

NOTES ON ISSIDAE FROM MEXICO (Homoptera: Fulgoroidea)

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Much more intensive collecting remains to be done in this group before any work of a monographic nature can be accomplished. The great northern states of Sonora, Chihuahua, and Coahuila have practically been neglected, probably because of their proximity to the southern United States. Many states in central Mexico have no records of any Fulgorina while collecting with some intensity seems to have been carried on in Guerrero, Veracruz, Oaxaca, and Tabasco.

Enough material and data are available to indicate that the fauna contains representatives of the two subfamilies of *Issidae* found in the western hemisphere: the *Caliscelinae* in which the elytra scarcely reaches the abdomen and the *Issinae* in which the elytra are as long or longer than the abdomen. The three American genera of *Caliscelinae* have been reported as occurring in Mexico or Central America but there seem to be only definite records of *Bruchomorpha* and *Aphelonema*. The reference to *Fitchiella* by Melichar as occurring in Central America seems to include only Texas. The three tribes of *Issinae*, *Hysteropterini*, *Issini*, and *Thioniini*, in which placement largely depends upon the degree of development of the hind wing, are all well represented. Many genera reported from the southwestern United States probably occur in northern Mexico while southern Mexico may contain representatives of the genera occurring in Central America.

The genus *Euthisca* described from Baja California region and assigned to the *Issidae* by E. P. Van Duzee (1923) is very close to *Acanaloniidae*. Muir¹ has stated that, "It (*Acanaloniidae*) comes very close to some of the *Issidae* by which it appears to be separated by the absence of spines on the hind tibiae." Not only does *Euthisca* lack the spines but the elytra and general body form are typical of *Acanaloniidae*. To admit it to the *Issidae* erases any line of distinction between the two families; therefore, it would seem logical to exclude *Euthisca* from the *Issidae* at least until such time a detailed study of the relationships and characters involved prove otherwise.

The genus *Hypancylus* Fowler (1904) described from the state of Guerrero has the clavus highly calloused and granulate as in *Cyarda* Stål and has the costal area of the elytra cross-veined. It is definitely not an issid but belongs in the *Flatidae* tribe *Selizini*.

Subfamily Caliscelinae

The subfamily *Caliscelinae* in which the elytra are usually short, reaching to or slightly overlapping the abdomen, have an exception in that macropterous forms occasionally exist.

¹Muir, F. Proc. Hawaiian Ent. Soc., 5: 233, 1923.

Genus *Bruchomorpha*

The genus *Bruchomorpha* is usually characterized by having the clypeal suture indistinct, the vertex about six times broader than long, and the fore and middle tibiae simple.

Bruchomorpha dorsolineata, n. sp.

(Plate I, fig. 4)

Length 3. mm. General color black. Coxae and basal portion of femora light. A broad white median stripe present from apex of frons to anal flap. Median carina of frons black on apical third. A narrow black center stripe present in white abdominal stripe. Elongate white spots present on abdominal tergites near lateral margins.

A pronounced but not long nosed species with frons produced little more than length of eye. In lateral aspect, frons deeply concave; post clypeus slightly concave. Median carina of clypeus very sharp, extending on apical third of frons thence not prominent. Vertex approximately six times as broad as long. Pronotum with prominent median carina; each lateral dorsal third with 12-14 pits; lateral extremities below the eyes with four pits. Mesonotum with sharp lateral carinae; median carina almost obsolete. Elytra of even texture and color throughout, although longitudinal venation is evident. Anal flap of female rather acute caudad.

Unique female type² from 30 miles south of Nuevo Laredo, Nuevo Leon, 9-22-41. (DeLong, Good, & Caldwell.)

Allied to *suturalis* Melichar with a profile similar to *rugosa* Metcalf. The frons is much more concave and the face is longer than either of these species. The dorso-median stripe is narrower than *dorsata* Fitch and the presence of interrupted lateral abdominal stripes readily separates it from any species possessing a dorsal stripe.

Bruchomorpha longipennis, n. sp.

(Plate I, fig. 1)

Length, male, 2.5-2.7 mm.; female, 3.-3.5 mm. Male black with deep metallic blue sheen. Female dark, somewhat bronzed, with an indication of fine light median stripe on face and thorax. Last dorsal abdominal segment with median light spot which sometimes extends onto base of anal flap.

Rather short nosed species with head produced about the length of the eye. Frons forming about a sixty degree angle with vertex, slightly elevated apically; median tablet heart-shaped; without median carina. Ventral margins of post clypeus slightly concave. Vertex seven times as broad as long, very deeply excavate, highly carinate cephalad. Pronotum strongly carinate cephalad, with median carina, with 11-13 pits dorsad on either side; extreme lateral margins below the eyes with three pits, the first two usually close together. Mesonotum tricarinate with lateral carinae sharp; on either side of lateral carinae 10-12 pits. Elytra smooth, shining, with longitudinal veins indicated by small ridges.

²All types are in the writer's collection.

Anal flap of male elongate-oval; in lateral aspect, acute caudad. Aedeagus with long ventral hook; theca greatly extended caudad into a pair of long bluntly pointed flaps. Claspers straight on dorsal margins before apical hooks, somewhat angulate basad on ventral margins.

Male holotype and four paratypes, female allotype and two paratypes from Zacapu, Michoacan, 10-4-41. (DeLong, Good, Caldwell, and Plummer.)

***Bruchomorpha longipennis* var. *abbrata* n. var.**

(Plate I, fig. 5)

Length 3.5 mm. Structurally the same as *longipennis longipennis* but marked and colored as follows: General color bronze over all. A broad median white stripe present for length of frons and extending across vertex. Median carinae of notum narrowly red-white; apex of mesonotum broadly white. Elytra with sutural margin broad whitish, with intensity of color increasing caudad. In dorsal view, first of two visible abdominal segments with broad median stripe fading in intensity caudad; center of these stripes with thin red line; third visible segment with small white spot cephalad; remainder of visible segments with white median stripe; third and fourth visible segments with raised ivory bead on lateral margins.

Unique female type from Zacapu, Michoacan, 10-4-41. (DeLong, Good, Caldwell, and Plummer.)

***Bruchomorpha minutiforma*, n. sp.**

(Plate I, fig. 2)

Length, male, 2. mm.; female, 2.5 mm. General color black with bronzed cast. Legs yellow with basal third of hind femora black and a black dash apically on outer side.

Rather flat nosed species with head produced little more than length of eye. Post-clypeus slightly concave ventrad, slightly produced cephalad; cephalic margin perpendicular to ventral. Frons with median carina; lateral carinae prominent. A row of eight pits present just outside each lateral carina and a row of four pits next to each eye. Frontal suture shelf-like over antennae. Vertex very narrow, eight to nine times as broad as long. Median carina of pronotum prominent with 12-14 pits present on either side; extreme lateral sides below either eye with three pits. Mesonotum tricarinate. Elytra finely rugose with no evidence of longitudinal venation.

Anal flap of male acute caudad in lateral aspect. Aedeagus entirely hidden by long slender tubular theca except for small hooked processes projecting ventrad and cephalad. Claspers broader than long, apical portion not especially hooked or narrowed. Anal flap of female almost circular.

Male holotype from Jiutepec, Morelos, 9-6-39, female allotype from Taxco, Guerrero, 9-9-39, and female paratype from Acapulco, Guerrero, 9-10-39. (DeLong & Plummer.)

This species bears some resemblance to *mormo* Kirkaldy, but the longer nose, characteristic markings on the hind legs, and the distinct genitalia make for easy separation.

***Bruchomorpha duocantha*, n. sp.**

(Plate I, fig. 3)

Length, male, 2.5 mm.; female, 2.7–3. mm. Color and marking of male identical to *minutiforma*. In the female the femora are almost solid black with faint indications of the male markings, remainder of the legs black.

Short nose species with head produced the length of the eye or less. Nasal portion broadly rounded in profile. Venter of post-clypeus concave. Vertex six to seven times as broad as long.

Anal flap of male circular in dorsal aspect. Theca produced caudad into a pair of ovate flaps; a pair of aedeagal processes escape from ventral base of flaps and project dorsad. Anal flap of female elongate-oval, acute caudad in dorsal aspect.

Male holotype, female allotype, and five female paratypes from Saltillo, Coahuila, 9-23-41. (DeLong, Good, & Caldwell.) Paratypes of both sexes from Zamora, Michoacan, 10-2-41, (DeLong, Good, Caldwell, & Plummer) and one male paratype from Km. 43, south of Mexico, D. F., 9-5-39, (DeLong & Plummer).

This species is separated from *minutiforma* by the more rounded nose, more concave post-clypeus, longer vertex, and distinct genitalia.

***Bruchomorpha decorata* Metcalf**

(Plate I, fig. 9)

Jour. Elisha Mitchell Soc., 38: 188, 1923.

Length, male, 2.5–2.7 mm.; female, 2.7–3.2 mm. Ground color black, densely blotched in varying degrees with light brown or cream; venation of elytra usually ivory.

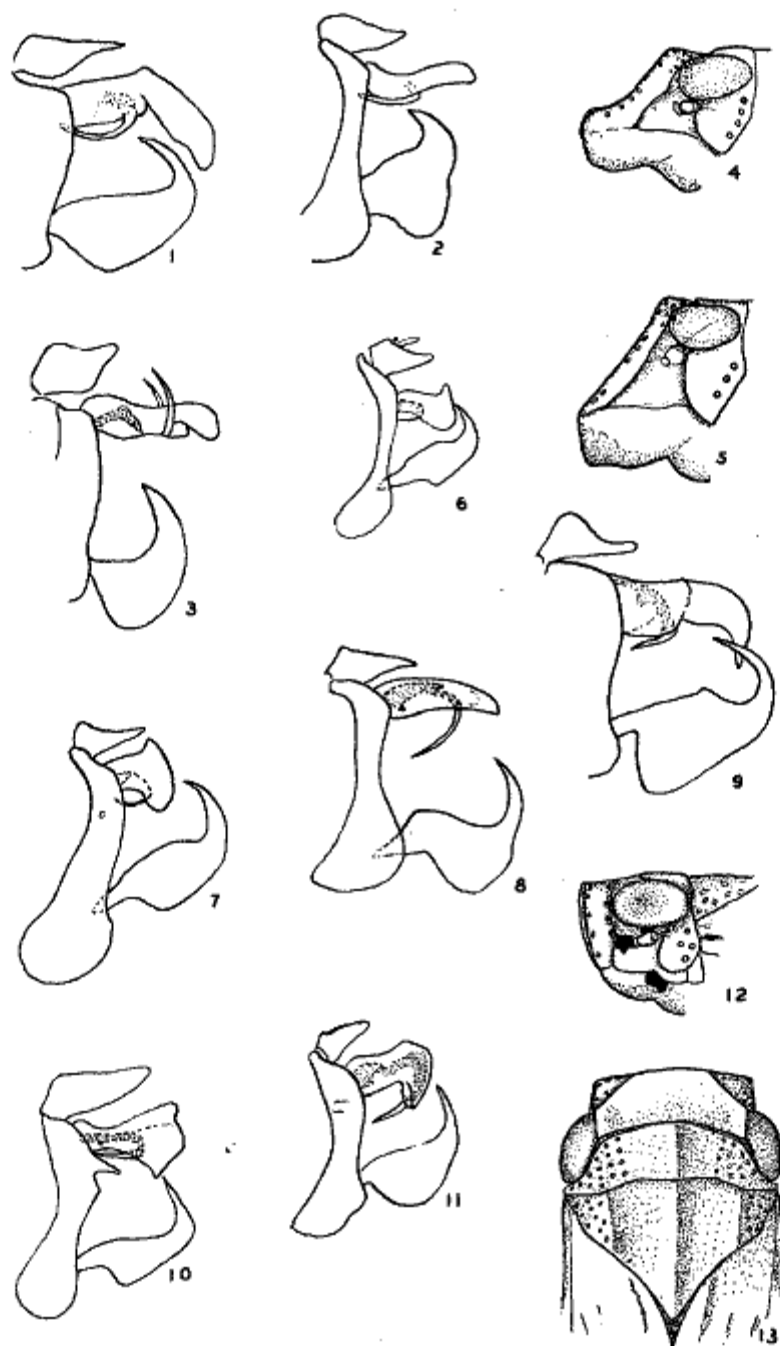
This is a short nose species with frons almost vertical. Vertex little over four times as broad as long. Lateral carinae of mesonotum highly elevated. Veins of elytra forming a network.

