

which are separately rounded, surface brown, sparsely, rather finely punctured, sparsely clothed with long prostrated reddish-brown hairs intermixed with long erect ones of the same color, and with a very narrow sutural stripe of dense prostrated whitish hairs. Scutellum subquadrate, rounded behind, surface densely punctured and densely clothed with long prostrated hairs. Underside fusco-piceus, surface densely punctured, clothed with long prostrated whitish hairs. Femora, tibiae and tarsi brown, sparsely clothed with semi-erect hairs. Fifth ventral segment about as long as the fourth, broadly emarginate behind. Length 10 mm.; width 3 mm.

*Female:* Differs from the male in having the fifth ventral segment longer than the fourth and rounded behind. Length 12 mm.; width 3 mm.

*Habitat:* Monumental Mines, California. Elevation 3600 feet. P. D. Sergeant, collector.

*Type and allotype:* Cat. No. 19130 U. S. N. M.

Described from five specimens, four males and one female, recorded under Bureau of Entomology Number Hopk. U. S. 10856d. Reared by Mr. J. M. Miller from old cones of *Pinus attenuata*, collected October 2, 1913, by P. D. Sergeant.

This interesting species is somewhat suggestive of a narrow *Atimia confusa*. It differs from that species by its reddish-brown color, elytra with a narrow whitish sutural stripe and tips separately rounded, thorax not wider than long and being somewhat cordiform.

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## DESCRIPTIONS OF NEW NORTH AMERICAN MICROLEPIDOPTERA.

BY AUGUST BUSCK.

In one of my early papers (Journ. N. Y. Ent. Soc., vol. VIII, 1900, p. 234), I expressed the opinion, that in the then existing unsatisfactory state of our knowledge of American Microlepidoptera, it was of little value (or worse) to describe promiscuously new species from collected material; only when working up a group systematically did it seem to me excusable to describe species of which the biology was not known.

This attitude has influenced my production of descriptive work during the past years and I have described new species only as the demand for names from correspondents necessitated it, or when other considerations made it desirable or obligatory. There are for this reason hundreds of *Micros* as yet undescribed in the collection of the United States National Museum.

I still have a disinclination for new species of which we know nothing more than the type specimens, (and the present paper

contains mainly species, of which the life history is known), but our knowledge of the group has now so advanced, that such descriptions can be made with profit to science and I realize the obligation to make our North American fauna known so far as possible. I also fully realize the propriety and value of the Monroe Doctrine as applied to Entomology; it is an advantage to science that American insects should be worked up by Americans and that the types should be deposited in American Museums in order that it shall not be as necessary for future generations to go to Europe for information on American insects, as it has been for the present generation. If we do not do our own work, others will quite rightly do it and with that result.

In a letter lately received from my good friend and master Edward Meyrick of England, which I am permitted to quote, he writes: "As to the principle of describing such species (without biological notes) from North America, I describe all the material that I have in hand of a family, before publishing that family in the *Genera Insectorum* in order to make this work as complete as possible. If you have species in good series, describe them. I have thousands of undescribed species in hand and material coming in constantly from all parts of the world, therefore I don't want to do American species, if any one else will do them. But I want the North American species described; if you do not do it I will have to do it myself." I quote this not because an excuse is needed to describe our American Micros, but in order to give my indefatigable learned co-worker due credit not only for his own enormous personal share in the progress of our knowledge of the world's Microlepidoptera, but also for his ever incitating influence on other workers, forcing us to keep step with him as far as we are able.

***Memythrus perlucida* n. sp.**

Labial palpi bright yellow, shaded exteriorly with vivid red. Head reddish brown. Antennæ reddish brown. A narrow collar light yellow, bordered anteriorly with blue metallic scales. Thorax dark reddish brown, narrowly edged posteriorly with yellow. Forewings light reddish brown with the veins bluish black; extreme base of costa light yellow; cilia blackish brown. Hindwings glassy blue, entirely transparent, except a narrow edge before the cilia, which is reddish brown mixed with black; veins black, touched with red. Cilia blackish brown. Abdomen reddish brown with a narrow light yellow annulation on the posterior edge of second joint and a broader yellow annulation on fourth joint. In the male the posterior joints become somewhat lighter, touched with yellow; a short double yellowish brush above the uncus, not projecting beyond the claspers. Legs red, tarsi shaded with yellow. Alar expanse: 28-32 mm.

*Type:* Cat. No. 19223, U. S. N. M.

Reared by Mr. Brunner from *Populus trichocapa*. The species is closely allied to the other *Populus* species, *M. dollii* Neumoegen, and *castaneum* Beutenmuller, but at once distinguished by the clear hindwings.

***Psacaphora cambiella* n. sp.**

Second joint of labial palpi reddish golden; terminal joint black. Face, head and thorax shiny iridescent black. Antennæ black with silvery white tips. Forewings purplish-black with a large, central, light brick-red part, which occupies about half the wing area; within this red part are three small oval black spots edged with purplish silvery scales; one of these spots is on the middle of the fold, the other at the end of the cell and the third about the middle of the cell, touching the black costal edge of the wing; at apical fifth is a light yellow costal dash, continuing into the cilia and on the terminal edge is a purplish silvery longitudinal streak within the black border; cilia black. Hindwings and cilia purplish black. Abdomen black. Legs black with golden yellow inner sides and with a golden annulation on posterior first tarsal joint. Alar expanse: 13-14 mm.

