralis* Hulst, with similar maculation, but the white transverse lines present a much more serrate appearance and the ground color is dull fuscous-grey only very slightly tinged with rufous.

♀. Similar to the female of *gyralis* but the central area of the secondaries is defined by the black transverse lines and appears somewhat larger in size.

Expanse: ♂, 22-23 mm.; ♀, 27 mm.

Hampson apparently recognized two species, but *dentalinea* Hamp. appears to be a straight synonym of *gyralis* according to a specimen compared with the type by Dr. McDunnough.

Type locality: Hymers, Ontario.

Number and sexes of types: Holotype ♂, 24-30 June; Allotype ♀, 16-23 July; 6 ♂ Paratypes, 1-7 July (1), 16-23 July (5); 3 ♀ Paratypes, 16-23 July, 24-31 July, 8-15 Aug.

PYRALINAE

OMPHALOCERA OCCIDENTALIS sp. nov.

Palpi, dirty ochreous beneath, fuscous grey above. Head, pale dirty ochreous. Thorax fuscous-grey mixed with pale dirty ochreous. Abdomen ochreous with black dorsal tufts. Primaries: nearly uniformly dull fuscous-

grey with no distinct maculation, except a slight darkening on some veins indicating an obsolescent s. t. line, and a narrow black terminal line broken by pale dots at the extremities of the veins; fringe concolorous, with a paler basal line and interline. Secondaries: only slightly paler than the primaries, nearly unicolorous, the veins slightly darker, the costal margin slightly paler; terminal line and fringe as on primaries. Beneath: dirty whitish-grey, with an obsolescent pale common line bounded by darker shading; marked by dull ochreous on basal-costal area of primaries and costal area of secondaries; secondaries with an obscure blackish discal dot; terminal lines and fringes as on upper side.

Expanse: 34-35 mm.

Closely related to *O. dentosa* Grote and possibly a western race of that species.

The genitalia of the present species and the other two described species of *Omphalocera* seem very similar.

The grey color and lack of distinct maculation should render identification of the present species not difficult. The palpi seem shorter and less heavily scaled than in *dentosa*; the antennae narrower, and their scale tufts smaller.

The authors have never seen *dentosa* from west of Texas; nor any forms transitional to *occidentalis* in either color or lack of maculation.

Type localities and number and sexes of types: Holotype ♂, Clark Co., Nev., 24-30 June; Paratype ♂, High Rolls, N. Mex., no date.

CHRYSAUGINAE

TOSALE SIMILALIS sp. nov.

♂. Head, thorax, and ground color of primaries dull ochreous-brown; basal, t. a. and t. p. lines pale, the t. a. space of a darker shade than the remainder of the primary but not conspicuously disconcolorous, median space suffused in parts with grey, t. p. line excurved from costa, drawn in on vein 2, thence oblique to inner margin. Fringes blackish, interlined with a pale line, and with pale tips. Secondaries: ground color slightly paler than the primaries, the disc more or less suffused with fuscous. Fringes as on primaries. Beneath: dull ochreous, the disc of the primary with a fuscous patch. Secondaries powdered with black scales and somewhat tinged with rufous, with a faint pale median line.

♀. Olivaceous instead of ochreous-brown, similar to the male in pattern; but, as usual in the genus, lacking the black discal areas on the secondaries above and the primaries below.

Expanse: 16-18 mm.

Closely allied to *T. oviplagalis* Wlk., and most readily distinguished from that species by the paler color, and the fact that the discal patch on the secondaries of the males is not as intensely black. The pale median line on the under side of the secondaries appears nearer the center than in the eastern species.

Type localities and number and sexes of types: Holotype ♂; Allotype ♀; 2 ♂, 2 ♀, Paratypes, Redington, Ariz.; 1 ♂, 6 ♀, Paratypes Southern Arizona; 1 ♀, Paratype, Arizona; no other data.

CRAMBINAE

HEMIPLATYTES gen. nov.

Type *H. epia* Dyar.

