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Neodiostrombus MUIR, 1918 (Homoptera, Derbidae), with the description of four new species from New Guinea [1]

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Summary

The genus *Neodiostrombus* MUIR, 1918 and its type species *Neodiostrombus basalis* (WALKER, 1870), only known from the female holotype, are redescribed. Four other species are described as new to science : *N. punctatus, N. longicaudatus, N. excavatus* and *N. biakensis.*
Keywords : Homoptera, Derbidae, *Neodiostrombus*, taxonomy, New Guinea.

Résumé

Le genre *Neodiostrombus* MUIR, 1918 et l'espèce-type *Neodiostrombus basalis* (WALKER, 1870), connue uniquement par l'holotype femelle, sont redécrits. Quatre espèces sont décrites comme nouvelles pour la science : *N. punctatus, N. longicaudatus, N. excavatus* et *N. biakensis.*
Mots-clefs : Homoptera, Derbidae, *Neodiostrombus*, taxonomy, New Guinea.

Introduction

The genus *Neodiostrombus* was described for a single species collected at Waigeo by A. R. WALLACE during his famous journeys in the Indo-Australian region and named by WALKER (1870) as *Thracia basalis*. The island Waigeo is situated close to the northwest tip of New Guinea. Only a single specimen (the type) was hitherto known and no further species have been attributed to this genus. During a collecting trip in Papua New Guinea, I have found several specimens of a new species close to *N. basalis*. Further specimens from the same species and three further species were sorted out from the collections of the Bishop museum in Hawaii and Dr N. D. PENNY kindly sent me additional material which he collected in Madang province.
Nothing is known about their life history; I collected specimens myself in lowland rain forest. J. L. GRESSITT collected *N. punctatus* on rotan.
Homologous structures are drawn at the same scale. The material studied below is deposited in four museums which are listed with the following abbreviations :

KBIN	Koninklijk Belgisch Instituut voor Natuurwetenschappen, Belgium.
CAS	California Academy of Sciences, San Francisco, U.S.A.
BPBM	Bishop Museum, Honolulu, Hawaii, U.S.A.
BMNH	British Museum (Natural History), London, U.K.

Neodiostrombus MUIR, 1918

Neodiostrombus MUIR, 1918 : 204, type species : *Thracia basalis* WALKER, 1870

Redescription based on the five species listed below : general colour ochreous to brown with a large, snowy white pronotum and two conspicuous white spots on abdomen. Face rounded in profile or angulately curved, but not conically produced. Keels of frons contiguous over their whole length; rostrum very long, surpassing hind trochanters; ocelli absent. Antennae long and cylindrical, completely covered by sensilla; arista subapical. Vertex triangular. Pronotum large, hind margin not excavated and dorsal surface snowy white, angulately produced into the lateral parts, median keel weakly developed. Mesonotum with three very weak longitudinal keels. Tegmina hyaline, area between costal margin and R coriaceous; R large and tegmina often folded longitudinally along the radius, thereby concealing the thin subcostal vein in dorsal view. Media with five sectors, none of them bifurcated, cubitus with four branches reaching inner margin. Wings very small, about eight times shorter than tegmina. Abdomen with four circular incisions (organs ?) on sixth and two incisions on seventh segment. Legs long and slender, with a lateral spine on hind tibiae; first and second segment of hind tarsi each with five black teeth on apex.
Male genitalia : anal segment without distinct apical processes. Pygofer with a large, triangular medioventral process. Genital styles with a ventral lobe and connected with each other by a small sclerotized bridge. Aedeagus with or without a terminal spine on flagellum, and with a longitudinal ridge on the left side of the periandrium surpassing the apex of the aedeagus in one species; cephalic border

[1] Leopold III Biological Station, Laing Island, contribution n° 182.

of suspensorium connected to both sides of the pygofer close to the anal segment; dorsocaudal margin of the suspensorium connected to the anal segment.
Female genitalia : anal segment with a V-shaped incision. Pregenital sternite with hind margin slightly convex. Valvulae of ovipositor normally developed.

