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CONTRIBUTIONS TO OUR KNOWLEDGE OF SOUTH AMERICAN
 FULGOROIDEA (HOMOPTERA)
 PART I. THE FAMILY DELPHACIDAE

By F. MUIR

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Contributions to Our Knowledge of South American Fulgoroidea (Homoptera)

Part I. The Family Delphacidae

By F. MUIR

Our knowledge of the smaller Fulgoroidea of South America is very limited and therefore the collections made by Dr. F. X. Williams are of great value. He procured large collections, especially of the lesser known families, such as Delphacidae, Cixiidae and Derbidae. South America is very rich in these families, especially in the forest-loving forms, such as Derbidae and some of the Cixiidae.

The present paper deals with the Delphacidae represented by twenty-five genera and eighty-five species, of which five genera and sixty-seven species are treated as hitherto undescribed. Of the Delphacidae previously described from South America six genera and twenty-nine species were not found among Dr. Williams' material. It is very desirable that the types of these six genera should be reexamined and their places in the subfamilies and tribes stated. There are now known from South America, thirty-one genera and one hundred and fourteen species. From America, north of Mexico, about one hundred and eight species have been reported. That the South American species will be greatly increased with further research is evident when we consider that Dr. Williams only worked for short periods at a limited number of places and only could devote a very small proportion of his time to such work.

A notable feature of the geographical distribution of the species studies is the small number common to Ecuador and Eastern Brazil. Two species are world-wide, viz: *Sogata furcifera* and *Delphacodes propinqua*, but the latter is not yet known from Ecuador. Five species have a fairly wide distribution in North and South America and the West Indies, viz: *Burnilia pictifrons*, *Sogata aurantii*, *Delphacodes teapae*, *Delphacodes balboa* and *Neomalaxa flava*. One species, *Delphacodes dissipata*, is from Ecuador and Rezende, Brazil. Not one of the others is common to both the east and west. There is a large element of the South American Delphacidae which appears to be typically South American and it is most strongly represented in the west and south; the northeast Delphacid fauna has a wider distribution into the West Indies, Mexico and southeast portion of the United States. Much more work must be done before any conclusions can be drawn from the geographical distribution.

Dr. Williams noted the food plants of many of these Delphacidae and this has added considerably to the value of his collections. Six species are reported feeding on sugar cane and twenty-five others on various grasses.

The following remarks on the localities collected in are from Dr. Williams' notes:

Bucay, Ecuador. Altitude 1,000 feet on west slope of Andes and 87 kilometers from Guayaquil. Wet region, on Rio Chanchan. Collecting was done at Bucay Chico flag station one mile above Bucay.

Naranjapata, Ecuador. Altitude 1,850 feet. West slope of Andes and about 100 kilometers from Guayaquil. Wet region, on Rio Chanchan. Flag station.

Huigra, Ecuador. Altitude 4,000 feet. West slope of Andes. Rugged and mountainous. 117 kilometers from Guayaquil. Rather xerophytic. Cacti and thorny leguminous trees, etc.

Ambato, Ecuador. 8,435 feet, in trough of Andes. 318 kilometers (by rail) from Guayaquil. Rather xerophytic.

Baños, Ecuador. Altitude 6,000 feet, on Pastasa River. East slope of Andes. East winds. Rather humid. 31 kilometers from Ambato. No forest remaining at Baños. Shrubby and grassy region. Very mountainous. Capital of Oriente del Norte Province.

Mt. Tunguragua. Altitude 16,680 feet. Leafhopper and Derbids at 9,000-10,000 feet in the forest. Humid region. Baños at foot of Mt. Tunguragua, which is an isolated volcano still active.

Mera. Altitude 4,000 feet, on east slope of Andes. Dense jungle and very wet, region of palms on Pastasa River, Oriente del Norte, about 50 kilometers from (northeast of) Baños.

Tena. Altitude about 1,850 feet; wet region, though less so than Mera, Oriente del Norte. On Tena River, which flows into the large Napo river, a few miles below the village. About 60 kilometers from Mera (NE).

Napo and Felton's. Napo is the large river flowing into the Amazon near Iquitos, Peru. Felton's is a sort of hacienda on the Napo some 6-8 miles above Tena, altitude about 2,000 feet. Pano river joins the Tena river. Collecting on Pano about a mile above Tena.

Plantation Blairmont, Berbice County, B. G. Blairmont is on the west, and *New Amsterdam* on the east bank of the Berbice river. The labels should be all Blairmont, as practically no collecting was done at New Amsterdam, one mile east of Blairmont. Blairmont fairly moist, but has a good dry season. Very near sea level. Collected a good deal in near-by patches of woods.

Tumatumari, Essequibo County, on Potaro river, some 150 miles by water from Georgetown. Heavy jungle. Wet region, low elevation.

Belem, State of Pará, Brazil. A muggy place. Heavy rains. At junction of Guama and Pará rivers and 86 miles from Atlantic. Very near equator. Mainly jungle.

Jabaty, State of Pará, 104 kilometers from Belem. Jungle. Moist region, low altitude. On Bragança railroad. Same sort of country as Belem.

Escada, State of Pernambuco, Brazil. Small town some 50-odd kilometers inland from Recife, the seaport. Mixed rolling prairie and forest—moist.

Campos, State of Rio de Janeiro, Brazil, on Paryhyba river. 175 miles or so ENE. from Rio de Janeiro, near coast. Rather wet region, little forest left.

Resende, State of Rio de Janeiro. 114 miles from Rio de Janeiro, altitude nearly 1,300 feet.

Campinas, State of San Paulo, Brazil. Altitude 2,000 feet or so. Temperate region and prairie and fragments of forest. Villa Americana, about one hour by train from Campinas.

Piracicaba, State of San Paulo. Fifty miles from San Paulo. Same type of country as Campinas.

Rio de Janciro. Sea level to 2,400 feet. Collecting at 200-1,400 feet, plenty of forest.

The types of all the new species are in the collection of the Hawaiian Sugar Planters' Experiment Station, Honolulu, and bear the serial type numbers of that collection.

DELPHACIDAE

ASIRACINAE

Copicerus Swartz

1. *Copicerus irroratus* Swartz.

Three specimens from Bucay, Ecuador, 1,000 feet elevation, October 6, 1922.

Pentagramma Van Duzee

2. *Pentagramma bivittata* Crawford.

Lepticus oculatus Crawford. Pro. U. S. Nat. Mus. 46, page 568. (1914)

A series of sixteen males, seven females and two nymphs from Blairmont, B. G., August, October, November, 1923. These specimens have been compared with the type material. Crawford's *Lepticus oculatus* is the nymph of this species. It is very probable that the genus is the same as *Bergia* Scott. (= *Bergias* Kirk.)

Canyra Stål

= *Ugyops*

This genus is close to *Ugyops* and *Eucanyra* and is difficult to separate by any good characters. It has a longitudinal depression or sulcus along the basal joint of the antenna; the median frontal carina is either simple or forked, sometimes to near the apex; the Sc + M f is basad of the Cu f; the cross veins at the nodal line are distinct and thickened; no distinct stigma.

I place the following species in this genus but a careful comparison of the species of *Eucanyra*, *Ugyops*, *Perimocccera* and *Mclanesia* is desired to define the limits of these genera.

3. *Canyra tenensis* sp. nov.

Male. Length 4.7 mm.; tegmen 5.4 mm.

Second segment of antenna 1.2 times the length of first, first segment shallowly sulcate on upper surface, antennae reaching to near apex of clypeus. Lateral margins of frons very slight arcuate, frons slightly wider on apical half, median carina forked near base. Sc + R f basad of Cu f, no distinct stigma, cross veins at nodal line distinct.

Dark brown, light over apex of frons and base of clypeus, light dots on frons, front and middle legs banded dark and light, hind femora dark, tibiae light. Abdomen dark brown, lighter on terga, ventral portion of pygofer light. Tegmina hyaline, slightly stramin-

cous, veins stramineous with some darker marks, fuscous in membranes along side of nodal line and over apical and subapical M1 and 2 cells, small dark marks along apical margin; wings hyaline with dark brown veins.

Anal style large and asymmetrical, the left side near apex produced into a large flange, the right side into a smaller flange, the middle into a small blunt point. The ventral margin of pygofer deeply and quadrately emarginate, the angles of the emargination produced and bifurcate; from the base of the emargination a large plate projects about half the length of the emargination, the apex of this plate being slightly bilobed. Genital styles long, narrow, slightly curved towards the apex which meet together.

One male from Tena, Ecuador, 1,850 feet elevation, March 25, 1923. Type No. 1198.

Punana Muir

4. *Punana breviceps* sp. n. Fig. 1.

Male. Length 2.6 mm.; tegmen 2.8 mm.

Vertex very short, width between eyes four times the length in middle, broader at base; pronotum nearly twice the length of vertex. Width of frons equal to length in middle. Medio-lateral pronotal carinae distinct, sinuate.

Brown; frons dark with lighter spots round the base and sides, rough, with minute hairs; clypeus darker, smoother and shiny. Pronotum with lighter dots along the lateral carinae; mesonotum with a few light dots between outer and inner pronotal carinae. Front and middle legs dark brown, apex of tibiae and tarsi white; hind legs lighter with dark spots and bands. Tegmina opaque, coriaceous, brown, granules irregular, dark, numerous, bearing light brown macrotrichia. Wings slightly fuscous, darker at apex, veins fuscous; there is a deep emargination at suture similar to that found in the Thioniini (Issidae) and a lesser one at each of the folds in the large anal area.

The ventral margin of pygofer quadrately emarginate, the bottom of the emargination squarely produced; anal segment large, filling all the opening of pygofer except the ventral emargination. Genital styles small, apex pointed, sublanceolate, the inner and outer margins being slightly angular.

Described from one male from Naranjapata, Ecuador, elevation 1,850 feet, December, 1922. Type No. 1204.

Tetrasteira gen. nov.

Head narrower than pronotum; vertex small, wider than long, a V shape transverse carina but no transverse carina dividing frons from vertex. Frons considerably longer than broad, slightly widest on apical half, lateral margins nearly straight on basal half then slightly arcuate; median carina simple; clypeus small, tricarinate. Antennae terete, very small, not reaching to apex of frons; first segment wider than long, second segment thick, nearly as wide as long. Pronotum slightly arcuately emarginate behind; lateral carinae distinct, slightly curved, diverging posteriorly, reaching hind margin; median carina very indistinct. Mesonotum with four carinae, no median carina, inner pair not reaching hind margin, the outer pair reaching hind margin. Legs comparatively short, tibial spur small, simple, awl shape; in cross section circular, sharp at apex, no spines along sides. Ovipositor complete; female pygofer long, narrow, with a depression down middle wherein ovipositor reposes; abdominal sternites of female V shape, especially the apical ones.

Type *T. minuta*.

This is an interesting genus. Its general facies make it appear to be one of the Delphacinae, but its tibial spur and the genitalia place it in the Asiracinae. It is by far the smallest species in that subfamily. *Idiosemus* Berg is stated to have four mesonotal carinae, but this differs very considerably from that genus.

5. *Tetrasteira minuta* sp. nov.

Male. Length 1.3 mm.; tegmen 1.9 mm.

Dark brown, light over thoracic pleura, tegulae, base of tegmina and a small triangular spot at stigma, veins dark except the cross veins at nodal line which are light, legs lighter.

Pygofer long on ventral surface, very short on dorsal. Ventral margin deeply emarginate, angles of the emargination projecting slightly; diaphragm short, without armature. Anal segment small, very short, apical corners produced asymmetrically, the left large, curved and acute, the right shorter and blunter. Periandrium short with the apodeme extending through it to base of penis which is membranous and bears two curved spines. Genital styles small, narrow, parallel sides.

Female. Length 1.5 mm.; tegmen 2 mm.

Similar to male in structure and color.

One male and one female from Belem, Pará, June, 1924. Type No. 1203.

DELPHACINAE

ALOHINI

Burnilia M. G.

6. *Burnilia pictifrons* (Stål). Fig. 2.

The type of this genus, *Delphax pictifrons* Stål, came from Mexico; the specimens that Crawford identified as this species are from Honduras and Nicaragua. The two males and three females I have from Bucay, Ecuador, 1,000 feet elevation (October 7, 1922), only differ slightly from Crawford's specimens in having the anal angle of the pygofer bifurcate at the apex. I shall consider it the same until the type or locotype material has been compared. The armature of diaphragm is produced into two long processes; the aedeagus is comparatively thick for a very short part at base and then produced into a long, curved, very fine process.

7. *Burnilia williamsi* sp. n. Fig. 3.

Male. Length 3 mm.; tegmen 3.6 mm.

Length of vertex twice the width at base, base twice the width at apex, sides straight, apex projecting well beyond eyes, base behind middle of eyes. Length of face slightly more than twice the width at apex, basal two-thirds of margins straight, diverging, then slightly arcuate, disc slightly concave in middle, median carina simple, distinct on basal half, faint on apical half. Antennae reaching to apex of clypeus, second segment three times the length of first.

The anal segment long, semitubular, anus at apex; medio-ventral process of pygofer produced into two small points at apex; anal angles of pygofer produced about half the length of anal segment, apex round; lateral margin not produced. Genital styles wide on basal half, which is slightly concave and the inner margins produced into a spine about middle, apical portion suddenly narrowed and curved towards the outer margin.

Stramineous, tinged with red over abdominal sternites, apex of vertex shiny black, a white mark across middle of frons bordered basally and apically with black, the basal border wider than the apical one; a white mark on each lateral portion of pronotum bordered with black; second antennal segment dark; anterior tibiae and tarsi dark, a small black mark at apex of all femora. Tegmina hyaline, slightly stramineous, veins same color; wings hyaline with brown veins.

One male specimen from Belem, Pará, May, 1924. Type No. 1201.

8. *Burnilia belemensis* sp. n.

Female. Length 3 mm.; tegmen 3 mm.

Length of vertex 1.5 times the width at base; width at base 1.4 times the width at apex; projecting slightly beyond eyes; base considerably behind middle of eyes. Length of face 1.6 times the width, lateral margins slightly arcuate, slightly widest over apical half. Antennae reaching to near middle of clypeus, second segment 2.3 times the length of first. Vertex and basal two-thirds of frons dark brown; clypeus darker on base, antennae dark brown; pronotum lighter brown in middle, darker on sides; mesonotum dark

brown, lighter on hind margin; legs and abdomen stramineous, ovipositor brown. Tegmina hyaline, stramineous, veins stramineous; wings slightly stramineous with darker veins. This species differs from *B. williamsi* in the shape and proportions of vertex, frons and antennae, as well as in coloration.

One female specimen from Belem, Pará, June, 1924. Type No. 1202.

9. *Burnilia heliconiae* sp. n.

Female. Length 4.4 mm.; tegmen 4.7 mm.

Length of vertex 1.5 the width at base, base nearly twice the width at apex. Second segment of antenna about 2.6 times the length of first. Otherwise in build similar to *B. williamsi* from which it differs in color in being uniformly stramineous without the black bordered white marks on frons and pronotum.

Eleven females from Blairmont, British Guiana on *Heliconia* (H. E. Box and F. X. Williams, November 11, 1923) in *Hura crepitans* forest. Type No. 1199.

10. *Burnilia longicaput* sp. n.

Female. Length 4.3 mm.; tegmen 4.8 mm.

Vertex long, projecting well beyond eyes; length three times the width at base, width at apex subequal to base, apex rounded; length of frons three times the width at apex; apex twice the width at base, lateral margins nearly straight or very slightly arcuate on apical half. Antennae reaching slightly beyond middle of clypeus, second segment slightly more than three times the length of first.

Uniformly stramineous. The veins of the wings light brown.

Two females from Blairmont, B. G., September, 1923. Type No. 1200.

It is regretted that there are no males of the three above described species, but they are quite distinct and appear worthy of specific names. It is hoped that males will be discovered before long and so settle their status.

Sparnia Stål

11. *Sparnia praecellens* Stål.

A long series from the following localities in Ecuador. Baños, Or., 6,000 feet elevation, forty-five specimens; Bucay, 1,000 feet elevation, one specimen. These were taken in October and December, 1922, and January, 1923; those from Baños were mostly taken on sugar cane and it can be considered as a sugar cane insect.

12. *Sparnia williamsi* sp. n.

Male. Length 2 mm.; tegmen 3.3 mm.

In build similar to *S. praecellens*.

Dark brown; carinae on genae and frontal median carina white; light on vertex; lateral portions of pronotum and tegulae white, the latter margined with brown; lower margin of first segment of antenna light; a yellow streak along femora, apical portion of tibiae light, front and middle tarsi dark, hind tarsi light. Tegmina dark brown, a light mark from middle of costal cell to apex of R, a small hyaline mark at apex between M1 and 2, continued obscurely along M1 + 2 to near cross veins, a light mark in middle of commissure.

Opening of pygofer round; anal emargination shallow, anal angles obscure; diaphragm very short, without armature; anal segment small, a single, median spine on ventral margin at apex. Genital styles long, narrow, apex rounded, from the inner margin near base a spine arises, and another near apex. Penis small, subtubular, largest at base and gradually lessening to apex, curved, a row of minute spines along each side from near apex to near base.

Described from two specimens from Naranjapata, Ecuador, 1,850 feet elevation (December, 1922). This species is closely allied to *S. praecellens*. The genitalia are similar, but the arrangements of small spines or teeth along the penis is quite distinct. Type No. 1205.

Synpterion g. n.

Width of vertex about four times the length, apex slightly broader than base, base very slightly emarginate, the median carina of frons projecting in middle at apex, no carina in middle; base of frons about twice the width of apex, sides slightly arcuate, median carina simple; no median carina on clypeus, lateral carinae obscure; antennae reaching slightly beyond base of clypeus, first segment little longer than wide, second segment considerably longer than first. Pronotum short, hind margin arcuately emarginate, no median carina, the lateral carinae joining together in middle, parallel to hind margin of vertex and eyes, not reaching hind margin. Mesonotum tricarinate. Abdomen considerably compressed, not reaching to the middle of tegmina. Legs fairly short; hind basitarsus shorter than other two together, spur longer than basitarsus, fairly wide, thick, cultrate, very slightly concave on inner surface, with distinct teeth on hind margin. Tegmina compressed, apical cells long, nodal line about middle, costa sinuate, the tegmina beyond nodal line compressed together when at rest; Sc and R forking fairly near to base.

The spur places this in the Alohini; it is very distinct from any other genus of that tribe.

Type *S. brasiliensis*.

13. *Synpterion brasiliensis* sp. n. Figs. 4, 5.

Male. Macropterons; length 2.1 mm.; tegmen 3.3 mm.

Stramineous, legs slightly fuscous. Tegmina hyaline, stramineous, slightly fuscous over clavus, Cu, and the apical M cells, veins same color as membrane, granules small, light on the fuscous area, a small dark spot on apical margin at apex of each apical vein; the tegmina subangular at apex at Ms.

Pygofer compressed, small. Genital styles small; anal segment without armature. The genitalia have not been dissected as the specimen has a large male stylops in the abdomen and it appears as if the genitalia are not normal.

Described from one male from the City of Rio de Janeiro, Brazil. (March 7, 1924.) Type No. 1171.

Stobaera Stål

14. *Stobaera granulosa* (Fowler).