Proboscis vestigial; palpi porrect, extending about three times the length of the head and thickly clothed with hair; maxillary palpi triangularly scaled; frons without a prominence, nearly flat between the eyes; antennae of male laminate; of female, simple; tibial spurs moderate; fore wing with apex acute in male; somewhat more rounded in female; vein 3 from before angle of cell, 4 and 5 well separated at origin, 7 from below upper angle, 10 free, 11 closely approaching 12 and joined to it by a cross vein. Hind wing with vein 3 from before angle of cell, 4 from angle, 5 from about one-third of the discocellulars above angle, 6 and 7 connate from upper angle, 7 anastomosing with 8 for about half way to the apex.

Hemiplatytes is apparently an intermediate genus between *Platytes* and *Diatraea*, most closely approached by the oriental genus *Ubida*. Besides possessing a unique venation, it differs from *Diatraea* and *Chilo* in possessing no frontal prominence; and from *Platytes* in possessing a vestigial proboscis. From *Ubida* it differs in habitus, wing-shape, venation, and antennae in both sexes.

HEMIPLATYTES EPIA Dyar.

1912, Dyar, First Rept. Laguna Marine Lab., p. 165, *Diatraea*.

1917, B. & McD., Check List, p. 141, No. 5434, *Chilo*.

damon B. & McD.

1918, B. & McD., Contr. N. H. Lep. N. A., IV, (2), 172, pl. XXIV, ff. 13-14, *Platytes*.

A figure of the type of *epia* so matched the types of *damon* that the authors submitted specimens to Mr. Carl Heinrich for comparison. The authors are informed that one of the female paratypes of *damon* is a good match for the type of *epia*, which is a female.

HEMIPLATYTES PROSENES Dyar.

1912, Dyar, First Rept. Laguna Marine Lab., p. 165, *Diatraea*.
1917, B. & McD., Check List, p. 141, No. 5433, *Chilio*.

Apparently this species belongs with the preceding, having the same general distribution and habitus, similar antennae, palpi, tongue, vestiture and frons, the venation also agreeing with the exception of vein 11 of the primaries which anastomoses with 12 for a short distance, the distal ends of both veins being free.

EPIPASCHIINAE

MACALLA THYRSISALIS Wlk.

1858, Wlk., Cat. Lep. Het. B. M., XVI, 156, *Macalla*.

A single female in the Barnes Collection from Miami, Florida, 16-23 June, matches a male from Guatemala (Barnes and Schaus), donated by Mr. Schaus. According to Hampson, (Trans. Ent. Soc. Lond., 1896, p. 465), *Aradrapha mixtalis* Wlk., (1865, Cat. Lep. Het. B. M., XXXIV, 1257), is a synonym.

EPIPASCHIA ALBOMEDIALIS sp. nov.

Head and palpi, brownish-rufous. Thorax, black-purple. Primaries: basal-t. a. area deep black-purple, tinged with rufous, bounded distally by a slightly darker, outwardly oblique, t. a. line; a violaceous-white V-shaped median area bounded mesially by the t. a. line and distally by the median shade which is more or less suffused and united with the deep purple distal half of the wing; a black tuft of scales at the end of the cell; t. p. line blackish, single, inwardly oblique on costa, thence excurved, drawn in to a point on the submedian fold, thence nearly erect to inner margin; a costal white mark distad of the t. p. line; a black terminal line, interrupted by white dots at the extremities of the veins; fringe brownish, interlined with darker brown. Secondaries: whitish, considerably suffused with dull fuscous-brown, with a darker median shade and outer margin, a fuscous terminal line, and veins more or less marked by fuscous; fringe as on primaries. Beneath: yellowish-white, more or less tinged with red, some of the markings of the upper side showing faintly; secondaries with an obscure fuscous discal dot.

Expanse: about 19 mm.

Type localities: San Benito and Brownsville, Texas.

Number and sexes of types: Holotype ♂, 1-7 April; Allotype ♀, 16-23 May; 4 ♂ Paratypes, 16-23 March (2), 1-7 Aug. (2); 4 ♀ Paratypes, 1-7 May (1), 16-23 May (1), 16-23 July (1), no date (1); all San Benito; 1 ♀ Paratype, "6-11", Brownsville, Geo. Dorner.

JOCARA ELEGANS Schaus.

1912, Schaus, Ann. Mag. Nat. Hist., (8), IX, 658, *Jocara*.

