

On some new Fulgoroidea

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Aug. Sept. Dec. Feb. May July Aug.
1911 1911 1911 1912 1912 1912 1912

FAMILY TORTRICIDAE.

<i>Eccoptocera foetoricorans</i> (Butl.)						1
<i>Enarmonia walsinghami</i> (Butl.)			1			
<i>Bactra straminea</i> (Butl.)	1		1			1
<i>Archips longiplicatus</i> Walsm. ..			1	1	2	
<i>Archips lichenoides</i> Walsm.						
<i>Archips subsenescens</i> Walsm.....			1	2	1	
<i>Archips fuscocinereous</i> n. sp. ..				1		
<i>Archips sublichenoides</i> n. sp. ..					7	
<i>Tortrix semicinereana</i> n. sp.				1		
<i>Panaphelix marmorata</i> Walsm.			1			1
<i>Capua pleonectes</i> Walsm.....						1

FAMILY TINEIDAE.

<i>Opogona apicalis</i> Sw.....	6		13	24	1	1
<i>Philodoria basalis</i> Walsm.				1		

*Reared from flowers of *Zanthoxylum hawaiiense*.

DECEMBER 12TH, 1912.

The postponed eighty-ninth regular and eight annual meeting of the Society was held in the usual place.

NOTES AND EXHIBITIONS.

Mr. Ehrhorn exhibited an ant taken at Maunawili, Oahu, April 13, 1912. It had been identified for him by Mr. W. M. Wheeler as *Technomyrmex albipes* F. Smith. The species occurs in India, Papua, and Oceania.

Mr. Giffard reported collecting the introduced *Pompilus* at Kilauea, Hawaii, Nov. 23, 1912; at an elevation of 4000 feet. This being the highest elevation at which it has yet been taken.

PAPERS READ.

On Some New Fulgoroidea.

BY F. MUIR.

(Read October 3, November 7 and December 12, 1912.)

The types of the following new species, seven of which are

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generic, are in the collection of the Sugar Planters' Experiment Station, Honolulu. Except where otherwise stated they were collected by the writer.

The writer takes pleasure in acknowledging the obligation he is under to W. L. Distant for comparing specimens with types in the British Museum, and for the help he has given him while working on Homoptera.

DELPHACIDAE.

Geoneossus gen. nov.

Type *sacchari*.

Head broader than thorax, vertex at base as wide as an eye, truncate, narrowing slightly to apex, very short, about one-fourth the width of base, medianly, longitudinally keeled, slight keels along all edges and between vertex and face, a little pit in center of each half of vertex. Face broad, widest at lower corner of eyes, then slightly narrowing to apex, keels along sides, also two medio-longitudinal keels from base to apex, a keel down gena from beneath the antenna to base of clypeus. Clypeus a little shorter than face, in profile slightly curved, sides flattened, broad at base, medianly and laterally keeled. Eye as broad as face, with very deep antennal emargination on lower edge. First joint of antenna slightly shorter than second, subtriangular, apex much wider than base, very flat and thin, especially on outer edge; second joint subpyriform in outline, outer edge fairly thick and nearly straight, inner edge thin and broadly curved in outline; other edge beset with several sense organs; arista arising from apex. Ocelli at lower corner of eye. Pronotum medially very slightly longer than vertex, hind margin obtuse-angularly emarginate, medially keeled, lateral keels obscure, arising anteriorly at inner hind angle of eye, curving round and reaching anterior margin at hind angle of eye, not reaching the posterior edge of pronotum; a pit in center of each half. Scutellum distinctly tricarinate. First hind tarsal joint twice the length of the other two together; spur half as long as first tarsal joint, flattish, pointed, inner edge straight, outer edge convexly curved, beset with small spines; hind tibiae with five apical and one small basal spines. Tegmina pointed at apex; subcosta and radia forking before middle, radia joining media for a short distance (no radial cross-vein), first median sector arising at junction of radia and media, touching cubitus (no media cross-vein), cubitus three-veined, bent nearly at right-angle after joining media; clavus reaching five-eighths from base.

This genus is near to *Cochise* Kirkaldy, but has a narrower face, with the keels separate to apex, the antennae also are very distinct.

(1) *G. sacchari*, sp. nov. (♂ ♀)

Pl. 6, ff. 5, 6.

Stramineous, slightly darker on clypeus and apex of face; legs with longitudinal brown marks. Tegmina hyaline, veins white, finely bordered with brown, especially on apical half, veins studded with brown, hair-bearing granules; wings hyaline, white-veined.

Pygophor with a pair of spines arising from medio-ventral edge, reaching one-third across pygophor, contiguous to near their diverging apices; spines on anal segment short, thick, with converging apices; genital styles long, simple, horn-shaped, making one complete inwardly-turned spiral, the apical third bent anteriorly.

In the young stages the vertex and face is round, somewhat as in *Paranda*, the antennae small and sunk into pits at side of rounded face; two rows of sense pits along the lateral margin of vertex and face; keels absent.

Length 2.6 mm.; tegmen 3.8 mm.

Hab. Macao, China. The young and adult female were taken underground, feeding on the roots of grasses and sugar-cane, attended by ants. The adult was also taken feeding on the leaves of sugar-cane.

Cochise Kirkaldy.(1) *C. apache* Kirkaldy.

Pl. 6, fig. 3, 3a.

I figure the head of this species. I cannot separate the genus from *Bostaera* by any good character.

Belocera gen nov.Type, *sinensis*.

Head wider than thorax. Width of vertex about twice the length, base truncate, slightly anterior of the middle of the hind margin of eyes, longitudinally keeled in middle; face widest between lower angles of eyes where it is about two-thirds the length of the face, keeled on sides and in middle, the central keel being furcate very near the base forming a small diamond-shaped area, two small semi-obsolete keels from the bifurcations to sides of face slightly anterior to the transverse keel between vertex and face; genal keels distinct, meeting the lateral facial keels at their apices; eyes deeply emarginate on lower margin; first and second antennal joints subequal in length, basal joint sagitate, second joint somewhat longer than broad, slightly flattened, beset with sense organs, arista apical; clypeus bent at sharp angle near base where the median keel is prominently angled. Pronotum slightly longer than vertex, widely and angularly emarginate on hind margin, median keel distinct, reaching hind mar-

gin, lateral keels following hind margin of eyes, then curving inward and reaching hind margin. Scutellum more than twice the length of vertex and pronotum, tricarinate, lateral carinae slightly curved and reaching hind margin. Hind tibia with one small basal, one small submedian and four or five small apical spines; spur more than half the length of first tarsus, flattened, inner edge straight, outer edge convexly curved, one small spine at apex. Tegmen as in *Geocossus*, but the apex just pointed and the radia and media only just touching, not amalgamated for any distance.

This genus is near *Stobaera* but the shape of the antennae and the angular clypeus distinguishes it.

(1) *B. sinensis* sp. nov. (♂ ♀)

Plate 6, figs. 4, 4a.

Light yellow-brown; face below eyes yellow, legs and ventral surface of thorax and abdomen lighter brown, lateral edges of pronotum and tegulae dark, spines on legs dark brown. Tegmina hyaline, smoky, lighter along costal area, veins light closely beset with light granules, a darker brown mark over base of costal cell, a darker mark along apical half of radia and a brown spot at tip of each apical vein.

Male pygophor with even margins; anal segment without spines; styles narrow, of even width till apex where it is unequally bifurcate, the inner prong being very short, the outer longer and slightly spatulate at end.

Length 2.5mm.; tegmen 3 mm.

Hab. Macao and Sheiklung, China.

Perkinsiella Kirkaldy.

(1) *P. thompsoni* (♂ ♀)

Vertex, face between eyes, antennae and clypeus dark brown, with two darker marks across face between eyes; face below eyes, thorax, legs and apex of clypeus yellow; pronotum and scutellum darker than ventral side, especially along the sides; a brown spot on each front coxa and a round spot on each mesopleurum; front and middle femora longitudinally striped with brown, a faint brown ring on tibia, spur yellow with black teeth; abdomen brown, pleura and margins of segments yellow. Tegmina hyaline, semiopaque, yellowish over clavus; veins light, studded with brown granules, fuscous along edges of third radial and first median apical veins, and over the base and apex of second median and the entire of third median and first cubital apical cells, except for a round white spot at apex of each cell; wings hyaline with brown veins.

