

*New and little-known Fulgoroidea (Homoptera)*

By Dr. FREDERICK MUIR\*.

THE present paper is chiefly based on material submitted to me for identification by the British Museum (Nat. Hist.) and the Imperial Institute of Entomology. The description of a new species of *Æclidius* belonging to the Stockholm Museum, however, has been included.

✓ c Issidæ.

✓ *Padanda ? denti*, sp. n. (Fig. 1.)

*Brachypterous Female*.—Length 4·6 mm.; tegmen 3·2 mm.

Vertex about as long as wide, about half projecting in front of eyes, broadest between eyes, then gradually narrowing to narrow rounded apex; a median longitudinal carina on basal two-thirds; posterior margin slightly emarginate. Length of frons about 1·7 times the width, base broadly rounded, sides slightly curved; the median and medio-lateral carinæ distinct, the basal median portion, between the medio-lateral carinæ, slightly

\* Dr. Muir died on May 31st, 1931, leaving a number of partly finished manuscripts, of which this is one. It is hoped to publish the remainder as opportunity offers. The types are in the British Museum, unless otherwise stated.—W. E. CHINA, British Museum (Nat. Hist.).

*Hab.* Uganda, Kitambala (*G. H. E. Hopkins*, 22. ix. 1929). Two females.

### Delphacidae.

#### ASIRACINÆ.

##### *Pentagramma nigrifrons*, sp. n.

*Female*.—Length 5.3 mm.; tegmen 5.6 mm.

Length of vertex nearly double the width; median carina obsolete. Frons longer than wide, carinæ distinct. Second segment of antennæ about three times the length of first. The mesonotal carinæ obsolete. *Sc+R* forking before the middle of corium, *M* and *Cu* at nodal line. The spur on hind tibiæ small, about one-third the length of basitarsus.

Brown; frons, genæ, and base of clypeus dark brown or black, apex of clypeus, two spots at apex of face, two near middle, and one on each gena light; base of vertex and between carinæ lighter brown. Pronotum, tegulæ, and middle of mesothorax lighter. Abdominal tergite dark with some yellow marks; pygofer lighter. Tegmina clear hyaline, veins light, claval veins darker brown. Front and middle legs with dark longitudinal stripes.

One female from Argentina (*H. Wilkinson*). This extends the genus considerably south, and more species are likely to be found. The present species is distinct in colour and in the narrowness of vertex.

#### DELPHACINÆ.

##### TROPIDOCEPHALINI.

##### *Pseudembolophora macleayi* Muir.

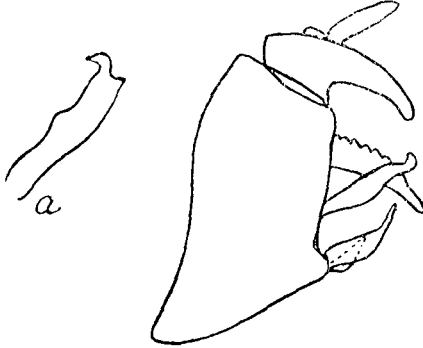
Four specimens, somewhat damaged; three show no trace of wings and the fourth shows the base of wings, but the tegmina are missing. We still do not know the shape of the tegmina in macropterous forms. These specimens were taken by Charles Darwin at King George's Sound, South-west Australia (1836). This genus and species was described from three specimens in the Macleay collection, Sydney, also taken at King George's Sound.

## DELPHACINI.

*Bostera horvathi*, sp. n. (Fig. 15.)*Male*.—Length 2·3 mm. ; tegmen 3·7 mm.

This species is closely allied to the two other species in this genus, *B. nasuta* Ball of America and *B. bolivari* (Mel.) of Spain. It differs from these in having the fork of the Y-vein on frons narrower and the stalk shorter ; the angulation of the clypeus in profile as in *B. nasuta* ; the antennæ are larger and thinner. In colour it is close to *B. bolivari*, the dark colour on apex of frons and genæ is more extensive, leaving only a narrow white band across

Fig. 15.

*Bostera horvathi*, sp. n.

Lateral view of male genitalia. a. Genital style.

the frons ; the antennæ are all dark. The dark band at apex of tegmina is slightly more extensive, so is that over the nodal line at *Cu*, the apical vein of *R* is fuscous ; the veins are the same colour as the membrane, the granules all light even in the fuscous areas. The front and middle legs with longitudinal dark lines.

The anal segment large with a large strong spine from each apical corner which reaches nearly across the pygofer ; the opening of pygofer stirrup-shape, the ventral margin straight with two processes from the middle, one smaller than the other ; the genital styles best understood from the figure.