Thirteen specimens of this species are in the Barnes Collection from San Benito and Brownsville, Texas. Two males and one female have been compared with the type and series in the Schaus Collection at the National Museum by Messrs. Heinrich and Schaus. Specimens show considerable variation in both maculation and venation, but according to genitalic slides of tropical material made by Mr. Heinrich, only a single species is involved.

TETRALOPHA SPALDINGELLA sp. nov.

Palpi ochreous. Head and thorax ochreous-rufous. Abdomen ochreous. Primaries: ground color violaceous-grey powdered with black; basal-t.a. area suffused with ochreous and rufous; t. a. line black, double, included space pale violaceous-grey, outwardly oblique from costa to inner margin; median shade line an irregular series of black tufts; t. p. line black, followed by a pale shade, erect between costa and radius, thence bent at a right angle and excurved around cell, incurved below vein 5, outwardly produced to points on the veins; s. t. shade line almost parallel to the outer margin, produced to long points on the veins which are more or less marked with fuscous scales; a terminal line of black dots between the veins; fringe pale grey with a darker interline which is more or less broken into dots. Secondaries: whitish, heavily suffused with fuscous and appearing grey, a faint median shade line often obsolescent, a thin dark terminal line; fringe yellow at base, followed by a fuscous interline, white tips. Beneath: whitish; primaries suffused with fuscous and appearing grey, some of the maculation of the upper side showing through; secondaries suffused and powdered with fuscous, especially on costal margins; each of the wings with a black terminal line broken into dots by the veins; fringes as on upper side.

Expanse: 23-25 mm.

Allied to *aplastella* Hulst, but a more contrasty insect, the ochreous and red shades disconcolorous, contrasting; the anal portion of the basal scale tuft red in the present species, black in *aplastella*.

A specimen from the White Mts., Ariz., in the Barnes Collection, may be conspecific.

Type locality: Stockton, Utah (Tom Spalding).

Number and sexes of types: Holotype ♂, 1-VIII-14; Allotype ♀, 16-VII-13; 4 ♂ Paratypes, 19-VII-13, 19-VI-14, 1-VII-14, 2-VII-14.

TETRALOPHA DOLOROSELLA sp. nov.

Palpi, head, and thorax whitish powdered with black. Abdomen ochreous. Primaries: ground color violaceous-grey powdered with black and suffused with ochreous and rufous-brown tints; basal t. a. area with considerable ochreous-brown suffusion; basal scale tuft black; t. a. line black, double, included space pale violaceous-grey, outwardly oblique from costa to inner margin; mesial half of the median space pale violaceous-grey, distally bounded by a black median line of scale tufts; distal half of median space heavily powdered by black scales; t. p. line blackish, followed by a pale violaceous-grey shade, erect between costa and radius, thence bent at a right angle and excurved around cell, incurved below vein 5, outwardly produced to points on the veins; s. t. shade line obsolescent, mainly indicated by a rufous-brown s. t. shade followed by a violaceous grey terminal shade, and else indicated by some black powdering of scales on the veins; a terminal line of black dots between the veins; fringe brownish with a darker interline. Secondaries: brownish; with an obsolescent, slightly darker, median shade and a thin dark terminal line; fringe yellowish at base, followed by a fuscous interline; tips whitish. Beneath: fuscous-brown; the veins darker; some of the maculation of the upper side showing through; each of the wings with a black terminal line, more or less broken by the veins; fringes as on upper side.

Expanse: about 24 mm.

Superficially very much like *T. spaldingella* in appearance, the ochreous and red shades disconcolorous, contrasting; but with the palpi only reaching slightly beyond the vertex; and with the basal joint of the antennae only slightly enlarged, bearing no process.

Type locality: Colorado Springs, Colo. (Oslar).

Number and sexes of types: Holotype ♂, unique.

TETRALOPHA PROVOELLA sp. nov.

