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ROSTROLAETILIA—A NEW NORTH AMERICAN GENUS OF THE SUBFAMILY PHYCITINAE, WITH DESCRIPTIONS OF SEVEN NEW SPECIES (PYRALIDAE)

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In his revision of the Anerastiinae (auctorum), Shaffer (1968) showed that this subfamily, which had been separated by Ragonot (1886) from the Phycitinae on the basis of a single reduction character, loss or extreme reduction of the tongue, was not monophyletic. On the basis of the genitalia, he showed that some genera should remain separate from the Phycitinae and be treated under the subfamily name Peoriinae, a name previously used in a much broader sense by Hulst (1890). The remainder of the Anerastiinae, including the genus *Anerastia* Hübner, were considered by Shaffer to belong to the Phycitinae.

For lack of sufficient information or material Shaffer left unplaced a few genera and species which he discussed briefly at the end of his revision. These are taxa that had not been treated by Heinrich (1956) because he thought that they were Anerastiinae and thus not within the scope of his revision of the Phycitinae. The present paper offers a redescription of three of these unplaced species, namely *Altoona ardiferella* Hulst, *Aurora nigromaculella* Hulst, and *Parramatta placidella* Barnes & McDunnough, as well as descriptions of seven new species. We were able to assign the three existing species names with confidence because the types are available, and their genitalia are distinctive. Our rediscovery of the holotype of *ardiferella* was particularly fortunate.

Hulst had said nothing about its location, but the specimen turned up in the Fernald Collection, acquired by the U. S. National Museum. On the basis of external structural characters and genitalia we believe that all ten species belong to the same genus, which we also describe as new.

The following generic names have been used for one or more of the three previously described species: *Altoona* Hulst, *Aurora* Ragonot, *Saluria* Ragonot, *Tolima* Ragonot, *Pectinigeria* Ragonot, *Parramatta* Hampson, and *Zophodia* Hübner. *Altoona* and *Aurora* were synonymized by Shaffer (1968) with *Peoria* Ragonot. The type-species of *Saluria* (*maculivitella* Ragonot), *Tolima* (*oberthurii* Ragonot), *Pectinigeria* (*macrella* Ragonot), and *Parramatta* (*ensiferella* Meyrick) were illustrated in color by Ragonot; all have the characteristic pattern and coloring of Peoriinae and do not appear to be closely related to the group of North American species treated in this paper. *Zophodia* as defined by Heinrich (1956) is obviously not closely related. None of these generic names can properly be used for the ten subject species.

Shaffer (1968) thought that the three named species, *ardiferella*, *nigromaculella*, and *placidella*, should probably be referred to *Laetilia* Ragonot pending a thorough study of *Laetilia* and allied genera. Heinrich (1956: 230) also remarked upon the relationship of these species to *Laetilia* in his discussion of that genus: "The genus as here defined is structurally a somewhat composite group but is, I think, a natural one, linking in one direction with *Rhagea*, *Zophodia*, and the cactus feeding phycitine genera and on another with two or three as yet undescribed genera of coccid feeders in the *Anerastiinae*."

This study is based on material in the Blanchard Collection and the collections of the U. S. National Museum of Natural History and the Los Angeles County Museum of Natural History. We are indebted to Mr. Julian P. Donahue of the latter institution for the loan of specimens.

We discovered two additional new species of *Rostrolaetilia* from southern California, but these are not described in the present paper because the available specimens were judged to be inadequate. Thus twelve species are known to exist, although only ten are described.

***Rostrolaetilia* Blanchard & Ferguson, new genus**

Type-species: *Parramatta placidella* Barnes & McDunnough, 1918.

Labial palps porrect, downcurved, long, extending three to four eye diameters beyond front; from beneath seen to be in contact with each other for nearly all their length. **Tongue** absent. **Maxillary palps** small, squamous. **Antennae** pubescent, simple. **Forewing** smooth, broadest toward termen; maculation alike in both sexes; cell about two-thirds length of wing; R_1 and R_2 from cell, R_5 stalked with R_{3+4} , M_1 straight, M_2 and M_3 shortly stalked, Cu_1 from lower outer angle of cell, well separated from Cu_2 . **Hindwing** with cell about one-half length of wing, discocellular vein

curved or angled in, weak; Rs closely paralleling Sc to upper outer angle of cell where it becomes Rs + M; just beyond middle of wing Rs and M₁ separate, M₁ continuing to outer margin and Rs forming a short cross vein which unites with Sc; Sc + R forks about half way to outer margin; M₂ absent; M₃ from lower outer angle of cell, shortly stalked with Cu₁; Cu₂ from before lower outer angle of cell.

Male genitalia: Uncus large, domelike, with a terminal process which may be very short and rounded, or triangular, or with parallel edges and either whole or indented or even bifurcate at apex; gnathos an arched or domelike structure, approximately parallel to uncus, from which two curved, tubular, armlike processes extend toward the aedeagus and tend to embrace it; transtilla incomplete, represented by two separate, sclerotized plates dorsad of inner arms of gnathos; juxta a weakly sclerotized plate thickened and well defined along its anterior margin; valves simple, without extensions from sacculus or costa; in some species a weak sclerotization at basal margin of membranous part of valve; aedeagus short or medium, straight or slightly curved, smooth; vesica unarmed or with numerous small cornuti, often with a somewhat sclerotized, wrinkled surface.

Female genitalia: Bursa copulatrix smooth, with a narrow signum, ductus seminalis arising just caudad of signum; ductus bursae variable; sclerotization at ostium bursae variable; sclerotized collar of eighth segment interrupted middorsally where its ends are more or less infolded and support a membranous pocket.

We consider this genus to be related to *Laetilia* for the following reasons: a) Two reared specimens of *Rostrolaetilia* in the collection of the U. S. National Museum are labelled as having fed on coccoids of the genus *Orthezia* (Ortheziidae). It appears likely that species of this genus are predacious on Coccoidea as are the species of *Laetilia*. b) The gnathos, which has a surprisingly coherent structure in all of the known species, has obvious features in common with that of the genus *Laetilia*, particularly with *Laetilia coccidivora* (Comstock). c) The venation is extremely close to that of *Laetilia*. d) The structure of the transtilla is similar to that of the 21 genera listed between *Laetilia* and *Cactobrosis* in the sequence of Heinrich's (1956) revision.

Two obvious differences between *Laetilia* and *Rostrolaetilia* are the very different development of the labial palps, which in the latter genus are twice as long as those of *Laetilia*, and the tongue, which appears to be absent in *Rostrolaetilia*, rather well developed (and heavily scaled) in *Laetilia*. Also especially noteworthy is the clearly defined difference in the point of origin of the ductus seminalis in the female genitalia; this arises from the anterior end of the bursa copulatrix in *Laetilia* and from caudad of the signum in *Rostrolaetilia*.

KEY TO ADULTS BASED ON MALE GENITALIA

Note—Two species known from females only, *R. utahensis* and *R. coloradella*, cannot be identified with this key.

- 1. Sacculus clearly longer than one-half length of valve 2
- Sacculus not or hardly longer than one-half length of valve 4
- 2. Process of uncus longer than its width at base, elongate-triangular, relatively slender, with a truncated or slightly emarginate apex 3

- Process of uncus not longer than its width at base, thickened, more nearly the form of an obtuse triangle that may appear truncated or notched at apex; Utah *placidissima*
- 3. Sacculus a long, bladelike triangle, its costal and ventral margins nearly straight; uncus slightly emarginate at tip (Fig. 21); S. Ariz. *nigromaculella*
- Sacculus very elongated but not triangular, its costal margin concave and ventral margin convex; uncus clearly truncated at tip (Figs. 19, 36); Texas *ardiferella*
- 4. Uncus without or almost without a process 5
- Uncus with a well-developed process, either pointed or bicuspidate at apex ... 6
- 5. Uncus without a process; arms of gnathos that tend to encircle aedeagus roundly spatulate and finely dentate at ends, their margins appearing fringed (Fig. 16) *minimella*
- Uncus with a very short, thickened process, appearing broadly truncated and trigonate in cross-section; arms of gnathos not as above *eureka*
- 6. Process of uncus pointed (Fig. 15); S. Calif. *placidella*
- Process of uncus bifid (Figs. 20, 22, 35); Texas, Ariz. 7
- 7. Process of uncus large, tapered, its width greater than one-half length of sacculus, and with its bifid tips blunt (Figs. 20, 35); Texas *texanella*
- Process of uncus small, the sides almost parallel, its width much less than one-half length of sacculus, and with the bifid tips pointed (Fig. 22); Ariz. *pinalensis*

KEY TO ADULTS BASED ON FEMALE GENITALIA

Note—*R. pinalensis*, known from the male only, cannot be identified with this key.

