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NEW OLETHREUTIDAE FROM EASTERN UNITED STATES  
(LEPIDOPTERA).

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The following descriptions are offered in advance of a general revision of the subfamilies *Olethreutinae* and *Laspeyresiinae* now in preparation. It is desirable to have names for use before the larger work can appear; hence the wholly verbal descriptions. Figures of genitalia, male and female, will be given in the revision.

Subfamily *Olethreutinae*.

*Bactra maiorina*, new species.

Palpus and head whitish ochreous. Thorax ochreous, paler and more whitish ochreous cephalad. Fore wing ochreous with a central, longitudinal, fuscous shade from base to apex; at end of cell a very small dot; costa faintly strigulated with fuscous; cilia pale ochreous dusted with fuscous, especially toward apex. Hind wing ochreous fuscous; cilia whitish ochreous with a dark basal band.

*Alar expanse*.—13-20 mm.

*Type*.—Cat. no. 26280 U. S. N. M.

*Paratypes*.—In National Collection, American Museum and collection Barnes.

*Type locality*.—Arlington, Virginia.

*Food plant*.—*Scirpus fluviatilis*.

Described from male type, two male and one female paratypes from the type locality reared July 1, 1920, from *Scirpus fluviatilis*; 1 male and 1 female paratypes from Vineyard, Utah (Tom Spalding, "VI-2-12" and "IX-1-12"), and one female paratype from Linton, Indiana (J. J. Davis, "VII- , 13-1916, from Grass").

It can be easily recognized by the prominent fuscous streak through the middle of the wing. The male genitalia are of the *verutana* type but the heavy spines on cucullus are crowded toward the lower margin and not in two lines as in Zeller's species.

*Bactra priapeia*, new species.

Similar to *maiorina* but darker and with different genitalia. The central longitudinal streak on fore wing is also present in this species but is less strongly contrasted against the ground color, the entire wing being more or less suffused

with fuscous; the costal strigulations are also longer and more pronounced. Palpus spotted on outer side with fuscous; third joint fuscous. The most striking character is the aedoeagus of the genitalia; this is slender, very long, and curved in a half circle. It at once distinguishes the species.

*Alar expanse*.—16-17 mm.

*Type*.—In collection Cornell University (Cornell type No. 661).

*Paratypes*.—Cat. no. 26281 U. S. N. M. Also in collection Cornell University.

*Type locality*.—Sabine River Ferry, Louisiana.

*Food plant*.—Unknown.

Described from male type, 1 male and 1 female paratypes from the type locality (Cornell University Lot 542, sub 20); one male paratype from Shriever, Louisiana (Cornell University, Lot 542, sub 14); and one male paratype from Victoria, Texas (Cornell University, Lot 542, sub 27).

The specimens are in rather poor condition but a name is desired and as the genitalia are like those of no other North American species I do not hesitate to describe them as new. The species can be recognized at once by its abnormally long, curved aedoeagus.

#### ***Polychrosis spiraeifolia*, new species.**

Antenna ochreous, shaded above with blackish fuscous. Palpus pale sordid ochreous; second joint much shaded with fuscous on outer side; terminal joint pale. Head and thorax purplish fuscous with a slight shading of dull ochreous especially on front and tegula. Fore wing with basal patch sharply contrasted against metallic antimedial band, blackish fuscous with metallic scaling appreciable only towards base, its outer margin angulate and outwardly slanting in straight line from costa before one-fifth to lower margin of cell then inward to vein 1b and then outward again to dorsum at one-fourth; antimedial band as wide on costa as on dorsum divided by a vertical dark brownish (or blackish) fuscous line at least from costa to middle and with outer margin outwardly curved; median band slanting outward a trifle towards dorsum, roughly triangular, with apex of triangle (tooth of median band) at upper outer angle of cell, blackish fuscous with a strong dusting of ochre yellow or brownish ochreous scales, especially on dorsal half of band; against upper outer angle of cell (above and touching the tooth of the band) and visible to the naked eye, an oval ochreous spot; pretornal spot triangular, blackish fuscous more or less dusted with ochre yellow, or brownish ochreous; this ochreous color predominant upon the other dark areas especially subapical spot which shows little or no blackish scaling; subapical spot paler than median band, lying parallel to termen, carrot shaped, touching tornus below and connected above to second costal spot, on inner side to the long first costal spot and on outer side by a spur with middle of termen; third costal spot short; fourth rather long and heavily shaded with blackish, to the naked eye appearing as a black spot at apex; in unrubbed specimens the basal patch, median bar and costal spots, and sometimes the subtornal and subapical dark areas, show under magnification a faint edging of whitish scales;

postmedian pale area leaden metallic; cilia dark purplish fuscous. Hind wing smoky brown; cilia pale with a dark basal band. Underside of fore and hind wings pale smoky brown; the outer costal markings of fore wing indicated by short obscure whitish ochreous dashes.

*Alar expanse*.—8-10 mm.

*Type*.—In collection Barnes.

*Paratypes*.—Cat. no. 26282 U. S. N. M. Also in American Museum and collection Barnes.

*Type locality*.—Hazelton, Pennsylvania.

*Food plant*.—*Spiraea salicifolia*.

Described from male type, one male and three female paratypes from the type locality, labeled "Bred from *Spiraea salicifolia*, 5/29-19c" (2 males and 2 females) and "5/30-19c" (one female); and one paratype from Hampton, New Hampshire (S. A. Shaw, "8-9-1905"): these from a series of moths which Kearfott had set aside as a new species under the manuscript name here adopted.

An obscure species closely resembling *ambrosiana* Kearfott from which it is distinguishable superficially only by its paler subapical spot. The genitalia (male and female) of the two species are, however, enough different to prevent confusion. They are very similar in *spiraeifoliana* and *yaracana* Kearfott; but the latter is at once distinguished by its paler hind wings and the strong white scaling on the borders of all the dark pattern areas.

