

NEOTROPICAL MIRIDAE, CLXI: *APACHEMIRIS*
JORNANDINUS AND *OAXACAENUS*, NEW GENERA
OF ORTHOTYLINI (Hemiptera)¹

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(With 16 text figures)

Continuing studies of the Miridae of the northern neotropics and adjacent regions has revealed three additional new genera of Orthotylini from Mexico and southwestern United States. With the exception of a holotype borrowed from the California Academy of Sciences, all of the material used in this study is from the collection of the Department of Entomology, Texas A&M University, College Station, Texas. The illustrations accompanying the descriptions of these new forms were prepared by Mr. Paulo Wallerstein, Luiz Antonio Alves Costa and Dr. J. C. M. Carvalho.

Apachemiris n. gen.

Orthotylinae, Orthotylini. Species of small size, greenish in color; body smooth

with decumbent pubescence on hemelytra and a few erect hairs on head and pronotum; areolae of membrane coriaceous.

Head smooth, much wider than long; eyes granulate, located at posterior margin of head, touching pronotum, reaching ventrally below medial portion of gena, wide above and somewhat compressed ventrally; vertex shallowly excavated, weakly margined; frons convex; clypeus compressed, prominent, rounded; lorum and jugum not conspicuous; gena, gula and buccula small. Rostrum short, reaching beyond middle of mesosternum; segment I much thicker than others, reaching anterior 1/3 of prosternum; II, III and IV subequal in length, much more slender than I; females with longer rostrum, almost reaching apices of middle coxae. Antennal socket touching eye; segment I as long as width of vertex of male, shorter than width of vertex on females, tapering towards base with a few erect setiform hairs near apex; segment II cylindrical with dense short decumbent hairs which are shorter than 1/2 width of segment; segments III and IV slightly more slender than II, pubescence short.

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Pronotum smooth, trapezoidal in shape, with erect setae on anterior margin; lateral margins angulate; posterior margin straight with posterior angles rounded; mesoscutum broadly exposed; scutellum varying from flat to somewhat convex. Hemelytra with semierect decumbent hairs which sometimes appear silvery under incident light; claval vein prominent; embolium somewhat rounded; cuneus almost twice as long as wide at base; areolae of membrane coriaceous at least along veins. Underside of body with prominent mesosternum; hind tarsi with segment I short, II and III subequal; arolia of orthotyline type, converging apically.

TYPE SPECIES OF GENUS, *APACHEMIRIS AREOLATUS* n. sp.

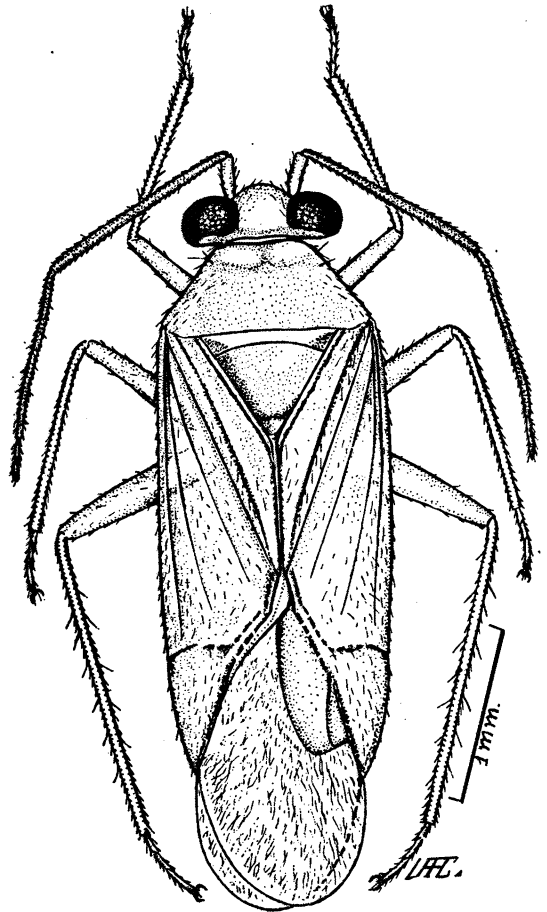
This genus has the general appearance of *Orthotylus* from which it can be readily differentiated by sclerotized areolae and the lack of a well margined or carinate vertex of the head.