- 1. Ductus bursae rigidly sclerotized, at least in part 2
- Ductus bursae appearing entirely membranous (Fig. 28) *eureka*
- 2. Ductus bursae as long as or longer than corpus bursae, fully sclerotized, straplike, convoluted (Figs. 31, 37) *texanella*
- Ductus bursae shorter than corpus bursae, fully or partly sclerotized; if straplike, short and nearly straight, not convoluted 3
- 3. Ductus bursae fully sclerotized or nearly so, appearing flattened, nearly straight, the sides subparallel 4
- Ductus bursae partly sclerotized, less regular in form 5
- 4. Lamella postvaginalis distinctly tripartite, less than twice as wide as ductus bursae (Fig. 27) *coloradella*
- Lamella postvaginalis not distinctly tripartite, about twice as wide as ductus bursae (Fig. 26) *utahensis*
- 5. Ductus bursae sclerotized along left margin only, otherwise membranous (Fig. 25); Utah *placidissima*
- Ductus bursae sclerotized toward ostial end, membranous toward corpus bursae; widespread, Texas to California 6
- 6. Lamella antevaginalis and postvaginalis apparently fused into a single ostial plate with a very distinct, circular ostial opening (Figs. 30, 38) *ardiferella*
- Ostial plate not developed as above 7
- 7. Lamella postvaginalis developed as a large, well-sclerotized, funnel-shaped ostial plate fused to the rim of the ostium (Fig. 29) *nigromaculella*
- Lamella postvaginalis and antevaginalis, if present, separated, not fused to ostium or to each other 8
- 8. Lamella antevaginalis unsclerotized, apparently missing (Fig. 23) *placidella*
- Lamella antevaginalis present as a long, slender, almost linear transverse strip (Fig. 24) *minimella*

Rostrolaetilia placidella (Barnes & McDunnough)

Figs. 1, 13, 15, 23

Parramatta placidella Barnes and McDunnough, 1918: 177; pl. 24, fig. 17.

R. placidella, *minimella* and *placidissima* are superficially almost indistinguishable. *R. placidella* averages considerably larger than *minimella* and probably somewhat larger than *placidissima*. Also, *placidella* tends to lack the well-developed, subbasal dark spot at the inner margin commonly present in the other two species. These three species are the palest of the genus, their ground color being nearly white.

Maxillary palps blackish. **Labial palps** whitish, turning to dark brownish gray laterally. **Head, collar, thorax** and **tegulae** concolorous white with an ochreous tint. **Forewing** whitish, lightly sprinkled with black scales; a faint black dash at base, below which is an ochreous patch on inner margin extending nearly to antemedial line and continuing beyond antemedial line as a broad band which at times extends across entire median space, but which is generally confined to vicinity of antemedial line; this line white, rounded outwardly, becoming indistinct at costa where it merges into ground color, followed by a triangular black spot extending from radius almost to fold, generally connected to costa by thin outer border of antemedial line; this spot rests on ochreous shade already mentioned; preceding antemedial line on inner margin is a slight intensification of black sprinkling, forming a darker shade but no distinct spot; discal spot divided into two separate black dots, but one nearer costa usually obsolete; postmedial line white, bordered inwardly by a black line much thickened opposite cell, and outwardly by a faint intensification of black sprinkling starting from a triangular black spot at apex; terminal line incomplete, dotted; fringe pale inwardly, smoky outwardly. **Hindwing** white, in females lightly tinged with smoky brown. Beneath, **forewing** smoky with whitish apical patch traversed by a dark triangular streak; **hindwing** as above.

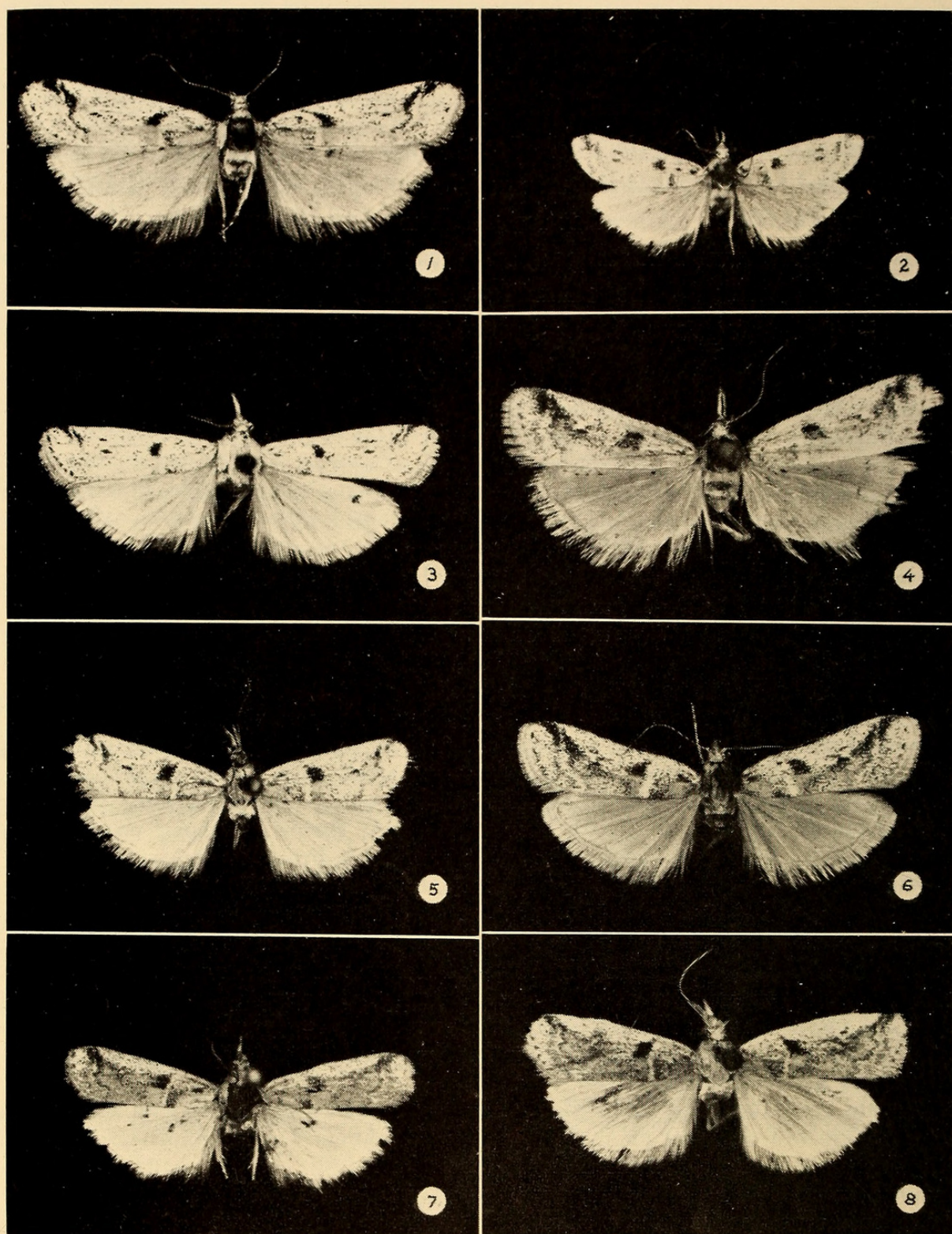
Wing expanse: Male 19.0 and 20.0 mm; female 15.5–22.0 mm.

Male genitalia (Fig. 15): Uncus with pointed, triangular apex; ventral margin of gnathos with deep medial indentation; inner armlike processes of gnathos gently curving around aedeagus, directed toward and almost reaching narrowly sclerotized base of juxta; valves simple, broadest at three-fourths their length from base; transtilla plates small; aedeagus short, stout; vesica armed with numerous minute cornuti; vinculum subtriangular with narrowly rounded terminal margin, about as long as its greatest width.

Female genitalia (Fig. 23): Corpus bursae about as long as tergum of seventh segment, greatest diameter about half the length, signum a small, transverse, double bar; ductus bursae short, somewhat thickened posteriorly; lamella postvaginalis triangular, barely sclerotized and not easily seen unless stained, filling a gap of same shape in collar; no lamella antevaginalis; dorsal, membranous pocket of collar trapezoid, broader caudad than cephalad, laterally limited by infoldings of collar.

Lectotype: Male (Fig. 1) from Olancho, Inyo Co., California, June 24–30, Barnes Collection, labelled "Parramatta placidella, Type, B. & McD.", "Genitalia Slide USNM 52,462", and "Slide No. 1127 Carl Heinrich, Feb. 6, 1942", now in the U. S. National Museum, was designated as the lectotype by Shaffer (1968: 90).