Anal flap of male elongate-oval. Theca projected caudad into a pair of large, acute flaps projecting ventrad; a hook-like process projects from base of flaps recurving into genital cavity. Claspers rather straight on dorsal margins before the curved apices, ventral margins abruptly narrowed basad.

This species seems to be well distributed in Mexico. Specimens are present from the states of Nuevo Leon, Tamaulipas, San Luis Potosi, Sonora, Morelia, and the Federal District.

EXPLANATION OF PLATE I

FIG. 1. *Bruchomorpha longipennis*. Lateral aspect of male genitalia. 2. *Bruchomorpha minutiforma*. (Same as 1.) 3. *Bruchomorpha duocantha*. (Same as 1.) 4. *Bruchomorpha dorsolineata*. Profile of head. 5. *Bruchomorpha longipennis* var. *abbrata*. Profile of head. 6. *Aphelonema brevata*. (Same as 1.) 7. *Aphelonema robusta*. (Same as 1.) 8. *Aphelonema orbiculata* Ball. (Same as 1.) 9. *Bruchomorpha decorata* Metcalf. (Same as 1.) 10. *Aphelonema bivittata* Ball. (Same as 1.) 11. *Aphelonema rubranota*. (Same as 1.) 12. *Aphelonema neosolitaria*. Profile of head. 13. *Aphelonema neosolitaria*. Dorsal aspect of head and thorax.



The macropterous form has the caudal margins of the pronotum very deeply notched and the carinae of the mesonotum almost obsolete with the central tablet convex. The hind wings are elongate, hyaline, with yellow veins. The mesothorax is black with red lines following the carinae.

***Bruchomorpha decorata* var. *nihildecorata*, new variety**

Length 3.5 mm. Brown over all except for the following black markings: sides of face below frontal suture, small spot laterad and cephalad on either side of mesothoracic shield, a spot laterad on pleurites of metathorax above coxae, abdominal sternites except first and last, a median area in cephalic margin of second visible abdominal tergite, and the pits on the abdomen. Structurally similar to *decorata decorata* but much larger, very robust, and appearing solid brown without use of scope.

Female type from Hacienda Naynan, Sonora, 3-19-29. (Dampf.)

Genus *Aphelonema*

The genus *Aphelonema* Uhler is usually characterized as having the clypeal suture distinct, vertex usually sublunate, and the fore tibiae simple.

***Aphelonema brevata*, n. sp.**

(Plate I, fig. 6)

Length, male, 1.7-2. mm.; female, 2.2-2.5 mm. General color dark fuscous. Clypeus black apically. Frons with a large black spot inside each lateral carina connected by a highly curved stripe forming the letter "C." Vertex black in lateral two-thirds of each half. Mesonotum with broad black line inside either lateral carina. Veins of elytra sometimes darkened. Abdominal dorsum with six black stripes, sometimes very broad.

Frons visible from above; frontal tablet rounded, flat basad; lateral carinae incomplete apically. Vertex little over three times as broad as long; length at either eye approximating median length; the three cephalic margins subequal in length. Pronotum with median carina. Mesonotum tricarinate. Longitudinal veins of elytra raised; inside claval vein very prominent.

Claspers of male rather slender, sides somewhat parallel; apices not especially long. Theca with small thumb-like projection dorsad near apex; apical flaps lobate; aedeagal process projecting from base of flaps, curved cephalad. Anal flap of female small, rounded, acute caudad. Last ventral segment slightly yet broadly produced caudad.

Holotype male and allotype female from Km. 18, Mexico-Toluca Rd., 11-24-38, (Caldwell). One female paratype same locality, 9-1-38, (DeLong). One male and one female paratype, Km. 280, Orizaba, Veracruz, 10-17-41, and one female paratype, Rio Frio, Puebla, Km. 55, 10-7-41. (DeLong, Good, Caldwell, & Plummer.)

***Aphelonema robusta*, n. sp.**

(Plate I, fig. 7)

Length, male, 2.2-2.5 mm.; female, 3. mm. General color dark with indications of brownish wash; legs dusky. Female with indication of light median stripe on abdominal dorsum.

Vertex approximately four times as broad as median length; median length greater than length at either eye. Frontal tablet of frons rounded. Veins of elytra not prominent, forming a network caudad.

Male with apical lobes of theca broadly pendulent. Claspers very broad sub-basally; apical portion long, curved. Anal flap of female broadly rounded. Caudal margin of last ventral segment broadly sinuate.

Male holotype, two paratypes, and female allotype from Zitacurao, Michoacan, 10-5-41, and one female paratype, same locality, 9-27-41. (DeLong, Good, Caldwell, & Plummer.)

Resembling *brevata*, but differs by the large robust appearance, the broad vertex, and distinct genitalia. One female approaches the color and markings of that species.

***Aphelonema orbiculata* Ball (1935)**

(Plate I, fig. 8)

Length, male, 2.5-3.5 mm.; female, 3.5-3.6 mm. Color variable. Usually with a broad white stripe from frontal tablet to apex of abdomen; a white stripe originating on base of clypeus extending across extreme lateral margins of pronotum diagonally across the elytra and joining the broad median stripe leaving the outer portion of the elytra dark. The females sometimes lack this diagonal marking and have plain brown elytra with even the median stripe obsolete. Abdomen usually with the lateral margins of the first visible tergite ivory; sometimes the remaining tergites carry this lateral marking which forms a more or less continuous stripe.

Frontal tablet round, ecarinate apically. Vertex sublunate except for slight angulations, almost as long as pronotum. Veins of elytra prominent, somewhat anastomosed caudad, especially in the plainly marked females.

Anal flap of male small, ovate. Aedeagus enclosed in elongate theca; small process emerges near base and curves into genital cavity. Claspers heavy basad with suddenly narrowed siculate apices.

Numerous specimens from Veracruz, Puebla, and the Federal District. (DeLong, Good, Caldwell, & Plummer.)

***Aphelonema rubranota*, n. sp.**

(Plate I, fig. 11)

Length, 2.5 mm. Frontal tablet snow white; carinae ivory; lateral compartments red with black pits. White median stripe for full length of vertex and notum edged with red. Caudal half of extreme lateral margins of pronotum white with stripe extending across elytra and joining median stripe. Outer portion of elytra jet black. Abdominal dorsum with interrupted median stripe. Clypeal region, genae, legs, and entire venter black.

Frontal tablet round, with median carina. Vertex same as in *orbiculata* Ball, much shorter than pronotum. Prominent median carina present on pronotum especially caudad. Mesonotum strongly tricarinate. Longitudinal veins of elytra prominent, straight.

Anal flap of male small, produced caudad. Apex of theca produced ventrad into a pair of blunt flaps with an aedeagal process projecting from between recurved toward genital cavity.

Male type from Km. 55, near Rio Frio, Puebla, 10-7-41, elevation 10,500 ft. (DeLong, Good, Caldwell, & Plummer.)

***Aphelonema nesolitaria*, n. sp.**

(Plate I, figs. 12 and 13)

Length 3. mm. Light straw colored marked with a black dash on either side of the clypeus, a black spot below either eye, a black spot cephalad either antennal base, two black lines inside either lateral carina of mesonotum, five black lines on abdominal dorsum, and veins of elytra black.

Tablet of frons much broader than long. Vertex almost three times as broad as long, shorter than pronotum. Pronotum with prominent median carina. Mesonotum tricarinate. Elytra almost hyaline; longitudinal veins evident, straight. Last ventral segment of female with a broad caudal flap gently notched in the center. Anal flap almost circular.

Holotype female from 18 km. west of Mexico, D. F., 9-1-39. (DeLong & Plummer.)

Similar to *solitaria* Ball but differs by the much broader vertex and distinct genitalia.

***Aphelonema bivittata* (Ball)**

(Plate I, fig. 10)

Can. Ent., 34: 263, 1902.

Length, male, 2.-2.5 mm.; female, 3.-3.5 mm. Black species with mid-dorsal broad yellowish stripe on head and thorax, a diagonal stripe across either elytron, and three interrupted yellowish abdominal stripes with light dashes and blotches far laterad. Face whitish except for black lateral carinae. Legs red.

Frontal tablet greatly elevated above plane of front. Vertex somewhat produced before the eyes. Pronotum ecarinate. Mesonotum with two prominent lateral carinae. Elytra with strongly elevated claval vein.

Male pygofers with small caudal projection. Thecal flaps rather acute ventrad and caudad; small aedeagal process projecting ventrad and cephalad. Claspers with apical hooks right-angled. Anal flap of female broadly rounded.

Saltillo, Coahuila, 10-23-41, (DeLong, Good, & Caldwell), and Mexico, D. F., 9-1-39, (DeLong & Plummer).

The chrotic characters and color of these Mexican specimens approach *convergens* Bunn but the genitalia are nearer *bivittata* Ball.

Subfamily *Issinae*

The subfamily *Issinae*, in which the elytra are as long or longer than the abdomen, is further divided into tribes by the development of the hind wing. While this certainly is not a natural division it is too convenient to give up until something more basic is worked out, possibly among other characters the presence or absence of a separate vein Sc₁ may prove to be the answer; however, in some examples it is practically impossible to determine whether this vein is present or absent.

Tribe *Hysteropterini*

The tribe *Hysteropterini* is usually characterized by having the hind wing absent or rudimentary and the vein Sc₁ present.

Genus *Dictyssa*

The genus *Dictyssa* Melichar is characterized by the hemispherical elytra held rather vertical to the body and the venation a rather coarse network with hyaline cells present in sharp contrast to opaque areas. There are no representatives of this genus in this collection; however, *ovata* Ball and *obliqua* Ball³ were described from material collected at Tia Juana, Baja California. Doering (1936) has given excellent descriptions and drawings of these difficult species.

