

XVI.—*New and little-known African Delphacidæ (Homoptera, Fulgoroidea) in the Collection of the British Museum.*
By F. Muir, Hawaiian Sugar Planters' Experiment Station, Honolulu, T.H.

THE majority of the material dealt with in this paper was collected by Mr. R. E. Turner, and I have therefore refrained from repeating his name after every locality, only quoting the name of the collector in those few cases where specimens were collected by someone else. Most of the material was received from the British Museum, where all the types are preserved; a lesser amount through the Imperial Bureau of Entomology.

This occasion has been taken to list all the Delphacidæ so far reported from Africa. There may be a few omissions, especially of Palearctic forms occurring in North Africa, but a fair idea is given of our present knowledge of this family in Africa, and the list should be a help to future workers.

The most interesting feature about African Delphacidæ is the absence of the Asiracinae. This subfamily contains the most primitive forms of the family, and is represented by some fourteen genera and numerous species distributed over the Americas, Asia, Malaysia, Australia, New Zealand, the South Pacific Islands, and even the Seychelle Islands. But the fact that only 22 genera and 67 species of Delphacidæ are so far known from Africa indicates that it is premature to draw any conclusions from their absence.

The absence of any Palearctic forms in the region, except those that are cosmopolitan, also is remarkable. The discovery of *Embolophora monoceros* on the White Nile greatly extends the distribution of this species, as hitherto it was only known from South Africa; it would be of interest to know the food-plant, especially if this should prove to be any of the Euphorbias. The Asiracinae and the Alohini are mainly attached to trees and bushes, and none are widely distributed, whereas many Tropidocephalini and Delphacini are attached to grasses, and some are very widely distributed.

Having examined large collections of Delphacidæ from all the chief geographical areas it is of interest to note certain characteristics. They form a very uniform family characterized by the presence of a mobile spur on the hind tibia. Without this spur most, if not all, of the genera would be

placed in the Cixiidae. If we ignore the male genitalia the specific differences are slight or very slight in many of the genera, but if we compare the male genitalia the differences are then generally so great that the difficulty is to understand what relationship many hold to one another. Leaving the question of the utility of the differences in the genitalia out of consideration, it is impossible to conceive any survival value in the specific characters, and even most of the generic characters cannot be shown to be of survival value. The spur on the hind tibia and its four forms, which distinguish the family and its chief divisions, may play an important part in the economy of the family, but we cannot state what it is. An extensive study of the death factors acting on certain species over a large part of the Pacific area has demonstrated that they fall mainly upon the eggs and the nymphs, leaving but a very small number of adults to be acted upon by natural selection. This may have some bearing upon the nature of the specific characters.

There is a tendency in several genera towards the lengthening of the head, which is carried to an extreme extent in a few cases (e. g., *Embolophora*). Kershaw has shown that this elongated head is filled with a diverticulum from the crop, as in many other of the Fulgoroidea. In some cases diverticula from the crop penetrate into the legs. This enlargement of part of the alimentary tract is evidently connected with the nature of the food, and so the enlarged head may be an adaptation to give more room. Among the Cicadoidea and Sternorhynchi the "filter" also appears to be an adaptation to the nature of the food.

In whatever order we arrange the genera of this family it has to be admitted that there are a number of cases of parallel development in the generic characters, such as the widening and flattening of one or two segments of the antennæ, the single and double frontal carinæ, the shape of the lateral pronotal carinæ, the flattening and widening of the legs, and certain colour-patterns on the tegmina.

Many species live upon cultivated plants, especially grasses, and were it not for the effective parasites which keep them in check they would be of great economic importance. This is demonstrated by one species (*Perkinsiella saccharicida*, Kirk.), introduced into Hawaii without its parasites, which increased to such numbers as to threaten the whole of the sugar industry of the islands. This species has since been controlled by introducing parasites from Australia, Fiji, and other places. A West Indian species (*Saccharosydne saccharivora*, West.) has been reported as numerous and harmful

on a few occasions, but normally it is not so. It is probable that climatic conditions at times destroy many of the small egg-parasites, and then the insect increases for a short time, to be eventually reduced by the parasites as they regain their normal proportion. It was a local increase which brought *Perkinsiella vastatrix* (Bredd.) to notice in Java when it was first recorded and described, but since then it has never been recognized as a harmful insect, and I never found it plentiful in any locality in which I studied it.

Chloriona and *Sogaia* are difficult to keep distinct, and may eventually have to be regarded as one genus. In that case it may be necessary to use the generic name of *Liburnia*, Stål. It is certainly synonymous with one, but which one I am not quite sure.

DELPHACINÆ.

ALOHINI.

1. HAPLOMELUS, Stål.

1. *Haplomelus flavipes*, Stål.

Haplomelus flavipes, Stål, Öfv. Vet.-Ak. Förh. p. 265 (1853).

Gadora cupensis, Walker, Cat. Hom. Supp. p. 84 (1858).

Clausus incerta, Sign., in Thomson, Arch. Ent. ii. pl. 9. fig. 10 (1858) (no description).

One male and two females from Port St. John, Pondoland (iii, iv. 1923), and one male from Njala, Sierra Leone (*H. Hargreaves*, 21. xi. 1926). Hitherto this species had only been reported from Natal. In the South African specimens the wings are absent or rudimentary and the tegmina long and distinctly narrowed at the node, whereas the Sierra Leone specimen has normal wings and the tegmina are not narrowed at the node.

TROPIDOCEPHALINI.

2. EURYSA, Fieber.

2. *Euryrsa turneri* (Muir).

Columbiana turneri, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 19, figs. 4, 5 (1923).

One male and ten females from Pondoland, Port St. John (vi. 1923), and Natal, Van Reenans (xi, xii. 1926 and i. 1927).

Upon reconsideration I have placed this with other closely allied species in *Euryrsa*. The female is similar in build and

colour to the male. The pygofer and eighth sternite are lighter than the rest of the abdomen; the anal style is black or very dark brown. There is a tendency for the middle of the mesonotum to be lighter than the rest.

3. *Euryrsa nigrocacuminis*, Muir.

Euryrsa nigrocacuminis, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 22, figs. 11, 12 (1926).

Two brachypterous males and four brachypterous females from Pondoland, Port St. John. There are also two macropterous males from Zululand, Melmoth. The tegmina are hyaline, very slightly stramineous, the veins before the nodal line are light, beyond the nodal line dark, there is no dark area at the apex in these brachypterous forms. The height of the armature of the diaphragm is also less than in the type-specimen. In this and allied species there is a membranous area on each lateral margin which allows the pygofer to partly close up longitudinally, so that the ventral margin is drawn towards the anal segment which is not well shown in the figure.

4. *Euryrsa semifrons*, sp. n.

Macropterous Male.—Length 2 mm.; tegmen 2.7 mm.

Head about as broad as thorax. Vertex wider than long, base 1.5 times the length in middle; base in front of the middle of eyes, apex slightly rounded, projecting slightly in front of eyes; length of frons twice the width. Antennæ reaching to near middle of clypeus, first segment longer than wide, second considerably longer than first. Hind tarsi about as long as hind tibiæ, hind basitarsus about as long as other two segments together; spur not quite so long as basitarsus, wide, tectiform, fairly thick, without teeth on hind margin.

Opening of pygofer wider than long, margins entire; anal emargination wide, anal angles obscure; dorsal margin of diaphragm slightly produced, rounded. Anal segment with two small curved spines on ventral aspect. Ædeagus thin, tubular, slightly flattened, a row of minute teeth along the apical portion on left side. Genital styles in shape similar to those of *E. furcifera*, but the outer prong wider and the inner prong comparatively smaller.

Dark shiny brown or black; apical half of frons, genæ, the lateral margins of the pronotum white or creamy white; apex of front femur, posterior angle of mesonotum, pleura

of abdomen light, tibiae with longitudinal light and dark lines. Tegmina hyaline, clear, apical veins and apical margin dark brown, other veins lighter brown. Wings hyaline, clear, veins brown.

Hab. Cape Town, Milnerton (xii. 1925).
Described from two male specimens.

5. *Euryssa furcifera*, Muir.

Euryssa furcifera, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 20, figs. 7, 8 (1926).

Cape Province, Alival North.