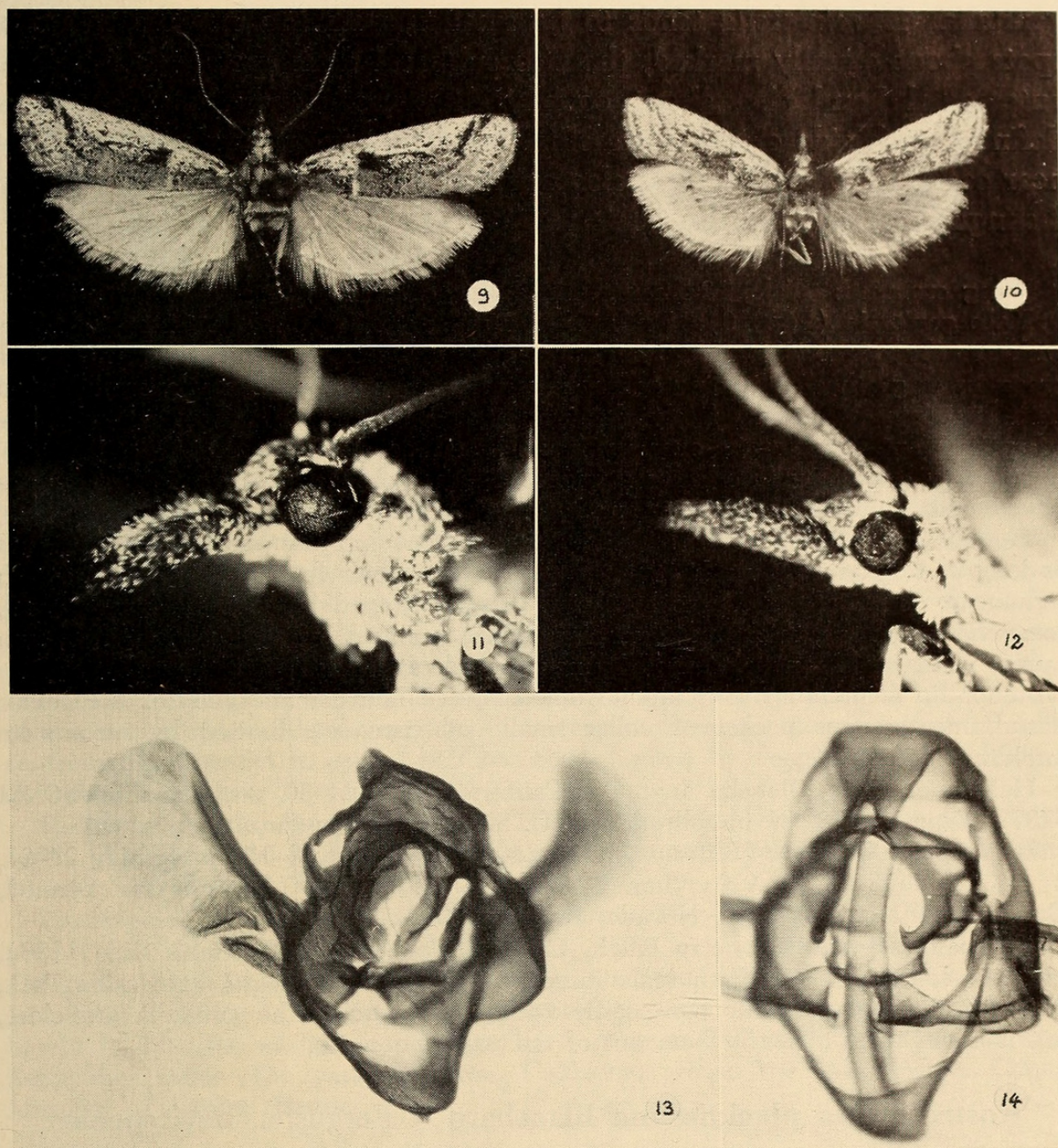
Paralectotypes: Four females from Olancho, Inyo Co., California, all labelled "Parramatta placidella Paratype B. & McD.", "Barnes Collection", now in the U. S. National Museum, were designated as paralectotypes by Shaffer (1968: 90). Three of these are dated June 8–15; the fourth, dated June 16–23, was dissected by Carl Heinrich (Slide 1128, Feb. 6, 1942). We dissected two of the females dated June



Figs. 1-8. *Rostrolaetilia* spp.: 1, *R. placidella*, lectotype; 2, *R. minimella*, holotype; 3, *R. placidissima*, holotype; 4, *R. utahensis*, holotype; 5, *R. coloradella*, holotype; 6, *R. eureka*, holotype; 7, *R. ardiferella*, holotype; 8, *R. nigromaculella*, holotype.

8-15 (USNM Slides 52450 and 52451). The female figured by Barnes and McDunnough (1918: pl. 24, fig. 17) is the undissected paralectotype.

One male and 29 females, also originally from the Barnes Collection and now in the U. S. National Museum, all from Olancho, California, were not included in the type series, probably because they were until recently unspread. They are mostly



Figs. 9-14. *Rostrolaetilia* spp.: 9, *R. texanella*, holotype; 10, *R. pinalensis*, holotype; 11, head and palps of *R. texanella*, and 12, *R. ardiferella*; 13, lateroventral view of male genitalia of *R. placidella*, and 14, *R. texanella*.

dated June 8-15, but some bear dates as early as May 8-15 and as late as July 8-15. Four more females are in the collection of the U. S. National Museum, three from Pasadena, Calif. (no dates), and one from Victorville, California, 19 May 1935. Of these 33 specimens, we dissected the unique male (USNM Slide 52378) and 16 females.

***Rostrolaetilia minimella* Blanchard & Ferguson, new species**

Figs. 2, 16, 24

The wing pattern and color of *R. minimella* are so similar to those of *R. placidella* that some specimens may be identified only by the

genitalia. *R. minimella* tends to be smaller, with the two discocellular spots about equally marked, the two subbasal dark spots adjoining the antemedial band also about equally developed, and the black lines defining each side of the postmedial band somewhat weaker, especially near costa. *R. placidissima* is also extremely similar and may be reliably distinguished only by the genitalia.

Wing expanse: Male, 13.5 mm; female, 14.0–17.0 mm.

Male genitalia (Fig. 16): Uncus almost without a posterior projection; gnathos with rounded posterior and angular anterior emarginations; tubular, inner armlike processes of gnathos embracing aedeagus midway between gnathos proper and juxta with spatulate extensions, finely denticulate at their margins; juxta with heavily sclerotized anterior margin over twice as broad as long; valves simple, broadly rounded; vinculum with broadly rounded terminal margin; aedeagus short; vesica armed with numerous minute cornuti.

Female genitalia (Fig. 24): Corpus bursae from one and one-half to two times as long as tergum of seventh segment, greatest diameter less than half the length; signum at midlength of corpus bursae, a crescent-shaped bar; ductus bursae short, somewhat contorted, thickened; ductus seminalis from just caudad of signum; ostium bursae wide, membranous, limited by narrow, sclerotized anterior and posterior lips; posterior lip forms a narrow, uninterrupted bridge between the ends of the collar; dorsal, membranous pocket of collar small, subtriangular, limited by incomplete infoldings of collar.

Holotype: Male, Olancho, Inyo Co., California, June 24–30, genitalia slide USNM 52377, Type No. 73,281 in collection of U. S. National Museum.

Paratypes: Olancho, California, April 24–30, 1 ♂; May 8–15, 1 ♀; May 24–31, 2 ♂♂; June 8–15, 5 ♀♀; June 24–30, 6 ♀♀. Yerma (in error for Yermo), California, 4 ♀♀. Sulphur, Nevada, June 21, 1962, 1 ♀.

A female labelled Dewberry Patch, Granite, Utah (Carl Heinrich's slide 1136), and two females reared from scale insects of the genus *Orthezia* at Mesilla Park, New Mexico, are probably conspecific with *R. minimella*; the genitalia are close, but it seems safer to leave them out of the paratype series.

***Rostrolaetilia placidissima* Blanchard & Ferguson, new species**

Figs. 3, 17, 25, 32

This species also is so similar to *R. placidella* that Barnes and McDunnough failed to recognize it as a different species. In the "Contributions" (1918: 177), they wrote immediately following the description of *placidella*: "We have several specimens from Stockton, Utah, one of which has been labelled '*ardiferella*' by Dr. Dyar." These specimens, two males and three females, are now in the collection of the U. S. National Museum. Heinrich dissected two males and one female; we dissected two females. We have also examined and dissected one male and three females in the Los Angeles County Museum. The forewing is somewhat paler than that of either *placidella* or *minimella*; the two discocellular dots are not of much help as they are equally well marked on two specimens and obsolescent on three. The forewings, which are

narrower than those of either *placidella* or *minimella*, offer the best differentiating character.