Genus *Dictyonissus*

The genus *Dictyonissus* Uhler is usually characterized by the collar-like pronotum, the conspicuous and erect hair on body and elytra, the venation of the elytra coarse and raised, the areoles translucent, the hind wings a mere scale, and the hind tibiae usually trispinose.

Dictyonissus griphus Uhler

Bull. U. S. Geol. Surv., 1:354, 1876.

Length 3.5-5. mm. Pale green over all with a touch of black on cephalic margin of vertex. Vertex rounded cephalad. Frons with prominent median carina. Clypeus ecarinate. Elytra entirely vitreous. Hind tibiae usually trispinose, sometimes quadrispinose. Aedeagus of male somewhat thickened basad, with short projections on either side. Last ventral segment of female with shallow notch in center of caudal margin.

Very common in Texas. The only record from Mexico is Monterrey, Nuevo Leon, (Tuthill).

Genus *Mesodema*

The genus *Mesodema* Melichar is very close to *Dictyonissus* Uhler and may possibly be the same. At present it seems to be characterized by the heavy, thickened reticulations of the elytra; the short clavus; mesonotum strongly tricarinate; the hind wing entirely absent; and the hind tibiae quadrispinose. The reference by Melichar (1906) to the species *reticulata* is such that Texas is included in Mexico and is

³Proc. Biol. Soc. Wash., 23: 41-46, 1910.

not to be interpreted as occurring in Mexico and Texas. Many records from Central America by Melichar are no further south than Texas.

Mesodema dubia, n. sp.

(Plate II, fig. 5, and Plate III, fig. 2)

Length, male, 4. mm.; female, 4.5 mm.; width, male, 2.7 mm.; female, 3. mm. General color grey to brown; yellowish along costa with a yellowish spot extending from middle of costal margin to about vein M.

Vertex pentagonal, produced, carinate medianly. Frons elongate with prominent median carina. Pronotum produced cephalad between the eyes, with median carina. Mesonotum prominently tricarinate. Elytra greatly narrowed on costal margin in apical half; apices rounded. Venation very coarsely raised, somewhat reticulate; aeroles translucent; longitudinal venation evident. Hind tibiae trispinose.

Aedeagus more of type as found in *Danepteryx* than *Dictyonissus*. Last ventral segment of female with a small round notch caudad.

Male holotype and female allotype, near Saltillo, Coahuila, 9-23-41, elevation 6000 feet. (DeLong, Good, & Caldwell.)

This species exhibits definite relationship to *Dictyonissus* in that the aeroles of the elytra are mostly translucent, a scale-like hind wing is present, and there is a fine scattering of pubescence over the body and elytra. It is placed in *Mesodema* because of the very coarse venation, the opaque appearance of the elytra, and the strongly tricarinate mesonotum. *Dictyonissus* exhibits specimens with either three or four tibial spurs so no conclusion can be drawn from this.

Genus Hysteropterum

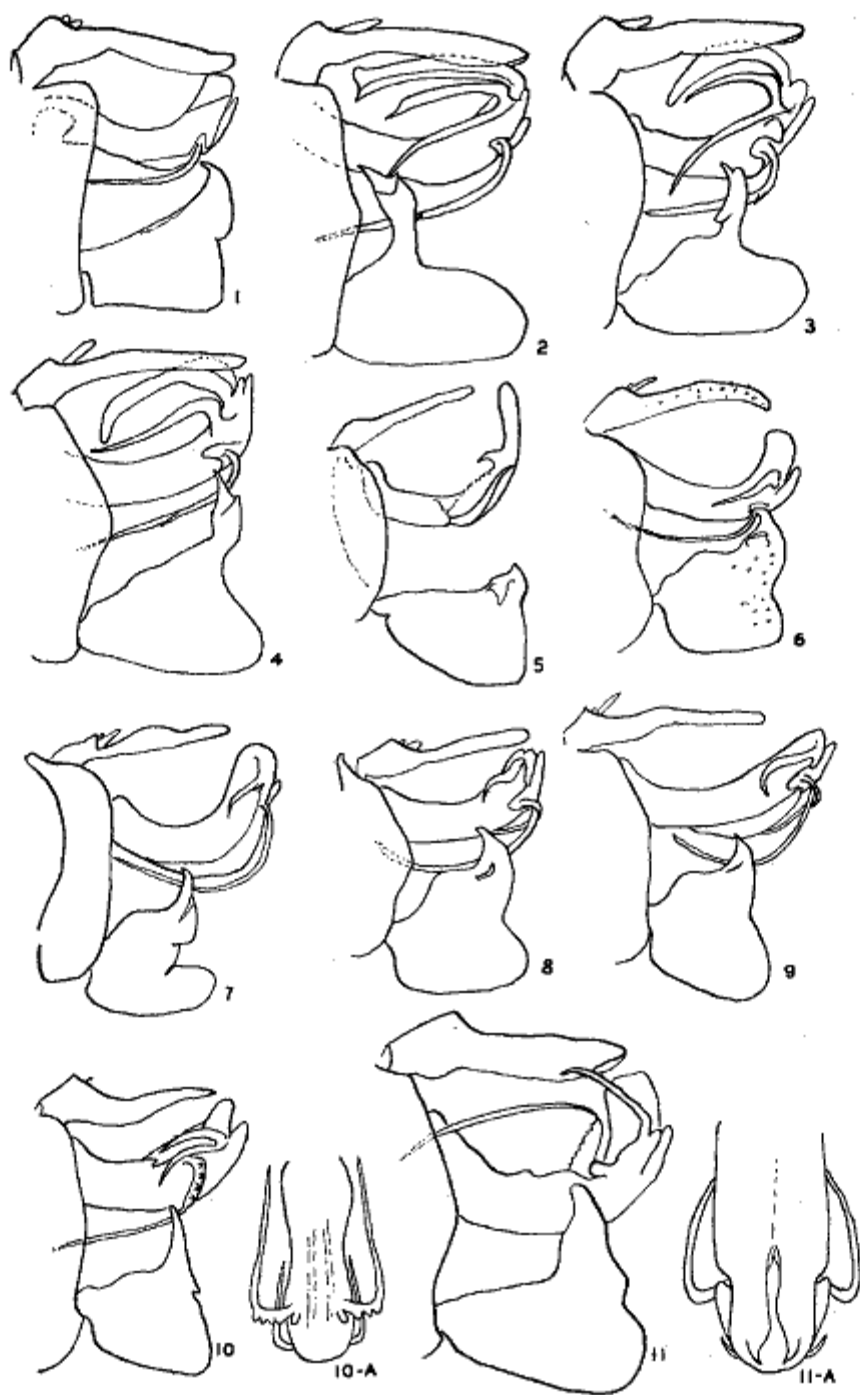
The genus *Hysteropterum* Amyot & Serville is usually characterized as having the head about as wide as thorax, vertex subquadrate, frons nearly vertical, elytra almost vertical with costal margin sharply bent lying horizontal against the venter, hind wings small, and hind tibiae with one or two spines.

This genus is well represented in Mexico but because of the difficulty of diagnosing precise generic characters it may contain species belonging elsewhere. Fowler (1904) stated that his *montanum*, *fowleri* Melichar, may belong somewhere else. Van Duzee (1923) stated that his *morum* was allied to *fowleri* and had much the aspect of *Picumna ovatipennis* Walker. Doering (1938) quotes Mr. Oman as saying that it is close to *Thionia naso* Fowler. From the descriptions and comparisons the writer has absolutely no idea where these species belong; however,

EXPLANATION OF PLATE II

Lateral aspect of male genitalia.

FIG. 1. *Hysteropterum bistriatum*. 2. *Hysteropterum auriferum*. 3. *Hysteropterum erratum*. 4. *Hysteropterum acanthum*. 5. *Mesodema dubia*. 6. *Proteinissus bilimeki*. 7. *Plummerana isolata*. 8. *Prothoma punctata*. 9. *Prothoma virida*. 10. *Traxanellus bifus*. 10-a. Ventral aspect of aedeagus. 11. *Ulixes perpendicularis*. 11-a. Ventral aspect of aedeagus.



there is an undescribed species before me much the aspect of *Thionia naso* Fowler with shorter vertex and reticulate elytra which may or may not be *morum* and certainly is not a *Hysteropterum*, but seems to belong somewhere near *Mycterodus* Spinola.

***Hysteropterum aureum* (Uhler)**

Bull. U. S. Geol. Geog. Surv., 1:352, 1876.

Length 4.-5. mm. General color black sprinkled and splashed with gold or orange. Costal margin broadly light. Venter greenish with small black spots.

Frons polished, convex; intermediate carinae almost obsolete. Clypeus protruding sharply into frons; surface continuing curve of face. Elytra with sutural margins straight, broadly rounded caudad, with prominent veins.

Anal flap of male constricted apically, acute. Aedeagus with small triangular apical hooks; lateral processes long, curved toward base of aedeagus. Claspers exclusive of dorsal spurs as long as broad.

Specimens from the states of Nuevo Leon and Coahuila, September, 1941. (DeLong, Good, & Caldwell.) These southern specimens are darker with more contrast in color and marking than specimens from southern United States.

***Hysteropterum bistriatum*, n. sp.**

(Pl. II, fig. 1, and Plate III, fig. 9)

Length, 5. mm. Head and thorax green, thorax more so than head. Black stripe present along lateral margins of vertex converging caudad on pronotum thence continued as one down center of mesonotum forming a "Y." Face and vertex heavily washed with brown. Pronotum minutely and evenly punctate laterad. Elytra light grey, finely and indistinctly maculate with black.

Vertex transversely concave, narrowed caudad; caudal margin concave; cephalic margin straight. Frons as broad as long, median carina prominent, intermediate carinae represented by indented lines. Clypeus broadly inserted into frons. Pronotum very broadly rounded cephalad, longer than vertex, scarcely shorter than mesonotum. Dorsal line of elytra straight, costal margin scarcely inflated, venation typical of genus. Hind tibiae bispinose.

Anal flap of male extremely long, constricted toward apex making a large lobed apical portion. Aedeagus similar to *aureum* but lacking apical hooks, entire structure shorter, more curved. Claspers with dorsal spur broad elongate; apical margin or heel flat, straight.

Male type from 30 miles south of Nuevo Laredo, Nuevo Leon, 9-9-41. (DeLong, Good, & Caldwell.)

***Hysteropterum sepulchralis* Ball (1935)**

Length 3.-4. mm. Very dark grey, densely maculate over all. Broad black belt present from antenna to antenna across frons. Veins of elytra darkened, especially apically.

Vertex indented cephalad. Frons with prominent carinae; spaces between carinae very concave. Pronotum as long or longer than

mesonotum. Dorsal line of elytra concave; elevations on clavus extremely pronounced. Hind tibiae unispinose. Anal flap of male elongate-oval. Aedeagus with small S-shaped projection laterad on either side somewhat basad. Claspers without dorsal spurs, somewhat rounded.

These specimens from Saltillo, Coahuila, are smaller and darker than specimens from Texas and New Mexico.

