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New and interesting African Cixiidae (Homoptera, Fulgoroidea), with notes on synonymy

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Van Stalle, J. 1984: New and interesting African Cixiidae (Homoptera, Fulgoroidea), with notes on synonymy. — Ann. Zool. Fennici 21: 105–128.

Notes are given on the taxonomy and distribution of fifty-seven Cixiidae. The following new taxa are described: *Brixia minor* sp.n., *Andes aeneus* sp.n., *A. fuscus* sp.n., *Oliarus pellucidus* sp.n., *O. meridianus* sp.n., *O. obsoletus* sp.n., *O. nigeriensis* sp.n., *O. peregrinus* sp.n., *O. aeneus* sp.n., *O. flavifrons* sp.n., *O. fuscimarginatus* sp.n., *O. fuscisignatus* sp.n., *O. decempunctatus* sp.n., *O. flavescens* sp.n., *O. nitens* sp.n., *O. somaliensis* sp.n., *O. fusculus* sp.n., *O. aethiops* sp.n., *O. pseudoballista* sp.n., *O. atricollis* sp.n., *O. pseudovarians* sp.n., and *Myndus eboricola* sp.n.; further, notes are given on the synonomy of five species and one subspecies: *Oliarus africanus* Synave (= *O. varii* Synave), *Oliarus bingervillei* Synave (= *O. gabonicus* Synave), *Oliarus garambaensis* Synave (= *O. hyperides* Fennah), *Oliarus runingensis* Synave (= *O. iasis* Linnavuori), and *Oliarus lootensi* Synave (= *O. ladas* Fennah). *Andes similis* subsp. *mafingeanus* Fennah is synonymized with the nominate form.

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1. Introduction

This paper deals with African Cixiidae collected mainly by Dr. R. Linnavuori (Finland) and Prof. J.T. Medler (Nigeria) in West Africa, and with a small collection from Nigeria sent to me by Dr. J.C. Deeming (Cardiff, United Kingdom). The occasion has been taken to list some unpublished data from the accessions in the Koninklijk Belgisch Instituut voor Natuurwetenschappen (K.B.I.N.).

Twenty-two species are described as new to science and our present knowledge of previously described species is greatly enlarged by the presence of first records for many African countries. In addition, five *Oliarus* species and one subspecies of the genus *Andes* are synonymized with previously described forms, and more detailed descriptions are given of *Andes bistriatus* Synave, *Andes tigrinus* Fennah, *Brixia speciosa* Nuir, *Oliarus longipennis* Melichar, *O. runingensis* Synave, *O. masinissa* Fennah, *O. frenatus* Jacobi, *O. bouakeanus* Kirkaldy, and *Cixius terminalis* (Jacobi).

2. List of species

Genus Andes Stål

Andes bistriatus Synave (Fig. 1)

Andes bistriatus Synave, H., 1960, Expl. Parc nat. Garamba, Fasc. 18(2): 16, Figs. 14-18.

Material examined: 1 ♂, Nigeria, W. State, Ikoga, I.1975; 1 ♀, W. State, Agbabu, V.1973 (J.T. Medler, Coll. K.B.I.N.).

The external characters, pygofer, genital styles and anal segment are the same as those described and figured by Synave (1960). The aedeagus (Fig. 1) differs slightly from the holotype, especially in the shape of the curved spine. It is my opinion that these differences are not of specific value, particularly as the genital styles of both specimens are the same. These are typical of most *Andes* species. The determination of the female is tentative, and is based mainly on the colour pattern of the tegmina. The species has hitherto been recorded from Zaire (Garamba).

Andes lallemandi Synave

Andes lallemandi Synave, H., 1953, Expl. Parc. nat. Albert, Fasc. 79(2): 14. Fig. 1a.

Material examined: 1 ♂, Nigeria, Niger Prov., Kurmi, 55 miles south of Kontagora, 28.VII.1971 (J.C. Deeming, Coll. Nat. Museum of Wales, Cardiff); 1 ♂, Nigeria, M.W. State, Benin, 1.IV.1975; 3 ♂ 5 ♀, W. State, Ikoga, I.1975 (J.T. Medler), Coll. K.B.I.N.).

Andes saegeri Synave

Andes saegeri Synave, H., 1960, Expl. Parc. nat. Garamba, Fasc. 18(2): 16, Figs. 19-22.

Material examined: 1 ♂, Zaire, Mapolo, route Likati, VIII/IX/X.1950 (Ch. Verbeke, Coll. K.B.I.N.).

Andes similis Synave

Andes similis Synave H., 1953, Expl. Parc. nat. Upemba, Fasc. 23: 10, Figs. 1-3.

Andes similis subsp. *mafingeanus* Fennah, R.G., 1957, Ann. Mus. Roy. Congo belge, 8°, Scient. Zool. 59: 22, Figs. 10, a-c. Syn. nov.

Fennah erected the subspecies *mafingeanus*, based mainly on differences in the genital styles and in the spinulation of the aedeagus. I had the opportunity to examine the holotype, which is definitely identical to the holotype of the nominate form: there are no differences between the male genitalia, and the error was probably caused by Synave's inaccurate figure. Accordingly, the subspecies *Andes similis mafingeanus* has to be synonymized with the nominate form. The species occurs in the south eastern part of Zaire, in and around the "Parc National Upemba".

Andes tigrinus Fennah (Figs. 2-4)

Andes tigrinus Fennah, R.G., 1957, Ann. Mus. Roy. Congo belge, 8°, 59: 25, Figs. 13, a-d.

Material examined: 1 ♂, Nigeria, W. State, Ile-Ife, 2.II.1973; 1 ♀, same locality, 7.XI.1972; 1 ♀, SE. State, Onya, 1.IV.1975 (J.T. Medler, Coll. K.B.I.N.).