Neodiostrombus is easily recognised from any other Zoraidine genus by the large pronotum with a straight hind margin and snowy white colour. Furthermore it can be distinguished by the combination of the following characters : antennae cylindrical and longer than frons, frons not conically produced and keels contiguous, vertex not broader than long, tegmina with none of sectors of M forked, and wings very small, less than 1/4 of length of tegmina.

Phylogeny : *Neodiostrombus* forms a good monophyletic group which can be characterized by the following synapomorphies : the presence of a large pronotum with straight hind margin and the presence of longitudinal ridge on the left side of the periandrium. In the genus the presence of a spine on the flagellum is considered as apomorphic and *N. punctatus* and *N. longicaudatus* probably form a monophyletic group characterized by this synapomorphy. The shape of the genital styles and the laterodorsal appendice also support this hypothesis. *N. biakensis* and *N. excavatus* on the contrary do not form a natural group as their ressemblance is based on the symplesiomorphy (absence of a spine on the flagellum). *N. basalis* is not discussed here as the male genitalia are unknown.
Distribution : Waigeo I., Biak I., very common in nortern New Guinea and one species known from New Britain. From *N. longicaudatus* there is also one record from Brown river near P. moresby. *Neodiostrombus* can thus be considered as an "outer arc element" of the Papuan fauna and its distribution is primarily influenced by the geological history of the area.

Key to species :

1. - Costal margin with a series of points as illustrated in fig. 6 2
   - Costal margin without such a series of points . . . . . *N. basalis* (WALKER)
2. - Anal segment less than twice as long as broad or genital styles with a rounded apex 3
   - Anal segment more than twice as long as broad; genital styles with a triangular apex; aedeagus as illustrated in fig. 13 . . . *N. longicaudatus* sp. n.
3. - Pygofer with medioventral process excavated on sides, length tegmina 10.5 mm; aedeagus fig. 17 (New Britain) . . . . . *N. excavatus* sp. n.
   - Pygofer with medioventral process not excavated on sides 4
4. - Anal segment in dorsal view with apex slightly excavated (fig. 7); aedeagus with a large spine on apex (fig. 10) . . . . . *N. punctatus* sp. n.
   - Anal segment with apex in dorsal view not excavated (fig. 22); aedeagus without a spine on flagellum (fig. 23) . . . . . *N. biakensis* sp. n.

Neodiostrombus basalis (WALKER, 1870)
(figs 1-3)