***Hysteropterum sepulchralis* var. *indentum*, new variety**

(Plate III, figs. 14 and 14-a)

Length 3.-3.5 mm. Coloration between North and Central American specimens of *sepulchralis sepulchralis*. Vertex extremely concave, very deeply emarginate cephalad, median length one-fourth lateral length; lateral margins highly elevated. Median tablet of frons deeply impressed toward vertex; median carina not reaching vertex. Elytra less rugose nearer North American forms. Hind tibiae unispinose.

Male holotype and female allotype from Ixmiquilpan, Hidalgo, 9-27-41. (DeLong, Good, & Caldwell.)

***Hysteropterum bufo* Van Duzee (1923)**

The writer has never seen this species but the fact that the intermediate carinae of the frons are very close to the median carina making the intervening spaces narrower than the lateral areas readily separates *bufo* from any known American form.

Records from Mexico include Tibouron Island near the coast of Sonora and "Kino Bay," probably in Sonora. (Van Duzee et al.)

***Hysteropterum angularae* Fowler (1904)**

There are no specimens in this collection that may belong to this species which does not seem to have any special outstanding character to separate it from the others. The Biologia record is Chilpancingo, Guerrero, 4600 ft. (H. Smith.)

***Hysteropterum sierrae* Fowler (1904)**

The projecting clypeus flattened at the sides, the strap-like pronotum, the long mesonotum, and the subovate elytra should readily separate this species from any other. Biologia record is Sierra de los Aguas Escondidas, Guerrero, 9500 ft. (H. Smith.)

***Hysteropterum auriferum*, n. sp.**

(Plate II, fig. 2, and Plate III, figs. 10 and 10-a)

Length 5.-5.2 mm. Head and thorax greenish yellow; frons lightly washed with black; elytra yellow-grey with a few indistinct maculae present; abdomen yellow.

Vertex gently convex cephalad, deeply concave caudad. Frons perpendicular, flat, notched to receive vertex; median carina very prominent, continued onto clypeus; intermediate carinae obsolete. Clypeus slightly retreating. Pronotum one and one-half times as

long as vertex. Mesonotum tricarinate. Elytra somewhat bullate, dorsal margin gently concave, apical margin sloped from claval apex to costal margin making the apex of the elytra in line with the costal margin. Hind tibiae bispinose.

Anal flap of male elongate-oval. Aedeagus with long, broad, apical flap (part of theca?); with a bifurcate process on either side, the dorsal fork curved and narrowed apically; and a pair of long lateral processes projecting basad each with a small tooth at mid-length. Claspers very elongate.

Male holotype and three paratypes from Zamora, Michoacan, 10-2-41. (DeLong, Good, Caldwell, & Plummer.)

***Hysteropterum erratum*, n. sp.**

(Plate II, fig. 3, and Plate III, figs. 11 and 11-a)

Length 4.8-5.1 mm. General color dark grey. Vertex and thorax greenish yellow washed with black. Elytra finely maculate; maculae with a tendency to cluster along veins; costal margin alternate black and grey.

Cephalic margin of vertex slightly concave with a small median notch; caudal margin straight, carinate; carina tangent to arc of pronotum. Frons almost perpendicular, broad, slightly concave between lateral margins and median carina. Clypeus carinate, very strongly retreating; in profile projecting beyond plane of frons. Mesonotum tricarinate, broadly concave between lateral carinae. Elytra strongly and suddenly dilated at shoulders; vein Sc_1 present; course of longitudinal veins lost apically; veins A_1 and A_2 sinuate before union. Hind tibiae bispinose.

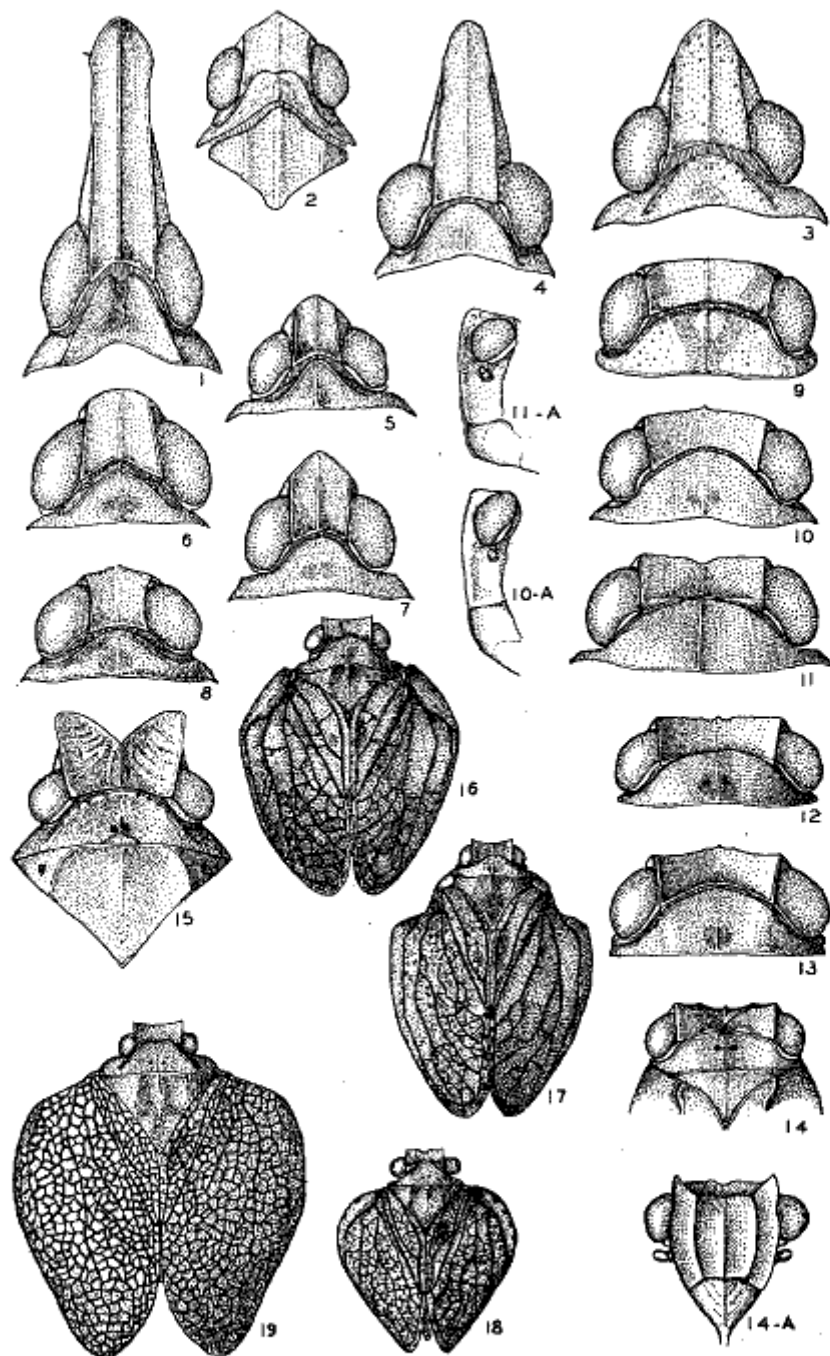
Anal flap of male short, somewhat rectangular. Claspers similar to *auriferum* except dorsal spurs much stouter with different arrangement of apical subspurs; aedeagus with apical flap less ornate apically, dorsal process of bifurcate spurs evenly tapered, curved; lateral process shorter.

Male holotype and female allotype from Tuxpan, Michoacan, 10-5-41. (DeLong, Good, Caldwell, & Plummer.)

In profile this species resembles *sierrae* Fowler, but the sides of the clypeus are not flattened and the pronotum is not strap-like. Except for the presence of a separate vein Sc_1 this species approached the *Ulixes* complex.

EXPLANATION OF PLATE III

FIG. 1. *Plummerana isolata*. Dorsal aspect of head and thorax. 2. *Mesodema dubia*. (Same as 1.) 3. *Proteinissus bilimeki*. (Same as 1.) 4. *Proteinissus bilimeki* var. *nasutus*. (Same as 1.) 5. *Prothona punctata*. (Same as 1.) 6. *Prothona virida*. (Same as 1.) 7. *Prothona reticulata*. (Same as 1.) 8. *Prothona pentagonata*. (Same as 1.) 9. *Hysteropterum bistriatum*. (Same as 1.) 10. *Hysteropterum auriferum*. (Same as 1.) 10-a. Profile of head. 11. *Hysteropterum erratum*. (Same as 1.) 11-a. Profile of head. 12. *Hysteropterum acanthum*. (Same as 1.) 13. *Hysteropterum viridatum*. (Same as 1.) 14. *Hysteropterum sepulchralis* var. *indentum*. (Same as 1.) 14-a. Frontal aspect of head. 15. *Traxanellus bifus*. (Same as 1.) 16. *Ulixes perpendicularis*. Dorsal aspect. 17. *Ulixes cassidoides* Walker. Dorsal aspect. 18. *Ulixes horizontalis*. Dorsal aspect. 19. *Delongana gigantia*. Dorsal aspect.



***Hysteropterum acanthum*, n. sp.**

(Plate II, fig. 4, and Plate III, fig. 12)

Length 4.7–5.3 mm. General color of male light yellow over all with indistinct black maculae. Female with head and thorax dark yellow washed with black; elytra grey, evenly maculate, sometimes washed with black from vein R across furcation of vein M onto the clavus.

Vertex deeply transversely concave; cephalic margin gently concave near center with median carina of frons visible in this concavity; caudal margin concave, carinate. Frons elongate, median carina prominent. Clypeal structure and placement similar to *erratum*. Elytra shorter than in *erratum*, less acute apically.

Anal flap of male elongate-oval. Bifurcate processes of aedeagus with ventral fork rudimentary or absent; lateral processes very long, tapered, with small spur about midlength. Claspers with dorsal spur elongate. Anal flap of female very long. Last ventral segment very broadly yet deeply concave.

Male holotype and paratype, female allotype and paratype from Cuernavaca, Morelos, 1931, female paratypes from Xochitepec and Jiutepec, Morelos, 1934, (Plummer); one female paratype from Taxco, Guerrero, 9-9-39, (DeLong & Plummer); and one male paratype, Tepetzlan, Morelos, 9-11-41. (DeLong & Good.)

***Hysteropterum viridatum*, n. sp.**

(Plate III, fig. 13)

Length 6. mm. Basic color green, heavily washed with black on head and body. Elytra densely maculate, especially basad; maculae tending to cluster along veins; apical cells with large black maculae along apical margins.

Vertex extremely concave; cephalic margin gently convex; caudal margin deeply concave, carinate. Surface of frons broadly undulant; median carina almost cristate. Clypeus continuing curve of frons. Pronotum extremely long. Mesonotum tricarinate; surface between carinae flat. Elytra gently bullate; three-fifths as broad as long, produced apically beyond claval area, rather acute apically. Last ventral segment of female concave caudad with center of concavity flat.

Type female from Zamora, Michoacan, 10-2-41. (DeLong, Good, Caldwell, & Plummer.)