Wing expanse: Male, 15.5 and 18.5 mm; female, 16.5–21.0 mm.

Male genitalia (Fig. 17): Posterior edge of uncus produced in a subtriangular process, the apex of which appears as an inverted V covered with bristles; the almost hemispherical, dome-shaped part of gnathos is nearly cut in two by deep ventral and dorsal incisions; the edges of the dorsal incisions are expanded to form two parallel septa; the usual inner, armlike processes of the gnathos, which in other species of the genus embrace the aedeagus, are here represented by complicated but mostly laminar extensions; juxta with heavily sclerotized anterior margin; valves simple, narrowest at base of membranous portion; aedeagus short, stout; vesica armed with numerous minute cornuti (probably deciduous as they have disappeared in one of two Heinrich preparations); vinculum short with rounded terminal margin.

Female genitalia (Figs. 25, 32): Bursa copulatrix longer than tergum of seventh segment, diameter about three-fourths its length; signum a small, transverse bar ventrally located, nearer to junction of bursa with ductus bursae than to apex of bursa; ductus seminalis from just caudad of signum; ductus bursae short, thickened; lamella antevaginalis embracing almost half of the circumference of the collar; intersegmental membrane forming a depression between collar and lamella antevaginalis; lamella postvaginalis located in a subtriangular gap in the collar, with a semicircular emargination back of ostium bursae; collar longer than in other species of the genus; length about equal to diameter; membranous dorsal pocket of collar subtriangular, located in caudal half of collar, limited by deep, complete infoldings of collar.

Holotype: Male, Stockton, Utah, "IX.1.4", collected by Tom Spalding; Slide 1131, Carl Heinrich, 11 Feb. 1942 (labelled *Parramatta placidella*); USNM Slide 52,469; USNM Type No. 73,282.

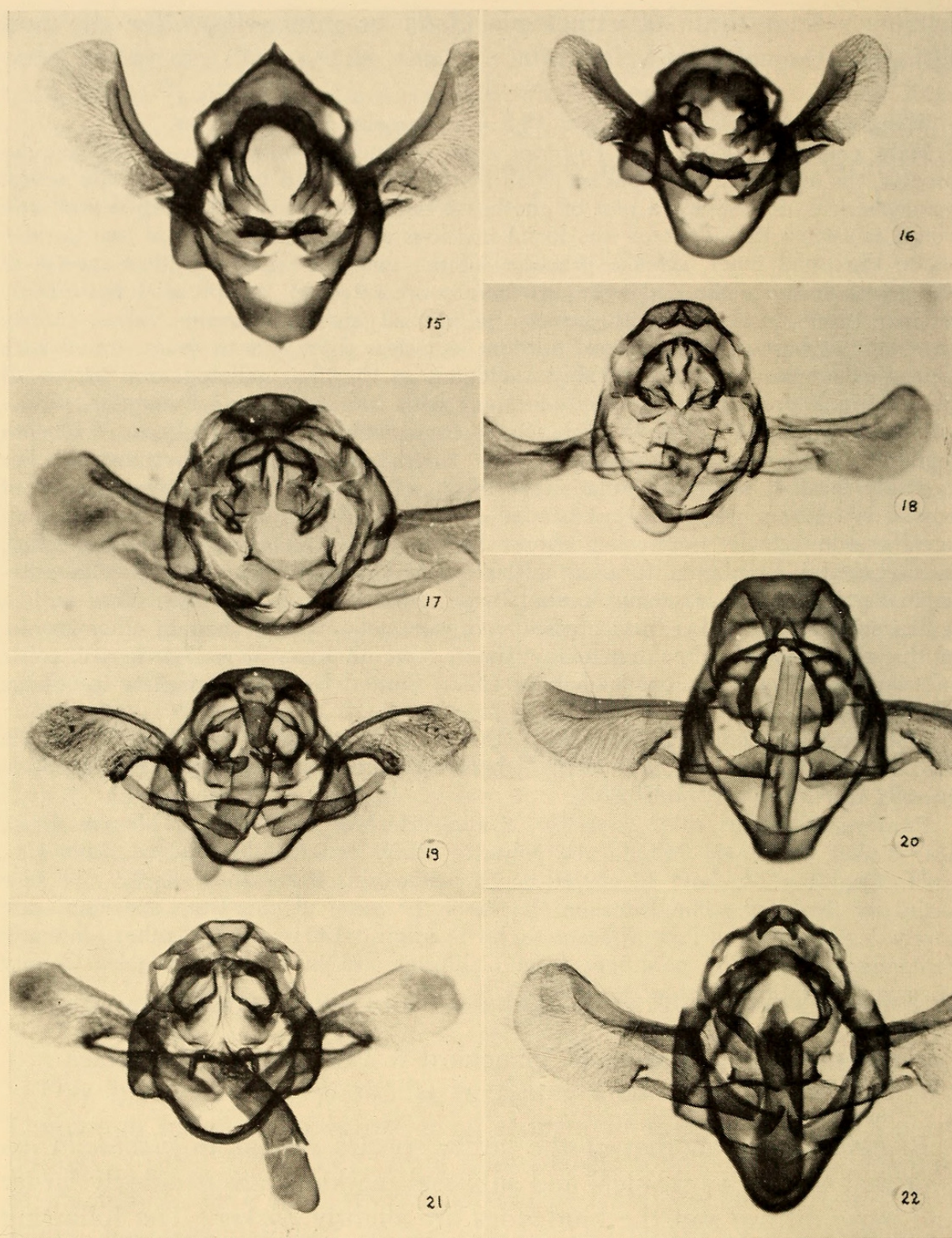
Paratypes: Argus Mts., Inyo Co., California, May 9, 1936, L. Martin, 1 ♂; near Topaz, Mono Co., California, July 15, 1937, 1 ♀; Independence, Inyo Co., California, May 14, June 13, 1936, 2 ♀♀; Stockton, Utah, 1 ♂, 3 ♀♀, all collected by Spalding. The dates on the labels of some of the Utah specimens are barely legible; the earliest appears to be 9 August 1904 and the others in early September 1904. The paratypes from California are in the Los Angeles County Museum of Natural History.

***Rostrolaetilia utahensis* Blanchard & Ferguson, new species**

Figs. 4, 26

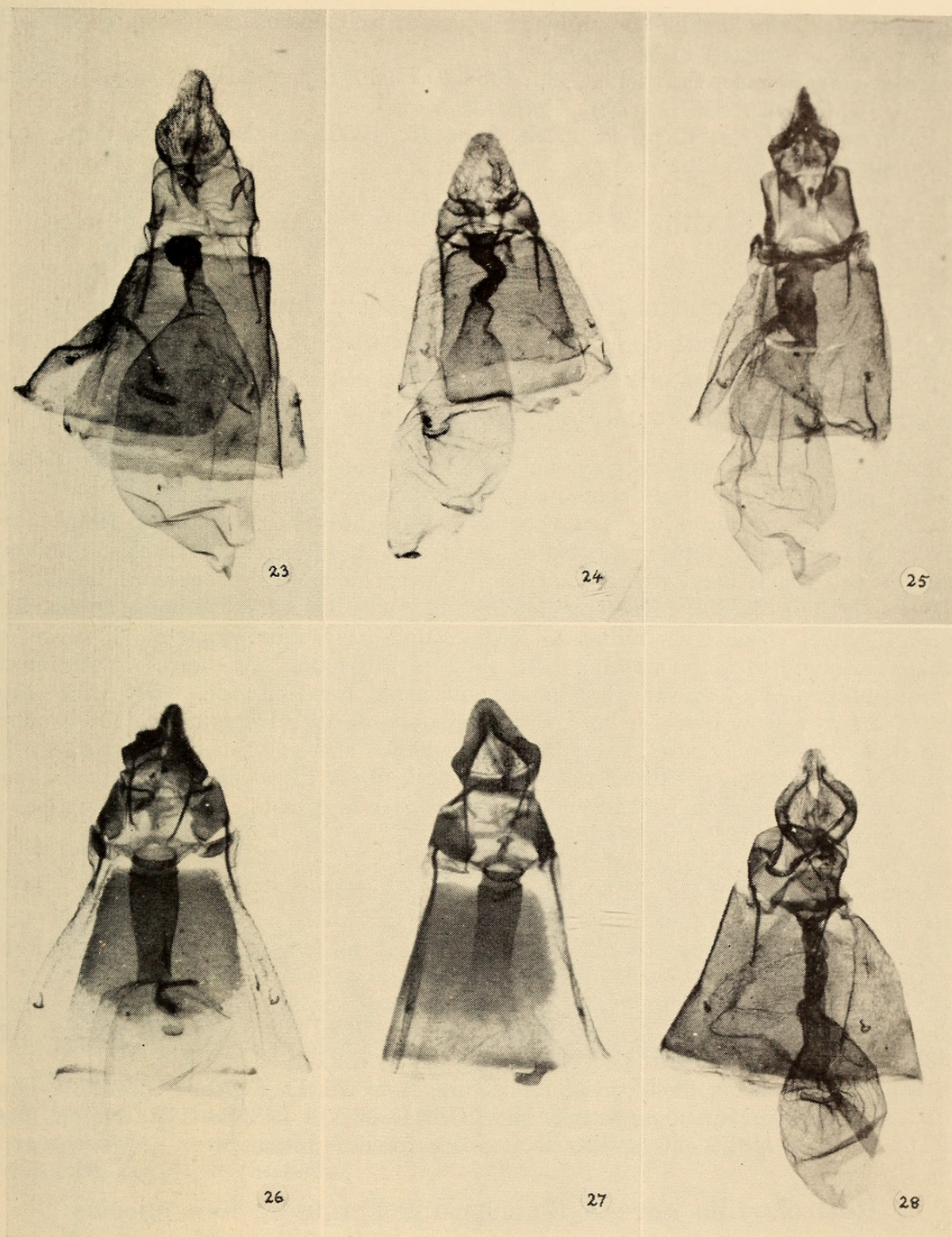
R. utahensis is another of the larger species similar to *placidella* except that the dark subapical and subbasal markings are decidedly larger and more diffuse and the hindwings are slightly darker. The following description is of the female only; the male is unknown.