6. *Euryssa pullata*, Muir.

Euryssa pullata, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 20, figs. 9, 10 (1926).

Cape Province, Mossel Bay.

7. *Euryssa atrata*, Muir.

Euryssa atrata, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 22, figs. 13, 14 (1926).

3. TROPIDOCEPHALA, Stål.

8. *Tropidocephala flaviceps*, Stål.

Tropidocephala flaviceps, Stål, Öfv. Vet.-Ak. Förh. p. 93 (1855); Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 17, figs. 1, 2 (1926).

Caffraria; Natal, Weenen.

9. *Tropidocephala brunnipennis*, Sign.

Tropidocephala brunnipennis, Sign., Ann. Soc. Ent. Fr. (3) viii. p. 185, 18, pl. 5, fig. 2 (1860).

Conicoida graminea, Matsumura, Ent. Nachr. xxvi. p. 259 (1900).
Ectopipterygodelphax eximus, Kirkaldy, Haw. Sugar Pts. Ent. Bull. i. p. 412 (1906).

Tropidocephala philippina, Melichar, Phil. Jour. Sci. D. ix. p. 273 (1914).

Widely distributed in Asia, Australia, Malay Islands, and Africa.

10. *Tropidocephala elegans* (Costa).

Fulgora elegans, Costa, Annuario Zool. p. 82, 12 (1840).

Delphax tuberculipennis, Mulsant & Rey, Ann. Soc. Lin. Soc. Lyon. p. 199 (1855).

Nephropsia elegans (Costa), Costa, Ann. Mus. Zool. Nap. i. p. 77, pl. 2, figs. 12-15 (1862).

Tropidocephala elegans (Costa), Fiebner, Rev. Mag. Zool. (3) vi. p. 276, 1 (1878).

Widely distributed over South Europe and North Africa.

11. *Tropidocephala incompta*, Muir.

Tropidocephala incompta, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 18, figs. 3, 4 (1926).

West Africa, Sierra Leone.

DELPHACINI.

4. PERKINSIELLA, Kirkaldy.

12. *Perkinsiella saccharicida*, Kirkaldy.

Perkinsiella saccharicida, Kirkaldy, Entomologist, xxxvi. p. 179 (1903).

One female specimen from Zululand, Eshowe (iii. 1926). This species has been recorded from Natal; it is widely distributed, occurring in the Hawaiian Islands, Australia, Java, Malay States, Fiji, and Mauritius.

Perkinsiella is a Pacific genus, and this species has evidently been carried with its food-plant, sugar-cane, in the egg state. In that manner it was introduced from Australia to Hawaii, where it did great harm to the sugar industry till parasites were introduced from Fiji and Australia which now control it.

Perkinsiella vastatrix (Bredd.) was reported by Melichar from East Africa, Tanga, but I cannot accept the identification without further evidence.

5. AMBLYCOTIS, Stål.

13. *Amblycotis laticeps*, Stål.

Amblycotis laticeps, Stål, Öfv. Vet.-Ak. Förh. p. 93, 1 (1855).

Eleven males and six females from Pondoland, Port St. John. The males are all macropterous, with the apical veins of the tegmina fuscous and the rest of the veins with dark granules; the females are all brachypterous, with the apices of the apical veins with small marks and without any dark granules, or with only very faint ones.

Originally recorded from Cape Colony.

6. BOSTERA, Ball.

14. *Bostera* sp.

There is one female from Natal, Van Reenen (i. 1927),

which can be placed in this genus, although the antennæ are not so flattened as in the type-species. As it is not a very good specimen, I refrain from describing it until more material can be examined.

7. EMBOLOPHORA, Stål.

15. *Embolophora monoceros*, Stål.

Embolophora monoceros, Stål, Öfv. Vet.-Ak. Förh. p. 92 (1855); Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 23, fig. 16 (1926).

Thirteen specimens from Zululand, Eshowe, Lower Umhlatuzi and Mtunzin (*R. E. Turner*), and one specimen from Natal, Umbilo (*A. L. Bevis*). In the Hope collection at the University Museum, Oxford, there is one female specimen from the White Nile, Hilet Nuer, latitude 8° 13' N., collected by G. B. Longstaff, no. 1391. This is the first record outside of South Africa.

8. RHINOTETIX, Stål.

16. *Rhinotettix fuscipennis*, Stål.

Rhinotettix fuscipennis, Stål, Öfv. Vet.-Ak. Förh. p. 98 (1855); Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 23, figs. 17-18 (1926).

Cape Colony; Little Namaqualand; Transvaal; Barberton. Originally from Caffraria.

9. CURTOMETOPUM, Muir.

17. *Curtometopum turneri*, Muir.

Curtometopum turneri, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 26, figs. 22, 23 (1926).

One female specimen from Transkei, Umtata (iii. 1923). Previously reported from Pondoland.

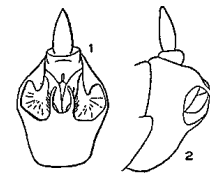
10. PHYLLODINUS, Van Duzee.

18. *Phyllodinus albofasciata*, sp. n. (Figs. 1, 2.)

Brachypterous Male.—Length 2.6 mm.; tegmen 1.5 mm. Head nearly as wide as the thorax. Width at the base of the vertex greater than the length and greater than the width at apex; base well behind the middle of the eyes, apex only very slightly projecting beyond the eyes, carinæ obscure. Length of frons 1.7 times the width, sides arcuate, narrowest at base, a concavity running across frons just below the eyes. Carinæ obscure, but a fork to the median carina can be made out reaching to near the middle of the

frons. Antennæ reaching to the middle of the clypeus, second segment slightly longer than first. First and second tibiæ and femora flattened and widened; hind basitarsus longer than the other two segments together; spur not so long as the basitarsus, thin, tectiform, with many minute teeth on hind margin. There is one supplementary vein in the tegmen arising from the base of *Sc+R*.

Head, pronotum, and antennæ shiny dark brown, darkest on clypeus; mesonotum and a narrow posterior margin of pronotum yellowish or white, the lateral areas of pronotum dark, the apical angle of mesonotum dark; pleura and legs dark shiny brown or nearly black; metanotum yellowish; abdomen dark shiny brown with a yellowish mark in the middle of the seventh and eighth tergites. The base and apical cells of the tegmina shiny black, the middle portion forming a whitish band; veins the same colour as membrane.



Phyllodinus albofasciata.

Fig. 1.—Full view of pygofer.

Fig. 2.—Lateral view of pygofer.

The male genitalia figured, the ædeagus not dissected. The medio-ventral margin produced into two large, slightly curved processes; the anal angles produced and curved inward and downward; the genital styles obscure, unless dissected out.

Macropterous Female.—Length 2.9 mm.; tegmen 3.3 mm.

In build and in the colour of the head and body similar to the male, the abdomen being dark brown or nearly black. The tegmina are hyaline, the base dark brown reaching about halfway up the clavus and continued as lighter brown over the rest of the clavus; a crescent-shape brown mark from the node, over the nodal line, and along the margin to apex, another brown mark over the *Sc+R* apical cell, broad on the margin but narrowing as it reaches the nodal line and joins the crescent-shape mark; veins the same

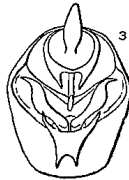
colour as the membrane, granules very small and inconspicuous. Wings hyaline, clear, veins yellowish. This female agrees so well in build and colour of body with the male that it is highly probable it is the same species.

Hab. Zululand, Mtunzini, one male (vi. 1926), and Natal, Van Reenen, one female (i. 1927).

19. *Phyllodinus badius*, Muir. (Fig. 3.)

Phyllodinus badius, Muir, Bull. Ent. Res. x. p. 144 (1920).

Nigeria.



Phyllodinus badius.
Full view of pygofer.

20. *Phyllodinus evansi*, sp. n.

Macropterous Female.—Length 2·8 mm.; tegmen 3·8 mm.

Head wide, about as wide as thorax; vertex a little broader than long, base slightly wider than apex, carinae distinct. Antennae reaching beyond the middle of clypeus, the two segments subequal in length. Carinae of frons distinct, median carina furcate about middle. Front femora and tibiae flattened, expanded, middle legs much less so. Venation of tegmina normal, no supplementary vein.