#### ***Episimus tyrius*, new species.**

Palpus reddish purple; whitish along upper inner edge of second joint. Head reddish purple in front, shaded with ochreous white above. Thorax whitish with anterior margin reddish purple and a scattering of lead colored scales behind. Fore wing to the naked eye with a large reddish purple costal patch covering most of basal half of wing; outer margin of patch concave, extending from outer fourth of costa to just above dorsum before one-half, here the patch is rounded and its lower margin curved up to base of cell; the dorsal area bordering the patch is white with a slight spotting of leaden scales giving the ground color a somewhat ashy appearance; the outer part of wing is orange yellow somewhat darker and more brownish toward termen, with a faint purplish suffusion over pretornal area and a similar small spot on costa just before apex; under slight magnification two brownish red patches are distinguishable in the purple basal area, an oblong one at its lower outer angle extending to the cell and another from midcosta extending obliquely to outer edge of the purple area; ocellus of the usual *Episimus* type with three very short longitudinal dark brown red dashes and an outer vertical metallic bar outward by edged by a curved white line; tornal area below ocellus leaden; at apex a fine white line from costa to termen, just below this a similar short white dash inward from termen; cilia brownish yellow. Hind wing fuscous; cilia concolorous, with a faint yellowish tint toward apex.

*Alar expanse*.—15–15.5 mm.

*Type*.—In collection Cornell University (Cornell type No. 662).

*Paratype*.—In collection Barnes.

*Type locality*.—Westbury Station, Queens County, New York.

*Food plant*.—*Acer dasycarpum*.

Described from female type reared by M. V. Slingerland, Nov. 21, 1894, from larva attacking the terminal shoots of Silver Maple ("C. U. Exp. no. 463"); and one female paratype from the Barnes collection taken at St. Petersburg, Florida ("April"). According to the Slingerland notes there should be two other specimens in the Fernald collection. I have not seen these.

Dr. Forbes has kindly secured for me from Professor Crosby copies of notes and correspondence at Cornell relating to this species. The following extracts from these give all that is known of the life history and habits of the insect:

"The attack is first noticed as a crisping of the small leaves around the terminal bud of the leader of vigorous shoot. These are bent downward and slightly webbed together. The worm usually found in a tunnel  $\frac{1}{4}$  to 1 inch long in the center of the young shoot. Rarely the worm uses a large leaf stalk for his tunnel. The worm is  $\frac{1}{4}$ – $\frac{5}{8}$  inch long, reddish brown, naked and smooth, and very active when disturbed. The head is round and black, smaller than the body in diameter.

"It occurs on young blocks 3–6 ft. high and is not seen on larger trees. As this is the part which forms the tree it is important that it be straight. After the attack two or more lateral shoots will form. There is therefore a loss in the height and straightness of the tree and the labor of extra pruning.

"I first noticed it on about 5% of the trees in June. Now about 50% are attacked. It has not been noticed by those who have pruned these trees in previous years." (From letter of Henry Hicks to Mr. M. V. Slingerland, Sept. 24, 1894.)

#### "Silver Maple Tip Worm.

"26 Sept. '94.—Rec'd from Henry Hicks (see letter) specimens of injured tips some of which still contained larvae. Put tips in cage to try and breed adults. Found one large larva in twisted rolled up dead dry leaf. It was about  $\frac{1}{2}$  inch long, dark crimson red, with light brown head and thoracic shield, and blackish legs and anal shield. Tuberculous spots slightly darker (greenish) than body color. Put a smaller larva in alcohol in its burrow. The smaller larvae vary in color from light yellow through brownish to the reddish tinge.

"21 Nov. '94.—A moth emerged and is pinned with its empty pupa case.

"6 Dec. '94.—Another moth emerged and is pinned. (18 Dec. '94.) Sent this last specimen to Dr. Fernald.

"21 Dec. '94.—Found a moth dead in cage. In attempting to spread it the wings came off from one side so it is pinned unspread. Pinned 2 empty cases also. Later (Jan. 3, '95). This moth was a male and has been sent to Prof. Fernald." (Slingerland notes to Exp. no. 463.)

***Endothenia infuscata*, new species.**

Like *nubilana* Clemens but more uniformly colored and without the contrasted median, pretornal and subapical markings of that species. Head, thorax and fore wing brown with the usual (*Exartema* type) median, pretornal and subapical markings but faintly indicated and scarcely darker than rest of wing. Hind wing brownish fuscous, a trifle paler than fore wing; cilia paler with a darker basal band; veins 6-7 short stalked. Hind tibia of male without hair pencil. Genitalia of male with uncus strongly developed, narrowly spatulate; aedoeagus very heavy and short, apex extended as a thin chitinous tongue; penis without cornuti.

*Alar expanse*.—17-20 mm.

*Type*.—Cat. no. 26283 U. S. N. M.

*Paratypes*.—In collection Cornell University (Cornell paratype No. 663),

*Type locality*.—Forest Glen, Maryland.

*Food Plant*.—Unknown.

Described from male type from the type locality (Otto Heide-man, "7-10-14") and 2 male paratypes from Ithaca, New York, the latter received through Dr. W. T. M. Forbes.

In genitalia this species most resembles *conditana* Walsingham. The latter, however, is a much smaller species with correspondingly smaller genitalia. The other two species which most closely resembles it in markings (*vetulana* Walsingham and *nubilana* Clemens) both have broadly spatulate unci and numerous strong cornuti. For it and for those species, now listed under *Olethreutes*, having veins 6-7 of hind wings stalked, and strongly chitinized unci (i. e. *montanana* Kearfott, *rubipunctana* Kearfott, *melanostica* Walsingham, *hebesana* Walker, *daeckeana* Kearfott, *conditana* Walsingham, *vetulana* Walsingham and *nubilana* Clemens) I am reviving Stephens' genus *Endothenia* (type: *Tortrix gentianana* Hübner).

