

Fauna sumatrensis.

(Beitrag Nr. 30).

Membracidae (Homoptera).

By W. D. Funkhouser. Ph. D., Lexington (Kentucky (U. S. A.).

(With 29 figures).

Through the courtesy of Mr. Edward Jacobson of Fort de Kock who has permitted us to study a considerable collection of Membracidae from Sumatra and the kindness of Mr. W. E. China of London who has taken the trouble to compare many of the specimens with types in the British Museum, it has been possible to recognize many of the described Membracidae which have been taken in Sumatra and to describe as new a number of species. The number of species of this family previously reported from the island is not large but that the membracid fauna is quite extensive is shown by the following list, and that it is not entirely the same as that of neighboring regions is indicated by the number of new species in the material received from Mr. Jacobson. According to our records and the literature of the family, as well as the material studied, the following species, all belonging to the subfamily *Centrotinae*, may be enumerated:

1. *Tricentrus auritus* Buckton:

1903 *Otaris auritus* Buckton, Mon. Memb. 249, Pl. 59, figs. 1, 1a

1916 Distant, Rhynch. 158, 328.

This species was described from Sumatra by Buckton as the type of his genus *Otaris*. Distant placed the species in the genus *Tricentrus*, thus invalidating *Otaris*. Two specimens collected by Mr. Jacobson at Fort de Kock and determined by Mr. China as „near auritus“ are males and we believe to be this species. Buckton's type was a female.

2. *Tricentrus acuticornis* Funkhouser:

1919 *Tricentrus acuticornis* Funkhouser, Phil. Journ. Sci. XV

1. 22. Pl. 1, figs. 5, 6.

One specimen collected at Fort de Kock (Residency of Sumatra's West coast) 920 m.

Mr. Jacobson's record from Sumatra is the only one ever reported from any other region than the Philippines.

3. *Tricentrus albomaculatus* Distant:

Suppl. Ent. XV.

- 1907 *Tricentrus albomaculatus* Distant, Faun. Brit. Ind. 56. 2183
 1912 Swezey, Proc. Haw. Ent. Soc. II: 188
 1924 Kershaw, Ann. Ent. Soc. Belg. LVII: 191—201, figs. 1—13.
 1916 Distant, Faun. Brit. Ind. App. 166.
 1918 Funkhouser, Malayan Memb. 6. 12.
 1920 Funkhouser, J. R. A. S. 82: 211. 17.
 1922 Funkh., Rec. Ind. Mus. XXIV: 324.

Four specimens, all collected at Fort de Kock.

4. *Tricentrus caliginosus* Walker:

- 1856 *Centrotus caliginosus* Walker, Journ. Linn. Soc. Lond. I: 93. 46.
 1857 Walker, Journ. Linn. Soc. Lond. I: 164. 120.
 1859 Dohrn, Cat. Hem. 82.
 1916 *Tricentrus caliginosus* Distant, Rhynch. Notes 329.

One specimen taken at Anei Kloof (Residency of Sumatra's West-coast) 500 m.

5. *Tricentrus congestus* Walker:

- 1858 *Centrotus congestus* Walker, Ins. Saund. 79.
 1868 Walker, Journ. Linn. Soc. Zool. X: 187.
 1886 Atkinson, J. A. S. B. LV: 197.
 1906 Oshanin, Pal. Hem. 43. 158.
 1907 *Tricentrus congestus* Distant, Faun. Brit. Ind. 54. 2179, fig. 47.
 1916 Distant, Rhynch. Notes 329.
 1916 Distant, Faun. Brit. Ind. App. 167.
 1920 Funkhouser, J. R. A. S. 82: 211. 21.

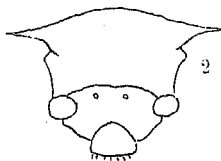
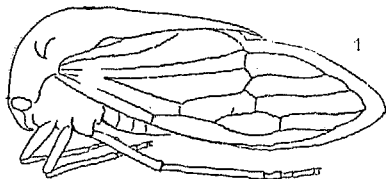
Two specimens from Fort de Kock.

6. *Tricentrus spinicornis* Funkhouser:

- 1918 *Tricentrus spinicornis* Funkhouser, Malayan Memb. 6. 15.

One specimen from Fort de Kock.

7. *Tricentrus nitidus* sp. nov. (Figs. 1, 2, 3):

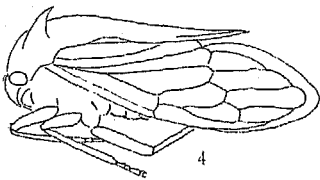


Large, dark brown, smooth, shining, not punctate, not pubescent; suprahumeral horizontal and turned slightly backward; posterior process

slightly decurved and reaching just beyond internal angle of tegmina; tegmina hyaline, veins brown at base, then translucent, then dark brown; white tomentose patch showing through base of tegmen; undersurface black; legs brown.

Head broader than long, uniform brown, slightly sculptured with longitudinal ridges, not punctate, not pubescent; base arcuate and slightly sinuate; eyes large, same color as head; ocelli amber, inconspicuous, equidistant from each other and from the eyes and situated well above a line passing through centers of eyes: clypeus broad, rounded, sparingly pilose. — Pronotum dark brown margined with black, smooth, shining, not punctate, not pubescent; metopidium broader than high, only slightly convex; no median carina; humeral angles acute, extending farther laterad than the eyes; suprahumeral horns short, sharp, narrow, horizontal, nearly straight, turned slightly backward from base, tips black; posterior process brown margined with black, slightly carinate above, nearly straight, impinging on tegmina, gradually acuminate, tip black, slightly decurved, extending slightly beyond internal angles of tegmina and just about reaching tip of abdomen. — Tegmina hyaline, base brown and slightly punctate, next to punctate region a translucent area in which the veins are transparent, beyond this the veins strong and dark brown, becoming lighter toward the apex; white tomentose spot showing through translucent area. — Undersurface and abdomen black; femora black above, brown beneath; tibiae and tarsi uniform brown. — Length to tips of tegmina 6.8 mm; width between tips of suprahumeral horns 4 mm.

Type: female. Male slightly smaller and darker, some almost black. Described from four females and four males, all from Fort de Kock (Residency of Sumatra's Westcoast) 920 m.