*Habitat:* Evaro, Mont., J. Brunner, Coll.

*Type:* Cat. No. 19224, U. S. N. M.

Bred from cambium of *Salix*.

Close to *P. purpuriella* Busck, in coloration, but different in pattern.

***Eucordylea gallicola* n. sp.**

Second joint of labial palpi white with three indistinct dark brown annulations; brush dirty white with dusky tip; terminal joint white with two clear cut black annulations. Antennæ thick, ochreous with black annulations. Face and head ochreous white, head sprinkled with fuscous. Thorax whitish fuscous. Forewings light fuscous with three black costal dashes, one near base, one on the middle and one at apical third; these black costal spots are exteriorly edged by thin, ill-defined white lines, which continue obliquely across the wing, the two outer ones meeting on termen just below apex; two longitudinal black streaks on the middle of the wing, one just before and one after the end of the cell; before and below the first of these is a small group of slightly raised, rust-red scales on the fold; cilia fuscous dusted with black. Hindwings light fuscous with ochreous fuscous cilia; in the male with a large expansible, bright yellow hair tuft at base. Legs ochreous white sharply barred with black; tarsi with black annulations. Alar expanse: 13 mm.

*Habitat:* Colorado Springs, Colo., S. A. Rohwer, Coll.

*Type:* Cat. No. 19225, U. S. N. M.

Bred from galls of the Sawfly, *Euura macgillivrayi* Rohwer, on *Salix*.

The species reminds much of the genus *Recurvaria* from which *Eucordylia* is a derivative.

***Recurvaria alnifructella* n. sp.**

Second joint of labial palpi dark fuscous with apex white; terminal joint white with two broad black annulations, one near the base and one just before the tip. Face and head ochreous white. Antennæ light fuscous with narrow black annulations. Thorax ochreous white, slightly sprinkled with fuscous and with two minute black dots at the base of the hindwings. Forewings black with white dorsal edge; an indistinct white, outwardly curved costal streak at apical fourth and an opposite oblique dorsal white streak limit an apical area, which is slightly mottled with lighter scales; three small black tufts of raised scales on the border of the white dorsal part; cilia ochreous fuscous. Hindwings silvery fuscous, semitransparent; in the male with a long ochreous expansible hairpencil at base; cilia ochreous. Abdomen dark fuscous with light ochreous anal tuft and with an ochreous patch on the upper side of the first joints. Legs black with ochreous white annulations at the end of all the joints. Alar expanse; 12 mm.

*Habitat:* Falls Church, Va., Carl Heinrich, collector.

*Type:* Cat. No. 19226, U. S. N. M.

The larva feeds in the catkins of alder and hazel in the same fashion as *Eucosma walkerana* Kearfott, the larva of which is described by Packard in his "Forest Insects" p. 636, misidentified as *Gelechia coryliella* Chambers (*Menesta tortriciformella* Clemens).

The full grown larva of the present species is about 12 mm. long with a light brown head, dark brown thoracic shield and anal plate; small brown tubercles, arranged in a transverse row on each segment; body is white with a broad pink annulation in each joint; thoracic legs light brown; abdominal prolegs with a circlet of hooks, which is broken on each side, interiorly and exteriorly.

***Gnorimoschema gibsoniella* n. sp.**

Labial palpi white dusted with blackish brown scales; an ill-defined blackish annulation on the middle of terminal joint. Face and head white speckled with blackish brown. Thorax white strongly dusted with blackish brown. Forewings with a bluish white ground color, so strongly suffused with brown and blackish scales, as to make it difficult to determine what is the ground color; each white scale has a dark band before the tip; three ill-defined brown spots, one on the middle of the cell, one obliquely below on the fold and one at the end of the cell; basal part and dorsal edge of the wing least suffused with dark scales so as to slightly outline the pattern found in the type of the genus; cilia white strongly dusted with black and brown. Hindwings light fuscous with still lighter cilia. Abdo-

men light fuscous sprinkled with black; basal joints above short scales, golden yellow. Legs whitish, heavily barred and dusted with blackish brown; tarsi blackish brown with indistinct narrow white annulations. Alar expanse: 22 mm.

*Habitat:* Aveme, Manitoba, N. Criddle, Coll.

*Foodplant:* *Solidago rigida*.

*Type:* Cat. No. 19227, U. S. N. M.

Cotypes in Ottawa Museum.

Very close to but quite distinct from the type of the genus. Named in honor of my friend Arthur Gibson, who states that the species makes a gall on *Solidago rigida* just above or close to the ground.

***Gnorimoschema petrella* n. sp.**

Labial palpi white, dusted with light fuscous. Antennæ white with dark brown annulations. Face, head and thorax white, strongly dusted with fuscous. Forewings white, liberally and evenly dusted with brownish fuscous atoms and with three small, indistinct, black dots, one on the middle of the cell, one obliquely below on the fold and one at the end of the cell; cilia dusky white, dusted with fuscous. Hindwings dark fuscous with the cilia a shade lighter. Abdomen dark fuscous with whitish undersides. Legs with heavy dark brown barred exteriorly and with broad dark brown tarsal annulations. Alar expanse: 17 mm.