Genus **EXARTEMA** Clemens.

For convenience of identification the species belonging to this genus may be arranged in three groups upon a character in the male genitalia. In one group there is a spined digitus projecting from the neck of the harpe close to the sacculus. In the following descriptions genitalia with this character are referred to as "of the *nitidanum* type." Another group has the digitus projecting from the neck well away from the sacculus (closer to the cucullus). This is the "*permundanum* type." A few other species (*concinnum* Clemens, *appendiceum* Zeller



*ferriferanum* Walker, *fasciatanum* Clemens and *troglochanum* McDunnough) constituting what may be called the third group, have no digitus, the spine cluster homologous with it being modified in quite a different fashion. None of the new species in this paper belong in this last group.

***Exartema subnubilum***, new species.

Male genitalia of the *nitidanum* type.

Antenna brownish fuscous. Palpus whitish ochreous; second joint shaded with fuscous towards apex; third joint blackish fuscous. Head and thorax brussels brown; head with a darker shading above and a somewhat paler one (more ochreous fuscous) on sides. Fore wing with pattern markings brussels brown; pale areas metallic, somewhat suffused with sordid brownish ochreous scaling giving them to the naked eye a pale bluish-grey-fuscous shade; basal patch outwardly angulate with an excavation below middle; antimedial pale area much lined with fuscous especially toward dorsum, darker than post median area and less contrasted against brown pattern markings. Median band with outer teeth pointed, moderately long and rather wide apart, dorsal portion of median band roughly triangular; pretornal spot triangular, its separation from median band somewhat obscured by the fuscous dusting on the pale area between them; subapical bar swollen toward extremity, narrow at termen, connected by a fine line with first costal spot, well separated from upper tooth of median band, apical costal spot extended downward along termen to base of subapical bar; cilia shining fuscous with a darker brown basal band and in some specimens with a pale whitish ochreous shading at tornus. Hind wing tawney fuscous; cilia whitish with a dark basal band; in male a notch at vein 5, another at 1c and a decided incurvation at 1b. Underside of hind wing decidedly paler than underside of fore wing. Bursa of female with signum.

*Alar expanse*.—15-17 mm.

*Type*.—In American Museum.

*Paratypes*.—Cat. no. 26284 U. S. N. M. Also in American Museum and collection Barnes.

*Type locality*.—Greenwood Lake, New Jersey.

*Food plant*.—Hazel.

Described from male type and 5 female paratypes all from the type locality and labeled "Bred Hazel" and dated "VI-25" and "VI-26"; and one female paratype from Mountain Lake, Maryland, dated "VII-30-06."

A dark species very similar to *sciotanum* in general appearance; but smaller without the fine pale line between upper and lower teeth of median bar and with male genitalia of quite a different type.

***Exartema electrofuscum***, new species.

Male genitalia of the *nitidanum* type.

Antenna ochreous fuscous; basal joint pale ochreous. Palpus cream white; second joint with a slight indication of the usual two dark spots on outer side and a faint shading of fuscous at extreme apex; third joint pale with a fuscous shading above. Head ochreous sometimes with a peppering of darker (more

brownish or ferruginous) scaling above. Thorax ochreous; paler on collar and tegula; more or less dusted with fuscous; to the naked eye a brownish shade concolorous with dark markings of fore wing. Fore wing with dark pattern markings, grading from antique to amber brown in different specimens; under magnification showing these same areas as fuscous heavily overlaid with coarse ochreous or ferruginous scales and towards outer half of wing faintly edged with whitish ochreous; basal patch broken towards base by vertical streaks of whitish ochreous, outwardly angulate with a slight excavation below middle, its outer margin beginning on costa at  $\frac{1}{3}$  from base and ending on dorsum at nearly  $\frac{1}{3}$ ; antimedial band twice as broad on costa as on dorsum, with a fine median vertical dark line and on costa enclosing three brown dashes, the middle one almost as large as any of the outer costal spots; median band continued to dorsum, outer teeth short and widely spaced; pretornal spot rather narrow, distinct, but with pale area between it and median band somewhat narrowed and dusted with dark scaling; subapical bar cornicopia shaped, connected by lines of dark scales with first costal and pretornal spots; last three outer costal dark spots fusing together below apex and extending as a narrow band almost to base of subapical band; between this fused extension and termen, a pale whitish ochreous line; post median pale area showing to the naked eye a faint ochreous clouding especially at tornus and near apex; cilia pale ochreous with a brown basal line and a clouding of fuscous at apex and opposite base of subapical bar. Hind wing tawney fuscous; cilia paler with a dark basal band which becomes obsolete at anal angle; in male a notch at vein 1b and a very slight one at 5. Underside of hind wing much paler than underside of fore wing. Bursa of female without signum.

*Alar expanse*.—15-17 mm.

*Type*.—In American Museum.

*Paratypes*.—Cat. no. 26285 U. S. N. M. Also in American Museum and collection Barnes.

*Type locality*.—Lakehurst, New Jersey.

*Food plant*.—Sweet Fern.

Described from male type, 3 male and 2 female paratypes from the type locality ("VII-4-09, W. D. Kearfott"); 2 male paratypes from Center Harbor, New Hampshire (H. G. Dyar nos. "18286" and "18415"), and one male paratype from Medford, Massachusetts (reared from Sweet Fern, 21 May, 1921, W. O. Ellis, "no. 2119-1"). In addition to the foregoing I have before me another reared male from Medford (data same as for paratype from same locality). In genitalia this specimen agrees with the others; but its dark markings are olivaceous brown and the subapical bar is differently shaped and does not connect with pretornal spot. The teeth of median band are also a trifle longer than in typical specimens. I am not including it among the paratypes, but, in spite of the differences noted, think it should be referred here.