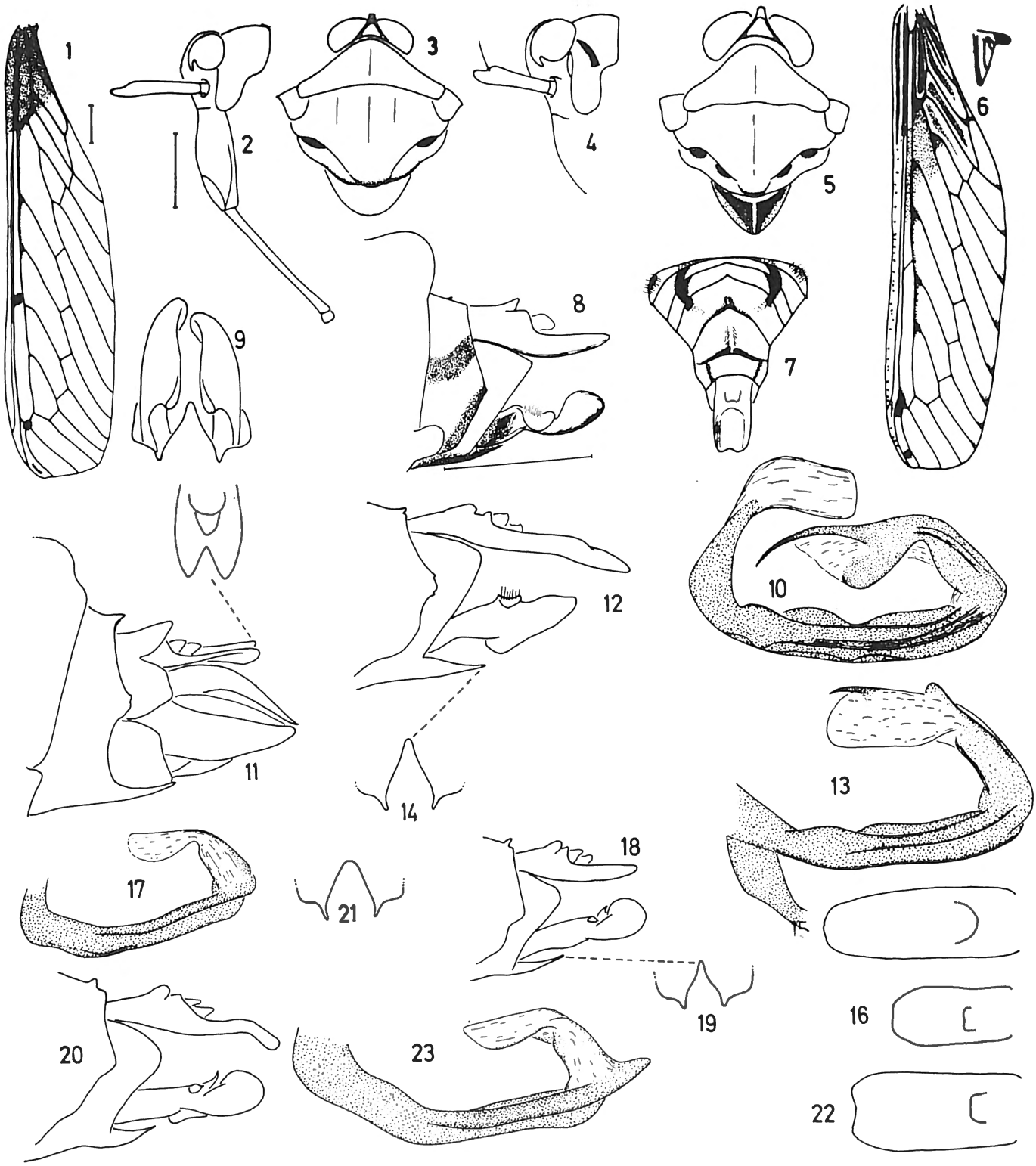
Thracia basalis WALKER, 1870 : 135.

General colour ochreous; dorsal surface of pronotum, and a spot on base of abdomen and on 8th segment snowy white. Frons angulately curved in profile. No fuscous marks on lateral margin of pronotum or on abdomen. Mesonotum with a fuscous spot on each side and in middle of hind margin. Tegmina hyaline, slightly fumated with brown on base, a brown spot on R-M and on apex of tegmina; no dark points along costal margin; costal area and veins red. Wings fumated with brown. Abdomen red, with a yellowish spot on tergites 4, 5 and beginning of 6, and on tergite 8. Length tegmina : 12.5-13 mm.
Female genitalia : see generic description.
Male unknown; the type was erroneously described by WALKER as a male.

Material examined : holotype ♀, "Wallace, Wag.", BMNH.

Neodiostrombus punctatus sp. n.
(figs 4-11 and 24)

Description : general colour pale ochreous. Antennae long, cylindrical, slightly widening distally and arista subapical; whole surface covered with small sensilla. Pronotum with posterior margin straight to slightly undulate, not incised or excavated as in most Derbidae; dorsal surface completely snow-white, and with an inconspicuous median carina; this dorsal white surface is abruptly descending laterally at the level of the fuscous colour mark indicated in fig. 4. Lateral parts pale ochreous. Mesonotum pale ochreous with black spots as illustrated in fig. 5. Abdomen yellowish dorsally and laterally and almost black ventrally, with, on dorsal margin, a conspicuous, white oval area dorsally near its base, bordered by red and black and almost black ventrally; a second white spot on the dorsal surface of the 8th abdominal segment also bordered by black. Tegmina hyaline, fumated with brown basally and with dark spots along costal margin; costal area and veins orange; transverse veinlets slightly fumated with brown. Wings hyaline, very small and with a strongly reduced venation; veins black. Legs pale ochreous, last tarsomere of each leg slightly embrowned, hind tibiae with a lateral spine in distal half; chaetotaxy hind tarsi 5/5. Length tegmina 11.5-12.8 mm.
Male genitalia : anal segment less than twice as long as broad, shallowly excavated at apex. Pygofer with an angu-