Brown; genae below or behind transverse carina, the lateral portion of pronotum and the tegulae light brown or yellow; the carinae of vertex, frons, and thorax lighter with some light dots on frons. Apical cells of tegmina fuscous or brown, three hyaline marks on margin, the largest from node to *R*, the second between *R* and *M* 1, and the third between *R* 1 and 2, the veins being slightly darker; the apex of *Sc* runs across the first light mark and is white with four brown spots. Basad of the nodal line the tegmina are light brown, darker along the borders of the veins, which are white with dark brown granules bearing dark hairs. Wings hyaline, slightly fuscous with brown veins.

Hab. Gold Coast (*A. E. Evans*, 1913). Description based on one female. This differs from *P. badius* in having the granules of the veins dark and the light mark in apical area smaller.

21. *Phyllodinus punctovenosa* (Melichar).

Asiracina punctovenosa, Melichar, Ergeb. Zweit. Deutsch Zentr. Afr. Exped. i. p. 133, pl. ii. fig. 11 (1914).

I cannot separate Melichar's genus from *Phyllodinus*. The species was based on specimens from the Belgian Congo.

11. *NILAPARVATA*, Distant.

22. *Nilaparvata nigritarsis*, Muir.

Nilaparvata nigritarsis, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 30, fig. 29 (1917).

Recorded from Natal, Weenen.

12. *NATALIANA*, Muir.

23. *Nataliana lineata*, Muir.

Nataliana lineata, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 25, figs. 19, 20, 21 (1926).

Recorded from Port Natal.

13. *STENOCRANUS*, Fieber.

24. *Stenocranus* (?) *distinctus*, sp. n. (Figs. 4, 5.)

Macropterous Male.—Length 2 mm.; tegmen 2·7 mm.

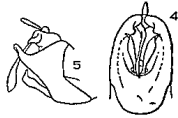
Length of vertex twice the width, base considerably behind middle of eyes, apex rounded, projecting well in front of middle of eyes; *Y* carina obscure; length of frons 2·5 times the width, middle slightly wider than base and apex, sides very slightly arcuate, median carina simple. Antennae slightly longer than frons, first segment considerably longer than broad, second segment 2·5 times the length of first. Lateral pronotal carinae diverging posteriorly, not reaching beyond middle. Mesonotum shorter than head and pronotum together, tricarinate. Hind basitarsus longer than other two segments together; spur not as long as basitarsus, thin, tectiform, with many very fine teeth along the hind margin. Tegmina long, narrow, *R* and *M* 1+2 touching for a short distance. Wing reaching nearly to apex of tegmina.

Genitalia figured. The anal segment has a very distinct armature in the shape of two very asymmetrical processes, that on the right small, flat, curved, that on the left long, flat, narrow, slightly expanded on apical half, reaching below the ventral margin of the opening of the pygofer; the anal angles of pygofer large, curved inwards and meeting together on the middle line or nearly doing so.

Stramineous; a thin black line from base to apex of antennæ. Tegmina hyaline, stramineous, veins same colour; wings light, stramineous, with darker veins.

Macropterous Female.—Length 2.3 mm.; tegmen 2.8 mm. Similar in general build and colour to the male. Ovipositor-sheath narrow. In the brachypterous forms the tegmina are normal in length, but much narrower, and the wings are rudimentary or absent.

Hab. Zululand, Eshowe (v, vi, vii. 1926); Natal, Kloof (viii. 1926).



Stenocranus distinctus.

Fig. 4.—Full view of pygofer.

Fig. 5.—Lateral view of pygofer.

Description based on nine males and three females.

The length of the basal antennal segment prevents *S. distinctus* from being included amongst the typical species of *Stenocranus*; it appears to be intermediate in structure between that genus and *Nataliana*, but for the time being it is best referred to *Stenocranus*.

14. EUMETOPINA, Breddin.

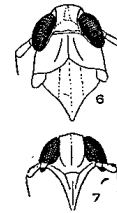
25. *Eumetopina straminea*, sp. n. (Figs. 6, 7.)

Male.—Length 3 mm.; tegmen 3.3 mm.

The head and dorsal aspect of pronotum and mesonotum figured. In profile the junction of vertex and frons is round. Spur not quite so long as basitarsus, fairly narrow and moderately thick, but the inner surface distinctly concave, about 14 irregular teeth alternately large and small on hind margin.

Opening of pygofer broader than long, anal emargination large, anal angles rounded, not produced; anal segment with two large spines with their bases close together. Dorsal margin of diaphragm rounded. Genital styles nearly straight on outer margin, the inner margin convex on basal half and slightly concave on apical portion; apical third narrower than basal two-thirds, apex truncate.

Stramineous; a light brown mark along the outer surface of antenna, a light brown band near apex of first and second tibiæ, a dark mark on mesopleuron and another on metapleuron, the diaphragm of the pygofer black. Tegmina hyaline, slightly stramineous, veins stramineous; wings



Eumetopina straminea.

Fig. 6.—Dorsal view of head and thorax.

Fig. 7.—Front view of frons and clypeus.

hyaline slightly opaque with waxy secretion, veins light stramineous.

Hab. Pondoland, Port St. John (iv. 1924). Description based on one male.

26. *Eumetopina hancocki*, sp. n.

Male.—Length 3.4 mm.; tegmen 3.5 mm.

In general build similar to *E. straminea*.

Opening of pygofer large, medio-ventral margin emarginate, anal emargination large. Anal segment large with two strong spines with their bases widely separated. Dorsal margin of diaphragm slightly angularly produced. Genital styles on inner margin convex on basal half and concave on apical half, the outer margin the reverse, concave on basal half and convex on apical half, the styles being curved and recurved, broadest on basal half gradually narrowing to apex which is narrow and truncate.

Dark brown; clypeus, apex of frons, and the posterior half of pronotum light brown or yellow; the posterior angle of mesonotum pale; tarsi and spur pale; the posterior margins of abdominal tergites and the lateral margins of pygofer yellow. Tegmina hyaline, the apical cells slightly distad of the nodal line, brown, the rest much lighter brown being lightest over the nodal line, veins slightly darker than membrane; wings hyaline slightly tinged with brown, veins brown.

Hab. Uganda, Kampala (*G. L. R. Hancock*, vii. 1926). Description based on two males.

These two species are apt to be placed in the *Alohini* unless the spur be carefully examined.

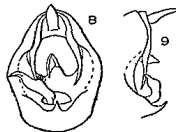
15. *PEREGRINUS*, Kirkaldy.

27. *Peregrinus maidis* (Ashm.).

Delphax maidis, Ashmead, Psyche, v. p. 323 (1890).

One female from Transkei, Umtala (iii. 1923), which has the fork of the median frontal carina projecting in the same way as the specimens from Natal, Weenan; two specimens from Sierra Leone, Njala (*E. Hargreaves*), and two from the Gold Coast, Accra (*J. W. Scott Macfie*). This is a very widely distributed species attached to Indian corn as well as to many other grasses.

Two species have been wrongly placed by Melichar in this genus, but as I have not seen specimens and am consequently unable to place the species correctly, I list them at the end of this paper.



Euidella semifuscipennis.

Fig. 8.—Full view of pygofer.

Fig. 9.—Lateral view of pygofer.

16. *EUIDELLA*, Fieber.

28. *Euidella* (?) *semifuscipennis*, Muir. (Figs. 8, 9.)

Euidella (?) *semifuscipennis*, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 26, fig. 24 (1926).

Two males and one female from Natal, Van Reenen (xi.,

xii. 1926). If the head were a little shorter, this species could be included in the genus *Dicranotropis*. It is too wide and thick-set for inclusion in *Chloriona*, so I continue to place this species in *Euidella*, although the legs do not conform to that genus. I publish another figure of the genitalia seen at a different angle.

17. *DICRANOTROPIS*, Fieber.

29. *Dicranotropis turneri*, sp. n. (Fig. 10.)

Brachypterous Male.—Length 2.2 mm.; tegmen 1.3 mm.

Head as wide as thorax; width of vertex at base greater than length, apex narrower than base, base about middle of eyes. Width of frons half the length, forking of median carina in middle of frons. Antennae reaching slightly beyond base of frons, first segment longer than wide, second twice as long as first. Hind basitarsus longer than other two



Dicranotropis turneri.