The female is slightly larger than the male; the ovipositor slightly shorter than the pygofer; in coloration similar to the male.

*Hab.* S.W. Africa, Okahandja (*R. E. Turner*, March 1928), two males and one female.

RHINODELPHAX, gen. nov.

Head greatly produced in front of eyes, the vertex nearly as long as the pro- and mesonota together; width across eyes nearly as great as width of thorax. Vertex conical in outline, long, the length 3.3 times the width at base; lateral carinae distinct, meeting together at apex where they meet the medio-frontal carina; a very short median carina at base, not extending beyond the eyes; base in front of the middle of eyes. The head flattened laterally, the genae large; an indistinct carina from the front of the eye to near apex, where it joins the lateral frontal carina. Front long, narrow, sides subparallel except at base, where it comes to a point; median carina simple, high, especially on the basal half; lateral carinae distinct. Clypeus tricarinate. Antennae reaching to the base of clypeus, first segment short, longer than wide, second segment about twice the length of the first. Pronotum tricarinate, median reaching hind margin, the laterals diverging posteriorly, stopping some way before the hind margin. Mesothorax tricarinate, the laterals faint. Hind basitarsus as long as the other two together, somewhat flattened; spur large, slightly longer than basitarsus, wide, thin, with about 25 small teeth on the hind margin. Legs fairly short. Tegmina long, fairly narrow, nodal line about one-third from apex, apical margin round; *Sc+R* forking about the middle of the clavus, *Cu* rather more distad, *M* at the nodal line. Wings large, fully developed.

The spur places this genus in the Delphacini, and it comes between *Embolophora* and *Rhinotettix*. From the former it differs in the length of the head and it is flattened laterally; from the latter it differs in the carinae of the head extending to the apex and in the shape of the head.

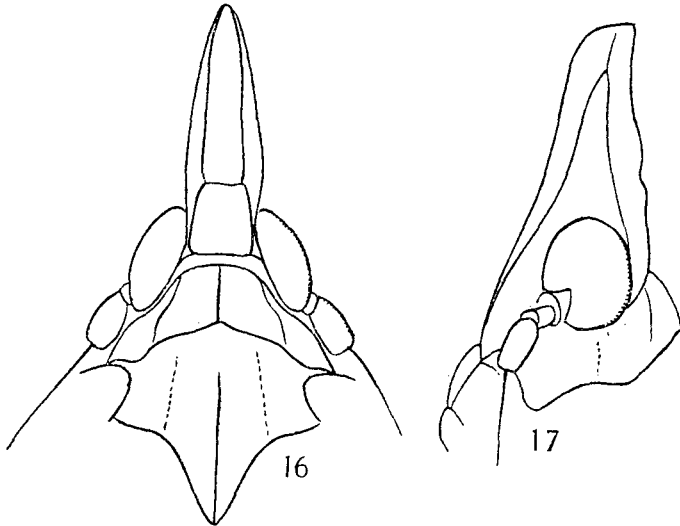
Type, *R. hargreavesi*, sp. n.

*Rhinodelphax hargreavesi*, sp. n. (Figs. 16 & 17.)

*Macropterous Male*.—Length 3.5 mm.; tegmen 3.5 mm.

Fuscous-brown; tegmina fuscous-brown, slightly darker over the apical cells, the nodal line slightly lighter, veins slightly darker. Wings lighter brown with dark veins.

Female similar to male in build and colour, but inclined to be lighter. The ovipositor is short, not reaching the



*Rhinodelphax hargreavesi*, gen. et sp. n.

Fig. 16.—Dorsal view of head and thorax.

Fig. 17.—Lateral view of same.

apex of abdomen or the apex of pygofer. The lateral plates are wide, reaching nearly halfway up the pygofer.

*Hab.* Sierra Leone, Newton (*E. Hargreaves*, 11. ix. 29), one male and four females.

There is a faint transverse carina on vertex, slightly beyond the eyes, which in one specimen is quite distinct.

*Perkinsiella rattlei* Muir.

One male and one female from New Caledonia, Bourail (*T. D. A. Cockerell*, 25. v. 1928), on sugar-cane. This was previously only known from New Guinea.

L  
*Sardia pluto* Kirkaldy.

Five specimens from New Caledonia, Bourail, and Plum Farm (*T. D. A. Cockerell*, v. 1928). This is widely distributed in the South Pacific.

PLATYPAREIA, gen. nov.