***Apachemiris areolatus* n. sp.**

(Figs. 1-4)

Characterized by its dimensions and structure of male genitalia.

MALE (measurements taken from 4 specimens, those of holotype given first followed in parenthesis by the average and the ranges): Length, 3.48 mm (3.50 mm, 3.34-3.62 mm); width 1.14 mm (1.13 mm, 1.10-1.14 mm). Head length, 0.24 mm (0.25 mm, 0.24-0.28 mm); head width eyes, 0.72 mm (0.71 mm, 0.70-0.72 mm); vertex width, 0.20 mm (0.21 mm, 0.20-0.22 mm). Length of antennal segment I, 0.26 mm (0.25 mm, 0.24-0.26 mm); II, 0.98 mm (0.99 mm, 0.96-1.04 mm); III, 0.84 mm (0.83 mm, 0.82-0.84 mm); IV, 0.20 mm (all). Pronotal length, 0.44 mm (all); width, 0.96 mm (0.95 mm, 0.92-0.96 mm). Cuneal length, 0.64 mm (0.63 mm, 0.62-0.64 mm); width, 0.36 mm (0.36 mm, 0.34-0.36 mm).

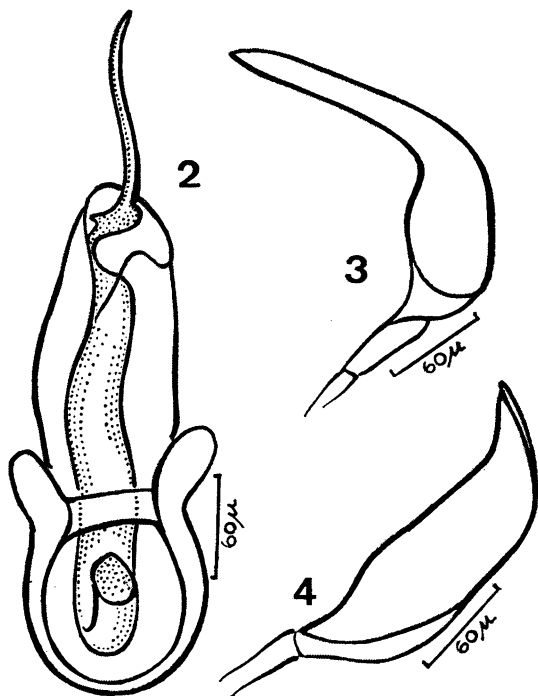


Apachemiris areolatus n. sp. Fig. 1 — male, paratype.

General coloration light green; darker green in a line running along margin of clavus and adjacent scutellum, claval commissure, line bordering corium internally, veins and cuneus; membrane fuscous; areolae coriaceous, same color as hemelytra, some specimens lighter medially; underside of body greenish; eyes dark brown; antennae becoming infusate towards apex; apex of rostrum and claws fuscous.

Morphological characters as given for genus.

Genitalia: Penis (fig. 2) terminating in elongate slender process. Left paramere (fig. 3) elongate, pointed apically. Right paramere (fig. 4) shorter than left, pointed apically.



Apachemiris areolatus n. sp. Fig. 2 — penis; fig. 3 — left paramere; fig. 4 — right paramere.

FEMALE (measurements of allotype given first followed by those of paratype): Length, 3.24 and 3.10 mm; width, 1.14 and 1.00 mm. Head length, 0.24 mm (both); head width through eyes, 0.62 mm (both); vertex width, 0.32 and 0.30 mm. Length of antennal segment I, 0.20 mm (both); II, 0.80 and 0.78 mm; III, 0.64 and 0.66 mm; IV, 0.20 mm (both). Pronotal length, 0.44 and 0.46 mm; width, 0.94 and 0.92 mm. Cuneal length, 0.54 and 0.50 mm; width, 0.34 and 0.36 mm.

Coloration similar to males, but tarsi pale yellow to fuscous.