Labial palps pale ochreous gray above, varying beneath from white at base to blackish at apex; **head, collar, thorax** and **tegulae** whitish; **forewing** above whitish, very lightly sprinkled with blackish scales; antemedial line concolorous with wing, inwardly defined only by a squarish patch of blackish scales in lower half of basal space, outwardly by a sprinkling of blackish scales between costa and radius and a black square spot extending from radius to fold, resting on a square, pale ochreous patch reaching inner margin; this ochreous patch continues outwardly, becoming much paler in median space; postmedial band a wide white line between two poorly



Figs. 15–22. Male genitalia of *Rostrolaetilia* spp.: 15, *R. placidella*; 16, *R. minima*; 17, *R. placidissima*; 18, *R. eureka*; 19, *R. ardiferella*; 20, *R. texanella*; 21, *R. nigromaculella*; 22, *R. pinalensis*.

defined black borders; these borders, however, become very heavy near costa where each develops a black triangle pointing toward base of wing; lower discal dot minute, upper one obsolescent; terminal line poorly defined, comprised of separate intervenular black dots; fringe a little darker than wing. **Hindwing** with a smoky



Figs. 23–28. Female genitalia of *Rostrolaetilia* spp.: 23, *R. placidella*; 24, *R. minimella*; 25, *R. placidissima*; 26, *R. utahensis*; 27, *R. coloradella*; 28, *R. eureka*.

tint; a thin, barely darker line at termen; fringe concolorous with wing. **Forewing** beneath yellowish brown, becoming dark gray at costa near apex. **Hindwing** beneath a little darker than above.

Wing expanse: 20.0 and 22.0 mm.

Female genitalia (Fig. 26): Very similar to those of *R. coloradella*; the main

difference is in the lamella postvaginalis, which is well sclerotized in *coloradella* and very poorly sclerotized in *utahensis*.

Holotype: Female, Richfield, Utah, June 15, 1930, caught in light trap; genitalia slide USNM 52,379; USNM Type No. 73,283.

Paratype: Female, Richfield, Utah, June 15, 1930, caught in light trap; Carl Heinrich Slide No. 1126.

***Rostrolaetilia coloradella* Blanchard & Ferguson, new species**

Figs. 5, 27

R. coloradella appears to be a small species, similar in appearance to *minimella* except that the subbasal spot at the inner margin is undeveloped, and the discocellular dot is single, not double. The following description is of the female only; the male is unknown.

Labial palps light smoky gray, paler beneath than above; **head, collar, thorax** and **tegulae** whitish with an ochreous tint; **forewings** white, sprinkled with blackish scales; antemedial line white, nearly straight, one-third length of wing from base, not distinct from background between costa and radius; a faint blackish dash at base, below which the lower half of basal space changes from ochreous basally to blackish at inner border of antemedial line; a square black spot adjoins antemedial line in medial space from radius to fold, resting on a squarish patch of ochreous scales extending to inner margin; distal limit of this patch not sharp: it continues, considerably paler, to postmedial band; postmedial band a wide, wavy white line between two narrow blackish lines, drawn in opposite discal dots and in fold; outer line well marked only near costa; inner line widest and most distinct opposite cell, not reaching costa; lower discal dot well marked, upper discal dot small or obsolete; fringe concolorous with background. **Hindwings** white with a faint smoky tint; a darker line at termen; fringe white.

Wing expanse: 15.5 mm.

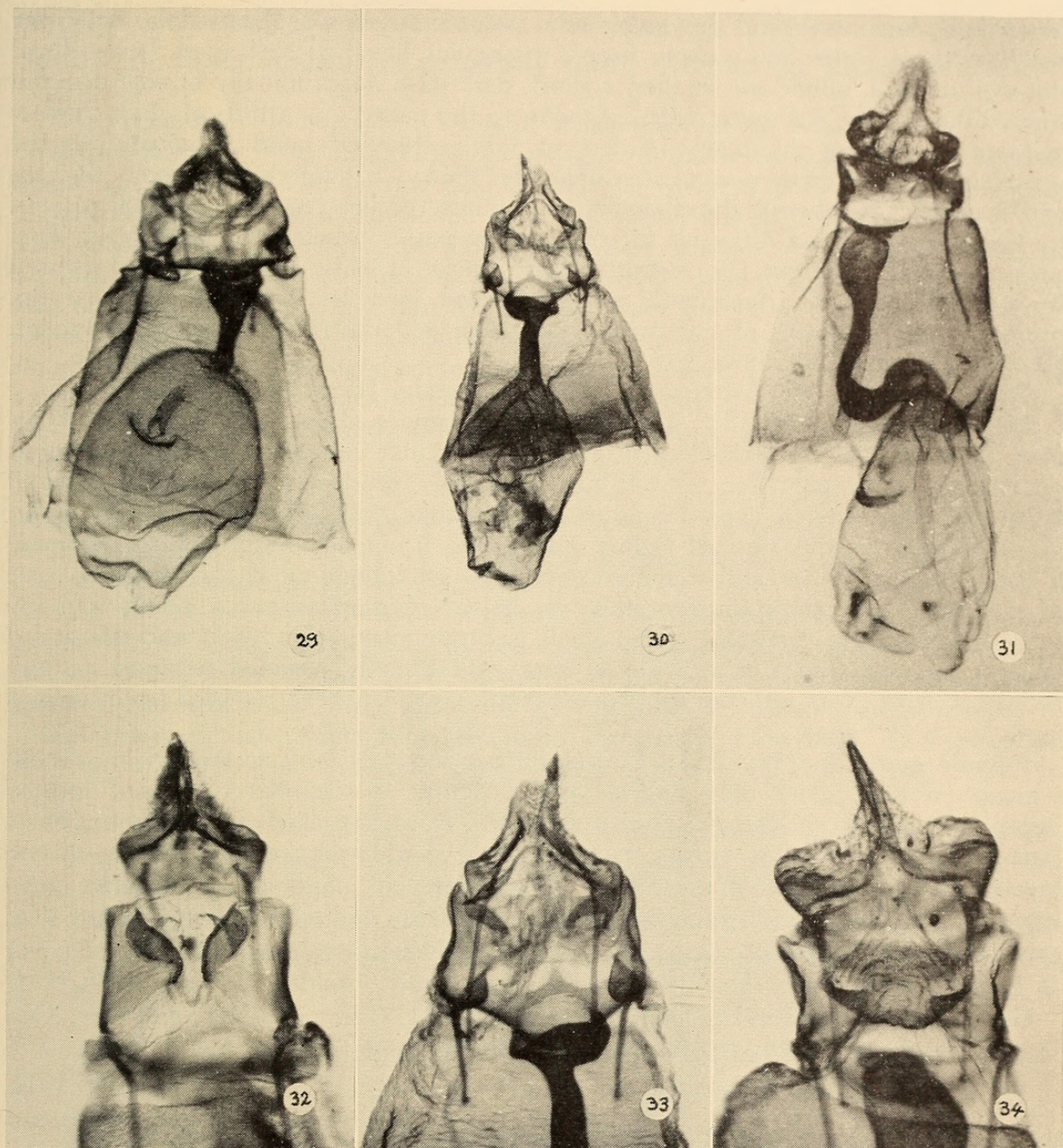
Female genitalia (Fig. 27): Bursa copulatrix nearly spherical, diameter a little less than length of tergum of seventh segment; signum lateroventrally on right side of bursa; ductus bursae straight, well sclerotized to less than its diameter from ostium bursae where it is membranous; lamella antevaginalis crescent shaped, the points of the crescent fused with lamella postvaginalis; lamella postvaginalis with pointed "wings" bridging the gap in the collar and a "tail" directed toward ovipositor; dorsal, membranous pocket of collar wide; collar not infolded.