Male pygophor rounded, dorsal edge roundly emarginate where anal segment fits in, ventral edge with two thin, long, subparallel, median spines nearly reaching to anal segment; anal segment

with a long, slightly curved, strong spine from each ventral corner reaching more than half across pygophor; styles broad and flattened on basal half, the apical portion thinner, bent inward with the apex broadened out into a small, flat surface, the outer and posterior edges of which are produced into short points.

Length 2.7 mm.; tegmen 3.6 mm.

Hab. Island of Guam, on sugar-cane. No. 3095 of Mr. D. T. Fullaway's collection. I take the pleasure of naming this insect after Mr. J. B. Thompson of Guam.

This species, the fourteenth of the genus, comes next to *sinensis* from which it differs by the greater amount of infuscation on apex of tegmen and the very distinct genitalia.

Stobaera Stal.

I consider Fowler's *Goniolcium* to be this genus. The species of this genus all have somewhat similar facies, and with the additions to it that is sure to be made by more extensive collecting in Mexico and the more southern countries, there will arise great difficulties in identification unless the male characters be studied carefully.

(1) *S. concinna?* Stal.

Specimens from Mexico Valley agreeing with Stal's description have a very distinct feature in the shape of the anal segment. The anus is situated near the base, where the segment is short; beyond the anus the ventral edge is produced into a broad, flattened process, turned down at right angle to the basal portion, the apex being spatulate and trilobed, the process reaching down to the ventral wall of pygophor; the medio-ventral edge of pygophor slightly emarginate, each corner of the emargination being produced into a small spine, the lateral edges cut back so as, in side view, to expose the styles; styles slender and cylindrical at base, slightly broadening to the truncate apex which has each corner produced into a little spine; a spine projects from the base of the styles.

(2) *S. tricarinata* Van Duzee.

The specimens I identify as this species have the ventral edge of pygophor roundly emarginate in the middle, the sides being cut away, exposing the styles in lateral view; anal segment short with a short downwardly turned, apically rounded process on the ventral edge; styles thinly cylindrical at the base, broadening and flattening towards the apex, which is truncate and produced into a spine on the

inner corner, the outer edges of the styles curved, the inner edges sinuous, spine at base pointing upward, not outward.

(3) *S. granulosa* (Fowler)

The specimens I have from Orizaba under this name differ slightly from Fowler's description; from *koebeli* they differ in having the process on anal segment very much shorter and the styles are widest shortly before apex.

(4) *S. koebeli* sp. nov. (♂ ♀)

A very short furcation at base of median facial keel. Scutellum, pronotum, vertex, antennae and face between eyes brown, face below eyes and genae yellow, speckled with brown at apex; clypeus brown; keels on head and thorax lighter in color; female abdomen yellowish with brown spots, male abdomen brown with small yellowish marks near base; femora brown, especially in male, all tarsi and tibiae banded with brown. Tegmina hyaline, veins not colored, dotted with large, brown, hair-bearing granules, a curved brown mark over first median sector and cubitus, a light brown spot in median cell and the clavus slightly fuscous.

Medio-ventral edge of pygophor deeply and roundly emarginate, the corners of the emargination forming subacute points; anus at base of anal segment, the ventral portion of segment beyond anus flattened, gradually narrowed to the acutely pointed apex, and curved under; genital styles curved, meeting together at their bases and forming a "horse-shoe," narrow, subequal in width to truncate apices, which are slightly widened, from their bases where they touch arise two small, stout spines.

Length 2.5 mm.; tegmen 3.4 mm.

Hab. Morelos, Mexico. (A. Koebele coll.)

I take pleasure in naming this species after Mr. A. Koebele.

(5) *S. azteca* sp. nov. (♂ ♀).

Facies very similar to *koebeli*, but inclined to have the lighter marks more extensive. The male pygophor medio-ventrally emarginate, the sides cut back; the anal segment short, the ventral edge beyond anus forming a downward-pointing, short spine reaching about two-thirds to ventral margin; styles slightly curved, thin and cylindrical at base, slightly flattened on apical half, truncate at apex with each corner drawn into a small spine, an outwardly pointing spine at the base of each style, joined together at their bases. This differs from *granulosa* by having a spine on the anal segment and not

a flattened, apically pointed process and by the styles not swelling out before the apices.

Length 2.5 mm.; tegmen 4.0 mm.

Hab. Morelos, Mexico. (Koebele coll.)

(6) *S. testacia* (Fowler.)

I have one female which may be this species. It differs from the typical species in having the pronotal carinae not quite reaching the hind margin and not angulated; the lateral carinae of the face are not sub-parallel but outwardly curved and widest apart at lower angles of eyes. The furcation of median keel more distinct. It is likely to represent a new genus.

Purohita Distant.

(1) *P. cervina* Distant.

One specimen (♀) from Macao on bamboo.

(2) *P. fuscovenosa* sp. nov. (♀)

Two specimens which differ from the type species by their darker color, veins of tegmina broadly fuscous-brown from base to apex and larger size.

Length 4.8 mm.: tegmen 5.4 mm.

Hab. Macao, China, on bamboo.

The absence of males for comparison is regrettable.

Tropidocephala. Stal.

Owing to there being both specific and individual variation of the head, and the facies of many species very similar, the species of this genus are hard to identify with certainty unless the genitalia be described or, still better, figured; it is unfortunate that Matsumura makes no remarks on the genital characters in his monograph. A characteristic of this genus is the long, curved penis and penis guide. All the species I have studied feed on sugar-cane as well as grasses.

(1) *T. neogracilis* sp. nov. (♀)

Vertex slightly longer than pronotum (2.2 to 1). Dorsally green or yellowish green, ventrally inclining to yellow; medio-apical portion of face and the genae below the eyes black; a black triangular spot on mesopleuron; legs yellow with small black spines, abdomen yellowish below, fuscous above. Tegmina hyaline, slightly greenish, granu-

lations very small, a brown triangular mark over inner apical portion, the veins in this portion being darker, cubitus, media and radia each with a small brown spot before cross-veins.

Length 3 mm.; tegmen 3 mm. (with apex of tegmen deflexed.)

Hab. Pontianak, Borneo, on sugar-cane. This species is very near *gracilis*, under which name it is likely that Matsumura has more than one species, it also comes near to *hamadryas*.

(2.) *T. festiva* (Distant)

Plate 6, Figs. 9, 9a

There are specimens in our collection from Borneo and Java that agree with Distant's and Matsumura's descriptions, but the head is just double the length of the pronotum. I figure the male genitalia.

(3) *T. atrata* (Distant).

Plate 6, Figs. 10, 10a.

There are two specimens from Macao, China, which appear to be this species; the male agrees with Distant's description, but the female is more yellowish-brown than green. I figure the male genitalia which differs from *festiva* by having narrower styles, and the prong from the base is more slender, also the outline of the pygophor is different. The vertex is slightly less than twice the length of pronotum. (1.9 to 1.)

(4) *T. saccharivorella* Matsumura.

One specimen from Macao, China.

(5) *T. amboinensis* sp. nov. (♂ ♀)

Plate 6, fig. 12.

Vertex one and a half times the length of pronotum (1.5 to 1). Brownish yellow, darker dorsally; keels on vertex, pronotum and scutellum finely bordered with black; antenna with a black ring on basal segment and two on second segment, the one near apex faint; face yellowish, lateral keels finely streaked with black; genae beneath eyes and the clypeus brown; legs yellowish with black spines; abdomen yellow with brown segmental markings. Tegmina approaching *brunnipennis*; brown with transparent, viteline patches, one from base along inner border of clavus, from end of clavus across to costa, and a small one in the apical subcostal and radial cells, veins darker,

bordered on each side with light granules bearing long, dark hairs, a dark, oval spot on the radia, media and cubitus just behind the cross-veins; wings hyaline, dark-veined. Pygophor with small medio-ventral spine, lateral edges not produced; style somewhat like *atrata* but more curved, broader at apex and with the apical, inner corner produced into a long, narrow process with rounded apex.

Length 2.3 mm.; tegmen 2.6 mm.

Hab. Amboina, on sugar-cane and other grasses.