HOLOTYPE: male, Texas: El Paso Co., Hueco Tanks, 15 May 1971, at light, Murray & Gaumer. Deposited in the *National Museum of Natural History*, Washington, D.C. **ALLOTYPE:** female, same data as holotype. Deposited in the *National Museum of Natural History*. **PARATYPES:** 3 males, same data as holotype; 1 female, New Mexico: Eddy Co, Black River and Hwy. 396, west of Malaga, 15 May 1971, Murray and

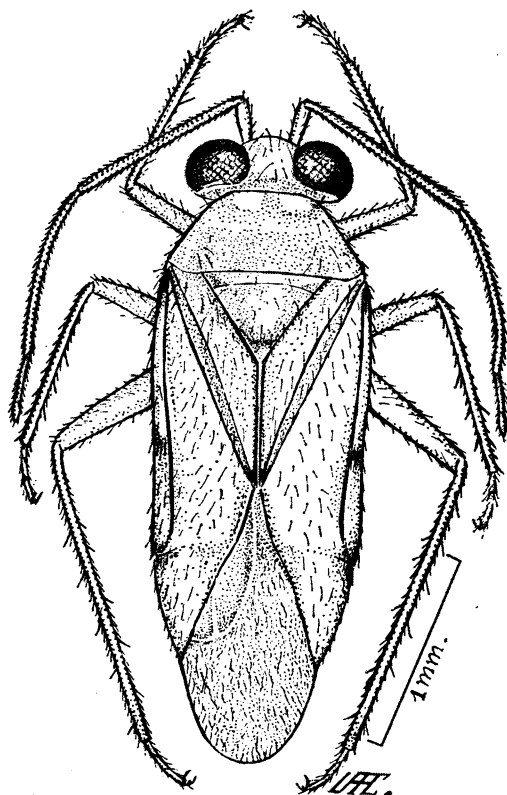
Gaumer. Deposited in the collection of the *Department of Entomology*, Texas A&M University, College Station and the *J.C.M. Carvalho collection*, Rio de Janeiro.

This is the largest of the three species of the genus. It can be recognized by the cuneus being well over 1 1/2 times longer than wide in contrast with the length not exceeding 1 1/2 times the width as in the case of the other two forms. The vertex is not as depressed and in the males the width of the pronotum is 1.33 times greater than the width of the head across the eyes as contrasted with 1.21 times or less on the other two species.

***Apachemiris minor* n. sp.**

(Figs. 5-8)

Characterized by its dimensions and structure of male genitalia.



Apachemiris minor n. sp. Fig. 5 — male, holotype.

MALE: Length 2.74 mm, width 0.94 mm. Head length 0.22 mm; head width through eyes 0.72 mm; vertex width 0.18 mm. Length of antennal segment I, 0.24 mm; II, 0.84 mm; III, 0.74 mm; IV, 0.28 mm. Pronotal length, 0.38 mm, width, 0.82 mm. Cuneal length; 0.44 mm; width, 0.30 mm.

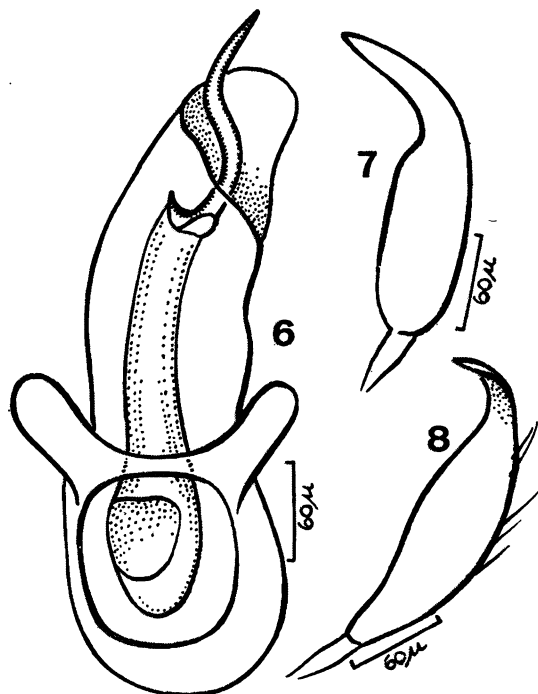
General coloration light green with yellow to lutescent areas; head lutescent to sulphurescent; eyes dark brown; antennae pale yellow becoming slightly fuscous towards apex; pronotum with area of calli somewhat lutescent, posterior half of disc greenish; mesoscutum and longitudinal fascia on scutellum pale yellow to lutescent; apex of scutellum more intensely green; hemelytra greenish yellow to green; extreme base and middle of embolium, claval commissure, internal margin of corium, line between apex of exocorium and embolium and outer portion and extreme apex of cuneus darker green; membrane light fuscous with veins light green; underside with body pale yellow; apex of rostrum and claws fuscous.