*Habitat:* Hampton, N. H.; May, S. A. Shaw, Coll.

*Type:* Cat No. 19228, U. S. N. M.

***Dichomeris vacciniella* n. sp.**

Labial palpi with moderate, bluntly triangular tuft, brownish fuscous, speckled with white on top of the brush; terminal joint light brown, dusted with black and with extreme base white externally. Face light brown. Head dark fuscous. Thorax and patagia brown. Forewings dark brown, sparsely and irregularly dusted with black scales; three small, round, black dots, edged with white scales, one on the middle of the cell, one obliquely below and before it on the fold and one at the end of the cell; apical part of the wing strongly suffused with purplish black scales, the extreme apical and terminal edge black; cilia dark fuscous with light ochreous brown tips. Hindwings light fuscous, suffused with black on the outer costal part; cilia light gray. Abdomen light ochreous brown, dusted laterally with black. Legs light ochreous brown, suffused exteriorly with black and with blackish tarsal annulations. Alar expanse: 15-17 mm.

*Habitat:* Pemberton, N. J., H. D. Scammell, Coll.

*Type:* Cat. No. 19229, U. S. N. M.

A very distinct species, bred by Mr. Scammel from cranberry.



**Symmoca novimundi** n. sp.

Second joint of labial palpi dark bronzy brown with light ochreous inner sides and apex; terminal joint dark brown with the extreme tip ochreous. Face light ochreous. Head dark fuscous. Antennæ dark fuscous with apical third pale ochreous. Thorax dark fuscous with the tips of the patagia and two small posterior dots whitish ochreous. Forewings dark fuscous with a small ill-defined whitish ochreous spot below costa near base; with a concolorous, ill-defined, larger spot on the end of the cell touching costa and with a small whitish ochreous costal spot at the apical fourth, sometimes with an opposite small dorsal dot; cilia dark fuscous. Hindwings light fuscous with whitish fuscous cilia. Abdomen dark fuscous with light anal tuft. Legs dark fuscous with light ochreous annulations at the base of the joints. Alar expanse: 12-13 mm.

*Habitat:* Roxborough, Pa., September, F. Haimbach, Coll.; Montclair, N. J., August, W. D. Kearfott, Coll.

*Type:* Cat. No. 19230, U. S. N. M.

This is the first record of this interesting old world genus from America; the species is typical of the genus and very close to the European *S. quadripuncta* Haworth, but is smaller, with the markings more whitish, not yellow and with the palpi differently colored.

**Ethmia zavalla** n. sp.

Labial palpi white, second joint black exteriorly. Face and head white. Antennæ dark brown with white basal joint. Thorax white with one posterior and two lateral black dots; patagia white with black basal dash. Forewings white with extreme costal base black and with 10 black dots besides a marginal series of 13 black dots; three dots in a line from base of costa to basal third of dorsum; two others in a line at right angles with the first, to the first costal marginal dot; one dot in the middle of this angle on the cell, two at the end of the cell and one beyond the cell; the first dorsal and the first costal marginal spots are nearly opposite and are both elongated; cilia white with a black apical tuft. Hindwings whitish fuscous with white cilia; vein 8 free, not connected with the cell by a cross vein. Abdomen whitish fuscous. Anterior legs white, barred with black, tarsi annulated with black; posterior legs whitish with dusky tarsi. Alar expanse: 18 mm.

*Habitat:* Zavalla Co., Tex., April F. C. Pratt, Coll.

*Type:* Cat. No. 19231, U. S. N. M.

Allied to the following species, *E. prattiella* and to *E. coranella* Dyar, in size and ornamentation; different from the former in the fewer and larger black dots, from the latter by the absence of any longitudinal streaks; from both in the coloration of the palpi.

**Ethmia prattiella** n. sp.

Labial palpi pure white, terminal joint unusually short. Face and head white. Antennæ dark brown with white basal joint. Thorax white with two minute anterior black dots and with two lateral dots; patagia white with a small basal black dot. Forewings white with 16 small black dots besides a marginal series of black dots; one dot at extreme base of the wing; five dots in a longitudinal row on the upper half of the wing from base to beyond the first costal dot; two are on the fold, one below the fold, three within the cell, three beyond the cell; cilia white. Hindwings whitish fuscous with white cilia. Abdomen light fuscous. Legs whitish with dusky tarsi. Alar expanse: 17 mm.

*Habitat:* Zavalla Co., Tex., April, F. C. Pratt, collector.

*Type:* Cat. No. 19232, U. S. N. M.

**Blastobasis eriobotryæ** n. sp.

Labial palpi dark purplish fuscous with the inner side and extreme apex light ochreous. Face light ochreous. Top of head dark fuscous. Antennæ dark fuscous with light ochreous basal joint; second joint in the male enlarged with a deeply excavated notch. Thorax dark brownish fuscous. Patagia and extreme base of the forewings lighter, mixed with ochreous; rest of the forewing dark purplish fuscous, darkest towards the contrasting light base; a small round black dot on the middle of the cell and two similar black dots at the end of the cell; cilia light ochreous fuscous. Hindwings golden fuscous with cilia concolorous. Abdomen dark ochreous fuscous with lighter undersides and anal tuft. Legs light ochreous fuscous with heavy broad black bars on the exterior side and with the tarsi annulated with black. Alar expanse: 14 mm.