Male genitalia: Pygofer (Fig. 3) and genital styles (Fig. 4) as illustrated. Aedeagus (Fig. 2) with three slender spines, inserted apically and directed cephalically; a fourth broad spinose process along the right side.

This species was described from Zaire, and only females have hitherto been recorded. The material listed above was compared with the type material deposited in the Koninklijk Museum voor Midden-Afrika (Tervuren).

Andes aeneus sp.n. (Figs. 5-7)

Material examined: Holotype ♂ — Nigeria, SE St. Obudu Cattle Ranch, 16/18.VIII.1973 (Coll. Linnavuori).

Paratypes: 8 ♂ 13 ♀, same locality (Coll. Linnavuori, 2 ♂ 2 ♀, in Coll. K.B.I.N.); 1 ♂, same locality, 2.III.1971 (J.T. Medler, Coll. K.B.I.N.).

Description: Colour pale stramineous; a brown spot on the hind corners of the vertex. Tegmina hyaline, with five dark spots on each tegmen and indistinct brown fumations like those of *Andes decempunctatus* Van Stalle.

Male genitalia: Anal segment, pygofer (Fig. 5) and genital styles like those of *Andes decempunctatus*. Aedeagus (Fig. 6 & 7) with three spinose processes directed cephalically: two along left side and a shorter one along right side.

Total length: 5 mm.

Diagnosis: *Andes aeneus* is closely related to *Andes decempunctatus* Van Stalle. It is distinguished from the latter by the shape of the male genitalia.

Etymology: The name *aeneus* refers to its close relationship with *Andes decempunctatus*.

Andes fuscus (Figs. 8-11)

Material examined: Holotype ♂ — Nigeria, NE State, nr. Mambila, 23.VIII.1973 (Coll. Linnavuori).

Description: Colour brown; legs and lateral portions of pro- and mesonotum yellowish-brown. Tegmina brown, with some indistinct paler areas.

Male genitalia: Anal segment (Fig. 11) rather short; genital styles (Fig. 10) as illustrated. Dorsolateral angles of pygofer (Fig. 8) rectangular. Aedeagus (Fig. 9) with a long spinose process ventrally near base and a large furcated process along right side.

Total length: 7 mm.

Diagnosis: *Andes fuscus* is distinguished from other species by its brown colour and the shape of the male genitalia.

Etymology: The name "fuscus" refers to its dark colour.

Genus Brixidia Haglund

Brixidia boukokensis Synave

Brixidia boukokensis Synave, H., 1980, Bull. Inst. r. Sci. nat. Belg., 52(4): 10, Figs. 23-27.

Material examined: 1 ♂ 1 ♀, Zaire, Mapolo, route Likati, VIII/IX/X.1950 (Ch. Verbeke, Coll. K.B.I.N.).

This species was previously recorded from the Central African Republic (Boukoko) on Rutaceae.

Brixidia medleri Synave

Brixidia medleri Synave, H., 1980, Bull. Inst. r. Sci. nat. Belg. 52(4): 15, Fig. 33-35.

Material examined: 2 ♂ 1 ♀, Nigeria, W. State, Erin-Odo, 6.XI.1970 (J.T. Medler, Coll. K.B.I.N.).