Vertex shorter than wide, forming a curve with the frons, a longitudinal median carina dividing it into two small five-sided cells; base straight about the middle of the eyes. Head nearly as broad as thorax. Frons longer than wide, the median carina forking about the middle; in lateral view forming a curve with the vertex and projecting roundly towards the apex. The genæ large and wide, the diagonal carinae meeting the laterals of clypeus. Clypeus tricarinate, broad on the sides. Antennæ reaching to about the middle of clypeus, terete, segments subequal in length. Pronotum tricarinate, the laterals divergingly curved, not reaching hind margin. Mesonotum tricarinate. Front and middle femora and tibiæ thin and expanded. Hind tibia with two spines on the side and five on the apex, three large and two small; basitarsus about as long as other two together; spur nearly as long as basitarsus, thin, tectiform, with about eighteen small teeth on hind margin. Tegmina not reaching to the apex of abdomen, semiopaque, veins obscure. This genus comes near to *Dicranotropis* by the forking of the median frontal carina, and to *Delphacodes*, but the small vertex, the long and slender antennæ, and the very broad genæ place it apart from them.

Type, *Platypareia albipes*, sp. n.

*Platypareia albipes*, sp. n. (Figs. 18 & 19.)

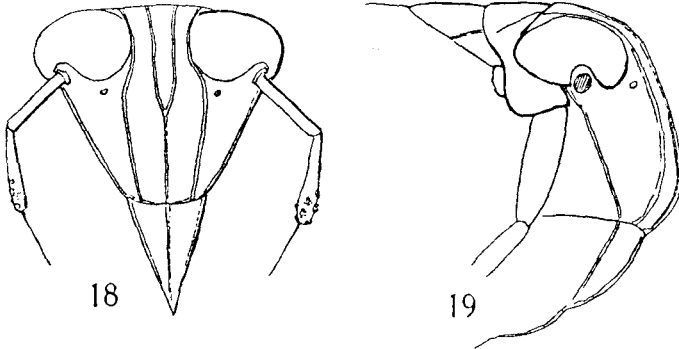
*Brachypterous Male*.—Length 2.5 mm.; tegmen 1.8 mm.

Head dark brown, the carinae, small spots on frons, the genæ below the diagonal carina, the sides of the base of clypeus light brown or yellowish; antennæ brown; the pronotum and mesonotum brown, carinae and lateral portions of pronotum light; legs brown, front and middle tarsi light, hind basitarsus fuscous in middle, others light; abdomen dark with small light marks; margins of pygofer light. Tegmina not reaching to apex of abdomen, semitransparent, veins obscure, many irregular

brown spots all over the tegmina most numerous on apical area. Wings absent.

Female similar to male, but slightly bigger.

One male and one female from Gopaldhara, Darjiling, 3440 to 4720 feet elevation (*H. Stevens*, 23. x. 1919).



*Platypareia albipes*, gen. et sp. n.

Fig. 18.—Ventral view of head.

Fig. 19.—Lateral view of same.

✓ *Delphacodes chiloensis* Muir.

Two macropterous males from Chiloe Island, Chili, collected by Charles Darwin in 1834–1835, no. 2523. This was originally described from a brachypterous male from the same locality. The tegmina are hyaline, very slightly stramineous, the veins light brown, darker in the membrane than in the corium, the costal margin and commissure light, the apical margin dark. In one specimen the mesonotum is much darker than in the type.

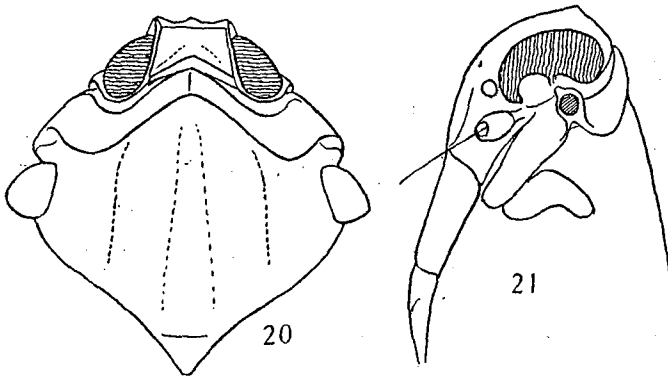
~ 0 Kinnaridæ.

✓ 0 *Æclideus parallelus*, sp. n.

*Female*.—Length 3 mm. ; ✓ tegmen 4 mm.