One male and one female from Bucay, Ecuador, 1,000 feet elevation, October 7, 1922. Crawford has sunk the type species of this genus, *concinna*, into *tricarinata*, but if my determination of *concinna* be correct⁽¹⁾ then they are distinct. *S. granulosa* appears to be the same as Crawford's *tricarinata* (Say) and differs from specimens of this species from New Jersey. A revision of the genus is desirable.

TROPIDOCEPHALINI

For convenience it will be necessary to include in this tribe all species of the Delphacinae which have no teeth on the hind margin of the spur, whether the spur be thick or thin. *Belocera* Muir will have to be placed in it.

Malaxa Melichar

15. *Malaxa occidentalis* sp. n. Fig. 6.

Male. Length 3 mm.; tegmen 4.5 mm.

Length of vertex slightly greater than width at base, base 1.5 the width at apex, the inverted V shape carina of vertex nearly touching apex, no Y shape carina in basal

(1) Pro. Haw. Ent. Soc. II, 5, p. 241 (1913).

portion; frons long, narrow, gradually widened to apex, sides straight, median carina simple; clypeus tricarinate; antennae longer than face, reaching beyond apex of clypeus, second segment considerably longer than first. Hind basitarsus longer than other two together; spur shorter than basitarsus, thick, slightly concave on inner surface, no teeth on hind margin, a small one at apex.

Vertex, frons and genae light brown, clypeus dark shiny brown; antennae and labium light brown, apex of second segment of antennae dark brown; pronotum light brown, darker on lateral areas; mesonotum dark shiny brown or black; abdominal tergites dark brown or black, sternites lighter, pleura yellow; legs yellow or light brown. Tegmina hyaline, veins light brown, a dark band across tegmen from middle of costa to apex of clavus, broadest over Sc + R and M, the nodal line fuscous, continued around the apical margin.

Opening of pygofer about as long as wide, anal angles produced into acute points nearly meeting around anal segment, slightly ventrad of anal angle the lateral margins produced into a small pointed process, the medio-ventral margin produced into a thin, furcate process; anal segment small, without armature, general styles broad at base narrowing to apex which is produced into a small, rounded process, inner margin roundly produced on basal half then suddenly narrowed, outer margin straight or very slightly sinuate. Penis long, thin, tubular, decreasing in size from base to apex; from the apex on ventral side there arises a semimembranous process bearing one spine on one side and two smaller spines on the other.

Female. 3 mm.; tegmen 4.9 mm.

In build similar to male; in color similar to male, but the clypeus is lighter.

Two males and seven females from the Napo river near Tena, Ecuador, off of *Gynerium* sp. Type No. 1206.

Macrocorupha g. n.

Head narrower than thorax; vertex much longer than broad (1.5 to 1), apex projecting well beyond eyes, rounded, gradually increasing in width to base, sides nearly straight, a small keel around margin which is obscure at apex, a straight, median carina from middle to base. Length of frons twice the width at apex, base slightly narrower than apex, sides nearly straight, median carina simple, distinct; clypeus about as long as frons, tricarinate. First segment of antennae longer than wide, second segment about twice the length of first; eyes in side view wider than long with a deep antennal sinus; carina on gena distinct. Pronotum tricarinate, lateral carinae slightly curved, reaching hind margin; mesonotum tricarinate, carinae subparallel. Legs slender, hind basitarsus the same length as the other two together; spur shorter than basitarsus, fairly thin, subectiform or concave on inner surface, a tooth at apex but none on hind margin. Tegmina long, fairly narrow, apical cells forming about one-third the length; forking of Sc + R and Cu about level, near middle of tegmen. Superficially this genus has the appearance of *Tropidocephala* but the spur, the longer antennae, especially the first segment, longer and thinner legs and the longer and compressed tegmina, all separate it from that genus. The spur is not quite typical of the tribe and it might be placed in the Dalphacini with equal justice, except that it has no teeth on the hind margin.

16. *Macrocorupha gynerii* sp. n. Fig. 7.

Female. Macropterous; length 2.9 mm.; tegmen 4 mm.

Frons, clypeus and genae dark brown, vertex light brown; middle of pronotum and mesonotum light brown, lateral portion darker; antennae and legs light brown; abdominal tergites dark brown, sternites lighter. Tegmina dark brown with hyaline light marks, one along commissure, one on basal portion of costal cell into radial cell, one from costa near apex into fork of Sc + R and a light mark at apex of each apical cell except the one between M2 and the first mark in Sc and R the largest and the last in Cu the smallest, veins same color as membrane with light granules; wings hyaline with dark brown veins.

Described from two females from Napo river, near Tena, Ecuador (April 5, 1923), on *Gynerium sagittatum* growing on the banks of the river. Type No. 1163.

Liburniella Crawford

17. *Liburniella ornata* (Stål)† Figs. 8, 9.

There are two female specimens from Mera, Ecuador (February 2 and 26, 1923), which are provisionally called by this specific name. They are darker

than the specimens from New York and the tegmina are more heavily spotted. This genus has the spur fairly thick, concave on inner surface and the hind margin without teeth, so I place it in the *Tropidocephalini*.

The anal segment, aedeagus, genital styles and armature of diaphragm of a specimen from Gowanda, N. Y., are figured.

Columbisoga Muir

The nine species placed in this genus appear to be related to one another with the exception of *gyneriicola*. They all have a very short labium, which only reaches to the middle coxae. The first four have no armature on the anal segment, whereas the rest all have an asymmetrical armature situated on the right side; *sapote* has only a very small one. All except *merae* and *sacchari* have a process arising from the base of the penis or from the small perianthium. The diaphragm is membranous and has no armature. The Y carina of vertex is never distinct and in some cases the stalk is indistinct and the fork forms a small areolet at apex; this is the origin of the small areolet in *Liburniella* and it may be advisable to sink *Columbisoga*, but for the present the writer keeps them apart; *Eurysa* is also closely allied. The spur has no teeth on hind margin and is generally fairly thick. This genus is also near to *Columbiana* Muir, but that genus has the lateral pronotal carinae strongly divergingly curved and they do not reach the hind margin or go near it. *Malaxa* has long antennae.

18. *Columbisoga gynerii* sp. nov. Figs. 10, 11.

Male. Length 1.8 mm.; tegmen 2.8 mm.

Width at base of vertex slightly greater than the length, apex half the width at base. Length of face about twice the width at apex, sides slightly sinuous. Antennae reaching slightly beyond the base of clypeus, second segment twice the length of first. Vertex with no median longitudinal carina or a very obscure one. Lateral pronotal carinae slightly curved, diverging posteriorly, reaching hind margin.

Head, thorax and legs light brown or yellow; a white line runs from the apex of clypeus over frons, vertex, pronotum to posterior angle of mesonotum, this white line being bordered with black which occupies most of the clypeus and frons; a white mark bordered with black over the lateral portion of pronotum. Abdomen dark brown, lighter over sternites and anal segment. Tegmina clear hyaline, veins stramineous or brown, apical margin from apex of costal cell to apex of clavus brown, the cross veins on nodal line dark, a dark mark through apex of clavus to Cu f. Wings clear hyaline, veins light brown.

Pygofer round, margins entire, anal emargination comparatively small; long on ventral surface, short on dorsal; diaphragm short, without armature. Anal segment small, without armature, two bands of chitin nearly encircling the base to which the perianthium (†) is attached. Penis long, slender, tubular to near end, which is curved into a hook and bent to one side; the perianthium is complex, consisting of a ring at base produced into two processes, one longer and thin the other shorter, broader and flat. Genital styles in front view convex on outer margin, concave on inner margin which is produced into a small angular process in apical half.

Described from three males from Tena, Ecuador, elevation 1,850 feet, off of *Gynerium* sp. Type No. 1208.

This species possesses no characters by which it can be separated from the Indian genus *Columbisoga*, and it is of interest to note that both *C. campbelli* and *gynerii* have a complex perianthium.

19. *Columbisoga ornata* sp. nov. Fig. 12.

Male. Length 2.3 mm.; tegmen 4.3 mm.

Antennae not quite reaching base of clypeus, first segment short, as broad as long, second segment three times the length of first; margins of frons slightly sinuous, median carina simple. Width at base of vertex twice the length, base about 1.5 the width at apex, apex not projecting beyond eyes, longitudinal median carina obsolete.

Head and thorax dark shiny brown or black; antennae and genae yellow, legs yellow or light brown. Abdomen brown, yellow along posterior margins of sternites. Tegmina dark, shiny brown with seven hyaline light spots, one between M and Cu reaching as far as Sc + R fork, a series of five along costal and apical margin separated by the dark veins, and one between M2 and 3, a light mark at apex of clavus, light along commissure.

Opening of pygofer longer than wide; anal emargination shallow, wide, anal angles obscure, each lateral margin produced in middle into a process, longer than wide with rounded apex, the ventral margin produced into two minute knobs. Anal segment small, without armature, with a small band of chitin on each side at base connecting it with the aedeagus. Penis long, slender, tubular, curved with a semimembranous process at apex at right angle to the penis; from the base (the periandrium?) arises a large toothed spine half the length of the penis. Genital styles small, in full view broadest at base, gradually narrowing to apex where they are slightly enlarged.

Described from three males from Tena, Ecuador, elevation 1,850 feet, off of *Gynerium* sp. Type No. 1207.

20. *Columbisoga merae* sp. n. Fig. 13.

Male. Macropterous; length 2.4 mm.; tegmen 3.8 mm.

Vertex at base wider than length and wider than at apex, base slightly angularly emarginate, V shape carina obscure. Length of frons 2.4 times the width, width at base and apex subequal, sides nearly straight, median carina simple; antennae short, not reaching to base of clypeus, first segment wider than long, second three times as long as first; clypeus tricarinate; a carina crosses gena from near antenna to apical corner of frons. Lateral pronotal carinae nearly straight, diverging posteriorly to near posterior margin where they curve convergingly and reach, or nearly reach, the margin; mesonotum tricarinate. Hind basitarsus equal in length to other two together; spur not quite as long as basitarsus, fairly thin, concave on inner surface, a tooth at apex but none on hind margin, which is fringed with short, fairly stiff hairs. Cu f slightly distad of the middle of clavus, Sc + R f slightly more distad, but before the apex of clavus, Mf about level with apex of clavus; apical cells long, distinctly more than one-third of the tegmen; Cu 1 touching M3 + 4 for a short distance.

Frons, clypeus, genae, pleura and sternites of thorax, lateral portions of pronotum, legs and antennae stramineous, vertex light brown, pronotum and mesonotum darker brown, abdomen dark brown above, lighter brown or stramineous below. Tegmina hyaline, slightly fuscous at base, a fuscous mark on commissure near apex of clavus, a more or less indistinct fuscous line from near Cu f along Cu and M3 + 4 to apex, slightly fuscous at apex of each apical vein; veins same color as membrane; wings hyaline with brown veins.

Opening of pygofer a little longer than wide, each lateral margin produced into a thin, fairly long, pointed process, anal angles obscure, anal emargination wide and shallow; diaphragm membranous, without armature; anal segment large, the right margin produced into a flat, thin plate which is produced into two flat spines at apex. Genital styles in lateral view fairly long, flat, the apex produced angularly, considerably so on outer apical angle and slightly so on inner angle, narrowest slightly before apex, gradually increasing in width to base, margins slightly sinuous. Penis long and thin, the basal two-thirds thin, subtubular and slightly curved, the apical third flattened, curved round at apex which is acute, a long spine on each side at base of flattened portion.

Female. Length 2.8 mm.; tegmen 4 mm.

In build and color similar to male but the longitudinal fuscous line on tegmen more distinct and stretching from basal cell to apex. Three females are much lighter in the thorax, more so in the middle.

Described from three males and four females from Mera, Ecuador (January 26 and February 2 and 8, 1923). Type No. 1164.

21. *Columbisoga sacchari* sp. n. Fig. 14.

Male. Length 2.3 mm.; tegmen 3.3 mm.

Width between the basal angles of vertex slightly greater than the length in middle. In build and general facies similar to *merae*. Light stramineous, slightly fuscous on abdomen. Tegmina hyaline, a light fuscous mark on commissure at apex of clavus, a light fuscous mark from base to nodal line covering M and Cu; the apical veins with a series of small fuscous dots spreading out into membrane, most numerous on M 3 + 4 and Cu; with the exception of these dots veins same color as membrane or lighter, granules minute and sparse; wings hyaline with slightly fuscous veins.

The pygofer differs from that of *merae* in having the process on the side more ventrad, thicker, shorter and with truncate apex; the process on anal segment has the distal spine more awl shape and the basal one membranous; the genital styles are straighter and the apex not so largely produced at angles. The aedeagus is tubular, the basal half or a little more is slightly curved, the apical posterior much more slender and curved in a reverse direction to base; at the junction of the two parts there is small, flat process with its apex furcate.

Female. Length 2.7 mm.; tegmen 3.7 mm.

Similar to male but more yellowish in color and the infuscation on tegmina darker and continued to apex.

Described from one male and two females from Bucay, Ecuador, 1,000 feet elevation (October 4, 5, 6, 1922), one female on sugar cane and one male on bamboo (*Guadua* sp.). Type No. 1167.*

22. *Columbisoga maculosa* sp. n. Figs. 15, 16.

Male. Length 2.5 mm.; tegmen 3.7 mm.

Width of vertex at base 1.6 times the length in middle, apex considerably narrower than base, slightly angular, base very slightly and arcuately emarginate; length of frons about twice the width, sides very slightly arcuate, median carina simple. Antennae hardly reaching to base of clypeus, first segment about as long as broad, second 2.5 times the length of first. Lateral pronotal carinae diverging to near hind margin then convergingly curved and meeting, or almost meeting, hind margin. Hind basitarsus about as long as other two together, spur not as long as basitarsus, fairly thick, concave on inner surface, no teeth on hind margin, but only very short, fairly stout bristles, a tooth at apex.

The opening of pygofer longer than broad, margins entire, no distinct anal angles, anal emargination large; the diaphragm membranous, without armature; anal segment large, without armature. In full view genital styles slightly curved, inner margin concave, outer convex, apex slightly enlarged, rounded. Penis in lateral view flattened laterally, much broader at base than at apex, very strongly curved ventrally, apex membranous with the orifice near the apex; on the right side of the penis there arises a spine, smaller than the penis but bent at the same angle.

Stramineous or ochraceous, some irregular light dots on carinae of frons and on genae, median carina of pronotum and mesonotum lighter; abdomen darker brown on dorsum, sternites brown with lighter or yellowish on posterior margins; tibiae striped longitudinally with brown. Tegmina hyaline, the anterior half slightly milky white, the posterior half stramineous; granules small, numerous and brown; wings hyaline with slightly brownish veins.

Described from five males from Huigra, Ecuador, 4,000 feet elevation (May 31, 1923). Type No. 1168.

23. *Columbisoga gynericola* sp. n. Figs. 17, 18.

Male. Macropterous; length 1.9 mm.; tegmen 2.7 mm.

Length of vertex about equal to width at base; base considerably wider than apex, apex slightly rounded, sides straight, base at middle of eyes, considerably wider than eye on same line; length of frons about twice the width, apex nearly twice the width of base, median carina simple. Antennae reaching slightly beyond base of clypeus, first segment about as long as wide, second segment nearly three times the length of first. Labium longer than in the other species, reaching about to the hind margin. Lateral pronotal carinae straight, slightly diverging posteriorly, reaching hind margin. Spur not as long as hind basitarsus, thin, concave on inner surface, hind margin without teeth but with a few stout, short bristles and a small, blunt tooth at apex.

* *Stenocranus taiwanensis* Muir and *Stenocranus singaporensis* Muir are congeneric with this species and must be considered as coming into *Columbisoga*.

Opening of pygofer a little longer than wide, anal emargination large, anal angles distinct, not produced, a large, laterally flattened process arises from the medio-ventral margin; the lateral margins entire. Anal segment fairly large, without armature. Genital styles large, in full view broad, flat, widest at base, apex obliquely truncate with the inner angle produced into a curved spine, outer angle slightly produced with a small process. Penis laterally flattened, basal two-thirds slightly curved, apical third turned ventrally at right angle to basal two-thirds, an angular flange projects on ventral aspect near middle; from beneath the penis there projects a semimembranous comb, curved dorsad with teeth along the ventral margin.

Carinae of head yellow, black between the carinae of frons, clypeus and genae, vertex yellow with a black spot at apex; antennae yellow; middle of pronotum and mesonotum yellow, lateral portion brownish, the lateral carinae being much darker, lateral portion of pronotum lighter, legs yellowish, abdomen brown with yellow pleura. Tegmina hyaline, slightly brownish over claval veins, fuscous mark at base, another broken mark from middle of costa to fork of Cu, fuscous over cross veins and apical veins spreading out into the cells of M and Cu; veins same color as membrane except the cross veins which are whitish; wings hyaline with light brown veins.

Female. Macropterous; length 2.6 mm.; tegmen 3 mm.
Similar in build and color to male.

Described from twelve males and eight females from Napo, Pano river, Ecuador (April 5-10, 1923), on *Gynerium saccharoides* (caña silvestre). There are also three nymphs which have the antennae small with the first segment broader than long, and the frons has two median carinae. Type No. 1162.

24. *Columbisoga zapote* sp. n. Figs. 19, 20, 21.

Male. Length 3.4 mm.; tegmen 4.1 mm.
In general build similar to *C. maculosa*.

Dark stramineous or light brown, abdominal tergites darker, pygofer dark brown basally, light round margins. Tegmina hyaline, veins basad of nodal line light brown, apical veins darker brown, granules minute and inconspicuous; wings hyaline with light brown veins. The genitalia are best understood from the figures; the small process on the right side of anal segment near apex is of interest as it shows the asymmetry of the *merae* group. While of the same type as *maculosa* they are quite distinct. The four processes on the latero-ventral and ventral margin of pygofer are very distinctive. The penis is subtubular and nearer to *sacchari* than to *merae*.

Described from two males from Baños, Ecuador, 6,000 feet elevation (October 30, 1922, and January, 1923), and two males from Mt. Tunguragua, Ecuador, 9,000 feet elevation (January 4, 1923). The type specimen from Baños was taken on "zapote" (*Lucuma mammosa*), but it may have been only resting there. Type No. 1169.

25. *Columbisoga tenae* sp. n. Figs. 22, 23, 24.

Male. Length 2.7 mm.; tegmen 3.5 mm.

Width of vertex at base slightly greater than length in middle and greater than apex, sides straight, apex angular, base slightly sinuous, median V carina obscure. Length of frons more than double the width (1 to 2.5), base slightly narrower than apex, sides slightly sinuous. Antennae as long as face, first segment slightly longer than wide, second 2.8 times the length of first. Carina on gena distinct. Lateral pronotal carinae diverging posteriorly, slightly convergingly curved, reaching, or very nearly reaching, hind margin. Spur fairly thick, concave on inner surface, a tooth at apex but none on hind margin, which bears short, fairly broad bristles very close together.

Vertex brownish, frons and clypeus light brown or ochraceous, a whitish band below the antennae and at apex of frons, apical half of median carina and the median carina of clypeus whitish; antennae ochraceous; pronotum and mesonotum brown, the median carinae whitish, whitish also on lateral portions of pronotum; abdomen brownish. Coxae, hind femora and pleura dark brown, rest of legs lighter brown. Tegmina hyaline, clear, slightly yellowish on clavus, a slight fuscous mark on commissure near apex of clavus, veins light, granules small, light. Wings hyaline with light brown veins.