Type and allotype in the collection of the British Museum, five paratypes in Mr. Jacobson's collection; one paratype in author's collection.

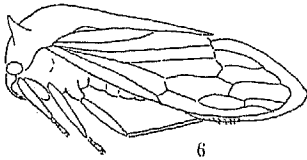


8. *Tricentrus nigroapicalis* sp. nov. (Figs. 4, 5):

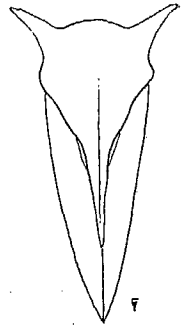
Brown, punctate, pubescent; tips of suprahumeral horns and posterior process black; horns sharp, extending outward, upward and backward;

tegmina subhyaline, wrinkled, base and external apical margin black; thorax tomentose; undersurface, black; legs brown.

Head wider than long, black, punctate, pubescent with silvery hairs, roughly sculptured; base sinuate; eyes large, light brown mottled with darker; ocelli pearly, conspicuous, farther from each other than from the eyes and situated above a line drawn through centers of eyes; clypeus broad, rounded, pilose. — Pronotum brown with the tips of the horns, the tip of the posterior process and a large spot above each eye black, finely punctate, sparingly pubescent with short silvery hairs; metopidium convex, punctate, pubescent, an irregular smooth black spot on each side; humeral angles strong, prominent, blunt; median carina percurrent, strongest on posterior process; suprahumeral horns sharp, flattened dorsoventrally, extending upward, outward and backward, tips black; posterior process sharp, slightly sinuate, strongly tricarinate, tip black and extending beyond internal angles of tegmina but not reaching apex of abdomen, tip not impinging on tegmina. — Tegmina vinaceous-hyaline, much wrinkled, iridescent, base black and punctate, veins of external apical area black. — Sides of thorax tomentose with white pubescence; undersurface and abdomen black; femora black above and brown beneath; tibiae and tarsi uniform brown. — Length to tips of tegmina 5.4 mm; width between tips of suprahumeral horns 3 mm.



Type: female. — Male similar but with less prominent black markings. Described from two specimens, one male and one female, both from Fort



de Kock. Type female in the collection of the British Museum; allotype male in author's collection.

9. *Tricentrus albipes* sp. nov. (figs. 6, 7):

Near *T. brunneus*, a Singapore species, but smaller, with suprahumeral horns at a different angle and with tibiae and tarsi white.

Brown, punctate, pubescent; suprahumeral horns pointing outward, upward and slightly forward; posterior process just reaching internal angles of tegmina; thorax tomentose; legs white.

Head broader than long, dark brown, finely punctate, densely pubescent; base sinuate; eyes large, gray-brown, prominent; ocelli small, inconspicuous, brown, a little farther from each other than from the eyes and situated above a line passing through centers of eyes; clypeus projecting below inferior margins of cheeks, rounded, pilose. — Pronotum

brown, finely punctate, densely pubescent; median carina almost obsolete on metopidium but prominent on posterior process; metopidium rounded, convex, wider than high; lateral angles prominent, blunt; suprahumeral horns slender, sharp, feebly tricarinate, extending outward, upward and slightly forward; posterior process straight, gradually acuminate, sharply keeled, tip black, extending just to internal angles of tegmina and impinging on tegmina. — Tegmina iridescent hyaline, wrinkled, veins prominent, costal veins near apex swollen and finely spined, base black and punctate. — Sides of thorax white tomentose; undersurface and abdomen dark brown; femora gray-brown; tibiae and tarsi white. — Length to tips of tegmina 5.3 mm; width between tips of suprahumeral horns 3 mm.

Type: female in the British Museum collection. Described from one specimen collected at Fort de Kock.

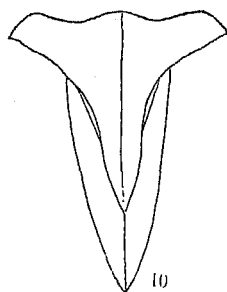
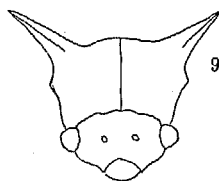
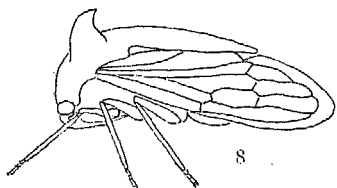
10. *Tricentrus latus* sp. nov. (Figs. 8, 9, 10):

Near *T. sellenus* Buckton.
A short broad species with wide flattened suprahumeral horns.

Reddish-brown

mottled with black, punctate, pubescent; percurrent median carina; horns projecting outward and upward; posterior process thick, blunt, reaching just beyond internal angles of tegmina; fuscous hyaline; undersurface and legs reddish-brown.

Head wider than long, reddish brown, finely punctate, sparingly pubescent; base sinuate; eyes large, dark brown; ocelli yellowish, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; clypeus continuing margins of cheeks, pilose. — Pronotum reddish brown mottled with darker brown and black, punctate, pubescent; median carina reddish and strongly percurrent; metopidium broader than high, nearly flat, a broad black vertical band on each side median line, this band margined with reddish; suprahumeral horns broad, flat, stout, extending outward and upward, tips black, rounded anteriorly and angular posteriorly; posterior process heavy, blunt, black at tip, reaching beyond internal angles of tegmina but not extending as far as apex of abdomen. — Tegmina smoky-hyaline, base black and punctate, veins pilose. — Sides, undersurface and abdomen black; legs



reddish brown. — Length to tips of tegmina 5 mm; width between tips of suprahumeral horns 3.9 mm.

Type: female. Described from one specimen, now in the British Museum collection, taken on Gunung (Mount) Singgalang, 1800 m.

11. *Gargara attenuata* Funkhouser:

1914 *Gargara attenuata* Funkhouser, Journ. N. Y. Ent. Soc. XXII: 3.236, Fig. 4.

1920 Funkhouser, J. R. A. S. 82:218.33.

This species was originally described from Banguay but we have seen specimens of it also from the Philippines and from Borneo as well as the three examples from Fort de Kock sent us by Mr. Jacobson.