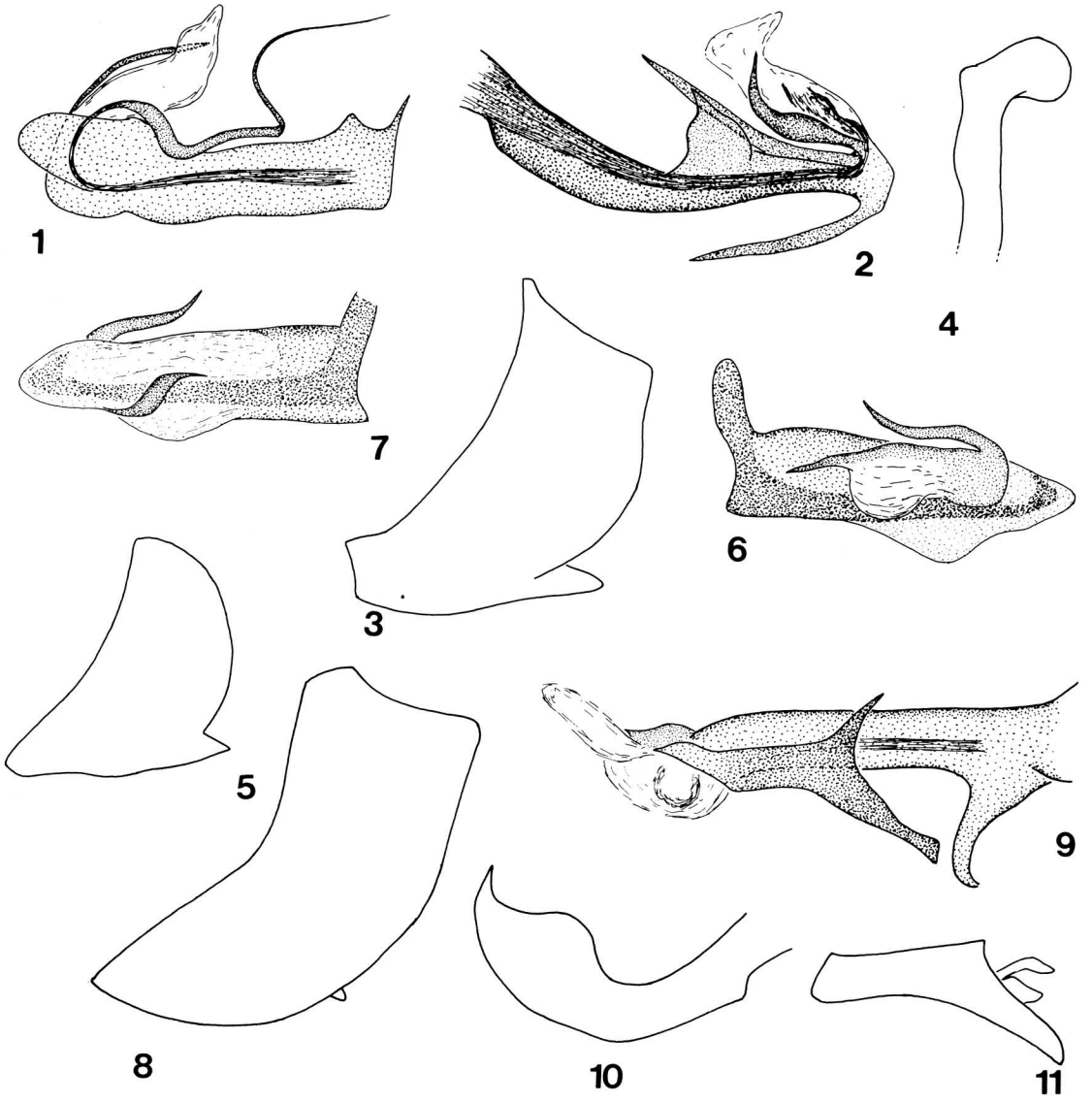


Fig. 1. *Andes bistriatus* Synave. — 1: aedeagus.
Figs. 2-4. *Andes tigrinus* Fennah. — 2: aedeagus; 3: pygofer; 4: genital style.
Figs. 5-7. *Andes aeneus* sp.n. — 5: pygofer; 6: aedeagus, left lateral view; 7: aedeagus, right lateral view.
Figs 8-11. *Andes fuscus* sp.n. — 8: pygofer: 9: aedeagus; 10: genital style; 11: anal segment.

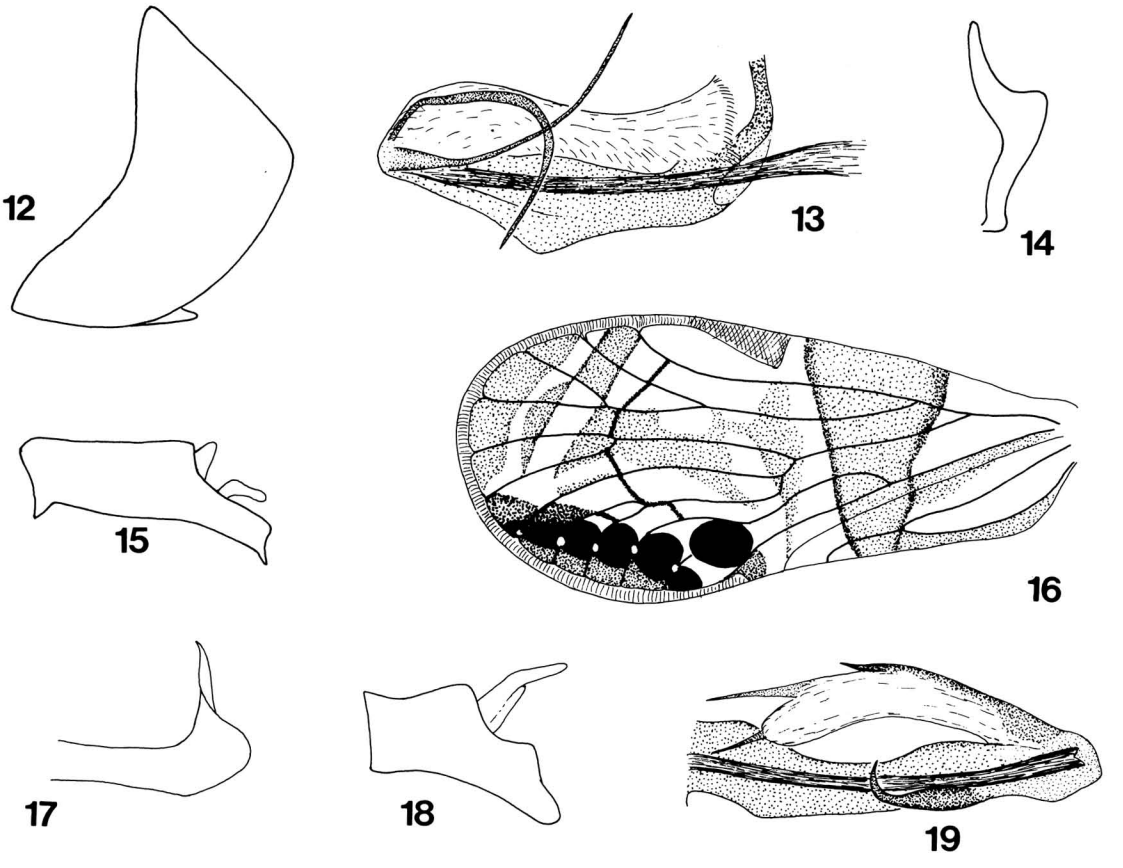
Brixidia rutshuruensis Synave

Brixidia nebulosa Synave, H. (nec Haglund), 1953, Expl. Parc. nat. Albert, Fasc. 79(2): 16, Figs. 2a-b.
Brixidia rutshuruensis Synave, H., 1980, Bull. Inst. r. Sci. nat. Belg. 52(4): 6, Figs. 10-14.
Material examined: 1 ♂ 7 ♀, Zaire, Titule, IX/X/XI.1949 (Ch. Verbeke, Coll. K.B.I.N.).