*Habitat:* Miami, Fla., E. R. Sasser, Coll.

*Type:* Cat. No. 19233, U. S. N. M.

Bred from dry "mummy" fruit of Loquat, *Eriobotrya japonica*, hanging on the trees; moths issued early in July.

**Sparganothis albicaudana** n. sp.

Labial palpi light reddish ochreous. Face straw colored, apparently depressed, due to the projecting bright ochreous scales of the head. Antennæ ochreous with white upper side. Thorax and forewing bright yellow, faintly reticulated with slightly raised lines of golden coppery scales; the female has a blackish brown oval spot on the middle of dorsal edge, faintly connected with a small costal spot at basal third by a light coppery, angulated line; from the middle of costa runs a more distinct, outwardly curved, coppery line across the wing to the dorsal edge just before tornus; extreme terminal edge light coppery; cilia yellow. The male has a small, dark reddish brown costal fold, covering only a sixth of the costa, and the dorsal and costal spots are much lighter colored than in the female

light bluish brown. Hindwings ochreous white. Abdomen white. Legs ochreous white without dark annulations. Alar expanse: ♀ 20 mm.; ♂ 17 mm.

*Habitat:* Notch, Pa.

*Type:* Cat. No. 19205, U. S. N. M.

Bred by the writer from leaf-tying larvæ on maple together with nearly allied, *Sparganothis pettitana* Robinson, which occurred in much larger proportions.

***Sparganothis ferreana* n. sp.**

Labial palpi reddish ochreous, shaded exteriorly with reddish brown. Head light ochreous. Thorax reddish brown, with the posterior tip and the tips of the patagia yellow. Forewings rusty brown with light ochreous markings, made up of small oval spots, separated by veins of the ground color; the basal third of the wing is mottled in this pattern; another aggregation of ochreous spots occupy a large semicircle, resting on the middle of the costal edge; a third area of somewhat further separated ochreous spots occupies the apical fourth of the wing; only a broad dorsal blotch at apical third of dorsum with two oblique branches to costa show the unmottled brown ground color; cilia yellow. Hindwings silvery white with a ochreous tinge. Abdomen whitish ochreous. Legs whitish, shaded exteriorly with brown. Alar expanse: 21 mm.

*Habitat:* Ilion, N. Y., H. McElhose, Coll.

*Type:* Cat. No. 19234, U. S. N. M.

A striking species allied *S. reticulana* Clemens.

***Tortrix (Cacæcia) lambertiana* n. sp.**

Labial palpi light reddish ochreous; second joint ascending, terminal joint short, porrected. Face, head and thorax light golden brown. Antennæ light brown with whitish annulations. Forewings light golden brown with silvery ochreous markings, which are edged with darker reddish brown, as follows: an indistinct, strongly angulated fascia from middle of costa to tornus, the lower half of which is nearly perpendicular and broken up into half a dozen spots by thin longitudinal crosslines of the ground color; perpendicular series of similar spots just before apex; all of these markings are in other fresh, bred specimens more or less obliterated by the ground color; cilia silvery white. Hindwings whitish ochreous with white cilia. Abdomen and legs dull ochreous. Alar expanse: 19 to 22 mm.

*Habitat:* Oakland, Oreg., P. I. Sargent, Coll.

*Foodplant:* *Pinus lambertiana*.

*Type:* Cat. No. 19235, U. S. N. M.

Closely allied to *Tortrix negundana* Dyar and allies, for which Meyrick retains the genus *Cacæcia* on the single character: ascending palpi, in difference from his conception of *Tortrix*, which



is restricted by him to the forms with porrected palpi; I am at present unable to maintain more than one genus.

**Abrenthia** new genus.

Labial palpi long, curved, smooth; second joint rather short; terminal joint twice as long as second; pointed, not flattened. Maxillary palpi rudimentary. Tongue well developed, curled. Antennæ half as long as the forewings, thick, smooth, with short joints and very short pubescence. Face, head and thorax smooth. Forewings elongate ovate, apex blunt, termen and dorsum evenly rounded, costa nearly straight to apical fourth; cilia short; 12 veins, all separate; 11 from near base; 2 from before the cell; 3 to 10 from end of the cell; internal vein from between 10-11 to between 7-8; 1 b. furcate at base; 1 c. present, but obliterated towards base. Hindwings as broad as the forewings, trapezoidal, costa and dorsum nearly straight, parallel; apex blunt, termen straight; tornus rounded; 8 veins; 8 free; 3 and 4 connate; 5, 6 and 7 somewhat approximate at base; cilia short. Posterior tibiæ smooth.

*Type: A. cuprea* Busck.

The genus is near to *Millieria* Ragenot, *Maclotica* Meyrick and *Glyphipteryx* Hübner, different from all of these in the smooth, nearly sickleshaped, pointed palpi with the terminal joint much longer than the second.

*Millieria* Ragenot has incorrectly been sunk as a synonym of *Porpe* (*Choreutis* Authors) by Meyrick; the latter genus must be restricted to the species with veins 3 and 4 coincident in the hindwings.