Full view of pygofer.

segments together; spur not so long as basitarsus, thin, with more than thirty teeth on hind margin. Tegmina reaching to seventh abdominal tergite.

Full view of genitalia figured. The anal segment with two large flat processes with rounded apices. The aedeagus thin, subtubular, curved, with a large process arising from near apex and curving back, the base of process thin, widening out to a thin flat apex produced into two spines; the ventral margin of pygofer produced into a small thin plate.

Brown with lighter spots on frons, genæ, and lateral portions of pronotum, the carinæ of head and thorax also lighter; abdomen dark brown, lighter on pleura. Tegmina dark shiny brown or black.

Hab. Pondoland, Port St. John (vii., viii. 1923).

Description based on four males.

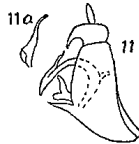
30. *Dicranotropis stramineus*, sp. n. (Figs. 11, 11 a.)

Macropterous Male.—Length 2 mm.; tegmen 2·8 mm.

The forking of the median frontal carina level with the ocelli. Antennæ reaching a little beyond base of clypeus, first segment longer than broad, second considerably longer than first. Hind basitarsus longer than other two segments together, spur not as long as basitarsus, thin, with many (over thirty) minute teeth on hind margin.

Stramineous; some small spots on frons and the carinae of head and thorax slightly lighter; a slightly darker mark on metapleuron, ocelli dark and large, the dark colour extending slightly beyond ocelli. Tegmina hyaline, very slightly stramineous, veins before nodal line light, beyond nodal line dark brown. Wings hyaline with darker veins.

The ventral margin of pygofer produced into two stout spines, their bases some distance apart and their apices



Dicranotropis stramineus.

Fig. 11.—Lateral view of pygofer.

Fig. 11 a.—Right genital style.

diverging. Anal segment with two stout curved spines. In front view the styles gradually narrowing to apex which is curved outward, the base being produced into a short, stout, rounded process which is best seen in lateral view.

Macropterous Female.—Length 2 mm.; tegmen 2·8 mm.

In build and colour similar to the male.

Hab. Zululand, Eshowe (vi. 1926).

Description based on one male and twelve females.

31. *Dicranotropis capensis*, Muir.

Dicranotropis capensis, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 28, fig. 25 (1926).

One female from Port St. John, which appears to be the female of this species (vi. 1923). Original description based on a male from Cape Province, Mossel Bay.

32. *Dicranotropis lunaris*, Melichar.

Dicranotropis lunaris, Melichar, Wien. ent. Zeit. xxiv. p. 286 (1905).

Recorded from East Africa.

33. *Dicranotropis pondolandensis*, Muir.

Dicranotropis pondolandensis, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 28, fig. 26 (1926).

Recorded from Pondoland.

34. *Dicranotropis anaxarchi*, Muir.

Dicranotropis anaxarchi, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 29, figs. 27, 28 (1926).

Recorded from Cape Province.

35. *Dicranotropis bridwelli*, Muir.

Dicranotropis bridwelli, Muir, Bull. Ent. Res. x. p. 141 (1920).

Recorded from West Africa.

36. *Dicranotropis ibadanensis*, Muir.

Dicranotropis ibadanensis, Muir, Bull. Ent. Res. x. p. 141 (1920).

Recorded from West Africa.

37. *Dicranotropis* (?) *manicata* (Hesse).

Liburnia manicata, Hesse, Ann. S. Afr. Mus. xxiii. p. 171 (1925).

I have not been able to identify any of the material examined with this species. The characters mentioned are insufficient to indicate whether it should be referred to *Sogata* or to *Delphacodes*, the lateral pronotal carinae, however, do not appear to be typical of *Delphacodes*. Some of the characters mentioned, e. g., "the median carina (of frons) bifurcating anteriorly into two long forks," seem to point to the fact that the species belongs to the genus *Dicranotropis*.

18. *KELISIA*, Fieber.38. *Kelisia capensis*, sp. n. (Figs. 12, 13, 14.)

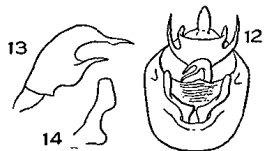
Macropterous Male.—Length 1·9 mm.; tegmen 2·6 mm.

Head slightly narrower than thorax; length of vertex 1·7 times the width, apex and base subequal in width, sides parallel, apex rounded, projecting distinctly in front of eyes,

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base considerably behind the middle of eyes; the Y-shape carina obscure. Length of frons twice the width, sides slightly arcuate, width at base equal to width at apex, median carina simple. Antennæ reaching slightly beyond base of clypeus; first segment short, as wide as long, second segment about three times the length of first, fairly thick with prominent sense-organs. Lateral pronotal carinæ diverging posteriorly, slightly curved, not reaching the hind margin. Hind basitarsus as long as the other two segments together, spur about as long as basitarsus, thin, with about seventeen teeth on the hind margin. *M* with two apical veins, viz., *M*1+2 and *M*3+4, which do not touch the *R* or *Cu*, the cross-veins between *R* and *M* and *M* and *Cu* slightly basad of the *M* fork.

The middle of the diaphragm of the pygofer is thickened



Kelisia capensis.

Fig. 12.—Full view of pygofer.
Fig. 13.—Aedeagus.
Fig. 14.—Right genital style.

and dark; the peculiar curved spines, one from each side of the base of the anal segment, are very characteristic of this species.

Stramineous; tarsi, middle of diaphragm, and the genital styles dark brown. Tegmina and wings transparent hyaline, veins stramineous.

Hab. Cape Province, Ceres (iii., iv. 1925). Two male specimens.

The genitalia of this species bear certain resemblances to those of *Kelisia snelli*, Muir.

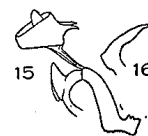
39. *Kelisia nigripennis*, sp. n. (Figs. 15, 16.)

Brachypterous Male.—Length 2.4 mm.; tegmen 1.2 mm.

Head nearly as wide as thorax. Vertex slightly longer than wide, apex and base subequal in width, apex rounded, projecting beyond the eyes, base about middle of eyes.

Length of frons about twice the width, sides slightly arcuate, an obscure fork on median carina reaching to about level of ocelli. Antennæ reaching to base of clypeus, first segment short, as long as broad, second nearly three times as long as first. Lateral pronotal carinæ straight, diverging posteriorly, obscurely reaching hind margin. Hind basitarsus longer than other two segments together, spur not so long as basitarsus, wide, thin, with about thirty teeth on hind margin. Tegmina reaching to the fourth abdominal tergite.

Margins of pygofer entire; anal emargination shallow, anal angles obscure, rounded. Dorsal margin of diaphragm U-shaped, no armature. Anal segment with two spines with their bases far apart situated about the middle of the length of the anal segment. Aedeagus flat, thin, shape shown in figure. Genital styles small, shape in flat view figured.



Kelisia nigripennis.

Fig. 15.—Anal segment and aedeagus.
Fig. 16.—Right genital style.

Head, thorax, and legs very light brown or yellow, slightly darker on lateral portion of pronotum behind eyes, the darker portion having four light spots in it; thoracic pleura slightly fuscous. Abdomen dark brown or black, pleura lighter. Tegmina shiny black or very dark brown.

Hab. Pondoland, Port St. John (v. 1923).

Description based on one male.

The forked median frontal carina might be considered sufficient reason for placing this species in *Dicranotropis*, but the fact that the vertex is longer than broad, and that the vertex and frons in profile are more angular, combined with the shape of the lateral pronotal carinæ, excludes it from that genus. It is best placed in *Kelisia* for the present. The macropterous form of this species is nearly sure to have hyaline tegmina.

19. *Chloriona*, Fieber.40. *Chloriona snelli*, sp. n. (Fig. 17.)

Macropterous Male.—Length 2 mm.; tegmen 2.9 mm.

Length of vertex nearly twice (1.8) the width at base, base slightly broader than apex and considerably before the middle of eyes; length of frons 2.5 times the width, sides slightly arcuate, median carina simple. Antennæ terete, reaching to apex of clypeus, second segment 2.4 times the length of first. Hind basitarsus longer than other two segments together; spur not as long as basitarsus, wide, thin, with small distinct teeth on hind margin.

