Miridae of West and Central Africa (Hemiptera, Heteroptera)

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The article contains taxonomical, distributional and biological data on the following mirine groups: Termatophylinae, Surinamellini, Hyaliodinae, Herdoniini, Nichomachini, and Hallodapini. The following new taxa are described: Glossopeltis calvus, G. serapis, Obudua urania, Laurinia herondas, Trichophorella perplexa, Bibundiella epikharmos, Gampsodema gracilipes, Diocoris erifyle, Systellonotidea malumfashi, S. numitor, Alloeomimus salmakis, Aspidacanthus clavipes, A. tithonos, Formicopsella potiskum, Glaphyrocoris mandane, Trichophthalmocapsus microphthalmus spp. n., Hadrodapus rhodops gen. et sp. n., and Laemocoris hirsutus sp. n. Two new species from Saudi Arabia, Glaphyrocoris agaue and Trichophthalmocapsus longicornis, are also described. New synonymies: Pseudonichomachus Schuh = Laurinia Reuter, Laurinia elongata Ribes = L. camponotideus (Lindberg), Trichophorella ocellaris Linnavuori = T. rubella Odhiambo, Aeolocoris vidali (Wagner) = A. alboconspersus Reuter, Marmorodapus Schmitz = Syngonus Bergroth, Diocoris collaris China = Systellonotidea triangulifer Poppius, Glaphyrocoris torridus Linnavuori = G. unifasciatus Reuter, Eremachrus Lindberg = Hallodapus Fieber, Azizus dispar Odhiambo and Hallodapus punctatulus (Linnavuori) = H. basilewskyi (Carvalho), Hallodapus aethiopicus Reuter, H. poseidon (Kirkaldy) and H. quadrimaculatus Schuh = H. costae (Reuter), and Plagiorhamma discoidalis Poppius = Hallodapus similis (Poppius). New combinations: Pseudonichomachus capeneri Schuh = Laurinia capeneri (Schuh), P. mimeticus Schuh = Laurinia mimeticus (Schuh), Aeolocoris nigrinus Linnavuori = Bibundiella nigrina (Linnavuori), Marmorodapus spinulatus Schmitz = Syngonus spinulatus (Schmitz), Trichophthalmocapsus vittatus Odhiambo = Pongocoris vittatus (Odhiambo), Eremachrus graminum = Hallodapus graminum (Lindberg), Plagiorhamma quadripunctatus Linnavuori = Hallodapus quadripunctatus (Linnavuori), Plagiorhamma curtipes Linnavuori = Hallodapus curtipes (Linnavuori), Plagiohamma jocosus Linnavuori = Hallodapus jocosus (Linnavuori), Laemocoris sinuaticollis Reuter = Hallodapus sinuaticollis (Reuter), Plagiorhamma lucidulus Linnavuori = Hallodapus lucidulus (Linnavuori), Plagiorhamma stami Linnavuori = Hallodapus stami (Linnavuori), Plagiorhamma katangana Linnavuori = Hallodapus katangana (Linnavuori), Plagiorhamma sororcula Linnavuori = Hallodapus sororculus (Linnavuori), Plagiorhamma maxima Linnavuori = Hallodapus maximus (Linnavuori), Plagiorhamma jocosulus Linnavuori = Hallodapus jocosulus (Linnavuori), and Plagiorhamma monticolus Linnavuori = Hallodapus monticolus (Linnavuori). New status: Trichophorella palustris Linnavuori = T. sordidipennis palustris Linnavuori and Glaphyrocoris subgenus Pongocoris Linnavuori is a valid genus. A lectotype is selected for Hallodapus pilosus (Reuter).

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1. Introduction

The first comprehensive work on the African Miridae was Poppius' "Die Miriden der äthiopischen Region" (1912, 1914). Later on, besides Odhiambo's works on East African Miridae (1959, 1967), two major papers have been published on the subject: Schuh's (1974) revision of Orthotylinae and Phylinae of South Africa and Linnavuori's (1975) article on the Miridae of the Sudan.

The present paper is based on extensive material collected by the author during a field trip to West and Central Africa in 1973. Additional material was obtained from Drs. R. H. Cobben and D. Gillon from the Ivory Coast, Prof. J. T. Medler from Nigeria and Dr. R. T. Schuh from Ghana. Of the groups treated in the present article the Termatophylinae was earlier revised by Linnavuori (1974a), Surinamellini and Hyaliodinae by Akingbohungbe (1979 and 1980), Herdoniini by Linnavuori (1972) and Akingbohungbe (1974), and Nichomachini by Schuh (1974). For these only the new records are listed here. The Hallodapini of West Central and NE Africa are revised, keyed and redescribed as a continuation to Schuh's work on the Hallodapini of South Africa.

2. Classification

Subfamily Termatophylinae

Genus Termatophylum Reuter

Termatophylum Reuter 1884:218. Type species: T. insigne Reuter.

A well-known genus which is widely distributed within the Eremian and Sudanese subregions.

Key to the species of Termatophylum

- 3. Upper surface uniformly brown, only base of membrane of elytra with two hyaline spots *rhea*
- Apex of scutellum pale. Elytra with abundant pale spotting insigne

T. insigne Reuter

Termatophylum insigne Reuter 1884:218.

Material studied: Niger: near Boureimi, 1 ex, 9.X.1973, Niamey, 1 ex, 9.XI.1973, Linnavuori.

A well-known species.

Biology: On Acacias.

Distribution: Widely distributed within the Eremian and Sudanese subregions.

T. rhea Linnavuori

Termatophylum rhea Linnavuori 1974a:3.

Type studied: Nigeria, W St., Ile-Ife, male holotype, 29.XII.1970, J. Medler, in coll. Linnavuori.

Other material: Ivory Coast: Man, a female probably of this species, 14–21.X.1973, Linnavuori.

Length 2.75 mm. Opaquely shiny. Dark reddish brown. Antennae yellow-brown, 1st joint dark reddish brown, base of 2nd with slight reddish tinge, 4th joint brown. Membrane dark brown with two hyaline spots at inner margin of cuneus. Under surface reddish brown. Rostrum pale. Legs yellow-brown, femora reddish brown, tips of tarsi slightly embrowned.

Upper surface of body finely shagreened and rugose, with very long and rather dense semidecumbent yellowish hairs and with short smooth pale pubescence. Head short, about as broad as long, eyes small, ocular index 1.62. Proportions between antennal joints 10:23:15:14 (diatone 29 units), all joints with dense semierect hair covering, 2nd joint slender, slightly broadening apicad. Rostrum extending to near middle coxae. Pronotum about 1.6 × as broad as long, lateral margins slightly insinuated, strongly diverging caudad; calli flattish, separated from each other by median sulcus, a distinct transverse sulcus behind calli. Scutellum equilateral, flattish. Elytra extending well beyond apex of abdomen, a distinct notch between apex of costal margin and base of cuneus. Legs gracile, hind femora with a few long erect hairs.

Distribution: Guinean.

Subfamily Deraeocorinae

Tribe Surinamellini

The African species of the tribe Surinamellini were revised by Akingbohungbe (1980).

Genus Glossopeltis Reuter

- Glossopeltis Reuter 1903:13. Type species: G. coutierei Reuter.
- *Tylopeltis* Reuter 1904c:4. Type species: *T. albosignata* Reuter (Linnavuori 1973:78, Akingbohungbe 1980:228).

Besides the species treated below the following taxa have been recorded from West Africa by Akingbohungbe: *G. conradti* Poppius (Ghana, Nigeria), *G. pilosus* Akingbohungbe (Ghana, Nigeria), *G. spinascutellatus* Akingbohungbe (Nigeria), and *G. laevicollis* Linnavuori (Nigeria).

G. combreticolus Linnavuori Fig. 22j

Glossopeltis combreticolus Linnavuori 1975:71.

Types studied: The Sudan, Kordofan, Dilling - Kadugli, d'holotype and 5 paratypes, 1–2.II.1973; Darfur, Ed Daein, 1 paratype, 3–7.V.1973; Equatoria, Juba, 1 paratype, 27.II– 2.III.1973, Linnavuori, in coll. Linnavuori.

New material: Senegal: Fété-Olé, Ferlo, 24.VI.1971, D. Gillon. Upper Volta: Gouindougouba, 2 exx, 27.X.1973. Nigeria: NE St., Zinna - Ngurore, 1 ex, 23.VIII.1973, Linnavuori.

Biology: In the Sudan found in association with ants on *Combretum ghasalense* and *Guiera* senegalensis.

Distribution: West Sudanese.

G. ornatulus Linnavuori

Fig. 22k

Glossopeltis ornatulus Linnavuori 1975:71.

Types studied: Chad, Bas-Chari, Djimtilo, \circ holotype and 5 paratypes, Péricart, in Mus. Paris, paratypes in coll. Linnavuori.

New material: Ivory Coast: Foro-Foro, 1 ex, 25– 28.IX.1973; Man, 4 exx, 14–21.X.1973, Linnavuori; Lamto, 1 ex, 12.X.1965, D. Gillon. Nigeria: Kw St., Shaganu Biological Station, 1 ex, 20–22.VII.1973, Linnavuori.

Distribution: West Sudanese.

G. discrepans Ahingbohungbe

Glossopeltis discrepans Akingbohungbe 1980:240-242.

Material: Ghana: near Bekwai, 1 ex, 14.IX.1973, Linnavuori. Distribution: Guinean. Previously known from Nigeria.

G. calvus sp. n.

Figs. 1a, 3a

Material: Zaire: Katanga, Lubumbashi, ϕ holotype and 1 ϕ paratype, 7–8.I.1971, A. Stam, in coll. Linnavuori.

Length 4.0–4.2 mm. Head golden, vertex with dark brown middle spot; eyes dark brown. 1st and 2nd antennal joints (others missing) pale



Fig. 1. Elytron. — a) *Glossopeltis calvus* sp. n.; b–c) *G. serapis* sp. n. (specimens from Makurdi and Bobo Dioulasso); d) *G. elegans* Akingbohungbe (specimen from Tafo); e) *Laurinia herondas* sp. n.; f) *Obudua urania* sp. n.

yellow-brown, apical third of 2nd dark brown. Pronotum dark brown, basal margin narrowly white. Scutellum dark brown. Clavus and corium dark brown with broad whitish ochraceous transverse band as seen in Fig. 1a, puncturing on pale areas brown. Cuneus white, base and apex dark brown, inner margin ivory; membrane whitish hyaline, apex embrowned, veins apically brown. Under surface dark brown; coxae and femora whitish ochraceous, the latter with dark brown apical rings. Fore tibia dark brown, apex pale; other tibiae whitish ochraceous with broad dark brown basal rings; tarsi pale.

Body robust, glabrous. Head $0.53 \times as$ broad as basal width of pronotum; frons opaquely shiny, densely and distinctly rugose, vertex weakly microsculptured; vertex $1.03-1.44 \times as$ broad as eye. Proportions between antennal joints 8:30:?, 2nd joint $0.91 \times as$ long as basal width of pronotum. Rostrum extending to near hind coxae. Pronotum strongly broadening caudad, lateral margins slightly insinuated; calli elevated, a depression with two closely located punctures behind middle of calli; disk convex, densely and distinctly punctate. Apical part of scutellum elevated but not humped; disk of scutellum finely rugose. Elytra distinctly and densely punctate.

G. calvus resembles G. discrepans in the shape of the scutellum. G. discrepans is considerably smaller, length 3.06–3.13 mm, the 2nd antennal segment is uniformly dark brown and the membranes of the elytra are uniformly dark.

G. serapis sp. n. Figs. 1b-c, 3b-f

Material: Nigeria: B Pl St., near Makurdi, ♂ holotype, 30.VIII.1973, Linnavuori. Upper Volta: Bobo Dioulasso, 1 ♂ paratype, 1–2.XI.1973, Linnavuori. Types in coll. Linnavuori.

Length 3.25–3.50 mm. Shiny. Reddish or dark brown. Eyes dark grayish brown. 1st antennal joint and basal two-thirds of 2nd yellow-brown, apical third of 2nd and joints 3 and 4 dark brown, base of 3rd white. Basal margin of pronotum narrowly whitish. Clavus and corium dark brown with whitish pattern as seen in Fig. 1b–c, the pale areas with brown punctures; cuneus uniformly dark or yellowish brown; membrane dark brown with pale spot at apex of cuneus. Under surface dark or reddish brown. Osteolar peritremes, coxae and bases of femora pale ochraceous, other parts of femora and basal two-thirds of tibiae dark brown, apices of tibiae, two basal rings on hind tibiae and tarsi pale ochraceous.

Resembling G. laevicollis Linnavuori but shinier, with indistinct microsculpturing and



Fig. 2. *Obudua decellei* Akingbohungbe: a-c) right style (specimens from Kagoro forest a, Gembu b-c); d-g left style in different views (specimens from Kagoro forest d, Gembu e-g); p) apex of hypophysis of left style (specimen from Gembu); h) penis (specimen from Gembu). — *O. urania* sp. n.: i) head and pronotum; j) right style; k-l) left style; m) apex of hypophysis of left style in broad aspect; n) penis. — *Linnavuorista nigricollis* Akingbohungbe: o) apex of hind femur from above.

pilosity. Body more elongate. Head $0.70-0.75 \times$ as broad as basal width of pronotum; eyes very large; vertex $0.59-0.84 \times$ as broad as eye. Proportions between antennal joints 8:31:12:10, 2nd joint $1.04-1.19 \times$ as long as basal width of pronotum. Rostrum extending to middle coxae. Pronotum with strongly insinuated lateral margins; calli moderately elevated; basal part of disk strongly convex, puncturing very fine. Scutellar hump bluntly conical as in *G. laevicollis*. Elytra distinctly punctate.

Male genitalia in Fig. 3b–f. Hypophysis of left style long and gracile, apex obliquely T-shaped. Penis with two horn-like spicula.

The new species belongs to the *laevicollis* group. *G. laevicollis* is readily distinguished by the uniformly dark 2nd antennal segment, transverse white basal fascia on the cuneus (Fig. 35i) and the more distinct pilosity. In *G. perplexus*

Akingbohungbe (Zaire) the 2nd antennal segment is also uniformly dark and the cuneus is ornamented with a white basal fascia.

Etymology: Serapis, the supreme god in Egypt during the Hellenistic-Roman time.

G. elegans Akingbohungbe

Figs. 1d, 3g-n

Glossopeltis elegans Akingbohungbe 1980:236-238.

Material: Ghana: Tafo, 6 exx, 25.I.1966, 29.VIII– 24.IX.1967, 3.X.1968, D. Leston, in the American Museum of Natural History.

The specimens from Ghana agree with the original description except in the fact that the eyes are provided with short erect hairs and the



Fig. 3. *Glossopeltis calvus* sp. n.: a) head and thorax in lateral view. — *G. serapis* sp. n. (specimen from Bobo Dioulasso): b) right style; c) left style; d) hypophysis of left style in broad aspect; e) penis, lateral view; f) spiculum of penis (specimen from Makurdi). — *G. elegans* Akingbohungbe (specimen from Tafo): g) pronotum and scutellum in lateral view; h) right style; i) left style; j–l) hypophysis of left style in different views; m–n) penis in lateral view (of two specimens). — *Laurinia herondas* sp. n.: o) pygofer, dorsal view; p) left style; q) penis, lateral view.

vesica has a blade-like lateral process (comb-like in the original illustration).

The species is easily recognized by the uniformly blackish cuneus and the shape of the left style: hypophysis provided with a roundish subapical expansion.

Measurements: Length 3.5 mm. Head 0.64– 0.68 × as broad as pronotum; eyes large, vertex 0.81–0.83 (\circlearrowleft) or 1.43 (\circlearrowright) × as broad as eye. Proportions between antennal joints 21:65:28:33 (\circlearrowright), 23:61:29:31 (\circlearrowright), 2nd joint 0.81–0.86 × as long as basal width of pronotum.

Male genitalia in Fig. 3h–n. Vesica with two pairs of echinulated structures, a small subapical spiny patch and a blade-like subbasal lateral process.

Distribution: Originally described from Nigeria (Ile-Ife).

Genus Opistocyclus Poppius

- Opistocyclus Poppius 1914:61. Type species: O. myrmecoroides Poppius.
- Makakix Odhiambo 1967:1673. Type species: M. milimanis Odhiambo (Akingbohungbe 1980:242).

The genus contains two known species *O. myrmecoroides* Poppius and *O. milimanis* (Odhiambo). Both of them occur in Cameroon.

O. myrmecoroides Poppius

Opistocyclus myrmecoroides Poppius 1914:61, Akingbohungbe 1980:243.

Material: Cameroon: Bota, 1 ex, 19-20.VI.1973, Linnavuori.



Fig. 4. *Obudua theognis* Linnavuori: a) head, pronotum and scutellum, dorsal view; b) apex of elytron; c) claw; d) pygofer, dorsal view; e) right style; f-g) left style; h) penis, lateral view. — After Linnavuori 1974.

Biology: At lamp in a rain forest bordering a mangrove lagoon.

Distribution: Cameroon (previously only the holotype male from Joh. Albrechsthöhe, VII– VIII.1897, Conradt in Mus. Helsinki has been known).

Subfamily Hyaliodinae

The subfamily Hyaliodinae has a primarily Neotropical range. Linnavuori (1974a) described the first representative of the group (*Obudua* theognis Linnavuori) from West Africa. Akingbohungbe (1978) detected a genus (*Montagneria* Akingbohungbe) in the Australian region. In 1979 he published a revision of the Hyaliodinae of Africa and described the following taxa: *Obudua longipedes* Akingbohungbe (Ivory Coast, Ghana, Nigeria), O. schmitzi Akingbohungbe (Zaire), O. eckerleini Akingbohungbe (Ghana, Ivory Coast, Nigeria), and Linnavuorista nigroscutellatum Akingbohungbe (Ivory Coast).

Distribution in Africa: Guinean.

Biology: All specimens collected by me were found on undergrowth in mountain rain forests.

My material contains the following species:

Genus Obudua Linnavuori

Obudua Linnavuori 1974a:4-5. Type species: O. theognis Linnavuori.

O. theognis Linnavuori Fig. 4a–h

Obudua theognis Linnavuori 1974a:4-5.

Types studied: Nigeria, SE St., Obudu cattle ranch, male holotype, 1 \bigcirc paratype, 21.III.1971, J. Medler, in coll. Linnavuori.

Material studied: Nigeria, the type locality, 3 exx, 16–18.VIII.1973, Linnavuori.

Distribution: The western fringes of the Cameroon Highlands in Nigeria.

O. decellei Akingbohungbe

Fig. 2a-h

Obudua decellei Akingbohungbe 1979:509-512.

Material studied: Nigeria: N C St., Kagoro forest, 6 exx, 7.VIII.1973; NE St., Gembu, 4 exx, 21–22.VIII.1973, Linnavuori.

Distribution: Guinean.

O. urania sp. n.

Figs. 1f, 2i–n

Material studied: Central African Republic: La Maboke, male holotype, 6–9.VI.1973, Linnavuori, in coll. Linnavuori.

Length 5.75 mm. Shiny. Head and pronotum golden yellow, posterior part of pronotal disk slightly paler. Eyes dark reddish gray. Antennae dark brown,

Ist joint with longitudinal pale stripe on outer surface. Basal margin of pronotum narrowly whitish yellow. Scutellum pale yellow, basal and lateral margins narrowly golden yellow. Elytra whitish yellow, clavus and base of mesocorium golden yellow; stripes along commissural and sutural margins of clavus, a short basal dash on corium and a curvate stripe along median and apical margins of corium dark brown, basal and median margins of cuneus blackish brown; membrane pale brownish gray, longitudinal vein fuscous. Under surface golden yellow. Legs yellow, outer surface of hind tibiae infumed.

Body long and gracile. Head $0.63 \times as$ broad as basal width of pronotum, impunctate, vertex with median sulcus; eyes large, ocular index (narrowest point of vertex: width of eye) 0.92. Antennae long and gracile; proportions between joints 29:60:50:16, 1st joint $1.32 \times as$ long as diatone, $2nd 2.73 \times as$ long as diatone, $1.67 \times as$ long as basal width of pronotum, $2.07 \times as$ long as 1st. Rostrum extending to hind coxae. Pronotum $1.32 \times as$ broad as long in middle, collar finely punctate, callal area large and swollen, posterior part of disk densely and coarsely punctate, humeral angles bluntly rounded. Mesoscutum punctate, scutellum swollen. Costal margins of elytra distinctly crenulate, puncturing on elytra and vestiture of legs of the common type.

Male genitalia in Fig. 2j-n.

Easily recognized by the pale coloring and immaculate pronotum. Etymology: Greek mythology, Urania, muse of astronomy.

Genus Linnavuorista Akingbohungbe

Linnavuorista Akingbohungbe 1979:513. Type species: L. nigroscutellata Akingbohungbe.

The genus is easily distinguished from *Obudua* by presence of a long spine on the apex of the hind femur (Fig. 20).

L. nigroscutellata Akingbohungbe

Linnavuorista nigroscutellata Akingbohungbe 1979:513–515.

Type studied: Ivory Coast: Mt. Tonkoui, male holotype, 15–22.X.1973, Linnavuori, in coll. Linnavuori.

Distribution: Only known from the Ivory Coast.

Subfamily Mirinae

Tribe Herdoniini

The African species of the Herdoniini were revised by Linnavuori (1972) and Akingbohungbe (1975). Two species are known from West Africa:

Genus Xenetomorpha Poppius

Xenetomorpha Poppius 1912:149–150. Type species: X. carpenteri Poppius.

Monotypic:

X. carpenteri Poppius

Xenetomorpha carpenteri Poppius 1949:150. Xenetomorpha carpenteri Linnavuori 1972:137–138, Akingbohungbe 1975:639–640.

Type studied: East Africa, Is. Damba, Victoria Nyanza, female syntype, G. Carpenter, in Mus. Helsinki.

Material studied: Ivory Coast: 1 ex without a locality label, 10.X.1952, P. Cachan; Adiopodoumé, 1 ex, 1964, R. Cobben, 1 ex, 29.IX-7.X.1973, Linnavuori; Banco forest, 1 ex, 4.X.1973; Foro-Foro, 1 ex, 25–28.IX.1973, Linnavuori. Nigeria: N C St., Zaria, Samaru, 1 ex, 21.IV.1974, J. Deeming; NE St., Serti, 1 ex, 29.III.1970, J. Medler.

Distribution: Apparently widespread within the rain forest and the adjacent savanna forest region in Africa. Recorded from East Africa and Nigeria.

Biology: The species lives in colonies of *Oecophylla longinoda* (Latreille) and erroneously resembles this ant in general appearance and movements.

Genus Sulcatylus Akingbohungbe

Sulcatylus Akingbohungbe 1975:637. Type species: S. erinodoensis Akingbohungbe.

Monotypic:

S. erinodoensis Akingbohungbe

Sulcatylus erinodoensis Akingbohungbe 1975:638-639.

Material studied: Nigeria: B Pl St., Gangare Kibo, 5 exx, 28.VIII.1973; E C St., Nsukka, 1 ex, 30.VI.1973, Linnavuori. Distribution: Nigeria. Biology: On undergrowth in rain forests.

Subfamily Orthotylinae

Tribe Nichomachini

The tribe Nichomachini was established for two South African genera *Nichomachus* Distant and *Pseudonichomachus* Schuh by Schuh 1947. The genus *Laurinia* Reuter (the Mediterranean subregion and Nigeria) also belongs to this tribe, and is even identical with *Pseudonichomachus*.

Genus Laurinia Reuter

Laurinia Reuter 1884:482. Type: L. fugax Reuter. Laurinia Wagner 1957:263–265, Linnavuori 1973:83–84. Pseudonichomachus Schuh 1947:35–36. Type: P. mimeticus Schuh, syn. n.

Pseudonichomachus agrees in structural characters with *Laurinia*. The differences between the African and Mediterranean species (raised commissural margin of clavus and absence of vesical sclerification in African species) are too slight to keep the genera apart. *Pseudonichomachus* is therefore regarded as synonyme of *Laurinia*.

The genus has a disjunct range: South Africa, West Africa and the Mediterranean subregion.

The following species have been described from the Mediterranean countries: *L. camponotideus* (Lindberg) (Morocco), *elongata* Ribes (Spain), *L. fallax* Seidenstücker 1977:203–205 (Syria), and *L. fugax* Reuter (1884:482; = *sexmaculatus* Wagner 1943:8, synonymized by Wagner 1957:265) (Spain, NE Africa).

L. camponotideus (Lindberg), sp. dist.

Formicocoris camponotideus Lindberg 1940:35. Laurinia fugax Reuter 1884:482 in Wagner 1957:263-265 and Linnavuori 1973:84, misidentification. Laurinia elongata Ribes 1976:35-41, syn. n.

Type studied: Morocco, Mamora, 1♂, holotype of *camponotideus* Lindberg, in Mus. Helsinki.



Fig. 5. *Laurinia bathyllus* Linnavuori: a) head and thorax, lateral view; b) head and pronotum in dorsal view; c) head, apical view; d) claws; e) pygofer, dorsal view; f) left style; g) penis, lateral view. — After Linnavuori 1973.

My comments on L. fugax (Linnavuori 1973:84) were based on the type series of L. camponotideus which was assumed to be conspecific with fugax by Lindberg (1956:56). Ribes (1976:35–41) described the species L. elongata which differs from L. fugax in the more elongate body and in the shape of the left style and the vesical sclerifications. My illustrations on the genitalia of L. camponotidea agree with those of L. elongata. Consequently I regard both of the species as conspecific.

The West African species

Key to the species of Laurinia

- 1. Color reddish brown. Pronotum very shiny, microsculpturing on disk very indistinct bathyllus
- Color black. Pronotum opaquely shiny, strongly rugose
 herondas

L. bathyllus Linnavuori Fig. 5a–g

Laurinia bathyllus Linnavuori 1973:83-84.

Types studied: Nigeria, W St., Ile-Ife, $1 \circ$, holotype, 13.VII.1970, $2 \circ$ paratypes, 5.VIII and 29.XII.1970, J. Medler, in coll. Linnavuori.

The original description not repeated. Easily recognized by the reddish brown color and the very shiny and smooth pronotum.

Distribution: Nigeria.