Eyes large and coarsely granulate, almost reaching gula below; erect hairs more conspicuous on head, pronotum and scutellum.

Genitalia: Penis (fig. 6) terminating in elongate slender process. Left paramere (fig. 7) widest basally, becoming elongate and pointed at apex. Right paramere (fig. 8) widest at middle, apex curved and pointed.

HOLOTYPE: male, 8 miles west of El Limon, Tamaulipas, Mexico, July 20, 1970, taken at light, Murray, Phelps, Hart, Schaffner. Deposited in the *National Museum of Natural History*, Washington, D. C.

Apachemiris minor n. sp. is the smallest of the three members of the genus and most closely resembles *A. vigilax* (Van Duzee). This species is more slender in appearance and the width of the pronotum is 1.14 times the width of the head taken through the eyes in contrast to 1.21 times in the case of *A. vigilax*. The first antennal segment of *A. minor* is more than 1/2 as long as the cuneal length whereas in *A. vigilax* it is clearly less than 1/2 the cuneal length.



Apachemiris minor n. sp. Fig. 6 — penis; fig. 7 — left paramere; fig. 8 — right paramere.

Apachemiris vigilax

(Van Duzee, 1923) n. comb.

Orthotylus vigilax Van Duzee, Proc. Cal. Acad. Sci. 12:155.

Characterized chiefly by its dimensions.

MALE (holotype): Length, 3.00 mm; width, 1.02 mm. Head length, 0.24 mm; head width through eyes, 0.76 mm; vertex width, 0.18. Length of antennal segment I, 0.22 mm; II, 0.86 mm; III and IV missing. Pronotal length, 0.42 mm; width, 0.92 mm. Cuneal length, 0.50 mm; width, 0.36 mm.

General coloration yellowish to yellowish green; green spots on areas near apex of embolium, apical margin of endo-

corium and along cuneal suture; membrane light fuscous, veins greenish with area along veins lightly coriaceous.

Eyes large, prominent, vertex somewhat sunken between; posterior edge of vertex weakly margined at middorsal line; scutellum somewhat convex; pubescence consisting of both silky and straight hairs.

The hemelytra have been extensively damaged by psocids or other insects. The genitalia, while in good condition, have not been dissected. The apex of the left paramere is drawn out to a point. The right paramere is elongate and pointed at the apex, however not as much as the left one.

The holotype was obtained for study from the *California Academy of Sciences*, San Francisco, California through the courtesy of Dr. Paul H. Arnaud, Jr.

This species most closely resembles *A. minor* n. sp. and can be separated from it by those characters given in the discussion of that species.

Jornandinus n. gen.

Orthotylinae, Orthotylini. Characterized by the large size and broad body, short rostrum, protruding frons, and nearly glabrous condition as seen from above.

Head smooth, shining, glabrous above; eyes located at posterior margin of head, slightly removed from pronotum; vertex very slightly convex with shallowly depressed area near each eye, distinctly carinate, carina extending from eye to eye; frons rounded and protruding beyond antennal bases; clypeus large, rounded, compressed laterally, separated from frons by deep sharply delimited sulcus; jugum flattened, lorum sulcate; gula more vertical than horizontal, with conspicuous fine hairs; buccula small, narrow. Rostrum short, reaching slightly beyond anterior coxae; segments I, II and IV subequal in length, III shorter; segment I thickened, not reaching

prosternum. Antennal socket not touching eye; segment I shorter than width of vertex, hairs sparse, mostly decumbent with 2 or 3 erect hairs apically; segment II longest, cylindrical, somewhat incrassate apically, subequal to I in diameter, hairs much shorter than diameter of segment, semierect; diameters of segments III and IV less than I and II, vestiture similar to that of II, segment IV with a few scattered long almost erect hairs.