**Abrenthia cuprea** n. sp.

Labial palpi light golden purple. Antennæ purplish black. Thorax, patagia and extreme base of forewings dark bronze with strong metallic golden reflections. Forewings dark purplish blue with numerous thin, equidistant, longitudinal, whitish violaceous lines from base to apex; apical edge strongly metallic violaceous; cilia dark brown. Hindwings blackish brown with whitish cilia. Abdomen dark purplish brown with silvery underside. Legs dark brown with white tarsal annulations. Alar expanse: 11 mm.

*Habitat:* Roxboro, Pa., June, F. Haimbach, collector; Falls Church, Va., July, Carl Heinrich, collector.

*Type:* Cat. No. 19239, U. S. N. M.

A gorgeously colored little moth, unlike any North American species, reminding one of the South American genus *Maclotica* to which it is allied.

**Coleophora acamtopappi** n. sp.

Labial palpi light ochreous, whitish on the inner sides; second joint with small pointed tuft. Antennæ light ochreous without basal scale tuft.

Face and head whitish ochreous. Thorax light ochreous with two longitudinal white streaks; patagia ochreous with white edges. Forewings light golden yellow with three longitudinal white streaks; one broadly covering the costal edge, one through the middle of the wing, broad to the end of the cell, thence attenuated to apex and one narrow white streak along the dorsal edge, reaching only to the middle of the wing; cilia whitish ochreous. Hindwings dusky ochreous with whitish cilia. Abdomen ochreous fuscous with dark yellow underside and anal tuft. Alar expanse: 18 mm.

*Habitat:* Los Angeles, Cal., October, A. Koebele, Coll.

*Foodplant:* *Acamtopappus sphærocephalus*.

*Type:* Cat. No. 19240, U. S. N. M.

Closely allied to the other California species, *C. quadristrigella*, Busck, *C. entoloma* Busck and *C. accordella* Wlsm., but easily distinguished by the pattern.

***Coleophora suædæ* n. sp.**

Labial palpi white, touched with yellow on the outer side of second joint, which has a small, pointed, projecting tuft. Antennæ slightly thickened towards base, but without tuft on first joint, light ochreous with narrow white annulations. Face, head and thorax light ochreous. Forewings light ochreous with ill-defined broad longitudinal white streaks, heavily dusted with dark brown; one such brown dotted streak lies below the costal edge on vein 12; four shorter parallel lines start at the edge of the cell and run to costa, the last one to apex; one line runs along the lower edge of the cell and one on the fold; none of the costal streaks reach quite to the costal edge, which is unmottled and brighter yellowish than the rest of the wing; cilia whitish ochreous. Hindwings and cilia light ochreous. Abdomen light fuscous with ochreous underside and anal tuft. Legs light ochreous; posterior tibiae with a longitudinal yellow line exteriorly. Alar expanse: 18 mm.

*Habitat:* Los Angeles, Cal., November, A. Koebele, Coll.

*Foodplant:* *Suæda suffrudecens*.

*Type:* Cat. No. 19241, U. S. N. M.

The case is cylindrical, but rather bulging, rough, made of the foodplant, light ochreous; mouth slightly deflected and cut off at 45 degrees; the posterior tip pressed together from three sides; length 10 mm.

This species is next to but distinct from *Coleophora acutipennella* Wlsm.; it is very different from the other American *Coleophora* on *Suæda*, *C. suædicola* Cockerell, which is a much smaller white, black speckled species with a dark brown cigar-shaped case.

***Coleophora manitoba* n. sp.**

Labial palpi white. Face, head and thorax white. Antennæ thickened and serrated with scales on basal half, white with dark brown annulations.

Forewings white sparsely dusted with black scales towards apex and with a small, deep black dot within the dorsal margin at apical third; cilia white. Hindwings silvery fuscous with dusky white cilia. Abdomen whitish. Legs white; posterior tibiae dark brown exteriorly. Alar expanse: 13-14 mm.

*Habitat:* Aweme, Manitoba, N. Criddle, collector.

*Type:* Cat. No. 19242, U. S. N. M.

Cotype in the Ottawa Museum.

The species was bred from cases found on grass. The case is dark brown, made of silk with numerous small pieces of gravel incorporated; it is cylindrical with the head opening cut off nearly laterally to the case, without any neck; anal opening pressed together from three sides.

***Marmara pomonella* n. sp.**

Second joint of labial palpi blackish brown with apex white; terminal joint white with an anterior black spot. Maxillary palpi whitish with black tips. Face, head and thorax in the specimen before me are badly rubbed, but apparently normally blackish brown. Forewings bluish black, shiny, with a large silvery white costal spot on the middle wing, another similar costal spot at apical third, and a silvery white fascia just before apex; cilia blackish with apical part silvery white. Hindwings dark fuscous with lighter fuscous cilia. Abdomen bluish black with silvery under-side and anal tuft. Legs black with broad, silvery white annulations. Alar expanse: 8 mm.

*Habitat:* Corvallis, Oregon, H. F. Wilson, Coll.

*Type:* Cat. No. 19243, U. N. S. M.

Bred from larva mining just under skin of apple. The work and the larva of this species have long been known and have repeatedly been sent in for determination; the mine is figured in Bull. 10, new series, Division of Entomology, U. S. Dept. of Agriculture, 1898, page 88, fig. 19.