L. herondas sp. n.

Figs. 1e, 30-q

Material studied: Ivory Coast: Foro-Foro, $1 \circ$ holotype and $1 \circ$ paratype, 25–28.IX.1973, Linnavuori, in coll. Linnavuori.

Length 4.0 mm. Opaquely shiny. Black. Eyes dark grayish. Antennae dark brown, 1st joint and apical part of 3rd yellow-brown. Clavus and corium dark reddish brown with whitish pattern as indicated in Fig. 10, base of clavus and of corium shiny, other parts opaque; cuneus strongly shiny, blackish, basal margin whitish; membrane with veins dark brown. Under surface black, apices of meso- and of metapleura close to the corresponding coxae white. Legs blackish brown, the very tips of femora, apical thirds of tibiae and 1st and 2nd tarsomeres whitish, 3rd tarsomeres dark.

General structure as in L. bathyllus. Head $0.90 \times$ as broad as pronotum, in apical view 1.20 \times as broad as high, frons and vertex densely rugose; eyes very large, vertex $0.52-0.55 \times as$ broad as eye. Proportions between antennal joints 7:45:39:40, 2nd joint 0.75–0.76 \times as long as diatone, $0.67-0.69 \times$ as long as basal width of pronotum. Rostrum extending to middle coxae. Pronotum strongly constricted at middle; apical lobe small, narrowing and sloping caudad, basal lobe large, globose, both of the lobes separated by transverse impression; hair covering on pronotum short, pale, adpressed; disk densely and distinctly microsculptured. Basal part of scutellum strongly declining caudad, apical part with a raised hump which is shallowly bifid in caudal view. Costal margins of elytra distinctly insinuated in middle, commissural margins of clavus strongly raised forming a triangular hump; hair covering on elytra longish and pale.

Male genitalia in Fig. 30-q.

Biology: The specimens were collected at lamp in a savanna forest.

Etymology: Herondas, a Greek author in mime, about 250 B.C.

The South African species

L. capeneri (Schuh), comb. n.

Pseudonichomachus capeneri Schuh 1974:36-37.

L. mimeticus (Schuh), comb. n.

Pseudonichomachus mimeticus Schuh 1974:77-78.

Subfamily Phylinae

Tribe Hallodapini

The phyline tribe Hallodapini was fully characterized by Schuh 1974:292–303. The main range of the tribe lies in the Old World. Only two genera are found in the Nearctic region. The Hallodapini is well represented in Africa and seems to have primarily concentrated on the Sudanese subregion. The majority of species is adapted to arid or semiarid areas.

The African genera studied form three groups, the *Aeolocoris*, *Systellonotus* and *Hallodapus* groups.

The Aeolocoris group is characterized by the following characters. The color is generally marmorate. Tendency towards developing of a pale fascia across the middle of the elytra occurs even in Aeolocoris, and the basic color pattern of the Systellonotus group (black with white transverse fascia on elytra) is found in Bibundiella. The body is generally robust. The head is short and broad. The species, excluding females of some South African Acrorrhinium species, are always macropterous. The vestiture: white spatulate bristles occur on the 1st antennal segments, and similar or black spine-like bristles are also found on the upper surface of the body and the femora. The abdomen is broad. The genitalia: the male pygofer is provided with a subapical spine on the ventral surface. The 2nd valvifers in females have a pair of blunt or spine-like protuberances.

The group contains the following genera: Thrichophorella, Kapoetius, Acrorrhinium, Megacoeloides, Bibundiella, and Syngonus. Trichophorella which differs from the other genera in several advanced characters, forms a separate lineage derived from the common stem. These characters, such as an elongate body, a pale uniform coloring and long and gracile extremities, undoubtedly evolved in connection with adaptation to living on grasses above the ground. The rest of the genera form a closely related group, representatives of which live on bark of trees without any connection with ants.

The Systellonotus group contains the majority of the African genera. The genera studied seem to form two subgroups.

The first subgroup consists of the genera Chaetocapsus, Gampsodema, Diocoris, Systellonotidea, Leaina, Myombea, Alloeomimus, Aspidacanthus, Formicopsella, and Skukuza, Species of these genera are usually large. The basic color is black or dark brown and the elytra are ornamented with a white transverse fascia across the middle. Campsodema and Chaetocapsus which have a short and broad head and a broad abdomen, bridge the gap between Bibundiella of the Aeolocoris group and the other genera. Moreover, the subapical tubercle on the ventral surface of the male pygofer which is characteristic for the Aeolocoris group, occurs in Gampsodema, Diocoris and Systellonotidea, and to some extent in Leaina and Myombea, and the paired protuberances on the 2nd valvifers are found in Gampsodema, Diocoris and Systellonotidea. Excluding Gampsodema and Chaetocapsus, the genera of the subgroup display a tendency towards evolving an ant-like appearance in the following respects. 1. A prolongation and narrowing of the head. In Diocoris the anterior part of the head is prolonged, but the eyes still touch the anterior margin of the pronotum. In Systellonotidea males the eyes narrowly touch the pronotal margin, while in females they are separated from it by a short neck. In the other genera the postocular part of the head forms a distinct neck and the eyes are located well apart from the pronotal margin. A unique development has taken place in Leaina in which the prolonged "biting" apices of the genae resemble the mandibles of Camponotus. 2. The clavate 2nd antennal segments in Leaina and Myombea are similar to the flattened 1st antennal joints in Camponotus. 3. A developmental of a scutellar hump or spine has taken place in Myombea, Aspidacanthus and Alloeomimus resembling the corresponding hump on the basal tergite of the abdomen of ants. 4. Brachypterism in females of *Aspidacanthus* gives them an erroneously ant-like appearance. 5. A development of an ant-like abdomen with a strongly constricted base and enlarged apical part. 5. Ant-like movements and behavior. A close connection with ants has been observed in *Leaina*, *Myombea, Aspidacanthus, Alloeomimus,* and *Formicopsella.* No observations on the feeding habits of African species are known. According to Sahlberg (1920:140), females of the palearctic *Systellonotus triguttatus* (Linnaeus) which live together with *Lasius niger*, feed on pupae of this ant species. Despite this, the species is tolerated by the ants.

The second subgroup contains the genera Glaphyrocoris, Ruwaba, Boopidella, and Pongocoris. Representatives of this subgroup are small. The color is usually brown, and the elytra are ornamented by a white transverse fascia. The head is short and broad and the eyes touch the anterior margin of the pronotum except in Ruwaba in which a short neck is found. Boopidella and Pongocoris closely resemble Trichophthalmocapsus of Hallodapus group and undoubtedly bridge the gap between the Systellonotus and Hallodapus groups. The biology is largely unknown. Ruwaba elegans was swept from Guiera senegalensis. I have collected a specimen of Glaphyrocoris secundus (Linnavuori) on Tamarix branches on the shore of the Dead Sea in Israel. No association with ants was observed.

The Hallodapus group has evolved a stridulatory device. The mechanism consists of a tuberculate plectrum on the dorsal surfaces of the hind femora. Moreover, the costal margins of the elytra are often crenulate. A similar system is also found in the Hyaliodinae, but has not been recorded from other mirids. The group contains the following African genera: Trichophthalmocapsus, Hadrodapus, Hallodapus, and Laemocoris. Moreover, the palearctic genera Omphalonotus Reuter and Paralaemocoris Linnavuori belong to the group. As mentioned before, Trichophthalmocapsus resembles Boopidella and Pongocoris of the former group and represents an early branch in the Hallodapine stem. Likewise, Hadrodapus with a broad flattened body, small head very reduced pronotal collar, and short extremities, forms a lineage of its own. Hallodapus and Laemocoris are closely related genera. The latter has evolved a strongly ant-mimetic appearance which corresponds to a similar development in the *Systellonotus* group. *Laemocoris* live in close connection with ants of the genus *Monomorium*. Representatives of *Hallodapus* are found on the ground under plants. They occasionally occur together with *Monomorium* ants but are apparently not strictly myrmecophilous. A few pale-colored species climb on grasses like *Trichophorella*.

Key to the genera

1.	Species with tuberculate stridulatory plectrum (Fig.
	44n) on inner surface of hind femora. Costal margins
	of alutra also often + granulate
	Dorsal surface of hind femora (Fig. 3/p) without
	stridulatory plectrum, hairy
2	Body (Fig. 46c) short and broad flattish Propotal collar
	small distinctly delimited only laterally. Extremities
	sinan, distinctly deminica only faterally. Extremities
	short and relatively incrassate Hadrodapus
	Body elongate. Pronotal collar well-delimited. Extremi-
	ties long and gracile
3	Head short and broad in apical view much broader than
5.	high in lateral view as high as long or higher with from
	ingh, in fateral view as high as long of higher, with froms
	strongly sloping ventrad and tylus vertical. Hind tibiae
	with very long bristles Trichophthalmocapsus
	Head longer and narrower. Vestiture of hind tibiae
	short 4
٨	Anical part of contailium machine conver Abdoman
4.	Apical part of sculenum weakly convex. Addomen
	not constricted basally Hallodapus
	Scutellum with blunt or conical apical hump. Abdo-
	men ant-like, distinctly constricted basally
	Laemocoris
5	Color uniformly rale reddish or ochraceous Body long
5.	Color uniformity pare reduisit of ochraceous. Body long
	and narrow. Upper surface with short pale adpressed
	pubescence and scattered long erect brown or blackish
	bristles. Legs long and gracile
	Not as above
6	Head with horn-like frontal process Acrorrhinium
0.	Head with non-fike frontal process Actornatian
	Head without frontal process
7.	Color marmorate, ochraceous with brown irroration 8
	Color different
8.	Body short and broad. 3rd antennal joint much longer
	than 2nd Kapoetius
	Body elongate 3rd antennal joint shorter than 2nd
	body clongate. Sid and mar joint shorter than 2nd
~	Aeolocoris
9.	Upper surface densely covered with long erect black
	bristles arising from small tubercles Chaetocapsus
	Not as above 10
10.	Abdomen broad, not distinctly constricted basally 11
	Abdomen ant-like, distinctly constricted basally 17
11	Collar of pronotum very parrow indistinct only later
	ally finally delimited
	Callen of any metry well developed
10	Collar of pronotum well-developed 12
12.	Large black species, length at least 5 mm. 1st antennal
	joint with numerous erect white spatulate bristles 13

- Upper surface, besides adpressed short pubescence, also with long erect hairs. Vesica long, gracile, ending in a falcate apical portion, without processes. *Pongocoris*

- 17. Elytra, besides white transverse middle fascia, also with large white spot on apicolateral area of corium. Antennae arising below apical angles of eyes Skukuza
 — Elytra ornamented only with white transverse middle
- fascia. Antennal pits above apical angles of eyes 18
 18. Eyes touching or nearly touching anterior margin of
- Head without neck. Eyes clearly touching anterior margin of pronotum. Flying wings with hamus . *Diocoris* Head narrowed behind the eyes which narrowly touch
- 20. 2nd antennal joint clavate
 21

 2nd antennal joint cylindrical
 22
- 21. Apices of genae strongly protruding beyond tip of tylus. Scutellum without apical hump Leaina
 Apices of genae not extending beyond tip of tylus.

- Small black species, length < 4 mm. Antennae and legs black. Head in apical view about as broad as high, lower part bluntly triangular in outline Alloeomimus
- Large brown species, length 4.5–5.0 mm. Antennae and legs yellowish or reddish brown. Head elongate, in apical view higher than broad, lower part below eyes sharply triangular Formicopsella

The genus *Megacoelopsis* Poppius is excluded from the key.

Genus Trichophorella Reuter

Trichophorella Reuter 1905:20. Type species: T. sordidipennis Reuter.

Trichophorella Poppius 1914:30–31. Trichophorella Schuh 1974:114–115, 1984:135.

Trichophorella Linnavuori 1975:63-65.

Color pale or reddish ochraceous or brownish. Elytra immaculate, cuneus often purplish, membrane uniformly smoky.

Body parallel-sided, elongate. Upper surface with short adpressed pale pubescence and with scattered long erect brown or blackish bristles. Head short, globose; tylus provided with median keel, in profile vertical, frons convex with shallow median furrow, base of vertex ecarinate; eyes large, strongly granular. Antennae long and gracile, 1st joint with erect bristles. Pronotum distinctly broadening caudad, lateral margins slightly, basal margin strongly insinuated; collar broadish, calli somewhat elevated. Apical part of scutellum weakly convex. Elytra parallel-sided, in both sexes longer than abdomen. Legs long and gracile. Hind tibiae gracile, straight.

Male genitalia: Pygofer conical, ventral surface sometimes with subapical median spine. Left style large, often provided with extra processes. Vesica gracile, apex falcate. 2nd valvifers in female with a pair of spine-like protuberances.

Biology: Unlike the other Hallodapini, representatives of *Trichophorella* are found by sweeping from grasses in moist habitats such as swampy meadows. They seem often to climb up grasses and have no association with ants.

Distribution: Paleotropical; one species (T. splendida Linnavuori) in Saudi Arabia and Iraq.

Key to the species of West and North-East Africa

- 2. Small and relatively robust, length 3.75 mm. Head, pronotum and scutellum dark brown; elytra grayish ochraceous, cuneus dark purplish brown. 1st antennal joint 0.47 × as long as diatone, black with pale apex; 2nd joint uniformly whitish ochraceous, 1.3 × as long as basal width of pronotum. Hind tibiae blackish, apically and basally whitish ochraceous, with numerous very long hair-like bristles pilipes

- Antennae dark brown or dark reddish brown, extreme tips of segments pale. Upper surface, including cuneus, pale orangish or brown. Apex of pygofer with sharp subapical tooth on ventral surface perplexa
 — 1st antennal joint ± dark, 2nd and 3rd pale ochraceous.

T. perplexa sp. n. Figs. 7a, 8d, 9a–g, 11c

Trichophorella sordidipennis Reuter 1905:21 in Poppius 1914:31 and Linnavuori 1975:63-64, pro parte.

Material: Nigeria: E C St., Nsukka, 1 \circ paratype, 30.XI.1973, Linnavuori. The Sudan: Equatoria, Lalyo, male holotype, \circ and \circ paratype, 25–26.II.1963; Torit - Kapoeta, 2 \circ paratypes, 26.III.1963, Linnavuori, in coll. Linnavuori.

Other material: Guinea, Addah, $1 \circ$ and $1 \circ$ (identified as *sordidipennis* by Poppius) in Mus. Helsinki.

Length 4.5–5.5 mm. Upper surface brown, golden brown or ochraceous with orange tinge. Eyes reddish brown. Antennae dark or reddish brown, 1st joint blackish with apex pale, tips of other joints also narrowly pale. Elytra unicolored; membrane brownish smoky. Under surface dark purplish or reddish brown. Coxae pale. Femora dark brown or dark reddish brown; other parts of legs orangish or yellow-brown, hind tibiae reddish brown.



Fig. 6. — a) *Trichophorella pilipes* Linnavuori, b) *Hallodapus basilewskyi* (Carvalho), and c) *H. curtipes* (Linnavuori) . After Linnavuori 1975.

Body elongate. Upper surface with erect black bristles and pale adpressed pubescence. Eyes in \bigcirc large, vertex in \bigcirc 0.88–1.09 x, in \bigcirc 1.8–2.1 × as broad as eye. Antennae long, proportions between joints 16:53:38:27 (\bigcirc), 20:60:? (\bigcirc); 1st joint 0.82–0.84 (\bigcirc) or about 1.05 (\bigcirc) × as long as diatone, 2nd joint 1.8–2.0 × as long as basal width of pronotum. Rostrum extending to base of abdomen. Setae of tibiae brown, longest bristles on hind tibia at most twice as long as tibial diameter.

Male genitalia in Figs. 9a–g, 11c. Pygofer with subapical spine on ventral surface. Hypophysis of left style blade-line, sensory lobe with two spines. Vesica short.

Distribution: apparently Holosudanese.

The species is easily recognized by the dark antennae and the male genitalia.

T. sordidipennis Reuter

Figs. 8f, h-p

Trichophorella sordidipennis Reuter 1905:21.

Type studied: West Africa, Assinie, ϕ holotype (without head and pronotum), in Mus. Helsinki.

Material: Ivory Coast: Adiopodoumé, 1 Q, IV-V.1964, R. Cobben. Nigeria: B Pl St., near Makurdi, 2 づ♂, 30.VIII.1973, Linnavuori.

Length \circlearrowleft 4.0-4.25, \bigcirc 4.5-5.25 mm. Head and pronotum dark coffee-brown. Eyes dark reddish brown. Antennae pale ochraceous, 1st joint, excluding extreme tip and a longitudinal stripe on outer surface of apical third, dark brown, extreme base of 2nd segment also embrowned. Scutellum dark golden brown. Clavus and corium yellow-brown with slight reddish tinge, inner apical angle of corium slightly embrowned, cuneus contrastingly blackish purple, membrane brownish. Under surface of thorax dark purplish. Venter blackish or red. Coxae pale. Legs yellowbrown. Fore and middle femora golden, hind femur, excluding apex, dark brown; hind tibiae also embrowned.

Eyes large, vertex in \bigcirc 0.84–0.86, in \bigcirc 1.81 × as broad as eye. 1st antennal joint 0.75–0.80 (\bigcirc) ×, in \bigcirc 1.05 × as long as diatone; 2nd 1.41 × as long as basal width of pronotum. Tibial spines shortish.

Male genitalia (Fig. 8h-p) as in the following race.

Distribution: Guinean.

T. sordidipennis palustris Linnavuori, status n. Figs. 8g, 9h–k

Trichophorella palustris Linnavuori 1975:64.

Types studied: The Sudan, Bahr el Ghazal, Wau, male holotype, 19.II.1963; Upper Nile, Malakal, 2 paratypes, 5– 20.I.1963, Renk - Malakal, 1 paratype, 3–5.I.1963, Linnavuori, in coll. Linnavuori.

Material: East Africa: Langenburg, 1 ex, Fülleborn, in Mus. Helsinki.

Length 4.5–5.0 mm. Pale yellow-brown. Head and pronotum with golden tinge. 1st antennal joint



Fig. 7. Trichophorella perplexa sp. n. a), Chaetocapsus binotatus b) and Gampsodema gracilipes sp. n.

reddish brown with tip and a longitudinal stripe pale, base of 2nd joint narrowly reddish. Elytra pale yellow-brown, cuneus purplish, membrane brownish smoky. Legs yellowish or reddish brown; femora, hind femora especially, reddish brown with pale apex; hind tibia reddish brown.

Eyes smaller, vertex 1.0 (\circlearrowleft) or 2.0 (\circlearrowright) × as broad as eye. Proportions between antennal joints 20:50:33:21 (\circlearrowright), 1st joint 0.8 (\circlearrowright) or 1.0 (\circlearrowright) × as long as diatone, 2nd 1.34 (\circlearrowright) or 1.6 (\circlearrowright) × as long as basal width of pronotum. Rostrum extending to base of abdomen.

Male genitalia in Fig. 9h-k. Pygofer unarmed. Hypophysis of left style ending in a foot-shaped process, basal process of hypophysis claw-like, sensory lobe with a falcate appendage. Vesica long and slender.

Distribution: Nilotian.

T. rubella Odhiambo Figs. 8q–y, 9l–q, 11a–b

Trichophorella rubella Odhiambo 1959:678–680. Trichophorella ocellaris Linnavuori 1975:64, syn. n.

Types studied: Uganda, Kawanda, male holotype, 12.II.1959, female allotype of *rubella*, 1.X.1958, Odhiambo, in the British Museum. The Sudan, Equatoria, male holotype and \bigcirc paratype of *ocellaris*, 13.IV.1963, Linnavuori, in coll. Linnavuori.

The original description not repeated. An examination of the holotype of *T. rubella* revealed that Odhiambo's illustrations are partially incorrect and that the species is conspecific with *T. ocellaris*.

Distribution: East Sudanese.



Fig. 8. *Trichophorella monticola* Linnavuori: a) female head and pronotum; b) 2nd antennal segment; c) vestiture of hind tibia. — *T. perplexa* sp. n.: d) male head in frontal view. — *T. pilipes* Linnavuori: e) spinulation of hind tibia. — *T. sordidipennis* Reuter: f) spinulation of hind tibia. — *T. sordidipennis* palustris Linnavuori: g) claw. — *T. sordidipennis* sordidipennis Reuter: f) spinulation of hind tibia. — *T. sordidipennis* palustris Linnavuori: g) claw. — *T. sordidipennis* sordidipennis Reuter: f) spinulation of hind tibia. — *T. sordidipennis* palustris Linnavuori: g) claw. — *T. sordidipennis* sordidipennis Reuter (specimen from Makurdi): h) pygofer, dorsal view; i–j) right style; k) left style; l–m) hypophysis of left style in different views; n) spine of sensory lobe of left style; o–p) theca in dorsal and lateral view. — *T. rubella* Odhiambo (holotype): q–r) pygofer in ventral and lateral view; s) right style; t) left style (in glycerine); u–v) hypophysis of left style (v in slide mount); x) theca in lateral view; y) ventral process of theca (broken in Fig. x).

T. vicaria Linnavuori

Fig. 10a-c

Trichophorella vicaria Linnavuori 1973:85-86.

Type studied: Nigeria, W St., Ile-Ife, male holotype, 29.XII.1970, J. Medler, in coll. Linnavuori.

Length 4.75 mm. Fairly shiny. Yellow-brown. Eyes dark brown. Antennae yellow-brown, 1st joint blackish, with extreme tip and a stripe on ventral surface pale; extreme base of 2nd joint with a red longitudinal stripe; basal third of 4th joint dark brown. Medio-apical angle of corium infuscate, cuneus purplish, membrane dark gray with a pale spot at tip of cuneus. Under surface of thorax largely dark reddish brown. Femora basally dark brown.

Body narrow, parallel-sided. Upper surface with long erect pale hairs, elytra also with smooth short yellowish pubescence. Eyes small, vertex (\mathcal{O}) 1.23 × as broad as eye. Proportions between antennal joints 18:48:34:23, 1st joint 0.8 × as long as diatone, 2nd 1.5 × as long as basal width of pronotum. Rostrum extending slightly beyond hind coxae. Tibial spines shortish.

Male genitalia in Fig. 10a–c. Pygofer unarmed. Hypophysis of left style ending in a digitate process accompanied by falcate basal appendage; sensory lobe with bilobate process. Vesica as in *T. sordidipennis*.

Distribution: Known only from Nigeria.



Fig. 9. *Trichophorella perplexa* sp. n.: a) pygofer, lateral view; b–c) left style; d) sensory lobe of left style; e) right style; f) theca; g) vesica. — *T. sordidipennis palustris* Linnavuori: h) right style; i) left style; j) hypophysis of left style in dorsal view; k) vesica. — *T. rubella* Odhiambo (holotype of *ocellaris* Linnavuori): l) head, lateral view; m) pygofer, lateral view; n–o) left style; q) theca. — *Megacoelopsis oculatus* Poppius: r) pygofer, dorsal view; s–t) left style; u) right style; v) theca; x) vesica. — After Linnavuori 1975.

T. monticola Linnavuori

Fig. 8a-c

Trichophorella monticola Linnavuori 1975:64.

Types studied: The Sudan, Lotti forest, φ holotype and φ paratype, 14–17.III.1963, Linnavuori, in coll. Linnavuori.

Length 4.5–5.0 mm. Opaquely shiny. Whitish ochraceous with slight orange tinge. Anterior part of head \pm embrowned, vertex pale; eyes reddish brown. 1st antennal joint dark reddish brown with apex and a longitudinal stripe on outer surface of apical third pale; other joints pale ochraceous, basal third of 2nd with sanguineous longitudinal stripe on outer surface. Elytra uniformly whitish ochraceous with slight orangish tinge, membrane pale

yellowish. Under surface of head and thorax reddish brown, the pale upper margins of propleura bordered with sanguineous stripe. Venter reddish brown, apically dark brown. Coxae pale. Femora dark reddish brown, tibiae and tarsi whitish ochraceous.

Body elongate. Vertex (\bigcirc) 2.2–2.7 × as broad as eye. Antennae long, proportions between joints 27:70:40:?, 1st joint 1.42 × as long as diatone, 2nd 2.33 × as long as basal width of pronotum. Tibiae with long bristles, the longest bristles on hind tibiae brown, about 4 × as long as tibial diameter.

Distribution: Only known from the Sudan.

T. australis Schuh 1974:115–117, is a closely related species which is readily distinguished by



Fig. 10. *Trichophorella vicaria* Linnavuori: a–b) left style; c) theca, dorsal view. — *Glaphyrocoris nigeriensis* Linnavuori: d) left style; e) right style; f–g) theca; h) apex of vesica. — After Linnavuori 1973.

the short pale spines on the hind tibiae (at most twice as long as tibial diameter. Moreover, the head, pronotum and base of the scutellum are \pm embrowned, the 1st antennal joints are much shorter and the propleura are uniformly dark red-dish brown.

Type studied: South Africa, Transvaal, Lyttelton, a male paratype, 20.II.1968, J. & S. Slater, in the American Museum of Natural History.

T. pilipes Linnavuori

Figs. 6a, 8e

Trichophorella pilipes Linnavuori 1975:64-65.

Type studied: The Sudan, Equatoria, Mundri, female holotype, 25.II.1963, Linnavuori, in coll. Linnavuori.

The original description not repeated. Distribution: The Sudan.

Genus Kapoetius Schmitz

Kapoetius Schmitz 1969:72-77. Type species: K. rotundifrons Schmitz.

Easily recognized by the small and robust body and pale ochraceous ground color with reddish brown irrorations. Upper surface with adpressed brown or blackish hairs and short whitish pubescence; 1st antennal joint, head and pronotum also with whitish erect bristles which are slightly expanded apically. Eyes in \bigcirc only slightly larger than in \bigcirc . Antennae long, 3rd segment much longer than 2nd. Pronotum short and broad, trapezoidal, lateral margins insinuated, humeral angles prominent, basal margin nearly straight, calli faintly elevated. Apical part of scutellum slightly elevated. Legs shortish. Claws with small pseudarolia (recorded as absent in the original description).

Male genitalia: pygofer conical. Styli of the common type. Theca short and broad. Vesica ending in two serrate processes. 2nd valvifers (\circ) with a pair of blunt protuberances.

Distribution: The Sudan.

K. rotundifrons Schmitz Fig. 12a-j

Kapoetius rotundifrons Schmitz 1969:77-81.