The last four species, *auroriferum*, *erratum*, *acanthum*, and *viridatum*, are closely related to each other but form a divergent series from *Hysteropterum*. *Auroriferum* meets all the requirements of the genus except that the intermediate carinae are lacking from the frons. The last named species of this series does possess indications of intermediate carinae but has the head somewhat narrower than the thorax and has extremely elongate and somewhat acute elytra contrary to generic definition.

***Hysteropterum acanthum*, n. sp.**

(Plate II, fig. 4, and Plate III, fig. 12)

Length 4.7–5.3 mm. General color of male light yellow over all with indistinct black maculae. Female with head and thorax dark yellow washed with black; elytra grey, evenly maculate, sometimes washed with black from vein R across furcation of vein M onto the clavus.

Vertex deeply transversely concave; cephalic margin gently concave near center with median carina of frons visible in this concavity; caudal margin concave, carinate. Frons elongate, median carina prominent. Clypeal structure and placement similar to *erratum*. Elytra shorter than in *erratum*, less acute apically.

Anal flap of male elongate-oval. Bifurcate processes of aedeagus with ventral fork rudimentary or absent; lateral processes very long, tapered, with small spur about midlength. Claspers with dorsal spur elongate. Anal flap of female very long. Last ventral segment very broadly yet deeply concave.

Male holotype and paratype, female allotype and paratype from Cuernavaca, Morelos, 1931, female paratypes from Xochitepec and Jiutepec, Morelos, 1934, (Plummer); one female paratype from Taxco, Guerrero, 9-9-39, (DeLong & Plummer); and one male paratype, Tepetzlan, Morelos, 9-11-41. (DeLong & Good.)

***Hysteropterum viridatum*, n. sp.**

(Plate III, fig. 13)

Length 6. mm. Basic color green, heavily washed with black on head and body. Elytra densely maculate, especially basad; maculae tending to cluster along veins; apical cells with large black maculae along apical margins.

Vertex extremely concave; cephalic margin gently convex; caudal margin deeply concave, carinate. Surface of frons broadly undulant; median carina almost cristate. Clypeus continuing curve of frons. Pronotum extremely long. Mesonotum tricarinate; surface between carinae flat. Elytra gently bullate; three-fifths as broad as long, produced apically beyond claval area, rather acute apically. Last ventral segment of female concave caudad with center of concavity flat.

Type female from Zamora, Michoacan, 10-2-41. (DeLong, Good, Caldwell, & Plummer.)

The last four species, *auroriferum*, *erratum*, *acanthum*, and *viridatum*, are closely related to each other but form a divergent series from *Hysteropterum*. *Auroriferum* meets all the requirements of the genus except that the intermediate carinae are lacking from the frons. The last named species of this series does possess indications of intermediate carinae but has the head somewhat narrower than the thorax and has extremely elongate and somewhat acute elytra contrary to generic definition.

Genus *DeLongana**DeLongana*, new genus

Head very narrow. Vertex twice as broad as long. Frons slightly concave; carinae scarcely visible, intermediate carinae far laterad. Clypeus gently deflexed, broadly inserted into frons, ecarinate. Cephalic margin of pronotum broadly rounded into a thin plate-like extension projecting over basal portion of vertex. Mesonotum as long as both vertex and pronotum, tricarinate. Elytra broad, angled at shoulders; basal third of costal margins concave-vertical, thickened, black; venation finely reticulate; vein Sc_1 present; a spike-like hook present on under side just outside of clavus. Hind wing rudimentary. Prothoracic legs articulate cephalad to elytra. Hind tibiae bispinose.

Named in honor of Dr. Dwight M. DeLong, who has collected and described many Homoptera from Mexico.

Type: *DeLongana gigantia*, n. sp.

DeLongana gigantia, n. sp.

(Plate III, fig. 19)

Length 9.5 mm., greatest width 7. mm. General color fuscous lightly washed with black. Costal margin caudad humeral angle alternate black and brown, margin from base to humeral angle shining black. Pygofers of female black.

Vertex minutely diagonally striate; postocular area small. Pro-femora very broad apically. Clavus half as long as rest of elytra. Last ventral segment of female broadly concave caudad, penultimate segment broadly sinuate caudad. Anal flap elongate, triangular.

Unique female type from Zumpango, Guerrero, 8-24-34. (Plummer.)

This genus as represented by *gigantia* differs from any known related genera by the extremely small head in proportion to the rest of the body, the peculiar thickened formation of the basal costal margin, and the extremely fine reticulation of the elytra. The placement of the intermediate carinae of the frons close to the lateral carinae is also unique.

Genus *Traxus**Traxus fulvus* Metcalf

The genus *Traxus* Metcalf as represented by the unique *fulvus*⁴ has more of a reclining frons rather than perpendicular; however, the strong transverse concavity of the frons and the unique insertion of the clypeus into it readily separates this genus from any known relative.

Specimens from Hidalgo, Tamaulipas, 3-27-38, (Plummer) and Santa Engracia, Tamaulipas, 11-11-38, (Caldwell).

Genus *Traxanellus*, new genus

Vertex horizontal, produced before the eyes, deeply notched on cephalic margin, deeply concave toward median line, roughly striate. Frons with median carina only, somewhat pustulate along lateral margins, perpendicular except for portion produced to meet vertex.

⁴Jour. Elisha Mitchell Soc., 38: 139-230, pls. 38-70. 1923.

Clypeus almost horizontal, with median carina, projecting beyond plane of frons and appearing bulbous in profile. Pronotum broadly rounded cephalad, raised on cephalic margin, pustulate within. Mesonotum strongly bicarinate, with one tubercle laterally on either side, concave between carinae. Elytra somewhat angled at shoulders, distinctly less than twice as long as broad; apical margin steeply sloped from claval apex toward costal margin; clavus half as long as entire elytra; longitudinal venation evident basally, reticulate apically; separate Sc_1 absent. Hind wing a mere scale. Hind tibia trispinose. (The absence of a separate vein Sc_1 may place this genus and *Traxus* Metcalf in the tribe *Issini*.)

Type: *Traxanellus bifus*, n. sp.

***Traxanellus bifus*, n. sp.**

(Plate II, figs. 10 and 10-a, Plate III, fig. 15)

Length 5. mm. General color dark. Elytra grey with black streaks along the veins and black spots in bottom of the roughened areas of the membrane.

Robust species. Entire body and elytra rugose. Characteristic vein in clavus absent, replaced by reticulate venation, apex of clavus strongly elevated. Anal flap of male short, ovate. Aedeagus with the more apical and dorsal projections bifid, latro-basal projections serrate basad, projecting perpendicular from aedeagus then right-angled toward base of aedeagus and tapered to long, slender apices.

Male type from Km. 280, near Orizaba, Veracruz, 10-17-41. (DeLong, Good, Caldwell, & Plummer.)

Superficially this species may be confused with *Tylanira* Ball from North America because each has a deeply notched vertex but the similarity goes no further. *Tylanira* represented by *bifurcata* Ball has a long frons with a very prominent median carina visible from above and two intermediate carinae, the clypeus ecarinate, the pronotum obtusely angled cephalad, the mesonotum tricarinate, the elytra angled at the shoulders, the clavus reaching almost to apex of the elytra, the characteristic Y vein prominent, and the hind tibiae quadrispinose. *Traxanellus* has none of these characters but does resemble *Traxus* Metcalf in general form of body and elytra. The aedeagus also points to a close relationship with *Traxus fulvus* Metcalf.

Tribe *Issini*

The tribe *Issini*, in which the hind wings are present but narrow with the anal area either small or rudimentary and a separate vein Sc_1 is absent, seems to be a transitional group connecting the *Hysteropterini* with the *Thioniini* by inclusion of some forms with somewhat rudimentary wings and others with fully developed wings with fairly large anal folds.

Genus *Ulixes*

At present the genus *Ulixes* Stål seems to have several interpretations as to its limitations. Melichar (1906) has defined *Ulixes* as having two spines on the hind tibiae. Fowler (1904) gave the number as two to four, and Doering (1938) believes four to be the correct number.

While tibial armament is in itself a very poor generic character it may nevertheless be an indication and should stimulate search for more conclusive characters.

Ulixes Stål represents two well defined groups. The first based on Stål's meager definition limiting the frons perpendicular and the clypeus strongly inflexed is the group with the elytra definitely angled at the shoulders with vein Sc_2 forming a sharp line from which the costal margin is perpendicular or inflexed, vein Cu_1 definitely branched, hind wing well developed with strong venation, and hind tibiae with two spines. This group contains *cassidoides* Walker and *marmoreus* Stål. Fowler intimates that his synonymy of *clypeatus* Walker containing *cassidoides*, may be broken down into more species.

The second group contains those species with face evenly curved in profile, (the clypeus may be horizontal but the face is retreating or curved and there is no sudden break in the plane of the frons and clypeus), elytra sloped to the shoulders and not strongly angled, costal margin not inflexed, hind wings not fully developed with veins not reaching apical margin, and hind tibiae with three to four spines. This group seems to include *scutatus* Walker and *intermedius* Fowler, the latter recognized by Fowler as possibly not congeneric with *Ulixes*, while Melichar recognized that both species were related and questioned their placement in *Ulixes*.

Since there are two well defined groups it would seem proper to give each a subgeneric rating. *Ulixes cassidoides* Walker, the first described species that fits *Ulixes* Stål, should remain *Ulixes Ulixes* and for the second group represented by *scutatus* Walker I propose the subgenus *Paralixes*.

Ulixes cassidoides Walker

(Plate III, fig. 17)

List Homop. Suppl., p. 86-87, 1858.

Length 8. mm., width 6. mm. General color red-brown spotted over all with small black spots.

Vertex twice as broad as long, slightly concave on cephalic margin, sunken along median line. Frons slightly concave; intermediate carinae scarcely visible; junction of frons and clypeus deeply notched. Clypeus almost horizontal, with median carina. Mesonotum with prominent lateral carinae; area between sunken; median carina scarcely visible. Elytra rugose; venation strongly raised. Hind wing almost as long and broad as elytra; venation strong. Hind tibiae with two spines. Anal flap of female long, narrow, slightly broadened basad, rounded apically. Last ventral segment broadly but shallowly concave caudad.

Records from Mexico include Teapa, Tabasco; and Aytoic, Jalapa, and Orizaba, Veracruz. The unique female in this collection is from Orizaba, Veracruz, 10-8-41. (DeLong, Good, Caldwell, & Plummer.)

Ulixes marmoreus Stål

Stett. Ent. Zeit., 22: 150, 1861.

Melichar (fig. 49, p. 220, 1906) shows this species to be distinct from the *cassidoides* complex by having the profile of the head radically different and the clypeus ecarinate.

***Ulixes (Paralixes) scutatus* Walker**

Ins. Saund. Homopt., p. 44, 1858.

Length 7.5 mm., width 5.5 mm. Grey-brown in color, heavily marked with black. Face retreating with frons rounded under; evenly curved in profile. Vertex gently rounded on cephalic margin. Elytra venation coarse. Hind wing small, elongate.