(6) *T. saccharicola* sp. nov. (♂ ♀)

Plate 6, figs. 7, 7a.

♀ Vertex slightly less than one and a half times the length of the pronotum (1.4 to 1). Yellowish brown, the keels of vertex, pronotum and scutellum finely bordered with black; antenna with a dark ring on each segment; dorsum of abdomen and ovipositor fuscous; tegmina like *amboinensis* but lighter in color and the hyaline marks more extensive. ♂ Like the female, but marks on tegmina not so well defined.

Male pygophor with a small medio-ventral spine and a small spine from the latero-ventral edges; styles narrow and curved, the apices twisted half a turn, a small keel along the basal third; besides the penis and guide there is a long, thin spine from the ventral left side of the anal segment. This species approaches *dryas* in the shape of the male genitalia.

Length 2.8 mm.; tegmen 3.3 mm.

Hab. Pontianak, Borneo.

(7) *T. neoelegans* sp. nov.

Plate 6, fig. 8.

Vertex and pronotum of equal length. Yellowish brown; vertex pronotum and scutellum with keels finely bordered with dark brown, especially the median keels; genae beneath eyes darker, two faint rings on second joint of antenna. Tegmina very like *amboinensis*, with the clear hyaline spaces larger, the black spots on radia, media and cubitus larger and plainer and the granulations along nerves white. Male pygophor with a small, medio-ventral spine, the lateral edges not produced into spines, the styles somewhat like *amboinensis*, but broader and more truncate at apex, with the inner corner developed into a long, narrow, roundly-tipped process.

Length 2.8 mm.; tegmen 3 mm.

Hab. Telok Ayer, Borneo, on sugar-cane.

This is evidently allied to *elegans*, but as I have no description or figure of the genitalia I cannot be sure.

(8) *T. neoamboinensis* sp. nov. (♂)

Plate 6, fig. 11.

Vertex and pronotum of equal length. This species has the facies of *neoelegans* and *amboinensis*, but the genital styles differ considerably, the base being produced into a rounded, thin, concavo-convex process, the apex is less truncate and the apical corner produced into a much wider process.

Length 2 mm.; tegmen 2.5 mm.

Hab. Amboina; Cairns, Queensland.

(9.) *T. brunnipennis* Sign.

I have specimens from Amboina and Java which agree with Kirkaldy's *eximus*, which Matsumura considers the same as the African species *brunnipennis*.

(10) *T.* sp. nov.

I have one damaged specimen from Macassar in which the vertex is much shorter than the pronotum, (.75 to 1) and does not reach to the anterior margin of eyes, the face slopes forward, the apex of face being the most anterior portion of the head. It is too much damaged to describe, but the remarkable shape of the head makes it worthy of mention.

Sardia Melichar(1) *S. rostrata* Melichar.

Specimens from Java and the Malay Peninsular agree fairly well with Melichar's description, but they are darker in color. The genitalia is near to *pluto* but the styles differ in having the basal portion larger in proportion to the apical portion and produced more acutely, the apical portion also differs. These differences are best seen in a side view of the styles. As there are no figures or descriptions of the male genitalia of *rostrata* from Ceylon I am unable to be sure of my identification. I have one brachypterous female from Java which is lighter in color than Melichar describes.

Phyllodinus Van Duzee.(1) *P. macaoensis* sp. nov.

Brown; keels on head and thorax lighter, four small light spots

on apical portion of face, with some very indistinct ones at base; front legs dark brown, a small light mark at apex and one at base of tibiae, hind legs lighter brown; thorax and abdomen dark brown marked with lighter spots. Tegmina hyaline, veins light with small brown granules, a light brown mark from apex of costal cell over cross-veins and over cubital and last median apical cells, also fuscous along the sides of third and fourth median apical veins.

Length 2.8 mm.; tegmen 3.3 mm.

Hab. Macao, China.

This is the first Oriental species of this genus. I have only one American species for comparison, viz.: a brachypterous form of *P. nervatus*; from this species it differs in having the forking of the median facial keel reaching to the lower angle of eye, the anterior legs flattened but not quite so wide. The neuration of the tegmen is different from any other Delphacid with which I am acquainted, there being three veins to the subcost-radial system and an extra branch to the cubital system, the media touching both the radia and cubitus; a similar number of veins is also plainly recognizable in the brachypterous *P. nervatus*.

Sogatopsis gen nov.

Type, *pratti*.

In profile face and vertex flattened, subangular at their junction. Head narrower than thorax; vertex longer than wide, slightly narrowed towards apex, divided from face by an indistinct, wide V-shaped keel, a very obscure median keel bifurcate at apex, disk concave, base truncate; length of face nearly three times the breadth, sides parallel, tricarinate; clypeus shorter than face, tricarinate, genal keel distinct, running from beneath antenna to meeting of facial and clypeal lateral keels; antennae longer than face, first and second joints of equal length, first joint triangular in section, second cylindrical. Pronotum tricarinate, lateral carinae slightly diverging, reaching posterior margin, which is shallowly emarginate; scutellum tricarinate, lateral carinae very slightly diverging, reaching posterior margin. Hind tibia with one small basal, one small submedian and six small apical spines, spur cultrate (not lamellate) straight on inner edge, curved on outer, with one small apical tooth. Radial and median cross-veins small but distinct.

This genus is near to *sogata* but the antennae alone place it in a different genus.

(1) *S. pratti* sp. nov. (♀)

Yellow or light brown marked with dark brown and black. Head

and thorax yellowish brown pronotum and scutellum laterad of outer keels darker, two black lines from base of scutellum to apex of clypeus, broadest on face and clypeus where they fill all the space between the yellowish keels, genae beneath eye black, antennae yellowish with three longitudinal black marks, regular on first segment, irregular on second; front legs yellowish, longitudinally striped with brown, hind legs irregularly so; abdomen brown with hind margins of segments broadly yellow. Tegmina whitish hyaline marked with brown the brown marking forming a broad mark from costa across tegmen to middle of clavus extending over outer half of clavus and to base between cubitus and subcosta, also from costa over the yellow cross-veins to posterior border and to first median vein, leaving a triangular hyaline mark with its base from end of costal cell to near first median veins, and its apex touching middle of second median vein, small light mark in apex of first and second median and first cubital apical cells, apex of radial vein fuscous.

Length 3.4 mm.; tegmen 4 mm.

Hab. Amboina.

I take pleasure in naming this species after Mr. Felix Pratt, who took it in my company in Amboina.

Eumetopina Breddin.

(1) *E. flavipes* sp. nov. (♂ ♀)

Dark, shiny brown; clypeus, rostrum, apex of face, legs and posterior edge of pronotum yellowish; abdomen brown, margins of segments lighter brown or yellow. Tegmen brown with a lighter mark at end of costal cell and over cross-veins, veins dark with fine, hair-bearing granules; wings fuscous hyaline, veins dark.

Male pygophor short dorsally, long ventrally, rounded, a small medio-ventral spine; anal segment short with a strong, curved median spine from the ventral edge. Styles small, narrow, parallel-sided, apex pointed, arising from well within the pygophor.

Length 3.8 mm.; tegmen 3.8 mm.

Hab. Pontianak and Telok Ayer, West Borneo; Laloki, Papua; on sugar-cane.

(2) *E. caliginosa* sp. nov. (♂ ♀)

Dark brown; frons, except the base, genae below eyes, sides and posterior margin of pronotum and spur on hind tibia yellow or whitish, trochanters of hind legs and margins of abdominal segments yellowish. Tegmina uniformly brown, veins dark, granules small, dark, hair-bearing; wings smoky hyaline, veins brown.

Male pygophor with two small, contiguous, median spines on ventral border, with a very small projection a little laterad of these;

spine on ventral edge of anal tube fine; styles narrow, subparallel-sided, arising well within the pygophor, apical third slightly curved and the inner edge emarginate, apex rounded.

Length 3 mm.; tegmen 3 mm.

Hab. Amboina; Ceram; Toeal, Kei Islands; Larat; on sugar-cane.

In these two species the median carina on scutellum is obsolete; *caliginosa* appears to be very near to *krugeri*, but the antennae are all dark brown.

Eoeurysa gen. nov.

Type *flavocapitata*.