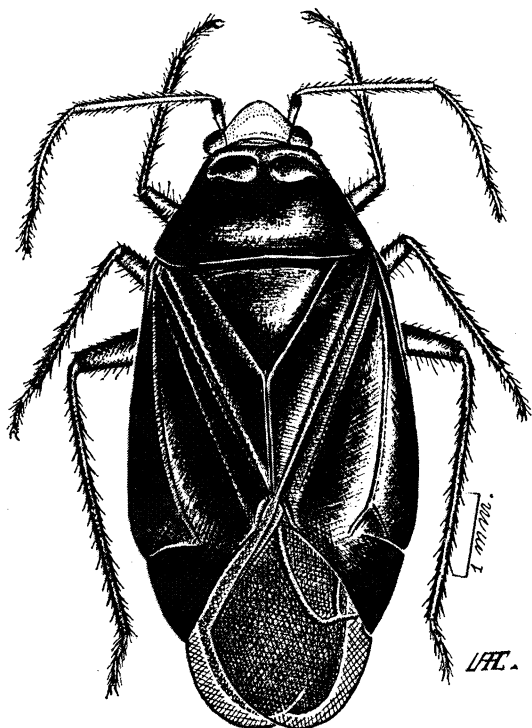
Pronotum glabrous, shining, very minutely punctate, only slightly declivent anteriorly; calli indistinct; lateral margins distinctly angulate; posterior margin weakly sinuate; posterior corners rounded; mesoscutum glabrous partially exposed; scutellum glabrous, convex, transversely rugulose. Hemelytra with corium, clavus and cuneus almost completely glabrous, very minutely punctate, shining; corium curved downward laterally, lateral margin of exocorium almost vertical; embolium narrow; cuneus also curved downward laterally, about as long as wide; hairs scattered, short, erect, difficult to see. Underside of pronotum primarily glabrous; underside of abdomen setose with conspicuous hairs; setae of tibiae about as long as diameter of tibia, hind tibia with longitudinal rows of corrugations; arolia of arthotyline type, converging apically.

TYPE SPECIES OF GENUS, *Jornandinus grandis* n. sp.

This genus is closely related to *Jornandes* Distant, 1884, but differs primarily in the shape of the head. The frons of *Jornandinus* protrudes outward between the bases of the antennae and the clypeus is larger. In addition, *Jornandinus* is finely punctate. This genus is also similar to the genus *Guerreroecoris* Carvalho and China, 1959, but differs by having a short rostrum which reaches only the front coxae. In addition, *Jornandinus* is almost completely glabrous above.

Jornandinus grandis n. sp.

(Figs. 9-12)

*Jornandinus grandis* n. sp. Fig. 9 — male, paratype.

Characterized by its dimensions and the structure of male genitalia.

MALE (measurements taken from 11 specimens, those of holotype given first followed in parenthesis by the average and the ranges): Length, 6.54 mm (6.34 mm, 5.84-6.80 mm); width, 2.88 mm (2.91 mm, 2.66-3.10 mm). Head length, 0.54 mm (0.48 mm, 0.44-0.54 mm); width of head through eyes, 1.26 mm (1.22 mm, 1.16-1.26 mm); vertex width, 0.62 mm (0.62 mm, 0.58-0.64 mm). Length of antennal segment I, 0.42 mm (0.42 mm, 0.38-0.44 mm); II, 1.72 mm (1.61 mm, 1.46-1.72 mm); III, 1.22 mm (1.17 mm, 1.10-1.26 mm); IV, 0.52 mm (0.51 mm, 0.44-0.54 mm). Pronotal length, 1.50 mm (1.41 mm, 1.34-1.52 mm); width, 2.30 mm (2.26 mm, 2.06-2.38 mm). Cuneal length, 1.10 mm (1.05 mm, 0.90-

1.12 mm); width, 1.00 mm (0.99 mm, 0.92-1.08 mm).

General coloration shining black and brownish orange; head primarily brownish orange, apex of clypeus and gula dark brownish black to black; antennal segment I brown, dark fuscous apically and occasionally fuscous at base, remaining segments yellowish brown, fuscous at extreme apices, segment IV also fuscous at base; rostrum brown to fuscous, darker apically; legs brownish black, trochanters and first tarsal segments lighter; remainder of body black.