Palpi, head and thorax powdered whitish and black. Abdomen ochreous, heavily black banded, and powdered with black. Primaries: ground color whitish heavily powdered with black and appearing grey; basal-t.a. space appearing blackish; basal tuft black; t. a. line black, double, included space paler, outwardly excurved and oblique from costa to inner margin; median space whitish, heavily powdered with black and appearing grey; median shade marked by raised scale tufts of black and white scales; t. p. line black, followed by a pale shade, erect between costa and radius, thence excurved around cell, incurved below vein 5, outwardly produced to points on the veins; s. t. shade obsolescent; a terminal line of black dots between the veins; fringe whitish, with a darker interline more or less broken into dots, and with grey tips. Secondaries: fuscous; with an obsolescent darker median shade; and a thin dark terminal line, more or less broken into dots by the veins; fringe yellow at the base, followed by a fuscous interline, tips white. Beneath: primaries whitish, heavily suffused with

fuscous and appearing quite dark, with a trace of the t. p. line showing through as a black shade; a terminal row of black dots; secondaries whitish, powdered with fuscous along costal margins; a faint terminal row of blackish dots; fringes as on upper side.

Expanse: about 26 mm.

Three males and two females are in the Barnes Collection, presumably all conspecific. The females, however, differ from the males by having the mesial half of the median space much paler than the distal half. One male, from Deer Creek, Utah, has slightly darker secondaries. One of the females is from Vineyard, Utah.

Apparently most closely allied to the species now going under the name *aplastella* Hulst, which is represented by a so-called "type" in the Hulst Collection, a female labeled Colorado; but much more powdery, entirely black and white, lacking any brownish tint on the primaries, and with shorter processes to the basal antennal joints.

In order not to run the risk of a mixed type series the types of the present species are restricted as follows.

Type locality: North Fork, Provo Canyon, Utah (Tom Spalding).

Number and sexes of types: Holotype ♂; 1 ♂, Paratype; both "VIII-4".

TETRALOPHA ARIZONELLA sp. nov.

Head, collar and palpi dull grey tinged with ochreous. Thorax dull rufous-grey. Abdomen ochreous, with more or less grey powdering. Primaries: dull bronze color, powdered with dull violaceous-grey scales; t. a. line double, black, included space violaceous-grey, outwardly oblique, but irregular, from costa to inner margin; median shade composed of jet-black tufts of scales; t. p. line a blackish shade, followed by a violaceous-grey shade, somewhat inwardly oblique from costa to inner margin, only slightly excurved around cell, produced to points on the veins; s. t. shade obsolescent; a thin black terminal line, interrupted by pale points on the veins; fringe nearly concolorous with the wing, with a paler line at the base, and an obsolescent darker interline. Secondaries: whitish, heavily suffused with fuscous and appearing cupreous-grey; veins darker; fringe yellowish at the base, with darker interline, and white tips. Beneath: whitish, more or less suffused with fuscous; with darker veins; t. p. line showing through on the primaries; terminal line on both pair of wings as on upper side; else immaculate; fringes as on upper side.

Expanse: 25-26 mm.

Superficially resembling *aplastella* Hulst but with much shorter palpi and much longer processes from the basal antennal segments in the males, in these characters not dissimilar to *fuscolotella* Rag.

Besides the types, presumably the present species is represented in the Barnes Collection by three males from Palmerlee, one male from Paradise, and one male from the Huachuca Mts., Arizona.

Type locality: White Mts., Ariz.

Number and sexes of types: Holotype ♂; Allotype ♀; 5 ♂, 1 ♀ Paratypes; no dates.

TETRALOPHA THORACICELLA sp. nov.

Palpi, head and thorax ochreous to rufous more or less mixed with black and violaceous-white. Abdomen ochreous. Primaries: ground color ochreous, more or less hidden and suffused with powderings of violaceous-white and black, often appearing dull greyish tinted with ochreous; presenting no striking contrasts, altho the distal-anal half of the t. a. space is often quite strongly dull ochreous without much suffusion of black and with no white; basal scale tuft black; t. a. line black, double, included space violaceous-white, obscured above the furrow, below which it is outwardly oblique to inner margin, produced to an outward point on median vein, and an inward point on anal vein; median shade obscure, represented mainly by a small black scale tuft with more or less of a violaceous-white admixture; t. p. line black, single, followed by a violaceous-white shade, nearly erect on costa, excurved around cell, incurved below vein 5, produced to points on the veins, s. t. shade obsolescent, a fuscous shade, mainly indicated by the violaceous-white following the t. p. line and by a powdering of the same color in the terminal space, when distinct produced to points on the veins; a thin black terminal line, broken into dots by the veins; fringe yellowish at the base, with a fuscous interline and paler tips. Secondaries almost unicolorously fuscous brown, the extreme outer margin somewhat darker; fringe yellowish at the base, with a fuscous-brown interline and whitish tips. Beneath: dull fuscous-brown, the anal areas of all wings paler, fringe of scales on under side of the fore wing of the male excessive for North American species.