Holotype: Female, Pueblo, Colorado, July, from W. D. Kearfott collection, now in U. S. National Museum; genitalia slide USNM 52,374; USNM Type No. 73,284. The holotype is the only specimen available for description.

***Rostrolaetilia eureka* Blanchard & Ferguson, new species**

Figs. 6, 18, 28

R. eureka is a moderately large, dark species that may be distinguished from all others except perhaps *pinalensis* by the presence on the forewing of a diffuse, dark, oblique streak running from the inner margin near the antemedial band to a point just before the apex. *R. nigromaculla* and to a lesser degree *ardiferella* and *texanella* have in the same position an oblique boundary between light and dark zones of the wing but no distinct streak.



Figs. 29–31. Female genitalia of *Rostrolaetilia* spp.: 29, *R. nigromaculella*; 30, *R. ardiferella*; 31, *R. texanella*. Figs. 32–34. Dorsal view of eighth segment of female abdomen showing membranous pocket in sclerotized collar: 32, *R. placidissima*, 33, *R. ardiferella*, and 34, *R. texanella*.

Labial palps brownish, clothed with white-tipped brown scales, lighter brown beneath; **front, vertex** and **collar** gray; **thorax** and **tegulae** smoky gray. **Forewing** above white, dusted with blackish scales in most of costal half and terminal space; a short, black basal dash; lower half of basal space mottled ochreous and blackish, more nearly ochreous at base, more nearly black along antemedial line; antemedial line white, lost in ground color above radius, outwardly bordered by a dark-brown, subtriangular spot extending from radius to fold; below this black spot an ochreous patch extending to inner margin; a smearing of ochreous and brownish scales appears as a continuation of this ochreous patch throughout lower half of median space; postmedial band a whitish line between two black lines; inner line diffuse in its

lower half, but heavy and projecting as a point between the discal dots, not quite reaching them; outer line starting from a triangular black spot at apex; lower discal dot well marked, upper one smaller; a short, dark dash longitudinally in cell, directed toward discal dots, not quite reaching them; to the naked eye a diffuse, dark shadow appears to prolong the black borders of the postmedial band diagonally to the ochreous patch at inner margin; terminal line smoky; fringe whitish, smoky at base and medially. **Hindwing** above smoky with faintly darker terminal line; fringe with its two rows of scales differing in color: short scales concolorous with wing, long scales perceptibly lighter. **Forewing** beneath smoky, a white patch at apex traversed by a blackish streak; fringe with colors arranged in zones; narrowly white at tip, narrowly smoky basad of the white and with several intermediate color zones. **Hindwing** beneath as above.

Wing expanse: Male, 16.0 and 18.5 mm; female, 16.0–18.0 mm.

Male genitalia (Fig. 18): Domelike part of uncus about half as wide as tegumen, its dorsal margin semi-circular, with semi-circular emargination between points of attachment to tegumen; ventral margin shortly produced with wide base and narrower apex, shaped as an inverted V; domelike part of gnathos barely wider than domelike part of uncus, resting on a wide bridge connecting it to tegumen; a deep, narrow, dorsal and a shallower ventral emargination of the domelike part of gnathos almost cut it in two; the two halves of gnathos curve gently into the inner tubular arms; transtilla plates small, subtriangular; juxta with well-sclerotized anterior margin; vinculum as wide as long with broadly rounded terminal margin; aedeagus short, without cornuti; valves simple, with widely rounded membranous part.

Female genitalia (Fig. 28): Corpus bursae about as long as tergum of seventh segment, a little more than half as wide; signum a sclerotized crescent located dorsally, at about mid-length; ductus seminalis from just caudad of signum; bursa tapering into thin ductus bursae that is slightly shorter than corpus bursae; ostium bursae half as wide as diameter of collar, flattened, membranous; lamella postvaginalis well sclerotized, trapezoid, as long as collar, slightly narrower caudad than cephalad, filling a gap of same shape in collar; dorsal membranous pocket of collar as long as collar, about half as wide, between barely infolded ends of collar.

Holotype: Male, Eureka, Utah, 14 August 1911, Tom Spalding, collector; Carl Heinrich slide No. 1129; USNM Slide No. 52,473; USNM Type No. 73,285.

Paratypes: All same locality and collector—7 July 1911, 1 ♀; 20 July 1911, 1 ♀, 11 August 1911, 1 ♀; 14 August 1911, 1 ♂; 15 August 1911, 1 ♀, 16 August 1911, 1 ♀.

Rostrlaetilia nigromaculella (Hulst)

Figs. 8, 21, 29

Aurora nigromaculella Hulst, 1900 [1901]: 224; 1902 [1903]: 438.

Rindge, 1955: 167.

Zophodia nigromaculella, Dyar 1904a: 228.

Saluria nigromaculella, Hampson, 1918: 100.

The superficial appearance of this and the following two species, *ardiferella* and *texanella*, is so similar that it needs to be fully explained only for one of them. We choose to describe in detail *texanella*, for which a better, longer series is available. *Nigromaculella* is on the average smaller than *texanella* with somewhat broader wings; its ground

color is definitely more ochreous; the blackish shadow from apex to middle of inner margin is generally more obvious in *nigromaculella*.

Wing expanse: Male, 14.0–18.0 mm; female, 13.0–18.0 mm.

Male genitalia (Fig. 21): Anterior margin of uncus considerably produced in length and breadth, with narrow emargination between its points of attachment to tegumen; posterior margin developed as a thick, subtriangular process, covered with stiff setae, truncated at tip; posterior margin of gnathos deeply emarginate; no separation between dorsal dome of gnathos and its inner armlike processes: each half of dome curving gently into the tubular arms which are strongly mucronated at their tips; juxta with well-sclerotized anterior margin; vinculum short, broadly rounded; valves with strongly sclerotized, slightly convex costa; membranous part of valve slightly produced beyond distal end of costa and strongly sclerotized, bearing small teeth at base; aedeagus medium, slightly curved, vesica armed with several small cornuti.

Female genitalia (Fig. 29): Corpus bursae as long as tergum of seventh segment, its diameter about three-fourths its length; signum a lightly sclerotized crescent around origin of ductus seminalis, ventrally located slightly left of center; ductus bursae straight, half as long as corpus bursae, much thickened to within a fraction of its diameter from ostium bursae, where it abruptly becomes thinner; ostium bursae funnel shaped, sclerotized all around, almost as broad as collar, attached to the ends of the collar, much flattened anteroposteriorly; dorsal membranous pocket of collar wide, wrinkled, with angular, sclerotized caudal margin.

Holotype: Female, Santa Rita Mountains, Arizona, 8 June 1898, E. A. Schwarz, collector; Carl Heinrich slide No. 2269; USNM slide No. 52,476; USNM Type No. 5,185.

Other specimens examined: 3 ♂♂, 20 ♀♀, Baboquivari Mountains, Pima Co., Arizona, 1 May–15 June, 15–30 October 1924, O. C. Poling; 1 ♀, Madera Canyon, Santa Rita Mountains, Arizona, 27 August 1946, J. A. Comstock and L. Martin; 1 ♀, Redington, Arizona, no date; 1 ♀ (tentatively identified), Kingman, Arizona, 1–7 October; 1 ♀, Gran Quivira National Monument, Socorro Co., New Mexico, S. F. Wood.

Rostrolaetilia ardiferella (Hulst)

Figs. 7, 12, 19, 30, 33, 36, 38

Altoona ardiferella Hulst, 1888: 116; 1890: 208. Barnes and McDunnough, 1918: 176. Shaffer, 1968: 89.

Zophodia ardiferella: Ragonot, 1889: 116.

Tolima ardiferella: Ragonot, 1901: 506, pl. 24, fig. 14.