The genitalia are best understood from figures; the peculiar asymmetrical production on right side of anal segment is noticeable; the peculiar penis is wide and thin on basal half and concave on ventral surface, the right side produced into a thin, tubular curved portion with the orifice at apex, and the left into an acute spine.

Described from one male from Tena, Ecuador (March 8, 1923). Type No. 1181.

26. *Columbisoga chusqueae* sp. n. Fig. 25.

Male. Length 2.6 mm.; tegmen 4.4 mm.

Width of vertex at base slightly greater than length in middle and considerably greater than width at apex, apex angular, base nearly straight; the median carina obsolete, but the fork of the V is represented by a small, round area which recalls the areolet of *Liburniella*. Length of frons more than twice the width (2.3), apex and base about the same width, sides very slightly arcuate. Antennae reaching to base of clypeus, first segment slightly longer than wide, second twice the length of first. Lateral pronotal carinae convergingly curved, reaching hind margin or nearly reaching it. Spur fairly thin, concave on inner surface, a tooth at apex but none on hind margin.

Opening of pygofer longer than wide, anal angles obsolete, anal emargination obscure, the lateral margins entire, ventral margin produced into three processes, a median acute process and a less acute process on each side. Anal segment short, with a large, pointed process arising from the right side near apex, curved towards apex. Genital styles small, in lateral view subtruncate at apex which is wide gradually narrowing to base, in full view the apex subacute and curved. The penis is long, tubular, largest at base gradually decreasing to apex where the orifice is situated, curved ventral and to the left about the middle, from the base, or from the perianthrium, a small spine arises on the right side.

Ochraceous, a series of white spots along the median frontal carina and the lateral carina, the spots bordered with black; a white mark under eye across gena and another across apex of frons; a fuscous mark near apex of clypeus and at apex of first antennal segment; a whitish mark middle of vertex, pronotum, mesonotum and along commissure to apex of clavus; pronotal lateral carinate whitish and some whitish marks on lateral portion of pronotum; legs irregularly banded with fuscous; abdomen dark brown. Tegmina hyaline, a fuscous mark running from cross veins between R and M over fork of Cu to apex of M 2, granules conspicuous, dark brown slightly spreading into membrane; slightly yellowish over clavus; a small fuscous mark at Cu f and another between Sc + R and M stalk. Wings hyaline, with light brown veins.

Female. Length 3 mm.; tegmen 3.3 mm.
Similar to male in shape and color.

Described from one male and one female from Mt. Tunguragua, 10,000 feet elevation (January 4, 1923), taken on *Chusquea* sp. Type No. 1170.

DELPHACINI

Saccharosydne Kirkaldy

The seven species of this genus and the one species of *Neomalaxa* form a group separated from all other Delphacidae so far described by the form of the male genitalia. In other characters they come near to *Stenocranus*, especially *Saccharosydne brevirostris*; but the general build and the carinae of the vertex separate this genus from *Stenocranus*, and the long antennae of *Neomalaxa* separates it also from *Stenocranus*. So far, with the exception of one species in Japan, this genus is confined to America and the West Indies.

27. *Saccharosydne viridis* sp. n. Fig. 26.

Male. Length 2.5 mm.; tegmen 3.6 mm.

Length of vertex twice the width at base, base twice the width of apex; the inverted carina of vertex reaching level with anterior portion of eyes and continued as a single carina; one-third of vertex projecting beyond eyes. Second segment of antenna twice the length of first.

Light green turning to yellow or light stramineous after death; a longitudinal black line on both segments of the antennae.

The genital styles subulate, slightly curved in middle and recurved at apex.
Female. Length 2.9 mm.; tegmen 3.9 mm. Similar to male.

A long series of both sexes and young on rice and rice grass from Blairmont, B. G., September, 1923. Type No. 1192. The genital styles of this species are quite distinct from those of *S. saccharivora* (Wester), Fig. 29.

28. *Saccharosydne gracillis* sp. n.

Male. Length 3.3 mm.; tegmen 4.3 mm.

Female. Length 4 mm.; tegmen 5 mm.

In build and color this species is similar to *S. viridis*, but the male genitalia are close to *S. brevirostris*. From the latter it can easily be recognized by the length of the head.

Two males and five females from City of Rio de Janeiro, March, 1924, off rank grass on the sides of Corcovado. There are also two females from Campinas and two from Villa Americana which are placed with this species, but not included in the type material. Type No. 1194.

29. *Saccharosydne brevirostris* sp. nov. Fig. 27.

Male. Length 2.5 mm.; tegmen 3 mm.

Length of vertex 1.3 times the width at base, base 1.4 times the width at apex; the inverted V shape carina reaching apex of vertex, but there is no sign of a Y shape carina on basal portion; vertex projecting very slightly beyond eyes. Length of frons twice the width, sides slightly arcuate. Antennae short, reaching to base of clypeus, second segment not quite twice the length of first segment.

Light green, turning to yellow or light stramineous after death; tegmina hyaline, light green, veins light green, a dark mark down both segments of antennae, dark round the ocelli.

The genitalia are of the same type as *S. saccharivora*, but the genital styles are distinct; little more than basal half is wide, subparallel sided, the apical portion narrow, being deeply excavate on the outer margin.

Female. Length 3 mm.; tegmen 3.8 mm.

In build and color similar to male.

Described from three males and two females and four young from Napo, Ecuador, April, 1923, on a grass on shore of river.

This species has the carinae of vertex different from other species and approaches *Neomalaxa*. Type No. 1193.

30. *Saccharosydne ornatipennis* sp. n. Fig. 28.

Male. Length 3 mm.; tegmen 4 mm.

Length of vertex 3.3 times the width at base, base twice the width of apex, apex rounded; three-fifths of vertex projecting beyond eyes; frons correspondingly long and narrow, in lateral view concave. Antennae reaching base of clypeus, second segment twice the length of first.

Bright green when alive, turning yellow after death; a dark mark along both segments of antennae, the apical portion of median carina of vertex and the basal portion of median carina of frons dark. Tegmina hyaline, greenish, veins light; dark fuscous over the apical cells from apical R to apex of clavus, with a hyaline mark at apex of each of the five cells, the veins in this dark area dark; wings hyaline, the apices of vein slightly fuscous. The genital styles short, broad to near apex then suddenly narrowed, the outer margin sinuate on basal three-fourths then deeply emarginate.

Female. Length 4 mm.; tegmen 4.6 mm. In build and color similar to male.

Described from 23 males and 16 females from Rezende, Estado do Rio de Janeiro, Brazil, February, 1924, off of grass, and one male from Campinas, Brazil, March, 1924. Type No. 1195.

Dr. Williams remarks as follows in his field notes on this species. "On *Paspalum intermedium* Munro, a tall, rather loosely branched grass, the inflorescence far over one's head, a long-nosed green delphacid is numerous, resting on the dorsal

surface of the leaves where the filamented whitish young and the embedded froth-topped eggs also occur. This insect has the tegmina curiously upturned at their tips (from the nodal line) where there are also some black margins; in fact this is all one can well see at first of this otherwise green adult as it rests on the green leaf."

This is the most distinctive species of the genus and the only one, as far known, with a pattern on the tegmina. Several of the dried specimens have the upturned tegmina described by Dr. Williams.

Neomalaxa Muir

31. *Neomalaxa flava* Muir.

This species was described from Porto Rico where it has been taken on *Commelina elegans*. There are long series from Trinidad, July, 1923; Blairmont, B. G., September, 1923; Rio de Janeiro, March, 1924; Tena, Ecuador, February, 1923; Napo, Ecuador, February, 1923. These series consist of both sexes and young and were breeding on succulent grasses.

Euidella Puton

Euidella

32. *Euidella guadae* sp. n. Figs. 30, 31.

Length 2.7 mm.; tegmen 3.5 mm.

The lateral pronotal carinae reach the hind margin and the medio-frontal carina is not forked, otherwise this species conforms to the generic characters.

Stramineous, abdominal sternites brown. Tegmina and wings hyaline with stramineous veins which are darker at the apex.

Opening of pygofer round; anal emargination shallow, anal angles obsolete, margins entire; diaphragm produced into a deep keel down the middle. Anal segment short, broad, without armature. Genital styles in full view small, thin, arcuate, with the apices slightly enlarged; in lateral view sinuate on outer margin and deeply emarginate in middle of inner margin. Penis tubular, curved, largest at base; from the base of penis (periandrium?) arise two spines, one as long as the penis and slightly flattened, the other smaller than the penis and subulate.

Female. Length 3.5 mm.; tegmen 4.4 mm.

Same as male but the veins of tegmina darker, and at the apex fuscous and slightly extending into membrane.

Described from four males and twenty-one females from Bucay, Ecuador, elevation, 1,000 feet, off of a large bamboo (*Guadua* sp.). Type No. 1197.

33. *Euidella elegans* sp. n.

Female. Length 4 mm.; tegmen 5 mm.

The lateral pronotal carinae slightly convergently curved towards the hind margin which they do not quite reach. Antennae reaching to near middle of clypeus, second segment longer than first. Spur thin, concave on inner surface, with numerous minute teeth on hind margin.

Brown, darker over mesonotum. Tegmina hyaline, whitish with dark brown or black markings, a small dot at apex of clavus, a crescent shape mark from node over nodal line and posterior and apical portion of tegmina, with four white spots, one in each apical cell, the apical R also fuscous; veins same color as membrane, granules minute. Wings hyaline with brown veins.

Described from four females from Tena, Ecuador, on large bamboo (*Guadua* sp.). Type No. 1196.

In the absence of males this species is separated from *blairmontensis* by its larger size and the color markings on the tegmina.

34. *Euidella blairmontensis* sp. n. Fig. 32.

Male. Length 2 mm.; tegmen 3 mm.

Lateral pronotal carinae slightly divergingly curved, not reaching hind margin; median frontal carina forked near base. Antennae reaching to near middle of clypeus, second segment distinctly longer than first. Tibial spur thin, concave on inner surface, with many small teeth on hind margin.

Dark brown, legs lighter. Tegmina hyaline, slightly whitish, a brown mark from base over bases of Sc + R, M and Cu reaching about middle of clavus, a small brown spot near apex of clavus, a dark brown or black crescent shaped mark from node over nodal line and along the hind and apical margins, with four small white marks, one in apical margin of each apical cell, the apex of R fuscous; veins same color as membrane except the cross veins on nodal line where they are yellow on the black membrane.

Opening of pygofer round; anal emargination shallow, broad, anal angles obscure, margins entire; diaphragm raised along the middle. Anal segment short, broad, without armature. Genital styles in full view arcuate, narrow; in lateral view very much as in *E. guadae*. Penis tubular, slightly flattened apically, thin, curved; a biforked spine arises from middle of left side and a smaller, simple spine slightly basad of that; from the base arises a spine nearly as long as the penis, with a barb at apex.

Female. Length 3 mm.; tegmen 3.8 mm.

Similar in color to the male.

Described from one male and three females from Blairmont, B. G. (October, 1923), off of a dwarf bushy bamboo in the forest. Type No. 1195.

The male genitalia of this species show close affinities to those of *E. guadae*.

35. *Euidella altamazonica* sp. n. Fig. 33.

Male. Length 2.5 mm.; tegmen 3.6 mm.

Width of vertex slightly greater than length, apex slightly curved, base straight, subequal in width, the carinae at apex somewhat obscure; length of frons 1.7 the width, sides slightly arcuate, median carina simple, obscure at base; antennae reaching a little beyond base of clypeus, first segment much longer than wide, second nearly twice the length of first; lateral pronotal carinae divergingly curved posteriorly, not reaching hind margin. Hind basitarsus longer than the other two together, spur not so long as basitarsus, thin, subtegmentiform, with about 24 small teeth on hind margin.

Brown, darker over mesonotum, the median carina on pronotum and mesonotum light. Tegmina hyaline, brownish over clavus and Cu cell to cross veins, beyond that fuscous over M to apex, veins same color as membrane; wings hyaline with brown veins.

Opening of pygofer about as broad as long, anal emargination wide, shallow, anal angles obscure; diaphragm ill-defined, chitinous in middle; anal segment median size, without armature. Genital styles in lateral view shown in Fig. 33; in full view similar to those of *Euidella guadae*. Penis bent ventrad to about a right angle in middle, the basal half slightly flattened laterally, wide, apical half subtubular, thinner, orifice at apex; on the left side in middle it is produced into a thin, wide process, the dorsal margin curved with irregular, minute serrations, the ventral margins much less curved, apex pointed; from the base arises a thin, curved spine not reaching quite to apex of penis.

Female. Length 3.6 mm.; tegmen 4.8 mm.

Similar in color to male.

Described from three males and two females from Felton's, Napo, Pano river, Ecuador, 2,000 feet elevation (April 5, 1923) on a slender bamboo. This species comes near to *blairmontensis* and *guadae*. There are two females from Bucay and one from Tena which are close to the above but which the writer refrains from naming. Type No. 1184.

Euidelloides g. n.Type *Euidelloides montana*.

Vertex broader than long, base broader than apex, a curved carina divides frons from vertex, but there are no carinae on vertex, base slightly sinuous; in dorsal view frons projecting slightly in front of vertex. Length of frons about twice the width, sides slightly arcuate, slightly broadest in middle, median carina simple. Antennae reaching to near middle of clypeus, second segment about 1.5 times the length of first, first

longer than broad. Clypeus tricarinate, in profile slightly curved. Pronotum tricarinate, lateral carinae straight, diverging posteriorly, not reaching hind margin. Mesonotum tricarinate. Hind basitarsus longer than other two together; spur not as long as basitarsus, thin, median size, teeth on hind margin.

This genus is near to *Euidella*, but the absence of carinae on the vertex is quite distinctive.

36. *Euidelloides montana* sp. n. Figs. 34, 35.

Male. Length 3 mm.; tegmen 5 mm.

Stramineous; tegmina hyaline, slightly stramineous, cross veins and apical veins slightly fuscous, granules small, fairly numerous, a small dark mark at apex of clavus; wings hyaline, veins fuscous.

Opening of pygofer longer than broad; anal angles produced into an acute projection, medio-ventral margin produced into a small quadrate plate with its apex slightly emarginate; anal segment without armature, a small band of chitin at base connecting it with aedeagus. Genital styles small, broadest at base, gradually narrowing to apex, curved. Penis tubular, curved, irregular, largest at base, gradually narrowing to apex, a small spine near apex and two small blunt projections a little before apex.

Female. Length 3.5 mm.; tegmen 5.4 mm.

Similar to male, the veins in apical area of tegmen not so dark.

Described from one male and five females from Mt. Tunguragua, Ecuador, elevation 10,000 feet (January 4, 1923), on alpine solid-stem bamboo (*Chusquea* sp.). Type No. 1251.

Neoperkinsiella g. n.

Vertex considerably wider than long, base a little wider than apex, Y carina distinct, the fork short; length of frons double the width or more, sides slightly sinuous, width at base equal to width at apex, median carina with small fork at extreme base which is visible in dorsal view, carina across gena distinct; clypeus tricarinate, in profile slightly curved; basal segment of antenna flattened, especially on inner half, which is roundly produced for two-thirds from base, apex subtruncate with arista in middle, sense organs large. Lateral pronotal carinae convergingly curved posteriorly, reaching hind margin; mesonotum tricarinate. Hind basitarsus longer than other two together, spur large, thin, concave on inner surface, with many small, distinct teeth on hind margin. R touching M 1 + 2 and Cu touching M 3 + 4 for short distance.

This is the western representative of the eastern *Perkinsiella*, but it can be recognized by its longer frons, the very short fork to the median frontal carina and by the lateral pronotal carina. The male genitalia are also very distinct and it is quite possible that there is no close phylogenetic connection. The spur places it in the Delphacini, whereas the spur of *Belocera* Muir has no spines on the hind margin and is fairly thick and must go into the Tropidocephalini; it is near to *Stobacra*, but that genus has the spur of Alohini.

Type *N. williamsi*.

37. *Neoperkinsiella williamsi* sp. n. Figs. 36, 37, 38.

Male. Length 2.7 mm.; tegmen 4 mm.

Light brown, a light band across genae and frons from antenna to antenna, slightly broken on frons; a light mark across apex of frons, median carina on pronotum and mesonotum light; legs with slightly fuscous bands; tegmina fuscous yellow, a lighter area from Sc + R fork to apex of M 1 and 2, a small fuscous spot on commissure at apex of claval vein, one at apex of each apical vein, veins light with distinct light granules; wings hyaline with brown veins.

Opening of pygofer longer than wide, anal angles obscure, anal emargination large, not well defined from lateral margin, margins entire; diaphragm fairly long, the middle longitudinally produced into a thin flange or keel which, in lateral view, is produced into an acute spine; anal segment fairly large, without armature, produced slightly on ventral

surface before apex; penis flattened laterally, bent ventrad at right angle in middle, in lateral view angular on dorsal margin, roundly curved on ventral margin, widest at base and at middle, orifice at apex, on left side from the dorsal margin at the angle a small flange or keel runs across, and slightly distad, to ventral margin; on the left side a long, thin spine arises from the basal ring (periandrium?), sharply bent in middle, broadest at base and gradually narrowing to acute apex; this appears to fit up against the flange on the left side of penis. Genital styles in full view nearly straight, fairly narrow, sides subparallel, the apex subtruncate, the outer angle produced into a spine which is turned inward.

Described from two males from Tena, Ecuador (April 20, 1923). Type No. 1182.

38. *Neoperkinsiella guaduae* sp. n. Figs. 39, 40.

Male. Length 3.3 mm.; tegmen 4.5 mm.

This species differs from the genotype in having the antennae longer, reaching beyond the middle of the clypeus, the basal segment being longer; in profile the clypeus is much more curved; the vertex does not project so far in front of eyes, the transverse carinae of vertex is at the apex in dorsal view. The hind basitarsus is longer than the other two together, the spur about as long as basitarsus, thin, large, concave on inner surface or subectiform, distinct small teeth on hind margin; apex of tegmen pointed.

Brown, a light band from antenna to antenna across frons and another light mark across apex of frons, tibiae with slight fuscous bands; the carinae of pronotum and mesonotum light; the mark across frons and genae continued on pronotum; the lateral margins of pronotum light. Tegmina fuscous brown with a light hyaline area from fork of Cu to apex of M 3 and 4 apical veins; veins same color as membrane with similarly colored granules; wings hyaline with brown veins.

Opening of pygofer longer than broad, anal emargination large, anal angles obscure, margins entire, the lateral margins with some long hairs, diaphragm membranous, without armature; anal segment short, latero-ventral margins produced into large, flat processes with rounded apex which bears six stout spines. Genital styles in full view reaching to anal segment, fairly narrow, inner margin entire, slightly concave, outer margin sinuate, widest near apex, a small ridge runs across from apex to outer margin and is produced into a spine. Penis long, thin, tubular, curved dorsad, large at base, a spine arises from near apex which is membranous and bears the functional orifice.

Described from one specimen from Mera, Ecuador (February 2, 1923), on *Guadua* sp. The genitalia of this species are very different from *N. williamsi*, but they are best placed together. Type No. 1183.

Phyllodin Van Duzee

Phyllodin

39. *Phyllodin* *neotropicus* sp. n. Figs. 41, 42.

Male. Brachypterous; length 1.8 mm.; tegmen .7 mm.