Genus Brixia Stål

Brixia minor sp.n. (Figs. 12-15)

Material examined: Holotype ♂, Ivory Coast, Mt. Tonkoui, 15/22.X.1973 (Coll. Linnavuori).
Paratypes: 1 ♂ 1 ♀, same locality (Coll. Linnavuori, 1 ♂ in Coll. K.B.I.N.).



Figs 12-15. *Brixia minor* sp.n. — 12: pygofer: 13: aedeagus; 14: genital style; 15: anal segment.
Figs. 16-19. *Brixia speciosa* Muir. — 16: left tegmen; 17: genital style; 18: anal segment; 19: aedeagus.

Description: Colour uniformously yellowish-brown; head and pronotum somewhat paler; antennae brown.

Male genitalia: Anal segment (Fig. 15), pygofer (Fig. 12) and genital styles (Fig. 14) as illustrated. Aedeagus (Fig. 13) with two spines, implanted apically, one directed dorsally and the other running ventrally.

Total length: 5-6 mm.

Diagnosis: This species is easily characterized by its small size, uniform colour, and the shape of the aedeagus.

Etymology: The name refers to its small size.

Brixia electa Synave

Brixia electa Synave, H., 1971, Bull. Inst. r. Sci. nat. Belg. 47(39): 4, Figs. 5-9.

Material examined: 1 ♂ 5 ♀, Nigeria, MW. State, Benin, 1.IV.1975; 1 ♂, W. State, Ile-Ife, 9.III.1975; 1 ♂, W. State, Ikoga, 1.I.1975 (J.T. Medler, Coll. K.B.I.N.).

Brixia nigeriana Synave

Brixia nigeriana Synave, H., 1971, Bull. Inst. r. Sci. nat. Belg. 47(39): 2, Figs. 1-4.

Material examined: 1 ♂, Nigeria, nr. Opobo, 3.VII.1973 (Coll. K.B.I.N.).

Brixia speciosa Muir (Figs. 16-19)

Brixia speciosa Muir, F., 1923, Ann. Mag. Nat. Hist. 11: 554.

Material examined: 3 ♂ 1 ♀, Nigeria, W. State, Ile-Ife, 27.II.1973, 16.IX.1971, 4.VII.1972; 2 ♀, NW. State, Badeggi RRS, 9.IX.1970 (J.T. Medler, Coll. K.B.I.N.); 1 ♂, B. Pl. State, Katsina Ala, 19.VIII.1973; 1 ♂, Togo, nr. Palimé, 13/14.IX.1973 (Coll. Linnavuori).

Description: Colour stramineous, abdomen brown, two brown streaks on lateral parts of frons. Tegmina (Fig. 16)

provided with seven roundish black spots along inner apical angle, the first elevated above the surface of the tegmina. Further, a series of translucent well-defined brown markings; veins concolorous, provided with a high number of yellowish setae.

Male genitalia: Anal segment (Fig. 18) short, pygofer simple; genital styles (Fig. 17) provided apically with a large dorsal spine. Aedeagus (Fig. 19) with one spine on left side, and a long flagellum with three subequal spinose processes along its dorsal and apical margin. In some specimens, the left lateral spine is smaller than illustrated in Fig. 19.

Total length: 6.5 mm.

Diagnosis: This species belongs to an attractive group of Cixiidae, consisting of *Brixia dundoensis* Synave, *B. krameri* Synave, and *B. speciosa* Muir, and characterized by a series of black shining spots along the inner apical angles of the tegmina. *Brixia speciosa* Muir is distinguished from these species by the shape of the genital styles and by the different spinulation on the aedeagus.

Genus Oliarus Stål

Oliarus africanus Synave

Oliarus africanus Synave, H., 1959, Rev. Zool. Bot. Afr., LIX, 1-2; 15, Figs. 43-45.

Oliarus varii Synave, H., 1959, Bull. Inst. r. Sci. nat. Belg. XXXV, 30: 6, Figs. 11-14. Syn. nov.

These two names definitely refer to the same species, which is widely distributed in Africa; it has been recorded from West Africa to the southern part of East Africa: Liberia (Suakoko), Zaire (Lubumbashi), Zimbabwe (Salisbury), Tanzania (Nyaka), North Transvaal (Satara) and Zambia (Livingstone).

Oliarus ballista Fennah

Oliarus ballista Fennah, R.G., 1958, Bull. I.F.A.N. XX(2): 464, Fig. 1; 6-11.

Material examined: 4 ♂ 4 ♀, Nigeria, Bauchi, Kwangi, 14/20.III.1974 (Coll. Linnavuori).

This West African species has hitherto been recorded from the Sudan (Fennah 1958), Senegal (Synave 1979) and Zaire (Synave 1960).

Oliarus bingervillei Synave

Oliarus bingervillei Synave, H., 1968, Ann. Mus. Roy. Afr. Centr., 165, 8°; 446, Figs. 1-4.

Oliarus gabonicus Synave, H., 1979, Bull. Inst. r. Sci. nat. Belg. 51(6): 2, Figs. 4-10. Syn. nov.

Oliarus bingervillei; Van Stalle, J., 1982, Bull, Inst. r. Sci. nat. Belg. 54(6): 4.

Material examined: 1 ♂ 2 ♀, Cameroon, Bota, 15/20.VI.1973 (Coll. Linnavuori); 2 ♂, Nigeria, W. State, Ife, 14.VIII.1973; 1 ♂, MW. State, Benin, 1.IV.1975 (J.T. Medler, Coll. K.B.I.N.).