***Marmara serotinella* n. sp.**

Labial palpi silvery white; second joint with a blackish brown apical annulation. Maxillary palpi dark fuscous. Face and front parts of the head silvery white; top of the head dark brown. Thorax blackish brown. Forewings blackish brown with silvery white markings; broad, triangular, white fascia at basal third is broadest on the dorsal edge and attenuated on the costal edge; oblique white fascia beyond the middle of the wing is thinner on the middle than at the edges of the wing; at apical fourth is a small white costal spot and opposite a similar dorsal spot; beyond this is a small white dash or a few white dots in the costal cilia; cilia dark fuscous. Hindwings dark brownish fuscous. Abdomen blackish brown above, under-side and anal tuft silvery. Legs silvery white with dark brown annulations. Alar expanse: 6 mm.

*Habitat:* Falls Church, Va., C. Heinrich, collector.

*Type:* Cat. No. 19244, U. S. N. M.

*Foodplant:* *Prunus serotina*.

Exceedingly close to the type of the genus *Marmara salictella* Clem., but with less white ornamentation of the apical parts of the wing. The deeply serrated, typical larva makes long mines just under the epidermis of the branches of wild cherry characteristic of the genus.

***Argyresthia castaneella* n. sp.**

Labial palpi golden white. Face and head pure white. Antennæ golden with brown annulations. Thorax white; base of patagia golden. Forewings white with a broad, bright, golden, longitudinal streak along costal edge, gradually widening from the middle of the wing into the darker, golden brown apical part, which is slightly reticulated with white; at the end of the cell is a darker golden brown spot, adjoining the dark costal part of the wing; on the middle of the dorsal edge is a similar dark spot; cilia white; forewings with veins 7-8 stalked. Hindwings dark fuscous with white cilia. Abdomen dark brown above, silvery white on the undersides with golden anal tuft. Legs silvery. Alar expanse: 10 mm.

*Habitat:* Falls Church, Va., May, C. Heinrich, collector; Hampton, N. H., June, S. A. Shaw, collector.

*Type:* Cat. No. 19245, U. S. N. M.

Very close to *Argyresthia subreticulata* Wlsm., but darker in color and differing by the dark dorsal spot in the otherwise pure white dorsal part of the wing.

Mr. Heinrich has bred this species from the bark of chestnuts, infested with *Sesia castaneæ* Busck.

***Argyresthia franciscella* n. sp.**

Labial palpi, face and head yellowish white. Antennæ with white basal joint, with dark brown annulations. Thorax white. Forewings pearly white, dusted with light brown; an outwardly oblique blackish brown streak from basal third of dorsum is faintly continued to costal edge; a similar, parallel, brown streak from just beyond the middle of dorsum may likewise be faintly traced to apical third of costa, where it meets an ill-defined transverse fascia from apical fourth of dorsum; apical part of the wing strongly suffused with bronzy brown; cilia white with a few irregular, black dashes at base. Hindwings light fuscous with whitish cilia. Abdomen silvery white. Legs white with dark brown tarsal annulations. Alar expanse: 10 mm.

*Habitat:* San Francisco, Cal., May, E. O. Essig, Coll.

*Type:* Cat. No. 19246, U. S. N. M.

Easily distinguished from all the American brown marked species of the genus by the two dorsal dark streaks. Received from Mr. E. O. Essig with the label "in tips of Cypress."

**Zelleria haimbachi** n. sp.

Labial palpi, face and head pure white. Antennæ white with ill-defined, light, brown annulations. Thorax white edged posteriorly and laterally with golden yellow; patagia golden yellow. Forewings light, golden yellow with a broad, central, longitudinal, white streak from base to apex; outer half of costal edge, apical part of the wing and cilia slightly dusted with black; cilia black. Hindwings silvery, whitish fuscous; cilia white. Abdomen silvery white mixed with light yellow, anal tuft pure white. Legs silvery white. Alar expanse: 12 mm.

*Habitat:* Wenonah, N. J., F. Haimbach, collector.

*Type:* Cat. No. 19247, U. S. N. M.

Bred from short needle pine by Mr. Haimbach after whom this striking little species is named. The species pupated June 31, and the imago issued July 17. The species reminds one in coloration and pattern of *Cerostoma* (*Abeba*) *gerdanella* Busck.

**Bucculatrix ilecella** n. sp.

Face silvery white. Tuft and head white mixed with ochreous fuscous. Antennæ white with dark brown annulations; eyecaps white. Thorax and forewings white, suffused with light ochreous brown scales; two very ill-defined faint crosslines of blackish brown scales, one from the middle and one from apical third of costa obliquely outwards across the wing; three or four small groups of blackish brown scales on the fold; cilia white with dark brown basal line. Hindwings silvery fuscous with whitish cilia. Abdomen silvery fuscous above with silvery white underside. Legs silvery white, indistinctly barred with blackish brown exteriorly. Alar expanse: 4 mm.

*Habitat:* Victoria, Tex., July, W. D. Hunter, Coll.

*Foodplant:* *Ilex* species.

*Type:* Cat. No. 19248, U. S. N. M.

Probably the smallest species of this genus on record; it belongs in the *pomifoliella* group. Bred by Mr. Hunter from holly; the cocoons are pure white strongly longitudinally ribbed; typical of the genus, length 5 mm.