The species is closest to *zellerianum* Fernald but decidedly less ferruginous and with antimedial and postmedian areas of fore wing paler. In color it is about midway between *subnubilum*

and *zellerianum*. It also much resembles *rusticanum* McDunnough from which it is distinguished by the paler, brighter brown markings of its fore wing and the weaker spining near the base of cucullus of harpe. Kearfott had set several of the specimens aside as a new species under the manuscript name "*liniafasciana*." As the latter is somewhat misleading I have substituted a more appropriate name.

***Exartema connanum*, new species.**

Genitalia of the *nitidanum* type.

An olivaceous drab species with the usual markings obsolete except for a strong dark brown bar or patch at lower inner angle of fore wing.

Palpus cream or pale ochreous white with a slight fuscous shading towards tip of second joint below and one or two round fuscous spots on outer side; third joint fuscous with extreme apex whitish. Side of head, thoracic collar and a triangle comprising the outer anterior half of tegula, pale olivaceous ochreous; head and thorax otherwise dark brownish fuscous. Fore wing with basal patch sharply defined and not extending above cell; costal area of wing at base pale whitish ochreous, this pale shade extending along cell and broadening out at its end towards apex and tornus thus dividing the darker ground color into three very faintly contrasted areas, a triangular shading on midcosta, a similar one on termen and an obscure blotch covering dorsal half of wing almost to tornus; costa faintly marked from base to apex with very short brown geminations; a small brown dot at end of cell; cilia fuscous with a blackish-brown basal band; underside of wing with the costa pale ochreous and the dark geminations of upperside repeated as brown dots. Hind wing whitish toward base, shading to dark smoky fuscous towards apex and termen; cilia white with dark basal band; in male an appreciable notch at vein 5, a decided notch at vein 1c and another at 1b.

*Alar expanse*.—17.5–18 mm.

*Type*.—In American Museum.

*Paratype*.—Cat. no. 26286 U. S. N. M., also in collection Barnes.

*Type locality*.—Essex County Park, New Jersey.

*Food plant*.—*Cornus canadensis*.

Described from male type labeled "K 600B, *Cornus c.*, iss. VII-6"; one male paratype from Essex County Park, New Jersey (July 4, Kearfott); and one male paratype from Caldwell, New Jersey (July 4, 1903, Kearfott). These had been set aside by Kearfott as a new species and had been given the manuscript name "*connutana*."

An easily recognized species. In pattern and genitalia closest to *punctanum* Walsingham, *inornatanum* Clemens and *clavanum* Walker. It differs from the first in that there is no distinct median dark costal patch fusing with the dark basal patch. It is paler than *inornatanum* and lacks the red scaling on thorax and lower inner angle of fore wing so characteristic of that species. In *clavanum* the basal patch is continued in a blackish



shading which extends along dorsum to beyond middle and the median costal patch is blackish fuscous and more strongly contrasted against the pale central suffusion than that of *connanum*.

***Exartema mediopartitum***, new species.

A small species with pattern of *corylanum* Fernald but lacking the ferruginous cilia and with genitalia of the *nitidanum* type.

Antenna ochreous fuscous; first joint pale sordid ochreous with a smudge of fuscous on upper side. Palpus sordid white; second joint with the usual two fuscous spots on outer side but with little or no fuscous shading at apex; third joint whitish ochreous with a broad central fuscous band. Head and thorax pale sordid ochreous somewhat dusted with fuscous. Fore wing with dark areas a dark fuscous brown overlaid with coarse pale ochreous scaling giving them an ochreous drab color to the naked eye; dark markings faintly outlined with whitish ochreous; pale areas dull whitish ochreous, the metallic scaling only apparent under magnification; basal patch outwardly angulate, ending abruptly below costa, the outer margin alone indicated at costa by a narrow fuscous dash; costa pale; antimedian band with two narrow median lines of dark scaling; median dark band broken in middle, costal part consisting of a rather narrow rhomboid patch, dorsal half fused with pretornal spot forming a single large semioval spot on outer half of dorsum; subapical bar the same width for most of its length, apex tapered, joining first costal dash; outer costal dashes narrow, that at apex the longest extending along termen as far as base of subapical bar; termen edged with a fine whitish ochreous line; cilia pale whitish ochreous with a fuscous basal band, a smoky fuscous spot at apex and another opposite base of subapical band. Hind wing pale ochreous fuscous; cilia whitish with a dark basal band; male with appreciable notches at veins 5 and 1c, hardly a trace of one at vein 1b. Underside of fore wing pale fuscous drab; costa and termen ochreous. Undersides of hind wing sordid whitish.

*Alar expanse*.—13 mm.

*Type*.—Cat. no. 26287 U. S. N. M.

*Type locality*.—Virginia.

*Food plant*.—Unknown.

Described from male type and one male paratype labeled "Va. June 1-84." These had been in the National Collection for years under the name of *corylanum* Fernald along with specimens of the true *corylanum*. The type labeled in Fernald's handwriting "*Eccopsis corylana* Fernald." It resembles that species in general color and markings; but has quite different genitalia. These of *corylanum* are of the *permundanum* type. Fernald's species also has ferruginous ochreous cilia on fore wing, a character which at once identifies it.

***Exartema tilianum***, new species.

Pattern and genitalia of the *permundanum* type.