Types studied: The Sudan, Equatoria, Kapoeta - Boma, the type series including male holotype, 26–27.III.1963, Linnavuori, in coll. Linnavuori.

The original description not repeated. Biology: At lamp in sandy habitats.

Genus Acrorrhinium Noualhier

- Acrorrhinium Noualhier 1895. Type species: A. conspersum Noualhier.
- Cinnamus Distant 1909:441. Type species: C. rhinoceros Distant (Schuh 1974:66).
- Lutheriella Poppius 1913:248. Type species: L. oecophylloides Poppius (Schuh 1984:103).
- Seversyia DeLattre 1950:152-153. Type species: S. lupa DeLattre (Carvalho 1958:160).

Completely redescribed by Schuh 1974:66–69. The genus is easily recognized by the hornlike frontal process of the head.

Biology: Specimens of *A. conspersum* Noualhier were found by me on bark of trunks and lower branches of large oaks in Northern Iraq. No association with ants was observed.

Distribution: Paleotropical. One species, A. conspersum Noalhier occurs in Bulgaria and the Middle East.



Fig. 11. *Trichophorella rubella* Odhiambo (holotype): a) vesica (in glycerine); b) apex of vesica (slide mount). — *T. perplexa* sp. n.: c) pygofer in ventral view. — *Acrorrhinium lupa* (DeLattre): d) pygofer, dorsal view; e) right style; f–h) left style in different views; i) theca, lateral view; j) vesica. — *Aeolocoris alboconspersus* Reuter (specimen from Bebedja): k) chaetotaxy on upper surface of hind femur; l) claw; m) subapical spine of pygofer; n) right style; o–p) left style in different views. — *A. decarinatus* Linnavuori: q) chaetotaxy of 1st antennal joint. — *A. pusillimus* Linnavuori: r) bristles on base of corium; s) bristle on 1st antennal joint; t) spinulation of hind tibia.

A. lupa (DeLattre)

Figs. 11d-j, 13a

Seversyia lupa DeLattre 1950:153. Acrorrhinium lupa Carvalho 1958:160.

Material: Ivory Coast: Adiopodoumé, 2 exx, 29.IX– 7.X.1973; Foro-Foro, 1 ex, 25–28,IX.1973; Lamto, 4 exx, 8–9.X.1973, Linnavuori.

Length 5.5–6.0 mm. Opaque. Reddish brown. Eyes grayish brown. Antennae dark yellowish brown, 4th joint and apical part of 3rd ochraceous. Pronotum and scutellum with narrow, slightly elevated pale median stripe. Basal part of pronotum with faint pale irroration. Base of commissural margin of clavus with poorly delimited whitish ochraceous area; corium with an obliquely transverse dark brown band starting from apical third of claval suture and extending caudolaterad to near costal margin; cuneus \pm dark brown; membrane and veins dark fuscous. Legs reddish brown, tibiae with \pm distinct ochraceous tinge.

Body long and gracile. Hair covering short, pale adpressed. Head $0.73 \times as$ broad as basal width of pronotum, short; tylus in profile vertical, frons with a horn-like apical process which is slightly recurved ventrad apically, vertex flat, with a faint median furrow; eyes large, vertex $0.90-0.98 \times as$ broad as eye. Antennae very long, relatively incrassate, with short adpressed pubescence; proportions between joints 34:67:53:29, 1st segment stout, $1.44 \times as$ long as diatone, provided with a few slight pale elevtions, 2nd joint > twice as long as basal width of pronotum, 3rd about $1.60 \times as$ long as basal width of



Fig. 12. *Kapoetius rotundifrons* Schmitz: a) head and thorax, dorsal view; b) head in lateral view; c) spatulate spines on upper surface; d) hind tarsus e) male genital segment, dorsal view; f) right style; g) left style; h) vesica, lateral view; i) base of penis in broad aspect; j) 2nd valvifer. — After Schmitz 1969.

pronotum, tapering apicad. Rostrum extending beyond hind coxae. Pronotum $1.7 \times as$ broad as long in middle, lateral margins subparallel in anterior part, then strongly diverging caudad basally; collar broad; anterior lobe narrow and weakly elevated, basal part convex, sloping apicad, with faint median elevation, basal margin strongly insinuated. Basal part of scutellum gradually declining caudad, apical part forming a blunt hump. Elytra in O (Q unknown) much longer than abdomen, costal margins parallel. Femora narrow; tibiae slender, with short adpressed pale bristles, hind tibia about 2.85 × as long as basal width of pronotum. Proportions between hind tarsomeres 10:12:13.

Male genitalia in Fig. 11d-j.

Biology: At lamps in rain and savanna forests. Distribution: Guinean (Ivory Coast).

Genus Aeolocoris Reuter

- Aeolocoris Reuter 1903:17. Type species A. alboconspersus Reuter.
- Aeolocoris Carvalho 1958:161, Linnavuori 1975:65.
- Carinonotus Lindberg 1956:54–56. Type species: C. phytocoroides Lindberg (Linnavuori 1975:65).

Saharocylapus Wagner 1959:1-7. Type species: S. vidali Wagner (Wagner 1970:149-153).

Color ochraceous with abundant brown mottling. Elytra with \pm developed, poorly delimited inverted V-shaped pale figure starting from middle of clavus and recurved on to the adjacent part of corium, this figure is posteriorly often delimited by a brownish area. Middle and hind coxae contrastingly whitish.

Body parallel-sided. Upper surface with erect stiff white bristles which end in bluntly expanded tips (these bristles also present on 1st antennal segment and femora) and with adpressed short pale hairs. In A. pusillimus the bristles are longer and thinner than in the other species. Head short and broad, in frontal view much broader than high; frons convex, separated from the vertical tylus by a transverse furrow; vertex flattish; eyes in ♂ very large. Antennae long, 1st joint incrassate, ± uneven owing to small pale callosities. Rostrum extending beyond hind coxae. Pronotum broadening caudad, lateral margins insinuated in front of the prominent humeral angles; collar distinct, calli faintly elevated, basal lobe often with an obtuse pale median keel which forms a blunt knob in the middle of the basal margin. Basal part of scutellum strongly declining caudad, apical part roundedly elevated. Elytra in both sexes longer than abdomen. Scent gland



Fig. 13. Acrorrhinium lupa (DeLattre): a) dorsal view. — Aeolocoris alboconspersus Reuter: b) dorsal view; c) elytron; d) head and thorax in dorsolateral view; e–j) variability of size of eyes in males in dorsal, apical and lateral view; k) chaetotaxy of upper surface; l) hind tarsus; m) claw. — After DeLattre 1950, Lindberg 1956 and Wagner 1970.

orifices small, moderately elevated. Abdomen not constricted basally. Legs long; tibiae gracile, provided with white bristles. Hind tibia weakly compressed or nearly cylindrical.

Male genitalia: Pygofer with or without a blunt subapical tubercle on ventral surface. Style of the usual type. Theca with or without clawlike or tooth-like process. Vesica slender, apex falcate. In females 2nd valvifers with a pair of tubercles.

Biology: Most specimens collected at lamps. At In Guezzam in Algeria I found A. alboconspersus on bark of Acacias. No association with ants was observed.

Key to the species of Aeolocoris

- 1. Pronotum with a short basal median keel 2
- Pronotum ecarinate 3
- 2. Cuneus pale with dark irroration alboconspersus
- Cuneus contrastingly uniformly dark brown. *curtulus*Length 3.5–4.0 mm. Antennae uniformly dark brown,
- only 1st joint apically and basally narrowly pale pusillimus

 Length 4.5–5.0 mm. 1st and 2nd antennal joints dark with pale irroration, other joints predominantly pale .
 decarinatus

A. turgidus Odhiambo is excluded from the key.

A. alboconspersus Reuter

Figs. 11k-p, 13b-m, 14a-b, f, 15a-b

Aeolocoris alboconspersus Reuter 1903:17. Carinonotus phytocoroides Lindberg 1956:54-56 (Linnavuori 1975:66).

Saharocylapus vidali Wagner 1959:1-7, syn. n.

Type studied: French Somaliland, Obock, 1 female syntype of *alboconspersus*, Jousseaume, in Mus. Helsinki.

Material: Algeria: In Guezzam, 3 exx, 6.XII.1973, Linnavuori. Nigeria: N C St., Zampari forest reserve, 1 ex, 24.VIII.1973, Linnavuori, Zaria, Samaru, 2 exx, 23– 27.XII.1972, J. Deeming; B Pl St., Katsina Ala, 1 ex, 19.VIII.1973, Linnavuori. Chad: Bebedja, 7 exx, 28– 31.V.1973, Farcha, 1 ex, 20–22.V.1973, Linnavuori. The Sudan: localities listed in Linnavuori 1975:66. Eritrea: Ailet, 1 ex, 30–31.V.1963, Linnavuori.



Fig. 14. Aeolocoris alboconspersus Reuter (specimen from Bebedja): a) theca, lateral view; b) vesica; f) female genital segment, lateral view. — A. curtulus Linnavuori (holotype): c) theca, lateral view; d) vesica. — A. turgidus Odhiambo (allotype): e) hind tibia. — Bibundiella quadrimaculata Poppius (holotype): g) female pronotum. — B. nigrina (Linnavuori): h) female pronotum; i) chaetotaxy of elytra; j) female genital segment, lateral view; k) left style (slide mount); I-m) theca in lateral view (m of holotype); n) vesica; o) hind tibia.

Length 4.75-6.0 mm. Pale specimens yellow-ochraceous. Frons with purplish transverse arcs, or entire head golden yellow; eyes grayish brown. Antennae yellow-ochraceous, 1st joint with brownish mottling. Collar, often also sides of pronotum with minute purplish markings; calli pale or golden brown, posterior part of disk uniformly pale or ornamented with faint brownish mottling. Scutellum brown, basal angles and median stripe on apex pale. Clavus and mesocorium with fuscous suffusions, transverse undulating whitish figure \pm poorly indicated; membrane brownish. Under surface of thorax golden yellow. Abdomen reddish. Legs yellowish, femora with faint brown mottling. Dark specimens gravish ochraceous. Head brown. Eyes gravish brown. 1st antennal joint, sometimes also 2nd, dark brown with small pale callosities, other segments yellowish brown. Calli of pronotum dark brown, other parts of disk \pm embrowned with pale irroration, median knob on basal margin pale. Scutellum dark brown with faint pale midline, tip pale. Elytra with dense dark irroration, a \pm distinct inverted V-shaped whitish figure starting from middle of clavus and extending to the adjacent part of corium, this figure is posteriorly often delimited by dark brown area, medioapical area of corium \pm pale; cuneus dark brown with sparse or dense pale irroration; membrane dark brown. Under surface reddish brown or purplish. Middle and hind femora contrastingly whitish. Femora blackish or dark reddish brown with whitish irroration. Other parts of legs dark brown, tibiae with faint pale irroration.

Robust. White erect bristles on 1st antennal segment and upper surface of body relatively

thick. Vertex 0.57–1.03 (\circlearrowleft) or 1.32–1.52 (\bigcirc) × as broad as eye. Proportions between antennal joints 16:50:31:25 (\circlearrowright), 22:62:39:31 (\bigcirc), 1st joint 0.55–0.68 (\circlearrowright) or 0.75–0.86 (\bigcirc) × as long as diatone, 2nd 1.14–1.50 (\circlearrowright) or 1.55–1.60 (\bigcirc) × as long as basal width of pronotum. Rostrum extending to base of venter. Lateral margins of pronotum insinuated, basal margin with distinct median knob.

Male genitalia in Figs. 11m-p, 14a-b, 15a-b. Pygofer with subapical spine on ventral surface. Theca with distinct subapical process. Female genital segment in Fig. 14f.

Biology: At lamps. Once found on bark of Acacias.

Distribution: Eremian, also spread into the adjacent parts of the Sudanese subregion.

Notes on variability: The size of the eyes in males is greatly variable (ocular index in extreme cases 0.53–0.67 or 1.03). Although smalleyed or large-eyed specimens are abundant in certain populations, no clear distributional differences between these forms were observed. Moreover, since both of the extreme forms are linked by intermediates and the male genitalia are similar, they are regarded as conspecific. The large-eyed form was described as *vidali*, the small-eyed as *alboconspersus* and *phytocoroides*. Variability in the coloring seems to depend on environmental factors: pale specimens are found in sandy habitats.

A. curtulus Linnavuori Fig. 15c-g

Aeolocoris curtulus Linnavuori 1975:66.

Type studied: The Sudan, Equatoria, Kapoeta- Boma, \circlearrowleft holotype, 26–27.III.1963, Linnavuori, in coll. Linnavuori. The four female paratypes from the same locality are, in fact, small specimens of *alboconspersus*.

Length 5.0 mm. Resembling A. alboconspersus but cuneus contrastingly uniformly dark brown. Head, pronotum and scutellum also predominantly dark brown. 1st antennal joint much shorter, $0.46 \times as$ long as diatone.

Male genitalia (Fig. 15c-g): Pygofer with thicker subapical process. Theca with broad dentate subapical lobe on ventral surface. Vesica shorter and thicker.

A. turgidus Odhiambo

Figs. 14e, 19a-d

Aeolocoris turgidus Odhiambo 1959:670:673.

Types studied: Kenya, Athi Falls, a female allotype, VII.1937, Mac Arthur, in the British Museum. A female paratype from Somalia, Mudugh Prov., 800 ft, VII.1945, T. H. E. Jackson, in the British Museum, is *A. alboconspersus*.

Very close to the preceding species but according to the original description the eyes in the male are much smaller (ocular index 1.38–1.70, in the holotype of *curtulus* 0.67), the theca lacks a subapical process and the apical part of the vesica is shorter and thicker.

In the female allotype the 1st antennal segment is very short, $0.64 \times as$ long as the diatone. The vertex is $1.38 \times as$ long as the diatone. The hind tibia is flattened, elongately clavate, and provided with shorter bristles than in *A. alboconspersus*. In *A. alboconspersus* the hind tibia is narrower and less flattened.

Distribution: Kenya.

A. decarinatus Linnavuori Figs. 11q, 15h-m

Aeolocoris decarinatus Linnavuori 1975:66-67.

Types studied: The Sudan, Bahr el Ghazal, Wau, male holotype, 19.II.1963; Equatoria, Juba, a female paratype, 27.II–2.III.1963, Linnavuori, in coll. Linnavuori.

Material: Nigeria: N C. St., Zaria, Samaru, 2 exx, 18.XI.1967, J. Deeming. Upper Volta: Bobo Dioulasso, 2 exx, 1–2.XI.1973, Linnavuori.

Like A. alboconspersus but readily distinguished by absence of median tubercle on basal margin of pronotum and the uniformly blackish or purplish brown cuneus.

Male genitalia in Fig. 15h–m. Sensory lobe of left style with three processes. Theca without subapical tooth. Vesica shorter and thicker.

Distribution: Previously known from the Sudan.

A. pusillimus Linnavuori

Figs. 11r-t, 15n-r

Aeolocoris pusillimus Linnavuori 1975:67.

Types studied: The Sudan, Kordofan, near Talodi, male holotype, 1 female paratype, 12–13.II.1963, Linnavuori, in coll. Linnavuori.



Fig. 15. *Aeolocoris alboconspersus* Reuter: a) pygofer, dorsal view; b) theca. — *A. curtulus* Linnavuori: c) pygofer, dorsal view; d) right style; f) left style; e) theca; g) vesica. — *A. decarinatus* Linnavuori: h) left style; i) sensory lobe of left style, dorsal view; j) right style; k) theca; l) vesica; m) pygofer, dorsal view. — *A. pusillimus* Linnavuori: n) pygofer, dorsal view; o) theca; p) left style; q) right style; r) vesica. — *Bibundiella nigrina* (Linnavuori) (holotype): s) pygofer, dorsal view; t) left style; u) right style; v) theca; x) vesica. After Linnavuori 1975.

Material: Nigeria: NE St., near Lankoviri, 1 ex, 24.VIII.1973; Kw St., Shaganu Biological Station, 2 exx, 20–22.VII.1973; B Pl St., Katsina Ala, 1 ex, 19.VIII.1973, Linnavuori. Upper Volta: Bobo Dioulasso, 1 ex, 1– 2.XI.1973, Linnavuori. Chad: Bebedja, 3 exx, 30– 31.V.1973, Linnavuori.

Easily recognized by the small size, length 3.5–4.0 mm, the blackish antennae, femora and tibiae, the uniformly blackish brown cuneus, the absence of the median tubercle on the basal margin of the pronotum, the longer and slenderer pale bristles on the 1st antennal segments and upper surface, and the longer and slenderer tibial spines.

Male genitalia in Fig. 15n-r. Pygofer without subapical process. Theca with a subbasal claw-like process. Vesica shortish.

Distribution: West Sudanese.

Genus Megacoeloides Poppius

Megacoeloides Poppius 1914:33. Type species: M. oculatus Poppius.

Description after Poppius: "Der Körper mässig gestreckt, kaum gerundet, oben schwach fettig gländend, ganz kurz und anliegend weiss behaart, der Vorderkörper ausserdem mit einzelnen, ganz kurzen, abstehenden, dunkleren haaren. Der Kopf ist gross, sowohl von oben wie von vorne gesehen viel breiter als lang, von der Seite gesehen etwas höher als lang, vorne nicht gezogen. Die Stirn ganz flack gewölbt, von vorne gesehen zwischen den Augen abgeflacht, an der Basis ungerandet, deutlich der länge nach gefurcht. Die Augen sind sehr gross und hervorspringend, beim \mathcal{O} grösser als beim \mathcal{Q} , die Kopfseiten ganz einnehmend und nach unten bis

auf die Kehle sich erstreckend, den Vorderrand des Halsschildes nich berührend, kräftig granuliert, vorne leicht ausgeschweift. Der Clypeus ist mässig hervortretend, von der Stirn wenig tief abgesetzt, an der Basis vertical, zur Spitze leicht nach hinten gebogen, die Lorae deutlich abgesetzt, scmal, die Wangen sehr klein, die Kehle ganz von den Augen bedeckt, der Gesichtswinkel recht. Das Rostrum erstreckt sich bis zur Mitte der Mittelhüften, der erste Glied wenig verdickt, fast den Vorderrand des Halsschildes erreichend. Die Fühler ziemlich kräftig, kurz und anliegend weiss behaart, gleich unterhalb der Mitte des Augenvorderrandes eingelenkt, die zwei ersten Glieder mit einzelnen, kurzen, abstehenden Haaren, das erste Glied ist ziemlich kurz, mässig verdickt, die Clypeusspitze überragend, das zweite viel länger und wenig dünner als das erste, ebenso lang und dick als das dritte, beide zur Spitze nich verdickt, das dritte etwas dünner als die zwei vorhergehenden, deutlich länger als das erste. Der Halsschildt ist breiter als lang, nach vorne ziemlich stark verengt, die Seiten ausgeschweift. Der Basalrand in der Mitte breit ausgeschweift, jederseits gerundet, die Scheibe ist mässig gewölbt, stark geneigt, die Calli sind gross, deutlich abgesetzt, flach, wenig scharf von einander getrennt, die Apicalstrictur ist scharf abgesetzt, ziemlich breit. Das Schildchen ist etwas gewölbt mit unbedeckter Basis, vor der Mitte quer eingedrückt. Die Hemielytren wenig die Hinterkörperspitze überragend, der Clavus flach dachförmig, die grosse Membranzelle sehr breit, ganz abgerundeter apicaler Innenecke. Die Hinterflügelzelle ohne Hamus. Die Vorderacetabula von oben etwas sichtbar. Die Orificien des Metastethiums sind schmal, gerade, die Spale kurz und breit, gekantet. Die Beine sind mässig lang, ziemlich kräftig, die Schienen kurz hell bedornt, die zwei ersten Glieder der Hinterfüsse ebenso lang als das dritte. Die Klauen sind ziemlich lang, gebogen, die Arolien wenig breit, etwa bis zur Mitte der Klauen sich erstreckend und mit denselben verwachsen.

Erinnert habituell sehr an einer Megacoelum-Art."

Range: Guinean.

The genus was synonymized with Azisus Distant (1910:11, type species A. basilicus Distant from Bengal) by Carvalho 1952:69 and 1958:162. Schuh (1984:111) published a redescription of A.

basilicus and noticed that it closely resembles Trichophorella. Consequently the synonymy proposed by Carvalho is incorrect. I studied superficially the types of *M. oculatus* in Mus. Helsinki. The types were later borrowed by D. Leston and unfortunately have not been found after his death. A complete redescription of the genus is therefore not possible. According to my notes (Linnavuori 1975:65) it is very near Aeolocoris, but the 1st antennal joint is dark and provided with erect pale hairs (not bristles) and the hair covering on the upper surface of the body is pale and smooth with only a few erect hairs. However, the type of the vestiture is variable in Aeolocoris, and since the male genitalia are of the same type, it is possible that Megacoelopsis is congeneric with Aeolocoris. The two other species which were later described as Azizus (A. basilewskyi Carvalho and A. dispar Odhiambo) belong to Hallodapus.

M. oculatus Poppius Fig. 9r-x

Megacoelopsis oculatus Poppius 1914:34.

Types studied: Togo Kete-Kratji, male lectotype (designated by Linnavuori 1975:65), 1q syntype, Zech, in Mus. Helsinki.

Description after Poppius: Grau braun, der Kopf vorne, der Hinterrand der Calli und die Seiten auf dem Halsschilde, das Schildchen, der Clavus ausgedehnt, das Corium innen und am Aussenrande, der Cuneus und das Rostrum braun, die Membran rauchbraun mit etwas dunkleren Venen, die Unterseite, die Fühler und die Beine braunschwartz, die Hinterbrust and die hinteren Hüften hellgelb.

Die Stirn ist etwas ebenso breit (Q) oder fast mehr wie um die Hälfte schmäler (O) als der Durchmesser des Auges. Das erste Fühlerglied ist etwa ebenso lang als das Auge von der Seite gesehen, das zweite etwas mehr als 2.5 mal länger. Der Halschild ist etwa 1/3 kürzer als am Basalrande breit, der letztgenannte etwa dreimal breiter als der Vorderrand. Beim O der linke Hamus copulatorius mit einem schmalen und langen, nach oben und leicht nach aussen gebogenen Zahn. - Long. 4.5-5, lat. 1.8 mm.

Male genitalia in Fig. 9r-x. Distribution: Only known from Togo.

Genus Bibundiella Poppius

Bibundiella Poppius 1914:31. Type species: B. obscura Poppius.

Like *Aeolocoris* (1st antennal joint, head and femora with stout white erect bristles) but 1) coloring uniformly black or blackish brown, elytra with white, often \pm reduced transverse fascia just caudad of tip of scutellum, 2) upper surface with erect spine-like black bristles, 3) disk of pronotum flatter, calli only faintly indicated, 4) hind tibiae distinctly flattened, narrowly clavate, and 5) apical part of vesica either dentate or falcate and provided with one or two dentate subapical processes.

Distribution: Guinean.

Key to the species of Bibundiella

- 2. Eyes (3) small, ocular index 1.31. Theca (Fig. 16g-i) with a small dentate lateral lobe. Vesica (Fig. 16j) with two dentate subapical lobes quadrimaculata
- Eyes (3) larger, ocular index 1.12. Theca (Fig. 160) slender, digitate. Vesica (Fig. 16p) ending in a dentate apical part, without subapical processes. *epikharmos*

B. obscura Poppius is excluded from the key.

B. nigrina (Linnavuori), comb. n.

Figs. 14h-o, 15s-x, 16a-b, 21a-b

Aeolocoris nigrinus Linnavuori 1975:67.

Types studied: The Sudan, Bahr el Ghazal, Wau, male holotype, $1 \Leftrightarrow$ paratype, 19.II.1963; Equatoria, Juba - Nimule, $2 \Leftrightarrow$ paratypes, 10–11.III.1963, Linnavuori, in coll. Linnavuori.

Material studied: Ivory Coast: Foro-Foro, 3 exx, 25.IX.1973, Linnavuori. Nigeria: N C St., Zaria, Samaru, 3 exx, 18–26.IV.1974, J. Deeming; NE St., Serti, 1 ex, 29.III.1970, J. Medler.

Length 5.0–5.25 mm. Subopaque. Black or dark coffee-brown. Head with brownish tinge.

1st antennal joint with small pale dots. Elytra with a white transverse fascia which is distinct in males, \pm reduced or even absent in females, just caudad of the tip of the scutellum; costal margins with brownish tinge, membrane brownish smoky. Middle and hind coxae contrastingly whitish. Legs black.

Body robust. Eyes in \bigcirc large, ocular index 0.70–0.85 (\bigcirc) or 1.35–1.67 (\bigcirc). Proportions between antennal joints 13:44:34:25 (\bigcirc), 15:48:34:26 (\bigcirc), 1st joint 0.50–0.51 (\bigcirc) or 0.55– 0.63 (\bigcirc) × as long as diatone, 2nd joint 1.2–1.3 × as long as basal width of pronotum. Rostrum extending well beyond hind coxae. Pronotum distinctly convex, lateral margins insinuated, humeral angles prominent.

Male genitalia in Figs. 14k–n, 15s–x, 16a–b. Theca with a claw-like ventral process. Vesica with a dentate subapical lobe. 2nd valvifers (Q) (Fig. 14j) with spine-like protuberances.

Distribution: Guinean.

B. quadrimaculata Poppius

Figs. 14g, 16c-j, 21c

Bibundiella quadrimaculata Poppius 1914:32.

Type studied: Cameroon, Langji, female holotype, H. Paschen, in Mus. Helsinki.

Material studied: Nigeria: N C St.: Zaria, Samaru, 1 ♂, 17.III.1967, J. Deeming.

Length 5.0–5.25 mm. Like the preceding species but opaque. Eyes in \bigcirc much smaller, ocular index 1.31. Body in \bigcirc considerably narrower. Pronotum flatter, lateral margins straight (\bigcirc) or slightly insinuated (\bigcirc), humeral angles more obtuse.

Measurements: Ocular index 1.31 (\circlearrowleft), 1.43 (\heartsuit). Proportions between antennal joints 11:38:30:? (\circlearrowright), 13:45:? (\heartsuit), 1st joint 0.53 (\circlearrowright) or 0.62 (\heartsuit) × as long as diatone, 2nd 1.09–1.18 × as long as basal width of pronotum.