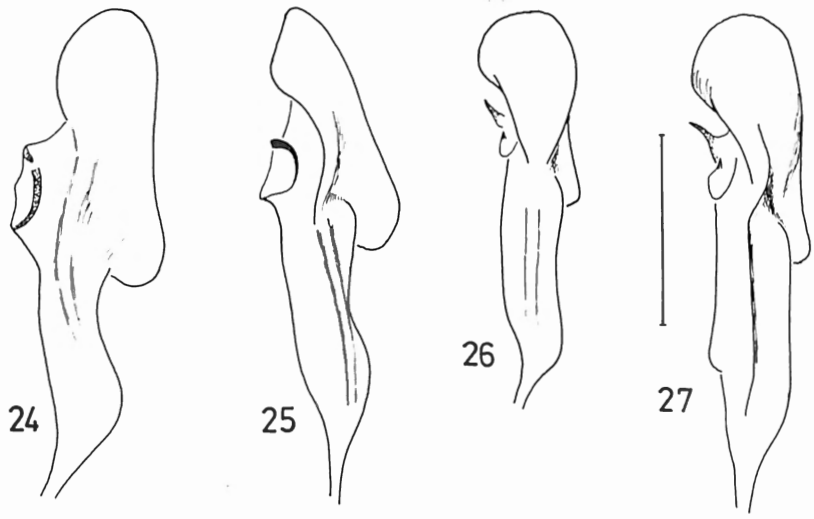
Figs 1-3 : Neodiostrombus basalis *(Walker, 1870), type - 1 : left tegmen; 2 : head and pronotum, lateral view; 3 : head, pronotum and mesonotum, dorsal view.*

Figs 4-11 : Neodiostrombus punctatus *sp. n. - 4 : head and pronotum, lateral view; 5 : head, pronotum and mesonotum, dorsal view; 6 : left tegmen and wing (same scale); 7 : male abdomen, dorsal view; 8 : tip of male abdomen, lateral view; 9 : medioventral process of pygofer and genital styles, ventral view; 10 : aedeagus, holotype, lateral view; 11 : female genitalia with apex of anal segment in dorsal view. - Scale line : 1 mm, aedeagus : 0.5 mm.*

Figs 12-15 : Neodiostrombus longicaudatus sp. n., holotype - 12 : apex of male abdomen with 8th tergite, anal segment, pygofer and genital style, left lateral view; 13 : aedeagus; 14 : medioventral process of pygofer; 15 : anal segment, dorsal aspect.

Figs 16-19 : Neodiostrombus excavatus *sp. n., holotype - 16 : anal segment, dorsal view; 17 : aedeagus; 18 : tip of male abdomen; 19 : medioventral process of pygofer.*

Figs 20-23 : Neodiostrombus biakensis *sp. n., holotype - 20 : tip of male abdomen; 21 : medioventral process of pygofer; 22 : anal segment, dorsal view; 23 : aedeagus.*



Figs 24-27 : *left genital style, lateroventral view of* N. punctatus *(24),* N. longicaudatus *(25),* N. excavatus *(26), and* N. biakensis *(27). - Scale line : 0.5 mm.*

late dorsolateral margin. Genital styles with a rounded apex and circular laterodorsal process. Aedeagus with a large spine on flagellum surpassing apex.
Diagnosis : this species is easily distinguished from *N. basalis* by the form of the face which is gently rounded in profile instead of angulately curved, the presence of a fuscous spot on the lateral part of the pronotum and four lateral spots on the hind margin of the mesonotum instead of two, and the presence of dark points along the costal margin. It is distinguished from the species described in this paper by the presence of a large terminal spine on the flagellum.