Head very slightly narrower than pronotum; vertex broader than long, apex slightly broader than base, base behind middle of eyes, distinctly wider than eye on same line; frons slightly longer than wide, median frontal carina forked about middle, fork very obscure; antennae reaching about middle of clypeus, first segment about as long as wide, second slightly more than twice the length of first. Lateral pronotal carinae diverging posteriorly, not reaching hind margin. Hind basitarsus about as long as other two together, spur not as long as basitarsus, wide, thin, with about ten or eleven uneven teeth on hind margin. Front and middle femora and tibiae distinctly flattened.

Dark brown, a line across apex of frons; the apex of clypeus, the apices of tibiae and the tarsi light, nearly white or dirty white. Tegmina brown with a light mark on costal margin at apex of costal cell.

The ventral margin of the pygofer produced into three processes, a small median and larger laterals, with rounded apices, behind (or on the inner side of) the laterals arise two long, slender, acute spines reaching nearly to the ventral surface of the anal segment. Diaphragm membranous, long, without armature. Anal segment with two long, strong spines reaching to apices of the medio-lateral processes of ventral margin; from the middle of the ventral wall of the anal segment there arises a small, membranous process. Penis subcylindrical in lateral view, fairly thin, slightly curved ventrad, orifice at apex; from dorsal surface near apex arise three long, thin, curved spines, two on the right side and one on the left; one of the spines on the right side is flat and fairly wide on basal two-thirds.

Described from a single male from Tena, Ecuador (March 16, 1923). Type No. 1187. This belongs to the *Phyllodin* *nitens* group of species and by its genitalia it comes near to *Pissonotus dorsalis*.

Pissonotus Van Duzee

All these → *Evides*

40. *Pissonotus belemensis* sp. n. Figs. 43, 44.

Male. Brachypterous; length 2.6 mm.; tegmen .9 mm.

Similar to *P. braziliensis* in build, spur with about 25 teeth. Fuscous brown, carinae of head and thorax slightly lighter, abdomen darker brown. Tegmina brown, shiny, with lighter veins and margins, apex truncate.

Opening of pygofer longer than broad, anal emargination large, anal angles rounded and slightly produced, margins entire; diaphragm long, the middle elevated in a cordate shape process with the apex produced into two acute spines curved dorsad. Anal segment fairly large with two small, inwardly curved spines at base on ventral aspect. Penis thin, tubular with the base expanded in a similar manner to that found in two preceding species. There is no spine at apex, but it is possible that the only male in the collection has the apex broken off, as it is irregular. The genital styles are long, the inner margin straight on ventral half or two-thirds and convex on apical portion, the outer margin convex on apical portion and nearly straight on basal; the apical portion is curved outward in a manner best understood by the figure.

Female. Brachypterous, length 2.6 mm.; tegmen .9.

The frons and vertex darker fuscous, the tegmen with more distinctly lighter veins and the abdomen with three lighter lines on dorsum.

Described from one male and one female from Belem, Brazil (June, 1924). Type No. 1191.

41. *Pissonotus braziliensis* sp. n. Fig. 45.

Male. Brachypterous; length 2.6 mm.; tegmen .9 mm.

Width of vertex at base greater than length, base at middle of eyes, subequal to width of eye on same line. Length of frons twice the width, sides slightly arcuate, fork of median carina about middle of eyes; antennae reaching middle of clypeus, first segment much longer than wide, second longer than first. Lateral pronotal carinae straight, diverging posteriorly, reaching hind margin. Hind basitarsus slightly longer than other two together; spur as long as basitarsus, thin, broad, with about 18 to 20 small teeth on hind margin.

Head, antennae, legs and ventral surface of thorax light brown, thorax darker brown between carinae, broadly light brown over carinae; abdomen dark brown with a thin median line on dorsum and the pleura light. Tegmina brown, shiny, light on costa, apical margin and commissure, veins slightly lighter than membrane; the margins, especially the costa, elevated.

Opening of pygofer slightly longer than wide, pear shape, anal emargination fairly large, anal angles rounded, curved inward, margins entire. Diaphragm median length with large, anal angles rounded, curved inward, margins entire. Diaphragm broadly U shape. Anal a small projection in middle on dorsal margin, dorsal margin broadly U shape. Anal segment fairly large, unarmed. Genital styles long, broadest on apical half, inner margin very slightly concave, outer margin convex on apical half, straight on basal half, apex with the inner angle produced and turned outward in front of apex, the broader apical half of style slightly excavate. Penis similar to *P. equadorensis*, but thicker and shorter, the spine being nearer to the apex.

Female. Brachypterous; length 2.7 mm.; tegmen .9 mm. Similar in color and build to the male, but with a lighter, broken latero-median line on abdominal dorsum.

Described from one male and three females from Rezende, Brazil (February, 1924), two males from Baños (January, 1923), and one from Mera, Ecuador (February 2, 1923). Type No. 1191.

42. *Pissonotus equadorensis* sp. n. Figs. 46, 47.

Male. Brachypterous; length 2.2 mm.; tegmen .9 mm.

Length of vertex equal to width at base, apex projecting slightly before eyes, base slightly in front of the middle of the eyes, slightly wider than eye on same line. Length of frons twice the width, sides very slightly arcuate, median carina forking slightly be-

yond base, the fork obscure. Antennae reaching to about middle of clypeus, first segment much longer than wide, second segment slightly longer than first. Lateral pronotal carinae straight, diverging posteriorly, reaching hind margin. Hind basitarsus longer than other two together, spur about as long as basitarsus, wide, thin, about twenty small teeth on hind margin. Tegmina truncate at apex.

Brown, fairly shiny; darkest on pronotum, mesonotum, coxae and abdomen, light on abdominal pleura and a broken median and two submedian lines of abdominal tergites. Tegmina shiny brown, lightest on clavus, veins same color as membrane, distinct, a few granules.

The genitalia are best studied from the figures. The armature of the diaphragm in the form of a production in middle of the dorsal margin, the sides sinuous, the apex slightly emarginate.

Female. Brachypterous; length 2.5 mm.; tegmen .7 mm.

Similar to male in color and build.

Described from four males and one female from Tena, Ecuador (March 16, 1923). There is also one male 1.8 mm. long with tegmen .6 mm. long which only differs in the genitalia in the armature of the diaphragm which in outline is subconical with a small emargination at apex. Type No. 1189.

Kelisia Fieber

PHYLLOPSYSA
or PEGOSPINA

The nine species included under *Kelisia* while not strictly typical are best placed therein. They are too broad and the vertex not long enough to fit into *Sogata*. In spite of the difference in the male genitalia they appear to the writer to be a monophyletic group closely related, in which the phallic evolution has proceeded much more rapidly than the chrootic.

43. *Kelisia graminicola* sp. n. Figs. 48, 49.

Male. Macropterous; length 2.4 mm.; tegmen 2.9 mm.

Length of vertex a little greater than width at base, base a little broader than apex, base wider than eye on same line, head subequal to thorax in width. Length of frons nearly twice the width, apex slightly broader than base, sides slightly arcuate. Antennae reaching to base of clypeus, first segment very slightly longer than broad, second segment about twice the length of first. Lateral pronotal carinae straight, diverging posteriorly, reaching hind margin or very nearly doing so. Hind basitarsus longer than other two together, spur almost as long as basitarsus, thin, tectiform, about 18 teeth on hind margin. A fairly flat form with tegmina not greatly tectiform, or widely tectiform, which appears to be between *Kelisia* and *Sogata*.

Stramineous; head between carinae black, two black lines between carinae of pronotum and mesonotum, a thin black line near the lateral margins of pronotum, an irregular dark mark on pronotum behind eyes, the lateral portion of mesonotum brownish, a dark line on pleura; abdomen dark brown on dorsum, stramineous with darker marks on sternum, pygofer fuscous. Tegmina hyaline, fuscous over clavus and over media to cross veins, spreading out to cubitus and nearly to Sc + R, apical veins fuscous spreading out into membrane, commissure white, veins same color as membrane. Wings hyaline, opalescent, with brown veins.

Opening of pygofer a little longer than wide (the one figured had been cleared and slightly distended), lateral margins irregularly and finely serrated, medio-ventral margin produced into a small process; anal emargination large, anal angles large, fairly acute and curved inward; diaphragm fairly long, ventral margin with two shallow emarginations forming a small point in middle. Anal segment short, produced into two spines on ventral margin. Penis tubular, in lateral view sinuate, orifice at apex. Genital styles long, flat, fairly narrow, margins subparallel, very slightly sinuous, apex subacute and bent back (figures do not show this well except in lateral view).

Female. Macropterous; length 2.8 mm.; tegmen 3.3 mm. In build and color similar to the male.

Described from eleven males and ten females from Villa Americana, Brazil (February, 1924), taken breeding on a fairly large grass. In some females the infuscation in apical cells is reduced to small marks at apices of apical veins. The

nymph has the first segment of antennae broader than long, and two carina on frons, which appear to be general with Delphacidae. Type No. 1154.

44. *Kelisia vittata* sp. n. Figs. 50, 51.

Male. Macropterous; length 2.5 mm.; tegmen 3 mm.

In build similar to *K. graminicola*; the vertex slightly wider in comparison, with the apex subequal to base in width. Spur with 25 to 30 small teeth.

In color also very similar to *K. graminicola*, but the dark lines over pronotum and mesonotum lighter in color and wider, including the lateral mesonotal carinae. Tegmina hyaline, the posterior half, covering the clavus, cubitus up to the media, brown or fuscous brown; a fuscous mark at apices of the apical veins; commissure white. Abdomen light brown.

Opening of pygofer wider than long, round, shallow, lateral margins entire, medio-ventral margin slightly emarginate with a single small projection in the middle; anal emargination large, shallow; anal angles rounded, projecting but slightly; the diaphragm is fairly long, the dorsal margin is sinuous, forming two rounded lobes, the middle slightly raised from dorsal margin to orifice, the ventral margin of orifice being also sinuous. Anal segment short, distinctly divided into two segments (tenth and eleventh abdominal), the eleventh being comparatively well chitinized; the basal (tenth) segment is produced into a bilobed body in the middle of its basal, ventral margin; the anal style is large, flat, slightly wider at apex than at base, the apex obliquely truncate and serrated, the right furcation tubular, thin, thicker at base than at apex; near the apex there is a circle of small spines, orifice at apex. Genital styles flat, broadest on basal half or two-thirds, then gradually narrowing to apex which is subacute, in situ the apical third slightly curved, but in flat view this is much straighter.

Female. Macropterous; length 2.9 mm.; tegmen 3.7 mm. In general build and color similar to male.

Described from four males and three females from Campinas, Brazil, March, 1924, and one male from Villa Americana, February, 1924, taken on grass. Type No. 1155.

45. *Kelisia rezendensis* sp. n. Figs. 52, 53.

Male. Macropterous; length 2.5 mm.; tegmen 3 mm.

Vertex very slightly longer than width at base, apex narrower than base, base subequal to width of eye on same line. Spur with 20-21 teeth on hind margin.

Stramineous, a fuscous line between carinae of frons, a slight fuscous mark near lateral margins of pronotum, a light line down middle of vertex, pronotum and mesonotum. Tegmina hyaline, slightly stramineous, commissure white, veins same color as membrane, a small fuscous spot at the apex of each of the six apical veins. Wings hyaline, veins slightly stramineous.

Opening of pygofer about as long as wide; anal angles obscure so that extent of anal emargination ill defined, margins of pygofer round and ill defined, about the middle the lateral margins produced into a small angular process, medio-ventral margin also produced into a small process with rounded apex. Anal segment long, from the medio-ventral margin of the apex arises a single, stout, slightly curved spine with acute apex. Genital styles, thin, slightly broadened and curved on apical third, apex rounded. Penis flattened laterally, broadest at base in lateral view, narrowing to acute apex, margins sinuate, orifice on dorsal aspect before apex.

Described from one male from Rezende, Brazil (March, 1924). Type No. 1160.

46. *Kelisia escaedensis* sp. n. Figs. 54, 55.

Male. Macropterous; length 2.4 mm.; tegmen 3.3 mm.

In general build similar to *K. graminicola*; the vertex slightly wider than long and the base slightly wider than the apex. Spur with 15 teeth.

Light stramineous, darker or more yellowish between the carinae of head and thorax. Tegmina hyaline, slightly stramineous, veins lighter than membrane, a series of eight fuscous marks on apical margin, one at apex of each apical vein. Wings hyaline, slightly opalescent, veins light.

Opening of pygofer about as long as wide, anal emargination large, anal angles rounded, not produced, the middle of lateral margins produced into an acute angle, medio-ventral margin produced into two small pointed processes or spines. Anal segment produced into two small, obtuse spines on medio-ventral margin. Penis in lateral view bent at middle at about 80°; subtubular or slightly flattened laterally, largest at base decreasing gradually to subacute apex, orifice at dorsal aspect of apex, a few small spines on the sides of the apical portion. Genital styles like the head of a long-necked bird, the beak on inner margin at apex, a small, curved process on the head.

Female. Macropterous; length 3 mm.; tegmen 3.7 mm. Similar to male in build and color.

Described from one male, one female and one specimen without an abdomen from Escade, Brazil (April, 1924), on grass. There are two other females from the same locality with infuscation along M and over M apical cells, which I do not include in the type material, and four females from New Amsterdam, B. G., that are typical in color and build, which I also do not include in the type material until we have a male from that locality. Type No. 1156.

47. *Kelisia fuscovittata* sp. n. Figs. 56, 57.

Male. Macropterous; length 2.6 mm.; tegmen 4 mm.

This differs from *K. graminicola* by having the vertex a little longer and the base only slightly wider than the eye on the same line. The spur has from 25 to 27 teeth.

Stramineous; a fuscous line between the carinae of the frons and clypeus; yellowish between the carinae of pronotum and mesonotum, slightly fuscous on pronotum behind eyes and a thin fuscous line near lateral margins of pronotum. Tegmina hyaline, a fuscous line from base to apex over Cu cell and M 3 and 4, this line faint on basal portion and on posterior border, the tegmen posterior to it (Cu cells and clavus) slightly infuscate; each of the eight apical veins with a fuscous mark at apex; veins same color as membrane. Wings hyaline with slightly fuscous veins.

Opening of pygofer a little wider than long, anal emargination large, anal angles slightly rounded, distinct but not produced, lateral margins entire, medio-ventral margin produced into a median process considerably longer than broad, sides sinuate, broadest at base, gradually narrowing to apex where it is slightly widened, apex with a wide V emargination making it bifurcate; diaphragm medium length, dorsal margin with a U emargination in middle and a deeper rounded emargination on each side, the U emargination slightly thickened and produced, slightly keeled down the middle. Anal segment fairly large with two short, broad spines on ventral surface near apex, their bases far apart. Genital styles in situ with inner margin deeply and roundly concave on apical half, slightly convex on basal half, outer margin slightly convex on apical half and concave on basal half, broadest on basal half, apex obliquely truncate, narrow; in flat view they are more acute at apex and the margins straighter. Penis thin, subtubular slightly decreasing to apex, a small, serrated ridge down dorsal aspect, a few small spines near apex, the orifice on ventral aspect of apex.

Described from two males from Rezende, Estado do Rio de Janeiro, Brazil (February, 1924). Type No. 1157.

48. *Kelisia occidentalis* sp. n. Figs. 58, 59.

Male. Brachypterous; length 1.9 mm.; tegmen 1.9 mm.

Vertex about as long as width at base, apex slightly narrower than base, base wider than eye on same line. Spur with 22 spines on hind margin. Otherwise this is similar to *K. graminicola*.

Stramineous; fuscous between carinae of frons and clypeus, the lines between carinae of pronotum and mesonotum broad, brown or dark stramineous; abdomen fuscous. Tegmina hyaline, slightly stramineous over M, darker and spreading out into membrane on apical veins, commissure white; the apical area is short. Wings rudimentary.

Opening of pygofer wider than long (the one figured is from a cleared specimen and is wider than normal), the anal emargination large, anal angles distinct but not produced, lateral margins entire, medio-ventral margin produced into a long, slender process reaching to anal segment, the apex bifurcate, the furcations slightly curved, with the penis between them when at rest; diaphragm very short, middle of dorsal margin with a deeply U shaped emargination, a deeper and rounded emargination on each side, leaving two large, truncate topped processes between, the U emargination slightly produced; orifice large, the

ventral margin produced into two rounded processes. Anal segment fairly large, the apico-ventral margin produced into a broad, bilobed process. Penis straight, tubular, slightly constricted before apex, apex covered with small spines, more numerous near constriction where they form a small, raised process. Genital styles in flat view slightly concave on inner margin and convex on outer, flat, gradually narrowing to subacute apex. Female. Brachypterous; length 2.7 mm.; tegmen 2.5 mm. In build and color similar to the male.

Described from six males and twelve females from Tena, Ecuador (March 21, 1923), taken on grass. There are also nine nymphs which all have the basal joint wider than long and two medio-frontal carinae, which characters appear to be characteristic of all the nymphs of Delphacidae; the spur has a number of teeth. Type No. 1158.

49. *Kelisia curvistilus* sp. n. Figs. 60, 61.

Male. Macropterous; length 2.5 mm.; tegmen 3.3 mm.

Vertex slightly longer than wide, apex slightly narrower than base, base wider than eye on same line. Spur as long as basitarsus with 17 to 19 teeth.

Light orange, the middle carinae of vertex and nota lighter. Tegmina hyaline, slightly yellowish, veins same color as membrane, a small fuscous spot at the apex of each of the eight apical cells; wings hyaline, veins light.

Opening of pygofer longer than wide; anal emargination large; anal angles produced, broad, round, nearly encircling the anal segment; lateral margins entire; ventral margin produced into two large processes, flat, broadest at base where the margins are parallel for basal third, apical two-thirds curved, gradually narrowing to the pointed apex; in lateral view these processes are also curved. Anal segment short, a pair of stout, outwardly curved spines on medio-ventral margin. Genital styles subulate, curved. Penis flattened laterally, in lateral view widest at base gradually narrowed to apex, sinuate, curved ventrally at apex, serrated along dorsal margin from near apex to a little past middle.

The female I place with this species has the vertex slightly longer and narrower, thereby approaching nearer to *Sogata*, the middle of pronotum and mesonotum light.

Described from one male and one female from Rezende, Brazil (February, 1924). Type No. 1159.

50. *Kelisia urbana* sp. n. Figs. 62, 63.

Male. Macropterous; length 2.7 mm.; tegmen 3 mm.

Vertex about as long as broad, base subequal to apex in width, broader than eye on same line. Spur with 23 to 26 teeth on hind margin.

Light ochraceous, fuscous between carinae of frons and clypeus, lighter down middle of vertex, pronotum and mesonotum, slightly infuscate on pronotum behind eyes and along lateral margin.

Tegmina hyaline, posterior half from M to commissure yellowish, in apical cells slightly fuscous, commissure whitish, eight small fuscous spots on apical margin, one at apex of each apical vein. Wings hyaline with brown veins.

Anal emargination of pygofer large, the anal angles greatly produced and widely rounded; the middle of the lateral margins produced into a large, acute process. Diaphragm fairly long, dorsal margin sinuous, forming two rounded processes; the ventral margin of orifice produced into two long, slender processes with their apices slightly spatulate and turned outward at right angle to shaft, reaching to apex of the processes from lateral margin. Anal segment produced into a short pointed process on middle of ventral aspect at apex, anal style fairly large. Penis flattened laterally, in lateral view somewhat hatchet shape, basal half thin, then widening to apex which is broad and truncate, the orifice appears to be at the dorsal aspect at apex and there are three small teeth just basal of it. Genital styles long and comparatively narrow, inner margin nearly straight, outer sinuous, slightly broadened on apical half then narrowed to apex which is furcate.