Male genitalia (Fig. 16d–j): Theca with small dentate lateral lobe. Vesica with two dentate subapical lobes.

Distribution: Guinean.



Fig. 16. *Bibundiella nigrina* (Linnavuori): a–b) apex of vesica in different views (b of holotype). — *B. quadrimaculata* Poppius: c) chaetotaxy of 1st antennal joint; d) right style; e) left style; f) sensory lobe of left style; g–h) theca in lateral view; i) theca in dorsal view; j) vesica. — *B. epikharmos* sp. n.: k) chaetotaxy of 1st antennal joint; l) right style; m–n) left style in different views; o) theca, lateral view; p) vesica.

B. obscura Poppius

Bibundiella obscura Poppius 1914:32.

Type: The female holotype from French Guinea, Kouroussa, H. Pobéguin, which was preserved in the Mus. Helsinki, was borrowed by D. Leston and has not been found after his death.

Description after Poppius: Schwartz, der Kopf braungelb gesprenkelt, das Corium braunschwartz, aussen hinter der Mitte schwartz, die Membran rauchbraun mit etwas dunkleren Venen, das Rostrum, das erste Fühlerglied, die Unterseite und die Vorderhüften braunschwartz, die hinteren Hüften und die Orificien gelb.

Die Stirn beim \bigcirc fast doppelt breiter als der Durchmesser des Auges. Das Rostrum erstreckt sich weit über der Hinterhüften. Das erste Fühlerglied etwas kürzer als die Stirn zeischen den Augen breit (\bigcirc), das zweite etwa viermal länger als das erste. Der Basalrand des Halsschildes etwa doppelt breiter als der Vorderrand. — Long, 4.5, lat. 1.6 mm.

Distribution: Guinean.

B. epikharmos sp. n. Fig. 16k–p

Material studied: Zaire: Kwango-Kimbou, male holotype, 1925, P. Vanderijst; Sankuru, Lodja, 1 ♂ paratype, VI.1929, J. Ghesquère, in Mus. Tervuren.

Length 4.5 mm. Opaque. Like *B. quadrimaculata* but pale transverse band on elytra a little broader, eyes larger, ocular index in \bigcirc 1.12, and stout white bristles on 1st antennal joint somewhat longer and thinner.

Head $0.60 \times as$ broad as basal width of pronotum. Proportions between antennal joints 31:100:?, 1st joint $0.58 \times as$ long as diatone, 2nd

 $1.11 \times$ as long as basal width of pronotum. Legs missing in the specimens studied.

Male genitalia (Fig. 16d-p): Pygofer as in B. *nigrina*. Theca slender, digitate. Vesica ending in a dentate apical part.

Etymology: Epikharmos, a Greek author in comedy about 460 B.C.

Genus Syngonus Bergroth

Bibundia Poppius 1914:42. Type species: B. nigra Poppius, n. preocc. by Bibundia Bischof 1903, Diptera.

Syngonus Bergroth 1926:64. Type species: Bibundia nigra Poppius.

Syngonus Carvalho 1952:71, 1958:176.

Marmorodapus Schmitz 1970:512–517. Type species: M. spinulatus Schmitz, syn. n.

Black to blackish brown. Elytra with two faint curved pale spots located at two different levels. Antennae and legs black.

Upper surface with double hair covering, with pale adpressed pubescence and erect dark hairs. Head and 1st antennal segment also with pale stiff bristles as in the other representatives of the Aeolocoris group. Head short and broad, in frontal view broader than high, apical margin of head nearly vertical; frons flat, vertex with faint longitudinal median furrow, basal margin smooth; eyes large; antennal tubercles prominent with elevated median margins. Antennae long and incrassate, 1st joint with erect stiff white bristles, hair covering of antennae otherwise smooth. Rostrum extending to hind coxae. Pronotum with nearly straight lateral margins, hind margin insinuated, uneven or even finely tuberculate, humeral angles prominent, somewhat upcurved; collar broad, disk strongly declining apicad, calli faintly elevated. Apical part of scutellum roundedly elevated. Elytra longer than abdomen. Scent gland orifices large, strongly elevated. Legs: femora and tibiae with erect dark hairs; hind tibiae (studied in spinulatus only) strongly flattened, clavate, provided with numerous spine-like dark bristles.

Male and female genitalia of the usual type of the group. Vesica with apical processes.

Distribution: Guinean.

Although the holotype of *Syngonus* is fragmentary, the similarity in the color pattern and the general structure indicates a synonymy between *Syngonus* and *Marmorodapus*. Key to the species of Syngonus

S. niger (Poppius)

Figs. 17a-l, 21d

Bibundia nigra Poppius 1914:33.

Syngonus niger Bergroth 1926:64, Carvalho 1952:71, 1958:176.

Type studied: Cameroon, Bibundi, male holotype, 16-30.IX.1904, G. Tessmann, in Mus. Helsinki.

Length 5.5 mm. Opaque. Black. Elytra blackish brown, mesocorium apically pale; faint curved spot on clavus just caudad of tip of scutellum and small V-shaped spot on corium whitish ochraceous; membrane and veins brown. Scent gland orifices and hind coxae whitish. Legs black.

Body elongate. Hair covering on upper surface brownish consisting of long erect and short adpressed hairs. Head missing in the specimen studied. According to Poppius the vertex is about as broad as the eye. Lateral margins of pronotum nearly straight, moderately diverging caudad, basal margin insinuated, uneven owing to minute dark elevations; collar broad, calli faintly elevated. Apical part of scutellum roundedly elevated. Legs (only fore and middle legs present): tibiae gracile; femora and tibiae with erect dark hairs.

Male genitalia in Fig. 17d–l. Distribution: Guinean.

S. spinulatus (Schmitz), comb. n.

Figs. 17m-g, 18a-l, 21 e

Marmorodapus spinulatus Schmitz 1970:517-520.

Type studied: Republic of the Congo, Odzala, male holotype, X.1963, Descarpentries & Villiers, in Mus. Paris.

Material studied: Ivory Coast: without a locality label, 1 ex in coll. Linnavuori. Ghana: Tafo, numerous exx, 14– 22.I.1966, 15.VI–11.X.1967, D. Leston, in the American Museum of Natural History.



Fig. 17. Syngonus niger (Poppius): a) pronotum, dorsal view; b) basal margin of pronotum, caudal view; c) chaetotaxy on clavus; d) pygofer, ventral view; e) right style; f–g) left style (g slide mount); h–i) theca in lateral and dorsal view; j) tridentate lobe of theca; k–l) vesica. — *S. spinulatus* (Schmitz): m) head in apical view; n) head and pronotum, dorsal view; o) basal margin of pronotum, caudal view; p) chaetotaxy on clavus; g) hind tibia and tarsus.

Length 5.75–7.0 mm. Opaque. Black. Head and pronotum with reddish brown suffusions. Eyes brownish. Antennae black. Elytra with two \pm distinct curvate pale spots as indicated in Fig. 21e, extreme tip of clavus and apical margin of exocorium also \pm pale; membrane dark brown. Under surface black. Scent gland orifices and middle and hind coxae pale. Legs black.

Body large, robust, parallel-sided. Upper surface with short adpressed pale pubescence and erect spine-like black bristles, head and 1st antennal joints also with erect stiff pale bristles. Head about $0.63 \times$ as broad as basal width of pronotum, in apical view about $1.31 \times$ as broad as high, in lateral view $1.33 \times$ as high as broad; vertex in \bigcirc $1.25-1.27 \times$, in \bigcirc $1.53 \times$ as broad as eye. Antennal tubercles prominent. Antennae

incrassate, proportions between joints 27:78:48:30 (σ), 1st joint 0.86–0.90 × as long as diatone, 2nd 2.50–2.86 × as long as diatone, 1.56–1.80 × as long as basal width of pronotum. Rostrum long extending beyond hind coxae. Pronotum twice as broad as long in middle, hind margin strongly insinuated, smooth, humeral angles triangularly wing-shaped, somewhat upcurved. Apical hump of scutellum roundedly conical. Legs incrassate. Hind tibia strongly flattened, clavate, about 11.8 × as long as broad; proportions between hind tarsomeres 14:15:20.

Male genitalia in Fig. 18b-k. 2nd valvifers (Q) (Fig. 18l) with a pair of long slender protuberances.

Distribution: Guinean.



Fig. 18. Syngonus spinulatus (Schmitz): a) head and thorax in lateral view; b–c) pygofer (of two specimens) in ventral view; d) pygofer, lateral view; e) right style; f–g) left style in different views; h–i) theca in lateral and dorsal view; j) vesica; k) apex of vesica; l) apex of female abdomen in lateral view. — Gampsodema spissata Odhiambo (holotype): m) hind tibia and tarsus; n) apex of vesica, dorsal view. — G. gracilicornis sp. n.: o) hind tibia and tarsus.

Genus Chaetocapsus Poppius

- Chaetocapsus Poppius 1914:38–39. Type species: C. binotatus Poppius.
- Chaetocapsus Carvalho 1955:62, 1950:163, Linnavuori 1975:68.

Color shiny, dark coffee-brown. Elytra with a whitish transverse band extending from mesocorium on to the adjacent part of clavus.

Body broadest at basal third of corium. Hair covering on upper surface dense, consisting of long erect dark bristles arising from small tubercles. Head relatively small, in lateral view higher than long, in apical view broader than high; anterior margin, seen in profile, nearly vertical, frons strongly sloping ventrad, tylus prominent, basally separated from frons by shalow notch; vertex weakly convex, base ecarinate; eyes with long erect bristles. Antennae arising below middle of eyes, long and incrassate, joints 1 and 2 with numerous erect long bristles and fine adpressed pubescence, hair covering of other joints smooth, 3rd also with longer semierect hairs. Rostrum extending to base of venter. Pronotum narrowish, lateral and hind margins shallowly insinuated, humeral angles prominent; collar broad, well-delimited, calli faintly elevated, disk uneven owing to small setigerous tubercles. Apical part of scutellum roundedly elevated. Elytra longer than abdomen, costal margins parallel, in apical third smoothly expanding laterad. Scent gland orifices small. Abdomen basally moderately constricted. Legs long and incrassate, femurs and tibiae covered with long erect dark bristles, hind tibiae narrowly clavate, 2nd and 3rd hind tarsomeres of subequal length.

Female genitalia: 2nd valvifers edentate. Distribution: Guinean.

C. binotatus Poppius

Figs. 7a, 22c, 23a-b

Chaetocapsus binotatus Poppius 1914:39.

Type studied: Togo, Kete-Kratji, male holotype, Zech, in Mus. Helsinki, was borrowed by D. Leston and has not been found after his death.

Material studied: Nigeria: NW St., Birni Yauri, 1q, 22.VIII.1973; NE St., Yola, 1q, 25.VIII.1973, Linnavuori.

Length 5.0–5.5 mm. Shiny. Dark coffeebrown. Eyes grayish. Antennae black, 4th joint with broad pale ring. Basal two-thirds of elytra opaque, with large transverse elongately ovate whitish spot; cuneus blackish, membrane dark brown. Legs, including coxae, black. Scent gland orifices whitish. Abdomen reddish brown. Legs black.

Head (Q) about 0.6 × as broad as pronotum; ocular index 1.90–2.0. Proportions between antennal joints 44:126:84:62, 1st joint about 0.75 × as long as diatone, 2nd 2.14–2.17 × as long as diatone, 1.26–1.31 × as long as basal width of pronotum. Pronotum about 1.75 × as broad as long in middle.

Distribution: Guinean.

Genus Gampsodema Odhiambo

Gampsodema Odhiambo 1959:648-649. Type species: G. spissata Odhiambo.

Color black. Elytra with narrow transverse white fascia arising from middle of costal margin and extending to near commissural margin of clavus. Antennae and legs black.

Body robust. Upper surface with pale erect bristles and adpressed pubescence. Head short, in apical view distinctly broader than high, nearly vertical; frons flattish, strongly sloping ventrad, tylus indistinctly delimited from frons, vertex flattish, with faint median sulcus, base ecarinate; eyes large, touching anterior margin of pronotum, glabrous. Antennae inserted a little below middle of eyes, incrassate, with very short adpressed pubescence, 2nd joint a little widening apicad, 3rd and 4th joints as thick as 2nd. Rostrum extending to apex of middle coxae. Pronotum broad, lateral margins nearly straight, disk gradually sloping apicad and laterad; collar narrow, indistinct, finely delimited only laterally, calli obsolete. Basal part of scutellum strongly declining caudad, apical part bluntly elevated. Elytra longer than abdomen, costal margins only faintly insinuated, cuneus and membrane strongly declining caudad. Flying wings without hamus. Ostiolar peritremes small. Abdomen broad, not constricted basally. Legs long and incrassate. Hind tibiae distinctly flattened, widest near middle, clavate, with long bristles.

Male genitalia: Pygofer small, conical, ventral surface with short subapical tooth. Styles of the usual shape. Theca broad, ventral surface with a dentate process. Vesica with two dentate subapical processes.

Distribution: The Sudanese subregion.

Key to the species of Gampsodema

G. gracilipes sp. n. Figs. 7c, 8o, 28a–1

Material studied: Upper Volta: Bodo Dioulasso, male holotype, 1–2.XI.1973, Linnavuori, in coll. Linnavuori.

Length 5 mm. Opaquely shiny. Black. Eyes grayish brown. Antennae black, under surface of 1st segment yellowish brown. Basal two-thirds of elytra opaque, costal margins pale, white transverse fascia extending from costal margin near to commissural margin of clavus; apical third of elytra (apex of clavus, apex of corium and entire cuneus) very shiny; membrane dark brown. Under surface very shiny.

Head $0.7 \times as$ broad as basal width of pronotum, in lateral view a little longer than high, in apical view $1.25 \times as$ broad as high; eyes



Fig. 19. Aeolocoris turgidus Odhiambo: a) theca; b) left style; c) right style; d) apex of vesica. — Gampsodema spissata Odhiambo: e) theca; f) right style; g) left style; h) apex of vesica. — Diocoris caliginosus Odhiambo: i) theca; j) right style; k) left style; l) apex of vesica. — After Odhiambo 1959.

very large, ocular index 0.71. Antennae long; proportions between joints 30:130:79:57, 2nd segment slightly widening apicad, $1.88 \times as$ long as diatone, $1.3 \times as$ long as basal width of pronotum. Rostrum extending to apex of middle coxae. Pronotum $1.43 \times as$ broad as long in middle, disk finely shagreened. Hind tibiae narrowly clavate. Hind tarsus $0.14 \times as$ long as the corresponding tibia, proportions between joints 12:14:15.

Male genitalia in Fig. 28d-l.

G. spissata Odhiambo

Figs. 18m-n, 19e-h

Gampsodema spissata Odhiambo 1959:649.

Type studied: Uganda, Kawanda, male holotype, 10–11.III.1958, Odhiambo, in the British Museum.

Like the preceding species but smaller, length 3.5 mm. Head and pronotum more strongly shagreened. Head $0.6 \times$ as broad as basal width

of pronotum; eyes much smaller, ocular index 1.75. Antennae shorter, 1st joint totally black, 2nd joint thicker and much shorter. $1.58 \times as$ long as diatone, $0.93 \times as$ long as basal width of pronotum. White transverse fascia on elytra narrower. Hind tibia much shorter, strongly flattened and clavate.

Male genitalia (Figs. 18n, 19e-h) resembling those of the preceding species.

Distribution: Uganda.

Genus Diocoris Kirkaldy

- Diocoris Kirkaldy 1902b:246. Type species: D. agelastus Kirkaldy.
- Diocoris Poppius 1914:35, Carvalho 1955:64, Linnavuori 1975:67.

Color black to blackish brown. Elytra white transverse band extending from middle of costal margin on to clavus. 1st antennal joint yellowish, others black. Legs black, apices of fore and mid-



Fig. 20. *Gampsodema gracilicornis* sp. n.: a) head, pronotum and scutellum, dorsal view; b) head in anterior view; c) head and thorax, lateral view; d) pygofer, ventral view; e–g) left style in different views; h) right style; i–j) theca in lateral and dorsal view; k) vesica; l) apex of vesica, dorsal view.

dle tibiae and the corresponding tarsi yellowbrown.

Body long and gracile, distinctly constricted at middle of corium. Macropterous, females sometimes brachypterous. Upper surface with long erect, apically slightly enlarged yellowish bristles and with short adpressed pubescence. Head elongate, in apical view higher than broad, lower part acutely triangular in outline, in lateral view longer than high, frons gradually sloping ventrad merging without notch into tylus; frons and vertex densely shagreened, base of vertex straight, distinctly carinate; eyes pilose, in dorsal view clearly touching anterior margin of pronotum, in lateral view not extending to ventral margin of head. Antennae long and gracile, 1st joint with a few erect bristles, other joints with adpressed pubescence, 2nd joint gracile, cylindrical, 3rd joint slightly longer or shorter than 2nd. Rostrum extending to hind coxae. Pronotum in O moderately, in Q weakly widening caudad, entire disk very densely and strongly shagreened, sometimes wrinkled; collar broad, posteriorly delimited by faint (\circlearrowleft) or indistinct (\bigcirc) furrow, disk weakly convex, in profile not raising above vertex. Basal part of scutellum strongly declining apicad, apical part forming a blunt hump. Elytra narrow, costal margins strongly insinuated, membranes in brachypterous females rudimentary leaving apical third of abdomen visible. Flying wings (Fig. 23i) with hamus. Abdomen ant-like, strongly constricted basally. Legs long and gracile, hind tibiae in \circlearrowleft weakly, in $\wp \pm$ distinctly clavate, with numerous longish bristles. Claws as in *Systellonotidea*.

Male genitalia: Pygofer conical, ventral surface with subapical dentate process. Theca digitate. Vesica long, \pm band-like, ending in a falcate parcess, a falcate subapical process often also present; gonopore far from apex. 2nd valvifers (Q) with or without spine-like subapical processes.

Biology: At lamps in rain and savanna forests.

Distribution: Guinean.



Fig. 21. Elytron of *Bibundiella nigrina* (Linnavuori) a) male, b) female, *B. quadrimaculata* Poppius c) female holotype, *Syngonus niger* (Poppius) d), *S. spinulatus* (Schmitz) e), *Diocoris agelastus* Kirkaldy f), and *D. pilosus* Linnavuori g) male.

Key to the species of Diocoris

1. W	Vhite	band	on e	elytra	narrow	(Fig.	21g)		pilosus
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- White band on elytra broad (Fig. 21j) 2

- age arising above gonopore erifyle — Vesica (Fig. 19d) without subapical appendage caliginosus

D. agelastus Kirkaldy

Figs. 21f, 22b, 23c-r, 25a-c

Diocoris agelastus Kirkaldy 1902b:246, Poppius 1914:36.

Type studied: Guinea, Addah, female holotype, Reitter, in Mus. Helsinki. The specimen is provided with an identification label *Diocoris agelastus* Kirk. in Kirkaldy's handwriting. Since only a female is mentioned in the original description, the specimen is undoubtedly the holotype.

Material studied: Ivory Coast: Lamto, several exx (including two brachypterous females), 14.VII–10.XI.1965, D. Gillon, 8–9.X.1973, Linnavuori; Madinani - Boundiali, 1 ex, 24.X.1973, Linnavuori. Nigeria: NE St., Serti, 1 ex, 20.VIII.1973; E C St., Nsukka, 2 exx, 30.IV.1973, Linnavuori. Length 4.75–6.0 mm. Opaque. Black to blackish brown. Eyes pale or dark grayish. 1st antennal joint yellow-brown, others black. White transverse band on elytra broad, transverse, costal margins pale, apical part of corium, tip of clavus and cuneus shiny; membrane brown. Under surface blackish. Legs black, apices of fore and middle tibiae and the corresponding tarsi yellow-brown.

Upper surface with long and sparse erect bristles (easily worn out). Hairs on eyes short, inconspicuous. Head elongate, in profile about 1.58 (\bigcirc) or 1.32 (\bigcirc) × as long as high; ocular index 1.70-2.24 (O), 2.72-2.92 (Q). Antennae long and gracile, proportions between joints 15:45:46:24 (\mathcal{O}) , 14:40:47:24 (\mathcal{O}), 1st joint about 0.75 (\mathcal{O}) or $0.60-0.64 (Q) \times as long as diatone, 2nd 2.0-2.56$ (\circlearrowleft) or 1.66–1.82 (\bigcirc) × as long as diatone, 1.43– 1.77 (d) or 1.24–1.33 (Q) \times as long as basal width of pronotum, 3rd joint usually longer than 2nd. Pronotum elongate, in \bigcirc about 1.2, in \bigcirc $1.03 \times$ as broad as long in middle. Hind tibiae in both sexes weakly clavate, in Q slightly broader than in \bigcirc . Male genitalia (Figs. 23l-r, 25a-c): Apex of left style twisted, sensory lobe with blunt process. Theca as in D. pilosus. Vesica long and slender, provided with a long falcate subapical appendage which arises below the gonopore. 2nd valvifers edentate.



Fig. 22. Elytron of *Diocoris pilosus* Linnavuori a) female, *D. agelastus* Kirkaldy b), *Chaetocapsus binotatus* Poppius c) holotype, *Formicopsella magniceps* Linnavuori d), *F. regneri* Poppius e), *Systellonotidea triangulifer* Poppius f), *Skukuza zeugma* (Odhiambo) g), *S. somalica* Linnavuori h), *Aspidacanthus globicollis* Linnavuori i), *Glossopeltis combreticolus* Linnavuori j), *G. ornatulus* Linnavuori k), *Ruwaba elegans* Linnavuori I), *Alloeomimus hilaris* Linnavuori m), *Glaphyrocoris v-albus* Linnavuori q), and *G. unifasciatus* Reuter (holotype of *torridus*) o). — After Linnavuori 1975.

Biology: At lamps and on ground among vegetation in rain and savanna forests.

Distribution: Guinean.

D. erifyle sp. n. Fig. 25d–g

Material studied: Central African Republic: Bossangoa - Bossembele, male holotype, 2.VI.1973, Linnavuori, in coll. Linnavuori.

Length 5.0 mm. Like *D. agelastus* but 2nd antennal segment much shorter.

Measurements: Ocular index 2.04. Proportions between antennal joints 14:40:41:24, 1st joint $0.65 \times as$ long as diatone, 2nd $1.86 \times as$ long as diatone, $1.21 \times as$ long as basal width of pronotum. Pronotum $1.22 \times as$ broad as long.

Male genitalia (Fig. 25d–g): Hypophysis of left style straight, sensory lobe bluntly triangular, without process. Vesica broadish, band-like; falcate subapical process short, arising above gonopore.

Etymology: Greek history, Erifyle, daughter of Adrastos, king of Argos.

D. caliginosus Odhiambo

Fig. 19i-l

Diocoris caliginosus Odhiambo 1959:641-644.

Types studied: Uganda, Kawanda, \bigcirc allotype, 4.III.1958 and 1° paratype (without genital segment), 21.VIII. 1958, Odhiambo in the British Museum.


Fig. 23. *Chaetocapsus binotatus* Poppius: a) head and thorax in lateral view; b) head in apical view. — *Diocoris agelastus* Kirkaldy: c–d) male and female head and pronotum, dorsal view; e) male head and thorax, lateral view; f–g) 2nd antennal segment in male and female; h) chaetotaxy of pronotum; i) apex of flying wing; j) hind leg; k) chaetotaxy of hind tibia; l) pygofer, lateral view; m) right style; n–p) left style in different views (ex from Lamto); q) sensory lobe of left style (ex from Man); r) theca. — *D. pilosus* Linnavuori: s) male head and pronotum, dorsal view; t) pronotum of brachypterous female; u) chaetotaxy of pronotum.

Length \bigcirc 4.85–5.6 mm, \bigcirc 5.0–5.4 mm. Like *D. agelastus* but eyes larger, ocular index 1.26– 1.64 \bigcirc , 2.30–2.78 \bigcirc .

Proportions between antennal joints 13:45:45:24 (\circlearrowleft), 15:41:40:20 (\bigcirc), 2nd joint 2.0 (\circlearrowright) or 1.78 (\bigcirc) × as long as diatone, 1.41 (\circlearrowright) or 1.21 (\bigcirc) × as long as basal width of pronotum.

Male genitalia (Fig. 19i–l) as in *D. agelastus* but hypophysis of left style digitate and vesica without subapical process. 2nd valvifers (Q) with small protuberances.

Distribution: Uganda.

D. pilosus Linnavuori

Figs. 22a, 23s-u, 24a-c, 25h-k

Diocoris pilosus Linnavuori 1975:67-68.

Type studied: The Sudan, Equatoria, Tambura - Wau road, female holotype, 25–26.IV.1963, Linnavuori, in coll. Linnavuori.

Material studied: Ivory Coast: Adiopodoumé, $1 \circ f$. macr., IV-V.1964, Cobben; Foro-Foro, $3 \circ \circ f$. brach., 25– 28.IX.1973; Man, $1 \circ$, 14–21.X.1973, Linnavuori. Nigeria: N C St., Kagoro forest, $2 \circ \circ f$ brach., 29–30.VII.1973, Malumfashi, $1 \circ f$. brach., 26–30.VII.1973; B Pl St., Gangare Kibo, $2 \circ \circ ?$, 28.VIII.1973; SE St., Opobo, $1 \circ f$ macr., 3.VII.1973, Linnavuori.

Length 4.75–5.25 mm. Like the preceding species but white band on elytra narrow, straight (\mathcal{O}) or oblique (\mathcal{Q}) .

Erect hair covering on upper surface shorter and dense. Eyes distinctly pilose. Head shorter, in profile only a little longer than high; ocular index 1.13-1.66 (\circlearrowleft), 2.32-2.55 (\bigcirc), 3.0 in brachypterous \bigcirc . Proportions between antennal joints 17:38:36:22 (\circlearrowright), 19:52:48:25 (\bigcirc), 1st joint 0.72-0.77 (\circlearrowright) or 0.70-0.86 (\bigcirc) × as long as diatone, 2nd 1.43-1.77 (\circlearrowright) or 1.9-2.0 (\bigcirc) × as long as diatone, 1.08-1.16 (\circlearrowright) or 1.26-1.73 (\bigcirc)



Fig. 24. *Diocoris pilosus* Linnavuori: a–b) female head and pronotum in dorsal and lateral view; c) hind tibia. — *Formicopsella magniceps* Linnavuori: d–e) female head and pronotum in dorsal and lateral view. — *Skukuza somalica* Linnavuori: f) head and pronotum; k) right style; l–m) left style; n) pygofer, dorsal view; o) theca; p) vesica. — *K. zeugma* (Odhiambo): g) head and pronotum, lateral view. — *Systellonotidea triangulifer* Poppius: h–i) male head and pronotum in dorsal and lateral view; j) female head and pronotum in lateral view. — After Linnavuori 1975.