Recorded from Mexico and the United States. The unique female from the Chiricahua Mts., Arizona (Knull) that I have examined compares well in cephalic characters with the drawings of *scutatus* Walker by Doering (figs. 1-2, p. 530, 1938).

***Ulixes (Paralixes) intermedius* Fowler (1904)**

From the drawings in the *Biologia* (pl. 12, figs. 3, 3a, and 4) it may be seen that *intermedius* belongs in this subgenus by having the face evenly curved in profile and the elytra sloped to the shoulders. The anal flap of the male appears broad basad with the apex flat except for a notch on either side of the center. The claspers appear to have the dorsal spur arising far caudad. Doering (p. 452, 1938) gives the following in the key concerning the separation of *intermedius* from *scutatus*: "Head longer; tegmina obtuse at apex; frons and clypeus gradually rounded under head." Recorded from Ciudad, Durango, (Forrer) and somewhere in the Sierra Madre Mts. (Ball).

***Ulixes (Paralixes) perpendicularis*, n. sp.**

(Plate II, figs. 11 and 11-a, Plate III, fig. 16)

Length 7.-8. mm., width 6. mm. Light yellow-tan lightly washed with dark brown. Legs and face fuscous mottled with black.

Face almost perpendicular; clypeus slightly inflexed, continuing curve of frons. Vertex twice as broad as median length, slightly concave on cephalic margin, deeply concave on caudal margin. Elytra with relative dense reticulation; membrane translucent, minutely roughened. Hind wings small, reaching to about union of first and second anal vein of elytra; venation not evident apically. Hind tibiae quadrispinose.

Anal flap of male broadly oval. Aedeagus with two pair dorsal processes; more apical pair short, simple; more basal pair serrate basad, thence abruptly bent cephalad and continued cephalad and laterad as long slender processes. Claspers with dorsal spur arising far caudad.

Male holotype and five paratypes from near Victoria, Tamaulipas, 3-21-39, on oak. (Plummer.)

Separate from *intermedius* by the less retreating face and much narrowed anal flap of the male.

***Ulixes (Paralixes) horizontalis*, n. sp.**

(Plate III, fig. 18)

Length 6. mm., width 5. mm. Face brown, edged with black band in which are large white spots. Vertex black with minute

brown spots. Pronotum grey washed with brown, lined with white pits on cephalic margin. Mesonotum between lateral carinae mostly black; outside of carinae black, mottled with brown. Elytra almost clear with brown spots along veins and a few large black spots between anal angle and vein M giving a maculate appearance.

Face retreating; frons scarcely narrowed between the eyes, median carina fading toward clypeus. Clypeus curved, horizontal, carinate basad. Vertex concave between the eyes; slightly notched cephalad. Cephalic margin of pronotum produced into vertex past center of the eyes. Median carina of mesonotum faint. Venter of thorax with heavy plate arising from mesothorax (?) just behind prothoracic shield and extending ventrad below margin of elytra then bent caudad and horizontal. (This would seem to serve as a guide for the fore and middle legs and prevent the legs in their forward movement from catching in the elytra.) Elytra very broad at humeral angle, rather horizontal; clavus elongate; veins coarse; areoles with many imperfect, transverse white veinlets. Hind wings narrow basad, expanded apically; venation indistinct. Hind tibiae with three distinct spines and a basal fourth scarcely developed on one. Last ventral female segment deeply concave caudad.

Unique female type from Las Casca, Chiapas, 6-14-26. (Dampf.)

This is evidently a highly adaptive species able to squeeze within a leaf sheath or under bark.

Genus *Tylana*

The genus *Tylana* Stål (subgenus *Tylana*) seems to be characterized by having the head narrower than the thorax; frons tricarinate; body flattened from the sides; elytra vertical, truncate apically with the clavus almost reaching to the apex; and hind tibiae bispinose.

Melichar (1906) has included two species from the Americas, *ustulata* Uhler⁵ from North America and *ustulipunctata* Uhler⁵ from Mexico and is not entirely satisfied that either species belongs here. The writer is not familiar with either species.

Genus *Proteinissus*

Proteinissus Fowler is characterized by the elongate-oval form; elongate vertex produced cephalad; frons with intermediate carinae; elytra pellucid with few cross-veins; claval suture indistinct and not reaching to the sutural margin; hind wing elongate, narrow, undeveloped; and hind tibia usually trispinose, sometimes quadrispinose.

Proteinissus bilimeki Fowler (1904)

(Plate II, fig. 6, Plate III, fig. 3)

Length 6.-7. mm. General color uniformly light fuscous sprinkled with small black spots; these spots indistinct or lacking on elytra between vein M and dorsal margin.

Vertex produced, rounded apically, caudal margin scarcely notched. Elytra very vitreous. Hind tibiae with three spines. (Out of thirty

⁵Bull. U. S. Geol. Surv., 1: 354-355, 1876.

specimens one has four on one tibia and three on the other and one has both tibiae quadrispinose.)

Anal flap of male gradually narrowed apically. Aedeagus with paired apical processes straight, enlarged basally; lateral processes rather straight, projecting toward base of aedeagus. Claspers omitting dorsal spurs about as long as broad. Anal flap of female long, slender. Last ventral segment broadly concave caudad.

Male allotype and paratypes from Mexico, D. F., 11-24-38. (Caldwell.) Paratype from Chapultepec Heights, D. F., 11-16-26. (Dampf.) Many females from Cuernavaca, Morelos, 12-3-33, (Plummer), and Km. 18 Toluca Road, 11-24-38. (Caldwell.)

These specimens compare well with the descriptions and figures in the *Biologia*. The records include Guadalajara, Jalisco, and Cuernavaca, Morelos, for the two female specimens. The allotype male selected has four spurs on one tibia and three on the other in order to tie the holotype and allotype together since most specimens have trispinose tibiae contrary to the type.

***Proteinissus bilimeki* var. *maculatus*, new variety**

Length, male 5.-5.5 mm., female 5.7-6. mm. General color dark brown heavily sprinkled with small black maculae. Form shorter, more compact than *bilimeki bilimeki*, male genitalia appearing the same. Last ventral segment of female broadly concave caudad with center of cavity slightly convex.

Male holotype, five paratypes, female allotype, and paratype from Rio Frio, Puebla, 10-18-41. (DeLong, Good, Caldwell, & Plummer.) One male paratype from Cuernavaca, Morelos, 10-21-41. (DeLong & Good.)

Distinguished by the small size and dark and maculate appearance.

***Proteinissus bilimeki* var. *nasutus*, new variety**

(Plate III, fig. 4)

Length 5.7-6. mm. General color grey sprinkled with very small but prominent black maculae.

Vertex almost three times as long as broad, about as long as pronotum and mesonotum together. Cephalic portion of pronotum narrow. Entire appearance distinctly more elongate and narrower than variety *bilimeki* or *maculatus*. Aedeagus of male with lateral projections heavier, more curved than in *bilimeki bilimeki*.

Male holotype and two paratypes from Tehuacan, Puebla, Km. 277, 10-17-41, and two paratypes from Orizaba, Veracruz, Km. 280, 10-17-41. (DeLong, Good, Caldwell, & Plummer.) The two new varieties were taken in an oak-pine-grass habitat near the state lines.

Genus *Plummerana* new genus

Vertex greatly produced cephalad. Frons carinate laterally, with prominent median carina. Clypeus with median carina. Pronotum greatly produced. Elytra elongate, parchment-like; all veins highly raised; claval suture distinct, almost as long as elytra. Hind wing almost as long as elytra; venation strongly developed. Hind tibiae trispinose.

Related to *Proteinissus* but separated by having a longer head, frons with only a median carina, claval suture distinct and reaching to margin of elytra, and hind wing fully developed. Named in honor of Dr. Charles C. Plummer, who has collected and described many Homoptera from Mexico.

Type: *Plummerana isolata*, n. sp.

***Plummerana isolata*, n. sp.**

(Plate II, fig. 7, Plate III, fig. 1)

Length over all 6. mm.; vertex 1.9 mm. Dark fuscous with small black maculae over all and especially dense on head and thorax.

Vertex about four times as long as broad, slightly spatulate, with prominent median carina. Frons with lateral margins sinuate, with very prominent median carina. Pronotum trough-like, gently concave on apical margin. Elytra with few cross-veins; costal margin inflexed or slightly indented at midlength. Anal flap of male elongate, narrowed. Aedeagus deeply sulcate dorsad; apical projections short; lateral processes very long.

Male holotype from Tehuacan, Puebla, Km. 277, 10-17-41. (DeLong, Good, Caldwell, & Plummer.)

Female allotype differing from male as follows:

Length over all 6.2 mm., vertex 1.7 mm. Grey over all; maculae very indistinct on elytra, not present on basal half above costal area. Longitudinal veins darkened for a short space between apex of clavus and costal margin; claval area darkened, especially inside of "Y" vein. Vertex shorter, median frontal carina cristate apically, surface of pronotum flat, elytra with costa decidedly concave opposite furcation of veins Sc₁ and Rs, cross-veins fewer in number, and all veins less prominent.

This allotype taken at Km. 17, Toluca Road, D. F., 7-11-34, (Plummer), may not be the mate to the holotype male but may be a different species.

Genus *Prothona* new genus

General form broadly oval. Vertex longer than broad, with median carina. Frons usually with three inner carinae, median one strongly raised. Pronotum produced cephalad, carinate on cephalic margin. Mesonotum tricarinate; lateral carinae very short. Elytra broadest subapically, thickened; longitudinal veins prominent; vein Cu₁ abruptly bent away from apex of clavus and approaches branch of vein M near caudal margin of elytra. Hind wing with well developed anal fold. Hind tibia trispinose.

Type: *Prothona punctata*, n. sp.

***Prothona punctata*, n. sp.**

(Plate II, fig. 8, Plate III, fig. 5)

Length 5.2 mm. General color light grey densely sprinkled with small black maculae; sides of head and abdominal venter green.

Vertex narrow, sharply rounded cephalad. Intermediate carinae

of frons scarcely visible. Elytra with practically no cross-veins. Anal flap of male broadened basad, narrowed in apical half. Aedeagus with a pair subapical processes short, curved; lateral processes stout, elongate.

Male holotype, Mexico, D. F., 9-13-39. (DeLong.) One paratype, Santa Rosa, D. F., 5-21-35, and one, Deserto de los Leones, D. F., 9-2-34. (Plummer.)

***Prothona pentagonata*, n. sp.**

(Plate III, fig. 8)

Length 5. mm. General color light grey with elytra lightly sprinkled with minute maculae. Frons black with carinae and lateral pits brown. Clypeus brown. Vertex and thorax brown, heavily marked with black blotches. Hind wings blackened.

Vertex almost as broad as long, pentagonal; median carina almost obsolete. Frons with all carinae prominent. Elytra with few prominent cross-veins. Abdominal apex mutilated, sex undetermined.

Holotype Puebla Road, Km. 40, 8-23-35. (Plummer.)