Genitalia: Penis (fig. 10) with a single long sclerotized spiculum. Left paramere (fig. 11) strongly curved near apex, apex almost bifurcate. Right paramere (fig. 12) somewhat angulate, apex with small denticles.

FEMALE (measurements taken from 20 specimens, those of allotype given first followed in parenthesis by the average and the ranges): Length, 7.10 mm (7.06 mm, 6.44-7.54 mm); width, 3.52 mm (3.46 mm, 3.28-3.60 mm). Head length, 0.58 mm (0.63 mm, 0.52-0.72 mm); width of head through eyes, 1.30 mm (1.34 mm, 1.26-1.40 mm); vertex width, 0.70 mm (0.72 mm, 0.68-0.78 mm). Length of antennal segment I, 0.46 mm (0.46 mm, 0.42-0.50 mm); II, 1.66 mm (1.66 mm, 1.50-1.82 mm); III, 1.20 mm (1.19 mm, 1.08-1.28 mm); IV, 0.46 mm (0.51 mm, 0.46-0.54 mm). Pronotal length, 1.48 mm (1.51 mm, 1.36-1.62 mm); width, 2.54 mm (2.57 mm, 2.36-2.76 mm). Cuneal length, 1.16 mm (1.14 mm, 1.06-1.22 mm); width, 1.30 mm (1.29 mm, 1.16-1.40 mm).

Similar to males in color and structure.

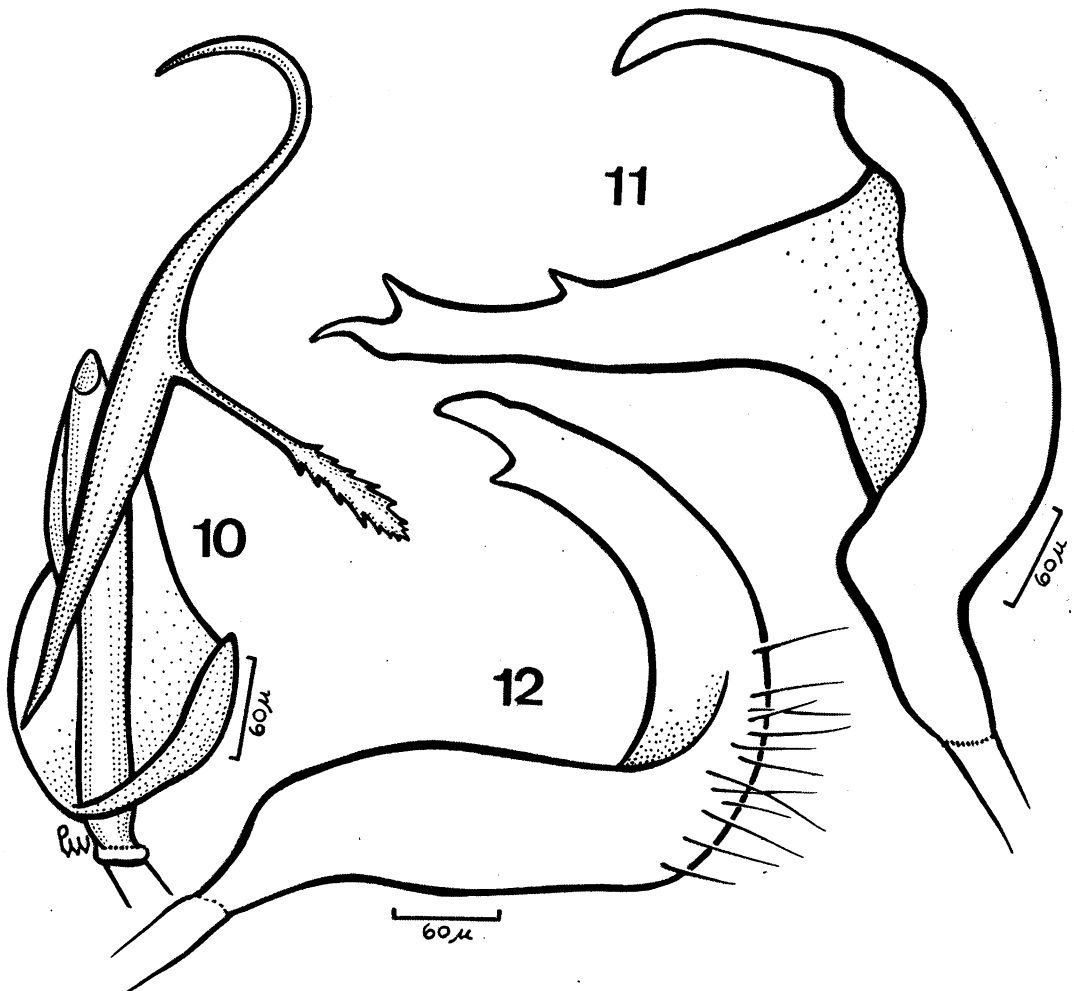
HOLOTYPE: male, Mexico: Oaxaca, 2.7 mi. n.w. El Camaron, July 14, 1971, Clark, Murray, Hart, Schaffner. Deposited in the *National Museum of Natural History*, Washington, D.C. **ALLOTYPE:** female, same