I had the occasion to examine the type material of both species. The only difference I could discover was the length of the long apical spine. However, additional material collected in Nigeria and Cameroon shows that the length of this spine is variable, with extreme forms represented by specimens described as *Oliarus bingervillei* Synave (shortest spine) and *O. gabonicus* Synave (longest spine). Possibly this spine is shorter in all specimens occurring in the Ivory Coast and more to the West, while it becomes longer towards Central Africa. However, this statement has to be confirmed by the examination of further material.

Oliarus bingervillei is widely distributed in West Africa, ranging from the Ivory Coast to the Sudan (Equatoria), Gabon and the Central African Republic. It seems to be confined to the lowland rain forest.

Oliarus formosus Synave

Oliarus formosus Synave, H., 1960, Expl. Parc nat. Garamba, Fasc. 18(2): 35, Figs. 62-66.

Material examined: 1 ♂ 1 ♀, Nigeria, N.C. State, Zaria, 2/3.VIII.1973 (Coll. Linnavuori).

Oliarus garambaensis Synave

Oliarus garambaensis Synave, H., 1960, Expl. Parc nat. Garamba 18(2): 29, Fig. 43-47.

Oliarus hyperides Fennah, R.G., 1961, Mm. I.F.A.N. 62: 307, Fig. 2, a-g. Syn. nov.

Oliarus garambaensis; Synave, H., 1971, Bull. Inst. r. Sci. nat. Belg. 47(39): 6.

Material examined: 1 ♂, Chad, Farcha, 20/22.V.1973 (Coll. Linnavuori).

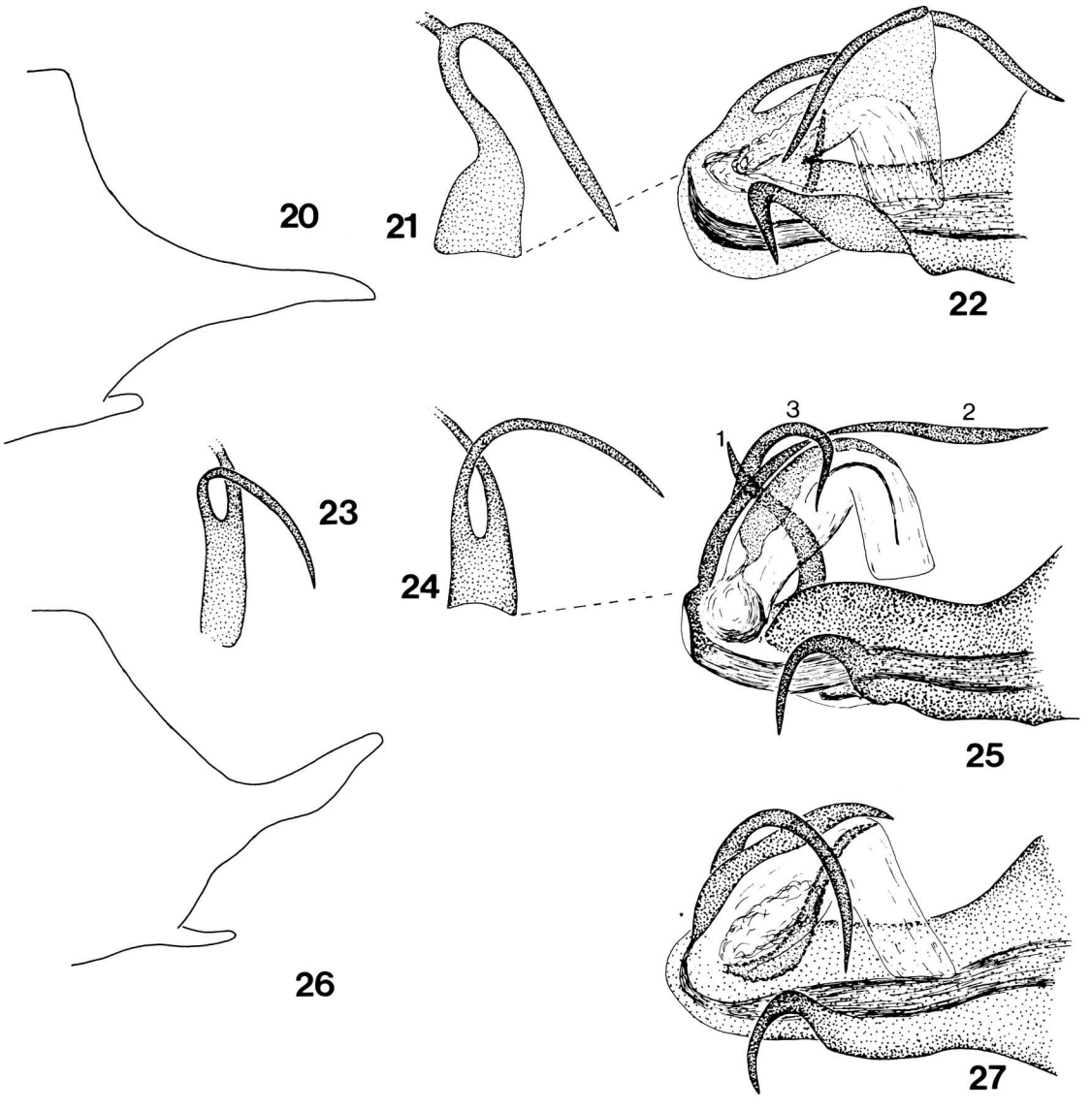
The illustrations and descriptions by Synave (1960) and Fennah (1961) show that both names refer to the same species, and that it was described simultaneously by both authors.

Oliarus garambaensis Synave is widely distributed in West Africa; it has hitherto been recorded from Zaire (Garamba), Senegal (Badi) and Nigeria (Serti).