**Incurvaria gillettella** n. sp.

Labial and maxillary palpi dark brown, the former with bristles at the end of the second joint. Head rusty red. Antennæ blackish brown with white annulations. Thorax dark brown. Forewings dark brown with three silvery white, angulated fasciæ, the first from basal third of costa inwardly inclined and partly obliterated to near the base of dorsum; the second inwardly inclined from the middle of costa, sharply angulated on the cell and thence outwardly bent to apical third of dorsum; the third from apical third of costa, strongly inwardly curved, ending on vein 3, without attaining the dorsal edge. Cilia brown with white tips. Hind-



wings loosely scaled, semitranslucent, light brown with concolorous cilia. Abdomen and legs uniformly dark brown. Alar expanse: 25 mm.

*Habitat:* Silverton, Colorado, C. P. Gillette, Coll.

*Type:* Cat. No. 19249, U. S. N. M.

This is the largest described American species of this genus, nearest to *I. oregonella* Walsingham, but easily distinguished by the pattern.

***Incurvaria itoniella* n. sp.**

Labial palpi yellowish white with a few black bristles; maxillary purplish black. Antennæ bronzy, blackish brown. Face and head light reddish yellow with a few scattered black hairs. Thorax and forewings unicolorous dark greenish brown with strong bronzy reflections, and in some lights golden; cilia bronzy brown. Hindwings dark purple with scattered golden scales around the edges; cilia purplish brown. Abdomen and legs bronzy brown; posterior tibiae with long silky whitish hairs above. Alar expanse: 11 mm.

*Habitat:* Kaslo, Brit. Columbia, J. W. Cockle, Coll.

*Type:* Cat. No. 19250, U. S. N. M.

Very similar in size and general habitus to our eastern *Euclemensia acerifoliella* Clemens, but differing generically and in the lighter, more greenish color; it is also somewhat more narrow winged.

The genus *Incurvaria* has been separated by Mr. Meyrick (Hand Book 1895) on the antennal ciliation in the male, and some of the European species as *I. capitella*, have on this ground been placed in the genus *Tinea*. This is another striking case, where the use of secondary sexual characters has caused curious mistakes in generic classifications; *I. capitella* and its allies are aculeates and hence do not even belong to the same family as the genus *Tinea*; the genera *Tinea* and *Incurvaria* may be best separated by the presence or absence of wing aculeation.

***Incurvaria cyanella* n. sp.**

Labial palpi golden yellow. Antennæ black. Face and head light reddish yellow. Thorax dark bronzy brown. Forewings dark greenish and bluish bronzy brown overlaid with scattered metallic golden scales; cilia dark brown. Hindwings dark purplish brown with lighter brown cilia. Abdomen blackish brown. Legs blackish brown. Alar expanse: 10 mm.

*Habitat:* Oak Station, Pa., F. Marloff, Coll.

*Type:* Cat. No. 19287, U. S. N. M.

Very close to the foregoing species *I. itoniella* Busek, but smaller, darker, more bluish in color and at once distinguished by the metallic golden scaling on the forewings.

***Incurvaria cockerelli* n. sp.**

Second joint of labial palpi light yellow, terminal joint black. Tongue black. Antennæ black with silvery white tips. Face and head reddish ochreous. Thorax dark metallic green. Forewings dark greenish bronze, with strong metallic golden reflection; at apical third is a large, transverse, oval, light yellow spot, touching the dorsal edge and reaching nearly across the cell; underside deep blue, sprinkled with golden scales; cilia blackish brown. Hindwings deep purplish blue, with base of costal edge silvery fuscous and with cilia dark metallic brown. Abdomen dark bluish brown. Legs dark bronzy brown. Alar expanse: 11 mm.

*Habitat:* Long Peak and Peacefull Valley, Colorado, Prof. T. D. A. Cockerell, collector.

*Type:* Cat. No. 19288, U. S. N. M.

Named in honor of the collector, who continually adds interesting finds to the National Museum.

It is close to the following species, *I. sedella*, but larger, with darker head and with yellow, oval spot at apical third supplanting the transverse white fascia.

***Incurvaria sedella* n. sp.**

Labial palpi yellow with black terminal joint and black setæ. Antennæ bronzy black with white tips. Face and head yellowish white. Thorax dark bronzy brown. Forewings dark bronzy brown with a white transverse fascia at apical third; cilia bronze. Hindwings dark purple with basal half of costa silvery white; cilia dark golden purple. Abdomen dark purplish brown. Legs silvery, shaded with dark purple. Alar expanse: 9 mm.

*Habitat:* Boulder, Colo., T. D. A. Cockerell, collector.

*Type:* Cat. No. 19289, U. S. N. M.

Taken by Prof. Cockerell on *Sedum*.

***Prodoxus barberella* n. sp.**

Labial palpi brownish fuscous, touched with white. Maxillary palpi blackish fuscous. Antennæ blackish brown, dotted on the upper side of basal half with white and with white basal joint; ciliation in the male 1. Face, head and thorax white. Forewings white with blackish brown longitudinal markings as follows: costal third with short irregular longitudinal dashes, which towards apex form three more defined short lines, running obliquely to the costal edge; a large, longitudinal brown dash on the middle of the fold, a small one on the cell and a large one beyond the end of the cell; an approximate semicircular dorsal spot at apical third, an ill-defined series of marginal dark brown spots before the cilia; cilia white, dusky at apex and at tornus. Hindwings semitransparent with scant, hairlike, dark fuscous scales; cilia whitish fuscous. Abdomen blackish brown with whitish anal tuft. Legs dusky white. Alar expanse: 14-17 mm.