Female. Macropterous; length 3 mm.; tegmen 3.6 mm. Similar to male, but slightly darker in color; the Cu, especially the apical portion, lighter than the surrounding membrane.

Described from one male and three females from the City of Rio de Janeiro, Brazil (March 7, 1924). Type No. 1162.

51. *Kelisia contorta* sp. n. Figs. 64, 65.

Male. Macropterous; length 2.2 mm.; tegmen 2.7 mm.

In build similar to *K. graminicola*. Vertex about as long as broad, base wider than eye on same line, apex slightly narrower than base, spur with 13 to 16 teeth on hind margin.

Ochraceous or stramineous, a whitish line through middle of vertex, pronotum and mesonotum, continued by the white commissure to apex of clavus. Tegmina hyaline slightly stramineous, the apical Cu and M 3 and 4 fuscous, eight small fuscous marks, one at apex of each apical vein. Wings hyaline with light brown veins.

Opening of pygofer wider than long; anal opening large, the anal angles produced, rounded; slightly basad of anal angle the sides produced into a long process, thick at base and tapering to fine point which is bifurcate; ventral margin entire. Diaphragm fairly long, dorsal margin considerably produced quadrately, the middle of the produced margin slightly emarginate; the ventral margin of orifice produced into two long, slender spines reaching half way to apex of genital styles; at the base of these spines the orifice is produced into two more or less rounded processes. Anal segment fairly large, the apical medio-ventral margin produced into a point which has two small points at apex. Genital styles long, slender, in lateral view sides subparallel, apical fourth curved at right angle to base, apex bifurcate, in full view slightly narrowed in middle. Penis flattened largely, in lateral view angulate in middle, apex wide gradually narrowing to base.

Female. Macropterous; length 2.7 mm.; tegmen 2.7 mm. Similar to male.

Described from thirteen males and seven females from Belem, Brazil (May, June, 1924), one male from Jabaty, Brazil (May, 1924), and one male and four females from Villa Americana, Brazil (February, 1924). Type No. 1161.

*Dicranotropis Fieber*52. *Dicranotropis pallidinervis* sp. n. Figs. 66, 67, 68.

Male. Brachypterous; length 3 mm.; tegmen 1.4 mm.

Vertex wider than long; frons twice as long as broad, fork of median carina about middle of frons nearly on a level with base of antennae; antennae reaching about middle of clypeus, second segment slightly longer than first. Lateral pronotal carinae strongly diverging posteriorly, not reaching hind margin. Hind basitarsus longer than other two together, spur as long as basitarsus, broad, thin, concave on inner surface, with many small teeth on hind margin; femora and tibiae somewhat flattened. Tegmina truncate at apex.

Dark brown, abdomen nearly black; tarsi, base of abdomen and a mark on abdominal pleura lighter. Tegmina dark brown with lighter veins.

The genitalia best understood from figures; anal segment without armature; dorsal portion of diaphragm membranous, lower portion produced into a large, dorsal pointing process, broad at base, the apex acute. The apical portion of genital styles excavate. The penis membranous on dorsal area, a strong spine near apex on left side, the right side produced angularly and membranous.

Female. Brachypterous; length 3.3 mm.; tegmen 1.4 mm.

Similar to male but with a broken, thin, light line down dorsum of abdomen.

Described from three males and one female from Rezende, Estado do Rio de Janeiro, Brazil (February, March, 1924). Type No. 1185.

53. *Dicranotropis brunnea* sp. n.

Male. Macropterous; length 3.7 mm.; tegmen 4.5 mm.

In build similar to *D. pallidinervis* but the median frontal carina is obsolete or semi-obsolete at fork.

Brown, darker over abdomen; tarsi, base of abdomen and spots on abdominal pleura lighter. Tegmina darker brown with veins of same color; wings hyaline, light brown with dark brown veins.

The chief differences in the genitalia are: the armature of the diaphragm, which is produced into a small spine at ventral edge overhanging the orifice; the small projection on the outer margin of genital styles near apex is larger; the penis is not expanded on the right side into an angular flange.

Female. Macropterous; length 4.3 mm.; tegmen 4.7 mm.

Described from one male and one female from northern Argentine (A. C. Jensen-Haarup, Coll.).

So far I cannot identify this species with any of Berg's. It is closely related to the preceding. Type No. 1186.

54. *Dicranotropis bipectinata* sp. n. Figs. 69, 70.

Male. Macropterous; length 2.3 mm.; tegmen 3.3 mm.

Vertex as long as broad, apex slightly wider than base, base about the middle of eyes; length of frons 1.7 times the width, sides slightly arcuate, broadest in middle; medio-frontal carina forked about one-third from base, the fork rather obscure; antennae reaching to base of clypeus, first segment longer than wide, second segment longer than first. Lateral pronotal carinae diverging posteriorly, slightly curved, not reaching hind margin. Spur thin, tectiform, hind margin turned in slightly, making it difficult to see the few minute teeth on hind margin. Pygofer flattened in full view, the margins folded in and anal emargination large, anal angles prominent, not produced; margins doubled in and flattened; diaphragm short, middle of dorsal margin slightly lipped. Anal segment large with two large, curved spines on ventral aspect with their bases wide apart. Genital styles furcate, the main prong slightly sinuous, gradually tapering to apex, the second prong arises about middle on the inner surface of the main prong and curved upward. Penis in lateral view curved, wide at base, ventral margin concave, dorsal margin convex, orifice long, occupying dorsal third of apex, the apex pointed and turned upward; from near middle on the medio-ventral surface arises two strong combs with fine teeth.

Very dark brown or black, antennae, carinae of head and pronotum brown and the lateral margins of pronotum light brown, legs light brown with longitudinal darker marks. Tegmina hyaline with brown veins, slightly fuscous over clavus and Cu cells, a dark brown mark on commissure at apex of clavus, rest of commissure whitish; wings hyaline with brown veins; abdomen dark brown.

Described from two males from Baños, Ecuador, 6,000 feet elevation (December 31, 1922), on sugar cane. On account of the short fork to the median frontal carina this species might be placed in *Delphacodes*, but the writer considers it best placed here. Type No. 1161.

Sogata Distant

All moved

55. *Sogata aurantii* (Crawford).

189021199

A long series from Tena, Ecuador, taken off a species of sedge, *Cyperus luzulae* Rottb. (February, 1923); a series from Blairmont, B. G. (September, October, 1923), and one from New Amsterdam, B. G. Formerly reported from Pará, Brazil, and Los Amates, Guatemala (as *Stenocranus hinci* Dozier).

56. *Sogata williamsi* sp. n. Fig. 71.

Male. Macropterous; length 2.5 mm.; tegmen 3.5 mm.

Vertex longer than width at base (1.4 to 1), base not quite as wide as eye on same line; length of frons twice the width in middle, sides slightly arcuate; basal segment of antennae slightly longer than broad, second segment twice, or slightly more, the length of first, reaching to base of clypeus. Lateral pronotal carinae straight, slightly diverging posteriorly, reaching the hind margin or nearly doing so. Spur thin, with twenty small teeth on hind margin.

Light ochraceous, carinae of thorax slightly lighter. Tegmina hyaline, slightly ochraceous, eight faintly fuscous spots on apical margin, one at apex of each apical vein. Wings hyaline with slightly ochraceous veins.

Opening of pygofer wider than long, anal angles obscure, making extent of anal emargination indefinite. Anal segment fairly large, the ventro-apical margin produced and emarginate, forming a small spine at each angle. Genital styles in full view flat, inner margin nearly straight, outer slightly sinuate, apex with inner angle fairly well produced and rounded, outer angle rounded, a spine arises slightly below the apex and curves inward. Penis thin, subtubular, sinuate, the apical portion having a number of irregularly placed spines.

Described from one male from Tena, Ecuador (March 16, 1923). Type No. 1163.

57. *Sogata braziliensis* sp. n. Figs. 72, 73, 74.

Male. Macropterous; length 2 mm.; tegmen 2.6 mm.

Length of vertex slightly more than 1.5 the width at base, base slightly wider than apex, and slightly wider than eye on same line; lateral pronotal carinae nearly straight, slightly diverging laterally, nearly or quite touching the hind margin. Antennae reaching to base of clypeus, first segment slightly longer than broad, second twice the length of first. Length of frons slightly more than twice the width, widest on apical half, margins slightly arcuate. Spur with about 20 small teeth on hind margin.

Frons, clypeus and genae between carinae dark brown or black, carinae yellow; vertex, middle and lateral portions of pronotum and middle of mesonotum yellow, other portions of nota brown; pleura and coxae brown; legs yellow or light brown; abdomen brown, yellowish over pleura. Tegmina hyaline, slightly stramineous over anterior half, slightly fuscous over posterior half, more especially in apical cells; veins same color as membrane, granules small, bearing fine, black macrotrichia.

Opening of pygofer slightly wider than long, round, margins entire, anal opening large, shallow, anal angles rounded, not produced; diaphragm median length, dorsal margin U shape in middle, the margin of the U thickened and produced. Anal segment fairly large with two large, curved spines from ventro-apical margin. Genital styles in full view flat, short, fairly wide, apical half of inner margin concave, basal portion straight, outer margin slightly sinuous, apex with inner angle slightly produced and subacute, outer angle rounded. When the style is seen at a slight angle the outer angle appears as if separated by a ridge. Penis tubular, in lateral view wider on basal half where the ventral margin is slightly produced, orifice at apex, some more or less irregularly scattered spines on apical half.

Described from two male specimens from Rezende, Estado de Rio, Brazil (February, 1924). Type No. 1164.

This species is near to *S. cubanus* (Crawford), but the genitalia are distinct.

58. *Sogata furcifera* (Horvath).

Sogatella koloplan

A long series of 132 specimens from Baños, Ecuador; Blairmont, New Amsterdam and Georgetown, B. G.; Belem, Jabaty, City of Rio de Janeiro, Campinas, Piracicaba, Rezende and Arapary, Brazil. This species has also been reported from Japan (type locality), South China, India, Amboina, Ceram, Fiji, Mexico, Florida, Cuba, Bermuda, Central America, Nigeria, Egypt and Seychelles. These are all macropterous. On the average the females are lighter than the males; except for a difference in shade, which may be due to immaturity, there is a constancy of color pattern. In the South American specimens the apex of genital styles is wide, a characteristic of the Western Pacific, American and African specimens.

59. *Sogata nautica* sp. n. Figs. 75, 76, 77.

Tagosodes

Male. Macropterous; length 1.8 mm.; tegmen 2.2 mm.

Length of vertex 1.7 times the width at base, apex subequal to base in width, eye a little broader than vertex on the same line; length of frons 2.7 times the width, base slightly narrower than apex, margins nearly straight; antennae reaching to base of clypeus, basal segment longer than broad, second segment double the length of first; spur thin, large with thirty teeth on hind margin. The medio-frontal carina forked at about the level of base of eye.

Frons and genae fuscous, the carinae light, clypeus stramineous; vertex stramineous; nota stramineous, pronotum behind eyes and lateral portion of mesonotum fuscous or brownish; legs yellow, coxae slightly brownish; dorsal surface of abdomen fuscous, ventral surface fuscous, pygofer dark brown. Tegmina hyaline, slightly stramineous, apical half of apical cells fuscous, veins same color as membrane, granules minute bearing fine, black macrotrichia, wings hyaline with light veins.

Opening of pygofer about as long as broad, anal emargination shallow, anal angles not prominent, rounded, margins entire, round; diaphragm short, the middle of the dorsal margin produced into a subquadrate process a little longer than wide. Anal segment fairly large, a pair of long, straight stout spines from ventro-apical margin. Genital styles with the apical half of inner margin deeply and roundly emarginate, basal half produced, straight, outer margin sinuate, apex obliquely truncate, inner angle considerably produced, outer angle rounded. Penis tubular, short, straight, in lateral view margins very slightly sinuate, orifice at apex.

Female. Macropterous; length 2.4 mm.; tegmen 2.6 mm.

Lighter in color than the male, the apical infuscation on apex of tegmen very faint.

Described from six males and three females from New Amsterdam, B. G. (August, 1923), found on grass floating in canal, and one male from Blairmont. There is also one nymph. There are also two brachypterous specimens which may be this species, but I do not include them in the type material. This species comes near to *S. approximata* (Crawford). Type No. 1165.

60. *Sogata orizicola* sp. n. Figs. 78, 79, 80.

Tagosodes

Male. Macropterous; length 2 mm.; tegmen 2.9 mm.

Length of vertex 1.6 times the width, apex as wide as base, base slightly narrower than eye on same line; length of frons twice the width, widest on apical half, sides slightly arcuate; antennae reaching to the base of clypeus, first segment longer than broad, second segment about twice the length of first; lateral pronotal carinae nearly straight, diverging posteriorly, reaching, or nearly reaching, the hind margin; spur large, thin, twenty-one teeth on hind margin.

In color very close to *S. nautica*, but the infuscation at apex of tegmen is confined to the apical cells posterior to M 3 + 4.

Opening of pygofer about as broad as long; sides entire, round, anal emargination shallow; anal angles obscure, rounded; diaphragm short, the middle of dorsal margin with wide U emargination with the margin thickened and slightly produced. Anal segment fairly large with a pair of large, strong spines from the apico-ventral margin. Genital styles in flat view flat, fairly broad, apical half of inner margin concave, basal half straight, outer margins very slightly sinuous, apex truncate, inner angle slightly produced, outer angle rounded. Penis tubular, slightly flattened laterally, in lateral view widest on basal half, an irregular double row of spines on left side from apical aspect near apex to ventral aspect about middle, orifice at apex.

Female. Macropterous; length 2.4 mm.; tegmen 2.7 mm.

The three females associated with the males are lighter in color, nearly uniformly stramineous, the tegmina showing the apical infuscation very slightly.

Described from ten males and two females from Blairmont, B. G. (September, October, 1923). Several of the specimens were taken feeding on rice.

This species comes near to *S. cubana* (Crawford), but the genitalia and color are distinct; from *S. nautica* it is distinguished by the genitalia and the apical infuscation of tegmen. Type No. 1166.

61. *Sogata anomala* sp. n. Figs. 81, 83.

Tagosodes

Male. Macropterous; length 2 mm.; tegmen 3 mm.

Vertex longer than wide (1.3 to 1), base and apex equal in width, base very slightly wider than eye on same line; length of frons twice the width, widest at middle, sides slightly arcuate, two longitudinal carina down middle passing over from vertex and ending slightly before apex and not joining together. Lateral pronotal carinae nearly straight, diverging posteriorly and not quite reaching hind margin. Spur large, thin, with twenty-two teeth on hind margin.

Clypeus, frons between median carinae, middle of vertex, pronotum and mesonotum, white or light yellow, lateral portions of frons and vertex, genae, pronotum behind eyes and lateral portions of mesonotum light brown; lateral portions of pronotum light; coxae and pleura brown, legs lighter, abdomen brown. Tegmina hyaline, the posterior half slightly stramineous, commissure white, veins same color as membrane, granules small, obscure; wings hyaline with light brown veins.

Opening of pygofer about as long as broad, anal emargination large, anal angles rounded, not produced, margins rounded, entire; diaphragm fairly long, dorsal margin thickened in middle and slightly produced, thickened down middle to orifice, thus forming

a thickened T. Anal segment fairly large with a pair of large, slightly curved spines with wide bases on ventro-apical margin. Genital styles in front view long, narrow, base slightly broader than apex, sides very slightly sinuous. Penis tubular, in lateral view slightly sinuous with base slightly larger than apex, orifice at apex, a fairly well defined row of spines along ventral aspect and some irregularly placed ones on sides and dorsal aspect on apical half.

Described from one male from Campos, Rio de Janeiro, Brazil (January, 1924).

The presence of two carinae on the middle of the frons would normally place this species into a new genus, but when we consider its close relationship to *S. cubana* (Crawford) which has the carinae forking some distance from base (a character also possessed by *S. nautica*) the writer does not consider it logical or expedient to erect a genus to contain it. Type No. 1167.

Megamelus Fieber

62. *Megamelus electrae* sp. n. Figs. 84, 85.

Male. Macropterous; length 3 mm.; tegmen 3.4 mm.

Length of vertex twice the width at base, apex slightly narrower than base; length of frons 2.5 times the width near apex where it is widest, sides slightly arcuate near apex, median carina forked at extreme base; antennae reaching to basal third of clypeus, second segment slightly longer than first. Lateral pronotal carinae straight, diverging posteriorly, reaching hind margin. Spur large, as long as basitarsus, wide, thin, with twenty small teeth on hind margin.

Pygofer of the typical *Megamelus* build, the ventral margin produced into three leaf-like processes, the lateral pair large, the middle one small; from beside these there is an outgrowth on each side which curves round dorsally and enfolds the larger portion of the pygofer; anal emargination large, anal angles fairly large and distinct; diaphragm short, the dorsal margin produced in middle into two small, thin processes. Anal segment large with two large spines from ventral aspect near middle. Genital styles long, narrow, straight, the apices curved inward. Aedeagus of an irregular form, irregularly tubular, narrowed at apex and base, orifice near apex on ventral surface, a pair of curved spines arising above the orifice; near middle of the dorsal surface there is a small, furcate projection.

Light brown, darker on pronotum behind eyes, and over mesonotum, which is darker on lateral portions, antennae and legs light brown, darker on pleura; abdomen dark brown. Tegmina hyaline, slightly opaque, veins light brown, fuscous over cross veins, apical portion of M 3 + 4 and Cu, and apical portion of M 1 and 2; a dark mark at apex of clavus; granules numerous, light, bearing small, black microtrichia; wings opaquely white with brown veins.

Described from one male from Belem, Para, Brazil (June, 1924), taken at light in hotel. Type No. 1168.

63. *Megamelus iphigeniae* sp. n. Figs. 86, 87.

Male. Macropterous; length 2.6 mm.; tegmen 3 mm.

In general build similar to *M. electrae*, the antennae slightly shorter. In color also similar to *M. electrae*, fuscous over basal cell, along M and Cu to apex of clavus, the fuscous mark over apical and cross veins a little more extensive.

Pygofer on the typical *Megamelus* plan with the two large outgrowths which enfold the greater portions of the lateral areas of the pygofer, the ventral margin produced into two large, flat bodies with rounded margins; anal segment large, slightly pointed on medio-ventral margin of apex, without spines or other armature; diaphragm without any armature on medio-dorsal margin. Penis thin, long, subtubular, with a long, curved spine from apex at right angle to penis. Genital styles long, narrow, straight, with the apex curved round.

Described from one male from Belem, Brazil (June, 1924), taken at light in hotel. Type No. 1169.

Delphacodes Fieber

Twenty-two species of the genus, the largest and most widely distributed of the family, are represented in the collections, thirteen of which are considered as undescribed. Of the species described as new, *paludicola* and *xerophila* are closely allied, and so are *saxicola* and *saccharicola*, but all four are very distinct from other American species; the remaining species are more or less related to other South and Central American (including Mexico) species. Among the nine previously known species there is the world-wide *propinqua*, otherwise only one has been taken within the United States. The exception is *humilis* which has been reported from Florida, but the writer has not seen the specimen.