× as long as basal width of pronotum. Pronotum broader, 1.30–1.35 (\circ) or 1.15–1.20 (\circ) × as broad as long in middle, disk strongly shagreened, finely wrinkled. Hind tibiae, in \circ especially, flatter, more broadly clavate.

Male genitalia (Fig. 25h-k): Hypophysis of left style slender, sensory lobe with falcate apical process. Vesica without subapical process. 2nd valvifers with spine-like subapical protuberances as in *Systellonotidea triangulifer*.

Distribution: Guinean.

Biology as in D. agelastus.

Genus Systellonotidea Poppius

Systellonotidea Poppius 1914:49. Type species: S. triangulifer Poppius.

Systellonotidea Crvalho 1955:64, Linnavuori 1975:67 and 69.

Closely related to *Diocoris* but readily distinguished by the shape of the head which is narrowed, neck-like behind the eyes. The eyes only narrowly touch the anterior margin of the pronotum in males and are distinctly separated from it in females. The basal margin of the vertex is not raised. The 2nd antennal joint is somewhat thicker and in φ widening apicad. The pronotum is more strongly widening caudad, the collar is well-defined and the disk more convex. Flying wings (Fig. 25r) without hamus. Hind tibiae longer and more gracile.

Male genitalia as in *Diocoris* but theca provided with serrate lateral process and vesica short, apex often with serrate lamellae. Female genitalia as in *Diocoris*.

Biology as in Diocoris.

Distribution: Widespread within the savanna forest and rain forest regions in Africa.



Fig. 25. *Diocoris agelastus* Kirkaldy: a) vesica, lateral view; b–c) apex of vesica in broad aspect (exx from Lamto and Nsukka). — *D. erifyle* sp. n.: d–e) left style; f) apex of sensory lobe of left style; g) vesica. — *D. pilosus* Linnavuori: h) right style; i) left style; j) theca; k) vesica. — *Systellonotidea triangulifer* Poppius: I) female head and pronotum in dorsal view; m–n) male head in lateral view (exx from Mbiama and Ebubu); o–q) male head in apical view (exx from Yei - Maridi, Man and Ebubu); r) apex of elytra.

Key to the species of Systellonotidea

- 1. Vesica (Fig. 260-r) with roundish serrate subapical process, apex of vesica expanded, bilobate triangulifer
- 2. Vesica (Fig. 27r) with long falcate subapical appendage, apex of vesica long, straight and serrate .. *numitor*
- Vesica (Fig. 27 n) without subapical process, apex falcate, edentate malumfashi

S. triangulifer Poppius

Figs. 22f, 24h-j, 25l-r, 26a-u, 27a-j, 28a-d

Systellonotidea triangulifer Poppius 1914:49.

Diocoris collaris China 1944:14, syn. n.

Diocoris triquetrus Odhiambo 1959:644-647 (Linnavuori 1975:69).

Types studied: East Africa, Fl. Tana, male holotype of triangulifer, A. Gallén-Kallela in Mus. Helsinki. Ghana,

Nkawkaw, 1 \circ paratype of *collaris*, 3.VI.1943, in the British Museum. Uganda, Kawanda, φ allotype, 17–18.III.1958, 1 \circ paratype of *triquetrus*, 5.VIII.1958, Odhiambo, in the British Museum.

Material studied: numerous exx from Sierra Leone: Njala, 4.X.1932, E. Hargreaves. Ivory Coast: Adiopodoumé, IV-V.1964, R. Cobben; Foro-Foro, 25–28.IX.1973; Gouméré, 19.IX.1973; Lamto, 8–9.X.1973; Man, 14– 21.X.1973, Linnavuori. Ghana: Koforidua, IV.1921, J. F. Corson. Nigeria: N C St., Kagoro forest, 7.VIII.1973; W St., Ife, 7–9.VII.1973; R St., Ebubu near Bori, 2.VII.1973; W St., Ife, 7–9.VII.1973; M W St., Sapoba forest, 1– 2.IX.1973; E C St., Norcap near Abakaliki, 29.VI.1973, Nsukka, 30.VI.1973; SE St., near Opobo, 5.VII.1973, Linnavuori. Central African Republic: La Maboke, 6– 9.VI.1973, Linnavuori. The Sudan: localities listed in Linnavuori 1975:69.

Length 5.0-4.4 mm. Opaque. Black or dark brown. 1st antennal joint yellow-brown, 2nd



Fig. 26. *Systellonotidea triangulifer* Poppius: a) 1st and 2nd antennal joints in male; b) 2nd antennal joint in female; c) hind leg of male; d) hind femur of female; e) claw; f) pygofer in lateral view; g) sensory lobe of left style; h–n) variability of theca (exx from Kagoro forest, Nsukka, Ebubu (dorsal and lateral view), LaMaboke, Wau and Foro-Foro); o–p) vesica of a specimen from Kagoro forest in two views; q–u) variability of apex of vesica (exx from Njala, Foro-Foro, Koforidua, and two exx from Nsukka).

black, others brown, basal third of 3rd whitish. Elytra with large transverse triangular white spot extending from middle of costal margin on to clavus. Legs black to dark brown.

General structure seen in Figs. 24, 25, 26. Head sharply triangular, flattish; size of eyes variable, ocular index 0.90-2.24 (\circlearrowleft), 1.71-2.2 (\circlearrowright). Proportions between antennal joints 17:46: 51:25, 2nd joint relatively incrassate, \pm widening apicad, as long as or shorter than 3rd.

Male genitalia in Figs. 26f–u, 27a–e, 28a–d. Pygofer with long apical spine. Theca with slender dentate subapical process. Vesica with roundish dentate subapical lobe, apex of vesica expanded with a claw-like process and a membranous dentate lobe. Protuberances on 2nd valvifers (Q) (Fig. 27f–j) usually spine-like, sometimes obtuse. Biology: At lamps in rain forests and savanna forests. Distribution: Apparently widely distributed within the forest regions in Africa.

Variability: A considerable variability (Fig. 25m–q) was noted in the length of the head, size of the eyes, breadth of the subapical process of the vesica, shape of the apical expansion of the vesica, and the size of the protuberances of the 2nd valvifers. But since the variability does not seem to follow any geographical pattern and, moreover, the extreme forms are connected with intermediates, no splitting into subspecies is proposed.

S. numitor sp. n. Fig. 270–r

Material studied: Ivory Coast: Foro-Foro, male holotype, 3° paratypes, 25–28.IX.1973, Linnavuori, in coll. Linnavuori.



Fig. 27. Systellonotidea triangulifer Poppius: a–e) apex of vesica (exx from Ebubu (in three different views), La Maboke and Wau); f–j) female genital segment in lateral view (exx from Foro-Foro, Ife, Adiopodoumé, Wau, Yei-Maridi). — S. malumfashi sp. n.: k–l) left style; m) theca; n) vesica. — S. numitor sp. n.: o) head in apical view; p) left style; g) theca; r) vesica.

Length 5.0–5.25 mm. Like *S. triangulifer* but readily distinguished by the male genitalia: sensory lobe of left style squarish, blunt; lateral process of theca ending in a bifid apex, vesica with long falcate subapical appendage, apex long, straight and serrate.

Measurements: Ocular index 1.61–1.72. Proportions between antennal joints 11:37:35:20.

Male genitalia in Fig. 27p-r.

Biology: At lamps in Guinean savanna.

Etymology: Roman mythology, Numitor, a mythic king of Alba Longa, father of Rhea Silvia, mother of Romulus and Remus.

S. malumfashi sp. n.

Fig. 27k-n

Material studied: Nigeria: N C St., Malumfashi, male holotype, 26–30.VII.1973, Linnavuori, in coll. Linnavuori. Length 5.5 mm. Like *S. triangulifer* but fore tibiae and apical two-thirds of middle tibiae pale ochraceous and with different genitalia: sensory lobe of left style with claw-like apical process. Lateral process of theca with oblique minutely dentate apex. Vesica without subapical process, apical part falcate, straight and edentate.

Measurements: Ocular index 1.71. Proportions between antennal joints: 14:40:?.

Male genitalia in Fig. 27k–n. Biology: At lamp in mesic savanna.

Genus Leaina Linnavuori

Leaina Linnavuori 1974b:20–21. Type species: L. belua Linnavuori.

Color black. Elytra with transverse white band at middle.



Fig. 28. *Systellonotidea triangulifer* Poppius: a) pygofer, dorsal view; b) right style; c–d) left style. — *Leaina belua* Linnavuori: e) male head and pronotum, dorsal view; f) pygofer, lateral view; g–i) theca in different views; j) subapical process of vesica. — *Myombea bathycephala* China & Carvalho: k) head and pronotum of macropterous form, dorsal view; l) head, lateral view; m) scutellum of macropterous specimen from Samaru, lateral view; n) pronotum of brachypterous specimen from Zaria, lateral view; o) right style; p) left style; q–t) theca in different views (t in slide mount).

Large ant-like species. \bigcirc macropterous, \bigcirc brachypterous. Hair covering on upper surface long, black and erect; smooth pale hairs also present. Head elongate, in apical view considerably longer than broad, remarkably ant-like; eyes long and narrow, their basal corner far from anterior margin of pronotum; upper surface of head faintly convex, shallowly declining apicad, base of vertex ecarinate; sides in front of eyes lamellate, owing to a sharp horizontal carina starting from apex of eyes; apex of genae sharply triangular, extending far beyond tip of tylus; under surface of head with high longitudinal median ridge, otherwise strongly concave below eyes and the lateral ridges in apical part of head. Antennae arising near lower cornes of eyes, 1st antennal joint cylindrical, 2nd clavate, strongly flattened, lamellate, other joints gracile; hair covering of antennae short and smooth. Rostrum short, extending to metasternum. Pronotum in ♂ strongly broadening caudad, moderately convex, collar broadish, lateral margins shallowly, basal margin strongly insinuated, in o basal part of pronotum nearly parallel-sided. Apical part of scutellum elevated but not humped. Elytra in ♂ extending well beyond tip of abdomen, costal margins shallowly insinuated, in Q reduced, covering only base of abdomen, acuminate and upcurved apically. Abdomen ant-like, strongly constricted basally. Legs long and gracile, femora and tibiae flattened, hind tibiae narrowly clavate, tibial spines longish. 2nd joint of hind tarsi longer than 3rd. Claws (Fig. 29g) with well-developed pseudarolia.



Fig. 29. Leaina belua Linnavuori: a-b) head in lateral and apical view; c-d) male and female pronotum; e-f) male and female elytron; g) claw; h) pygofer, dorsal view; i) right style; j-k) left style; l-m) vesica. — Myombea bathycephala China & Carvalho: n) lateral view. — After Linnavuori 1974 and China & Carvalho 1951.

Male genitalia: Under surface of pygofer with median carina ending in a subapical tubercle. Styles of the usual type. Theca with two gracile processes. Vesica ending in a falcate apical part, a small dentate subapical process present. 2nd valvifers (Q) edentate. Biology: Myrmecophilous. Found on ground and on grasses in association with *Camponotus acuapimensis* Mayr and *C. compressiscapus* André. The latter species especially, resembles *Leaina*.

Distribution: Guinean.

L. belua Linnavuori

Figs. 28e-j, 29a-m

Leaina belua Linnavuori 1974b:21.

Types studied: Ivory Coast, Lamto, male holotype, 14.VII.1965, D. Gillon, 3 paratypes, 1964–1965, D. Gillon and A. Pollet, in coll. Linnavuori. Material studied: Ivory Coast: 40 km E of Bouaké, 3 exx, 11.X.1973; Foro-Foro, 3 exx, 25–28.IX.1973; Lamto, 1 ex, 8–9.X.1973, Linnavuori. Togo: near Langabou, 1 ex, 12.IX.1973, Linnavuori.

Length 6.5–7.0 mm. Opaque. Black to blackish brown. Upper surface of head medioapically \pm yellow-brown. 1st antennal joint yellow-brown, others dark brown, base of 3rd pale. Elytra with a white transverse spot at middle, membrane dark brown. Legs dark brown, apex of fore femora, fore tibiae totally and apical two-thirds of other tibiae yellow-brown, legs in \bigcirc black, only tarsi basally pale.

Head in apical view about $1.33 \times as$ long as broad, in lateral view $1.8 \times as$ long as high, ocular index 2.8. Proportions between antennal joints 10:50:35:21, 2nd joint strongly flattened, in Q thicker than in \mathcal{O} . Pronotum and scutellum densely shagreened.

Male genitalia in Figs. 28f-j, 29n-m.

Distribution: Only known from the Ivory Coast and Togo.

Genus Myombea China & Carvalho

Myombea China & Carvalho 1951:1120–1123. Type species: M. bathycephala China & Carvalho. Myombea Schuh 1974:104.

Color: Opaque. Reddish. Elytra with triangular white fascia extending from middle of costal margin to commissural margin of clavus, and a whitish longitudinal area along basal half of claval suture; membrane white with broad dark brown median fascia.

Strongly ant-mimetic. Macropterous or brachypterous. Hair covering on head pale, erect, stiff; upper surface otherwise with inconspicuous adpressed pale pubescence, pronotum also with a few erect hairs. Head with distinct neck, in apical view longer than broad, lower part narrowly triangular in outline; tylus prominent, apical part with median keel; vertex smoothly declining apicad, base ecarinate; eyes small, removed from anterior margin of pronotum by a distance equalling the diameter of eye. Antennae arising near lower corners of eyes, hair covering inconspicuous, 2nd joint flattened, clavate. Rostrum extending to middle of mesosternum. Pronotum strongly constricted in middle, anterior part, including broadish collar, narrow, parallel-sided, weakly convex, propleural acetabula broadly visible; basal part strongly widened and declining apicad, basal margin insinuated; in brachypterous specimens basal part of pronotum much narrower. Scutellum large, basal part declining caudad, apex forming a blunt or sharp spine. Elytra in macropterous form much longer than abdomen, elongate, costal margins distinctly insinuated, in brachypterous from short, narrowly ovate, sharptipped with apex recurved dorsad, membrane rudiment visible as a white flap which is recurved ventrad. Abdomen ant-like, strongly constricted basally. Legs very long and gracile, hind tibiae narrowly clavate, tibial spines short, dark.

Male genitalia: Pygofer broadly conical, ventral surface with obtuse median keel ending in a little subapical tubercle. Styles of the common type. Theca straight, tubular. Apex of vesica with a twisted sclerified falcate process and a membranous strongly spiny appendage.

Biology: Myrmecophilous. Found on grasses and on ground in association with *Camponotus vestitus* (Smith), which erroneously resembles *Myombea*.

Distribution: Holosudanese.

M. bathycephala China & Carvalho

Figs. 28k-t, 29a-c, 31a-c

Myombea bathycephala China & Carvalho 1951:1120– 1123.

Types studied: Tanzania, Myombe River, male holotype and 2 paratypes, 13.III.1914, J. Hansi, in the British Museum.

Material studied: Ivory Coast: Foro-Foro, 1 ex, 25– 28.IX.1973; near Touba, 2 exx, 23.X.1973, Linnavuori; Lamto, 3 exx, 11.V–13.X.1965, D. Gillon. Togo: near Langabou, 1 ex, 12.IX.1973, Linnavuori. Dahomey: near Tschaourou, 2 exx, 6.IX.1973, Linnavuori. Nigeria: N C St.; Samaru, 1 ex, 26.IX.1966, J. Deeming; Zaria, 1 ex, 2– 3.VIII.1973, Linnavuori.

Length 5.5–6.5 mm. Opaque. Reddish. Eyes brownish gray. 1st and 2nd antennal joints black, extreme base of 1st joint whitish, joints 3 and 4 yellow-brown. Pronotum with faint whitish median stripe. Pattern of elytra in Fig. 31a–c. Enlarged apical part of abdomen dark brown. Legs dark brown, apices of tibiae pale.

Head in apical view about $1.32 \times as \log as$ broad; eyes small, ocular index 2.85–3.73. Proportions between antennal joints 16:55:49:33, 1st joint 0.64–0.75 x, 2nd 2.2–2.26 × as long as diatone.

Male genitalia in Figs. 280-t, 30a-c.

Genus Alloeomimus Reuter

Alloeomimus Reuter 1910:81. Type species: A. unifasciatus Reuter.

Alloeomimus Carvalho 1955:161, 1958:161.

Color shiny black. Antennae black, 1st joint pale. Elytra with white triangular spot extending from middle of costal margin on to clavus. Legs black.

Body gracile, ant-like. Hair covering on upper surface (easily worn off) long, erect, brownish. Head with distinct neck, in apical view about as broad as high, lower part bluntly triangular in outline; frons roundedly sloping apicad merging without notch into base of tylus; vertex roundedly sloping caudad, base ecarinate; eyes large, setose. Antennal pits slightly below middle of median margins of eyes. Antennae long and gracile, 1st joint with a few delicate bristles, other joints with adpressed pubescence. Rostrum extending



Fig. 30. *Myombea bathycephala* China & Carvalho: a) vesica in low magnification (ex from Dahomey); b–c) apex of vesica in high magnification (exx from Dahomey and South Africa). — *Alloeomimus hilaris* Linnavuori (exx from Kano): d) male head and pronotum, dorsal view; e) male head, apical view; f) male head, lateral view; g–i) left style in different views; j) theca. — *A. salmakis* sp. n.: k) male head and pronotum, dorsal view; l) male head, lateral view; l) male head, lateral view; g–i) het style in different views; p) theca.

beyond fore coxae. Pronotum with broad collar, anterior portion narrowish, calli not raised, posterior part strongly widening caudad, convex, strongly sloping apicad. Scutellum in African species with sharply conical apical hump (in Palaearctic species the hump is blunt). Elytra longer than abdomen, in brachypterous females shorter leaving the apical third of abdomen uncovered, costal margins shallowly insinuated. Abdomen strongly constricted basally. Legs long and gracile, tibial spines pale, delicate, longish, longest bristles longer than tibial diameter. 2nd and 3rd joints of hind tarsi of equal length.

Male genitalia: Styles of the common type. Theca with claw-like process. Vesica long ending in a blade-like apical part.

Biology: A. hilaris was found on bark of acacias in association with small black ants.

Distribution: The Holomediterranean subregion and the northern parts of the Sudanese subregion.

Key to the African species of Alloeomimus

1.	Eyes small, ocular index in ♂ 1.76–2.0, in Q 2.36–2.70
	hilaris
	Eyes large, ocular index in O 1.03-1.23 (Q unknown)
	salmakis

A. hilaris Linnavuori

Figs. 22m, 30d–j, 32a, 34a–i

Alloeomimus hilaris Linnavuori 1975:72.

Types studied: The Sudan, Khartoum, male holotype and several paratypes, 30.VI-3.VII.1961; Darfur, Abu Matariq, 1 paratype, 30.IV-2.V.1963; Sahafa - Abu Matariq, 1 paratype, 30.IV-2.V.1963; Kordofan, Kadugli, 1 paratype, 2–14.II.1963; Equatoria, Juba - Terakeka, 1 paratype, 2–6.III.1963, Torit, 1 paratype, 24–25.III.1963, Linnavuori. Eritrea, Embatcalla - Asmara, 2 paratypes, 31.V.1963, Linnavuori. Ethiopia: Lake Langanno, 1 paratype, 6–7.VI.1963, Linnavuori. Types in coll. Linnavuori.



Fig. 31. *Myombea bathycephala* China & Carvalho: a) elytron of macropterous form; b) elytron of brachypterous form; c) apex of elytron of brachypterous form in broad aspect. — *Aspidacanthus tithonos* sp. n.: d) elytron of macropterous male; e) brachypterous female in dorsal view; f–g) elytron of brachypterous female (exx from Shaganu and Niangbo). — *A. clavipes* sp. n.: h–i) elytron of macropterous male and brachypterous female. — *A. globicollis* Linnavuori: j–k) elytron of brachypterous female (exx from Wad Medani and Ed Daein).

Material studied: Nigeria: K St., Kano, 2 exx, 1.VIII.1973; NE St., Potiskum, 3 exx, 17.V.1973, Linnavuori. Chad: Bebedja, 1 ex, 28–31.V.1973; Farcha, 2 exx, 20–22.V.1973, Linnavuori.

Length 2.75–3.75 mm. Shiny. Black. 1st antennal joint yellow-brown with longitudinal dark stripe on lower surface; other joints dark brown to black. Elytra opaque, apical third of corium and cuneus shiny, dark brown to black, costal margin and triangular transverse fascia whitish; membrane brownish smoky, lateral and median margins whitish. Under surface black. Coxae and bases of femora whitish. Legs otherwise dark brown to black with apices of femora ventrally pale and tibiae in apical half \pm yellowish brown.

Slender, ant-shaped. Head in ϕ much longer than in σ , convex, very faintly microsculptured;

vertex convex, clearly extending above dorsal margin of eye in lateral view, lateral margins of neck long; ocular index 1.76-2.0 (\circlearrowleft), 2.36-2.70 (\bigcirc). Antennae gracile, proportions between joints 6:21:15.5:12, 2nd joint somewhat shorter than basal width of pronotum. Rostrum extending slightly beyond fore coxae. Pronotum strongly widening caudad (f. macr.) or narrower than head (f. brach.), collar shagreened, disk convex with very faint microsculpturing. Scutellum with sharp apical hump. Elytra longer than abdomen, females often brachypterous with the apical third of abdomen uncovered by elytra.

Male genitalia in Figs. 30g–j, 32a, 34b–i. Body of left style in ventral view narrowly triangular, hypophysis slender, sharp-tipped. Vesica incrassate, blade-like apical part long.

Distribution: North-Sudanese.



Fig. 32. Alloeomimus hilaris Linnavuori: a) vesica (ex from Kano). — A. salmakis sp. n.: b) vesica. — Formicopsella potiskum sp. n.: c) right style; d–e) left style; f) theca; g) vesica. — Aspidacanthus bambeyi Risbec: h–i) adult male in lateral and dorsal view; j–k) nymph in lateral and dorsal view. — A. globicollis Linnavuori: l) female head in anterior view; m) male hind tibia. — A. clavipes sp. n.: n) male hind tibia. — A. tithonos sp. n.: o) male head, lateral view; p) female head and thorax, lateral view. — h–k after Risbec 1950.

A. salmakis sp. n. Figs. 30k-p, 32b

Material studied: Upper Volta: Bobo Dioulasso, male holotype, 2 ° paratypes, 1–2.XI.1973, Linnavuori, in coll. Linnavuori.

♂ Length 3.75. Like the preceding species but readily distinguished by the shape of the head: eyes very large, ocular index 1.03–1.23; vertex weakly convex, in lateral view not rising above dorsal margin of eye; lateral margins of neck much shorter.

Proportions between antennal joints 19:70:50:?.

Male genitalia in Figs. 30g–j, 32b. Body of left style in ventral view much broader, hypophysis thicker. Vesica more slender, bladelike apical part shorter. Etymology: Salmakis, a nymph in Ovidius's Metamorphoses.

Genus Aspidacanthus Reuter

- Aspidacanthus Reuter 1901:169. Type species: A. myrmecoides Reuter.
- Aspidacanthus Carvalho 1955:62, 1958:162, Linnavuori 1975:69-70.

Color brown. Elytra with transverse triangular white spot extending from costal margin on to clavus.

Ant mimetic, strongly dimorphic species. Body with erect long pale hair covering. Head ant-shaped, large, in females much larger than in males, in apical view longer than broad, with a long nearly

semicircular neck which only narrowly touches the anterior margin of the pronotum; upper margin of head in lateral view arcuate, frons relatively weakly convex, gradually merging into the weakly prominent tylus apically; eyes relatively small, setose; vertex broad, roundedly declining caudad; sides of under surface roundedly concave. Antennal pits near lower corners of eyes; antennae long and gracile, 1st joint with a few pale bristles, other joints with fine adpressed pubescence. Rostrum short, extending to fore coxae or slightly beyond. Anterior portion of pronotum narrow, collar-like, basal part strongly widened, globose. Scutellum with long erect horn-like process. Elytra in *I* longer than abdomen, costal margins shallowly insinuated, in o short, strap-like, apically upcurved, claval suture not indicated. Abdomen strongly constricted basally, in \mathcal{O} elongately ovate, in \mathcal{O} ant-like with apical portion broadly ovate, tip of ovipositor extending distinctly beyond apex of abdomen. Legs gracile, tibial spines in African species short. 3rd joint of hind tarsus longer than 2nd.

Male genitalia: Pygofer and styles of usual type. Theca with a claw-like or blade-like lateral process. Vesica ending in a falcate apical portion.

Biology: The African species were found in association with ants on acacias and bushes such as *Guiera senegalensis* in sandy habitats. Distribution: Northern parts of the Sudanese subregion, one species in Turkestan.

Key to the species of Aspidacanthus

Males

- 3rd antennal joint bicolored, base whitish, apical twothirds dark fuscous. Setae on hind tibia distinctly longer than tibial diameter myrmecoides
- Pale spot on elytra (Fig. 31h) narrowly triangular. Hind tibia (Fig. 32n) shortish, distinctly clavate *clavipes* Pale spot on elytra much broader. Hind tibia long and

 Whitish spot on elytra (Fig. 32i) narrower, both this spot and an adjacent small ochraceous macula broadly encircled by black bambeyi

Females

- 1. Pale spot on elytra (Fig. 31i) narrow, band-like
- clavipes

- tithonos

A. myrmecoides Reuter

Aspidacanthus myrmecoides Reuter 1901:170, Linnavuori 1975:70.

Material studied: USSR: Buchara mer. Termez, 4 °C', 17.VI.1912, Kiritshenko; Turcmenia, 1°, J. Sahlberg, in coll. Linnavuori.

Distribution: Turkestan.