This genus differs from *Eumetopina* in having the junction of vertex and face acutely angular, the median keel on face and scutellum distinct and the genital styles articulated on the ventral edge of pygophor, not within it.

(1) *E. flavocapitata* sp. nov. (♂ ♀)

Vertex, base of face, pronotum, except the lateral margins, and pleura of abdomen yellowish, rest brown, hind legs lighter. Tegmen lighter brown, veins darker with small, hair-bearing granules; wings smoky hyaline with brown veins.

Male pygophor slightly emarginate medio-ventrally; anal segment short, a strong, inward-pointing spine on each ventro-lateral edge; genital styles reaching to anal segment, attached to the medio-ventral edge of pygophor, gradually enlarged on basal half then gradually tapering to apices which are curved outward.

Length 2.8 mm.; tegmen 2.8 mm.

Hab. Malay Peninsula and South China, on sugar-cane and sorghum.

Punana gen. nov.

Type *brunnea*.

In profile angular at junction of vertex and face, face and clypeus forming a continuous, slight curve, clypeus not angular. Vertex as long as broad, slightly rounded at apex, truncate at base which is slightly in front of middle of eye; an inverted V-shaped keel from middle of apex to latero-basal corners and continuing along back of eye, disk slightly excavate; face about one-third longer than wide, apex and base of equal width, laterally convex and keeled, also medially keeled; clypeus distinctly shorter than face, tricarinate; eyes with very slight antennal emargination on lower edge; antennae as long as face, first joint a little shorter than second, cylindrical, slightly

enlarged towards apex, beset with small spines, second joint flattened ovate, beset with sense organs and small spines, arista at apex; no carinae on genae below antennae. Pronotum as long as vertex, tricarinate, with a puncture in each half of disk, lateral carinae diverging, following curvature of hind margin of eye; scutellum 5-carinate. First joint of hind tarsus longer than the following two together, tibia with one basal, one sub-basal, one sub-apical and three apical spines, tibial spur a little more than half the length of first tarsal joint, awl-shape. Tegmina as in *melanesia*, but the neuration obscured by irregular granulation.

This genus is near *Melanesia*, but the shape of face and antennae easily separate it.

(1) *P. brunnea* sp. nov. (♀)

Brown; face with small light dots along keels, a yellowish mark dividing face from the dark brown clypeus, antennae with three dark rings, legs banded yellow and brown. Tegmina brown with a few lighter spots, thickly studded with light-colored granules, mostly along each side of veins, but irregular; wings brownish, dark-veined. Anal style small, spatulate; ovipositor reaching to end of anal style.

Length 3.5 mm.; tegmen 3.8 mm.

Hab. Mowong, Borneo.

Perimececer gen. nov.

Type *giffardi*.

Head in profile rounded at junction of vertex and face, extending slightly beyond eyes; clypeus continuous with face, not angular. Eyes transverse, antennal emargination on lower edge, extending half across eye; antennae very long, first joint small, claviform, second joint more than four times the length of first, cylindrical, beset with spines and sense organs, apex truncate, arista as long as second joint, arising from apex. Vertex subquadrate, truncate at base which is about level with middle of eyes, slightly rounded apically, depressed in middle, keels obsolete; face long, slightly convex and keeled laterally, a pair of median keels subobsolete at base, gradually converging together and meeting at apex, no keels on genae; clypeus longer than face, tricarinate, median keel reaching apex, lateral ones reaching a little beyond middle. Pronotum a little shorter than vertex, anteriorly truncate in middle, posteriorly shallowly emarginate, median keel subobsolete, lateral keels wide apart, diverging, following curvature of back of eyes. Scutellum slightly broader than long, lateral angles well in front of middle, 5-carinate, medio-lateral keels converging anteriorly. Tegmina narrowly rounded at apex; subcosta and radia amalgamated for basal third, radial cross-vein missing or very

short, radia furcate beyond cross-vein, two median sectors, basal portion of first joining cubitus, four apical cubital veins, a large stigmal spot at end of costal cell. First joint of hind tarsus about twice as long as second and third together, tibial spur awl-shape with one basal, one preapical and four apical spines.

This genus is near to *Ugyops* (and *Bidis*) but its longer antennae, wider vertex and the distance between its median facial keels distinguishes it.

(1) *P. giffardi* sp. nov. (♀)

Plate 6, fig. 13.

Face below eyes, clypeus, legs, ventral surface of thorax and abdomen, vertex and middle of thorax light yellow, eyes, antennae, face between eyes, lateral portions of pronotum and scutellum and dorsal surface of abdomen dark reddish brown; abdomen somewhat mottled. Tegmina brownish, darker over the costal area up to stigma and over the posterior half of apex; veins darker, a row of hair-bearing granules along each side of veins to cross-veins, then a single row on the veins; wings dusky hyaline, veins brown.

Length 4.4 mm.; tegmen 7.8 mm.

Hab. Piroe, Ceram.

I take the pleasure of naming this species after my friend Mr. W. M. Giffard.

Ugyops Guer.

(1) *U. liturifrons* (Walker.)

Specimens from Amboina, Ceram and Larat show considerable variation in extent of markings on tegmina; in some the brown apical mark extends along clavus to base. The genitalia in all these specimens are identical, the medio-ventral edge of pygophor is drawn out into a rounded tongue, the lateral edges curved; anal segment about half the length of ventral surface of pygophor, with a v-shaped excavation on its ventro-basal surface; anal style lanceolate, long, narrow; styles slender, subcylindrical, curved inwardly to near tips which are straight and meet together.

(2) *U. amboinensis* sp. nov. (♂ ♀)

Face with two approximate median keels joined together at apex. Light yellow, vertex and sides of face, genae and apex of clypeus spotted with brown, second joint of antenna with two brown bands, a brown band on apex of front femora and three bands on front tibiae, the bands on middle and hind legs much fainter, lateral edges and keels of thorax darker, abdomen mottled with brown, especially along medio-lateral line of dorsum. Tegmina hyaline, veins yellow with

brown bands, a brown mark in first apical median cell; wings hyaline, brown-veined. Besides being smaller and lighter this species differs from *liturifrons* in having the pygophor and anal tube much smaller, the anal style shorter and broader and the genital styles less curved and their apices, where they meet, not straight.

Length 5.2 mm.; tegmen 5.7 mm.

Hab. Amboina.

(3) *U. lalokensis* sp. nov. (♂)

A single median facial keel, meeting the V-shaped keel of vertex; the first median sector touching the cubitus (no median cross-vein). Light brown; the facial keels, distal half of second antennal joint, apical portion of tibiae and marks on dorsum of abdomen dark brown. Tegmina hyaline, veins brown with very fine, hair-bearing granules, a large stigma at end of costal cell, a brown spot at end of each apical vein, extending along cubital vein to clarus; wings hyaline, fuscous at border, brown-veined. Length of ventral surface of pygophor more than twice the breadth, medio-ventral process about as long as broad, angularly emarginate at apex, ventro-lateral edges of pygophor produced into angular, bent plates; anal segment long, compressed, forming a keel along medio-dorsal line, a long, acutely angular depression on ventral basal surface; anal style very small, narrowly lanceolate, genital styles small, slightly curved, flattened, the apices crossing one another.

Length 6 mm.; tegmen 7.7 mm.

Hab. Laloki, Papua.

This probably represents a new genus, but as there appears to be two forms mixed under *Ugyops* and *Bidis* which I cannot separate I place this form with them.

Melanesia Kirkaldy.

(1) *M. borneoensis* sp. nov. (♀)

Stramineous; a small, black, spatulate-shaped mark on each side of the V-shaped keel of vertex, a round black spot on each side of pronotum behind eyes, ovipositor dark; tegmina hyaline, slightly opaque and yellowish, veins colourless on basal half, brown apically, with numerous inconspicuous granules, a black spot in clavus, another small one at base of subcosta, radia, media and cubitus each with small brown spot; wings hyaline, brown-veined, slightly opaque.

Length 4.6 mm.; tegmen 5.4 mm.

Hab. Mowong, Borneo.

TROPIDUCHINAE.