12. *Gargara alboapicata* Distant:

1907 *Gargara alboapicata* Distant, Faun. Brit. Ind. 66.2206.

Three examples taken by Mr. Jacobson on Gunung Singgalang, 1800 m, and compared with type by Mr. China represent the first record of this species since its original description.

13. *Gargara nitipipennis* Funkhouser:

1914 *Gargara nitidipennis* Funkhouser, Journ. Ent. & Zoo. VI: 71.14.

1915 Funkhouser, Phil. Memb. 399.

1918 Funkhouser, Not. Phil. Memb. 32, 38.

1918 Funkhouser, Malayan Memb. 10. 21.

1919 Funkhous., Phil. Journ. Sci. XV: 1.24.

1920 Funkhouser, J. R. A. S. 82: 219. 34.

1922 Funkh., Rec. Ind. Mus. XXIV: 3.324.

Apparently a widely distributed species showing considerable variation but distinct in its specific characters. Mr. Jacobson has a very typical specimen taken at Harau-Kloof (Residency of Sumatra's Westcoast) 500 m.

14. *Gargara maculipennis* Funkhouser:

1918 *Gargara maculipennis* Funkhouser, Not. Phil. Memb. 32, 38.

1920 Funkhouser, J. R. A. S. 82: 221. 43.

A pair from Gunung Singgalang 1800 m and three specimens from Fort de Kock.

15. *Gargara patruelis* Stal:

1859 *Centrotus patruelis* Stal, Freg. Eug. res Ins. 285. 196.

1870 *Gargara patruelis* Stal, Hem. Phil. 728. 2.

1915 Funkhouser, Phil. Memb. 396.

1918 Funkhouser, Notes Phil. Memb. 32, 38.

Two specimens from Fort de Kock are the first we have seen from any locality outside the Philippine Islands.

16. *Gargara rubrogranulata* Bierman:1910 *Gargara rubrogranulata* Bierman, Notes Mus. Leid. 33. 45.

1918 Funkhouser, Malayan Memb. 10.20.

1920 Funkhouser, J. R. A. S. 83: 220. 38.

Four specimens collected by Mr. Jacobson at Fort de Kock, one of which was compared by D. Mac Gillavry at Amsterdam with the type in his collection.

The species has a wide range, as we have seen the same insect from Singapore, Borneo and the Island of Penang in addition to the Sumatra material.

17. *Gargara luconica* Fairmaire:1846 *Membracis luconica* Fairmaire, Rev. Memb. 255. 45.1851 *Enchenopa luconica* Walker, List Hom. B. M. 484. 18.1870 *Gargara luconica* Stal, Hem. Phil. 728. 1.

1915 Funkhouser, Phil. Memb. 395.

1918 Funkhouser, Notes Phil. Memb. 38.

1920 Funkhouser, J. R. A. S. 82: 219. 36.

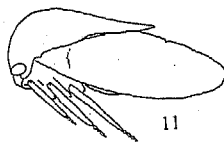
Three specimens from Fort de Kock are slightly larger than the forms in our collection from other localities but we can find no specific distinctions.

18. *Gargara pilosa* sp. nov. (Fig. 11):

At once recognized by the very dense pubescence particularly on the tegmina which are covered both on and between the veins with long silky hairs.

Small, very dark brown, almost black; densely pubescent especially on the tegmina; metopidium convex; posterior process not reaching internal angles of tegmina; undersurface dark brown; tibiae and tarsi flavous.

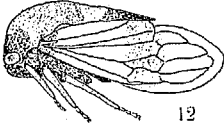
Head wider than long, dark brown, no visible punctures, entirely covered with dense pubescence; base rounded; eyes large, extending laterad beyond lateral margins of pronotum but not as far as apices of humeral angles, mottled brown and yellow; ocelli pearly, much farther from each other than from the eyes and situated well above a line drawn through centers of eyes; clypeus extended far below inferior margins of cheeks, pilose. — Pronotum rounded, convex between humeral angles, very dark brown, densely pilose, lightly punctate; humeral angles prominent, rounded; metopidium broader than high; median carina very faintly percurrent; posterior process short, acute, pilose, impinging on tegmina except at tip, not reaching internal angles of tegmina. — Tegmina vinaceous, very densely pilose with long silky hairs, veins in-



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distinct, base black and opaque, tips hyaline. — Undersurface and abdomen very dark brown; femora dark brown; tibiae and tarsi flavous. — Length to tips of tegmina 3.9 mm; width between tips of humeral angles 1.9 mm. Type: female. Described from one specimen taken at Anei Kloof, Residency of Sumatra's Westcoast, 500 m, and now in the British Museum collection.

19. *Gargara flavocarinata* sp. nov. (Fig. 12):

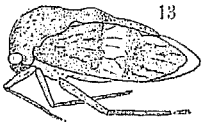


Small, brown with flavous and black markings, punctate, not pubescent, a flavous spot at base of posterior process; median carina flavous; posterior process just reaching internal angles of tegmina smoky-hyaline with brown cloud in center.

Head wider than long, nearly black, roughly sculptured, finely punctate, sparingly pubescent; base convex; eyes brown with flavous markings; ocelli white, slightly elevated, farther from each other than from the eyes and situated above a line drawn through centers of eyes; clypeus projecting far below inferior margins of cheeks. — Pronotum brown with flavous and black markings, finely punctate, not pubescent; metopidium broader than high, sloping, black just above head and along median carina otherwise brown; humeral angles prominent, blunt; median carina sharply, narrowly percurrent and entirely flavous; posterior process short, sharp, slightly depressed and flavous at base, impinging on tegmina, tip black, just reaching internal angles of tegmina. — Tegmina smoky-hyaline, somewhat wrinkled, base brown, opaque and punctate, a brown cloud covering most of central area, tips hyaline. — Undersurface and legs dark brown. — Length to tips of tegmina 4 mm; width between tips of humeral angles 1.7 mm.

Type: male. Female larger and darker with the flavous markings less prominent and the tegmina clearer. Described from a male and female from Fort de Kock. Type in the British Museum collection; allotype in author's collection.

20. *Gargara hyalifascia* sp. nov. (Fig. 13):



Distinguished by the broad hyaline band across the middle of the tegmina. Small, brown, punctate, pubescent; eyes white; posterior process sinuate, decurved, extending just beyond internal angles of tegmina.