Antenna ochreous with a dark brownish fuscous spot on upper side of first joint at base; second joint dark brownish fuscous above. Palpus whitish ochreous; second joint with one or two fuscous spots on outer side and some fuscous

scaling at apex; terminal joint dark brownish fuscous with extreme tip whitish ochreous. Head ochreous; a dark brownish fuscous shading on each side of frontal tuft. Thorax ochraceous-tawney with more or less dusting of pale ochreous especially upon anterior half of tegula. Fore wing with basal and median areas, outer costal and pretornal spots and subcostal bar brown overlaid with ochreous, giving them an ochraceous-tawney hue to the naked eye; in dark or rubbed specimens the brown ground color is more prominent especially on basal patch, pretornal spot and subapical bar, but the ochraceous-tawney shade is always predominant on median bar, especially towards dorsum; in paler unrubbed specimens all aforementioned areas are a uniform ochraceous-tawney; antimedial and postmedial pale areas leaden metallic, faintly interlined with fuscous; basal patch continuing to costa, at least on its outer margin, the pale scaling on base of costa somewhat obscuring but not sharply cutting off the patch; antimedial pale bar divided towards dorsum and enclosing a dorsal spot detached from basal patch; median band with a deep indentation on the outer side below lower tooth, teeth long and narrowly separated, the upper touching or nearly touching subapical bar, the lower equally long and bluntly pointed; dorsal portion of median band roughly diamond shaped, distinctly separated from the pretornal spot; cilia tawney, more or less shaded with pale ochreous below costa and at tornus and with a dark fuscous basal band. Hind wing ochraceous-tawney; cilia whitish with a dark basal band; in male a slight notch at vein 5, and decided notches at veins 1c and 1b.

*Alar expanse*.—18-20 mm.

*Type*.—In American Museum.

*Paratypes*.—Cat. no. 26288 U. S. N. M., also in American Museum and collection Barnes.

*Type locality*.—Greenwood Lake, New Jersey.

*Food plant*.—*Tilia americana*.

Described from male type from type locality (dated July 3, 1909, Kearfott, collector); one male paratype from Missouri (labeled: "122 M-6-20-79, C. Mo."); one female paratype (without abdomen) from Cincinnati, Ohio (A. F. Braun, "VI-7-08"), all reared from basswood; and one female paratype from Chicago, Illinois, collected "7-12-02" (Kwiat). In addition to the above I have before me a female from Lacy, New Jersey ("VII-14-07"), with the same color and pattern except that the upper tooth of the median bar is rather short and the subapical bar is definitely connected to the first of the four outer costal dark dashes rather than to the upper tooth of the median bar. Kearfott had included it among the "types" of his intended new species and it probably should be referred here but as it is somewhat doubtful I do not include it among the paratypes. Kearfott's manuscript name has been adopted.

The new species is closest to *permundanum* Clemens and *nigranum* Heinrich. From the latter it is distinguished by its paler markings and from the former by the length of the teeth of the median bar of fore wing. These are long in *tilianum* and short in *permundanum*. From both *nigranum* and *permun-*

*danum* it is distinguished by the broadened tip of the uncus of its male genitalia. The extremity of this organ is narrow in the other two species.

***Exartema sciotanum*, new species.**

Male genitalia of the *permundanum* type.

Antenna ochreous fuscous with entire upper surface of first and second joints dark brownish fuscous. Palpus whitish ochreous; second joint with two fuscous spots on outer side and much shaded with fuscous toward extremity; third joint blackish fuscous. Head and thorax brussels brown with a slight shading of dull ochre yellow, especially on anterior third of tegula. Fore wing with pattern markings brussels brown, and somewhat obscured especially on dorsum and towards base; the upper tooth of median bar, the subapical bar and pretornal spot are definite but the antimedial pale area is so suffused with brown scales that it blends with and blurs the median and basal dark areas; outer teeth of median band short, the *upper divided from the lower by a short thin ochreous line*; subapical bar cornicopia shape, terminating abruptly, narrowest at termen; postmedian area dull, somewhat suffused with fuscous and sordid ochreous scaling; cilia dull fuscous with a darker basal band. Hind wing tawney fuscous slightly paler towards base and costa; cilia whitish with dark basal band; in male a notch at vein 1b but no appreciable notch at either 1c or vein 5. Bursa of female without signum.

*Alar expanse*.—19–21 mm.

*Type*.—In American Museum.

*Paratypes*.—Cat. no. 26289 U. S. N. M., also in American Museum and collection Barnes.

*Type locality*.—Cincinnati, Ohio.

*Food plant*.—Unknown.

Described from male type, one male and two female paratypes from the type locality (Annette F. Braun, collector) and dated as follows: type and one female paratype, "V-25-04;" one male paratype, "VI-3-06;" and one female paratype, "VII-10-04." Kearfott had these set aside as a new species under the manuscript name here adopted.

The species is most easily recognized, and distinguished from others in the same group with similar color and markings, by the fine ochreous line dividing the upper and lower teeth of the median band.

***Exartema nigranum*, new species.**

Under the manuscript names "*nigrana*," "*octinigranum*," "*nigriliniana*" and "*nigradorsana*," Kearfott had separated what appeared to be four different species; a careful study of their genitalia, male and female shows them to be only color varieties of a single variable species. The extreme forms are strikingly different in pattern but there are so many intergrading specimens that no separation can be maintained. I am selecting the type of the species from the form in which the usual *Exartema*

pattern is most clearly defined and framing the description so as to include all the varieties.

Male genitalia of the *permundanum* type.

Antenna fuscous; basal and second joint with one or two blackish fuscous spots on outer side and more or less fuscous shading towards apex; third joint blackish fuscous with extreme apex whitish ochreous. Head dark brownish fuscous above; sides and front pale sordid ochreous, lower anterior edge of frontal tuft blackish fuscous (in some of the paler specimens this dark shading is not present, but in most it is conspicuous as a dark transverse bar above the face). Thorax dark brownish fuscous; anterior third of tegula dull ochre yellow. Fore wing with pattern markings brussels brown to dark fuscous brown, in the darkest specimens with a purplish tint; basal patch not reaching to costa; base of costa dull ochre yellow; a fine ochreous line along top of cell at base, dividing the basal patch and leaving its upper margin as a fuscous subcostal line; median band with teeth long and widely spaced, upper tooth touching or nearly touching subapical bar; median band with a deep indentation on outer side below tooth, in many specimens the dorsal portion of the band is entirely detached from the teeth and is *often fused at its outer dorsal angle with the pretornal patch*; outer third of costa with the usual four brownish triangular spots; antimedial and post-medial pale areas cinnamon drab with a faint purplish suffusion, the dark suffusion most intense on dorsum of antimedial area; in some specimens the basal patch, dorsal portion of median band and pretornal patch are fused into one continuous purplish fuscous blotch extending to tornus and with the outer edge oblique from near end of cell; cilia dark brownish fuscous with little or no ochreous scaling and with a blackish basal line. Hind wing whitish toward base; dark smoky fuscous toward apex and termen; cilia sordid whitish with a rather broad dark basal line; in male a slight notch at vein 1c and a more decided one at 1b.