Tambinia Stal.(1) *T. macaoana* sp. nov. (♂ ♀)

Length of vertex about two-thirds the width (1 to 1.6), two small keels in a medio-lateral position at base of vertex not reaching half way to apex, length of face slightly more than greatest width below the eyes, median keel broad and distinct at *base*, very fine towards *apex*; posterior margin of pronotum deeply and angularly emarginate; tips of tegmina slightly deflexed at cross-veins; the characteristic apical cross-veins present.

♀ Light green, stramineous or light brown, lighter ventrally; eyes, spines on posterior legs and the ovipositor brown. Tegmina hyaline, slightly stramineous, all the cells of corium slightly granulate. Anal style longer than broad, apex rounded.

♂ One specimen light green, others light brown to yellow. Genital styles broad, thin, convex, similar in shape and size to the median process which lies between and contiguous to them, the three together forming a hemisphere; anal style long, elliptic, projecting well beyond the genital styles.

Length 4 mm.; tegmen 4.6 mm.

Hab. Macao, China.

(2) *T. terryi* sp. nov. (♀)

In color and form of head this is identical with the brown *macaoana* but the granulation over the cells of corium is more distinct and the anal style is lanceolate, with the apex acutely pointed whereas in *macaoana* it is rounded.

Length 4.4 mm.; tegmen 5.2 mm.

Hab. Manila.

Collected by my late friend, Mr. F. Terry.

(3) *T. concolor* sp. nov. (♂ ♀)

Shape of head similar to *macaoana*. Stramineous, legs and thorax ventrally slightly lighter, abdomen slightly fuscous; granulations on corium faint. Male genital styles spoon-shaped, their rounded apices meeting together; between them, in a median position, rises a very small conical process; anal segment longer than broad, slightly widened at apex which is shallowly and roundly emarginate, anal style small, lanceolate.

Length 3.8 mm.; tegmen 5 mm.

Hab. Amboina; Ceram.

The female I associate with this is from Ceram. The anal

segment and style agree with the Amboinese males. The corium is slightly more granulate.

(4) *T. fuscocoriata* sp. nov. (♂ ♀)

The small medio-lateral keels at base of vertex missing, otherwise head and thorax as in *macaoana*. Head and thorax greenish, yellowish or stramineous, on vertex, pronotum and scutellum more or less scarlet between keels, apical half of face brown, legs and abdomen fuscous. Clavus and corium up to apical cross-veins fuscous brown, with a hyaline spot at base of corium and another in the middle, the latter of variable size, corium beyond apical cross-veins hyaline, veins in hyaline portion brown, granulation more distinct in costal cell and clavus where they sometimes form minute white dots; wings hyaline with brown veins.

The one female specimen in the collection has the dark marking on the tegmen reduced to the clavus, base of corium and over the cross-veins.

The genitalia differs from *laratica* only in the apices of the genital styles which are smaller and the apical half of anal style more circular.

Length 3.2 mm.; tegmen 3.7 mm.

Hab. Larat.

(5) *T. laratica* sp. nov. (♂ ♀)

The small medio-lateral keel at base of vertex is obsolete and the median keel sometimes very faint, otherwise this species has the form of *macaoana*. Stramineous to light brown, the dorsum of abdomen fuscous, more or less tinged with scarlet between keels of head and thorax; one specimen has head, thorax and veins of tegmina green and the scarlet more distinct. Tegmina hyaline, slightly stramineous, veins stramineous, brown or green, fuscous over cross-veins making a distinct mark across tegmina separating the apical area, granulation on corium obsolete; wings hyaline with dark veins.

Anal segment of male and female a little longer than wide, broadest at apex where it is roundly emarginate, anal style projecting well beyond end of segment, constricted in middle, apical half circular; genital styles broadest at base, gradually narrowing to apex where it has a very small bifurcation curved round and touching at their apices, from the upper edge arises a curved, pointed process; median process small about twice as long as broad; sides of pygophor slightly and roundly projecting.

Length 3.2 mm.; tegmen 4 mm.

Hab. Larat.

(6) *T. formosa* (Kirkaldy).

Ossa formosa Kirkaldy, H. S. P. A. Ent. Bul. I., p. 413.

The deep emargination of the pronotum and the presence of apical cross-veins as well as the cross-veins places this species in *Tambinia*; it has the head narrowing from front of eyes to apex and comes near to *capitata*. Width of vertex to length as 1 to 1.4.

(7) *T. venusta* (Kirkaldy).

Ossa venusta Kirkaldy, l. c.

This species is congeneric with *formosa*, the head is not gradually narrowed, the length of vertex subequal to width.

Trichoduchus Bierman.

The species I add to this genus agrees in its generic characteristics with *biermani*; there is a small, pointed tubercle in the middle of the clypeus. I follow Bierman in placing this genus in *Tropiduchidae*, but it is so like *Ommatissus* that I consider they must eventually be placed next to one another. *Paruzelia* has a neuration approaching this genus.

(1) *T. biermani* sp. nov. (♀)

Yellowish, marked with brown. Head and thorax yellowish. clypeus and genae below antennae brown, legs and under side of thorax speckled with brown; abdomen yellowish mottled with brown, a round shiny black spot on pleura of penultimate segment. Tegmen reaching slightly beyond end of abdomen, very irregular, disk convex, the disk of each individual cell somewhat concave, the veins elevated; centrally dark brown to black, with yellow veins, margin lighter brown, colorless at apices of veins; three round vitiline spots, one in each of the first and second median cells and the third over the radia; wings totally absent.

Last dorsal plate emarginate in middle where anal segment is situated, the sides of emargination projecting as a rounded plate on each side of anal segment. Anal segment short, anus in middle, apex shallowly emarginate; sheaths of ovipositor broad, rounded at apices, which turn slightly upward.

Length 3.5 mm.; tegmen 2.50 mm.

Hab. Macao, China.

CIXIINAE.

- | | |
|--|--------------------|
| 1. Vertex angularly emarginate at apex..... | <i>Kirbyana</i> |
| Vertex truncate at apex | 2 |
| 2. Vertex with a distinct transverse keel..... | <i>Leptoclamys</i> |
| Vertex without a transverse keel..... | 3 |
| 3. Vertex with a distinct medio-longitudinal keel,
quadrate, base subequal to apex..... | <i>Ptoleria</i> |
| Vertex without a medio-longitudinal keel, or with
a very obscure one | 4 |
| 4. Vertex distinctly wider than long, base shallowly
and roundly emarginate | <i>Austroloma</i> |
| Vertex not distinctly wider than long, base less
roundly emarginate | 5 |
| 5. Apex of vertex not perceptibly narrower than base | <i>Saccharias</i> |
| Apex of vertex narrower than base, the median
facial keel breaking the truncate outline of apex.. | <i>Dystheatias</i> |

I cannot find the type material of *Saccharias* among the late Mr. Kirkaldy's collection, but I took specimens in Java which I consider to be topotypes; they agree with the specific description, his generic description being quite inadequate.

The above six genera are closely allied, the first three are easily distinguished, but the last three are very difficult to keep apart; their generic distinctions are not likely to bear the strain that more extensive collecting will place upon them.

Ptoleria Stal.(1) *P. granulinervis* sp. nov. (♂ ♀)

Lateral carinae of scutellum sinuate.

Light brown, the keels on head and thorax slightly lighter, dorsal part of abdomen fuscous, front legs with faint fuscous rings on femora and tibiae; tegmina light brown, small brown granules covering nerves, darker over stigmal spot; wings hyaline, slightly fuscous, veins brown. Male pygophor laterally compressed, a large emargination on dorsal side in which the anal segment fits, lateral edges sinuate, a small, rounded, median process; anal segment longer than broad, anus a little beyond middle, beyond anus flattish, slightly turned down, truncate at apex, a small, down-turned spine at each apical corner; styles flattish, widest at apex, inner edge convex outer edge concave, apex with a small point.

Female slightly darker in color, with more infuscation over apical portion of tegmina.

Length 2.4 mm.; tegmen 3.5 mm.

Hab. Larat, Timor Laut Islands.

(2) *P. brunnea* sp. nov. (♀)

Lateral keels on scutellum sinuous. Dark brown, keels on head and thorax and the legs lighter, front tibiae with three darker bands; tegmen with apical half fuscous, a small angular light mark at end of costa, and a small spot at end of each apical vein, a brown band from near base of costa to middle of clavus and then to cubitus a little above the furcation, veins with brown granules; wings fuscous hyaline with brown veins.