Oliarus lamottei Synave

Oliarus lamottei Synave, H., 1963, Bull. I.F.A.N. 66: 449, Figs. 2-4.

Material examined: 1 ♂, Cameroon, Abong Mbang, 13.VI.1973 (Coll. K.B.I.N.).



Figs. 20-22. *Oliarus longipennis* Melichar. — 20: pygofer; 21: apical spines of aedeagus, caudal aspect; 22: aedeagus, specimen from Lubumbashi.

Figs. 23-27. *Oliarus runingensis* Synave. — 23: apical spines of aedeagus, caudal aspect, holotype of *Oliarus iasis* Linnavuori; 24: apical spines of aedeagus, caudal aspect, holotype *Oliarus runingensis* Synave; 25: aedeagus, holotype *Oliarus runingensis* Synave; 26: pygofer, holotype *O. runingensis*; 27: aedeagus, specimen from Musosa.

Oliarus limbifer Hesse

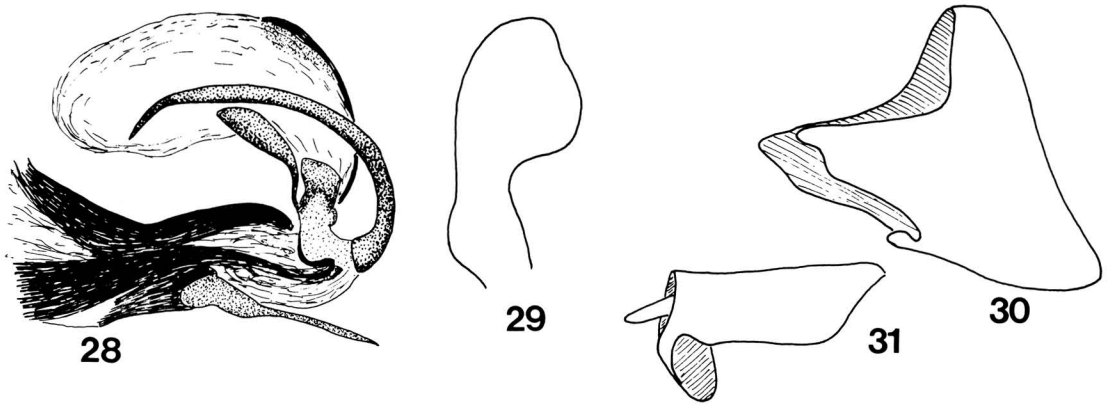
Oliarus limbifer Hesse, A.J., 1925, Ann. South Afr. Mus. 23: 151, Pl. VII, Fig. 4.

Material examined: 2 ♂ 1 ♀, Nigeria, Shagunu, XII.1974: 1 ♂ 1 ♀, Chad, Farcha, 20/22.X.1973 (Coll. K.B.I.N.); 3 ♂, Kw. State, Shaganu, 20/22.VII.1973; 2 ♂ 9 ♀ NE. State, Potiskum, 17.V.1973 (Coll. Linnavuori).

Oliarus longipennis Melichar (Figs. 20-22)

Oliarus longipennis Melichar, L., 1911, Bull. Mus. Hist. Nat. Paris, p. 114.

Material examined: 5 ♂ 2 ♀, Zaire, Lubumbashi, 20.XII.1983, à la lumiére.



Figs. 28-31. *Oliarus masinissa* Fennah. — 28: aedeagus, ventral view; 29: genital style; 30: pygofer; 31: anal segment.

The male genitalia of this species were illustrated by Synave (1953), but were drawn from an awkward angle, and not really useful for the purpose of identifying the species. I found seven specimens in the accessions of the Brussels Museum which could be related to this species. Dr. P. Lauterer (Moravské Museum, Brno) compared the specimens with the holotype, and confirmed the determination. The male genitalia are figured in this paper (Figs. 20 to 22). In fact, this species is closely related to *Oliarus runingensis* Synave. The vertex of the latter is slightly longer and the veins are less bordered with brown. Concerning the male genitalia, spine 2 and 3 of *Oliarus longipennis* Mel. are fused together over a considerable length, while they tend more to be separate in *Oliarus runingensis* (Figs. 21 & 24), because the common stem is shorter and broader; the ventral spine is smaller and thinner in *Oliarus longipennis*, and the caudal appendages of the pygofer are straight (Fig. 20), whereas they are slightly upcurved in *O. runingensis* (Fig. 26).

Oliarus runingensis Synave (Figs. 23-27)

Oliarus runingensis Synave, H., 1962, Rev. Zool. Bot. Afr. LXV(1-2): 34, Fig. 6-8.

Oliarus iasis Linnavuori, R., 1973, Not. Ent., LIII: 98, Figs. 49, a-e. Syn. nov.

Material examined: 1 ♂ 2 ♀, Musosa, XI.1939. (H.J. Brédo, Coll. K.B.I.N.); 1 ♂ 2 ♀, The Sudan, Upper Nile, Malakal, 5/20.I.1963 (*Oliarus iasis* Lv.)

I had the opportunity to compare the type material of *Oliarus runingensis* and *O. iasis*, kindly sent to me by Dr. U. Dall'Asta (Tervuren) and Dr. R. Linnavuori (Raisio, Finland). Both names refer to the same species, *Oliarus iasis* thus being a junior synonym of *O. runingensis*. The species is characterized by the rather short common stem of spine 2 and 3 (Fig. 24), the broad ventral spine (1 in Fig. 25). and the appendage along the posterior margin of the pygofer (Fig. 26), which is slightly upcurved. It is a rather variable species concerning the aedeagus, especially the proportions of the second and third spine (compare Figs. 25 & 27). Further, in specimens from Malakal (described as *O. iasis*), the common stalk of spine 2 and 3 (Fig. 23) is intermediate between *Oliarus longipennis* and *O. runingensis* (holotype). However, the features mentioned above easily separate these specimens from *O. longipennis*.