Head wider than long, dark brown, lightly punctate, sparingly pubescent; base sinuate; eyes large, white with light brownish cloud in center; ocelli small, yellowish, farther from each other than from the eyes and situated above a line drawn through centers of eyes; clypeus rounded,

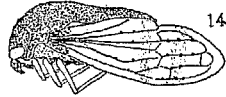
pilose. — Pronotum light brown, finely punctate, pubescent with very short silvery hairs; metopidium broader than high, strongly convex, swollen along median line; median carina obsolete in front but prominent on posterior process; humeral angles large, blunt; posterior process somewhat sinuate, decurved, uniform brown, carinate, apex reaching beyond internal angles of tegmina. — Tegmina brown, opaque with a broad band across center and with the apical limbus hyaline; veins lightly pilose. — Undersurface and abdomen dark brown and tomentose; legs brown. — Length to tips of tegmina 3.5 mm; width between tips of humeral angles 2 mm.

Type: female. Described from a single specimen from Fort de Kock. Type in the British Museum collection.

21. *Gargara nodipennis* sp. nov. (Fig. 14):

Near *G. maculipennis* Funkhouser, but smaller and with the veins of the tegmina distinctly nodulate.

Small, black, pubescent, punctate; eyes red; posterior process just reaching internal angles of tegmina; veins of tegmina decorated with small black tubercles; third apical cell divided.



Head wider than long, black, densely pubescent; base slightly sinuate; eyes large, red; ocelli prominent, black, farther from each other than from the eyes and situated above a line drawn through centers of eyes; clypeus narrow, pilose. — Pronotum black, finely punctate, pensely pubescent; metopidium sloping, wider than high; median carina percurrent; humeral angles large, blunt; posterior process heavy, short, blunt, carinate, reaching just to the internal angles of the tegmina. — Tegmina hyaline, wrinkled; base black, punctate and opaque; two dark brown fascia across central portion of tegmina; veins pubescent and decorated with small black nodules; terminal cell with cross vein near tip; second discoidal cell open at base. — Undersurface and abdomen black and densely pubescent; femora brown; tibiae and tarsi yellow. — Length to tips of tegmina 4 mm; width between tips of humeral angles 1.7 mm.

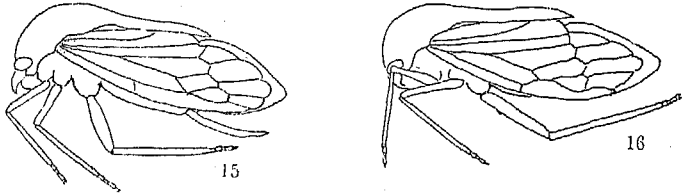
Type: female. Described from one specimen from Gunung Singgalang 1800 m. Type in the British Museum collection.

22. *Gargara bicolor* sp. nov. (Figs. 15, 16):

Sexes unlike; female entirely brown with dark brown eyes, yellow legs, metopidium sloping; male entirely black with white eyes, black legs, metopidium very convex.

Female: Uniform reddish brown, punctate, pubescent; eyes dark brown; metopidium sloping; posterior process reaching just beyond internal angles of tegmina: tegmina vinaceous; legs yellow.

Head yellow-brown, punctate, pubescent, wider than long; base sinuate: eyes large, dark brown; ocelli yellow, slightly farther from each other than from the eyes and situated above a line passing through centers of eyes; clypeus extending for more than half its length below inferior margins of cheeks, tip rounded. — Pronotum reddish brown, darker

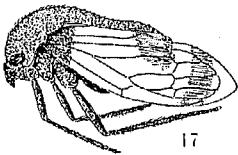


above, coarsely punctate, sparingly pilose with golden hairs; metopidium wider than high, sloping, light brown at base and lateral margins, dark brown above; humeral angles broad, obtuse; median carina very faint on metopidium, well defined on dorsum and sharp on posterior process; posterior process straight, sharp, tricarinate, extending slightly beyond internal angles of tegmina. — Tegmina smooth, vinaceous, translucent; base narrowly opaque, brown and punctate. — Undersurface and abdomen reddish brown, pubescent; legs uniformly pale yellow. — Length to tips of tegmina 5 mm; width between tips of humeral angles 2.2 mm.

Male: Differs from female in being slightly larger entirely black except the eyes which are nearly white; metopidium gibbous and convex; base of tegmina broadly black, opaque and punctate, veins of central costal area black.

Type: female. Described from a pair from Gunung Singgalang 1800 m and a male from the same locality. Type and allotype in the British Museum collection; paratype in author's collection.

23. *Gargara nigromaculata* sp. nov. (Fig. 17):



Near *G. nigrofasciata* Stal, but larger, posterior process shorter, median carina percurrent, black markings on tegmina differently arranged and legs entirely black.

Small, entirely black, punctate, pubescent; tegmina hyaline at base, a spot just below tip of posterior process and a band before apex black; posterior process not reaching internal angles of tegmina.

Head broader than long, black, punctate, pubescent; base arcuate; eyes large, black; ocelli white, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; clypeus extended for more than half its length below inferior margins of cheeks, tip rounded, pilose. — Pronotum black, punctate, pubescent;

metopidium wider than high, sloping; median carina percurrent; humeral angles prominent, blunt; posterior process short, carinate, slightly depressed at base and tip, impinging on tegmina, not extending to internal angles of tegmina. — Tegmina hyaline; base black, opaque and punctate; an irregular black spot just below tip of posterior process; a black band just before apex. — Undersurface, abdomen and legs entirely black. — Length to tips of tegmina 4 mm; width between tips of humeral angles 2 mm.

Type: female. Described from four males and three females, all from Fort de Kock. Type and allotype in the British Museum collection; four paratypes in Mr. Jacobson's collection; one paratype in author's collection.

24. *Leptocentrus reponens* Walker.