Yellow or pale stramineous, a small black dot in middle of base of clypeus. Tegmina hyaline, slightly yellow, veins similar. Wings hyaline, veins slightly yellowish.

Genitalia figured; the anal angles of pygofer greatly



Chloriona snelli.

Ventral view of pygofer.

produced, drawn out into an acute point and turned inward; the anal segment has two asymmetrical spines, one long, slender, and slightly curved, the other short, thick, and strongly curved; the ædeagus passes between them.

Hab. Zanzibar (*H. J. Snell*, i.-ii, 1925).

Description based on two males. There are two females which I refer to this species. In these specimens the antennæ are much shorter, otherwise in colour and build they agree with the males.

41. *Chloriona turneri*, sp. n. (Figs. 18, 19, 20.)

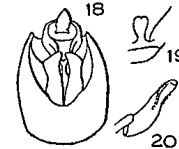
Macropterous Male.—Length 2.7 mm.; tegmen 3 mm.

Length of vertex 1.5 times the width at base, base slightly wider than apex, about middle of eyes, apex projecting in front of eyes; length of frons 2.5 times the width, sides slightly curved, base slightly narrower than apex, median

carina simple. Antennæ reaching about middle of clypeus, first segment longer than wide, second longer and thicker than first. Lateral pronotal carinæ divergingly curved posteriorly, not reaching hind margin. Spurs about as long as hind basitarsus, fairly wide, thin, with about twenty small teeth on hind margin.

The genitalia figured; the ædeagus has a flange on the left side on apical half with the margin serrate, three or four teeth on ventral aspect at apex and a few on right side.

Head black or dark brown, the base of vertex and between the areoletts yellow or white, the antennæ lighter brown, and in some cases the carinæ slightly lighter. Pronotum dark brown or black, with the middle white or light yellow and a light mark behind antennæ; mesonotum dark brown or



Chloriona turneri.

Fig. 18.—Full view of pygofer.

Fig. 19.—Armature of diaphragm.

Fig. 20.—Ædeagus.

black with the middle light yellow or white; legs light brown, the coxæ darker.

Abdomen dark brown with the apical margin of the sternites pale. Anterior half of tegmina hyaline, posterior half, including clavus, basal median cell, *Cu* cells, the second and third apical median cells, and the *Cu* median cells fuscous; commissure white; veins brown in posterior half, yellowish in anterior half. Wings hyaline, slightly fuscous, veins dark.

Female similar to male, but inclined to be slightly lighter, and the carinæ of head lighter.

Seventeen specimens from Ceres, Cape Province; two from Umtata, Transkei, and one from Eshowe, Zululand (March and April 1923, 1925).

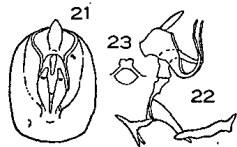
This species is allied to *Sogata neovittacollis*, Muir.

42. *Chloriona* (?) *longispinus*, sp. n. (Figs. 21, 22, 23.)

Macropterous Male.—Length 2 mm.; tegmen 2.5 mm.

Head slightly narrower than thorax; length of vertex greater than width (1.25 to 1). Length of frons 1.7 times the width, sides arcuate, median carina narrowly and obscurely furcate at base. Antennæ reaching slightly beyond the base of clypeus, first segment longer than broad, second twice the length of first. Lateral pronotal carinæ divergingly curved posteriorly, not reaching hind margin. Hind basitarsus as long as other two segments together; spur nearly as long as basitarsus, narrow, concave on inner surface, about twelve teeth on hind margin.

Genitalia figured; anal segment with two long slender spines curved round and upward. The diaphragm very



Chloriona longispinus.

Fig. 21.—Full view of pygofer.
Fig. 22.—Anal segment, aedeagus, and left genital style.
Fig. 23.—Diaphragm.

short, the middle of dorsal margin produced into two small rounded processes.

Stramineous; the bases of front coxæ slightly fuscous; abdomen slightly darker. Tegmina hyaline, very slightly stramineous, veins slightly darker; granules small with black hairs. Costal and apical margin and commissure brown. Wings hyaline, slightly stramineous, with slightly darker veins.

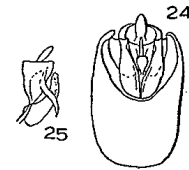
Hab. Zululand, Eshowe (v. 1926).

Description based on one male. The spur of this species approaches that in the *Alohini*, and further material may show that it belongs to that group. If so, then a new genus will have to be erected for the species.

43. *Chloriona fuscipennis*, Muir. (Figs. 24, 25.)

Chloriona fuscipennis, Muir, Canadian Entom. ii. p. 38, fig. 10 (1919).

Recorded from Natal and Ceres, Cape Province (ii, iii, 1925); also known to occur in British Guiana, South America.



Chloriona fuscipennis.

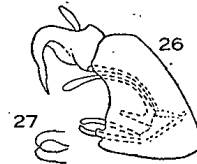
Fig. 24.—Full view of pygofer.
Fig. 25.—Lateral view of anal segment and aedeagus.

20. SOGATA, Distant

44. *Sogata vanreeneni*, sp. n. (Figs. 26, 27.)

Macropterous Male.—Length 2.6 mm.; tegmen 1.9 mm.

Head narrower than thorax; length of vertex equal to the width at base, apex narrower than base, base about middle of the eyes. Length of frons double the width, apex and base of equal width, the median carina forking



Sogata vanreeneni.

Fig. 26.—Lateral view of pygofer.
Fig. 27.—Apices of genital styles.

slightly more than one-fourth from the base. Antennæ reaching slightly beyond the apex of frons, first segment longer than broad, second segment nearly double the length of the first. Lateral pronotal carinæ diverging posteriorly, straight, reaching, or nearly reaching, the hind margin.

Hind basitarsus equal in length to the other two segments together; spur not as long as hind basitarsus, thin, tectiform, the hind margin with a few (four or five) small teeth in the middle. These can easily be overlooked, in which case the species might be placed in the *Tropidoccephalini*.
 The opening of the pygofer longer than wide; anal emargination wide and shallow, anal angles obscure, a small projection on each side in a medio-lateral position. Anal segment large and produced into two large spines curved ventrad with their bases wide apart. Genital styles fairly long, narrow, curved at the apex. The aedeagus consists of a long, thin, curved dorsal portion and a short straight ventral arm, the base being at their junction. The functional orifice appears to be at the apex of the shorter portion.
 Stramineous; a thin line along antennae, the apex of the labium and the apical tarsal joints dark. Tegmina and wings hyaline, veins stramineous. The macrotrichia on tegmina sparse, fine, black.
 R in contact with *M* 1 + 2 for some distance; *M* 3 + 4 not touching *Cu*.
Hab. Natal, Van Rieenen (xii, 1926). This species is dedicated to the Africaner pioneer whose name is given to the locality in the Drakensburgs. Description based on one male.

45. *Sogata rhodesi*, sp. n. (Figs. 28, 29, 30)
Macropterus Male.—Length 1.9 mm.; tegmen 2.3 mm. Head narrower than thorax; vertex longer than broad (1 to 1.3), width at apex distinctly projecting in front of eyes; length of frons 2.3 times the width, sides very slightly arcuate, base narrower than apex, median carina simple or very narrowly furcate at base; antennae reaching slightly beyond the base of clypeus, first segment longer than wide, second about twice the length of first, fairly thick. Lateral pronotal carinae diverging posteriorly, stratus slightly longer than the hind two segments together, spur not quite as long as basitarsus, thin, fairly wide, with about twenty teeth on hind margin.
 Opening of pygofer about as wide as long, margins entire. The diaphragm short, armature figured; the aedeagus has a flange from dorsal aspect at apex over the left side to near base on ventral aspect, the margin of this flange being



Sogata rhodesi.
 Fig. 28.—Anal segment and aedeagus.
 Fig. 29.—Diaphragm.
 Fig. 30.—Right genital style.