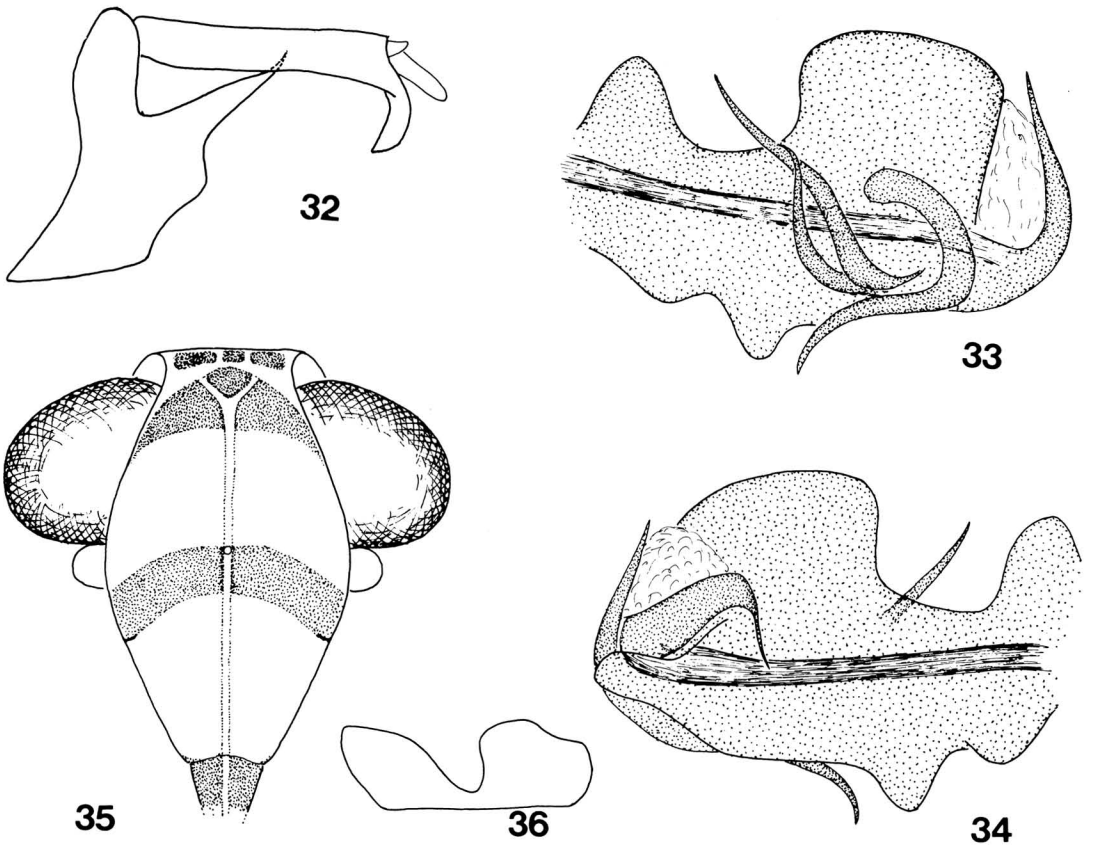
The species has been recorded from Zaire (Kivu, Runingo; Musosa) and from the Sudan (Upper Nile, Malakal).

Oliarus masinissa Fennah (Figs. 28-31)

Oliarus masinissa Fennah, R.G., 1957, Ann. Mus. Roy. Congo belge, 8°, 59: 38, Figs. 22, 23 a-f.

Material examined: 3 ♂ 5 ♀, Nigeria, EC St., Umuahia, 10.IV.1975 (J.T. Medler, Coll. K.B.I.N.): 1 ♂, Zaria, Samaru, 19.IX.1970 (Coll. Linnavuori).

The aedeagus was not drawn at quite the right angle by Fennah (1957), which makes the determination rather difficult. The male terminalia (Figs. 28 to 31) are redrawn in this paper, based on a male specimen from Umuahia. The aedeagus (Fig. 28) bears a long curved spine which runs along the flagellum, and a straight spine, which is directed caudally.



Figs. 32-36. *Oliarus frenatus* Jacobi. — 32: pygofer and anal segment; 33: aedeagus, ventral view; 34: aedeagus, dorsal view; 35: face; 36: genital style.

Oliarus lootensi Synave

Oliarus lootensi Synave, H., 1956, Rev. Zool. Bot. Afr. LIII(3-4): 365, Figs. 1-4.

Oliarus ladas Fennah, R.G., 1957, Ann. Mus. Roy. Congo belge, 8°, Sci. Zool., 59: 40, Fig. 24, a-d. Syn. nov.

Oliarus lootensi; Synave, H., 1968, Ann. Mus. Roy. Afr. Centr., 8°, 165: 445.

Oliarus lootensi; Synave, H., 1968, Ann. Mus. Roy. Afr. 71(2): 182.

I had the occasion to compare the holotype of *Oliarus ladas* Fennah with the type material of *O. lootensi* Synave. They definitely belong to the same species, namely *O. lootensi*, which was described first in 1956.

The species has been recorded from various localities: Zaire, Tshuapa, Bokuma (holotype); Ubangi, Motenge-Boma; Lubumbashi; Liberia, Mt. Coffee; The Ivory Coast, Bingerville.