- 1851 *Centrotus reponens* Walker, List Hom. B. M. 604. 14.
 1859 Dohrn, Cat. Hem. 82.
 1885 *Leptocentrus reponens* Atkinson, J. A. S. B. 54: 86.
 1891 *Centrotus reponens* Kirby, Journ. Linn. Soc. Zool.
 XXIV: 164.
 1903 Melichar, Hom. Ceylon 110. 2.
 1907 *Leptocentrus reponens* Distant, Faun. Brit. Ind. 30. 2138.
 1914 Funkhouser, Journ. Ent. & Zoo.
 VI: 2. 68. 5.
 1915 Funkhouser, Phil. Memb. 379.
 1917 Funkhouser, Biol. Memb. Pl. 33, fig. 4.
 1918 Funkhous., Notes Phil. Memb. 24. 37.
 1919 Funkhous., Phil. Journ. Sci. XV: 1. 19.

Not represented in Mr. Jacobson's collection.

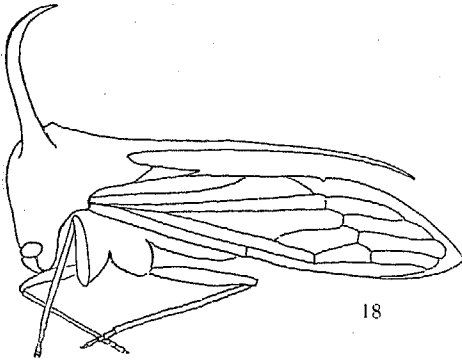
This species has apparently a wide distribution through out the Indian region as it has been reported from North Bengal and Tennisserim (Walker), Philippine Islands (Walker, Stal, Distant, Funhouser), and Ceylon (Melichar). Distant records it from Sumatra (Faun. Brit. Ind. *supra.*).

25. *Leptocentrus tenuicornis* sp. nov. (Figs. 18, 19):

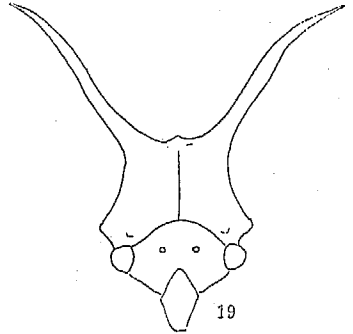
Large, reddish-brown, punctate, pubescent; suprahumeral extremely long and thin.

Head including clypeus longer than wide, brown, punctate, densely pubescent; base highly arcuate; eyes large, brown; ocelli large, white, about equidistant from each other and from the eyes and situated above a line drawn through centers of eyes; clypeus longer than wide, extending for more than half its length below inferior margins of cheeks, densely pilose. — Pronotum reddish-brown, punctate, pubescent; metopidium higher than wide with a smooth circular patch above each eye; humeral

angles prominent, blunt; suprahumeral horns very long, slender, curved, tricarinate, sharp, extending upward, outward and curving backward; a small triangular tooth on median line between posterior bases of horns median carina percurrent; posterior process long, slender, nearly straight,



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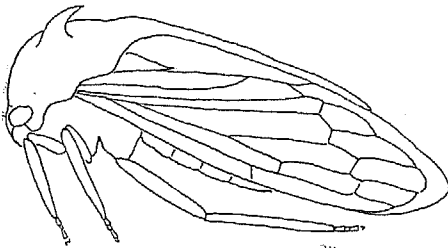


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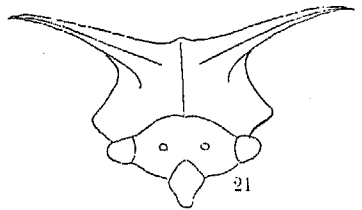
well elevated above tegmina, tip sharp, darker, slightly decurved, reaching beyond abdomen but not nearly to tips of tegmina. — Scutellum entirely exposed; about as long as the width at the base; concave at apex. — Tegmina long, narrow, smoky-hyaline, veins of apical costal area darker. Five apical and two discoidal cells. — Undersurface, abdomen and legs uniform reddish brown. — Length from front of head to tips of tegmina 8 mm; width between tips of humeral angles 2.5 mm; width between tips of suprahumeral horns 6 mm.

Type: male. — Locality: Lubuk Sulasih (Residency of Sumatra's Westcoast) 1000 m. Described from a single specimen now in the British Museum collection.

26. *Leptocentrus jacobsoni* sp. nov. (Figs. 20, 21, 22):



20



21

Black, punctate, pubescent; horns broad, flat, sharp, tricarinate extending outward, slightly upward and curved backward; posterior process decurved, tip impinging on tegmina but not reaching apices of tegmina; tegmina smoky-hyaline without markings; thorax and scutellum densely tomentose.

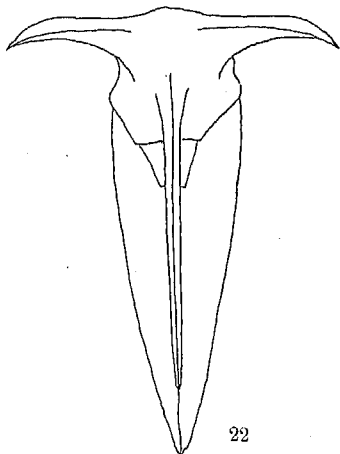
Head broader than long, black, punctate, densely pubescent; base arcuate; eyes large, brown; ocelli black, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; clypeus longer than wide, extending for more than half its length below inferior margins of cheeks, tip rounded and pilose — Pronotum black, punctate, pubescent; metopidium convex, much narrowed in front; median carina percurrent; humeral; angles prominent, blunt; posterior process long, tricarinate, decurved, its apical third impinging on tegmina, tip sharp, reaching about half-way between internal angles and tips of tegmina. — Scutellum entirely exposed; longer than wide; covered with very dense white tomentose pad; tip notched. — Tegmina smoky-hyaline wrinkled, narrowly brown and punctate at base; immaculate. — Sides of thorax densely white tomentose; abdomen black; legs black; tarsi dark brown. — Length from front of head to tips of tegmina 8 mm; width between tips of supra-humeral horns 6 mm.

Type: female. Described from five males and six females from Fort de Kock and one male from Harau Kloof. Type and allotype in the British Museum collection; eight paratypes in Mr. Jacobson's collection; two paratypes in author's collection.