Length 2.5 mm.; tegmen 3.7 mm.

Hab. Larat, Timor Laut Islands.

(3) *P. communis* sp. nov. (♂ ♀)

Lateral keels on scutellum slightly curved, not sinuous. Brown, keels and legs lighter, front tibiae with fuscous bands, male styles and ventral portion of pygophor light; tegmina hyaline, light brown, apical half fuscous, the veins brown with brown granules, tips of apical veins with small dark spots with light spots on border between them, a faint mark from corium to base of costa; wings smoky with brown veins. Male pygophor compressed laterally, long ventrally, short dorsally, sides roundly produced, medio-ventral process small, conical; anal segment longer than broad, anus two-thirds from base, apex rounded, sides deflexed, forming a hollow on ventral side; styles flattened, curved, narrow at base, gradually increasing to rounded apex.

Length 2.5 mm.; tegmen 4.2 mm.

Hab. Singapore.

This species is near *brunnea* but the absence of the angular light mark at end of costa and the presence of the light and dark marks along the apical border easily distinguishes it.

(4) *P. maculata* sp. nov. (♂ ♀)

Lateral keels on scutellum slightly curved but not sinuate. Female head, thorax and legs light brown, abdomen dark brown, no bands on legs; tegmina hyaline, uniformly yellow brown, veins of same color with light granules, cross-veins dark and a dark spot at tip of each apical vein.

Male with infuscation on cross-veins and spots at apex of apical veins less pronounced, abdomen light brown. Pygophor laterally compressed, sides roundly produced, medio-ventral process small, round; anal segment slightly longer than broad, apex pointed, edges deflexed, anus slightly beyond middle, the whole somewhat like an inverted boat; styles flattish, widening to the rounded apex.

Length 2.8 mm.; tegmen 4.4 mm.

Hab. Malay Peninsula.

(5) *P. magna* sp. nov. (♀)

Lateral keels on scutellum slightly curved but not sinuate; vertex considerably narrowed apically but base much broader than length. Head, thorax and legs brown, abdomen darker, keels on head and thorax lighter, legs without marks, spines on tarsi dark; tegmina broadened towards apex which is more truncate than in the other species, uniformly brown, veins lighter and thickly studded with small brown granules, the darker color spreading out around granules into the cells, a small light spot on boarder in each median apical cell.

Length 3.6 m.m.; tegmen 5.3 m. m. This is not quite as large as the type species but larger than the other four species.

Hab. Mowong, West Borneo.

(6) *P. australis* sp. nov. (♂)

Lateral keels on scutellum nearly straight, medio-longitudinal keel on vertex distinct, first median sector touching cubitus. Vertex and middle of pronotum and scutellum light brown, sides dark brown, face, clypeus, legs and ventral side of thorax brown, face irrorated with small light spots; hind tibiae with a longitudinal brown stripe; abdomen brown, anal segment and pygophor yellowish. Tegmina hyaline, light yellowish brown, with a slightly darker fascia as in *arcuigera*, five or six small dark spots along second claval vein, veins colorless with very small, light granulations. Male pygophor laterally compressed, short dorsally, long ventrally, lateral edges roundly produced, medio-ventral process very small constricted at base (subcordate); anal segment longer than broad laterally compressed, rounded at apex, anus about one-third from base, sides deflexed forming a narrow bonnet over the styles; styles curved, slightly broadened on apical half, in transverse section subangular or sublunate.

Length 2.2mm.; tegmen 3.8mm.

Hab. Cairns, Queensland. Coll. Messrs. Perkins and Koebele.

Austroloma Kirkaldy.(1) *A. austrina* Kirkaldy. (♂)

Male pygophor laterally compressed, medio-ventral process very small, angular, lateral edges broadly angular; length of anal segment about twice the breadth, slightly narrowed to rounded apex, lateral edges near apex turned down and slightly produced, anus slightly behind middle; styles curved, narrow at base, slightly spatulate at apex, keeled longitudinally and bent so that it is angulate in cross section.

Female unknown.

(2) *A. pallidula* sp. nov. (♂)

Yellow or light brown, scutellum lateral of outer keels and dorsum of abdomen darker; tegmina hyaline, yellowish, veins yellow with a stigmal spot; wings hyaline with brown veins. Male pygophor laterally compressed, long ventrally very short dorsally, medio-ventral process small, conical, lateral edges roundly produced; length of anal segment about twice the breadth of base, gradually narrowing to rounded apex. The edges near apex turned down and produced into a fine spine on each side, anus a little beyond middle; styles small, curved, basal portion thin, apex roundly spatulate. This species differs from *austrina* by the large anal segment with spines on sides of apex, rounded sides of pygophor and the styles being more roundly spatulate at tip and without a longitudinal keel.

Length 2.50mm.; tegmen 4mm.

Hab. Larat, Timor, Laut Islands.

(3) *A. pallida* sp. nov. (♂)

Yellow or light brown, very slightly fuscous on dorsum of abdomen; tegmina hyaline slightly yellowish, veins yellow, a minute fuscous spot in clavus, the tips of first three apical veins slightly fuscous. Male pygophor laterally compressed, long ventrally, short dorsally, lateral edges roundly produced, medio-ventral process angular, broader than long, length of anal segment slightly more than twice width of base, anus in middle, in dorsal view constricted before anus and gradually narrowed after anus to the roundedly-pointed apex, two downward pointing knobs on ventral edges about middle; styles small, flattish, regular about middle, apex slightly widened.

Length 2.50 mm.; tegmen 4mm.

Hab. Amboina; Larat.

(4) *A. fusconervata* sp. nov. (♀)

Dark brown; face, legs, pleurae and edges of abdominal segments and keels of head and thorax lighter; tegmina hyaline with dark brown veins with small granulations, three small brown spots, one in clavus, one on cubitus and one on media, all apical cells more or less fuscous, darker along veins. There are twenty specimens from Amboina of which the above description is typical, the infuscation varies in intensity, the two spots on the corium being absent in some specimens; there are also seventeen specimens from Larat which conform to the lighter Amboina specimens. It is possible that we have here the females of *pallida* and *pallidula*.

Length 3mm.; tegmina 4.6mm.

Hab. Larat, Timor Laut Islands; Amboina.

(5) *A. bicolor* sp. nov. (♀)

Scutellum, lower portion of face, clypeus, legs and ventral aspect of thorax yellow, upper portion of face, vertex, pronotum, tegulae and abdomen dark brown or black; tegmina dark fuscous, veins dark and granulated; wings dark fuscous with dark veins.

Length 2.8mm.; tegmina 4.8mm.

Hab. Piroe, Ceram.

(6) *A. grandis* sp. nov.

Vertex and middle of pronotum and scutellum, sides of pronotum and scutellum, face clypeus and genae dark brown, keels of face and clypeus with light spots, legs yellow with fuscous bands, one on femora, two on tibiae and one on first tarsal joint, abdomen brown marked with yellow. Tegmina hyaline marked with brown, veins mostly white with brown granules; the brown markings are over middle of clavus and forking of cubitus to near costa, at base of costa, an irregular broad angular mark from end of costal cell to cubitus and then to radial apical vein, apical area suffused with brown; wings hyaline with brown veins, slightly suffused with fuscous.

Length 3.6mm.; tegmen 5.4mm.

Hab. Amboina.

This species has the typical wing of the genus, but there is an indication of a median longitudinal keel on vertex which confuses it with *Ptoleria*.

Kirbyana.(1) *K. javana* sp. nov. (♀)

Stramineous; keels of head and thorax lighter, pronotum and scutellum outside the lateral keels darker; all tibiae with a longitudinal brown mark; tegmina stramineous, veins light, granules very small and colorless; wings hyaline with white veins. This species is easily recognized from *pagana* by the absence of the dark granules.

Length 2.6mm.; tegmen 4.4mm.

Hab. Doro, Java.

(2) *K. pratti* sp. nov. (♂ ♀)

Yellowish brown; keels on head and thorax lighter, face with small light spots, lateral edges of pronotum and scutellum darker, pygophor lighter, tibiae with longitudinal brown mark; tegmina hyaline variegated with brown, veins colorless with small brown granules; the brown markings covering inner half of clavus and extending to cubitus and, near base, to costa, a large, irregular, brown, triangular mark with its base from middle of costa to second radial vein

and its apex reaching the cubitus, dark over apical portion of tegmina, especially along apical veins, some small dark spots on claval veins.