The most extreme variety has nearly all the usual markings on costal half and outer third of fore wing obscured or obsolete and a continuous purplish fuscous blotch covering the dorsum as noted above; sometimes the costal half of median bar is represented by both teeth, sometimes by only the upper and in many specimens by only a small dark smudge on midcosta; the outer costal spots and subapical bar though faint are usually indicated but these too may be obscured and are sometimes obliterated; in such forms the color of the wing aside from the dark dorsal patch varies from a pinkish cinnamon to a very pale buff.

*Alar expanse*.—17-22 mm.

*Type*.—In American Museum.

*Paratype*.—Cat. no. 26290 U. S. N. M. Also in American Museum and collection Barnes.

*Type locality*.—Cincinnati, Ohio.

*Food plant*.—Unknown.

Described from male type, 30 male and 8 female paratypes out of a large series collected by Miss Annette F. Braun at the type locality and bearing various June dates. Aside from these I have before me specimens from Algonquin and Chicago,

Illinois (July and August), New Brighton, Pennsylvania (June and August), Winchendon, Massachusetts (June-July), Illion and South Wales, New York (May 25 and June 13), Essex County, New Jersey and Hamilton, Ontario.

This species is closest to *tilianum* and *sciotanum*. From the former it is distinguished by the dark brownish color of its pattern markings and from the latter by the absence of the fine line dividing the upper and lower teeth of median band. The lower tooth is often missing altogether in *nigranum* but when it is at all appreciable it is not separated from the upper one. In *tilianum* it is always present.

***Exartema ochrosuffusum*, new species.**

Genitalia of the *permundanum* type.

An obscurely marked species with pattern much like that of *corylanum* Fernald.

Antenna ochreous fuscous with upper surface of first and second joints blotched with fuscous; basal joint otherwise strongly shaded with raw sienna. Palpus sordid whitish ochreous; second joint with one or two fuscous spots on outer side, a clouding of fuscous at apex of tuft and a slight shading of yellow at upper inner angle; third joint fuscous with extreme apex whitish ochreous. Head and thorax raw sienna yellow or (in darker and more rubbed specimens) brownish fuscous shaded and dusted with sienna.

Fore wing with pattern markings partially obliterated, consisting of a basal patch, a short rhomboid patch on midcosta and an obscure spot at end of cell representing the remains of the median dark band, the pretornal patch, subapical bar and four outer costal dashes; these are either raw sienna yellow or soudan brown in color; the rest of the wing is of the same general color with a paler more purplish suffusion due to the metallic scaling; in rubbed specimens the blackish fuscous underscaling of the aforementioned dark areas makes them stand out in sharper contrast than they do in fresh specimens where there is a more or less yellow or brownish suffusion over the entire wing; basal patch not reaching above cell; costa at base pale, shining, of a lighter yellow than basal patch; subapical bar joining first costal dash; cilia pale fuscous with a yellowish or brownish basal line; underside of wing pale shining smoky fuscous with costa rather broadly edged with dull cream white. Hind wing pale smoky fuscous; cilia whitish with dark basal band; underside of wing shining whitish with little or no fuscous shading towards apex; male with slight notch at vein 1b and a trace of one at vein 5.

*Alar expanse*.—19–20.5 mm.

*Type*.—In American Museum.

*Paratypes*.—Cat. no. 26291 U. S. N. M. Also in American Museum and collection Barnes.

*Type locality*.—Cincinnati, Ohio.

*Food plant*.—Unknown.

Described from male type and 4 female paratypes from the type locality collected by Miss Annette F. Braun and dated as



follows: type and 3 paratypes, "VI-3-06" and one paratype "VI-16-06;" one female paratype from Quincey, Illinois (Poling, June 5-'98); and one female paratype from Onaga, Kansas (Crevecoeur). These had been set aside by Kearfott as a new species under the manuscript name here adopted.

**Exartema brunneopurpuratum**, new species.

A small brown and metallic purple species with pattern markings distinct and sharply defined.

Antenna ochreous fuscous with a dark purplish brown (almost black) spot on upper side of basal joint and a similar shade on upper side of next three or four joints. Palpus dull cream color; second joint with a couple of small fuscous spots on outer side and a very faint purplish fuscous shading at apex; third joint dark purplish fuscous. Head purplish fuscous above; dull sordid ochreous upon sides and front, with a purplish shading upon each side of frontal tuft. Thorax purplish brown with a faint transverse suffusion of dull ochreous scaling. Fore wing with basal and median areas, pretornal and costal spots and subapical bar a rich dark brown slightly dusted with blackish scales and narrowly margined with white; rest of wing a metallic leaden purple; basal patch the darkest of the brown areas and most heavily dusted with black; its outer margin slanting out from costa at slightly less than one-fifth to just above basal fourth of upper vein of cell, slightly rounded at this point, thence vertical to lower vein of cell and from here slanting sharply inward to basal fifth of dorsum; antimedial metallic area divided by a clearly defined slightly sinuate median vertical brown line and containing at dorsum a small triangular brown spot detached from basal patch, between this and outer margin of basal patch a second short line of blackish brown scales; median band consisting of the usual two teeth and a triangular dorsal spot with apex pointed outward and upper inner angle attached to lower tooth, teeth moderately long, upper narrowly triangular, pointed and almost touching upper inner angle of subapical bar, lower tooth club-shaped; pretornal spot triangular with apex pointed; subapical bar elongately triangular, narrow at termen and broadening out towards costa, not connected with any of the costal dashes; last (apical) costal spot narrow and obscure; in antimedial leaden purple area, a dark brown line between median band and pretornal spot and another from tornus to a point between the teeth of median band and touching at its middle the apex of the subtornal spot; cilia leaden fuscous with a blackish basal band. Hind wing a uniform amber brown; cilia pale fuscous with a dark basal band. Underside of fore wing a pale fuscous brown with a faint purplish iridescence and a very indistinct ochreous costal strigulation. Underside of hind wing slightly paler than underside of fore wing.