64. *Delphacodes paludicola* sp. n. Figs. 88, 89.

Male. Brachypterous; length 2.3 mm.; tegmen .6 mm.

Width of vertex at base subequal to, or slightly greater than, length, base about middle of eyes, apex slightly produced in front of eyes; length of frons twice the width, lateral margins slightly arcuate, median carina simple or forked at extreme base. Antennae reaching slightly beyond base of clypeus, first segment longer than broad, second nearly twice the length of first, with a few large rings round sense organs. Spur thin, subtectiform, with medium size teeth on hind margin, length considerably less than basitarsus.

Opening of pygofer slightly longer than wide; anal emargination medium, anal angles rounded; lateral margins produced into an acutely angular process below the middle, a very small projection on medio-ventral margin. Diaphragm fairly long, dorsal margin U shape, slightly thickened in the middle, causing two parallel straight lines from the sides of the U emargination to near the foramen of diaphragm. Anal segment medium size, two stout, short spines from the ventral margin. Penis compressed laterally, in lateral view widest at base gradually narrowing to apex which is rounded, bent at right angles about middle, orifice at apex, with a row of a few spines near it, a lateral row of small spines on each side on apical half, the one on the right side the longer. Genital styles fairly large, in flat view widest at apex which is truncate, the inner angle being produced into a thin, curved, blunt spine, the out angle into a small angle; outer margin concave on apical half, slightly concave in middle and convex at base, inner margin convex on apical half, slightly concave at basal angle, widest at apex and narrowest in middle. The apex of genital styles is diagonal and when seen in situ appears perpendicular.

Dark brown to black, antennae and carinae of head lighter. Notum dark brown, pronotum lighter over carinae and in middle and slightly so on basal margin, mesonotum lighter over carinae and at posterior angle; legs lighter brown; abdomen dark brown or black. Tegmina barely reaching to middle of abdomen, dark shiny brown or black, margins thickened, especially the apical margin; costal and apical margins and middle of commissure whitish with a slightly fuscous mark in middle of apical margin.

With the exception of a slight difference in shade there is no variation in color of the series.

Female. Brachypterous; length 2.2 mm.; tegmen .7 mm. In build and color similar to male, but inclined to be lighter.

Female. Macropterous; length 2.2 mm.; tegmen 2.9 mm. In color similar to the brachypterous female, but the carinae of head and thorax not so light. Tegmina hyaline, slightly infuscate on basal half, more so over clavus, membrane of apical half inclined to a whitish opaque, veins dark brown, granules numerous, small, distinct. Wings hyaline with brown veins.

Described from ten brachypterous males, six brachypterous and four macropterous females from Baños, Or, Ecuador, elevation 6,000 to 7,000 feet, and one brachypterous male from Mt. Tunguragua, elevation 9,000 feet (December 28 and 31, 1922; January 1, 1923, and January 4, 1923). Taken on short grass in boggy places. Type No. 1144.

65. *Delphacodes xerophila* sp. n. Figs. 90, 91.

Male. Macropterous; length 2 mm.; tegmen 2.6 mm.

In general build similar to *D. paludicola*.

Dark brown; carinae of head and the antennae lighter brown, carinae of pronotum a little lighter, basal angle of mesonotum light, legs brown with the apices of tibiae and

the tarsi lighter, abdomen dark brown with light pleura. Tegmina hyaline with brown veins, slightly fuscous over base, granules small, distinct, numerous. Wings hyaline with brown veins.

The genitalia are closely allied to *D. paludicola*, the medio-ventral process is larger, the lateral margins not produced into such an acute process, the spines on anal segment are larger, the apices of genital styles (which are perpendicular when in situ) wider with the inner corner more produced. The penis in lateral view is bent at an angle near middle, the apical portion curved; on the dorsal aspect at the bend there is a crest of small spines, on the apical half there is a row of small spines on the right side and a more irregular one at the left, orifice on dorsal aspect of apex.

Female. Macropterous; length 2.5 mm.; tegmen, 3 mm.

The female which is considered as belonging to this species is similar in build and color to the male.

Described from two males and one female from Huigra, Ecuador, elevation 4,000 feet (May 31, 1923). Type No. 1145. This species is closely allied to, but quite distinct from, *D. paludicola*, and both are distinct from other *Delphacodes*.

66. *Delphacodes saxicola* sp. n. Figs. 113, 114.

Male. Brachypterous; length 1.8 mm.; tegmen 1.3 mm.

Vertex slightly broader than long, base slightly behind the middle of eyes, apex scarcely produced in front of eyes. Length of frons twice the width, sides slightly arcuate. Antennae reaching base of clypeus, first segment longer than wide, second longer than first. Tegmina reaching to apex of abdomen. Tibial spur as long as hind basitarsus, thin, concave on inner surface, minute teeth on hind margin.

Dark brown or nearly black, dull; apical segment of antennae and legs lighter brown, lateral portions of pronotum behind antennae and tegulae creamy white, margins of pygofer light, base of abdomen yellowish. Tegmina brown, darker at apex of clavus.

Opening of pygofer wider than long; anal emarginations broad and very shallow, anal angles obsolete; anal segment short, broad, produced into two strong spines reaching about half way round the pygofer; diaphragm short, apical margin V shape in middle. Genital styles fairly broad, flat, apex truncate, bifurcate, the inner portion broad, the outer prong thin. Penis short, flattened laterally, in lateral view broad, subequal in width from base to apex which is truncate, bent at an angle of about 45 degrees in the middle, a short wide spine on each side about middle, four small teeth on dorsal margin at angle in middle.

Macropterous; length 1.8 mm.; tegmen 2.5 mm.

Similar to brachypterous but the tegmina clear hyaline with veins before cross veins light brown and beyond cross veins darker brown; granules minute bearing small, brown macrotrichia, a brown spot at apex of clavus. Wings hyaline with brown veins.

Female. Brachypterous; length 2 mm.; tegmen 1.3 mm.

The females, which are associated with the males, are much lighter in color, being brown, slightly fuscous between carinae of head, a few darker brown marks on abdomen. Tegmina stramineous, veins similar color with minute granule bearing fine, black macrotrichia.

Macropterous; length 2.3 mm.; tegmen 2.5 mm. Similar in color to the macropterous males, but some are lighter.

Described from seven brachypterous and two macropterous males and ten brachypterous and five macropterous females, taken on short grass on Morro Urca, City of Rio de Janeiro (January 23, 1924). Type No. 1146.

67. *Delphacodes saccharicola* sp. n. Figs. 115, 116.

Male. Macropterous; length 2 mm.; tegmen 3 mm.

Vertex small, about as long as broad, slightly rounded at apex, base slightly in front of middle of eyes, slightly projecting in front of eyes. Length of frons twice the width, sides slightly arcuate, median carina simple. Antennae reaching slightly beyond base of clypeus, first segment longer than broad, second considerably longer than first (1 to .6). Lateral pronotal carinae strongly diverging posteriorly, slightly curved, not reaching hind margin. Hind basitarsus about as long as other two together, spur not as long as basitarsus, moderately thick, concave on inner surface with many fine teeth on hind margin.

Dark brown; carinae on head and thorax, antennae, legs and base of abdomen lighter brown. Tegmina and wings hyaline with brown veins, the veins of tegmina with numerous fine granules bearing brown macrotrichia, the hind portion of tegmina fuscous, over clavus, Cu cells and M 3.

Opening of pygofer wider than long; anal emargination wide and shallow, anal angles obsolete; the lateral margins slightly ventrad of middle produced into a large spine; diaphragm short, the middle deeply V shape, with the edges slightly projecting. Anal segment large, short, produced into two large, curved spines which reach to base of styles when at rest. Genital styles in full view long, narrow, slightly arcuate, reaching to anal styles when at rest, apex cleft or furcate, the inner prong being fairly large the outer thin. The penis in lateral view broad at base narrowing to middle where it is bent at an angle of about 50 degrees, the apical portion being thin, acute at apex, the orifice before apex; there are two small spines on the left side, the smaller at the angle and the larger slightly apical of that.

Brachypterous; length 2 mm.; tegmen 1.8 mm.

Similar in structure and color to the macropterous form, but the tegmina abbreviated and the wings rudimentary. Tegmina reaching a little beyond apex of abdomen.

Female. Macropterous. Length 2.5 mm.; tegmen 3.5 mm.

Similar in build and color to the macropterous male.

Described from fifteen macropterous and one brachypterous males and six macropterous females from Baños, Or, Ecuador, elevation, 6,000 feet (December 28, 1922, to January 1, 1923), mostly off of young ratoon sugar cane, the brachypterous male off of grass about 7,000 feet elevation. Type No. 1147. This species and *D. saxicola* are closely allied, but very distinct from all other species of the genus so far described.

68. *Delphacodes koebele* M. G.

A long series of both sexes and young from Baños, Ecuador (December 27, 28, 1922), taken off a patch of short, green grass. Previously reported from Mexico Valley and Chapultepec, Mexico. The young are typical, having short basal segment to antennae and two medio-frontal carinae.

69. *Delphacodes propinqua* (Fieber). *Toya*

A series from Campinas and Escada, Brazil. This is a world-wide species known under the names of *Liburnia tuckeri* Van Duzee, *Liburnia terminalis* Van Duzee, *Delphacodes neopropinqua* Muir and *Delphacodes subfusca* Muir.

70. *Delphacodes humilis* (Van. D.).

Two macropterous males, one from Blairmont, B. G. (September, 1923), and the others from Escada, Brazil (April, 1924). This was formerly reported from Florida, Jamaica and Mexico.

71. *Delphacodes albidens* (Crawf.). *Anchidelphax*

One male specimen from Campinas, Brazil (March, 1924). This is the type locality for this and the second specimen so far reported.

72. *Delphacodes nigra* (Crawf.).

Two macropterous males from Belem, Pará (June, 1924), taken at light in the hotel and one macropterous male from Blairmont, B. G. (October, 1923). Previously reported from Havana (Cuba), and Mexico.

73. *Delphacodes banosensis* sp. n. Figs. 117, 118, 119.

Male. Macropterous; length 1.6 mm.; tegmen 2.5 mm.

Length and width of vertex subequal, base behind the middle of eyes; width of frons slightly more than half the length, base very slightly narrower than apex, sides very slightly arcuate, median carina simple or forked at extreme base; antennae reaching to

near middle of clypeus, first segment considerably longer than broad, second twice the length of first; spur not so long as hind basitarsus, thin, subrectiform, many small teeth on hind margin.

Dark shiny brown; carinae of frons and clypeus, antennae, lateral portion of pronotum, tegulae, posterior angle of mesonotum and legs except coxae, light brown or yellow. Tegmina hyaline, very slightly infuscate over base and clavus, veins brown, granules small, distinct, not numerous; wings hyaline with brown veins.

Opening of pygofer broader than long; anal emargination shallow, wide, anal angles obscure; diaphragm short, dorsal margin straight with the middle produced into a small, bilobed process; anal segment with two spines at apex; the spines have wide bases and appear more as if the ventral apical margin was produced into two angular plates; genital styles flat, apex slightly emarginate, inner and outer angles produced, outer margin slightly sinuous, inner margin produced angularly in middle, in full view slightly widest near base where the inner margin is roundly produced. Penis slightly compressed, in lateral view widest at base, slightly curved, apex rounded, some irregularly placed spines along both sides and near apex.

Described from one male from Baños, Ecuador (December 28, 1922). This species comes near to *D. nigra* (Crawford), but the anal spines are much broader and platelike; the armature of the diaphragm is different and the spines on the penis in *D. nigra* form two well defined rows more as in *D. bovi*. Type No. 1148.

74. *Delphacodes boxi* sp. nov. Figs. 120, 121, 122.

Male. Macropterous; length 1.7 mm.; tegmen 2 mm.

Width of vertex subequal to length or very slightly greater, base equal to apex, base at middle of eyes; length of face twice the width, sides slightly arcuate; antennae reaching to base of clypeus, second segment slightly less than twice the length of first, first considerably longer than wide; lateral pronotal carinae divergingly curved, not reaching hind margin. Hind basitarsus subequal to the other two together, spur about as long as basitarsus, thin, subrectiform, with distinct teeth on hind margin.

Opening of pygofer wider than long, anal emargination large, anal angles slightly produced and curved inward, margins entire, curved; diaphragm short, dorsal margin straight, without armature. Anal segment comparatively small, with two stout spines on ventral apical margin with their bases fairly far apart. Genital styles flat, apex truncate or very slightly excavate, outer angle roundly produced, inner angle more angularly produced; viewed in situ both inner and outer margins appear slightly concave with the basal angle on base of inner margin large, produced and curved round; in flat view the inner margin is slightly convex. Penis slightly flattened laterally, in lateral view about the same width all along, apex rounded, a few spines around orifice at apex, with a longitudinal row of spines along each side.

Frons, clypeus and genae black with the carinae yellow or light brown, antennae and vertex light brown; pronotum light, in many specimens nearly white, brownish behind eyes; mesonotum brown with carinae lighter; coxae brown, rest of legs lighter brown; abdomen dark brown with yellow pleura. Tegmina clear hyaline; veins before cross veins same color as membrane, veins beyond cross veins (nodal line) and apical margin slightly fuscous, a small light fuscous mark at apex of clavus or commissure. The ten specimens described from vary slightly in shade, the pronotum being slightly yellowish in some.

Male. Brachypterous; length 1.6 mm.; tegmen 1 mm.

In build and color this agrees with the macropterous form, the tegmina are slightly stramineous; the variation in the eleven specimens is also about the same, consisting of a slightly lighter color on slightly more yellowish pronotum.

Females. Macropterous; length 2 mm.; tegmen 2.3 mm. The eight specimens are similar to the macropterous male, but lighter in color, the head between the carinae being only more or less fuscous and the nota more uniformly light brown or yellowish.

Female. Brachypterous; length 2 mm.; tegmen 1 mm. The twelve specimens similar to the brachypterous males, but lighter in color, especially between the carinae of the head and thorax.

Described from forty-one specimens from Blairmont, B. G. (October, 1923), taken on "shrimp grass" on river flat. Besides the above mentioned type material there are twenty-one macropterous specimens from New Amsterdam (August, 1922), taken on "shrimp grass" on river tidal flats, which are all quite typical, and one macropterous male from Rezende, Brazil (March, 1924), which is dark and typical.

There are also thirteen specimens bearing stylopid parasites and some young nymphs. The young have the first segment of the antenna broader than long and the frons has two median carina, characters which appear common to all Delphacidae; the spur in the smallest nymphs has no teeth on hind margin. This species comes into the *puella*, *nigra* and *balli* group. Type No. 1149.

75. *Delphacodes dissipata* sp. n. Figs. 92, 93, 94.

Male. Brachypterous; length 1.7 mm.; tegmen 1.2 mm.

Vertex as broad as long, base considerably behind middle of eyes; length of frons twice the width, sides very slightly arcuate; antennae reaching slightly beyond base of clypeus, first segment longer than wide, second not quite twice the length of first; spur subequal to basitarsus in length, thin, tectiform, hind margin with many fine teeth.

Frons, clypeus and genae black between the yellow carinae, antennae, vertex and pronotum yellow or light brown, darker brown on pronotum behind eyes, mesonotum dark brown, lighter over the lateral carinae and at posterior angle; coxae dark brown, rest of legs lighter brown; abdomen dark brown, lighter over pleura. Tegmina dark brown, a slightly darker spot at apex of clavus, veins slightly darker.

Opening of pygofer a little wider than long, anal emargination wide, moderately deep, lateral margins entire; diaphragm short, medio-dorsal margin produced into a large, subconical process shagreened along the sides. Anal segment moderately large, the ventro-apical margin curved ventrad, emarginate in middle forming two lobes; from near the middle of the ventral aspect arise two large flat spines, in lateral view slightly widest at sinuous. Penis subtubular or slightly flattened laterally, in lateral view slightly widest at apical half, apex round with orifice in a dorso-apical position, a few irregular, scattered spines mostly on apical half. Genital styles broad on basal half, narrower on apical half, apex truncate, slightly sinuous, angles slightly produced, outer margin concave on apical half, convex on basal, inner margin concave on apical half, the basal half forming a large basal rounded process which is longitudinally striate. In the four specimens there is a slight variation in color, the pronotum being darker in one.

Male. Macropterous; length 1.7 mm.; tegmen 2.5 mm.

Similar in build and color to the brachypterous male, but the pronotum and mesonotum darker. Tegmina hyaline, slightly fuscous at base, a small brown mark at apex of clavus, veins light brown or stramineous before cross veins, darker beyond cross veins, granules sparse, inconspicuous, bearing small black macrotrichia. Wings hyaline with brown veins. In one specimen from Rezende the tegmen is infuscate to the cross veins.

Female. Brachypterous; the females, which are placed with the male, are similar in build and very close in color, the pronotum and mesonotum are brown with lighter carinae.

Described from four brachypterous and one macropterous males and two brachypterous females from Baños, Ecuador (December, 1922), and two macropterous males from Rezende, Brazil (February, 1924). Those from Baños (type locality) were taken on grass in shallow water and they could readily leap off the surface of the water. This species comes into the *humilis*, *nigripennis* group. Type No. 1149.

76. *Delphacodes fallax* sp. n. Figs. 95, 96, 97, 98.

Male. Macropterous; length 1.9 mm.; tegmen 2.0 mm.

Vertex about as broad as long, base very slightly behind the middle of eyes; length of frons twice the width, sides very slightly arcuate on basal half; antennae reaching near to middle of clypeus, first segment longer than wide, second nearly twice the length of first. Spur not quite as long as basitarsus, many small teeth on hind margin.

Uniformly stramineous, slightly fuscous over pleura of thorax. Tegmina hyaline, clear, veins light stramineous, granules sparse, minute, same color as veins, bearing fine, dark macrotrichia. Wings hyaline, veins stramineous.

Opening of pygofer wider than long, margins round, entire; anal emargination large, anal angle slightly produced; diaphragm short, the medio-dorsal margin produced into a long, narrow process slightly bilobed at apex. Anal segment medium size; two large, nearly straight, broad spines arise from near the apical margin on ventral aspect, their bases fairly near together. Genital styles flat, in full view broad, apex truncate, inner margin slightly concave, outer margin slightly sinuate. Penis subtubular, in lateral view very slightly curved, slightly narrowed on apical half, apex rounded, orifice at apex; on each side at apex arises a spine, curved basad.

Described from one male from Belem, Brazil (June, 1924). This species comes into the *nigripennis* group. Type No. 1156.

77. *Delphacodes dolosa* sp. n. Figs. 99, 100.

Male. Brachypterous; length 1.7 mm.; tegmen 1 mm. Vertex as long as broad; length of frons not quite twice the width, sides arcuate; antennae reaching slightly beyond base of clypeus, first segment longer than broad, second twice the length of first. Spur about as long as basitarsus, with nine or ten distinct teeth on hind margin.

Light stramineous, slightly fuscous between carinae of head, brownish on thoracic pleura, abdomen darker. Tegmina hyaline with light stramineous veins.

Opening of pygofer slightly wider than long, round, margins entire; anal emargination large, anal angles slightly produced and rounded; diaphragm short, medio-dorsal margin produced into a long narrow process similar to that in *D. nigripennis*; anal segment fairly large, from the middle of the ventral aspect two spines arise, in lateral view thin and slightly curved, their bases fairly wide apart. Penis subtubular, straight, in lateral view the widest on basal half, orifice on dorso-apical aspect with a small spine at its edge; on the ventral aspect of apex on left side there is a small comb of five or six spines. Genital styles large, flat, apex truncate, slightly widest on apical half, margins slightly sinuate.