A. clavipes sp. n. Figs. 31h–i, 32n, 33g–h

Material studied: The Sudan: Kassala, Erkowit, male holotype, 5–10.VII.1961, Linnavuori. Eritrea: Asmara -Decamere, 1q paratype, 25–26.V.1963, Linnavuori, in coll. Linnavuori.

Length \circlearrowleft 4.5 mm, \bigcirc 4.75 mm. \circlearrowright : Shiny. Golden brown. Eyes gray. 1st and 3rd antennal joints yellow-brown, others dark brown. Basal two-thirds of elytra opaquely shiny, reddish brown, transverse spot narrowly triangular, yellow-ochraceous, surrounded by fuscous; apical third of elytra shiny, dark brown; membrane brown. Legs dark brown, apical thirds of tibiae yellow-ochraceous. \bigcirc : Shiny. Reddish brown. Eyes brownish. Antennae as in \circlearrowright . Elytra opaque, reddish brown with narrow whitish subapical spot. Abdomen shiny black. Fore legs (other legs missing in the specimen studied) dark brown.

 \circlearrowleft : General structure as in *A. globicollis*. Head nearly as broad as pronotum, ocular index 2.6. Proportions between antennal joints 15:57:40:30, 2nd joint 0.83 × as long as diatone, 0.80 × as long as basal width of pronotum. Legs relatively short and incrassate; hind tibia 1.62 × as long as basal width of pronotum, distinctly clavate, setae



Fig. 33. Aspidacanthus globicollis Linnavuori: a) right style; b-c) left style; d) theca; e-f) vesica. — A. clavipes sp. n.: g-h) theca. — A. tithonos sp. n.: i) theca; j) vesica. — Skukuza zeugma (Odhiambo) k) right style; I-m) left style; n) theca; o) vesica.

longer than in the related species. φ : General structure as in *A. globicollis*. Head 1.53 × as broad as basal width of pronotum, in apical view 1.16 × as high as broad; ocular index 5.09. Proportions between antennal joints 16:72:50:41, 2nd joint 0.92 × as long as diatone, 1.41 × as broad as basal width of pronotum.

Male genitalia in Fig. 32g-h. Styles as in the related species. Theca with broadly triangular lateral process. Vesica not sclerified in the specimen studied, apparently similar to that of *A. tithonos*.

A. globicollis Linnavuori

Figs. 22i, 31j-k, 32l-m, 33a-f, 42a

Aspidacanthus globicollis Linnavuori 1975:69-70.

Types studied: The Sudan, Darfur, Ed Daein, male holotype, 1 paratype 3–7.V.1963; Blue Nile, Wad Medani, 4 paratypes, 11–12.XI.1962; Kordofan, Tendelti - Umm Ruwaba, 2 paratypes, 25–28.I.1963; Equatoria, Juba, 1 paratype, 2.II–2.III.1963, Juba - Terakeka, 1 paratype, 2–6.III.1963, Linnavuori, in coll. Linnavuori.

Material studied: Niger: Tahoua - In Waggeur, 1 Q, 12–13.X.1973, Linnavuori.

Length \bigcirc 4.75–5.25, \bigcirc 4.5–5.0. \bigcirc : Shiny, reddish brown. 1st and 2nd antennal joints whitish or yellowish brown, other joints dark brown. Elytra with costal margin and a transverse triangular fascia white, the latter interrupted at the claval suture and surrounded by black, cuneus and apical third of corium shiny, dark brown, other parts of elytra opaque, reddish brown. Abdomen black. Legs dark brown, apical parts of tibiae yellowish brown. \bigcirc : Shiny. Reddish brown. Eyes brownish. Coloring of antennae as in \bigcirc . Elytra opaque, reddish brown, costal margin pale, subapical spot whitish, \pm triangular. Abdomen strongly shiny, black. Legs reddish brown, apical thirds of tibiae pale ochraceous.

 \mathcal{O} : Head as broad as or slightly narrower than pronotum, in apical view about $1.07 \times as \log as$ broad, in lateral view $1.87 \times$ as high as broad, ocular index 2.70-3.2. Proportions between antennal joints 7:28:19:15, 2nd joint 1.0-1.08 × as long as diatone, $0.94-1.01 \times as$ long as basal width of pronotum. Pronotum basally strongly convex, globose, shagreened and finely punctate. Scutellum with subvertical spine. Hind tibia gracile, about $2.03 \times as$ long as basal width of pronotum. Q: Head very large, about $1.6 \times as$ broad as pronotum, in apical view about 1.18 × as high as broad, in lateral view $1.6 \times$ as broad, ocular index 4.53-5.90. Proportions between antennal joints 8:30:21:15, 2nd joint $0.82-0.85 \times$ as long as diatone, $1.30-1.43 \times as$ long as basal width of pronotum. Pronotum small, basal part only moderately convex, lateral margins insinuated. Scutellum as in J. Elytra scale-like, covering only base of abdomen. Abdomen strongly expanded, twice as long as broad, strongly constricted basally.

Male genitalia in Fig. 33a–f. Theca with clawlike process. Apical part of vesica slender, without membranous expansion.

Biology: In association with ants among vegetation in sandy habitats, also on *Acacia* and *Guiera senegalensis*.

Distribution: North Sudanese.

A. tithonos **sp. n.** Figs. 31d–g, 320–p, 33i–j

Material studied: Nigeria: Kw St., Shaganu - Rofia, male holotype, 1_{Q} paratype, 22.VII.1973, Shaganu Biological Station, 2_{Q} 1_{Q} paratypes, 20-22.VII.1973; N C St., Zaria, 1_{Q} paratype, 2-3.VIII.1973, Linnavuori. Upper Volta: Niangoloko, 1_{Q} paratype, 1 mymph, 26.X.1973, Linnavuori, in coll. Linnavuori.

Length \circlearrowleft 4.5 mm, \bigcirc 4.75–5.0 mm. \circlearrowright : Shiny. Reddish brown. Eyes grayish brown. Antennae as in *A. globicollis*. Basal two thirds of elytra opaque, reddish brown, costal margin pale, in large whitish yellow spot extending from costal margin to near claval commissure, this spot is bordered with black, corium in front of this figure pale yellow-brown, base of clavus with longitudinal infuscation; apical third of elytra shiny, dark brown, membrane brown. Abdomen and legs as in the preceding species. Q: Like A. *globicollis* but pale spot on elytra larger, \pm ovate, more yellowish.

Like A. globicollis. \bigcirc : Head 0.94–1.0 × as broad as pronotum, in apical view 1.08 × as high as broad; ocular index 2.62–2.71. Proportions between antennal joints 15:74:50:38, 2nd joint 1.07–1.13 × as long as diatone, 1.03–1.14 × as long as basal width of pronotum. Hind tibia slender, about 2.07 × as long as basal width of pronotum. \bigcirc : Head 1.53–1.63 × as broad as pronotum, in apical view 1.16 × as high as broad; ocular index 4.0–4.45. Proportions between antennal joints 16:72:50:40, 2nd joint 0.90–1.01 × as long as diatone, 1.40–1.64 × as long as basal width of pronotum.

Male genitalia (Fig. 33i-j) as in the preceding species but apical part of vesica broader owing to membranous expansion.

Biology: On *Indigofera* sp. in sandy localities on the shore of the Kainji Lake in Nigeria.

Etymology: Greek mythology, Tithonos, spouse of Eos, the goddess of aurora.

A. bambeyi Risbec Fig. 32h-k

Aspidacanthus bambeyi Risbec 1950:245-246.

The original description: Adulte: Tête élargie au niveau des yeux, roux foncé et pubescente, ainsi que le reste du corps. Yeux brun rouge foncé, en ovale allongé, un peu sinués ventralement, à nombreuses facettes. Antennes à l^{er} et 3^e articles roux pale; 2^e et 4^e roux foncé. Trompe brune. Un point à allure d'ocelle audessus de chaque oeil.

Hémiélytres à corie très développée, bombée fortement au-dessus de la partie moyenne de l'abdomen; rétrécies vers la base. Dans la partie rétrécie, de chaque coté, on trouve une tache blanc crème entourée d'un beau noir velouté, avec une tache ochre en avant de la tache blanche; le reste noir mat. Membranes enfumées, noiratres. Ailes blanchatres.

Abdomen assez fortement pubescent vetralement.

Le l^{er} segment thoracique est trés étroit, formant une sorte de cou en arriére de la tête. Mésothorax très bombé, dorsalement surtout. Métathorax portant, dorsalement, une forte épine, recourbée légèrement vers l'arrière (écusson).

Longueur: 5 à 6 mm.

Distribution: Senegal.

Genus Formicopsella Poppius

Formicopsella Poppius 1914:42. Type species: F. regneri Poppius.

Formicopsella Carvalho 1955:65, 1958:166, Schuh 1974:89.

Ant-like reddish brown species. Elytra with triangular white spot extending from middle of costal margin on to clavus. Antennae dark brown, 1st and 3rd joints pale.

Body gracile. Upper surface with short adpressed silvery pubescence and short erect pale hairs. Under surface of head with longish erect hairs. Head strongly declining apicad, in apical view distinctly longer than broad; ♂: frons weakly convex, tylus strongly prominent, nearly vertical; basal part of head forming a distinct neck, eyes largish, removed from anterior margin of pronotum by a distance nearly equal to the diameter of an eye; vertex weakly convex, basally immarginate; Q: head longer and more globose, neck longer and eyes smaller. Antennal pits at about middle of inner margins of eyes; antennae gracile, hair covering inconspicuous, smooth. Rostrum extending to middle coxae. Pronotum with broad collar and narrow weakly convex apical portion; basal part strongly widening caudad, disk declining apicad, hind margin insinuated. Apical part of scutellum with small blunt hump. Elytra in \mathcal{O} longer than, in \mathcal{O} as long as abdomen, females of F. regneri sometimes brachypterous; costal margins shallowly insinuated. Scent gland orifices small. Abdomen strongly constricted basally. Legs long, in *I* gracile, in ϕ shorter and thicker; hind tibia gracile or narrowly clavate; hair covering on legs short, inconspicuous, tibial spines very short; 2nd joint of hind tarsus longer than 1st.

Male genitalia: Pygofer and styles of the usual type. Theca simple or provided with processes. Vesica slender ending in a falcate apical portion. Biology: F. regneri was found together with another hallodapine species, Pangania fasciatipennis Poppius, on Acacia karroo in South Africa. Both of the species were living in association with two species of ants, Anoplolepis custodiens (F. Schmith) and Camponotus sp., and resembled them very closely (Schuh 1974:90 and 105).

Distribution: East-Sudanese.

Key to the species of Formicopsella

- Whitish transverse spot on elytra narrow, band-like (Fig. 22d). Head (Q) large and convex, in apical view 1.3 × as long as broad; eyes small, ocular index 2.7 ... magniceps
- 2. Hind tibia gracile, cylindrical. Eyes smaller, ocular index in ♂ about 1.67, in Q 2.55 regneri
- Hind tibia distinctly flattened, narrowly clavate. Eyes large, ocular index in C 1.43–1.51..... potiskum

F. magniceps Linnavuori Figs. 22d, 24d–e

Formicopsella magniceps Linnavuori 1975:68-69.

Type studied: The Sudan, Equatoria, Kapoeta - Boma, female holotype, 26–27.III.1963, Linnavuori, in coll. Linnavuori.

The original description not repeated. Distribution: The Sudan.

F. regneri Poppius

Fig. 22e

Formicopsella regneri Poppius 1914:43.

Type studied: Tanzania, Daressalam, Pangani, female holotype, Regner, in Mus. Helsinki.

Material studied: South Africa: Cape Prov., Kimberley, 1°, 17–18.I.1968, J. & S. Slater, T. Schuh, M. Sweet, in coll. Linnavuori.

Redescription in Schuh 1974:90–91 and Linnavuori 1975:69.

Distribution: East-Sudanese.

F. potiskum sp. n. Fig. 32c–g

Material studied: Nigeria: NE St., Potiskum, male holotype, 10[°] paratype, 17.V.1973, Linnavuori, in coll. Linnavuori.

Length 4.75-5.0 mm. Opaque. Pale reddish brown. Head orangish, opaquely shiny, eyes dark gravish brown. 1st antennal joint pale ochraceous with longitudinal dark stripe on outer surface, 2nd and 4th joints blackish brown, 3rd joint vellow-brown with extreme base embrowned. Basal two-thirds of elytra pale reddish brown with a broadly triangular white spot as in F. regneri, apical part of elytra a little darker brown, apical margin of exocorium narrowly whitish; membrane brownish. Under surface of head and thorax orangish. Abdomen dark brown. Coxae and fore and middle femora reddish, hind femora embrowned; fore and middle tibiae yellow-brown; base of the latter embrowned, hind tibiae dark brown, tarsi brown.

Resembling *F. regneri*. Head about $0.9 \times as$ broad as basal width of pronotum, in apical view $1.22 \times as$ long as broad; eyes large, ocular index 1.43-1.51. Proportions between antennal joints 28:90:85:54, 1st joint $0.43 \times as$ long as diatone, 2nd $1.38-1.50 \times as$ long as diatone, $1.2-1.38 \times as$ long as basal width of pronotum. Rostrum extending slightly beyond mesocoxae. Pronotum about $1.25 \times as$ broad as long in middle. Scutellar hump smaller than in *F. regneri*. Hind tibiae distinctly flattened, narrowly clavate.

Male genitalia in Fig. 32c-g.

Biology: The specimens were collected at lamp in an Acacia-short grass savanna.

Genus Skukuza Schuh

Skukuza Schuh 1974:108–109. Type species: S. slateri Schuh

Skukuza Linnavuori 1975:69.

Resembling *Formicopsella* but readily distinguished by the white pattern of the elytra: besides a broad whitish fascia extending from middle of costal margin to scutellar margin of clavus, apicolateral area of corium also ornamented with whitish spot. Moreover, the antennal pits are located distinctly below the apical angles of the eyes, the 1st hind tarsomere is longer than the 2nd, and the male genitalia are different: Theca provided with basal processes. Vesica incrassate and provided with dentate apical portion; gonopore near apex.

Biology: At lamps in dryish savanna habitats. Distribution: South, East and NE Africa.

Key to the species of NE Africa

S. zeugma (Odhiambo)

Figs. 22g, 24g, 33k-o

Formicopsella zeugma Odhiambo 1959:652–655. Skukuza zeugma Schuh 1974:111, Linnavuori 1975:69.

Material studied: The Sudan: Equatoria, Kapoeta -Boma. 1° 26–27.III. 1963, Linnavuori, in coll. Linnavuori.

The original description not repeated. Distribution: Originally described from Kenya and Somalia.

S. somalica Linnavuori Figs. 22h, 24f–p

Skukuza somalica Linnavuori 1975:69.

Types studied: Somalia, Hargeisa, male holotype, 307 paratypes, 23–28.VI.1963, Linnavuori, in coll. Linnavuori.

The original description not repeated. Distribution: Only known from Somalia.

Genus Glaphyrocoris Reuter

Glaphyrocoris Reuter 1903:15. Type species: G. unifasciatus Reuter.

Trachelonotus Reuter 1904a:13. Type species: T. unifasciatus Reuter (= iranicus Linnavuori) (Linnavuori 1965:266).



Fig. 34. *Alloeomimus hilaris* Linnavuori (ex from the Sudan): a) pronotum and scutellum, lateral view; b) left style; c) right style; e) theca; i) vesica. — *Glaphyrocoris nocturnus* (Linnavuori): f) left style; g) right style; h) theca; i) vesica. — *G. v-albus* Linnavuori: j) pronotum and scutellum, lateral view; k) right style; l) left style; n) vesica. — *G. unifasciatus* Reuter (holotype of *torridus*): o) pronotum and scutellum, lateral view; p) right style; q) left style; r) vesica; s) theca. — After Linnavuori 1975.

Linoceraea Horvath 1913:597. Type species: G. lunigera Horvath (Carvalho 1952:70, Linnavuori 1975:72–73). Hypomimus Lindberg 1940:34. Type species: H. albosellatus Lindberg (= chobauti Puton) (Linnavuori 1975:73).

Color reddish or coffee brown. Elytra with white, often interrupted transverse fascia across clavus and mesocorium.

Body usually strongly shiny, ant mimetic, elongate, and strongly convex. Upper surface with short pale pubescence, at least elytra also with long erect hairs. Head short, hind margin straight or \pm concave; tylus in profile vertical, frons weakly convex, strongly sloping ventrad; basal margin of vertex sharp or \pm bluntly rounded vetrad; eyes large. Antennal pits close to lower corners of eyes. Antennae relatively incrassate, 1st joint with a few erect bristles, other segments with short pubescence. Rostrum extending near to hind coxae. Pronotum strongly expanding caudad, lateral margins \pm insinuated; calli faintly indicated, basal part of disk strongly convex, sloping apicad and apicolaterad. Scutellum with apical hump or rarely with convex apical part. Elytra in both sexes longer than abdomen (save in *agaue*), convex, sloping laterad, costal margins insinuated. Abdomen not constricted basally. Legs relatively short and incrassate; hind tibiae clavate, vestiture of tibiae short.

Male genitalia: Pygofer and styles of the usual type. Theca with a lateral process. Vesica simple, ending in a falcate apical portion.

Biology: At lamps. Sometimes collected by sweeping from halophytic bushes.

Distribution: The Eremian subregion and the adjacent parts of the Sudanese subregion.



Fig. 35. Elytron of *Glaphyrocoris unifasciatus* Reuter (paratype of *torridus*) a), *G. varians* Linnavuori b), *Pongocoris opertus* Linnavuori c), *Trichophthalmocapsus pumilus* (Odhiambo) d), *Hallodapus albofasciatus* (Motschulsky) e), *H. sororculus* (Linnavuori) f), *H. pilosus* (Reuter) g and h), *Glossopeltis laevicollis* Linnavuori i), *Glaphyrocoris nigeriensis* Linnavuori j), *G. rufiventris* Linnavuori k), *Hallodapus costae* (Reuter) I), and *H. jocosus* (Linnavuori) m–n). — After Linnavuori 1973 and 1975.

Key to the African species of Glaphyrocoris

- 1. Basal two-thirds of elytra (save extreme base) opaque
- Coloring of elytra different. Venter dark brown 3
 Basal margin of head in dorsal view slightly convex, that of vertex bluntly sloping ventrad. White transverse spots on clavus and corium at the same level
- Apical third of elytra reddish brown, basally orange. Head 0.69 × as broad as basal width of pronotum; eyes small, ocular index 1.33 sejunctus
- Apical third of elytra blackish brown. Head 0.74–0.80
 × as broad as basal width of pronotum; eyes large, ocular index 0.74–1.16 mandane
- 5. Head and at least anterior part of pronotum subopaque,

- 220) unifasciatus – Only apical part of pronotum densely shagreened.

- reddish brown apex. Theca (Fig. 39i-j) with small triangular subbasal lateral process nigeriensis



Fig. 36. *Glaphyrocoris agaue* sp. n.: a) dorsal view. — Elytron of *G. sejunctus* Odhiambo b), *G. mandane* sp. n. (ex from Kumba) c), *Pongocoris vittatus* (Odhiambo) d, and *Trichophthalmocapsus microphthalmus* sp. n. e).

G. nocturnus (Linnavuori)

Figs. 34f-i, 37a-b, 40e

Hypomimus nocturnus Linnavuori 1964:329. Glaphyrocoris nocturnus Linnavuori 1975:73.

Types studied: The Sudan, Kassala Prov., Erkowit, male holotype and two male paratypes, 5–10.VII.1961, Linnavuori, in coll. Linnavuori.

Material studied: Somalia: Daragodleh, 1 ex, 25.VI. 1963, Linnavuori.

Original description not repeated. Distribution: NE Africa.

G. rufiventris Linnavuori

Figs. 35k, 37c-d, 41a-e

Glaphyrocoris rufiventris Linnavuori 1973:86-87.

Type studied: Nigeria, W St., Ile-Ife, male holotype, 20.VIII.1969, J. Medler, in coll. Linnavuori.

Length 4 mm. Opaquely shiny. Dark brown. 1st antennal joint and apex of 3rd yellow-brown. Base of elytra dark brown and opaque, only the very basal angle shiny, a white transverse band, broken at claval suture, at middle of elytra; apical half of elytra orangish, apex of clavus and adjacent parts of corium opaque, other parts shiny; membrane smoky. Under surface dark brown. Abdomen brightly orange. Legs dark brown.

Elongate. Hair covering smooth and concolorous, also sparse erect longish hairs present. Head large, nearly $0.9 \times$ as broad as basal width of pronotum; vertex and frons flat, base of vertex even slightly concave, strongly microsculptured; eyes large, ocular index 0.77. Antennae longish and moderately thick, proportions between joints 6:27:17:14, 2nd joint slightly longer than diatone, nearly as long as basal width of pronotum. Rostrum extending to middle coxae. Pronotum narrowish, 1.27 × as broad as long in middle, lateral margins distinctly insinuated, disk moderately convex, densely and distinctly microsculptured. Scutellar hump prominent. Elytra narrow. Hair covering on tibiae short and smooth.

Male genitalia in Fig. 41b-e.

Distribution: Only known from Nigeria.

The species is easily recognized by the unique coloring.



Fig. 37. *Glaphyrocoris nocturnus* (Linnavuori): a–b) head and thorax in dorsal and lateral view. — *G. rufiventris* Linnavuori: c) head and pronotum, dorsal view; d) head, apical view. — *G. mandane* sp. n.: e) head and thorax, lateral view; f) hair covering of elytron; g) hind leg; h) right style; i) left style; j–k) hypophysis and apex of sensory lobe of left style in dorsal view; I–m) theca; n) vesica. — *G. varians* Linnavuori (ex from Kassala): o) antenna; p) hind femur, dorsal view; q) left style; r) theca; s) vesica.

G. mandane sp. n.

Figs. 36c, 37e-n

Material studied: Cameroon: Kumba, male holotype, 22.VI.1973, Linnavuori. Nigeria: W St., Ife, male paratype, 7–8.VII.1973, Linnavuori, in coll. Linnavuori.

Length 4.0–4.25 mm. Opaquely shiny. Dark reddish brown. Eyes brownish gray. Antennae brown, under surface of 1st joint a little paler, apical half of 3rd joint pale yellow or orangish brown. Basal half of elytra, excluding extreme base, opaque, dark reddish brown, white transverse bands on clavus and corium located at different levels as seen in Fig. 36c, costal margins yellowish brown; apical part of corium, tip of clavus and entire cuneus shiny, blackish brown; membrane dark brown. Under surface dark reddish brown; ostiolar peritremes white, middle and hind coxae pale. Legs blackish brown, tarsi slightly paler.

Elongate, resembling the preceding species. Upper surface with dense adpressed pale pubescence, elytra also with longish erect blackish bristles. Head $0.74-0.80 \times$ as broad as basal width of pronotum, densely shagreened and rugose, hind margin of head in dorsal view concave; frons flattish, vertex flat, basal margin sharp; eyes very large, ocular index 0.74 (paratype) or 1.16 (holotype). Antennae long, proportions between joints 18:66:43:35, 2nd joint $1.03-1.1 \times as$ long as diatone, $0.88-0.91 \times$ as long as basal width of pronotum. Rostrum extending to middle coxae. Pronotum $1.25-1.31 \times$ as broad as long in middle, lateral margins insinuated; disk densely rugose, microsculpturing in the holotype much coarser than in the paratype. Apical hump

of scutellum strong, plug-like. Legs long, hind femur $1.54-1.73 \times$ as long as basal width of pronotum.

Male genitalia in Fig. 37h-n.

Etymology: Mandane, daughter of Astyages, the last king of Median, mother of Cyrus.

G. sejunctus Odhiambo

Figs. 36b, 40a-d

Glaphyrocoris sejunctus Odhiambo 1959:649-652.

Type studied: Uganda, Kawanda, male holotype, 23.II.1958, Odhiambo, in the British Museum.

The original description not repeated.

Closely related to G. rufiventris and G. mandane (basal two-thirds of elytra opaque; white spots on clavus and corium at different levels) but easily distinguished by the much smaller head. Moreover, it differs from G. mandane in the orange and reddish brown coloring of the apical part of the elytra. G. rufiventris is longer and more gracile, the apical thirds of the elytra are uniformly pale orangish and the venter is bright orange.

Distribution: Only known from Uganda.

G. v-albus Linnavuori

Figs. 21q, 34j-n

Glaphyrocoris v-albus Linnavuori 1975:73.

Types studied: The Sudan, Blue Nile, Wad Medani, male holotype, 11–12.1962, Linnavuori; Equatoria, Mundri, o^{*} paratype, 24.II.1963, Linnavuori, in coll. Linnavuori.

The original description not repeated. Distribution: The Sudan.

G. unifasciatus Reuter

Figs. 21i, 34o-s, 35a, 42j, 46g, 48a-k

Glaphyrocoris unifasciatus Reuter 1903:15-16. Glaphyrocoris torridus Linnavuori 1975:73-74, syn. n.

Types studied: French Somaliland, Djibouti, male holotype of *unifasciatus*, 1897, H. Coutiére, in Mus. Paris. The Sudan, Equatoria, Torit - Kapoeta, male holotype of *torridus*, 26.III.1963, Kapoeta - Boma, 1° paratype, 26.III.1963, Linnavuori, in coll. Linnavuori. Note: The holotype of *unifasciatus* was pierced by a pin through the scutellum, which therefore was twisted into an unnatural position. Owing to this the structure of the scutellum was incorrectly described by Reuter.

Length 3.5–4.0 mm. Head and pronotum subopaque, rest of upper surface shiny. Reddish brown. Eyes grayish brown. 1st antennal joint yellowish brown, others dark brown, extreme tips of 2nd and 3rd joints paler. Elytra with straight whitish fascia, broadly or narrowly broken at claval suture, from middle of costal margin to commissural margin of clavus; membrane brownish smoky. Under surface and legs reddish brown.

Body gracile. Head about $0.85 \times as$ broad as basal width of pronotum, hind margin straight; upper surface very densely and strongly rugose; frons nearly vertically sloping ventrad, distinctly transversely furrowed laterally; vertex flat, hind margin bluntly angularly declining ventrad; eyes large, ocular index 1.13-1.22. Proportions between antennal joints 6:22:14:12, 2nd joint 0.91 \times as long as diatone, $0.78-0.85 \times as$ long as basal width of pronotum. Pronotum strongly broadening caudad, strongly and densely rugose, microsculpturing on base somewhat fainter. Apical hump of scutellum large, conical.