Male pygophor narrow, compressed laterally, the sides produced into obtuse angles, a small median process on ventral edge; anal segment short, anus in middle where it is raised, the edges turned downward, apical edge with small, round emargination; styles short, reaching to end of anal segment, flattened; with end shaped like a bird's head.

Length 2.8mm.; tegmen 4.2mm.

Hab. Parit Buntar, Malay Peninsula.

I take the pleasure of naming this little insect after Mr. C. Pratt who caught the first of my specimens.

Mundopa Distant.

The species I place under this genus agree with *cingalensis* in neuration, shape of head, etc. The vertex is short, divided from face by transverse keel, with or without a longitudinal keel; median keel of face furcate at base.

(1) *M. lunata* sp. nov. (♀)

Yellow or yellowish brown; pronotum and scutellum darker, a brown mark across posterior portion of scutellum, brown over front and middle coxae, middle of pronotum, edges of tegulae and apex of abdomen; tegmina hyaline, very slightly yellowish and opaque with waxy secretion, veins brown, a brown stigmal mark, a curved mark at base from subcosta to edge of clavus which joins with the band over scutellum when wings are at rest and forms a crescent-shaped mark.

Length 3mm.; tegmen 4.4mm.

Hab. Mowong, Borneo.

(2) *M. fasciolata* sp. nov. (♂)

Vertex without a median longitudinal keel. Dark castaneous; clypeus, legs, ventral surface of thorax, anal styles, keels of vertex, lateral keels of face and antennae yellow, margins of ventral plates of abdomen yellowish; tegmen hyaline slightly opaque and dirty with waxy secretion, veins yellowish, base of tegmina fuscous, a mark at stigma, a spot at end of clavus, another a little beyond clavus, a broad band across tegmina over the cross-veins; wings hyaline, veins brown, apices broadly fuscous.

Male pygophor compressed laterally, ventral edges produced an-

gularly, lateral edges evenly curved; anal segment large, anus about middle, sides curved and turned down; styles small, clavate.

Length 2.5mm.; tegmen 3.8mm.

Hab. Mowong, Borneo.

(3) *M. caliginea* sp. nov.

Dark brown; the coxae of hind legs yellowish, tegmina and wings brown with dark veins. Male pygophor very large; ventral edge sinuate and slightly emarginate, lateral edges curved and turned slightly inward, medio-ventrally there projects a plate which in ventral view is thin with two small projecting points at apex, in lateral view wide at base and curving off to thin apex; styles a little longer than median process, slightly swollen in middle, bifurcate at apex, the ends of the bifurcations rounded; anal segment very large, projecting well beyond styles, in dorsal view flat, subovate, the anus at apex, the edges turned down and apically meet beneath anus, thus forming a large concavity on the ventral side of segment, in which lies the large and complex penis.

Length 2.8mm.; tegmen 3.8mm.

Hab. Mowong, Borneo.

(4) *M. neocaliginea* sp. nov. (♂ ♀)

This differs from *caliginea* by the lateral keels of vertex and face being yellowish. Male pygophor with a medio-ventral spine, lateral edges evenly and roundly produced; anal segment not reaching to end of styles, little longer than broad, in dorsal view subtruncate at apex, where anus is situated, edges turned down thus forming a concavity on ventral side; styles boomerang shape, narrowest at base, outer edge concave inner convex.

Length 2.8mm.; tegmen 4.2mm.

Hab. Malay Peninsula; Mowong(?). I have specimens of females from Mowong which I associate with this species, but it is possible that they are only light forms of *caliginea*.

(5) *M. albocacuminis* sp. nov. (♀)

Brown; apex of face, clypeus, legs and ventral surface of thorax light yellow, lateral keels on face, keels on vertex and scutellum yellow, the lateral keels on scutellum broadly so; tegmina brown tinged with yellow over the clavus and across middle of cubitus, a crescent-shaped dirty white mark over apex from radial to last median apical veins.

This species differs from the former four in having a median longitudinal keel on vertex, and the transverse keel is v-shaped in

middle so that, together with the bifurcation of median facial keel, it forms a small diamond-shaped area.

Length 2.6mm.; tegmen 4mm.

Hab. Mowong, Borneo.

Borysthenes Stal.

This genus, like *Mundopa*, has the subcosta and radia separated from near the base, the radia being furcate about the middle and one or both branches again furcate near the apex; the media has three sectors, the first furcate near the apex. The tegmina are amplified on the hind margin beyond the clavus, and when at rest these areas overlap and are not appressed as in *Mundopa Kinnara* etc., Another feature which separates this genus from *Mundopa* is the presence of a keel across the gena below the antenna (subantennal keel) which touches the edge of the face at its widest point, from which point the face narrows to the apex. It is difficult to separate the species of this genus without the help of the male genitalia. The tomentosity on species of this genus mentioned by their describers is due to waxy secretions and not to hairs or scales, and may be present or absent.

(1) *B. certus* sp. nov. (♂)

Head, thorax, legs and base of abdomen stramineous, rest of abdomen fuscous; tegmina hyaline, slightly fuscous, subopaque with waxy secretion, veins brown on basal half, fuscous apically, infuscation darker over apical cells and along base of subcosta, radia and media, and over cross-veins; third apical median and first and second apical radial cells each with a lighter spot.

Male pygophor compressed laterally; ventral edge deeply and roundly emarginate, a small, rounded, median process, slightly longer than wide; on each side of the emargination the edges are produced into a small, flat, spine above which on the right side the edge is slightly produced, then straight for a short distance and then cut away to the base of the anal segment, on the left side it is not produced but nearly straight to the base of the anal segment; anal segment large, anus near base, beyond which the segment curves under, the apex being irregular. Styles asymmetrical, right one flattened, the apical portion projecting nearly at right angle to basal portion, but in the same plane, at the angle the inner edge drawn out into a small point, the apex spatulate and rounded, the bent apical portion nearly as long as the straight basal portion, a minute emargination on inner edge near base, left style of the same shape as the right but the

bent apical portion much shorter and the spatulate apex slightly larger.

Length 3mm.; tegmen 4.4mm.

Hab. Telok Ayer, Borneo.

(2) *B. incertus* sp. nov. (♂)

The color and marking of this species is nearly the same as *certus* but the male genitalia differs as follows: Ventral emargination not so deep, median process broader, the spines at the sides of emargination broader and shorter, the lateral edges project as broad angles, the right much longer and more acute than the left; anal segment long, anus about third from base, the apex pointed, turned downward slightly and swollen; styles not so flat as in *certus*, the apical portion shorter and turned in an opposite plane to the base, the apical portion on left side being pointed and curved, not spatulate.

Length 3.4mm.; tegmen 5.2mm.

Hab. Mowong, Borneo.

(3) *B. simulans* sp. nov.

Color and marking as in *certus* but the hyaline spots larger. Ventral edge of pygophor deeply emarginate, the median process thin and spine-like, the sides roundly produced, forming a continuous curve with the sides of emargination without any spines on edge; anal segment large, anus near base, beyond anus broadened and flattened, the apex drawn out and slightly spatulate, turned downward and split down the middle, forming two contiguous processes; styles broad, flat, apical portion curved slightly outward, rounded at apex, a round emargination on inner edge near base.

Length 3mm.; tegmen 5mm.

Hab. Mowong, Borneo and Malay Peninsula.

(4) *B. magnus* sp. nov. (♂ ♀)

Clypeus, back of genae below eyes, scutellum, middle of pronotum and all of abdomen brown, rest of body and legs yellow; tegmina brown with white hyaline areas, costa and first branch of subcosta red, other veins brown; the hyaline areas are a patch over basal area, cut up by the brown veins, and nine or ten spots in the disk, the spot in second radial cell continued as a fine hair-streak to near apex; wings fuscous brown, veins dark with the darker color spreading into the cells.