This differs from the type, *nanus*, in having the apex of frons and the clypeus slightly narrower; the vertex shorter and not quite so excavate; the hind margin of the pronotum nearly straight and the carinæ of mesonotum very obscure; it is also more thick-set across the mesonotum. The costal margin is straighter and the tegmina narrower and when at rest parallel.

to apex where the sides are slightly rounded, lateral carinæ continued on clypeus; median carina distinct, continued on to clypeus where it is not so distinct. Clypeus longer than frons, suture deeply arcuate. Antennæ with second segment globose. Ocelli large. Pronotum short, especially in the middle, posterior margin deeply angularly emarginate, lateral carinæ following the outline of eyes. There is a distinctive shoulder-carina on the pronotum, from behind the eye to the tegula it is wide with a deep pit in the middle. Mesonotum wider than long, without carina. Four small spines on the side of the hind tibia, apex with an apical row of eight or nine



*Breddiniola tangensis*, gen. et sp. n.

Fig. 20.—Dorsal view of head and thorax.

Fig. 21.—Lateral view of same.

small regular spines; basitarsus fairly long, narrow, with a regular row of small spines at apex; second tarsus fairly short with a regular row of small spines at apex.

Tegmina with a very narrow costal area not reaching to the stigma; the *Sc*, *R*, and *M* leaving the basal cell from the same spot, not forming a common stalk; *Sc* forked fairly near the base; *R* forked about level with the node; *M* forked slightly basad with four apical veins; *Cu* forking level with claval fork; clavus forking about middle of clavus, second claval vein parallel and near to commissure.

Type, *B. tangensis*, sp. n.



*Brëddiniola tangensis*, sp. n. (Figs. 20 & 21.)

*Female*.—Length 8 mm. ; tegmen 9 mm.

Head and pronotum light brown, darker between the carinæ and on sides of pronotum ; mesonotum dark brown ; tegulæ light brown ; legs light brown. Abdomen dark brown, light along posterior margins of sternites. Tegmina dark brown ; wings fuscous-brown.

One female from East Africa, Tanga.

**Dietyophoridaë.**

## ARJUNA, gen. nov.

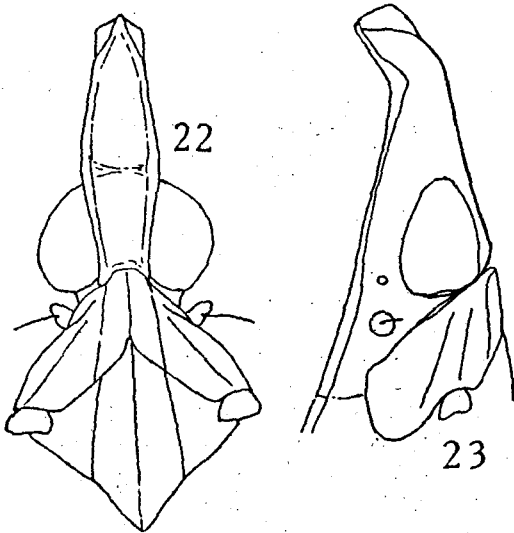
Head considerably produced ; vertex extending more than half its length in front of eyes, gradually widened from base to slightly in front of eyes, then gradually narrowed to apex, which is pointed in the middle ; the lateral margins thickened ; a transverse depression at widest part which does not include the thickened lateral edges. Frons and clypeus long and narrow ; the frons widest at apex, slightly constricted between eyes and narrowed at base ; a distinct median carina running from base of frons to apex of clypeus ; the lateral carinæ distinct on frons and clypeus except at base of frons, where they are slightly obscure and where there are signs of intermediate carinæ which fade out after the bend. In lateral view the head is bent at apex ; the genæ extending to apex where the lateral carinæ of frons and vertex meet. Antennæ short, slightly longer than wide. Pronotum strongly angular both anteriorly and posteriorly, tricarinate in the middle ; two shoulder-carinæ behind eyes. Mesonotum tricarinate. Legs very long and slender, simple ; two to four spines on sides of hind tibiæ, apex slightly expanded with seven spines ; hind basitarsus long, slightly expanded at apex where there is a simple row of small spines ; second tarsus fairly large, expanded at apex where there is a simple row of small spines. Tegmina narrow ; claval veins forking slightly distad of middle of clavus, entering commissure at apex. *Sc+R* forking slightly before node, *M* at the same level, *Cu* shortly before apex of clavus ; no nodal line ; a few irregular cross-veins in membrane. Wings narrow, anal area reduced, hind margin straight and meeting together when at rest,

the wings not folded. Both tegmina and wings projecting well beyond the apex of abdomen.