Male genitalia in Figs. 34r-s, 48b-k. Theca with narrow lateral lamella. Vesica gracile, long and coiled, apex behind terminal spine slightly dentate.

Distribution: NE Africa (French Somaliland, the Sudan).

G. varians Linnavuori Figs. 35b, 37o–s, 38a–f

Glaphyrocoris varians Linnavuori 1975:74.

Types studied: The Sudan, Blue Nile, Singa -Damazin, male holotype and 4° paratypes, 15– 17.XI.1962, Abu Hashim - Galegu, 3° paratypes, 23– 24.XI.1962, El Jebelein, 1° paratype, 3.I.1963, Linnavuori; Kassala, 1° paratype, 29–30.XI.1962, Linnavuori; Upper Nile, Malakal, 1° paratype, 5– 20.I.1963, Renk - Malakal, Geil, 2° paratypes, 2–4.I.1963, Linnavuori, in coll. Linnavuori.

The original description not repeated.

Distribution: Known from the Blue Nile, Upper Nile and Kassala provinces of the Sudan.



Fig. 38. *Glaphyrocoris varians* Linnavuori: a) pronotum and scutellum in lateral view; b) left style; c) right style; d) theca; e-f) vesica. — *G. antennalis* Linnavuori: g) left style; h) right style; i and k) theca; j) vesica. — *Trichophthalmocapsus pumilus* (Odhiambo): l) pronotum and scutellum, lateral view; m) hind tibia; n) right style; o) left style; p) theca; q) vesica. — *Laemocoris nomadicus* Linnavuori: r) left style; s) apex of vesica. — *L. angusticollis* Linnavuori: t) left style; u) apex of vesica. — *L. pygmaeus* Linnavuori: v) left style; x–y) apex of vesica. — After Linnavuori 1975.

G. varians microphthalmus Linnavuori

Glaphyrocoris varians microphthalmus Linnavuori 1975:74.

Types studied: The Sudan, Kordofan, El Obeid, male holotype, 29.I.1963; Equatoria, Juba, 30³ paratypes, 27.II– 2.III.1963, Linnavuori, in coll. Linnavuori.

The original description not repeated.

Distribution: The Kordofan and Equatoria provinces in the Sudan.

G. antennalis Linnavuori

Figs. 38g-j, 39a-g

Glaphyrocoris antennalis Linnavuori 1975:74-75.

Types studied: The Sudan, Equatoria, Mundri, male holotype and \circlearrowleft paratype, 24.II.1963, Linnavuori, in coll. Linnavuori.

Material: Upper Volta: Bobo Dioulasso, 1 ex, 1– 2.XI.1973, Linnavuori, in coll. Linnavuori.

The original description not repeated. Very close to the following species, but easily recognized by the nearly uniformly reddish brown 2nd antennal joint and the long, apically expanded and dentate subbasal lateral process of the theca. Distribution: North-Sudanese.

G. nigeriensis Linnavuori

Figs. 10d-h, 35j, 39h-j

Glaphyrocoris nigeriensis Linnavuori 1973:86.

Type studied: Nigeria, W St., Ile-Ife, male holotype, 29.XII.1970, J. Medler, in coll. Linnavuori.

Material studied: Ghana: Afienya, 13, 14–16.IX.1973, Linnavuori.



Fig. 39. *Glaphyrocoris antennalis* Linnavuori (ex from Juba): a) antenna; b) left style; c–e) theca (d–e ex from Bobo Dioulasso); f) process of theca; g) vesica. — *G. nigeriensis* Linnavuori (ex from Afienya): h) left style; i–j) theca in different views. — *G. agaue* sp. n.: k) head thorax in lateral view. — *Ruwaba glabriceps* Linnavuori & Al-Ne'amy: l) right style; m–o) left style; p–q) theca; r) vesica. — *R. elegans* Linnavuori: s) theca.

Length 4 mm. Strongly shiny. Antennae yellowish brown, basal half of 2nd and 3rd joints and entire 4th joint dark brown. Elytra dark brown, costal margin and base of clavus golden brown, the white middle band broadish, broken at claval suture. Under surface dark yellowish brown. Legs golden brown, tibiae somewhat embrowned.

Robust. With sparse erect longish pale hairs. Eyes large, ocular index 1.18 (holotype) — 1.57 (male from Ghana). Antennae incrassate, proportions between joints 6:19:14:13, 2nd joint nearly $0.7 \times$ as long as basal width of pronotum. Rostrum extending to middle coxae. Microsculpturing of pronotum indistinct. Scutellar hump relatively small.

Male genitalia in Figs. 10d-h, 39h-j. Theca with small triangular subbasal lateral process.

Distribution: Guinean.

Extralimital species:

G. agaue sp. n. Figs. 36a, 39k

Material studied: Saudi Arabia, near Taif, female holotype, in coll. Linnavuori.

Length 3.75 mm. Head, pronotum and scutellum opaquely shiny, blackish brown, base of vertex and anterior part of pronotum dark reddish brown. Eyes reddish brown. Antennae blackish, 1st joint and base of 2nd slightly paler. Tip of scutellum pale. Elytra very shiny, blackish brown, costal margin slightly paler, a broad transverse whitish band behind apex of scutellum. Apex of abdomen very shiny, blackish. Under surface shiny, reddish brown, ostiolar peritremes and coxae whitish, apex of venter blackish. Legs blackish brown, tarsi and apices of tibiae paler.



Fig. 40. *Glaphyrocoris sejunctus* Odhiambo: a) right style; b) left style; c) theca; d) apex of vesica. — *G. noctumus* (Linnavuori): e) elytron. — *Ruwaba glabriceps* Linnavuori & Al-Ne'amy: f–g) male head and thorax in dorsal and lateral view; h–i) female head in lateral and dorsal view; j) elytron. — *Hallodapus jocosulus* (Linnavuori): k–l) vesica; m–n) left style; o) theca; p) process of theca. — *H. costae* (Reuter): q) male; r) brachypterous female. — *H. graminum* (Lindberg): s) female. — *Laemocoris quinquemaculatus* (Wagner): t) male; u) female; v–w) male and female head and thorax in lateral view; x–y) male and female head in apical view; z) hind tarsus. — After Lindberg 1958, Linnavuori 1964, Linnavuori & Al-Ne'amy 1982, Odhiambo 1959.

Brachypterous. Body elongately pear-shaped in outline, broadest at apical part of corium. Hair covering on upper surface pale, adpressed, elytra also with longish semierect brownish bristles. Head $0.77 \times$ as broad as basal width of pronotum, strongly and densely microsculptured, basal margin in dorsal view slightly concave, frons convex, basal margin of vertex bluntly carinate; ocular index 1.92. Antennae relatively gracile, proportions between joints 21:57:41:38, 2nd joint $1.12 \times$ as long as diatone, $0.86 \times$ as long as basal width of pronotum. Rostrum extending to hind coxae. Pronotum $1.22 \times$ as broad as long in middle, bell-shaped, lateral margins strongly insinuated, conspicuously diverging caudad in basal part, humeral angles prominent; disk convex, strongly and densely microsculptured, apical lobe roundedly sloping apicad, calli not raised. Apical hump of scutellum small and blunt. Costal margins of elytra subparallel basally, roundedly expanding laterad apically, membrane rudiments short, apex of abdomen therefore broadly visible. Hind tibia narrowly clavate, $1.85 \times as$ long as basal width of pronotum.

Etymology: Greek mythology, Agaue, mother of Pentheus, a mythical king of Theba.

Readily distinguished by the unique body form.

Genus Ruwaba Linnavuori

Ruwaba Linnavuori 1975:71. Type species: R. elegans Linnavuori.

Closely related to *Glaphyrocoris* but readily distinguished by the shape of the head: eyes small, separated from anterior margin of pronotum by a distinct neck which is narrower than the diameter of an eye; the vertex, in females especially, is \pm globose with the basal margin broadly rounded ventrad. Moreover, the scutellar hump is voluminous, cone-like, and the legs, the tibiae especially, are gracile. Abdomen not constricted basally.



Fig. 41. *Glaphyrocoris rufiventris* Linnavuori: a) pronotum and scutellatum in lateral view; b) left style; c) right style; d) theca; e) vesica. — *Laemocoris fetensis* Linnavuori: f–g) male pronotum and scutellum in dorsal and lateral view. — *L. nomadicus* Linnavuori: h–i) male pronotum and scutellum in dorsal and lateral view. — *Hallodapus verticicus* (Odhiambo): j) apex of vesica; k) right style; l) left style; m) theca. — After Linnavuori 1973 and 1983 and Odhiambo 1967.

Male genitalia: Pygofer and styles of the usual type. Theca with short subapical lobe. Vesica slender, apical part falcate.

Biology: In sandy habitats. Distribution: NE Africa and Arabia.

Key to the species of Ruwaba

- rugose with transverse furrows; eyes larger, ocular index (σ) 1.8 elegans

R. elegans Linnavuori

Figs. 221, 39s, 42b-i

Ruwaba elegans Linnavuori 1975:71-72.

Types studied: The Sudan, Kordofan, Tendelti - Umm Ruwaba, male holotype, 1♂ paratype, 25–28.I.1963; El Obeid - Dilling, 1♂ paratype, 30.I–1.II.1963; Selima, 1♂ paratype, 24.I.1963, Linnavuori, in coll. Linnavuori.

The original description not repeated.

Male genitalia in Figs. 39s, 42e-i. Vesica shorter than in the following species.

Biology: Swept from *Guiera senegalensis* in sandy habitats.

Distribution: Only known from the Kordofan Province in the Sudan.

R. glabripes Linnavuori & Al-Ne'amy Figs. 391–r, 40f–j

Ruwaba glabripes Linnavuori & Al-Ne'amy 1982:92-93.

Types studied: Saudi Arabia, Hieth, male holotype, 2.V.1971, Büttiker, in Mus. Basle; Wadi Mizbil, 10 paratype, 10.VI.1976, Büttiker, in coll. Linnavuori.

Material studied: Saudi Arabia: Adnan, 2 exx, 21.IX. 1978; Wadi Hanifa, 2 exx, 7.V.1976; Wadi Shaib Luha, 1 ex, 27.V.1976, Büttiker, in Mus. Basle and coll. Linnavuori.



Fig. 42. Aspidacanthus globicollis Linnavuori: a) thorax in lateral view. — Ruwaba elegans Linnavuori: b) head and pronotum, dorsal view; c) head, lateral view; d) thorax, lateral view; e) right style; f–g) left style; h) theca; i) vesica. — Glaphyrocoris unifasciatus Reuter: j) dorsal view. — After Linnavuori 1975 and Reuter 1903.

The original description not repeated. Male genitalia in Fig. 391–r. Distribution: Saudi Arabia.

Genus Pongocoris Linnavuori, status n.

Glaphyrocoris subgenus Pongocoris Linnavuori 1975:75. Type species: Laemocoris kiritshenkoi Poppius.

Basic characters as in *Glaphyrocoris* but: Body (Fig. 47d) small, broadish, flattish and parallel-sided. Pronotum strongly broadening caudad, disk flattish, only slightly sloping anterolaterad. Apical part of scutellum flattish or slightly convex. Elytra ornamented with broad complete transverse white fascia, upper surface nearly horizontal, costal margins straight. Legs pale ochraceous or yellowish, gracile. Hind tibiae slender, cylindrical.

Male genitalia as in *Glaphyrocoris*.

Distribution: East and NE Africa, Turkestan.

The genus *Pongocoris* was originally described as a subgenus of *Glaphyrocoris*, but since the three known species of *Pongocoris* and the numerous known species of *Glaphyrocoris* form two well-defined and undoubtedly monophyletic groups which are not connected with intermediates, it seems to be justified to regard *Pongocoris* as a valid genus. Key to the African species of Pongocoris

- 1. Eyes setose, very large, ocular index 0.69–0.73 (♂) or 1.67 (Q) vittatus
- Eyes glabrous, small, ocular index 1.10−1.33 (♂) or 1.75−1.91 (♀) opertus

P. opertus Linnavuori Figs. 35c, 43p–y, 44r, 48p

Glaphyrocoris (Pongocoris) opertus Linnavuori 1975:75.

Types studied: The Sudan, Equatoria, Kapoeta-Boma, male holotype.

Types studied: The Sudan, Equatoria, Kapoeta-Boma, male holotype and a paratype, 26–27.III.1963; Juba, 1 paratype, 27.II–2.III.1963; Lotti forest, 1 paratype, 14– 17.III.1963; Bahr el Ghazal, R. Pongo, 1 paratype, 18.II.1963, Linnavuori, in coll. Linnavuori.

Length 3 mm. Opaquely shiny. Head dark reddish brown. Antennae yellowish brown. Pronotum and scutellum dark brown. Elytra brown, with a broad whitish transverse fascia, cuneus and apical angle of corium dark brown; membrane pale basally, brownish smoky apically. Under surface dark brown, metathorax yellowbrown. Legs yellow-brown.

Head $0.75 \times \text{as}$ broad as basal width of pronotum. Eyes glabrous, relatively small, ocular index 1.10-1.33 (\circlearrowleft), 1.75-1.91 (\bigcirc). Propor-



Fig. 43. Boopidella fasciata Reuter: a-b) male head and thorax in dorsal and lateral view; c) head, apical view; d) hind leg; e) claw; f–g) left style; h) theca; i–j) vesica. — Pongocoris vittatus (Odhiambo): k–n) male and female head in dorsal and lateral view; o) hind leg. — P. opertus Linnavuori: p–q) male head in dorsal and lateral view; r–s) female head and thorax in dorsal and lateral view; t) right style; u–v) left style; w–x) theca; y) vestiture of hind tibia.

tions between antennal joints 8:21:13:12, 2nd joint nearly $0.9 \times$ as long as basal width of pronotum. Pronotum nearly twice as broad as long in middle.

Male genitalia in Figs. 43t-x, 44v, 48p. Theca digitate, provided with broad trough-like lateral lamella. Vesica with long falcate apical portion.

Distribution: Only known from the southern parts of the Sudan.

P. vittatus (Odhiambo), comb. n.

Figs. 36d, 43k-0, 48l-0

Trichophthalmocapsus vittatus Odhiambo 1959:661–663. Hallodapus vittatus Schuh 1974:94.

Types studied: Uganda, Kawanda, female allotype and 1° paratype 19.I.1959, Odhiambo in the British Museum, 1° paratype, 11.XI.1959, Odhiambo, in Mus. Paris.

Length 3.2–3.4 mm. Resembling *P. opertus* but eyes with long erect setae and much larger, ocular index 0.69–0.73 (\bigcirc), 1.67 (\bigcirc), in lateral view extending to ventral margin of head even in \bigcirc .

Male genitalia: Theca slender, provided with narrow lateral lamella. Falcate apical portion of theca short.

Distribution: Known from Uganda, Kenya and Ethiopia. 5.X.1957.

Genus Boopidella Reuter

- Boopidella Reuter 1907:25. Type species: B. fasciata Reuter.
- Boopidella Poppius 1914:45-46, Carvalho 1955:64 and 1958:162, Schuh 1974:121-122.

Opaque. Brown. Elytra with broad white transverse fascia just behind tip of scutellum.

Body small, parallel-sided, flattish. Hair covering on upper surface short, adpressed. Head in \bigcirc (\bigcirc unknown) large, 0.8 × as broad as pronotum, short; frons strongly declining ventrad, tylus vertical; eyes voluminous occupying entire sides of head; vertex narrow, hind margin obtusely rounded. Antennal pits below middle of eyes. Rostrum extending to hind coxae. Pronotum with slightly insinuated lateral margins, disk flattish, calli faint. Apical part of scutellum convex, sloping laterad. Costal margins of elytra faintly insinuated in middle. Hind femora without stridulatory area, hairy; hind tibiae gracile, hair covering short.

Male genitalia: Styles of the usual type. Theca simple. Vesica short, incrassate, broadly curvate, apex dentate; a dentate subapical process and a large wing-like lateral process present.

Distribution: East Africa.

Although *Boopidella* externally resembles *Trichophthalmocapsus*, it decidedly differs from that genus in the absence of a stridulatory device on the costal margins and the hind femora. It is apparently closely related to *Pongocoris*, sharing with it the small size, similar general habitus and coloring. *Boopidella* differs from *Pongocoris* in the short hair covering, flattish pronotum, gracile tibiae, and in the male genital structure.

B. fasciata Reuter

Figs. 43a-j, 46a

Boopidella fasciata Reuter 1907:25.

Type studied: East Africa, Ins. Pemba, male lectotype (designated by Schuh), Voeltzkov, in Mus. Helsinki.

Length 2.5 mm. Opaque. Dark brown. Eyes reddish gray. 1st antennal joint yellowish brown, 2nd dark brown. Elytra with broad white transverse fascia; membrane brownish smoky. Coxae pale. Legs brown, apices of tibiae and tarsi ochraceous.

Head $0.83 \times as$ broad as basal width of pronotum. Ocular index 0.75. Proportions between antennal joints 14:52:?, 1st joint $0.32 \times as$ long as diatone, 2nd $1.18 \times as$ long as diatone, 0.98 \times as long as basal width of pronotum. Proportions between hind tarsomeres 6:9:10.

Male genitalia in Fig. 43f–j. Distribution: East Africa.

Genus Trichophthalmocapsus Poppius

- Trichophthalmocapsus Poppius 1914:29. Type species: T. pilosus Poppius.
- Trichophthalmocapsus Carvalho 1955:71 and 1958:180, Schuh 1974:117.

Color black to blackish brown. Elytra with large transverse white spot extending from midde of costal margin on to clavus.

Body small resembling Hallodapus in general appearance. Hair covering on upper surface pale, very long, erect; short adpressed hairs also present. Head short and broad, in lateral view as high as long or higher, in apical view distinctly broader than high; tylus prominent, vertical, frons strongly sloping ventrad, vertex flat or concave, often provided with fain median sulcus, basal margin sharply declining ventrad or rounded; eyes glabrous or hairy, in O very large, in O smaller. Antennal pits just below sinuate anterior margins of eyes. Antennae long, 1st joint and often also 2nd with long erect pale hairs, antennae otherwise with short adpressed pubescence. Rostrum extending beyond hind coxae. Pronotum with slightly insinuated lateral margins, humeral angles prominent; collar broad, calli small but distinctly delimited and convex. Basal part of scutellum strongly sloping caudad, apical part convex. Elytra much longer than abdomen, costal margins a little insinuated, with distinct or faint crenulation. Legs gracile. Hind femora with distinct stridulatory device. Hind tibiae slightly spindle-shaped, with very long erect pale bristles, short bristles also present.

Male genitalia: Styles of the usual shape. Theca simple or provided with lateral lobe. Apex of vesica simple or with small dentate membranous lobes.

Distribution: Primarily East-Sudanese.

Besides the species treated below the genus also contains: *T. australis* Schuh 1974:118–119 and *T. hessei* Schuh 1974:119–120 from South Africa, *T. hirsutus* Odhiambo 1959:660–661 from Tanzania and *T. jamesi* China 1932:597 from Kenya.

Key to the Trichophthalmocapsus species examined



Fig. 44. *Trichophthalmocapsus pilosus* Poppius: a–b) head and pronotum in dorsal and lateral view; c) right style; d–e) left style; f–g) theca; h) apex of vesica. — *T. pumilus* (Odhiambo): i–j) male head and pronotum in dorsal and lateral view; k) male head, apical view; l) female head and pronotum, dorsal view; m) hind leg; n) stridulatory area of hind femur. — *T. microphthalmus* sp. n.: o–p) male head and pronotum in dorsal and lateral view; q) male head, apical view; r–s) female head and pronotum in dorsal and lateral view. — *T. longicornis* sp. n.: t) right style; u) left style. — *Pongocoris opertus* Linnavuori: v: vesica.

- Eyes small, ocular index in ♂ 1.58–1.74, in Q 2.4–2.5 microphthalmus
- 3. Small species, length 3 mm. Basal margin of vertex sharp. Elytra with broad white fascia pilosus
- Large species, length 4 mm. Basal margin of vertex bluntly rounded ventrad. Pale band on elytra narrower and fainter longicornis

T. pilosus Poppius

Figs. 44a-h, 46b

Trichophthalmocapsus pilosus Poppius 1914:47.

Type studied: East Africa, Daressalam, Pangani, male holotype, R. Regner, in Mus. Helsinki.

Length 3 mm. Opaque. Dark brown. Apical part of head and base of vertex reddish brown. Eyes grayish. 1st and 2nd antennal joints (others missing) yellowish. Elytra reddish brown with broad transverse white fascia, costal margin pale, apical part of mesocorium pale reddish brown, cuneus purplish, membrane whitish brown.

Small. Body broadish, parallel-sided. Upper surface with long erect hairs and well developed adpressed pubescence. Head $0.73 \times as$ broad as basal width of pronotum; vertex with distinct shallow median impression, basal margin sharply declining ventrad; eyes hairy, ocular index 1.26. Proportions between antennal segments 20:55:?, 1st joint 0.45 × as long as diatone, 2nd 1.25 × as long as diatone, 0.92 × as long as basal width of pronotum. Costal margins of elytra shallowly insinuated, strongly crenulate.

Male genitalia in Fig. 44c-h. Distribution: East Africa.



Fig. 45. *Trichophthalmocapsus longicornis* sp. n.: a–b) left style; c) theca; d) vesica. — *T. pumilus* (Odhiambo): e–f) left style; g–i) vesica. — *T. microphthalmus* sp. n.: j–k) vesica. — *Hadrodapus rhodops* gen. et sp. n.: l–m) head and thorax in dorsal and lateral view; n) head, apical view; o) hind leg; p) claw; q) stridulatory device on costal margin; r) stridulatory area of hind femur.

T. longicornis sp. n.

Figs. 44t–u, 45a–d

Material studied: Saudi Arabia: near Zahran, male holotype, 10.II.1978, Linnavuori, in coll. Linnavuori.

Length 4 mm. Coloring as in the preceding species but pale transverse band on elytra narrower and fainter. Legs yellow-brown.

Body elongate. Hair covering as in *T. pilosus*. Head $0.74 \times$ as broad as basal width of pronotum; vertex with distinct median sulcus, basal margin bluntly sloping ventrad; eyes very large, with short hairs, ocular index 0.68. Proportions between antennal joints 30:112:7, 1st joint 0.59 × as long as diatone, 2nd with a few erect bristles, very long, 2.2 × as long as diatone, 1.62 × as long as basal width of pronotum. Rostrum extending to hind coxae. Costal margins of elytra faintly insinuated, finely crenulate.

Male genitalia in Figs. 44t-u, 45a-d.

Easily recognized by the very long 2nd antennal segment.

T. pumilus (Odhiambo)

Figs. 35d, 381-q, 44i-n, 45e-i

Systellonotopsis pumilus Odhiambo 1959:655-657. Trichophthalmocapsus pumilus Schuh 1974:121, Linnavuori 1975:76.

Material studied: Ivory Coast, 1 ex, 14–21.X.1973, Linnavuori. Nigeria: W St., Ile-Ife, 1 ex, 20.VII.1969, J. Medler. The Sudan: localities listed in Linnavuori 1975:76.

Length 3.5–3.75 mm. Shiny. Black to blackish brown. Eyes grayish brown. Antennae yellow-brown, 3rd and 4th joints dark brown, apical two-thirds of 2nd joint also often embrowned, in West African populations antennae uniformly blackish. Basal two-thirds of elytra opaque; color of elytra blackish brown, medioapical part of corium often somewhat paler, large triangular whitish spot extending from costal margin on to clavus, membrane brownish smoky. Coxae whitish. Femora yellowish, fore femora often, middle femora always apically embrowned, hind femora



Fig. 46. Elytron. — a) Boopidella fasciata Reuter; b) Trichophthalmocapsus pilosus Poppius; d) Hallodapus verticicus (Odhiambo); e) Laemocoris fetensis Linnavuori; f) L. hirsutus sp. n.; g) Glaphyrocoris unifasciatus Reuter (holotype). — c) Hadrodapus rhodops gen. et sp. n., dorsal view.

dark brown with yellowish bases; tibiae and tarsi yellowish brown or infuscate.

Body in \bigcirc elongate and parallel-sided, in \bigcirc a little broadening caudad. Head in \bigcirc about 0.85 × in \bigcirc 0.66 × as broad as basal width of pronotum, in lateral view 0.92 (\bigcirc) or 1.0 (\bigcirc) × as long as high, in apical view 1.66 (\bigcirc) × or 1.21 (\bigcirc) × as broad as high; base of vertex ecarinate; eyes glabrous, in \bigcirc voluminous, ocular index 0.63– 0.80 (\bigcirc) or 1.83–2.08 (\bigcirc). Proportions between antennal joints 20:70:44:38 (\bigcirc), 19:68:43:37 (\bigcirc), 2nd joint without long erect hairs, 1.27 (\bigcirc) or 1.47 (\bigcirc) × as long as diatone, 1.08 (\bigcirc) or 0.97 (\bigcirc) × as long as basal width of pronotum.

Male genitalia in Figs. 38n-q, 45e-i.

Distribution: Holosudanese. Originally described from Uganda and Ethiopia.

T. microphthalmus sp. n. Figs. 36e, 440–s, 45j–k

Material studied: The Sudan: Kordofan, Kadugli, male holotype, 2–14.II.1963; Darfur, Abu Matariq, 1♂ paratype, 30.IV-2.V.1963, Linnavuori. Nigeria: N C St., Zaria, Samaru, 2Q paratypes, 17.III.1967, J. Deeming; W St., Ile-Ife, 1♂ paratype, 15.VII.1970, J. Medler. Upper Volta: Bobo Dioulasso, 4 paratypes (♂Q), 1–2.XI.1973, Linnavuori. Types in coll. Linnavuori. Length 3.0–3.5 mm. Like the preceding species but a little smaller. The whitish spot on clavus broader. Body somewhat broader. Eyes much smaller, ocular index in \bigcirc 1.58–1.74, in \bigcirc 2.4–2.5. Head in both sexes about 0.66 × as broad as basal width of pronotum, in profile as long as high, in apical view 1.13–1.19 × as broad as high. Proportions between antennal joints 17:61:42:40 (\bigcirc), 17:71:44:41 (\bigcirc), 2nd joint in \bigcirc 1.42 ×, in \bigcirc 1.54 × as long as diatone, in \bigcirc 0.94, in \bigcirc 1.01 × as long as basal width of pronotum.