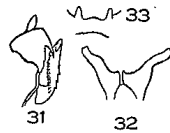
separated; on the right side there are five or six small spines from near apex to near base. The anal segment with two strong flattened spines.
 Vertex yellow; frons and genae brown, the gena before the transverse carinae dark brown, the median carina of frons light; antennae light brown. The middle and lateral portions of pronotum yellow or light brown, dark brown between; mesonotum yellow between the lateral carinae,

46. *Sogata kwageri*, sp. n. (Figs. 31, 32, 33).
Macropterus Male.—Length 1.9 mm.; tegmen 2 mm.

Fairly long and narrow; length of vertex 1.5 times the width, apex projecting well beyond the eyes, narrower than base, rounded with the carina projecting in middle, base behind the middle of eyes, the medio-lateral carinae meeting at apex, the X-carina obscure. Length of frons twice the width, base narrower than apex, sides slightly arcuate. Antennae reaching a little beyond the base of the clypeus, first segment as wide as long, second segment twice or more than twice the length of first. Lateral pronotal carinae diverging slightly posteriorly, stratus reaching hind margin. The length of the head and thorax twice the width of the head including eyes. Hind basitarsus about as long as the other two segments together; spur with about sixteen teeth on hind margin.

The vertex between the medio-lateral carinae light yellow or white, the areolets brown; frons and genae brown with lighter carinae, clypeus light brown; antennae light brown. Middle of pronotum and mesonotum light yellow, lateral portions dark brown, the lateral margins of pronotum pale. Front and middle coxae and pleura dark brown, legs light brown or yellow. Abdomen brown. Tegmina hyaline, fuscous brown, lighter at node and surrounding membrane, commissure white extending along hind margin to apex of *Cu*; veins dark with small dark granules. Wings light fuscous with dark veins.

Hab. Pondoland, Port St. John (v. 1923; iv. 1924).
Description based on two males.



Sogata krugeri.

Fig. 31.—Anal segment and aedeagus.
Fig. 32.—Genital styles at slightly different angles.
Fig. 33.—Diaphragm.

There is one male specimen from Cape Province, Ceres, in which the genitalia are the same as in the above specimens, but the head and thorax are much darker, nearly black, the carinae are dark, and the light mark over vertex, pronotum, and mesonotum is reduced and obscure. For the present I have referred it to this species, but have refrained from including it in the type-material.

In the length of the head and thorax compared with the width of the head this species resembles *Stenocranus*, but the small size and the shape of the vertex indicate its true position in *Sogata*.

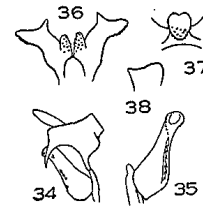
47. *Sogata flaviceps*, sp. n. (Figs. 34–38.)

Macropterous Male.—Length 2 mm.; tegmen 3 mm.

Head nearly as broad as thorax; length of vertex slightly greater than width (1 to .8), apex slightly narrower than base, base considerably behind the middle of eyes, apex projecting slightly in front, the lateral and median carinae standing out distinctly. Medio-lateral carinae meeting at

apex. The length of head, pronotum, and mesonotum 1.7 times the width of head including eyes. Length of frons twice the width, base and apex subequal in width, sides slightly arcuate. Antennae reaching slightly beyond the base of clypeus, first segment longer than wide, second segment nearly twice the length of first. Lateral pronotal carinae straight, diverging posteriorly, not quite reaching the hind margin. Hind basitarsus equal in length to the other two segments together, spur not as long as basitarsus, twenty small teeth on hind margin.

Margins of pygofer entire, anal angles obscure, anal emargination shallow; diaphragm short, the middle elevated in a heart-shaped process beset with small teeth along the sides and apex. Anal segment with two strong spines, their



Sogata flaviceps.

Fig. 34.—Anal segment and aedeagus.
Fig. 35.—Aedeagus.
Fig. 36.—Genital styles.
Fig. 37.—Armature of diaphragm.
Fig. 38.—Apex of genital style, a slight variation in one specimen.

bases not very close together. The genital styles short, wide, apical margin wide, the outer angle roundly produced, the inner angle angularly produced. Aedeagus broad on basal half, narrower on apical half, a row of six small teeth along the left side of ventral area, continued to apex as six separate teeth, three or four small teeth on right side of ventral area.

Head and antennae yellow; middle and lateral portions of pronotum yellow, light brown between; middle of mesonotum between the carinae yellow, lateral portion brown; pleura and legs yellow except the first and middle coxae which are brown; abdominal sternites and the pygofer yellow, abdominal tergites light brown, genital styles and diaphragm dark brown.

The anterior half of the tegmina including the costal, subcostal, and radial cells hyaline, the posterior half light fuscous, the apical *M* cells being darkest; commissure white; veins same colour as membrane. Wings hyaline, slightly fuscous, veins dark.

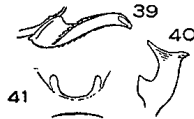
Hab. Zululand, Eshowe (iv., v., vi. 1926).

Description based on six males.

There is some slight variation in the shape of the apex of the genital styles (*vide* fig. 38).

48. *Sogata furcifera* (Horv.) *capensis*, subsp. n.
(Figs. 39, 40, 41.)

There is a long series from various localities which I refer to this species, but in which the genital styles depart as much from the type as do those of the subspecies *kolophon* and *nigeriensis*; I therefore name this form *capensis*. The right genital style is figured. This is one of the most widely



Sogata furcifera capensis.
Fig. 39.—Aedeagus.
Fig. 40.—Genital style.
Fig. 41.—Diaphragm.

distributed of the Delphacidae, and the species in which the greatest difference in the genital styles has been noted. There are a number of synonyms (*vide* H. S. P. Ent. Bull. xv. (1924) p. 13).

49. *Sogata cubana* (Crawford).

Dicranotropis cubanus, Crawford, Proc. U.S. Nat. Mus. xli. p. 595 (1914).
Megamelus flavilineatus, Muir, Bull. Ent. Res. x. 2, p. 143, fig. 8 a, b, c (1920).

Recorded from Nigeria, also known to occur in Cuba and Porto Rico.

50. *Sogata neovittacollis*, Muir.

Sogata neovittacollis, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 32, figs. 30, 31, 32 (1926).

Recorded from Pondoland, Port St. John.

51. *Sogata albofimbriata*, Muir.

Sogata albofimbriata, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 33, figs. 33, 34 (1926).

Recorded from Pondoland, Port St. John.

52. *Sogata nigricaudata*, Muir.

Sogata nigricaudata, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 33, figs. 35, 36, 37 (1926).

Recorded from Pondoland, Port St. John.

21. DELPHACODES, Fieber.

53. *Delphacodes turneri*, Muir. (Fig. 42.)

Delphacodes turneri, Muir, Ann. & Mag. Nat. Hist. (9) xvii. p. 35 (1926).

Five macropterous females, one brachypterous female, and one macropterous male from Zululand (Eshowe), Natal (Kloof), and Pondoland (Port St. John).

The description of this species was originally based on five macropterous females from Pondoland (Port St. John). In the brachypterous female the tegmina reach to the base



Delphacodes turneri.

Anal segment, aedeagus, and left genital style.

of the seventh abdominal segment; they are fuscous with a hyaline band across the basal half of each, the apical margin being white.

The opening of the male pygofer about as long as wide, anal emargination large, anal angles rounded; diaphragm level with the sides of pygofer, dorsal margin wide V-shaped with a minute projection in the middle. Anal segment with two large flat projections with their bases far apart, apices rounded. Aedeagus thin, tubular, produced into a fine point at apex; from the base arises a longer thin process parallel to the aedeagus, with a rounded apex and a small process projecting shortly before the apex. Genital styles small.

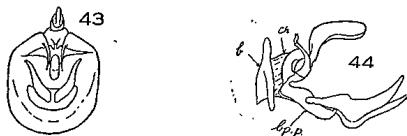
54. *Delphacodes hargreavesi*, sp. n. (Figs. 43, 44.)

Macropterous Male.—Length 1·4 mm.; tegmen 1·7 mm.

Vertex broader than long, hind margin slightly anterior to the middle of eye, head distinctly narrower than thorax. Length of frons 1·3 times the width. Antennæ reaching about middle of clypeus, second segment twice the length of first. Hind tibial spur small, thin, hind margin with small teeth.