***Prothona virida*, n. sp.**

(Plate II, fig. 9, Plate III, fig. 6)

Length 5.3 mm. General color of head and body green maculate with black. Elytra light grey sprinkled with small black maculae except for large area extending from costal margin across furcation of veins Sc₂ and Rs and furcation of vein M to claval suture, and a small area outside of and almost at apex of the clavus. Hind wing dark with light area basad on costa extending half way across wing.

Vertex broad, elongate, broadly rounded cephalad; median carina prominent. Carinae of frons prominent. Elytra with few cross-veins. Anal flap of male more elongate than in *punctata* and less enlarged basad. Aedeagus with lateral processes slender, elongate. Clasper with large broadly rounded apex.

Male holotype from Tehuacan, Puebla, Km. 277, 10-17-41. (DeLong, Good, Caldwell, & Plummer.)

***Prothona reticulata*, n. sp.**

(Plate III, fig. 7)

Length 6. mm. General color red-brown. Frons with base of carinae polished ivory. Elytra indistinctly and sparingly punctate; with ivory white irregular areas spreading from the cross-veins and along the clavus.

Vertex narrow, elongate, sharply rounded cephalad, with very prominent median carina. Frons with intermediate carinae almost obsolete. Elytra elongate, slightly angled at shoulder; venation reticulate with many cross-veins making the definite apical termination of longitudinal veins indistinct. Anal flap of female very long, slender, pubescent. Last ventral segment very broadly concave caudad.

Holotype female from Rio Frio, Puebla, Km. 55, elevation 10000 ft., 10-7-41. (DeLong, Good, Caldwell, & Plummer.)

Genus *Colpoptera*

The genus *Colpoptera* Burmeister is characterized by the large eyes, small pronotum, large mesonotum, elytra narrowed in the apical half, hind wing fully developed with large anal fold, and hind tibia unispinose.

From the specific description of each species it is practically impossible to accurately place either *sinuata* Burmeister or *marginalis* Burmeister. Fowler (Pl. 12, figs. 32, 32a, 1904) has illustrated his interpretation of *sinuata* and Metcalf has figured *marginalis*. There are no specimens in this collection with a dark stigmal spot as given by Burmeister for *sinuata*; however, there are several dark species with a hyaline stigmal spot. These forms may contain *marginalis* but the writer agrees with Metcalf (Pl. 3, 1923) who has shown in his illustration that the apex of the elytra is broadly rounded or truncate and not acute. Surely Burmeister would have noted such a character as acute elytra in his generic description if such would have been present. Segregation of the described species by the process of elimination is further complicated in that probably a low per cent of existing species is known. The original descriptions are given.⁶

Colpoptera sinuata Burm.

"Fusca, elytris ad marginem plaga fasciali fusco-nigra. Long 3''', alar exp. 8''''."

Colpoptera marginalis Burm.

"Fusco-ferruginea, elytris ad sinum plaga marginali hyalina. Long 3''', alar exp. 8''''."

Colpoptera rotunda n. sp.

(Plate IV, fig. 1)

Length 6.2 mm. Light fuscous species with hind wing darkened apically giving the translucent elytra the appearance of dark apices. Vertex twice as broad as long, cephalic margin even with cephalic margin of the eyes; margins next to either eye highly elevated. Elytra perfectly rounded apically. Anal flap of male notched before apical third which is bent ventrad. Aedeagus with apical process long, heavy, evenly curved cephalad; post apical process short; no ventral process present.

Unique male holotype, Peto, Yucatan, 8-9-25. (Dampf.)

Colpoptera albavenosa, n. sp.

(Plate IV, fig. 2)

Length 6.5-6.8 mm. Light yellow species; elytra slightly fuscate caudad to stigmal area. Cross-veins broadly ivory in basal half of elytra and in claval area. Hind wing dark apically. Cephalic margin of vertex slightly cephalad to eyes. Elytra broadly rounded apically. Anal flap of male narrow, almost straight in lateral aspect.

⁶Handbuch der Ent. 3 Abt., 1: 155-156, 1835.

Dorsal projecting aedeagal processes straight, subequal in length; ventral processes present. Claspers narrow, elongate basad.

Male holotype and paratype from Tamazunchale, San Luis Potosi, 8-28-39. (F. M. & D. M. DeLong.)

***Colpoptera acutata*, n. sp.**

(Plate IV, figs. 3 and 3-a)

Length 6.5-6.8 mm. Red-brown species with stigmal spot scarcely present; apices of elytra slightly smoked; under wings dark apically. Frons with a row of white spots along lateral margins; this area sometimes fumate. Pronotum with median carina in caudal half; a sharply impressed point on either side carina rather cephalad. Entire elytra rather narrow, very acute apically. Anal flap of male narrow, sinuate in lateral aspect. Caudal aedeagal process shorter than cephalic; ventral process short, stout. Claspers angulate, dorsal spur long, stout. Last ventral segment of female triangularly produced caudad, rounded apically.

Male holotype, paratype, and female allotype from Tehuantepec, Oaxaca, 10-13-41. (DeLong, Good, Caldwell, & Plummer.)

***Colpoptera stigmata*, n. sp.**

(Plate IV, fig. 8)

Length 6.7 mm. Fuscous species with extremely large, hyaline stigmal spot. Elytra fuscous basad with a large hyaline area just caudad followed by a very dark rather narrow costal area before the enlarged stigmal spot. A narrow fumate strip present caudad to stigma fading toward apices of elytra. Cross-veins in center of elytra and for entire claval area whitish. Hind wing brown, darkening apically. Abdominal venter deep brown mottled with light. Elytra short, broadly rounded apically. Last ventral segment of female with small rounded projection in center of caudal margin.

Holotype female from Hermosilla, Sonora, 2-20-35. (Dampf.)

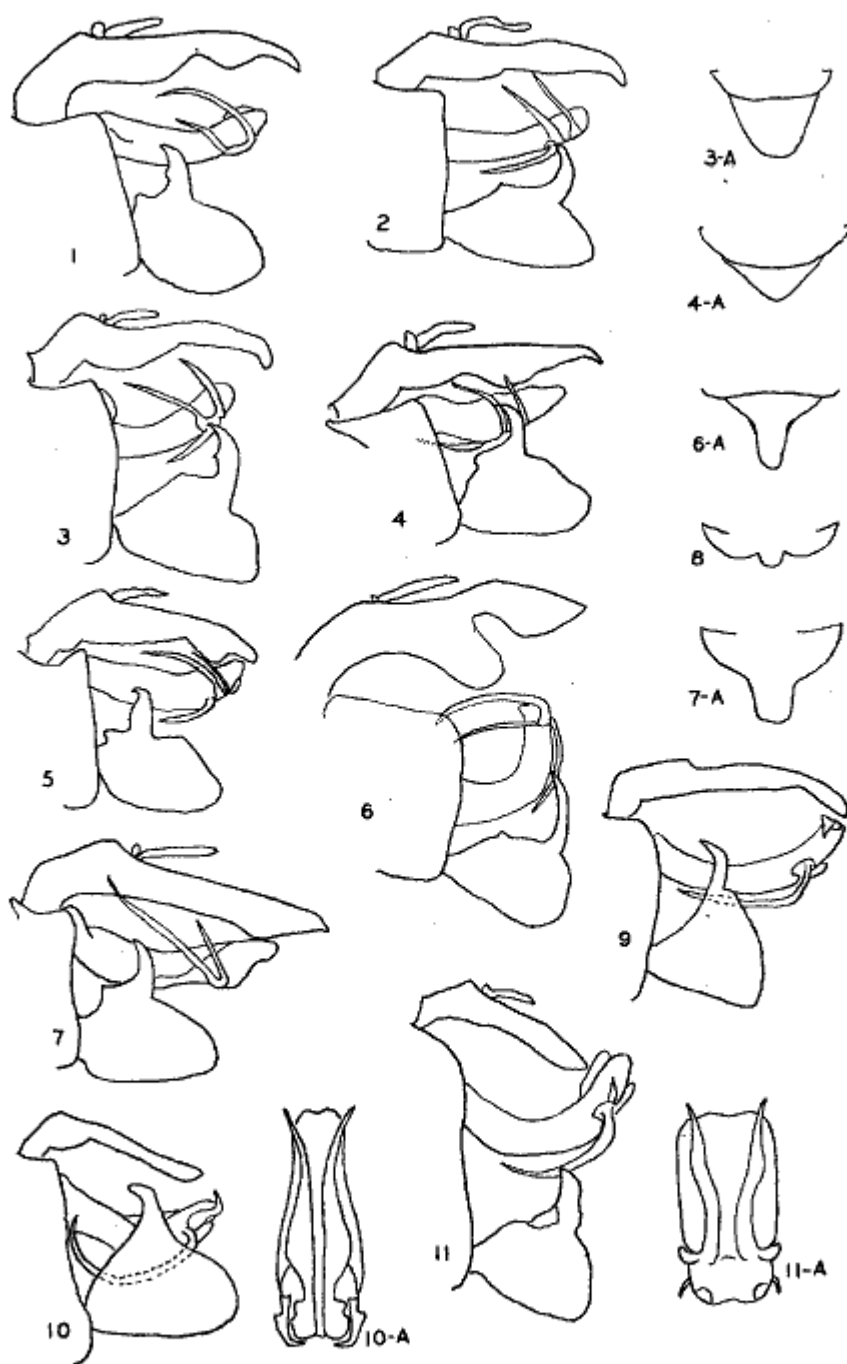
***Colpoptera nigradorsa*, n. sp.**

(Plate IV, figs. 4 and 4-a)

Length, male 6.1 mm., female 6.7-7. mm. Dark colored species with very shallow but elongate stigmal area. Frons with a series of ivory spots along either lateral margin becoming strongest basad. Pronotum with median carina lighter than rest of area. Mesonotum with median tablet black and a black spot far latrad on either side.

EXPLANATION OF PLATE IV

FIG. 1. *Colpoptera rotunda*. Later aspect of male genitalia. 2. *Colpoptera albavensis*. (Same as 1.) 3. *Colpoptera acutata*. (Same as 1.) 3-a. Last ventral segment of female. 4. *Colpoptera nigradorsa*. (Same as 1.) 4-a. Last ventral segment of female. 5. *Colpoptera carinata*. (Same as 1.) 6. *Colpoptera bifurcata*. (Same as 1.) 6-a. Last ventral segment of female. 7. *Colpoptera elongata*. (Same as 1.) 7-a. Last ventral segment of female. 8. *Colpoptera stigmata*. Last ventral segment of female. 9. *Thionia obtusa* Melichar. (Same as 1.) 10. *Picumna subrotundata* Fowler. (Same as 1.) 10-a. Ventral aspect of aedeagus. 11. *Picumna subovata*. (Same as 1.) 11-a. Ventral aspect of aedeagus.



Elytra deep brown to blackish; sutural margin and claval vein light. Median carina of frons very prominent. Lateral margins of vertex highly elevated. Elytra elongate, acute apically; this is more pronounced in the female. Anal flap of male with ventral margin narrowed in basal two-thirds, gradually acute apically in profile. More basal aedeagal process short; more apical process elongate, brokenly curved cephalad; ventral process long, slender. Claspers short, broad. Last ventral segment of female bluntly obtusely angled caudad.