Male genitalia in Fig. 45j-k.

Genus Hadrodapus gen. n.

Type species: H. rhodops Linnavuori.

Opaque reddish brown species. Elytra with two whitish spots, one at base, the other at apex of corium. Antennae whitish ochraceous. Legs pale ochraceous, apices of femora slightly embrowned.

Body short, broad and flat. Hair covering on upper surface short, smooth and pale. Head remarkably small, much narrower than pronotum, in apical view much broader than high with lower part bluntly rounded in outline, head in lateral



Fig. 47. Laemocoris reuteri Jakovlev: a) male, dorsal view; b–c) female, dorsal and lateral view. — Pongocoris kiritshenkoi (Poppius): d) male, dorsal view. — After Linnavuori 1964.

view much higher than long with frons nearly vertically sloping ventrad, tylus prominent, separated from frons by distinct insinuation; vertex weakly convex, basal margin ecarinate; eyes very small, strongly granulose, hairy. Antennal pits near lower corners of eyes. Antennae short, relatively incrassate, with short adpressed pubescence. Rostrum extending to middle coxae. Pronotum short and broad, strongly broadening caudad, lateral margins nearly straight, humeral angles prominent, basal margin shallowly insinuated; collar small, distinctly delimited only laterally, calli faint, roundedly elevated; disk flattish, gradually sloping caudad. Scutellum moderately convex. Elytra longer than abdomen, costal margins subparallel, provided with tuberculate stridulatory device. Legs short. Hind femora with distinct stridulatory device. Tibiae short, incrassate, hair covering short, dense. 3rd joint of hind tarsus shorter than 2nd. Claws gracile, with small pseudarolia.

A very distinctive genus. The broad and short body and short extremities indicate a specialized mode of life possibly under bark. All of the specimens were collected at lamps in rain forests.

H. rhodops sp. n.

Figs. 451-r, 46c

Ile-Ife, 1^o paratype, 16.VIII.1970, J. Medler. Central African Republic: Bossangoa - Bossembele, 1^o paratype, 2.VI.1973, Linnavuori. Types in coll. Linnavuori.

Length 2.75 mm. Opaque. Dark reddish brown. Eyes red. Antennae whitish ochraceous. Elytra: clavus and corium brown, base of corium with whitish spot narrowly extending on to the adjacent part of clavus, another whitish spot on apicolateral angle of corium; cuneus dark brown with purplish tinge; membrane brownish smoky. Under surface dark to reddish brown. Legs pale yellowish brown, apices of femora embrowned.

Body remarkably broad, about $2.3 \times as \log as$ broad. Head $0.5 \times as$ broad as pronotum, in apical view $1.4 \times as$ broad as high, in lateral view $1.2 \times as$ high as long; ocular index 3.0-3.14. Antennae short, relatively incrassate, proportions between joints 11:31:23:10, 1st joint club-like, $0.31 \times as \log as$ diatone, 2nd joint $0.86 \times as \log as$ diatone, $0.44 \times as \log as$ basal width of pronotum. Pronotum about $2.92 \times as$ broad as long in middle. Legs short, hind tibia $1.21 \times as \log as$ basal width of pronotum; hind tarsus $0.25 \times as \log as$ tibia, proportions between joints 7:10:9.

Genus Hallodapus Fieber

Hallodapus Fieber 1858:307. Type species: Capsus coryzoides Herrich-Schaeffer, a synonym of Halticus rufescens Burmeister.

Material studied: Ivory Coast: Man, female holotype, 1¢ paratype, 14–21.X.1973, Linnavuori. Nigeria: W St.,

Allodapus Fieber 1861:362 (invalid emendation).

- Eroticoris Douglas & Scott 1865:71. Type species: Halticus rufescens Burmeister (Carvalho 1858:167).
- Plagiorhamma Fieber 1870:250. Type species: Capsus suturalis Herrich-Schaeffer (Carvalho 1952:70).
- Tyraquellus Distant 1904:471. Type species: Leptomerocoris albofasciatus Motschulsky (Carvalho 1952:70).
- Trichofulvius Poppius 1909:19. Type species: T. fasciatus Poppius (Schuh 1984:117).
- Serebaeus Distant 1910:11. Type species: S. discriminatus Distant (Carvalho 1952:70).
- Rodriguaria China 1925:165. Type species: R. scotti China (Carvalho 1952:70).
- Eremachrus Lindberg 1958:105-106. Type species: E. graminum Lindberg, syn. n.
- Plagiorhamma Wagner 1970. 57–72, Linnavuori 1973:87– 89, 1975:76–80.

Hallodapus Schuh 1974:91-103, 1984:117-131.

Color: Usually black to brown. The basic pattern of the elytra consists of pale subbasal and apicolateral spots on the corium, the former spot often extends on to the clavus. These spots may be connected with each other by a pale band along the costal margin. In *H. basilewskyi* only the apicolateral pale spot exists. In the *concolor* group the entire body is uniformly pale ochraceous, grayish or orangish, or the elytra are ornamented by fuscous spots or by dilute red markings.

Body in macropterous form narrow, parallelsided, in brachypterous form pear-shaped. Hair covering on upper surface pale, adpressed or long and erect. Head in apical view broader than long; frons strongly sloping apicad, smooth or provided with transverse lateral rugosities; tylus prominent, \pm vertical, basally separated from frons by shallow notch; vertex flattish, smooth or rugose, basal margin carinate; eyes touching anterior margin of pronotum. Antennal pits near lower corners of eyes; antennae long and \pm gracile. Rostrum extending to or beyond hind coxae. Pronotum in macropterous form strongly broadening caudad, in brachypterous form narrow, lateral margins insinuated, collar broadish, disk weakly convex, smooth or rugose. Apex of scutellum weakly convex. Elytra in macropterous form longer than abdomen, costal margins parallel, with \pm distinct stridulatory area, in brachypterous form narrowly ovate, extending to 5th or 6th tergite. Abdomen not constricted basally. Legs long and gracile; hind femur with stridulatory plectrum; tibiae slender, cylindrical, with short delicate spines; 2nd and 3rd hind tarsomeres of subequal length.

Male genitalia: Styles of the usual shape. Theca simple or provided with subapical process. Vesica long, slender and winding, often provided with small dentate subapical lobe.

Biology: *H. concolor* has several times been found by me by sweeping from grasses and herbs in dry sandy localities in the Middle East. *H. monticolus* (Linnavuori) was similarly found on grasses in mountain meadows in the Sudan. The pale coloring in the *concolor* group in undoubtedly an adaptive character which is connected with life on plants above the ground surface. I have often collected the dark colored *H. costae* under plants in gardens, fields and different desert habitats. I have also found it together with *Monomorium* sp., although the species is apparently not strictly myrmecophilous.

Distribution: Widespread within the Palearctic, Ethiopian and Oriental regions.

Plagiorhamma was regarded as a separate genus by Wagner (1970:67-72), who based his opinion primarily on the antennal structure: 2nd joint about as long as 3rd and much shorter than the combined length of joints 3 and 4 in Plagiorhamma, 2nd joint distinctly longer than 3rd and about as long as the combined length of segments 3 and 4 in Hallodapus. The Euro-Siberian species of Hallodapus (montandoni Reuter, pumilus Horvath, rufescens (Burmeister), and sibiricus Poppius, all of them present in coll. Linnavuori and measured) display, in fact, the latter condition. While most of the Ethiopian species agree with Wagner's records on Plagiorhamma, in some of them (in basilewskyi, especially) the antennal proportions approach those of Hallodapus. Since no other clear distinguishing characters between these taxa was found either, the nomenclature proposed by Schuh (1974:117-131 and 1984:117-131) is followed.

A key to the species of NE Africa and East Africa was published in Linnavuori 1973:87–89 and 1975:76–80.

Key to the Hallodapus species of West and Central Africa

- 1. Color pale grayish or yellowish ochraceous 2
- Coloring different 4
- Upper surface pale grayish ochraceous with sparse dark dots; elytra (Fig. 49d) also with two major black spots quadripunctatus
 Upper surface immaculate, yellowish ochraceous... 3
- Very small, length of brachypterous form 2.5 mm.
- Head, pronotum and scutellum very dark reddish brown graminum
- Larger, length 3.5–3.75 mm (f. macr.), 3.0–3.4 (f. brach.). Head, pronotum and scutellum at most moderately infumed concolor
- 4. Color dark brown to black, apex of corium (Fig. 6b) with squarish or roundish whitish spot. Antennae relatively incrassate basilewskyi

- Eyes (J) very small, ocular index 2.86. 1st antennal joint uniformly ferrugineous. Pale spot on clavus (Fig. 46d) large, roundish verticicus
- 9. Entire upper surface with very long erect hairs. Clavus with distinct pale spot sororculus
- Upper surface with pale adpressed pubescence, elytra sometimes also with longish semierect hairs. Pale claval spot narrow or absent costae
- Dark transverse band separating pale middle and apical spots on elytra (Fig. 35g-h) extending laterally to near costal margin pilosus
- Pale middle and apical spots on corium (Fig. 35m-n) broadly connected with each other laterally .. jocosus

H. concolor (Reuter)

Figs. 48t-u, 49a-c

Plagiorhamma concolor Reuter 1890a:246. Hallodapus concolor Carvalho 1958:168.

Material studied: Cameroon: Mora, 1 ex, 18.V.1973, Linnavuori. Chad: Farcha, 2 exx, 20–22.V.1973, Linnavuori. The Sudan: localities listed in Linnavuori 1975:77. Length 3.50–3.75 mm (f. macr.), 3.0–3.4 (f. brach.). Uniformly pale ochraceous. Head, pronotum and scutellum sometimes reddish brown.

Hair covering longish, semierect. Head strongly rugose with distinct transverse lateral furrows; ocular index 1.73-2.0 (\circlearrowleft), 2.0-2.71 (\circlearrowright). Proportions between antennal joints 9:30:35:22 (\circlearrowright), 9:35:40:22 (\circlearrowright). Lateral margins of pronotum distinctly insinuated, disk rugose, obsoletely punctate.

Male genitalia in Figs. 48t–u, 49a–c. Hypophysis of left style short, obliquely T-shaped. Apex of vesica elongately blade-like, finely serrate marginally.

Distribution: Eremian with an extension into the Pontomediterranean subregion.

H. graminum (Lindberg), comb. n. Fig. 40s

Eremachrus graminum Lindberg 1958:106-107.

Type studied: Ins. Cabo Verde, Antão Mt. Genebra, female holotype, 4.I.1954, Lindberg, in Mus. Helsinki.

Length 2.5 mm (f. brach.). Head, pronotum and scutellum very dark reddish brown, scutellum with faint pale midline. Eyes pale gray. Antennae and elytra pale yellowish. Dorsum of abdomen orangish. Under surface pale yellowish, sides of thorax dark reddish brown. Legs pale yellowish, femora with slight pink tinge.

Hair covering of upper surface pale, longish. Head: frons strongly convex with anterior margin in dorsal view nearly semicircular, surface with strong transverse lateral rugosities; vertex flattish, strongly microsculptured; eyes small, ocular index 2.71. Antennae long and gracile, proportions between joints 23:81:73:45, 2nd joint $2.22 \times$ as long as diatone, $1.60 \times$ as long as basal width of pronotum. Pronotum broadening caudad, lateral margins nearly straight; disk flattish, strongly and densely rugose and wrinkled. Scutellum densely transversely striated. Elytra elongately ovate, shorter than abdomen, obsoletely punctate and rugose. Legs gracile.

Distribution: The Cape Verde Islands.

Very close to *H. concolor* but differing in the small size and the dark colored head and thorax.



Fig. 48. *Glaphyrocoris unifasciatus* Reuter (holotype): a) head and thorax in lateral view (scutellum in an unatural position with only the apical part visible); b–d) left style in different views; e–g) theca in different views; h–i) vesica (h in glycerine, i in slide mount); j–k) apex of vesica (k of a paratype of *torridus*). — *Pongocoris vittatus* (Odhiambo): I) left style; m–n) theca in different views; o) vesica. — *P. opertus* Linnavuori: p) theca (in same view as Fig. n). — *Hallodapus pseudoconcolor* (Linnavuori): q–r) male and female in dorsal view; s) male head in lateral view. — *Hallodapus concolor* (Reuter): t) vesica (slide mount); u) apex of vesica in broad aspect. — q–s after Puchkov 1975.

H. quadripunctatus (Linnavuori), comb. n. Figs. 49d, 50g-k

Plagiorhamma quadripunctatus Linnavuori 1975:78.

Types studied: The Sudan, Equatoria, Juba, male holotype, 27.II–2.III.1963, Linnavuori. Ivory Coast, Lamto, 4 paratypes, 17.VIII.1965, 12.IV.1968, 24.IV–9.VII.1969, D. Gillon & A. Pollet, in coll. Linnavuori.

Material studied: Ivory Coast: Adiopodoumé, 1 ex, 2.VI.1950, H. Gruis; Gouméré, 1 ex, 19.IX.1973, Linnavuori. Nigeria: NE St., Gembu - Yelwa, 1 ex, 22.VIII.1973; B Pl St., Makurdi, 1 ex, 30.VIII.1973; R St., Ebubu near Bori, 3 exx, 2.VII.1973, Linnavuori. Central African Republic: Bossangoa - Bossembele, 1 ex, 2.VI.1973, Linnavuori.

Length 3 mm. Pale grayish or grayish ochraceous. Upper surface, including head, pronotum and scutellum, with sparse round dark brown dots. Head with dark brown lateral arcs, sides with reddish tinge. Antennae pale ochraceous, base of 1st joint embrowned, apex with red ring. Disk of pronotum with fine brownish irroration. Elytra with a large round spot near apex of claval suture on corium and a similar spot in basal lateral area of cuneus dark purplish or blackish brown; membrane brownish smoky. Femora dark brown, extreme tips of femora and other parts of legs whitish.

Body gracile. Hair covering pale consisting of short adpressed pubescence and long semierect hairs. Head and pronotum smooth. Ocular index 1.40-2.0. Proportions between antennal joints 21:72:75:43, 2nd joint about $1.38 \times as$ long as basal width of pronotum.



Fig. 49. *Hallodapus concolor* (Reuter): a–b) left style; c) theca. — *H. quadripunctatus* (Linnavuori): d) apical part of elytron. — *H. albofasciatus* (Motschulsky): e) left style; f) theca; g) apex of vesica. — *H. curtipes* (Linnavuori): h) head and pronotum in lateral view; i–j) left style; k) theca. — *H. pilosus* (Reuter): l) pygofer, dorsal view; m) apex of vesica; n) left style; o) right style; p) theca. — *H. sororcula* (Linnavuori): q) right style; r) left style; s) theca; t) vesica. — *H. lucidulus* (Linnavuori): u–v) left style; w) theca. — *H. similis* (Poppius) (holotype): x) right style; y) theca. — *H. jocosus* (Linnavuori): z) right style; ä–ö) theca. — *After* Linnavuori 1973 and 1975.

Male genitalia in Fig. 50g-k. Vesica long, winding, apex with two dentate lobes.

Distribution: West Sudanese.

H. basilewskyi (Carvalho)

Figs. 6b, 40a-f

Azizus basilewskyi Carvalho 1951:110. Hallodapus basilewskyi Schuh 1974:81. Azizus dispar Odhiambo 1959:668–670, syn. n. Plagiorhamma punctatulus Linnavuori 1975:77, syn. n.

Types studied: Zaire, Elisabethville, male holotype of *basilewskyi*, II.1940, H.J. Brédo, in Mus. Tervuren. Uganda, Kawanda, male holotype of *dispar*, 18.II.1958, *C* paratype of *dispar*, 25.X.1958, Odhiambo, in the British Museum. The Sudan, the type series of *punctatulus*, Equatoria, Lotti

forest, male holotype, 14–17.III.1963; Ibba - Yambio, 1 paratype, 16–18.IV.1963; Loka forest, 1 paratype, 8– 10.IV.1963; Yei - Maridi, 3 paratypes, 13–14.IV.1963, Linnavuori, in coll. Linnavuori.

Material studied: Ivory Coast: Man, 1 ex, 14– 21.X.1973, Linnavuori. Nigeria: W S t., Ile-Ife, 1 ex, 5.VIII.1969, J. Medler. Zaire: Katanga, Kipopo, 1 ex, 17.XII.1970 and Lubumbashi, 1 ex, 7–8.IV.1974, A. B. Stam.

Length 3.5–4.0 mm. Shiny. Head dark reddish brown, subopaque. Antennae orangish, 4th joint dark. Pronotum and scutellum black. Elytra dark or blackish brown, apex of corium with a squarish or roundish whitish spot, rarely also base of corium slightly paler, cuneus dark purplish, membrane uniformly dark brown. Under


Fig. 50. *Hallodapus basilewskyi* (Carvalho): a) right style; b–c) left style; d) theca; e) vesica; f) apex of vesica. — *H. quadripunctatus* (Linnavuori): g–h) left style; i) theca; j) vesica; k) apex of vesica. — *H. costae* (Reuter) (ex from Nsukka): I) right style; m–n) left style; o) theca.

surface dark reddish brown. Legs reddish brown, middle and hind coxae pale.

Robust, body $3.3 \times as$ long as broad. Hair covering golden, adpressed. Head strongly shagreened; ocular index about 1.4 (\circ) or 2.27 (\circ). Antennae relatively incrassate, proportions between joints 9:30:24:14, 2nd joint slightly longer than basal width of pronotum, distinctly longer than 3rd. Pronotum strongly broadening caudad, nearly twice as broad as long in middle, anterior part shagreened, disk finely punctate and rugose. Scutellum transversely wrinkled. Elytra finely punctate, longer than abdomen.

Male genitalia in Fig. 50a–f. Apex of vesica with a broad marginally serrate lobe.

Biology: At lamps in rain and luxuriant savanna forests.

Distribution: Apparently Guinean.

H. albofasciatus (Motschulsky)

Figs. 35e, 49e-g

Leptomerocoris albofasciatus Motschulsky 1863:86.

- Hallodapus albofasciatus Carvalho 1952:72, Schuh 1974:94-96, 1984:120.
- Plagiorhamma albofasciatus Linnavuori 1975:78.
- Tyraquellus reuteri Poppius 1914:51-52 (Schuh 1974:94).
- Hallodapus tenuis Odhiambo 1959:664-668, 685 (Schuh 1974:94).
- Trichophthalmocapsus chariensis Odhiambo 1967:1678-1681 (Schuh 1974:94).

Types studied: East Africa, Amani, male holotype of *reuteri*, Vosseler, in Mus. Helsinki. Central African Republic, Dar Banda mér., Krébédje (Fort Sibut) male holotype of *chariensis*, XI.1904, J. Decorse, in Mus. Paris.

Material studied: Nigeria: NW St., Badeggi, 1 ex, 22.XII.1968, J. Medler, 1 ex, 8–9.VIII.1973, Linnavuori; NE St., Lankoviri, 1 ex, 24.VIII.1973, Linnavuori. The Sudan: localities listed in Linnavuori 1975:78.

Length 2.75–3.5 mm. Head, pronotum and scutellum dark brown. Antennae yellowish or orangish, base of 1st joint dark, apex with red ring. Elytral pattern characteristic: ground color dark reddish brown or purplish, a broad white transverse fascia from costal margin to basal third of commissural margin of clavus, apicolateral white spot on corium large. Under surface dark brown. Femora dark reddish brown, other parts of legs yellowish.

Body gracile. Hair covering on upper surface long, erect, pale. Ocular index 1.40–1.44 (\circlearrowleft), 1.95 (\circlearrowright). Proportions between antennal joints 23:70: 60:? (\circlearrowright), 25:70:65:42 (\circlearrowright); 2nd joint slightly longer than 3rd, 1.38–1.55 (\circlearrowright) or 1.23–1.25 (\circlearrowright) × as long as basal width of pronotum.

Male genitalia in Fig. 49e-g. Distribution: Paleotropical.

I have followed the generally accepted nomenclature, although Kerzhner & Jansson (1985: 37), who examined the meager remnants of the two existing syntypes of *Leptomerocoris albofasciatus* Motschulsky from Mont Patannas in Sri Lanka, found out that they evidently represent another species of uncertain position.

H. verticicus Odhiambo

Figs. 41j-m, 46d

Hallodapus verticicus Odhiambo 1967:1671-1673.

Type studied: Central African Republic, Oubangui-Chari, Bar-Banda mér., Krébédjé (Fort Sibut), male holotype, X.1904, J. Decorse, in Mus. Paris.

Length 3.35 mm. Ferrugineous. Head, pronotum and scutellum shiny. 1st antennal joint ferrugineous, 2nd yellowish. Elytra with broad white band on clavus and corium just at level of apex of scutellum, the band does not reach claval commissure but extends across embolium; also a large round white area at outer apex of corium, and including embolium; membrane smoky fuscous. Fore coxae shiny ferrugineous; mid and hind coxae yellowish brown towards apices (legs lost).

Body elongate, moderately slender. Upper surface with minute pale adpressed pubescence, elytra also with a very few scattered, erect pale hairs. Eyes very small, ocular index 2.86. 1st antennal joint $0.65 \times as$ long as diatone, 2nd 1.22 \times as long as basal width of pronotum. Male genitalia in Fig. 41j-m.

Distribution: Only known from Central African Republic.

H. curtipes (Linnavuori), comb. n. Figs. 6c, 49h-k, 51g

Plagiorhamma curtipes Linnavuori 1975:79.

Types studied: The Sudan, Equatoria, Yambio, male holotype, 3 paratypes, 17–25.IV.1963; Yei - Maridi, 1 paratype, 13–15.IV.1963, Linnavuori, in coll. Linnavuori.

Material studied: Nigeria: NE St., Serti, 3 exx, 28.VIII.1973, Linnavuori.

Length 2.5–3.5 mm. Shiny. Head reddish. Antennae fulvous. Pronotum black or reddish brown. Scutellum dark brown. Elytra dark brown, with two large well-delimited whitish spots and a small whitish spot at apex of clavus; membrane dark smoky with a paler spot at lateroapical angle of cuneus. Under surface dark brown. Legs yellowish brown, apices of femora and tibiae reddish, tarsi pale.

Body small, relatively robust. Hair covering long, erect, yellowish. Vertex distinctly shagreened, with a median sulcus; ocular index 1.71. Antennae relatively thick, proportions between joints 8:21:19:13, 1st joint $0.62 \times as$ long as diatone, 2nd as long as basal width of pronotum. Pronotum strongly widening caudad, $1.75 \times as$ broad as long in middle, lateral margins shallowly insinuated, disk uneven, finely and sparsely punctate, wrinkled, at calli also shagreened. Legs remarkably short, hind femora incrassate.

Male genitalia in Figs. 49i-k, 51g. Vesica long and winding, apex straight, serrate, provided with a roundish subapical lobe.

Distribution: Apparently Chado-Nilotian.

H. costae (Reuter)

Figs. 351, 40q-r, 501-o, 51a-f

Laemocoris costae Reuter 1890:257.

Allodapus longicornis Reuter 1904:12 (Linnavuori 1961:4). Hallodapus costae Linnavuori 1961:4.

Laemocoris poseidon Kirkaldy 1902b:315, syn. n.

Allodapus aethiopicus Reuter 1907:25, syn. n.

Hallodapus quadrimaculatus Schuh 1974:98-99, syn. n.



Fig. 51. *Hallodapus costae* (Reuter): a–c) vesica and apex of vesica in two angles (ex from Nsukka); d) apex of vesica (ex from Lubumbashi); e–f) apex of vesica (lectotype of *poseidon*). — *H. curtipes* (Linnavuori) (ex from Serti): g) vesica. — *H. lucidulus* (Linnavuori) (holotype): h) vesica. — *H. similis* (Poppius) (holotype of *discoidalis* Poppius): i) left style; j) theca; k) vesica. — *Laemocoris nomadicus* Linnavuori: I) apex of vesica. — *L. fetensis* Linnavuori: m) right style; o) theca.

Types studied: Guinea, Addah, male lectotype of *poseidon* (Linnavuori 1973:88), Reitter, in Mus. Helsinki; East Africa, Ins. Pemba, Funda, male holotype of *aethiopicus*, in Mus. Helsinki; South Africa, Transvaal, Pretoria, male paratype of *quadrimaculatus*, 6.XI.1967, J. & S. Slater, T. Schuh, in coll. Linnavuori.

Material studied: Several exx from Ivory Coast: Foro-Foro, 25–28.IX.1973, Linnavuori. Nigeria: NW St., Badeggi, 8–9.VIII.1973; W St., Olokemeji forest, 9.VII.1973; B Pl St., Katsina Ala, 19.VIII.1973, Makurdi, 30.VIII.1973; E C St., Nsukka, 30.VI.1973, Linnavuori. Chad: Farcha, 20–22.V.1973, Linnavuori. The Sudan: localities listed in Linnavuori 1975:79. Eritrea: Ghinda, 31.V.1963, Linnavuori. Zaire: Katanga, Lulumbashi, 22– 23.X.1970, A. B. Stam.

Length 3.30–3.75 mm (f. macr. rightarrow qq), 3.25 mm. (f. brach. q). Opaque. Black. Eyes brown. Antennae pale ochraceous, base of 1st joint black, extreme apex reddish. Elytra blackish brown; the white spot on the anterior half of the corium

extends at most narrowly on to the adjacent part of the clavus, clavus usually completely black, apical white spot on corium large, cuneus dark purplish; membrane uniformly dark. The elytral pattern of a brachypterous female is seen in Fig. 40r. Femora dark brown, legs otherwise pale.

Hair covering on upper surface pale short and adpressed, elytra sometimes also with longish semierect hairs. Body of the macropterous form gracile. Ocular index 1.35–1.45. Proportions between antennal joints 20:66:65:50 (\circlearrowleft), 2nd joint about as broad as basal width of pronotum. Pronotum strongly broadening caudad, lateral margins insinuated. Body of brachypterous specimens elongately pear-shaped. Ocular index about 2.1. Proportions between antennal joints 22:66:65:50 2nd joint 1.50 × as long as basal width of pronotum. Pronotum narrowish, lateral margins shallowly insinuated. Elytra narrowly ovate in outline, shorter than abdomen.