Dark shiny brown, legs and abdomen lighter. Tegmina hyaline slightly tinged with brown, veins brown, granules sparse, brown. Wings hyaline with brown veins.

The diaphragm of pygofer not sunk below the margins but level with them, the anal angles angular, turned inward and drawn out into a long fine spine, two small blunt spines



Delphacodes hargreavesi.

Fig. 43.—Full view of pygofer.

Fig. 44.—Aedeagus and genital styles. *ch.*, chamber; *b.*, bridge; *bp.p.*, basal plate prolongation.

on ventral side of anal segment. The chamber (fig. 44, *ch.*) and bridge (fig. 44, *b.*) are of peculiar structure, different from any other examined by the writer.

Description based on one male, in not a very good condition.

Hab. Sierra Leone (*E. Hargreaves*).

55. *Delphacodes hessei*, sp. n. (Figs. 45, 46.)

Macropterous Male.—Length 2 mm.; tegmen 2·8 mm.

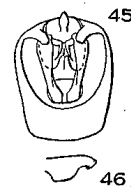
Head not quite so wide as thorax; vertex about as broad as long; length of frons twice the width, sides slightly arcuate, median carina forked at base. Antennæ reaching to base of clypeus, first segment slightly longer than broad, second twice the length of first. Lateral pronotal carinae diverging posteriorly, slightly curved, not reaching hind margin. Hind basitarsus slightly longer than the other

two segments together; spur wide, not quite as long as basitarsus, with about 25–30 teeth on hind margin.

Stramineous; dark brown between carinae of frons and clypeus, lighter brown or fuscous on genæ between carinae, lighter over median carina of mesonotum. Tegmina hyaline, slightly stramineous, apical veins dark brown extending a little way along *M* and *Cu* 1, where it extends out into the membrane, apical *Cu* and *M* 3, 4 cells slightly fuscous, veins before nodal line pale. Wings hyaline with dark veins.

Brachypterous Male.—Length 1·7 mm.; tegmen 1·2 mm.

Tegmina reaching to apex of abdomen, otherwise in structure similar to macropterous form. In colour also similar, but the abdomen darker, the tegmina hyaline, slightly stramineous, veins the colour of the membrane, slightly fuscous along the apex and at apex of clavus.



Delphacodes hessei.

Fig. 45.—Full view of pygofer.

Fig. 46.—Aedeagus.

Opening of pygofer large, about as long as broad, margins entire, anal emargination large, anal angles large, produced into wide processes curved inward, with rounded apices. Anal segment with two long slender spines with their bases close together. The diaphragm produced into a slightly bilobed process in middle of the dorsal margin. Aedeagus small, thin, flattened laterally, the outline figured. Genital styles long, apical half considerably flattened, basal half more cylindrical.

Hab. Pondoland, Eshowe (vi. 1926).

Description based on one brachypterous and three macropterous males.

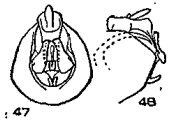
56. *Delphacodes complexa*, sp. n. (Figs. 47, 48.)

Macropterous Male.—Length 1·7 mm.; tegmen 2·5 mm.

Head nearly as broad as the thorax; vertex broader than

long, apex as wide as base, projecting slightly in front of eyes, base well in front of the middle of eyes; length of frons twice the width, sides slightly arcuate, median carina simple. Antennæ reaching to base of clypeus, first segment slightly longer than wide, second nearly three times the length of first. Lateral pronotal carinæ diverging posteriorly, slightly curved, not reaching the hind margin. Hind basitarsus as long as the other two segments together, spur shorter than basitarsus, thin, tectiform, with about sixteen teeth on hind margin. *R* touching *M* 1+2 and *M* 3+4 touching *Cu* for a short distance.

Lateral margins of pygofer angularly produced; anal emargination median, anal angles obscure, not produced. Diaphragm short, middle raised into two ridges. Anal segment long, produced into two long slender spines with their bases wide apart. Genital styles complex and best



Delphacodes complexa.

Fig. 47.—Full view of pygofer.
Fig. 48.—Lateral view of pygofer.

understood from the figures. *Ædeagus* long, subtubular, slender, curved.

Yellow; fuscous between the carinæ of frons, clypeus, and genæ. Abdomen and genitalia dark brown, pleura and anal segment yellow. Coxæ and pleura fuscous. Tegmina hyaline, commissure white, veins before nodal line slightly darker than membrane, apical of nodal line light brown. Wings hyaline with brown veins.

Hab. Cape Province, Queenstown (ii. 1923); Natal, Van Reenen (i. 1927).

Description based on three males. The genital styles of this species are very complex. The genitalia as a whole are very distinct, and do not resemble those of any other species.

57. *Delphacodes ceresensis*, sp. n. (Figs. 49, 50.)

Macropterous Male.—Length 1.8 mm.; tegmen 2.2 mm. Head nearly as broad as thorax; vertex as long as broad,

apex projecting slightly in front of eyes, base behind the middle of eyes. Length of frons 1.7 times the width, sides slightly arcuate, base slightly narrower than apex, median carina simple. Antennæ reaching base of clypeus, first segment longer than broad, second nearly twice the length of first (1.8 to 1). Lateral pronotal carinæ diverging posteriorly, very slightly curved, not reaching hind margin. Hind basitarsus as long as, or very slightly longer than, the other two segments together, spur not quite so long as basitarsus, broad, thin, subtectiform, with 25 to 30 teeth on hind margin. *R* touching *M* 1+2 and *Cu* touching *M* 3+4 for a short distance.

Dark shiny brown or black; carinæ of head and pronotum, the hind margin of mesonotum, tegulæ, and legs lighter, the legs with longitudinal darker marks. Tegmina hyaline very slightly tinged with fuscous, veins before nodal line



Delphacodes ceresensis.

Fig. 49.—Genital styles.
Fig. 50.—Anal segment and *ædeagus*.

very little darker than membrane, the apical veins beyond nodal line and the margins darker brown. Wings hyaline with brown veins.

The genitalia closely resemble those of *D. varia*, Hesse, as figured above. The genital styles differ as shown in figures.

Macropterous Female.—In build and colour similar to male.

Hab. Cape Province, Ceres (iii. 1925); Queenstown (i. 1923); Pondoland, Port St. John (iv. 1923).

Description based on two males and one female.

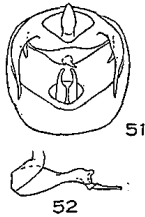
58. *Delphacodes parvistylus*, sp. n. (Figs. 51, 52.)

Macropterous Male.—Length 2 mm.; tegmen 2.4 mm.

Head narrower than thorax; length of vertex equal to the width at base, apex narrower than the base, projecting slightly in front of eyes with the apex of the V-carina projecting in front; base about the middle of the eyes.

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Length of frons twice the width, apex slightly broader than the base, sides slightly arcuate, the median carina simple. Antennæ reaching about the middle of the clypeus, first segment longer than wide, second slightly longer than first. Lateral pronotal carinæ diverging posteriorly, slightly curved but not following the hind margin of eye, not reaching the hind margin of pronotum. Hind basitarsus as long as the other two segments together, spur about as long as basitarsus with about fourteen teeth on hind margin. In the male on one tegmen *R* is amalgamated with *M* 1 to the apex, while on the other tegmen it parts from *M* 1 to the apex. In one female *R* and *M* 1 part about the middle of *M* 1, and in the other female they part much nearer the apex, and on one side there is an extra vein from *M* 1+2 to *M* 3+4 forming an extra apical cell. Such aberrations are common in the



Delphacodes parvistylus.
Fig. 51.—Full view of pygofer.
Fig. 52.—Aedeagus.

apical veins of Homoptera and should be remembered when considering fossil tegmina.

Opening of pygofer wider than long, margins entire, anal emargination wide, anal angles obscure; anal segment very large, apical margin wide with a large spine at each angle, both of which reach to the level of the base of the genital styles; there is a minute spine on the inner side at the base of these large spines. The genital styles are small, and the aedeagus is complex at its apex, as can be seen in fig. 52.