data as holotype. Deposited in the *National Museum of Natural History*. PARATYPES: 10 males, 22 females, same data as holotype. Deposited in the collection of the *Department of Entomology*, Texas A&M University, College Station, Texas; *J. C. M. Carvalho collection*, Rio de Janeiro; and *Canadian National Collection*, Ottawa, Canada.

Oaxacaenus n. gen.

Orthotylinae, Orthotylini. Characterized by its vitreous appearance, impunctate integument and sparse vestiture.

Head smooth, shining, wider than long; eyes located at rear of head, slightly removed from pronotum, compressed laterally; vertex depressed, carinate, the carina with erect light hairs; frons broad, slightly convex; clypeus vertical, rounded, somewhat compressed laterally; jugum small, flattened; lorum convex; gula short. Rostrum reaching posterior margin of mesosternum; segment I thickened, reaching anterior 1/3 of prosternum, I and IV subequal in length; segment III shortest. Antennal socket touching eye; segment I shorter than width of vertex, hairs sparse, mostly decumbent with 2 or 3 erect hairs apically; segment II



Jornandinus grandis n. sp. Fig. 10 — vesica of aedeagus; fig. 11 — left paramere; fig. 12 — right paramere.

longest, cylindrical, becoming thicker apically; hairs decumbent, some about as long as diameter of segment; diameter of segment III about equal to that of apex of II, more setose than II, hairs decumbent; segment IV more slender than III, longer than I, vestiture similar to III.

Pronotum smooth, shining, somewhat translucent, only slightly declivent anteriorly; calli obsolete, weakly delimited; lateral margins rounded; posterior margin very slightly sinuate; posterior corners rounded; mesoscutum narrowly exposed; scutellum smooth, convex, pointed at apex. Hemelytra smooth shining, hyaline; veins in corium not apparent; embolium flat, sides almost parallel throughout length; cuneus flat, as wide as long; vestiture consisting of scattered, decumbent light hairs. Pleural and sternal areas of thorax with scattered light hairs, abdomen more setose; femora with scattered light hairs, erect and long on underside; hind tibia with rows of minute corrugations, erect setae about as long as diameter of tibia; arolia of orthotyline type, convergent towards apex.

TYPE SPECIES OF GENUS, *Oaxacaenus vitreus* n. sp.

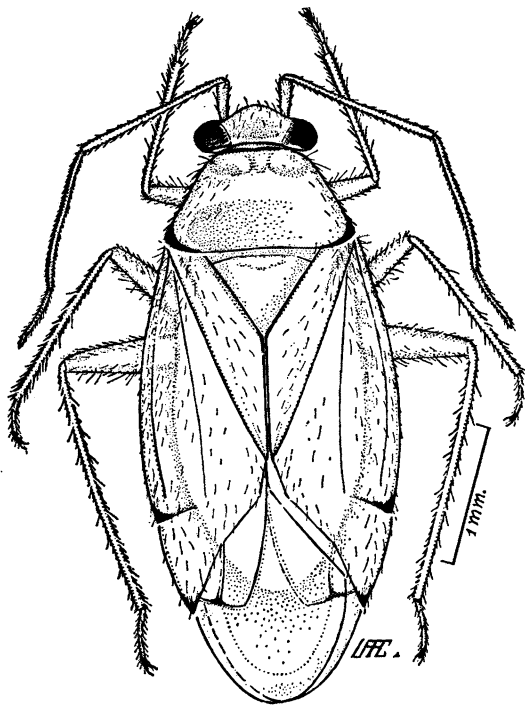
This genus resembles *Pliniella* Bergroth, 1922, in that both have a clear hemelytra. *Oaxacaenus* can be easily differentiated from *Pliniella* by the larger size, the shape of the head with the eyes almost touching the margin of the pronotum and by the posterior margin of the pronotum being almost straight rather than deeply sinuate.