Expanse: 21-23 mm.

A short series has been standing unnamed in the Barnes Collection for about twenty years, other specimens from the same lot were with the miscellaneous *Epipaschiids*, while Mr. O. C. Poling sent several specimens collected the past season. It is peculiar that all of these specimens are males, all came from the same locality, and that presumably the insect is either very rare, or does not occur at all in other sections of the southwestern part of the United States.

The authors are indebted to Mr. Schaus, who informed them that the species is closely related to *sabbosa* Schaus, and is represented by a couple of poor specimens from Mexico City in the National Museum.

With his usual generosity Mr. Schaus insisted that the authors name the insect from their longer series.

The present species may be easily distinguished from all known species from Boreal America by possessing a greater breadth across the head, and a nearly square thorax, so that the insect presents a very peculiar habitus; also the fringe of scales on the under side of the fore wing of the male is excessive, the palpi are very long being about twice as long as the head, in this character resembling *T. asperatella*, while the processes to the basal antennal joints are longer than in any described species, when rested across the thorax extending to about the caudal edge of the collar, and when erected extending about half of their length beyond the tips of the third joints of the palpi.

Type locality: Baboquivari Mts., Pima Co., Ariz. (O. C. Poling).

Number and sexes of types: Holotype ♂, 15-30 July 1923, El. 5-7000 ft.; 27 ♂, Paratypes, as follows: 15-30 July, 5-7000 ft. (2), 27-31 July (1), 1-15 Aug. (3), no date (21).

TETRALOPHA GRISEELLA sp. nov.

Palpi, head, thorax, abdomen, and ground color of primaries dull grey composed of black and white powdering. All ordinary lines more or less obsolescent; when visible t. a. black, double, included space paler, nearly erect, slightly excurved from costa and incurved in submedian fold; t. p. line black, single, followed by a somewhat paler shade, erect on costa, strongly excurved around cell, thence incurved to inner margin, dentate on the veins; a black terminal line broken by pale points at the extremities of the veins; fringe grey, interlined with darker grey, and faintly checkered with white. Secondaries: nearly uniform fuscous, the veins somewhat darker; and with a faint, thin, blackish terminal line; fringe white, with a fuscous interline near the base. Beneath: dull fuscous-grey; all wings slightly paler along the inner margins; terminal lines and fringes as on upper side.

Expanse: 24-26 mm.

A rather aberrant member of the genus *Tetralopha* as vein 6 of the fore wings is shortly stalked with veins 7-10, veins 4 and 5 are shortly stalked, and the male has no process from the basal antennal joint, while the fore wing possesses a distinct furrow; the species thus being a connecting link between the subgenera *Wanda* and *Pococera*. In view of the fact that the North American species of *Pococera* are all at present listed as *Tetralopha*, while many South American species described as *Tetralopha* lack the process from the base of the male antenna; the authors prefer to describe the present species as an aber-

rant *Tetralopha*. It is not unrelated to *tertiella* and *baptisiella*, and will probably eventually be listed with them as *Pococera* (*Wanda*).

Type localities: Palmerlee and Paradise, Cochise Co., Ariz.

Number and sexes of types: Holotype ♂, June; Allotype ♀, June; 2 ♂ 1 ♀, Paratypes, July; 1 ♀ Paratype, no date; all Paradise; 1 ♀ Paratype, no date, Palmerlee.

PHYCITINAE

ONEIDA LUNIFERELLA race PALLIDALIS NOV.

Similar to *O. luniferella* but the ground color is white, only slightly powdered with blue-grey; whereas in the typical form the ground color is deep violaceous-grey. The apical patch of the Utah form is conspicuously red-brown with the only black being three intersecting veins; whereas the apical patch of the Colorado form is more or less heavily suffused with fuscous overlaying the brown.

Type locality: Stockton, Utah.

Number and sexes of types: Holotype ♂, 30-VI-13; Paratype ♂, 16-VII-14.

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