*Habitat:* Ray, Ariz., 4400 feet altitude, H. S. Barber, collector

*Foodplant:* *Agave palmeri*.

*Type:* Cat. No. 19290, U. S. N. M.

I am pleased to dedicate this interesting and pretty species to Mr. Barber who, on January 4, 1914, cut a tall dry flower stalk of the *Agave* in Arizona and brought it to Washington, where more than a hundred moths issued from it about the middle of March. The larvæ are glassy white with light brown head and dark brown mouth parts; they are, as is typical of the genus, entirely apodal, without any trace of thoracic legs or abdominal prolegs; length 12–14 mm.; before pupation they bore out to the surface of the stalk, leaving only a thin silk lined circular lid, which is pushed out by the pupa at emergence; the pupal shell is thin and flimsy and remains protruding from the exit hole.

The genus *Prodoxus* Riley has been incorrectly sunk as a synonym of *Tegeticula* Zeller (= *Pronuba* Riley) in the Biologia. The two genera are abundantly distinct in all stages; the larva of *Tegeticula* has thoracic legs, that of *Prodoxus* is apodal; the pupa of the former is strongly and characteristically spined, while that of *Prodoxus* is smooth, and the remarkably developed "Maxillary tentacle" in *Tegeticula* is represented in *Prodoxus* only by a slight protuberance.

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### RHABDOBLATTA BRUNNEONIGRA, A NEW COCKROACH FROM CHINA.

BY A. N. CAUDELL, *Bureau of Entomology.*

Among a few miscellaneous Orthoptera from China recently received for determination from N. Gist Gee of Soochow was a large roach which, according to Shelford's keys, belongs to the genus *Rhabdoblatta*. The species is apparently a new one and the following description is therefore presented.

#### ***Rhabdoblatta brunneonigra* n. sp.**

A brownish black roach nearly one and one-half inches in length exhibiting the following characters: Head projecting somewhat from beneath the pronotum; eyes large and separated by a distance as great as twice the greatest width of the basal segment of the antennæ; ocelli large and as widely separated as the eyes; antennæ shorter than the body, the basal segment large and over twice as long as broad, the second slightly smaller and scarcely longer than broad, the succeeding ones gradually diminishing in diameter, those of the basal third or so transverse, beyond growing more elongate, those towards the apex slightly more than twice as long as broad. Pronotum about twice as broad as the head, the widest part slightly in advance of the middle, anteriorly very broadly rounded and posteriorly obtuse angulate, the disk with a pair of somewhat obscure shallow depressions on each side of the middle. Legs moderately stout, all the

femora armed beneath on both margins with three or four moderately stout spines; tarsi with distinct pulvilli, the basal segment, especially of the middle and hind legs, long and distinctly armed beneath, except on the apical fourth or fifth which is occupied by the pulvillus, with a double row of short sharp spinules; claws with moderately large arolia between them. Wings black, or nearly so, in the anterior half, the anal area very moderately fuliginous towards the outer margins, basally still less so; posterior ulnar vein many branched, some of the branches ending in the dividing vein; apically the wing is slightly undulate, being somewhat prolonged in the marginal area (fig. 1). Elytra far surpassing the tip of the abdomen, about as broad as the pronotum and about four times as long as broad, the sides subparallel and the apex subtruncate, being somewhat undulate as in the wing.

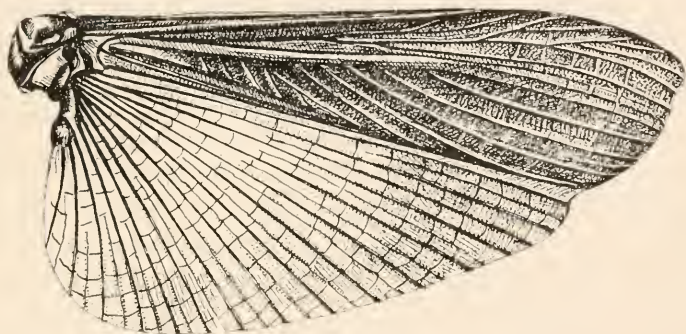


Fig. 1. *Rhabdoblatta brunneonigra* Caudell.

Abdomen with the subgenital plate entire and bearing a pair of short movable styles; supraanal plate mesially depressed longitudinally and apically notched; cerci moderately slender and surpassing the supraanal plate by more than one-half of their own length.

General color brownish black; head and pronotum black, the eyes and the ocelli light brown and the antennal scrobae, the mesial portion of the clypeus and some of the palpal segments marked more or less with the same color. Legs black with the spines a little lighter and the tarsi yellowish. Abdomen blackish above, beneath black for the entire length mesially, laterally yellowish, the yellowish margins and black central stripe of subequal widths; cerci and styles and the whole of the subgenital plate blackish.

Length: pronotum, 6.5 mm.; elytra, 29 mm.; cerci, 3 mm.; width: pronotum at widest point, 7.5 mm.; elytra at middle, 8 mm.

Described from one female from Kuling Kiangsi, China, N. Gist Gee, collector.

*Type:* Cat. No. 19125 U. S. National Museum.