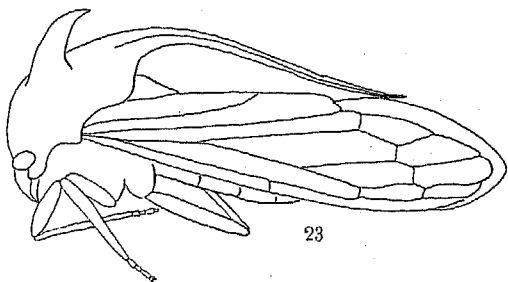
I take pleasure in dedicating this species to Mr. Jacobson who has so kindly furnished me with the material which has made possible this study.

27. *Leptocentrus rufospinus* sp. nov. (Figs. 23, 24, 25):

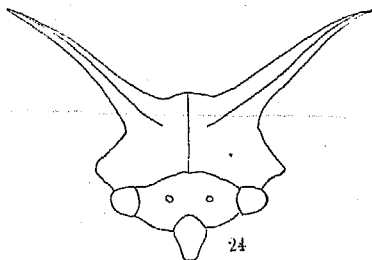
Near the preceding but larger with broader, differently curved and carinate horns.



22

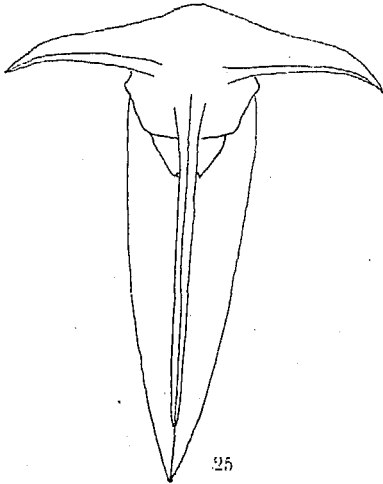


23



24

Large, black, punctate, pubescent; suprahumeral horns broad, flat, extending outward, upward and curved backward; posterior process reddish, tip impinging on tegmina but not reaching apices of tegmina; tegmina fuscous-hyaline, costal region darker; sides of thorax and all of scutellum tomentose; undersurface and legs brown.



Head twice as broad as high, punctate, pubescent; base arcuate; eyes large, brown; ocelli white, equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; clypeus projecting for two-thirds its length below inferior margins of cheeks, tip pilose. — Pronotum black, finely punctate, pubescent; metopidium only slightly convex, much narrowed in front; median carina heavy and percurrent; humeral angles prominent, obtuse; suprahumeral horns long, flattened dorso-ventrally, broad, extending

outward and upward with tips curved backward, upper surface with strong carina near posterior margin; posterior process long, slender, distinctly reddish, tricarinate, feebly pilose, decurved, tip touching tegmina, extending slightly beyond end of abdomen but not reaching apices of tegmina. — Scutellum broader than long, densely tomentose, tip roundly notched. — Tegmina fuscous-hyaline, broadly yellowish and punctate at base; costal margin to tip brownish; five apical and two discoidal cells. — Sides of thorax densely tomentose; undersurface, abdomen and legs uniform brown. — Length from front of head to tips of tegmina 8.6 mm; width between tips of suprahumeral horns 6.8 mm.

Type: female. Described from one male and four females, all from Fort de Kock. Type and allotype in the British Museum collection; two paratypes in Mr. Jacobson's collection; one paratype in author's collection.

28. *Centrotypus amplicornis* Stal:

1869 *Centrotypus amplicornis* Stal, Bid. Memb. Kan. 285. 1.

1907

Distant, Faun. Brit. Ind. 33.

We have a specimen in our collection labeled "Sumatra" with no record of date or collector and Mr. Jacobson has three specimens from Anei Kloof, 500 m. The species was described from Cambodja (Mus. Holm.) and Distant reports it from "Oriental and Malayan Megions".

29. *Anchonoides variegatus* Funkhouser:1918 *Anchonoides variegatus* Funkhouser, Malayan Memb. 4. 8.

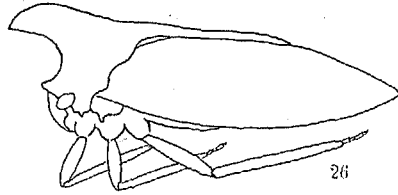
1920 Funkous., J. R. A. S. 82: 209. 12.

Described from Singapore and we have seen it in material from Borneo. One specimen from Fort de Kock in Mr. Jacobson's collection.

This may represent a new genus as it differs in several respects from typical *Anchonoides* material.

30. *Hybandoides sumatrensis* sp. nov. (Fig. 26):

Near *H. horinzontalis* Distant, which, according to Distant's description and as represented by a long series in the author's collection from Mt. Kina Balu, Borneo, the type locality, shows considerable variation.



Large, brown, densely grayish pilose; prothorax and mesothorax armed with small lateral teeth; pronotal horn short, extending forward and upward; posterior process slender, just reaching internal angles of tegmina; tegmina long, pointed, opaque, mottled brown and white, veins indistinct.

Head about as broad as long, subtriangular, much deflexed, brown, pilose; base arcuate, extending forward; eyes small, brown; ocelli amber-colored, about equidistant from each other and from the eyes and situated on a line drawn through centers of eyes; clypeus long, narrow, pilose. — Pronotum brown, densely pilose with long matted gray hairs; inferior cephalic margin of metopidium extended forward in a sharp flange; pronotal horn extending forward and slightly upward, straight on inferior margin, rounded on superior apical margin, flattened laterally; humeral angles prominent; posterior process slender, just reaching internal angles of tegmina, tip slightly depressed, carinate; median carina percurrent, armed on dorsum with a row of fine spines. — Scutellum considerably exposed at sides; base tomentose. — Lateral inferior margins of prothorax and mesothorax armed with teeth; thorax, abdomen and legs uniform brown; undersurface, abdomen and femora densely pilose; tibiae slightly flattened. — Tegmina long, pointed, opaque, pilose, mottled brown and white; veins indistinct. — Length from front of head to tips of tegmina 6.5 mm; width between humeral angles 2.2 mm.

Type: female. Described from three males and seven females from Fort de Kock, and two males and six females from Anei Kloof. Type and allotype in the British Museum collection; fourteen paratypes in Mr. Jacobson's collection; two paratypes in author's collection.