Female. Macropterous; length 1.7 mm.; tegmen 2.5 mm. In build and color similar to the brachypterous form. Tegmina hyaline, very slightly stramineous; veins stramineous, granules small, same color as veins, bearing fine dark macrotrichia. Wings hyaline with light veins.

Female. Brachypterous; length 2 mm.; tegmen 1 mm. In build and color similar to male, but the abdomen is lighter.

Described from one brachypterous male and two brachypterous females from Campinas, Brazil (March, 1924), and one macropterous male from Escada, Brazil (April, 1924). This species comes into the *nigripennis* group, near to *nigripennis*. Type No. 1151.

78. *Delphacodes nigrifacies* Muir.

One macropterous male from New Amsterdam, B. G. (August, 1923). Previously reported from Fort de France, Martinique, and Demerara, B. G.

79. *Delphacodes teapae* (Fowler). Fig. 101. *Cae-adelphax*

A long series from Blairmont, New Amsterdam and Tumatumari, British Guiana; Campinas, Nictheroy, Campos, Jabaty, Villa Americana, Rio de Janeiro City, Rezende and Belem, Brazil; Huigra (4,000 feet elevation), Tena and Nara-japata (1,850 feet elevation), Ecuador. This was previously known from Mexico, Nicaragua, British Honduras, Brazil, Cuba and Porto Rico.

80. *Delphacodes balboae* M. G. Figs. 102, 103. *Chironomus*

A series from Baños, Ecuador (December, 1922), taken off sugar cane; Belem, Brazil (June, 1924), taken at light in hotel and Blairmont, B. G. (November, 1923). In Muir and Giffard's paper⁽¹⁾, the figure of the penis of this insect was printed upside down, but the text described it correctly. This species was previously known from a single specimen from Jalapa, Mexico.

81. *Delphacodes tenae* sp. n. Fig. 104, 105.

Male. Brachypterous; length 1.7 mm.; tegmen 1.1 mm. Length of vertex subequal to width, base at middle of eyes, length of frons 2.3 times the width, base slightly constricted, beyond which sides subparallel, median carina simple. Antennae reaching slightly beyond base of clypeus, first segment longer than wide, half

(1) H. S. P. A. Exp. Sta. Ent. Bull. XV, 1924, Fig. 109.

the length of second. Spur slightly longer than basitarsus, thin, concave on its surface, with 13-14 small teeth on hind margin.

Opening of pygofer a little wider than long, margins round, entire, anal emargination fairly large, anal angle round, produced, nearly surrounding the anal segment; diaphragm short, dorsal margin U shape, without armature. Anal segment small, without armature. Penis thin, subtubular, curved dorsad, base slightly widest, one-third from apex slightly enlarged across which enlargement there is a row of seven small teeth, orifice at apex, the dorsal apical edge produced into a spine; on the right side there is a small flange from the dorsal apical edge produced into a spine; on the left side there is a small flange from the dorsal apical edge produced into a spine; the basal angle of the ridge being produced into a thin flattened process. Genital styles flat in situ, concave on apical half of inner margin, sinuate on outer margin, apex truncate, outer angle rounded, inner angle fairly well produced.

Head black, carinae on frons and clypeus and the antennae brown, anterior portion of pronotum black, posterior portion white or creamy white, mesonotum black with posterior margin narrowly brown, tegulae, pleura, coxae and abdomen black or dark brown, legs light brown, hind femora darker. Tegmina dark brown or black, costal margin brown, apical margin and basal half of commissure yellow or light brown.

Female. Brachypterous; length 1.9 mm.; tegmen 1 mm. Similar to male in build and color.

Described from three males and two females from Tena, Ecuador (March 16 and April, 1923). This species is closely allied to *D. balboae*.

82. *Delphacodes glucophila* sp. n. Figs. 106, 107, 108.

Male. Macropterous; length 1.8 mm.; tegmen 2.7 mm.

Length of vertex subequal to width, base at middle of eyes; length of frons twice the width, sides very slightly arcuate; antennae reaching to base of clypeus, first segment longer than broad, second segment twice the length of first; spur thin, not as long as basitarsus, with many (18 to 20) minute spines on hind margin.

Opening of pygofer wider than long, margins entire, anal emargination wide, anal angles rounded, slightly produced; diaphragm short with the medio-dorsal margin produced into a fairly large process with its margins set around with teeth. Anal segment fairly large, with two pairs on spines on the ventral aspect. The larger pair being apical with their bases fairly wide apart, the smaller arising near the middle with their bases nearer together. Penis straight, subtubular, orifice at apex with a few spines near apex and a row of some 6 to 7 spines across the left side. Genital styles flat, inner margin slightly concave on apical two-thirds, the basal third roundly produced, outer margin slightly sinuate, apex truncate with the angles slightly produced.

Shiny black; antennae, carinae on frons, clypeus and genae, legs and labium yellow, lateral portion of pronotum and tegulae white or creamy white, the apex of the posterior angle of mesonotum yellow, abdomen black. Tegmina hyaline, veins brown, those beyond the nodal line being darkest, a dark mark on commissure at apex of claval vein, granules very scarce and obscure. Wings hyaline with light brown veins.

Described from one male from Baños, Ecuador, elevation 6,000 feet (October 26, 1922), on sugar cane. Type No. 1152. This species comes next to *D. 4-spinosa*.

83. *Delphacodes securigera* sp. n. Figs. 109, 110.

Male. Brachypterous; length 1.8 mm.; tegmen 1 mm.

Width at base of vertex equal to length, apex slightly narrower than base, base about middle of eyes. Lateral pronotal carinae very slightly curved, diverging posteriorly, not reaching hind margin. Spur fairly large, thin, subtectiform, with eighteen teeth on hind margin.

Shiny black or very dark brown; carinae of head, antennae, labium, legs, middle of vertex, pronotum and mesonotum, commissure of tegmen to apex of clavus, lateral margins of pronotum light, either light brown, yellowish or whitish. Abdomen dark brown or black. Tegmina dark, shiny brown, commissure and apical margin white, a darker spot at apex of clavus.

Opening of pygofer about as wide as long, anal emargination wide, shallow, anal angles obscure, margins entire; diaphragm short, the middle produces into a long, narrow process, with the apex slightly enlarged and bilobed, the dorsal surface longitudinally grooved. Anal segment fairly large with two pairs of spines on ventral surface, the smaller pair near apex the larger near to middle; both pair have their bases some little distance apart.

Genital styles hatchet shape. The blade portion being short, the handle wide. Penis flattened laterally, in lateral view fairly wide, base slightly wider than apex, slightly curved, orifice at apex which is slightly concave and oblique, a few spines near apex and along sides.

Described from one male from Rezende, Brazil (February, 1924). Type No. 1170.

84. *Delphacodes havanae* M. G.

Chironomus

A series of twenty-seven macropterous males from Blairmont, B. G. (September, October, 1923). This was previously reported from Cuba, Guatemala and Demerara River, B. G.

85. *Delphacodes aterrimus* sp. n. Figs. 111, 112.

Male. Brachypterous; length 1.9 mm.; tegmen .7 mm.

Vertex wider than long, width at base subequal to width at apex, sides slightly arcuate, base about middle of eyes. Length of face not quite twice the width (LS to 1), sides very slightly arcuate, median carina simple, distinct. Antennae reaching beyond the middle of clypeus, first segment much longer than broad, second slightly longer than first. Lateral pronotal carinae diverging posteriorly, slightly curved, not reaching hind margin. Hind basitarsus slightly longer than other two together, spur about as long as basitarsus, wide, thin, with numerous small teeth on hind margin.

Shiny black; clypeus, labium, legs and style and antennae yellow. Veins of tegmina not very distinct, granules small and very few.

Opening of pygofer about as long as wide, nearly round, margins entire, anal angles rounded, not produced, anal emargination fairly large; diaphragm fairly long, without armature, dorsal margin arcuately excavate. Anal segment small, without armature, the membrane between anal segment and penis chitinized. Genital styles flat, inner margin slightly concave, outer margin less so, apex obliquely subtruncate, inner angle fairly acute, outer rounded. Penis very small, in lateral view widest at base, apex membranous which is cordate in outline in an end-on view.

Female. Brachypterous; length 2.5 mm.; tegmen .8 mm. In color and build similar to male.

Described from two males and one female from Belem, Brazil (June, 1924), and two males and one female from Blairmont, B. G. (September, 1923). The type is from Belem. Superficially this looks somewhat like a *Pissonotus*, but it is more correctly placed in *Delphacodes*. It may be *Liburnia atrior* Fowler, but the figure of the genitalia differs considerably and the description of the same still more. Type No. 1188.

The following genera are unknown to the writer and do not appear to be represented in Williams' material:

86. *Calbadus pallidulus* Blanchard.
Calbadus pallidulus Blanchard, 1852, in Gay's Hist. fis. de Chili Zool., VII, pp. 261, 262, in Pl. III, f 4, a, b, c.
87. *Dichoneura simoni* Lethierry.
Dichoneura simoni Lethierry, 1890, Ann. Soc. Ent. France (6), X, p. 152.
88. *Bergia nimbata* (Berg). *Pentagonia*
Liburnia nimbata Berg, 1879, Anal. Soc. Cient. Arg., VIII, p. 191; 1879, Hem. Arg., p. 226.
Bergia nimbata (Berg), Scott, 188, Ent. Mo. Mag., XVIII, p. 155; Berg, 1884, Hem. Arg. Add. Emend., p. 137.
Bergia nimbata (Berg), Kirkaldy, 1904, Entomologist, 37, No. 498, p. 279.
89. *Idiosystatus acutiusculus* (Spin).
? *Delphax acutiusculus* Spin, 1852, in Gay's Hist. de Chili, Zool., VII, p. 253.
Idiosystatus acutiusculus (Spin), Berg, 1884, Hem. Arg. Add. Emend., p. 138.

90. *Idiossemus xiphias* (Berg).
Liburnia xiphias Berg, 1879, Anal. Soc. Cient. Arg., VIII, p. 179; 1879, Hem. Arg., p. 225; 1884, Hem. Arg. Add. Emend., p. 140; *Nephropsia xiphias* Scott in litt.

The following species reported from South America have not been recognized among the material collected by Dr. Williams:

91. *Copicerus obscurus* (Guérin).
Helotus obscurus Guérin, 1857, Sagras Hist. fisico Cuba Zool., VII, p. 180.
92. *Copicerus swartzii* (Guérin).
Helotus swartzii Guérin, 1857, l. c.
93. *Canyra placida* (Stål).
Delphax placida Stål, 1854, Ofv. k. Vet. Ak. Forh., p. 245.
Canyra placida (Stål), Stål, 1862, K. Vet. Akad. Handl. B. 3, No. 6, p. 7.
94. *Canyra obscuripennis* (Stål).
Delphax obscuripennis Stål, 1854, l. c.
Canyra obscuripennis (Stål), Stål, 1862, l. c.
95. *Canyra cylindricornis* (Fabr.).
Delphax cylindricornis Fabricius, 1803, Syst. Rhyng., p. 83.
Asiraca cylindricornis (Fabr.) Germ, 1830, in Thon. Ent. Arch., II, 2, p. 56.
Canyra cylindricornis (Fabr.) Stål, 1869, K. Vet. Akad. Handl. B. 8, No. 1, p. 95.
96. *Asiraca insignicornis* Lethierry.
Asiraca insignicornis Lethierry, 1890, Ann. Soc. Ent. France (6), X, p. 150.
97. *Columbiana lloydi* Muir.
Columbiana lloydi Muir, 1919, Can. Entom. (51), p. 35, ff. 6, 7.
98. *Delphax conspersinervis* (Lethierry).
Asiraca conspersinervis Lethierry, 1890, Ann. Soc. Ent. France (6), X, p. 151.
99. *Chloriona fuscipennis* Muir. *MATUTMUS*
Chloriona fuscipennis Muir, 1919, Can. Entom. (51), p. 38, f. 10.
100. *Stenocranus maculipes* (Berg).
Delphax maculipes Berg, 1879, Anal. Soc. Cient. Arg., VIII, p. 187; 1879, Hem. Arg., p. 223.
Stenocranus maculipes (Berg), Scott in litt. Berg., 1884, Hem. Agr. Add. Emend., p. 142.
101. *Megamelus scutellaris* Berg.
Megamelus scutellaris Berg, 1884, Hem. Arg. Add. Emend., p. 141.
102. *Megamelus timehri* Muir.
Megamelus timehri Muir, 1919, Can. Entom. (51), p. 36, f. 9.
103. *Pissonotus megalostylus* Muir. *Euides*
Pissonotus megalostylus Muir, 1919, Can. Entom. (51), p. 36, f. 8.
104. *Euidella fusco-vittata* (Scott). *Euides*
Euides fusco-vittata Scott, 1881, Ent. Mo. Mag., XVIII, p. 155; Berg, 1884, Hem. Arg. Add. Emend., p. 142.
105. *Euidella fucata* (Berg). *Euides*
Euides fucata Berg, 1883, Ann. Soc. Arg., XVI, p. 236; 1884, Hem. Arg. Add. Emend., p. 142.
106. *Delphacodes patruelis* (Stål).
Delphax patruelis Stål, 1859, Freg. Eug. Resa, Ins., p. 276, 162.
Liburnia patruelis (Stål), Stål in litt. Berg, 1879, Hem. Arg., p. 223.
107. *Delphacodes univittata* (Berg).
Liburnia univittata Berg, 1879, Hem. Arg., p. 224.
108. *Delphacodes nigricula* (Berg).
Liburnia nigricula Berg, 1879, Hem. Arg., p. 226.

109. **Delphacodes bergi** (Scott).
Liburnia cognata Berg (not Fieb.), Anal. Soc. Cient. Arg., VIII, p. 188; 1879, Hem. Arg., p. 224.
Liburnia bergi Scott, 1881, Ent. Mo. Mag., XVIII, p. 156.
110. **Delphacodes fusco-terminata** (Berg).
Liburnia fusco-terminata Berg, 1879, Hem. Arg., p. 296 (Addenda).
111. **Delphacodes seminigra** (Stål).
Delphax seminigra Stål, 1854, Afr. K. Vet. Ak. Forh., p. 246; Stål, 1862, K. Vet. Akad. Handb. B. 3, No. 6, p. 7.
112. **Delphacodes guianensis** Muir.
Delphacodes guianensis Muir, 1919, Can. Entom., p. 38.
113. **Delphacodes vittata** (Blanchard).
Delphax vittata Blanchard, 1852, in Gay's Hist. de Chili, p. 260.
114. ? **Delphacodes fuscoirrorata** (Blanchard).
Delphax fuscoirrorata Blanchard, 1852, in Gay's Hist. de Chili, p. 260.

PLATE I

1. *Punana breviceps*, right wing.
2. *Burnilia pictifrons*, lateral view right side of pygofer.
3. *Burnilia williamsi*, genital style.
4. *Synpteron brazilensis*, front view of head.
5. *Synpteron brazilensis*, dorsal view head and thorax.
6. *Malaza occidentalis*, lateral view left side anal segment, aedeagus and genital styles.
7. *Macrocorupha gynerii*, dorsal view head and thorax.
8. *Liburniella ornata*, lateral view left side anal segment, aedeagus and genital styles.
9. *Liburniella ornata*, middle of diaphragm.
10. *Calumbisoga gynerii*, lateral view left side aedeagus and genital style.
11. *Columbisoga gynerii*, lateral view left side of anal segment.
12. *Columbisoga ornata*, lateral view left side of genitalia.
13. *Columbisoga mearae*, lateral view left side of genitalia.
14. *Columbisoga sacchari*, lateral view of aedeagus.
15. *Columbisoga maculosa*, lateral view right side of anal segment and aedeagus.
16. *Columbisoga maculosa*, full view genitalia.
17. *Columbisoga gyneriicola*, lateral view left side genitalia.
18. *Columbisoga gyneriicola*, lateral view right side of anal segment and aedeagus.
19. *Columbisoga zapote*, lateral view right side of genitalia.
20. *Columbisoga zapote*, apex of aedeagus.
21. *Columbisoga zapote*, armature of diaphragm.
22. *Columbisoga tenae*, lateral view right side of pygofer and anal segment.
23. *Columbisoga tenae*, ventral view of pygofer and genital styles.
24. *Columbisoga tenae*, lateral view of aedeagus.
25. *Columbisoga chusqucae*, lateral view, left side of genitalia.
26. *Saccharosydne viridis*, genital styles.
27. *Saccharosydne brevisrostris*, genital styles.
28. *Saccharosydne ornatipennis*, genital styles.
29. *Saccharosydne saccharivora*, genital styles.

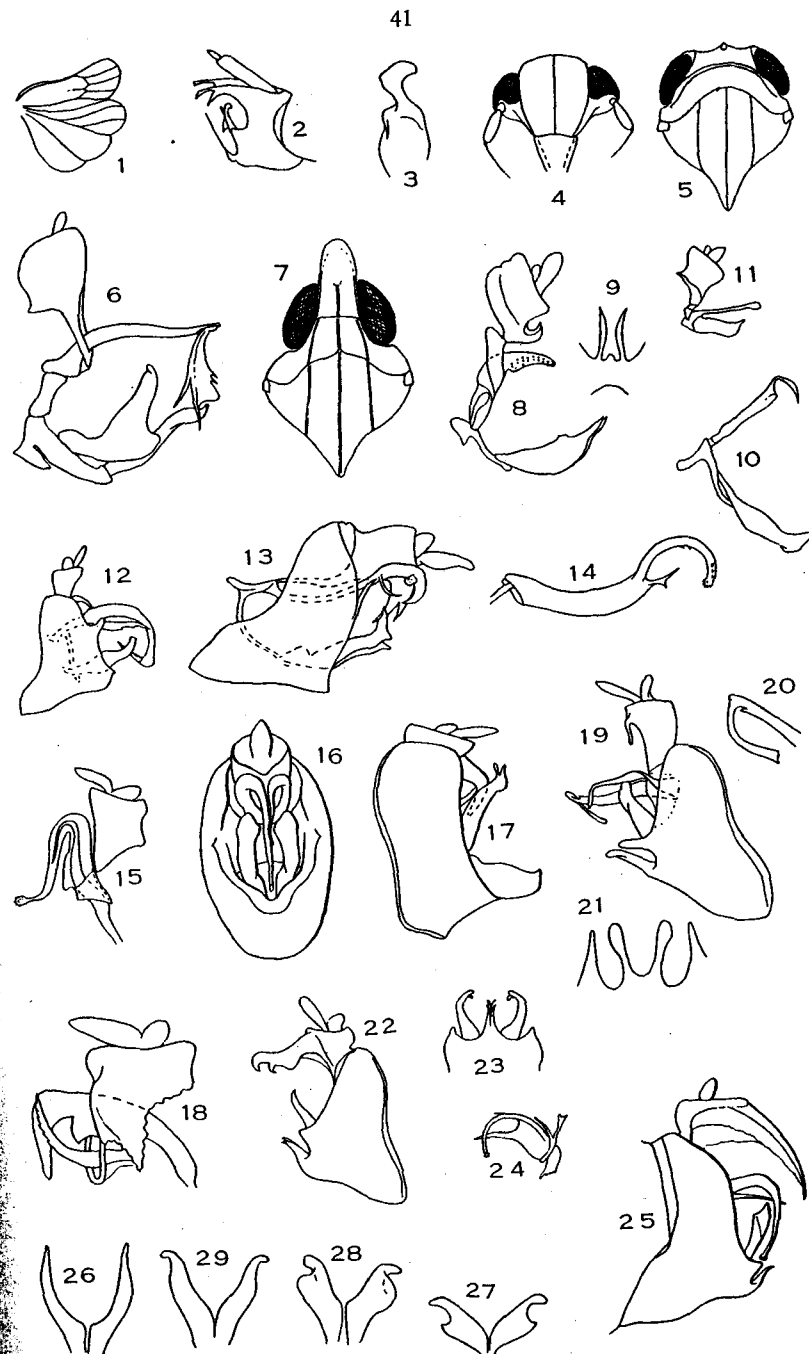


PLATE II

30. *Euidella guaduac*, full view of male genitalia.
 31. *Euidella guaduac*, lateral view right side of male genitalia.
 32. *Euidella blairmontensis*, lateral view right side of male genitalia.
 33. *Euidella altamazonica*, lateral view left side of anal segment, aedeagus and genital styles.
 34. *Euidelloides montana*, dorsal view of head and pronotum.
 35. *Euidelloides montana*, lateral view left side of male genitalia.
 36. *Neoperkinsiella williamsi*, front view of head.
 37. *Neoperkinsiella williamsi*, dorsal view of head and pronotum.
 38. *Neoperkinsiella williamsi*, lateral view left side of anal segment and aedeagus.
 39. *Neoperkinsiella guaduac*, full view male genitalia.
 40. *Neoperkinsiella guaduac*, lateral view left side of aedeagus, genital styles and anal segment.
 41. *Phyllodinus neotropicus*, full view of male genitalia.
 42. *Phyllodinus neotropicus*, side view right side of aedeagus.
 43. *Pissonotus belemensis*, full view of male genitalia.
 44. *Pissonotus belemensis*, lateral view right side of anal segment and aedeagus (tip of latter apparently broken).
 45. *Pissonotus brazilensis*, full view of male genitalia.
 46. *Pissonotus equadorensis*, full view of male genitalia, right wall of pygofer omitted.
 47. *Pissonotus equadorensis*, lateral view right side of aedeagus.
 48. *Kelisia graminicola*, full view of male genitalia.