Male holotype and female allotype from Jiutepec, Morelos, 9-6-39. (DeLong & Plummer.) Female paratype from Taxco, Guerrero, Km. 150, 10-26-41. (DeLong & Good.)

The male genitalia of this species is very close to the illustration of *marginalis* by Metcalf; however the shape of the elytra is radically different.

***Colpoptera carinata*, n. sp.**

(Plate IV, fig. 5)

Length 6.7 mm. Dark fuscous species with rather narrow stigmal area. Frons dark brown with all carinae broadly yellow, a row of prominent white spots present along lateral margins. Elytra black on costal margin just before stigmal area. Cross-veins broadly whitish before narrowed apical portion of elytra. Prothorax deeply impressed just caudad to median of cephalic margin. Central tablet of mesonotum highly carinate cephalad. Elytra rather acute apically.

Anal flap of male, in lateral aspect, with round thumb-like projection on ventral margin before apex; apex broadly rounded. More apical aedeagal process very slender; more basal process long, heavy; ventral process short, stout. Claspers elongate beyond dorsal spur.

Male holotype, Guanajuato. (Dampf.)

***Colpoptera bifurcata*, n. sp.**

(Plate IV, figs. 6 and 6-a)

Length 6.8-7. mm. Large dark species with broad, deep stigmal spot. Frons, vertex, and pronotum lighter than rest of insect. Mesonotum and elytra dark brown to black. Stigmal area outstanding; a small inconspicuous hyaline area present sometimes at tip of clavus. Elytra fumate to black apically. Hind wing black.

Vertex more than twice as broad as long, shorter than pronotum. Elytra broad, not especially narrowed, with broadly rounded apex. Anal flap of male, in lateral aspect, deeply notched near apex forming two subequal lobes. Aedeagus strongly curved; cephalic processes subequal in length and form; ventral process very long, slender, appressed to venter of aedeagus. Claspers with dorsal spur far caudad. Last ventral segment of female with narrow elongate projection forming inner third of caudal margin.

Male holotype, female allotype, and paratypes of both sexes from Jesus Carranza, Veracruz, 10-14-41, paratypes from Suchilapa, Oaxaca, 10-11-41. (DeLong, Good, Caldwell, & Plummer.)

One female from Hermosillo, Sonora, 2-20-25. (Dampf.)

In form of elytra and coloration this species approaches Metcalf's *marginalis* but the genitalia is different.

***Colpoptera elongata*, n. sp.**

(Plate IV, figs. 7 and 7-a)

Length 7.-7.5 mm. Dark fuscous elongate species with large stigmal area sharply defined caudad. Head and pronotum light yellow. Elytra dark fuscous with costal and sutural margins lighter than area between; very fumate apically; large hyaline spot present at apex of clavus.

Median carina of frons and mesonotum prominent. Elytra long, not especially narrowed behind stigmal spot; apex rounded. Anal flap of male elongate, straight, broadened before apex on ventral margins. More apical aedeagal process short, straight; more basal process very elongate; no ventral process present. Claspers somewhat elongate apically. Last ventral segment of female with short rounded projection in center of caudal margin.

Holotype male from Vergel, Chiapas, 6-13-35, allotype female, same locality, 6-5-35, and male paratype from Finca Belem, Chiapas, 3-2-39. (Dampf.)

The elytra in this species approaches *Neocolpoptera* Dozier from Puerto Rico in form; however the vertex and pronotum are typical of *Colpoptera*.

Tribe Thioniini

The tribe *Thioniini* is separated from the other *Issidae* by the presence of a very large anal fold in the hind wing with a distinct incision at the suture.

Genus Thionia

The genus *Thionia* is usually separated from its relatives by the simple median carina of the frons and clypeus, the vein Cu₁ not branched, and hind tibia bispinose. Ten species of *Thionia* have been recorded from Mexico with a high probability of many more occurring in that country. Metcalf (1923) has stated that the chrotic characters are hard to define. In the collection before me are nine separate and distinct species of which I am only able to place two with any degree of certainty, two coincide with the description and drawings of *soluta* Fowler from Panama, one could be *longipennis* Spinola from Brazil, and rest appear to be undescribed.

***Thionia obtusa* Melichar (1906)**

(Plate IV, fig. 9)

Length 5.-6. mm. Color variable from light fuscous to dark, sometimes heavily marked with black. Usually with a spot laterad on either margin of mesonotum and a black spot or elongate dash in claval areas. Frons in all specimens punctate and variegate with black, especially outside of intermediate carinae. Vertex usually with two black spots.

Vertex broader than long, slightly pentagonal, with median groove. Frons longer than broad, intermediate carinae forming an

oval. Pronotum subequal in length to vertex, rounded cephalad. Mesonotum with only indistinct lateral carinae. Elytra short, oval, costal margin broadened at midlength.

Anal flap of male elongate, gradually narrowed in profile. Aedeagus with a pair small lunate plates apically; a pair of elongate processes emerging laterad and ventrad and curved cephalad. Claspers with apical margin straight from dorsal spur to heel. Last ventral segment of female practically straight caudad.

This species agrees fairly well with *obtusa* Melichar except for length. Most of the females approach 6. mm. instead of 5. mm. Specimens of both sexes from the states of Morelos, Jalisco, and Michoacan, in October, 1941. (DeLong, Good, Caldwell, & Plummer.) The allotype male is from Jalisco near Guadalajara.

Thionia naso Fowler (1904)

Length 8. mm. Testaceous brown variegate with black, especially on head and thorax. Head produced before the eyes making the vertex much longer than broad and acute apically. Last ventral segment of female produced caudad into a blunt tooth.

One female from 12 miles south of Jacala, Hidalgo, 9-26-41. (DeLong, Good, & Caldwell.)

Genus *Picumna*

The genus *Picumna* is usually separated from the other *Thionini* by the presence of four or more spines on the hind tibia; however, some specimens have three spines and sometimes only two are present. The elytra probably furnish the most convenient character by being held more horizontal than in *Thionia* giving the genus a characteristic appearance and the vein Cu_1 is branched.

Picumna ovatipennis Walker

List Homopt. Suppl., p. 88, 1858.

Length 6.-7. mm. Fuscous species heavily marked with black. Frons irrorate with black, darker basad. Vertex black cephalad and laterad with two black dashes laterad and caudad; lateral margins green, especially caudad. Pronotum green, usually with a pair of black spots. Mesonotum greenish with two heavy black dashes inside lateral carinae, sometimes central tablet entirely black. Elytra with hyaline area along costal margin just cephalad center; with hyaline and fuscous areas just caudad center and sometimes apically.

Frons much narrowed basad. Vertex appearing slightly longer than broad, deeply transversely concave, sharply rounded cephalad, sharply notched caudad. Pronotum short, acute cephalad. Mesonotum large, lateral carinae prominent, united cephalad by prominent transverse carina. Elytra elongate.

Anal flap of male extremely long, slender in lateral aspect. Aedeagus elongate with two large, heavy hooked spurs apically; latero-ventral processes long, slender. Claspers almost flat apically. Last ventral segment of female with small rectangular projection caudad.

Two males and one female from Fortin, Veracruz, 10-9-41. (DeLong, Good, Caldwell, & Plummer.)

***Picumna subrotundata* Fowler (1906)**

(Plate IV, figs. 10 and 10-a)

Length 4.5-5.5 mm. Black testaceous species with two black transverse stripes across the elytra leaving the basal, central, and apical areas fuscous to hyaline. Sometimes these fuscous bands are interrupted and flecked with black.

Frons elongate, slightly narrowed between eyes. Vertex slightly broader than long, slightly rounded on cephalic margin; broadly yet somewhat sharply concave caudad. Pronotum shorter than vertex, with median carina. Mesonotum indistinctly tricarinate. Elytra short, broadly ovate.

Anal flap of male elongate, slender in lateral aspect. Aedeagus with a pair of apical processes strongly curved, very prominent in ventral aspect; latro-ventral processes long, simple. Claspers elongate apically. Last ventral segment of female produced into small blunt tooth caudad.

Male and female specimens from Zitacurao and Tuxpan, Michoacan, October, 1941. (DeLong, Good, Caldwell, & Plummer.) Darker examples of both sexes from Taxco, Guerrero, 9-9-39, (DeLong & Plummer), and two females from Jiutepec, Morelos, 8-25-34. (Plummer.) The male allotype is from Tuxpan.

***Picumna subovata*, n. sp.**

(Plate IV, figs. 11 and 11-a)

Length 5.-5.5 mm. Fuscous species heavily marked with black. Frons dark, irrorate, with large black spots outside of intermediate carinae. Vertex black with light design of the "fleurs-de-lis" in center. Pronotum dark with prominent light median carina. Mesonotum with central tablet usually dark with median light stripe; sometimes just black inside lateral carinae. Elytra usually dark with large hyaline or fuscous area near middle of costal margin sometimes extending brokenly across entire surface; with small fuscous areas apically and basally.

Frons narrowed basad, with strong median carina. Vertex broader than long, deeply transversely concave; broadly rounded cephalad; sharply notched caudad. Pronotum well produced cephalad, not especially acute; subequal in length to vertex. Mesonotum weakly tricarinate. Elytra short, ovate, not as flared or bullate as in *subrotundata*.

Anal flap of male short, thin in lateral aspect; broad, concave apically in dorsal aspect. Aedeagus with small, slender apical processes scarcely hooked; latro-ventral processes short, rather stout. Claspers flattened apically similar to *ovatipennis*. Last ventral segment of female with very small bulge in center of caudal margin, a broad wrinkle present across base of this production.

Male holotype, female allotype, and male paratype from Taxco, Guerrero, Km. 150, 10-26-41. (DeLong & Good.) Male paratype

from Cuernavaca, Morelos, 9-8-39, and female paratype, Taxco, Guerrero, 9-9-39. (DeLong & Plummer.) One female paratype, Taxco, Guerrero, 7-6-35. (Plummer.)

Due to the small size and markings this species may be confused with *subrotundata* Fowler but the vertex is narrower, more concave, and more rounded cephalad. The general shape is near *ovatipennis* Walker but it is a much smaller species with less elongate frons and different markings. From either species it is readily separated by the distinct genitalia of both sexes.

***Picumna venosa* Fowler (1904)**

This species seems to be mostly fuscous with a few dark markings especially along the veins. The head is broad and the vertex is broader than long. The last ventral segment of the female is slightly produced in the middle. One female in this collection tentatively belongs to this species since it meets all the general requirements and does have the last ventral segment slightly produced caudad.

The allotype female was collected somewhere in the Sierre Madre Mts. (Ball). Specimen in this collection is from Acapulco, Guerrero, 10-24-41. (DeLong and Good.)

***Picumna varians* Stål⁷**

As figured by Melichar (p. 291, fig. 69, 1906) has an elongate vertex with two prominent "S" shaped dashes in the latero-cephalic margins.

***Picumna mexicana* Stål⁷**

Is described as having the vertex two times as broad as long and is a large species measuring 6.-7. mm. I have seen neither species.

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⁷Stett. Ent. Zeit., 25: 365-366, 1864.