The position of this genus in the Dictyophoridae is difficult to state. It should come into Melichar's Dictyophorini, ii., A, but it is distinct from any genus contained therein. If we place it in B it would come near to the *Scolops* group; if we consider its hyaline tegmina then it would come into the *Eudictya* group or a derivative of *Dictyophora*.

I hesitated to describe this as a new genus, as such a widely distributed and striking little insect I thought must be described, but I have failed to identify it with any published description.

Type, *A. dohertyi*, sp. n.



*Arjuna dohertyi*, gen. et sp. n.

Fig. 22.—Dorsal view of head and thorax.

Fig. 23.—Lateral view of same.

*Arjuna dohertyi*, sp. n. (Figs. 22 & 23.)

*Male*.—Length 6 mm.; tegmen 5.2 mm.

Head greenish, genæ in front of eyes and the middle of frons and clypeus red; pronotum green, red over the

lateral areas ; mesonotum greenish with a slight red tint ; pleura green with reddish marks ; abdomen green. Front and middle femora dark brown with a thin light longitudinal line ; hind femora light brown ; tibiæ and tarsi brown. Tegmina hyaline with greenish or yellowish veins ; granules on veins very small, bearing small black hairs. Wings hyaline with yellowish veins which bear black hairs on the ventral surface.

Described from four specimens, one male from Arjuna, Java, one male and one female from Ende, Flores, and a female from Humboldt Bay, New Guinea (*W. Doherty*, 1903). The description is from the Java specimen, in the others the red is more extensive and in the two females supplants the green.

*Hasta lineata*, sp. n.

*Male*.—Length 11.6 mm. ; head 3.9 mm. ; tegmen 8.5 mm.

The produced head fairly wide, twice the length of pro- and mesonota together. The genæ visible in dorsal view ; a fine median carina runs the length of the vertex ; on the frons the median carina confined to the apical portion, where it continues on to the clypeus ; the medio-lateral carinæ distinct from base to apex, nearest together at apex gradually widening apart towards the base ; the lateral carinæ distinct in frontal view at apex, but gradually taking a position at the sides, causing the middle portion of the frons to stand out on the basal half ; the lateral carinæ of frons continued on to the clypeus. Front tibiæ considerably longer than the femora, one hind tibia with 5, the other with 6 spines ; the lateral margins of pronotum curved ; there are three carinæ on shoulder, two reaching the hind margin and one (the outer) only reaching halfway. The stigma long with four cells.

Greyish brown ; lighter over clypeus and apex of frons, darker on genæ around antennæ and ocelli ; carinæ of thorax and the median one on vertex light ; all the legs with longitudinal, thin, dark brown stripes, labium also with light brown mark down the dorsal surface. Abdominal sternites brown, darker on outer thirds, with light dots. Tegmina clear hyaline, veins brown or greenish brown, darkest on membrane where the

dark cross-veins spread slightly into the cells; stigma dark.

*Hab.* Africa, Hinterland, Ivory Coast, Bouaké. One male.

*Hasta pallidinervis*, sp. n.

*Male.*—Length 9.5 mm.; head 3.8 mm.; tegmen 7.7 mm.

Head twice the length of pro- and mesonota together, straight but slightly more ascending; the vertex narrower, the median carina confined to the basal portion between the eyes, very fine; the median carina of frons distinct from base to apex; front tibiæ very slightly longer than the femora. Hind tibiæ with four spines, on one leg three confined to apical half, in the other subequal distances apart. Stigma long with fine cells.

Light pinkish brown, carinæ of head and thorax lighter, the middle of frons yellowish; the hind legs and abdomen inclined to yellow, the front and middle legs with faint longitudinal markings. Tegmina clear hyaline, very slightly yellowish over hind and apical margins; veins all light.

*Hab.* S.W. Africa, Okahandja (R. E. Turner, March 1928), one male.

*Hasta viridis*, sp. n.

*Male.*—Length 9.6 mm.; head 3.8 mm.; tegmen 7.7 mm.

Head double the length of pro- and mesonota together. In build similar to *H. pallidinervis*. The median carina of vertex confined to base between eyes; the median carina of frons distinct from base to apex; front tibiæ slightly longer than femora.

Light green; frons in middle lighter; carinæ of thorax greenish; faint fuscous lines on front and middle femora. Tegmina and wings clear hyaline, veins green; stigma clear consisting of three cells.

*Hab.* S.W. Africa, Okahandja (R. E. Turner, March 1928); one male.

*Hasta ogadensis* Mel.

One damaged male, which appears to be this species, from Bahr el Ghazel (V. H. Furgusson, 7. ix. 23; no. 20246).