Saluria ardiferella: Hulst, 1902 [1903]: 439. Hampson, 1918: 99.

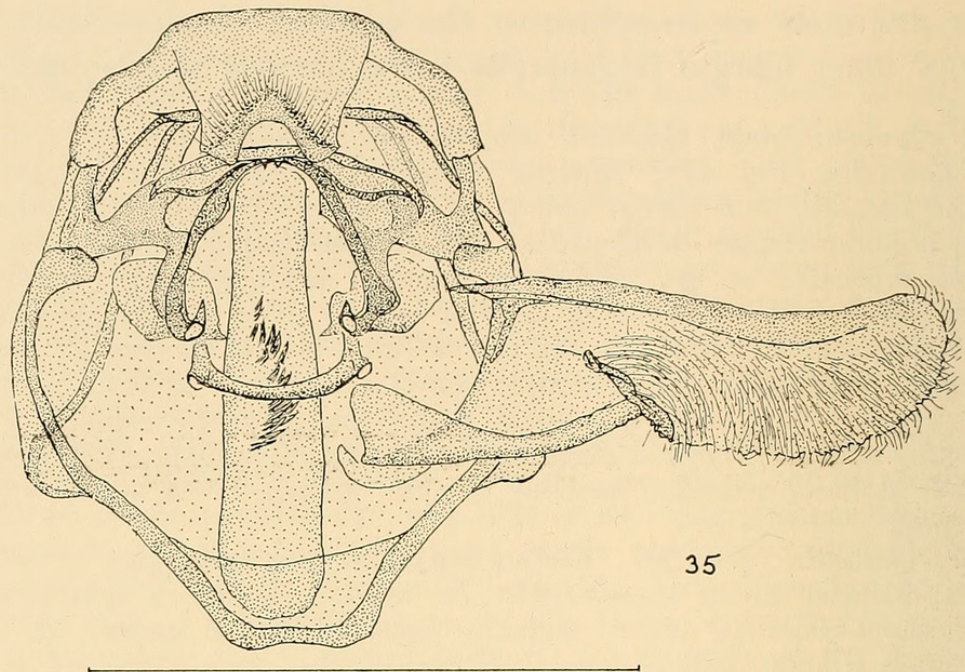
Pectinigera [sic] *ardiferella*: Dyar, 1904b: 159.

Pectinigeria ardiferella: Barnes and McDunnough, 1917: 149. McDunnough, 1939: 35.

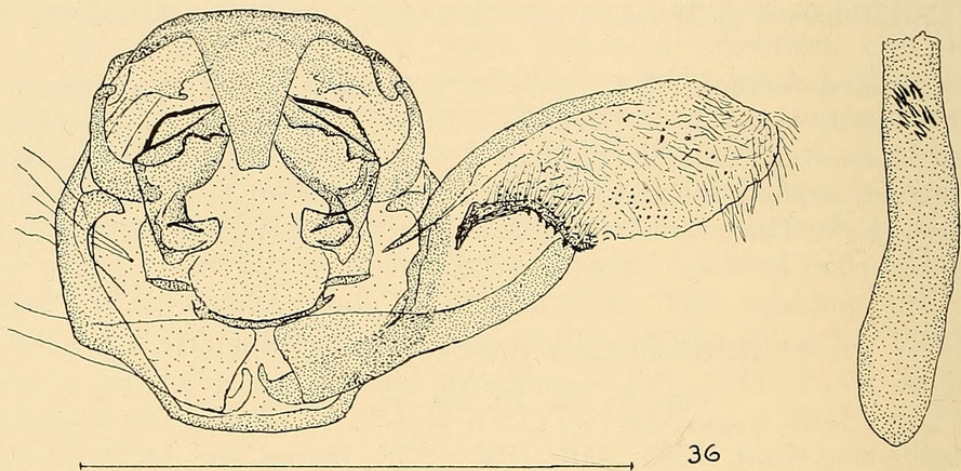
The superficial appearance provides no reliable means of distinguishing this species from *R. texanella* or *R. nigromaculella*. Most specimens are smaller than the smallest *R. texanella*, but some have a wing expanse which falls within the range for *R. texanella*.

Wing expanse: Male, 14.5–18.0 mm; female, 14.5–16.0 mm.

Male genitalia (Figs. 19, 36): Dorsal margin of uncus with wide, semicircular emargination; ventral margin developed in a long, flat, subtriangular process slightly



35

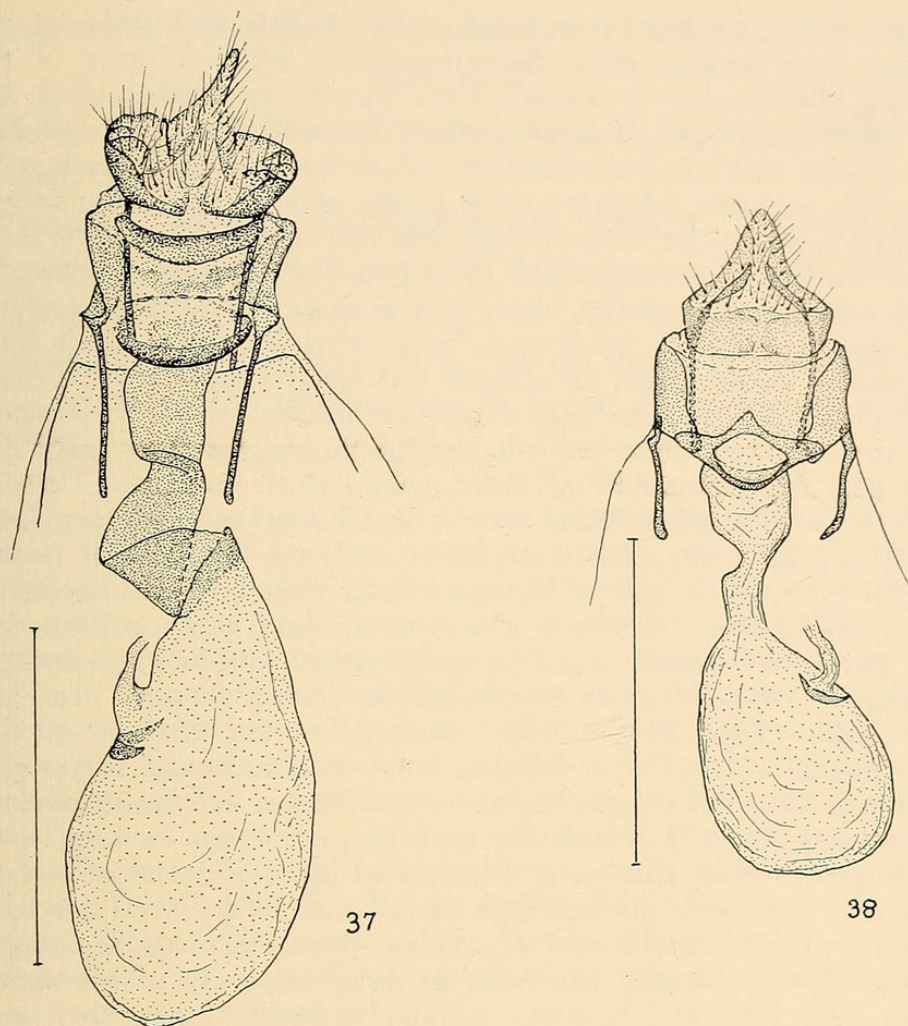


36

Figs. 35–36. Male genitalia of *Rostrolaetilia* spp.: 35, *R. texanella*, with aedeagus *in situ*; 36, *R. ardiferella*, with aedeagus removed.

truncated at tip; ventral margin of gnathos deeply emarginate; no definite separation between dorsal dome of gnathos and inner armlike processes: each half of dome curving gently into tubular arms which flare widely at their extremities, embracing aedeagus; just under dome of gnathos are two laminar, denticulate extensions; juxta with well-sclerotized anterior margin; vinculum short, broadly rounded; valves with strongly convex costa; base of membranous part of valves sclerotized and bearing several small teeth; aedeagus medium, slightly curved; vesica armed with three or four small cornuti.

Female genitalia (Figs. 30, 33, 38): Corpus bursae a little longer than tergum of seventh segment, two-thirds as wide as long; signum a lightly sclerotized crescent around origin of ductus seminalis; ductus bursae straight, much thickened to within a fraction of its diameter from ostium bursae, half as long as corpus bursae; ostium



Figs. 37–38. Female genitalia of *Rostrolaetilia* spp.: 37, *R. texanella*; 38, *R. ardiferella*. All figures within each group to same scale. (Illustrations by A. Blanchard.)

bursae sclerotized all around vaginal opening, with a small, pointed, caudal extension and two lateral, triangular extensions so long that collar is outfolded where they meet it; dorsal membranous pocket of collar wide, short, between incomplete infoldings of collar, with angular, slightly sclerotized caudal margin.