Dark brown; the carinæ of head and pronotum and the hind and lateral margins of pronotum lighter. The apices of the tibiæ and the tarsi lighter. Tegmina hyaline, veins brown; fuscous-brown over *M* fork, the colour running over *Cu*, the brown of the apical veins spreading slightly into the

membrane; brown at base and a brown mark on commissure at apex of claval vein, the commissure before this mark white. Wings hyaline with brown veins.

Macropterous Female.—Length 2.5 mm.; tegmen 2.7 mm.

In general build and colour similar to male.

Hab. Cape Province, Ceres (iii., iv. 1925).

Description based on one male and two females.

59. *Delphacodes longispinus*, sp. n. (Figs. 53, 54.)

Macropterous Male.—Length 2 mm.; tegmen 2.3 mm.

Head narrower than thorax; vertex wider than long, apex subequal to base in width, projecting very slightly beyond the eyes, base considerably behind the middle of eyes, the length of the head including eyes half the width of the head including eyes; the stem of the Y-carina obscure and the fork more like an arc. Length of frons 1.3 times the width, lateral margins slightly arcuate, median carina simple. Antennæ reaching beyond the base of clypeus, first segment



Delphacodes longispinus.
Fig. 53.—Full view of pygofer with the left genital style and left spine from the medio-ventral margin omitted.
Fig. 54.—Aedeagus. *ch.*, chamber; *b.*, bridge; *af.*, ejaculatory duct; *bp.p.*, basal plate prolongation; *bp.*, basal plate; *f.o.*, functional orifice.

longer than broad, second segment not quite twice the length of the first. Lateral pronotal carinæ widely diverging posteriorly and slightly curved, not reaching hind margin. Hind basitarsus as long as the other two segments together, spur small, not quite as long as basitarsus, thin, hind margin with twelve teeth.

The genitalia are best understood from the figures, the most conspicuous parts are the two long spines arising from the medio-ventral margin and the large spines on the anal segment.

The penis is of considerable interest on account of its peculiar shape. The functional orifice appears to be large (*f.o.*) and the chamber (*ch.*) runs through the penis to the *f.o.* (fig. 54).

Head and thorax black, abdomen dark brown, antennæ and legs lighter brown. Tegmina hyaline, veins brown, including the commissure, granules darker, small, not numerous, fuscous over the cell between *M* 3+4 and *Cu*.

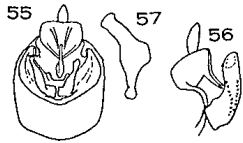
Only two *Ms*, viz. 1+2 and 2+3, and *M* does not touch *R* or *Cu*.

Hab. Orange Free State, Harrismith (iii. 1927), one male specimen.

60. *Delphacodes varia* (Hesse). (Figs. 55, 56, 57.)

Liburnia varia, Hesse, Ann. S. African Mus. xxiii. (1) p. 171 (1925).

I have not seen the type of this species, but there are eight specimens in the British Museum marked co-types, five are males and three females. One specimen belongs to the genus *Chloriona*. I have selected one male for dissection and figured the genitalia. Among Mr. Turner's collections



Delphacodes varia.

Fig. 55.—Full view of pygofer.

Fig. 56.—Anal segment and aedeagus.

Fig. 57.—Left genital style.

there are specimens from Pondoland, Port St. John (iv. 1923), and Orange Free State, Harrismith (iii. 1927).

This species is closely allied to *Delphacodes terryi*, Muir, from Java and Formosa, but I do not care to synonymise it until I have examined the aedeagus of *D. terryi*.

61. *Delphacodes matanitu* (Kirk.).

"*Delphax*" *matanitu*, Kirkaldy, Haw. Sugar Planters' Ent. Bull. (1907).

Two macropterous males from Zululand, Eshowe (v. 1926), and Cape Province, Mossel Bay (i. 1922).

In these specimens the vertex at the sides is as long as wide and in the middle slightly longer. If *D. matanitu* is regarded as distinct from *D. nigripennis*, then these specimens must be referred to the former species.

D. matanitu is known from Fiji and Papua, *D. nigripennis* from Nicaragua and Jamaica.

62. *Delphacodes propinqua* (Fieber).

Delphax propinqua, Fieber, Verh. d. k.-k. zool.-bot. Ges. Wien, xvi. p. 525, pl. viii. fig. 24 (1866).

This is a very widely distributed species and has several synonyms (*vide* Haw. Sugar Pltrs. Ent. Bull. 15 (1924), p. 31). It appears to be one of the commonest species in South Africa and is widely distributed in that region.

22. DELPHACODOIDES, gen. nov.

Head about as wide as thorax; vertex wider than long, base as wide as apex, lateral margins slightly concave, the stem of the normal Y-carina absent or very obscure, otherwise the carinae similar to *Delphacodes*, the medio-lateral carinae continued on to the frons as a short fork of the median frontal carina; base of vertex about middle of eyes. Length of frons about twice the width, sides slightly convex, base as wide as apex, the median carina narrowly forked on basal third; clypeus tricarinate. In profile the junction of frons and vertex rounded, the clypeus curved. Antennæ fairly short and thick, reaching slightly beyond the base of clypeus; first segment longer than wide, apex thicker than base, second segment slightly longer than first. Pronotum tricarinate, lateral carinae nearly straight, reaching hind margin and in line with lateral mesonotal carinae. Mesonotum tricarinate, all three subparallel. In tegmina *R* touching *M* 1+2 and *Cu* 1 touching *M* 3+4 for short distance. Hind basitarsus equal to the other two segments together; spur not quite so long as hind basitarsus, thin, fairly broad, concave on inner surface, convex on outer surface, about seventeen teeth on hind margin.

This genus is close to *Delphacodes*, but the straight lateral pronotal carinae reaching the hind margin distinguishes it; from *Sogata* and *Megamelus* it differs by the fact that the vertex is broader than long, and the head wide, also by the stoutness of the general build. The question as to whether this and other allied species should be separated into groups (subgenera) within one genus or into several genera is of minor importance, so long as the characters separating the groups are recognised.

Type, *Delphacodoides ornata*.

63. *Delphacodoides ornata*, sp. n.

Macropterous Female.—Length 2.7 mm.; tegmen 3.2 mm. Head brown; the carinae and the genæ beneath the antennæ yellow or much lighter brown, the genæ in front

of antennæ and the frons along the carinæ darker; the apex of the first segment of antennæ and the base of the second darker brown; pronotum and mesonotum brown with pale carinæ, the areas outside the lateral carinæ darkest, the postero-lateral area of pronotum pale. Femora brown, the hind femora the darkest, the tibiæ lighter, the base of the hind tibiæ dark. Abdomen dark brown, the basal plates (eighth sternite) pale. Tegmina hyaline with brown markings; the first claval cell clear, the other two light brown, the basal two-thirds of commissure white, the apical third dark brown; light brown between *M* and *Cu*, a dark brown mark from node over cross-veins or nodal line, over *Cu* and apical portion of cell to apex, a clear spot on margin between *M* 2 and *M* 3, *M* and *Cu*, and *Cu* 1 and *Cu* 1 a; over the nodal line the dark mark spreads along *R* and *M* 1+2 extending out into cells. Veins same colour as membrane with dark brown granules, most numerous before the nodal line. Wings clear hyaline with brown veins.

Hab. Cape Province, Ceres (iii. and iv. 1925).

Description based on seven females.

The following two species referred by Stål to *Liburnia* I am unable to place with any certainty. *L. vitticollis*, which I consider to be the type of the genus *Liburnia*, belongs to either *Chloriona* or *Sogata* as I understand them. These two genera are so strongly related that I think they will have to be considered as one. In that case the name *Liburnia* will have to be used for the genus:—

64. *Liburnia vitticollis* (Stål).

Delphax vitticollis, Stål, Öfv. Vet.-Ak. Förh. p. 93 (1855).

Cape Colony—Hesse reports this from Ovamboland.

65. *Liburnia lautipes* (Stål).

Delphax lautipes, Stål, Öfv. Vet.-Ak. Förh. p. 319 (1858).

T'kons Fountain, West Africa.

The following two species are not correctly placed by Melichar, but I cannot be sure to which genus they actually belong:—

66. *Peregrinus vegetatus*, Melichar.

67. *Peregrinus lunilifera*, Melichar.

Ergeb. Zweit. Deut. Zent.-Afr. Exp. i. pp. 133, 134 (1914).