Material : holotype ♂, PNG, Madang Pr. : Sepen Village n° 2, 1.V.1988, KBIN.
Paratypes : 1 ♂, PNG, Madang Pr. : Sepen Village n° 2, 1.V.1988, KBIN; 1 ♂, New Guinea (NW), Nabire, S. Geelvink Bay, 0-30 m, 2-9.VII.1962, J. L. Gressitt, BPBM; 1 ♂, New Guinea (NE) : Wewak, 0-20 m, 13.X.1957, J. L. Gressitt, BPBM; 1 ♀, Wewak, 26.VI.1961, J. L. Gressitt, BPBM; 1 ♀, New Guinea (NE) : Sepik Distr., Dreikikir, 350-400 m, 22.VI.1961, J.L. Gressitt, BPBM; 1 ♀, PNG, Daradae Pln., 500 m, 80 km N. of Port Moresby, 6.IX.1959, BPBM; 1 ♂, New Guinea : Neth, Bodem, 10-17.VII.1959, BPBM; 3 ♂♂, 1 ♀, New Guinea : Neth, Hollandia Area, W. Sentani, Cyclops Mts., 150-250 m, 16.VI.1959, leg. T. C. MAA, BPBM; 3 ♂♂, 2 ♀♀, New Guinea, Neth : Sentani, 90 m, 15.VI.1959, T. C. MAA; 1 ♂, PNG, Madang Prov. Sapi Forest Reserve (30 km W. Madang), 5°12' S 145° 30' E, 20.III.1987, light trap, N. D. Penny, CAS; 1 ♀, PNG, Madang Prov. Nobonob Hill (7 km NW Madang), 5° 10' S 145° 45' E, 22.II.87, N. D. Penny, CAS; 1 ♀, Papua, Kokoda, 1200 ft, IX.1933, L. E. Cheesman, BMNH.

Neodiostrombus longicaudatus sp. n.
(figs 12-15 and 25)

Description : external characters and female genitalia like those of *N. punctatus*. *N. longicaudatus* only differs in the shape of the anal segment, which is much longer, more than twice as long as broad. On the aedeagus the terminal spine on the flagellum is shorter, as illustrated in fig. 13, and the flagellum bears an additional small lamellate lobe on its left lateral margin. In the specimen from "Brown river" the apex of the flagellum is slightly different : the spine is inserted at the same place but is more "hanging" on its place of implantation. Length tegmina : 11.1-13.2 mm.

Material : holotype ♂, New Guinea, Busu R., E. of Lae, 100 m, 14.IX.1955, J. L. Gressitt, BPBM.
Paratypes : 3 ♀♀, same data as holotype; 1 ♂, Papua New Guinea, Brown River, E. of Port Moresby, 100 m, 8.VI.1955, J. L. Gressitt, BPBM.

Neodiostrombus excavatus sp. n.
(figs 16-19 and 26)

Description : external characters like those of *N. punctatus* but lateral dark stripe on pronotum lacking. It differs from this species in its smaller size (length tegmina 10.5 mm) and in the shape of the male genitalia. The genital styles have a rounded apex. The medioventral process of the pygofer has excavated lateral margins and the aedeagus has no terminal spine on the flagellum nor any other lamellate processes.

Material : holotype ♂, New Britain, Keravat, 30 m, 2.IV.1956, BPBM.

Neodiostrombus biakensis sp. n.
(figs 20-23 and 27)

Description : externally like *N. punctatus*, but smaller and lateral dark stripe on pronotum lacking; length tegmina 10.7 mm; anal segment twice as long as broad, slightly longer than in *N. punctatus* and apex slightly depressed; genital styles with a rounded apex. Pygofer with a triangular, blunt medioventral process. Aedeagus without processes on flagellum, left longitudinal lobe of periandrium prolonged beyound apex of aedeagus, which distinguishes it from all other species described here.

Material : holotype ♂, New Guinea : Neth, Biak I. : Strand, 24.VI.1959, T. C. MAA, BPBM.

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