31. *Pyrgauchenia jugulata* Buckton:

1905 *Hypsauchenia jugulata* Buckton, Trans. Linn. Soc. Lond.
IX: 9. 332, Pl. 21, fig. 12.

1915 *Pyrgauchenia jugulata* Distant, Ann. Mag. Nat. Hist. XVI:
94. 325.

Not represented in Mr. Jacobson's collection.

This species was originally described from Sumatra. We have never seen a specimen.

32. *Pyrgauchenia breddeni* Schmidt:

1906 *Pyrgauchenia breddeni* Schmidt, Stet. Ent. Zeit. 370. 67.

1915 Distant, Ann. Mag. Nat. Hist. XVI: 325.

1916 Distant, Faun. Brit. Ind. App. 149.

Not represented in Mr. Jacobson's collection.

This species was also originally described from Sumatra although it was incorrectly recorded in the Zoological Record (1906, p. 420) as from Ceylon.

Distant (1915, *supra*) is suspicious that this species is a synonym of *P. jugulata* Buckton, but we are not familiar with either and are therefore listing them as distinct.

33. *Sipylus dilatatus* Walker:

1851 *Centrotus dilatatus* Walker, List Hom. B. M. 630. 74.

1914 *Sipylus nodipennis* Funkhouser, Journ. Ent. & Zoo. VI:
72, 15, fig. 5.

1915 *Centrotus dilatatus* Funkhouser, Phil. Memb. 390.

1915 *Sipylus nodipennis* Funkhouser, Phil. Memb. 392. Pl. 2,
fig. 15.

1916 *Sipylus dilatatus* Distant, Rhynch. Notes 330.

1917 *Sipylus nodipennis* Funkhouser, Biol. Memb. Pl. 35, fig. 17.

1918 *Sipylus dilatatus* Funkhouser, Notes Phil. Memb. 29. 38.

1918 Funkhouser, Malayan Memb. 5. 10.

1919 Funkhouser, Phil. Journ. Sci. XV: 1. 23.

1920 Funkhouser, J. R. A. S. 82: 215. 27.

We described this species from Philippine material as *S. nodipennis*, having failed to recognize it as Walker's species from his meager description of a headless specimen. Mr. Distant very kindly compared my paratypes with Walker's type and established the synonymy as above.

This species must be one of the most abundant of all of the Membracidae in the East Indian region, both as to range and as to number of individuals, as we have received long series from many localities. Twenty-one specimens were found in Mr. Jacobson's material from Sumatra, all collected at Fort de Kock.

34. *Ebhul varius* Walker:

- 1858 *Centrotus varius* Walker, List Hom. B. M. Suppl. 162.
 1869 *Leptobelus varius* Stal, Bid. Memb. Kan. 285. 6.
 1885 Atkinson, J. A. S. B. 54: 82.
 1907 *Ebhul varius* Distant, Faun. Brit. Ind. 59. 2189.
 1914 Lamborn, Trans. Ent. Soc. Lond. 1913, 470.
 1915 Funkhouser, Phil. Memb. 333.
 1916 Distant, Faun. Brit. Ind. App. 169.
 1918 Funkhouser, Malayan Memb. 5. 9.

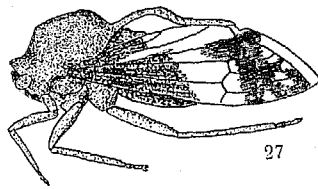
This species was described from Burma but is apparently widely distributed as indicated by the above bibliography.

A long series has been collected at Fort de Kock by Mr. Jacobson who reports that this species lives on a great variety of plants and he sends us specimens taken on *Cinnamomum Burmanni* Bl. and on *Ficus ampelas* Burm., as well as nymphs in various instars. He also states that the species is attended by the black ant *Dolichoderus bituberculatus* Mayr., of which he sends us specimens, and that it is commonly parasitized by a small Chalcididae which may be seen moving freely among the ants on the body of the laying membracid or on the egg clusters without molestation. Mr. Jacobson suggests that in this respect at least, the ants afford the membracids no protection against an important enemy. Mr. Jacobson has very kindly furnished us with specimens of the twigs bearing eggscars and egg-clusters and showing the interesting carton chambers of the ants.

These are the first data which have ever been secured regarding the host plants and the life history of this species of membracid and Mr. Jacobson has thus made an important contribution to our knowledge of this subject.

35. *Ebhul notatus* sp. nov. (Fig. 27):

Small, black, posterior process suddenly arched over scutellum, tegmina spotted with black, legs yellow-brown.



Head longer than wide, black, finely punctate, not pubescent, roughly sculptured; base angular and produced in two prominent swellings, one on each side of median line; eyes black; ocelli brown, more than twice as far from each other as from the eyes and situated well above a line drawn through centers of eyes; clypeus subquadrangular. — Pronotum black, finely punctate, shining, not pubescent; metopidium wider than high much narrowed above, sloping, much extended and flaring over the head humeral angles prominent, obtuse; median carina percurrent; posterior

process light brown, suddenly arched over scutellum, then straight, impinging on tegmina and just reaching internal angles of tegmina. — Scutellum black, punctate, longer than wide, apex notched. — Tegmina mottled black and hyaline; basal third black, opaque and punctate, the margin of the black diagonal; apical half of clavus hyaline; apical two-thirds of corium irregularly spotted with black; no limbus on costal margin. — Inferior margins of prothorax and mesothorax produced into teeth; thorax and abdomen black; legs yellow-brown. — Length from front of head to tips of tegmina 5.5 mm.; width between tips of humeral angles 2 mm.

Type: female. Described from one male and one female, both from Gunung Singgalang 1800 m. Type in the British Museum collection; allotype in author's collection.

36. *Ebhul uniformis* sp. nov. (Fig. 28):



Near *E. varius* Walker, but smaller, uniformly brown in color, posterior process shorter, and with the tegmina lacking the maculations.

Small, brown, tegmina without distinct markings; posterior process barely reaching internal angles of tegmina.