*Alar expanse*.—14-14.5 mm.

*Type*.—Cat. no. 26292 U. S. N. M.

*Type locality*.—Falls Church, Virginia.

*Food plant*.—*Alnus*.

Described from female type and one female paratype reared under Hopkins U. S. no. 11172 from larvae collected July 18, 1913 (Heinrich); moths issuing Aug. 1 and 19, 1913. The larva ties the young terminal leaves of alder. It is pale greenish yellow

with body segments broadly, transversely banded with pink; head and thoracic shield pale yellow; length full grown, 12 mm.

A handsome little species easily identified by its brown and purple color.

**Exartema melanomesum**, new species.

Male genitalia of the *permundanum* type.

Antenna ochreous. Palpus whitish; second joint with the usual two blackish spots on side and a slight fuscous shading at apex; third joint blackish fuscous. Head ochreous with a faint fuscous shading above. Thorax dark brownish fuscous faintly dusted with ferruginous ochreous or rosy ochreous. Fore wing with pattern markings dark brownish fuscous dusted with ferruginous ochreous or rosy ochreous; the pale antimedial and postmedian areas closely and finely lined with fuscous and somewhat sprinkled with ochreous giving them a faint pale rosy or ochreous shade to the naked eye; basal patch reaching costa, outwardly angulate with an excavation below middle; median band darkest (blackish brown) toward costa, upper tooth moderate, lower long, touching or almost touching subapical bar, dorsal portion of median bar roughly triangular; pretornal spot well separated from dorsal part of median bar, connected by a fine line with lower tooth and subapical bar; subapical bar club-shaped, narrow at termen, darkest (blackish brown) toward its apex; cilia ochreous, spotted with fuscous and with a dark brown basal band. Hind wing smoky fuscous; paler towards base; cilia whitish with a dark basal band; in male slight notches at veins 5, 1c and 1b. Underside of fore and hind wings nearly concolorous.

*Alar expanse*.—15-17 mm.

*Type*.—In collection Barnes.

*Paratype*.—Cat. no. 26293 U. S. N. M. Also in American Museum and collection Cornell University. (Cornell paratype No. 664).

*Type locality*.—Sebec Lake, Maine.

*Food plant*.—Unknown.

Described from male type ("July 16-23"), one male paratype from Ithaca, New York (10 July, 1916, W. T. M. Forbes), and 2 male paratypes from Essex County Park, New Jersey (July 1, W. D. Kearfott).

A distinct species. In the dark shading on median band resembling *footianum* but with quite different genitalia. One of the paratypes from Essex County is paler than the others and has little of the characteristic dark shading on median band and subapical bar. The pattern otherwise and the genitalia show that it belongs here.

**Exartema quebecense**, new species.

A tawney ferruginous species with the usual fore wing markings defined by much restricted antimedial and postmedian metallic bands.

Male genitalia of the *permundanum* type.

Antenna fuscous; basal joint sordid ochreous drab with a blackish spot on upperside. Palpus sordid whitish; second joint with a fuscous spot on outer side and a fuscous shading toward apex; third joint fuscous. Head sordid

ochreous drab. Thorax tawney ferruginous with a dusting of fuscous in tuft. Fore wing tawney ferruginous; basal patch complete to costa, outer margin somewhat sinuate, nearly vertical; antimedial band consisting of two thin leaden metallic lines separate by a broader streak of the ground color and converging and weakening toward dorsum; median band with a very short, pointed upper tooth, a considerably longer, broader, lower tooth and an outwardly angulate dorsal patch joined to lower tooth; on outer part of lower tooth some slight dusting of blackish scales; post median band consisting of a pair of thin metallic lines fusing below costa into a single rather narrow band bordering median band and forking at the middle to define the pretornal patch; the latter is roughly triangular with rounded apex and a faint submarginal line of blackish scales following the outline of the patch; outer costal spots and subapical bar considerably fused together, making entire apical area beyond postmedian band, tawney ferruginous; costal spots faintly separated at costa only by very short white dashes, and subapical bar partially defined by a thin broken line of metallic scales along its outer margin; cilia dull tawney ochreous with a fuscous spot at apex. Hind wing uniform Vandyke brown; cilia slightly paler with an obscure, broad, dark basal band; male with only a slight notch at vein 5. Under-side of fore and hind wings a glossy drab, unicolorous and unmarked.

*Alar expanse*.—13 mm.

*Type*.—In American Museum.

*Type locality*.—Quebec, Canada.

*Food plant*.—Unknown.

Described from unique male type labeled, "A. W. Hanham, Quebec." Kearfott had set it aside as a new species under the manuscript name "*quebecana*." It is a striking species not easily confused with anything else.

#### Subfamily LASPEYRESIINAE.

#### *Pammene felicitana*, new species.

Antenna grey dusted above with white. Palpus white. Head white in front, greyish above. Thorax grey, shaded with white, especially on anterior margin and on extremity of tegula. Fore wing blackish grey with a conspicuous oblong white spot on mid dorsum; this is about  $\frac{1}{3}$  as long as the dorsal margin, extends up to cell and is continued along dorsal margin to base of wing as a white band  $\frac{1}{2}$  the width of the patch itself, sometimes (in the female paratypes) it is broken by a small median dorsal spot or dash of the ground color; costa of fore wing faintly marked with whitish geminations on its outer half; from two of these outwardly slanting metallic blue bars connect with vertical bars of ocellus. Ocellus consisting of two vertical metallic blue bars enclosing three faint longitudinal black dashes, and a third inward and dorsally slanting metallic bar connecting the verticals below; termen edged by a black line, cut by a white dash below apex and another at vein 3; cilia greyish fuscous. Hind wing dark brownish fuscous; cilia white (somewhat smoky in the female paratypes) with a dark basal band.