Male pygophor slightly compressed laterally, medio-ventral edge produced into an angular plate, the basal half narrowing slightly, the apical half more acutely; lateral edges obtusely angularly produced;

anal segment in dorsal view projecting slightly beyond lateral edges, widest at base where anus is situated, the apex produced into two contiguous processes which are turned down at right angle to main portion; styles reaching end of anal segment curved narrow at base, wide at apex, the inner edge convex, with a small emargination at base, outer edge concave, bent along the longitudinal axis so that a transverse section shows a right angle, the apex at the bend drawn out into a point, the outer apical angle pointed, the inner apical angle rounded.

Length 4.6mm.; tegmen 6.5mm.

Hab. Mowong, West Borneo.

The bifurcation of the apex of anal segment and the shape of the styles places this species next to *simulans*.

Kinnara. Distant.

The presence of the median ocellus and the large anal wax plate of the female shows that this genus should be placed among the Cixiidae and not among the Achilidae. When at rest the tegmina have their posterior borders beyond the clavus appressed, and not overlapping as is normally the case with the Achilidae. The meeting of the claval suture with the claval vein is very obscure and should not overbalance the characters mentioned. A distinguishing feature of this genus is the large costal cell and the conspicuous stigmal area near its apex, also a subantennal keel across the gena.

(1) *K. brunnea* sp. nov. (♀)

Shiny dark brown; lateral keels of face and the legs lighter brown, pleurae of abdomen red; tegmina dark brown with three minute transparent spots near apex; wings fuscous with dark veins.

Length 2.8mm.; tegmen 3.8mm.

Hab. Mowong, West Borneo.

(2) *K. flavifrons* sp. nov. (♂ ♀)

Head, pronotum, tegulae and legs yellow or brownish yellow, scutellum dark, shiny brown, lateral facial keels tinged with darker brown, abdomen brown with reddish pleurae; tegmina dark brown with lighter spots in the middle of the apical cells; wings fuscous with dark veins.

Male pygophor compressed laterally, ventrally long, dorsally very short, ventral edge truncate, lateral edges cut back squarely to base of anal segment; from near the base of the styles a thin process arises

and remains attached to the lateral edges to their angulation when it continues as a long, free process, finely pointed and slightly twisted; styles small, not reaching to end of lateral spines, subparallel sided and rounded at apex; anal segment large, with its edges deflexed, forming a large hollow on ventral side, anus near the rounded apex; penis large and complex. Female styles (outer sheaths of ovipositor) with an indentation near apex or inner edge with a projecting flange at base.

Length 2.7mm.; tegmen 4.3mm.

Hab. Java; Mowong, Borneo.

The type is from Java, the Borneo specimens being all females and differing slightly from the female from Java. Males from Borneo may show them to be a distinct species.

(3) *K. fulva* sp. nov. (♂ ♀)

Yellow; dorsal portion of abdomen and anal segment fuscous; tegmina hyaline, subopaque with waxy secretion, slightly infuscate over the apical cells from radia to cubitus; wings hyaline, semiopaque with waxy secretion, veins dark.

Male pygophor long, compressed laterally, the ventral edge truncate, the lateral edges roundly produced, foliate and turned outward slightly, from each side near to the attachment of styles, arises a long, thin, curved process reaching to the extremity of the anal segment; anal segment long, anus about middle, beyond anus segment drawn out into a long, curved, downward-turned spine; styles not so long as the lateral processes, keeled along the outer edge, slightly expanded at apex, penis large and complex. Female styles broad, without a process at base, truncate at apex where there is a small emargination and another slight indentation below the apex on the upper edge.

Length 3.2mm.; tegmen 5.3mm.

Hab. Mowong, Borneo.

(4) *K. sordida* sp. nov. (♂)

Dorsally a sordid brown, ventrally yellowish also lower portion of face and the clypeus; tegmina hyaline, subopaque with waxy secretion, veins slightly yellowish, wings slightly fuscous, subopaque with waxy secretion, veins dark. Male pygophor compressed laterally, a thin cylindrical, roundly-pointed process arises from each lateral edge near the attachment of styles, another sharply pointed and curved process arises from the lateral edges near the base of the anal segment; anal segment long, rounded and slightly broadened at apex where anus is situated; styles shorter than lateral processes,

curved, slightly flattened, with the inner corner of apex slightly produced and rounded at apex.

Length 2.3mm.; tegmen 3.4mm.

Hab. Mowong, Borneo.

Ommatissus Fieber.

(1) *O. lofouensis* sp. nov. (♂ ♀)

This species differs from *binotatus* in the vertex narrowing slightly more towards the apex and the face towards the base, the medio-apical portion of clypeus raised as a short, angular keel. Median ocellus absent, clypeus rounded at base, keelless. Subcosta and radia amalgamated to near apex where three small apical veins arise, media simple with one sector arising a little before the branching of radia from subcosta, cubitus forking slightly before first median sector, claval vein joining commissural margin very near apex of clavus.

Dirty yellow or light brown; eyes dark brown, keels slightly lighter, abdomen darker, a dark fuscous spot on each side of pronotum as in *binotatus*, a dark patch at base of face, basal half of clypeus dark; tegmina and wings hyaline, veins brown. Male pygophor slightly compressed, ventral and lateral edges subtruncate; anal segment less than half the length of genital styles, slightly narrowed to the broadly rounded apex, anus about middle; styles large, subangular, length greater than width at base, apex slightly rounded.

Length 2.6mm.; tegmen 3.2mm.

Hab. Lo-fou Mountains, South China; 3500 feet elevation, on grasses.

(2) *O. chinsanensis* sp. nov.

This species is in form and color like *lofouensis*, but the genitalia differs; the anal tube is short, not reaching to end of genital styles; genital styles nearly circular, with a small indentation on the dorsal edge. This appears to be near to *O. binotatus*, but the styles are much larger in proportion to the anal segment.

Length 2.5mm.; tegmen 3mm.

Hab. Chin san, China (near Macao.)

Neommatissus gen. nov.

Type *spurcus*.

Head narrower than thorax; vertex longer than wide, deeply excavate so that the apex and sides stand up as deep, laminate keels, especially above the eyes, base slightly emarginate, with a very small keel; face much longer than wide, sides subparallel, slightly widening at apex, tricarinate, the median carina continued down middle of

clypeus and strongly curved before apex of same, sides of clypeus rounded, without keels; eyes round, slightly emarginate on lower posterior edge; first joint of antennae small, second cylindrical, little longer than broad, truncate at apex, arista long. Pronotum deeply and roundly emarginate on posterior margin, tricarinate, lateral keels strongly diverging, sharply bent and partly interrupted just before they reach the hind margin above the tegulae; scutellum more than twice the length of head and pronotum, with three large carinae, lateral ones diverging, reaching posterior border. Tegmina with subcosta and radia amalgamated to a little beyond middle, both with short furcation near apex, media with three sectors, first arising about middle of tegmen and furcate about its middle, cubitus furcate about middle of tegmen, radial cross-vein from radia to near base of second median sector, median cross-vein from near base of first median sector to near furcation of cubitus, claval veins amalgamating about one-third from base, joining commissural margin near apex; first joint of hind tarsus a little shorter than the others together, hind tibia with a median and a subapical spine.

This genus is near *Ommatissus* but is easily distinguished by the laminate keels on sides of vertex and the more complex neurulation of tegmina.

(1) *N. spurcus* sp. nov. (♂ ♀)

Sordid yellow or sordid light brown; abdomen and between keels of scutellum darker, two small dark marks on apex of vertex; tegmina and wings hyaline, veins yellow, beset with fine hairs on the *underside*. Male pygophor small, slightly compressed laterally, vertex and lateral edges subtruncate, dorsal edge with deep emargination in which anal segment fits; anal segment very short, rounded; genital styles narrow at base, gradually widened to truncate tip, apical corners rounded, outer apical angle with a small outward and downward turned spine, a small spine near apex.

Length 2.3mm.; tegmen 3.8mm.

Hab. Amboina.

Note.

The reason for the horismology of the tegmen employed in this paper is fully explained by figures 1 and 2 of Plate 6, which illustrates the tracheal system in the nymph and recently hatched adult of *Perkinsiella saccharicida*, a typical Delphacid tegmen. The radia and media both bend out of the straight and amalgamate for a short distance, likewise the first median sector (third median vein) and the cubitus, the latter taking a sharp bend immediately afterwards; thus there are neither radial