Oaxacaenus vitreus n. sp.

(Figs. 13-16)

Characterized by its color, dimensions and the structure of the male genitalia.

FEMALE: Length, 3.56 mm; width, 1.66 mm. Head length, 0.26 mm; head width through eyes, 0.80 mm; vertex width,



Oaxacaenus vitreus n. sp. Fig. 13 — female, holotype.

0.38 mm. Length of antennal segment I, 0.28 mm; II, 1.06 mm; III, 0.94 mm; IV, 0.40 mm. Pronotal length, 0.64 mm; width, 1.22 mm. Cuneal length, 0.62 mm; width, 0.62 mm.

General coloration pale yellowish brown to clear with restricted black markings; body, except for clear hemelytra, pale yellowish brown with margins of posterior corners of pronotum, line along anterior margin of cuneal fracture, extreme apex of cuneus, lateral margin of embolium, apex of rostrum, corrugations of hind tibia fuscous to black; hind femur with several faint brown spots.

MALE: The specimen was accidentally destroyed during dissection and consequently no measurements are available. It was very similar to the female in form and color.

Genitalia: Penis (fig. 14) simple, no spiculi present. Left paramere (fig. 15)

elongate, slender with two small tooth-like structures near apex. Right paramere (fig. 16) enlarged at base, bifurcate apically.

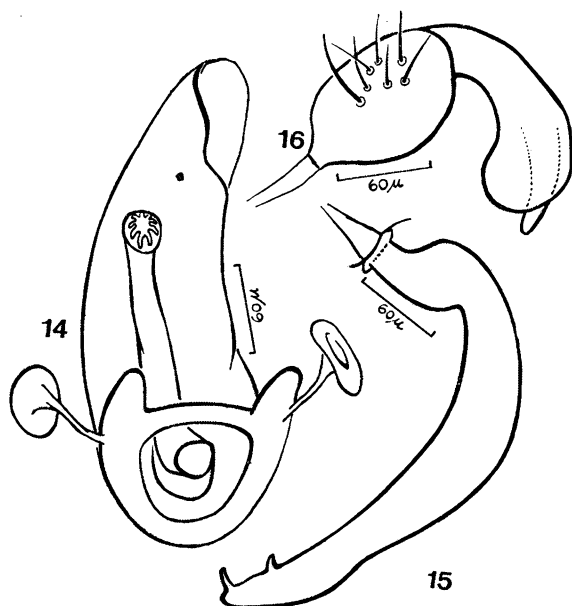
HOLOTYPE: female, Mexico: Oaxaca, 2.7 mi. nw. El Camaron, July 13, 1971, taken at light, Clarck, Murray, Hart, Schaffner. Deposited in the *National Museum of Natural History*, Washington, D. C. **PARATYPE:** male (genitalia), same data as holotype. Deposited in the collection of the *Department of Entomology*, Texas A&M University, College Station, Texas.

SUMMARY

The authors describe new genera and species of Orthotylinae, Orthotylini (Miridae) from Mexico and the United States as follows: *Apachemiris* n. gen., *A. areolatus* n. sp. from southwestern U. S., *A. minor* n. sp. from the state of Tamaulipas, Mexico; *Jornandinus* n. gen., *J. grandis* n. sp. from the state of Oaxaca, Mexico. *Oaxacaenus* n. gen., *O. Vitreus* n. sp. From the state of Oaxaca, Mexico *Orthotylus vigilax* Van Duzee is transferred to the genus *Apachemiris* (new combination). Illustrations of the newly described insects and of the male genitalia are included.

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Oaxacaenus vitreus n. sp. Fig. 14 — penis, male, paratype; fig. 15 — left paramere; fig. 16 — right paramere.