*Alar expanse*.—13-14 mm.

*Type*.—In American Museum.

*Paratype*.—Cat. no. 26294 U. S. N. M. Also in American Museum and collection Barnes.

*Type locality*.—Montreal, Quebec, Canada.

*Food plant*.—Unknown.

Described from male type and one female paratype from the type locality (A. F. Winn, "17-VI-10" and "2-VIII-09"; and one male paratype from St. Hilaire, Quebec (A. F. Winn, "7-IX-07"); and one female paratype from Oak Station, Pennsylvania (F. Marloff, "June 19-07"). The paratype from Hilaire had been badly damaged by a Dermestid but genitalia and right hand pair of wings are intact.

This series had been set aside by Kearfott as a new species under the manuscript name here adopted. Aside from *Walshingham's texanana* (which I have not seen) it is so far the only known representation of the genus in this country.

#### **Sereda**, new genus.

Thorax smooth. Fore wing with termen straight and slanting; 12 veins, all separate; 7, 8 and 9 approximate; 7 to termen; 10 near 9; 11 from cell before one-half; upper internal vein of cell from between 10 and 11; 3, 4, 5 almost parallel, not approximate at termen; 2 from cell just beyond one-half, straight.

Hind wing *without pecten on lower median vein*; 8 veins; 6 and 7 approximate towards base; 5 straight and parallel with 4; 3 and 4 connate.

Male genitalia with a pair of hair tufts from intersegmental area back of tegumen; harpe with cucullus trigonate; neck very slender and neck incurvation deep; sacculus somewhat enlarged, weakly spined; tegumen simple; uncus and socii absent; gnathos a simple weakly chitinized band.

Female genitalia with ductus bursae short, chitinized and bent; signa two thorn like spines.

A monotypic genus derived from *Laspeyresia*. The absence of pecten would seem to place it in *Tortricidae*. Male and female genitalia and general habitus, however, clearly show that it belongs in the *Olethreutidae* and is simply a *Laspeyresia* that has lost the pecten.

Genotype: **Halonota lautana** Clemens.

**Carpocapsa erotella**, new species.

Palpus and face whitish. Antenna, head, thorax and fore wing shining drab brown. Fore wing a trifle darker beyond base; costa with a pair of white dashes just before middle, a pair just after middle, a single white spot a trifle beyond two-thirds and, just before apex, another pair; from first (inner) costal dashes a narrow metallic band, inwardly margined with white, curves outward to middle of dorsum; a similar metallic band, without the white edging, runs parallel with the first from the second pair of costal dashes, and forms, on its dorsal half, the inner vertical bar of the ocellus; from costal spot near two-thirds, a short metallic dash, another metallic bar from apical white dashes, interrupted below vein 7 and then continued parallel with termen to tornus, forming the outer bar of ocellus; coeloid patch very faintly dusted with ochreous, and with three or four small faint (almost obsolete) black dots against inner side of outer bar; termen

edged by a black line; cilia shining fuscous. Hind wing brown, concolorous with darker part of fore wing; cilia slightly paler with a dark basal band.

*Alar expanse.*—9-10 mm.

*Type.*—Cat. no. 26295 U. S. N. M.

*Paratypes.*—In National Collection and collection Cornell University (Cornell paratype No. 665).

*Type locality.*—Hyattsville, Maryland.

*Food plant.*—*Pinus taeda* (pitch nodule on).

Described from female type reared March 22, 1915, under Hopkins U. S. no. 12190a from larva taken feeding in pitch nodule on gallery of *Petrova comstockiana* Fernald in *Pinus taeda* (August Busck, collector); one male paratype without locality and labeled, "from galls of *Pinus taeda*, Aug. 7, 82;" one male paratype without locality, labeled, "no. 282501 Aug. 14, 82" (specimen without abdomen, head and right fore wing, but wings on left side in very good condition); and one paratype from Biloxi, Mississippi ("June 13, 1917, Cornell University, Lot 542, sub 11").

An easily recognized species, in pattern similar to *toreuta* Grote and *piparana* Kearfott but much smaller.

## A REPORT ON A COLLECTION OF COCCIDAE FROM ARGENTINE II. (HEMIPTERA COCCIDAE).<sup>1</sup>

BY HAROLD MORRISON, U. S. Bureau of Entomology.

In 1919 the writer published under the above title, an article discussing a collection of scale insects received by the Bureau of Entomology from Sr. P. Jorgensen. This collection was obtained in various parts of the Argentine Republic during the period 1909 to 1911. At the time of publication it was believed that all the specimens received from Sr. Jorgensen had been examined, but it was subsequently discovered that, due to the crowded condition of the general coccid collection at the U. S. National Museum, some of his material had been stored separately and had not been located at the time the bulk of the collection was studied. Under such circumstances it seems desirable to place on record the remainder of the species included in this material and to make some additions and correct some errors which, on Sr. Jorgensen's authority, appeared in the earlier paper.

A correction which needs particular notice is the following: Bomplana, Misiones Territory should be Bompland. The writer followed Stieler's Atlas of Modern Geography, 9th Edition, Gotha, 1912, which gives both in the index and on the map of this section of Argentine this name as "Bomplana," but he has been advised by Sr. Jorgensen that this is in error.

<sup>1</sup>Proc. Ent. Soc. Wash. Vol. 21, No. 4, Apr. 1919, pp. 63-91.