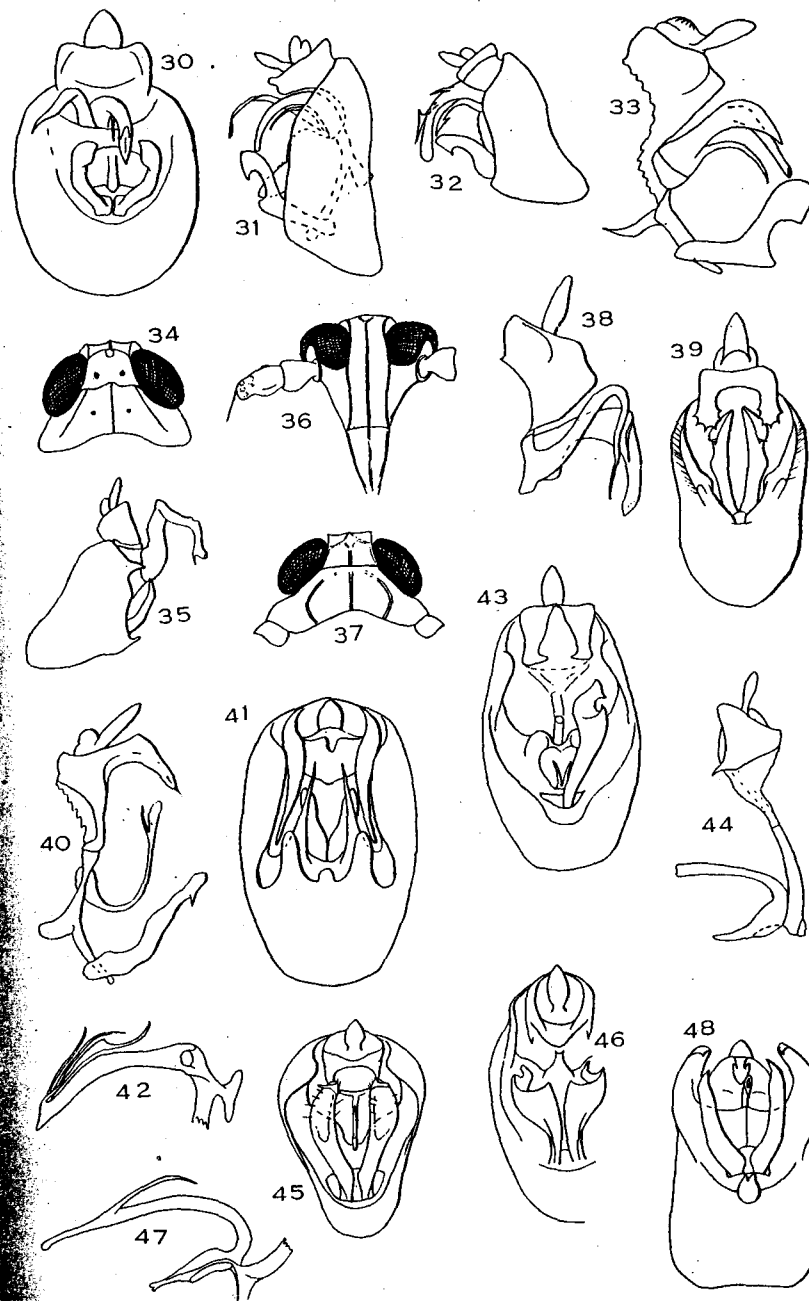


PLATE III

49. *Kelisia graminicola*, lateral view of anal segment and aedeagus.
 50. *Kelisia vittata*, full view of genitalia.
 51. *Kelisia vittata*, lateral view of anal segment and aedeagus.
 52. *Kelisia rezendensis*, lateral view left side of male genitalia.
 53. *Kelisia rezendensis*, lateral view left side of aedeagus.
 54. *Kelisia escadensis*, full view of male genitalia.
 55. *Kelisia escadensis*, lateral view of aedeagus.
 56. *Kelisia fuscovittata*, full view of male genitalia.
 57. *Kelisia fuscovittata*, lateral view of anal segment and aedeagus.
 58. *Kelisia occidentalis*, full view right half of male genitalia.
 59. *Kelisia occidentalis*, lateral view of aedeagus.
 60. *Kelisia curvistilus*, full view of male genitalia.
 61. *Kelisia curvistilus*, lateral view of male genitalia.
 62. *Kelisia urbana*, ventral view of pygofer and genital styles.
 63. *Kelisia urbana*, lateral view of anal segment and aedeagus.
 64. *Kelisia contorta*, ventral view of male genitalia.
 65. *Kelisia contorta*, lateral view of aedeagus and anal segment.
 66. *Dicranotropis pallidinervis*, full view of male genitalia.
 67. *Dicranotropis pallidinervis*, lateral view of anal segment and aedeagus.
 68. *Dicranotropis pallidinervis*, apex of aedeagus.

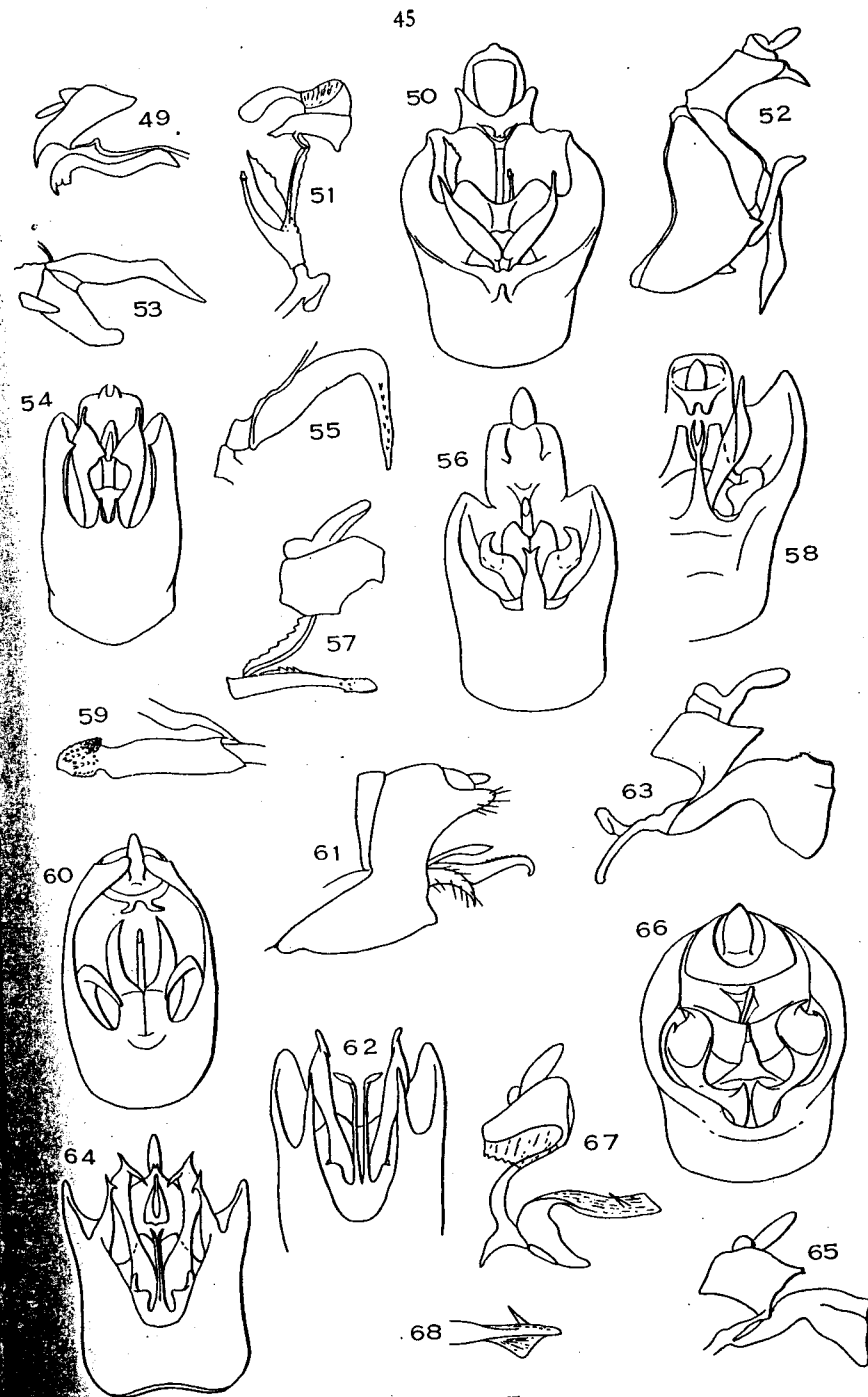


PLATE IV

69. *Dicranotropis bipectinata*, full view of male genitalia.
 70. *Dicranotropis bipectinata*, lateral view of anal segment and aedeagus.
 71. *Sogata williamsi*, full view of male genitalia.
 72. *Sogata braziliensis*, lateral view anal segment and aedeagus.
 73. *Sogata braziliensis*, genital styles.
 74. *Sogata braziliensis*, middle of diaphragm.
 75. *Sogata nautica*, lateral view of anal segment and aedeagus.
 76. *Sogata nautica*, left genital style.
 77. *Sogata nautica*, middle of diaphragm.
 78. *Sogata orizicola*, full view of genitalia, right side of pygofer missing.
 79. *Sogata orizicola*, lateral view of anal segment and aedeagus.
 80. *Sogata orizicola*, left genital style.
 81. *Sogata anomala*, lateral view of anal segment and aedeagus.
 82. *Sogata anomala*, middle of diaphragm.
 83. *Megamelus electrae*, full view male genitalia.
 84. *Megamelus electrae*, lateral view of anal segment and aedeagus.
 85. *Megamelus iphigeniae*, full view of male genitalia.
 86. *Megamelus iphigeniae*, lateral view of anal segment and aedeagus.
 87. *Delphacodes paludicola*, full view of male genitalia, right side of pygofer missing.
 88. *Delphacodes paludicola*, lateral view of anal segment and aedeagus.
 89. *Delphacodes xerophila*, full view of male genitalia, left half.
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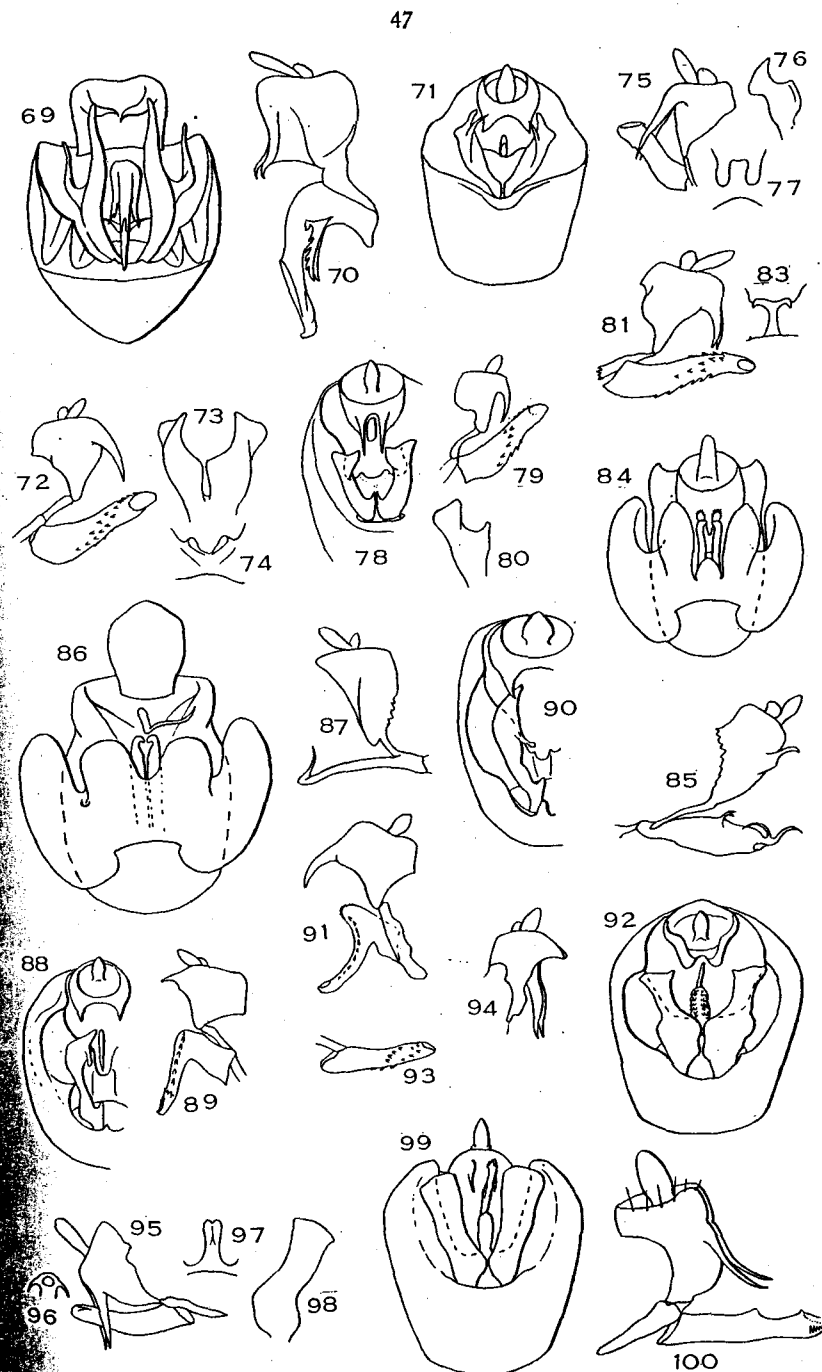
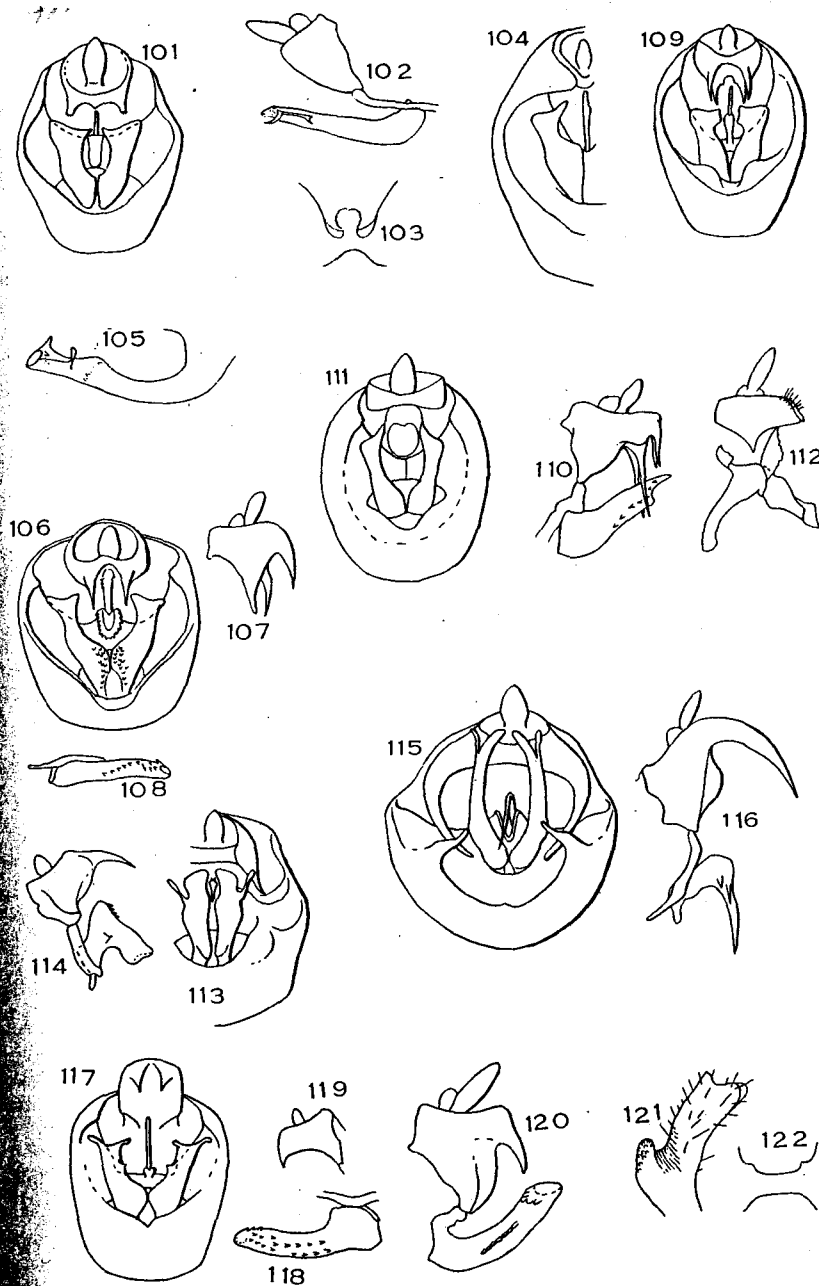


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