Head wider than long, roughly sculptured, dark brown, finely punctate, not pubescent; base angular and covered by the flange of the pronotum; eyes prominent, dark brown; ocelli dark brown, twice as far from each other as from the eyes and situated far above a line drawn through centers of eyes; clypeus long, narrow, subquadrate, projecting for more than half its length below inferior margins of cheeks, tip truncate. — Pronotum brown, finely punctate, very finely pubescent; metopidium broader than high, extending in a shield over the head; humeral angles prominent, blunt; median carina sharply percurrent; posterior process brown, yellowish just beyond middle, very little elevated above scutellum, sharp, barely reaching internal angles of tegmina. — Tegmina flavous, opaque, basal, half punctate, very faintly marked with fine irregular brown lines in apical area. — Mesothorax weakly toothed; sides of thorax, abdomen and legs uniform brown. — Length to tips of tegmina 4.5 mm; width between humeral angles 1.8 mm.

Type: female. Described from two males and a female from Gunung Singgalang 1800 m and a male and a female from Fort de Kock.

Allotype in the British Museum collection; typo in author's collection; two paratypes in Mr. Jacobson's collection.

37. *Megaloschema laticornis* Buckton:

1903 *Megaloschema laticornis* Buckton, Mon. Memb. 231.
Pl. 52, fig. 2.

Not represented in Mr. Jacobson's collection.

This species is the type of the genus and was described from Sumatra. There are no other species in the genus and this species has never been mentioned in the literature since its original description. We have never seen a specimen.

If the wing venation as shown in Buckton's figure is accurate it would appear that the genus is certainly distinct, otherwise we would be inclined to think that the species belonged in the genus *Tricentrus*.

38. *Centrotoscelus concavus* Funkhouser:

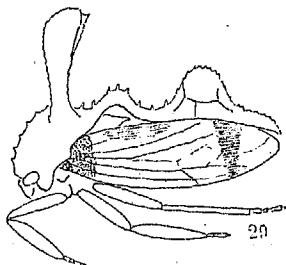
1918 *Centrotoscelus concavus* Funkhouser, Notes Phil. Memb. 31.
Pl. 1, figs. 11, 12.

Described from the Philippine Islands. Mr. Jacobson has two specimens collected at Fort de Kock.

39. *Centrochares spiniferus* sp. nov. (Fig. 29):

Near *C. horrificus* Westwood, with which we at first confused it, but with flatter and differently carinated horns and differently marked tegmina.

Small, dark brown marked with yellow, punctate, very spiny; suprahumeral horns extending outward and upward; posterior process elevated over scutellum and bearing at extremity an upright angular projection; tegmina yellow marked with brown.



Head subquadrate, brown with yellow margins, roughly sculptured, finely punctate, a row of short yellow spines at margin of eye and three or four between the ocelli; base arcuate; eyes large, white with fine brown lines; ocelli yellow, farther from each other than from the eyes and situated above a line drawn through centers of eyes; clypeus spindle-shaped, extending for three-fourths its length below inferior margins of cheeks, a spine on each side of base, tip pointed. — Pronotum brown with yellow markings, rough, punctate, thickly decorated with short yellow spines; humeral angles prominent, acute; median carina strongly percurrent and bearing a continuous row of spines; suprahumeral horns extending upward and outward, flattened dorso-ventrally, narrow at base, foliate at tips, edges serrate, the dorsal surface of the flattened tips bearing two carinae; posterior process elevated over scutellum, bearing just before the apex a high protuberance which is extended laterally above the base, then flattened and upright, higher than long, dark brown with yellow

edges, tip heavy, blunt, depressed, reaching very slightly beyond tips of tegmina and partly covering edges of tegmina. — Tegmina hyaline, base brown, punctate and opaque, a broad, brown fascia across apical end just before tip and a large brown spot on clavus. — Scutellum longer than wide, bifurcate at apex, brown with yellow tips. — Sides of thorax reddish-brown; abdomen brown marked with yellow; legs entirely yellow; tibiae flattened. — Length to tips of tegmina 4.8 mm.; width between tips of suprahumeral horns 3.7 mm.

Type: female. Described from one specimen from Anei Kloof. Type in the British Museum collection.

40. *Micreune macularum* Buckton:

1903 *Micreune macularum* Buckton, Mon. Memb. 214. Pl. 47.
figs. 7—7b.

1920 Funkhouser, J. R. A. S. 82: 208. 9.

Not represented in Mr. Jacobson's collection.

According to our records there is a specimen in the U. S. National Museum which bears the label „Setinjak, W. Sumatra I to II, 98 (Ericsson)“.

41. *Leptobelus dama* Germar:

1835 *Centrotus dama* Germar, Rev. Silb. III: 258. 7. Pl. 3.
fig. 14.

1846 Fairmaire, Rev. Memb. 510. 1.

1851 Walker, List Hom. B. M. 602. 1.

1859 Dohrn, Cat. Hem. 82.

1866 *Leptobelus dama* Stal, Analect. Hem. 386.

1869 Stal, Bid. Memb. Kan. 284. 1.

1885 Atkinson, J. A. S. B. 54: 81.

1907 Distant, Faun. Brit. Ind. 15. 2118. fig. 11.

1910 Lefroy, Ind. Ins. Life 729. fig. 504.

1915 Funkhouser, Phil. Memb. 376.

1918 Funkhouser, Notes Phil. Memb. 37.

1921 Funkhouser, Bull. Brook. Ent. Soc. XVI:
2. 43.

One specimen from Tandjunggadang (Recidency of Sumatra's West-coast) 1200 m.

42. *Telingana varipes* Walker:

1857 *Centrotus varipes* Walker, Journ. Linn. Soc. Lond. I:
164. 119.

Our records show that we determined a specimen of this species from Sumatra in material sent us for determination by Professor C. F. Baker as *Telingana curvispina* Stal but Mr. China has shown it to be Walker's species.

There are two specimens in Mr. Jacobson's material, both from Fort de Kock.

43. *Telingana recurvata* Distant:

1916 *Telingana recurvata* Distant, Ann. Mag. Nat. Hist. XVIII: 288.

One specimen from Tandjunggadang, 1000 m.

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Fauna sumatrensis.

(Beitrag Nr. 31.)

Tenebrionidae (Col.)

Von Hans Gebien, Hamburg.

Die Bearbeitung des von Herrn C. Jacobson gesammelten Materiales an Tenebrioniden wurde von mir etwas hinausgezögert, um dem