Holotype: Female, "Blanco Co., Cent., Texas", no date, from the Fernald Collection; Carl Heinrich slide No. 2270; USNM Slide No. 52,480; USNM Type No. 73,280.

Other specimens examined (all collected in Texas by A. and M. E. Blanchard): Paducah, Cottle Co., 17 April 1968, 1 ♂, 1 ♀; Shafter, Presidio Co., 18 October 1968, 1 ♂, 15 October 1969, 1 ♂, 16–19 October 1973, 2 ♂♂, 1 ♀; Artesia Wells, Chaparral Wildlife Management Area, La Salle Co., 10 November 1973, 2 ♂♂.

***Rostrolaetilia texanella* Blanchard & Ferguson, new species**

Figs. 9, 11, 14, 20, 31, 34, 35, 37

This species is extremely similar to *ardiferella* but averages larger. The genitalia are distinct.

Palps black above, varying beneath from white at base to blackish at apex; **head**, **collar**, **thorax** and **tegulae** gray; **forewing** above white in most of costal half, sprinkled with black scales increasingly from base to postmedial band; costa black at extreme base; antemedial line not distinct between costa and radius, where it blends into ground color; a short, blackish, diffuse basal dash; a black spot, variable in shape, usually squarish, adjoining outer border of antemedial line between radius and fold; a patch of mottled ochreous and blackish scales filling lower half of basal space below basal dash, is interrupted by antemedial line, but continues beyond it toward postmedial band between black spot and inner margin; color most nearly ochreous immediately below black spot; postmedial band a whitish line between two black borders, arising from an oblique, triangular black patch at costa, slightly drawn in opposite cell and in fold; a variable blackish shadow, obvious in some specimens, almost absent in others, diagonally through median space from costal black patch near apex to middle of inner margin; two discal dots, lower one generally a little larger; many specimens show a thin black streak running longitudinally through cell, usually ending between discal dots; an incomplete, poorly defined black terminal line; fringe gray at base and outer edge, white between. **Hindwing** white with a smoky tinge, especially along termen and at apex; fringe concolorous with wing. **Forewing** beneath largely grayish brown. **Hindwing** beneath, as above.

Wing expanse: Male, 16.0–22.0 mm; female, 18.0–22.0 mm.

Male genitalia (Figs. 14, 20, 35): Ventral margin of uncus produced in a trapezoid extension, covered with bristles, with wide base and narrower apex that is shaped like an inverted U; gnathos as wide as uncus and nearly flat; inner arm-like processes of gnathos fuse medially, each one connected by two laminar extensions to near point where gnathos is attached to tegumen; armlike processes themselves curve in a semicircle on each side of aedeagus and exceed caudal margin of juxta; transtilla plates large, dorsad of armlike processes; anterior margin of juxta well sclerotized; valves simple, narrowest at distal extremity of sacculus; vinculum subtriangular with truncated terminal margin; aedeagus long, thin; vesica armed with numerous small cornuti.

Female genitalia (Figs. 31, 34, 37): Bursa copulatrix a little longer than tergum of seventh segment, about half as wide as long; signum a transverse crescent on left side at about mid-length; ductus seminalis from just caudad of signum; ductus bursae sclerotized, contorted, a little longer than corpus bursae, constricted at junction with ostium bursae; lamella antevaginalis a narrow, sclerotized, crescent-shaped lip; trapezoid lamella postvaginalis filling a gap in collar, twice as broad at its posterior as at its anterior margin; dorsal membranous pocket of collar deep, broad, wrinkled, limited laterally by incompletely infolded collar.

Holotype: Male, Mt. Locke, Davis Mountains, Jeff Davis Co., Texas, 4 July 1969, A. and M. E. Blanchard; genitalia on slide A.B. 1800; USNM Type No. 73,286.

Paratypes: Two specimens in U. S. National Museum labelled Chiricahua Mts., Arizona [no date], 1 ♀, and So. Arizona, August 1–15, 1 ♀. Forty-three specimens collected in Texas by A. and M. E. Blanchard, as follows: Fort Davis, Jeff Davis Co., 13 October 1966, 3 ♂♂; 24 August 1967, 1 ♂; 23 October 1973, 1 ♂; Mt. Locke, Davis Mountains, 6 September 1969, 1 ♂; 21 March 1971, 1 ♂; 19 July 1971, 1 ♂; 21 October 1973, 2 ♂♂; Sierra Diablo Wildlife Management Area, Culberson Co., 7 June 1969, 1 ♂; 31 August 1970, 1 ♂, 1 ♀; 29, 30 May 1973, 14 ♂♂; Green Gulch, Big Bend National Park, 9 October 1969, 2 ♂♂; 28, 31 March 1971, 3 ♂♂; Oak Spring, Big Bend National Park, 8 May 1972, 5 ♂♂, 5 ♀♀; Bear Canyon, Guadalupe Mountains National Park, 4 September, 1969, 1 ♂.

***Rostrolaetilia pinalensis* Blanchard & Ferguson, new species**

Figs. 10, 22

The following description refers to the male holotype only; no other examples are known.

Several unusual features distinguish this species. A relatively obvious oblique boundary between light and dark zones of the forewing runs from the middle of the inner margin toward the apex, the usual sub-basal dark spots are so modified as to be unapparent, and the lower discocellular dot has the appearance of being elongated as a thin streak parallel to the inner margin.

Labial and maxillary palps blackish above; **labial palps** whitish beneath; **front, vertex, collar, thorax and tegulae** concolorous gray; **forewing** above bears only white and dark brown to blackish scales; their proportion produces all the variations from whitish to brown and blackish; sprinkling of blackish scales lightest along costa and in terminal space, heavy in lower basal space where it forms a short, blackish dash and a small spot adnate to antemedial line along inner margin, heaviest in a bow-shaped fascia starting in cell just beyond antemedial line, outwardly directed below cubitus, smoothly turning in direction of apex, but ending on lower discal dot; upper discal dot weaker; a longitudinal black streak in cell, most intense basad of discal spots, thinning out before reaching antemedial line; beyond lower part of antemedial line a squarish, dark, faintly ochreous patch; postmedial band a white line between two gray lines, only slightly darker near costa, drawn in at fold; terminal line gray; fringe white basally, gray distally. **Hindwing** above glossy white. **Forewing** beneath brown, except near whitish apex; fringe concolorous with whitish median line. **Hindwing** beneath white.

Wing expanse: Male, 15.0 mm.

Male genitalia (Fig. 22): Ventral margin of uncus supporting a long process with parallel edges, bicuspidate at its extremity; ventral margin of gnathos deeply, widely emarginate; armlike processes of gnathos directed ventrally, embracing aedeagus with their spatulate extremities; transtilla plates large, appearing fused laterally to juxta, forming an almost continuous anellus; valves simple; vinculum a little longer than wide; narrowing to rounded terminal margin; aedeagus about as long as costa of valves; vesica armed with numerous minute cornuti.

Holotype: Male, Pinal Mountains, Arizona, elevation 5,000 feet, 15-30 April 1925, O. C. Poling, collector; USNM Slide No. 52,445; USNM Type No. 73,287.

Although the distinctive maculation of the unique type sets it apart from other known species of *Rostrolaetilia*, the characters of the male genitalia leave no doubt that it is rightfully placed in this genus.

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LYCAEIDES MELISSA (LYCAENIDAE) IN TEXAS: CONFIRMATION OF AN OLD RECORD

On 14 July 1974, the authors took a good series of adult *Lycaeides melissa melissa* (Edwards) at two locations in the Texas Panhandle. The locations were a dry creek bed at Estelline, Hall Co., and a gully along Texas Hwy. 207 just north of Tule Canyon, Briscoe Co. Adults were closely associated at both locations with *Glycyrrhiza lepidota* Pursh. (Leguminosae), and a female was observed to oviposit upon this plant. This plant is recorded as a larval foodplant for the species in Emmel and Emmel (1973, *The Butterflies of Southern California*. Los Angeles). No attempt was made at this time to collect ova or search for larvae. It was at first thought that the captures represented a new state record. However, the authors subsequently learned from Roy O. Kendall that a specimen of *melissa* had been taken in Tule Canyon in June 1876 (!) by Lt. Thomas M. Woodruff (Strecker, 1877, *Annual Report upon Explorations and Surveys in the Department of the Missouri*, Appendix: R R Annual Report Chief of Engineers for 1877. Washington, D. C.). It is probable that records for the intervening years will come to light.

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