Oliarus frenatus Jacobi (Figs. 32-36)

Oliarus frenatus Jacobi, A., 1910, Sjöstedts Kilimandjaro-Meru Expedition, 12: 106, Pl. 1, Figs. 15, 15a.

Material examined: 1 ♂ 1 ♀, Tanzania, Kilimandjaro, Kibonoto, Kulturzone 1300 - 1900 m. (Naturhistoriska Riksmuseet, Stockholm)

Redescription: Face yellow, anteclypeus, a band near vertex and above frontoclypeal suture dark brown to black (Fig. 35). Vertex yellow, anterior compartments dark brown; pronotum and mesonotum yellow, lateral parts of the first with a black spot, the second with four dark longitudinal streaks. Tegmina hyaline, with three transverse streaks near costal margin between base and stigma; posterior half of stigma, transverse veinlets, ends of apical veins and a spot along inner apical angle brown. Veins yellow with some brown spots, legs yellow.

Male genitalia: Anal segment long, straight, apical angles directed ventrally. Posterior lateral margins of pygofer (Fig. 32) with a long spinose projection directed dorsocaudally. Genital styles (Fig. 36) short, subsymmetrical, left one with a shallow excavation, right one gently rounded at apex.

Aedeagus (Fig. 33 & 34) with two dorsal spines inserted near apex, and three curved ventral spines.

Total length: ♂ 4.5 mm, ♀ 5.5 mm.

Diagnosis: The species is easily characterized by the typical colour pattern of the face and the shape and spinulation of the male genitalia.

Oliarus medanicus Linnavuori

Oliarus medanicus Linnavuori, R., 1973, Not. Ent., LIII: 96, Figs. 37 h-k.

Material examined: 1 ♂, Chad, Farcha, 20/22.V.1973 (Coll. K.B.I.N.)

Oliarus mendax Synave

Oliarus mendax Synave, H., 1960, Expl. Parc nat. Garamba, Fasc. 18(2): 30, Figs. 48-51.

Material examined: 5 ♂ 2 ♀, Chad, Bebedja, 28/31.V.1973 (Coll. Linnavuori & Coll. K.B.I.N.); 1 ♂, Nigeria, NW. State, Mokwa, XII.1974; 1 ♂, EC. State, Umuahia, 10.IV.1975 (J.T. Medler, Coll. K.B.I.N.); 1 ♂, NE. State, Lankoviri, 24.VIII.1973; 2 ♂, Upper Volta, Ouagadougou, 3/5.IX.1973 (Coll. Linnavuori); 3 ♂ 3 ♀, Nigeria, Zaria, Samaru, VI.1979 (J.C. Deeming, Nat. Museum of Wales).

Oliarus mendax Synave is probably a common species in West Africa. It has hitherto been recorded from Zaire, Chad, to Upper Volta and the Ivory Coast.

Oliarus moestus (Stål)

Cixius moestus Stål, C., 1855, Öfv. Svensk. Vet. Akad. Förh., 12: 92.

Material examined: 1 ♂, Zaire, Musosa, X/XI.1939 (H.J. Brédo); 2 ♂, Zimbabwe, Redcliff, 1966 (L. Scarrot, Coll. K.B.I.N.); 1 ♂, Cameroon, Buea-Kumba, 20.VI.1973; 1 ♂, Nigeria, Zaria, Samaru, 6.XII.1972 (Coll. Linnavuori).

Oliarus moestus subspecies *iphis* Linnavuori

Oliarus moestus subsp. *iphis* Linnavuori, R., 1973, Not. Ent. LIII: 91, Fig. 30,c,j.

Material examined: 1 ♂ 2 ♀, Erythrea, Ailet, 30/31.VIII.1963 (Coll. Linnavuori); 1 ♂, Nigeria, Zaria, Samaru, VI.1979 (J.C. Deeming, Coll. Nat. Museum of Wales).

Oliarus nemea Fennah

Oliarus nemea Fennah, R.G., 1958, Bull. I.F.A.N., XX(2): 468, Figs. 4 (1-4).

Material examined: 9 ♂ 6 ♀, Chad, Farcha, 20/22.V.1973; 1 ♂, Bebedja, 28/31.V.1973 (Coll. Linnavuori).

Oliarus pidigalensis Synave

Oliarus pidigalensis Synave, H., 1960, Expl. Parc. Nat. Garamba, Fasc. 18(2): 31, Figs. 52-57.

Material examined: 1 ♂, Zaire, Libenge, 23.II.1948, Savane Liki-Bembe (R. Cremer - M. Neuman, Coll. K.B.I.N.).

Oliarus praeneste Fennah

Oliarus praeneste Fennah, R.G., 1958, Bull. I.F.A.N. XX(2): 469, Figs. 4 (5-8).

Material examined: 1 ♂, Niger, Mataméye, 15.V.1973 (Coll. K.B.I.N.).

Oliarus sterope Linnavuori

Oliarus sterope Linnavuori, R., 1973, Not. Ent., LIII: 94, Figs. 33 f-j.

Material examined: 1 ♂, N.O. Afrika, S. Galla, 12.IV.1901 (Coll. K.B.I.N.).

Oliarus verheyeni Synave

Oliarus verheyeni Synave, R., 1953, Expl. Parc nat. Upemba, Fasc. 23: 26, Figs. 19-21.

Material examined: 2 ♂ 2 ♀, Zaire, Musosa, XI.1939 (H.J. Brédo, Coll. K.B.I.N.); 3 ♂ 4 ♀, the Ivory Coast, Lamto, 8/9.X.1973 (Coll. Linnavuori).

Oliarus verheyeni is probably a common species in West Afrika. It has hitherto been recorded from Zaire and from the Sudan. The present captures in the Ivory Coast extend the range of this species appreciably.

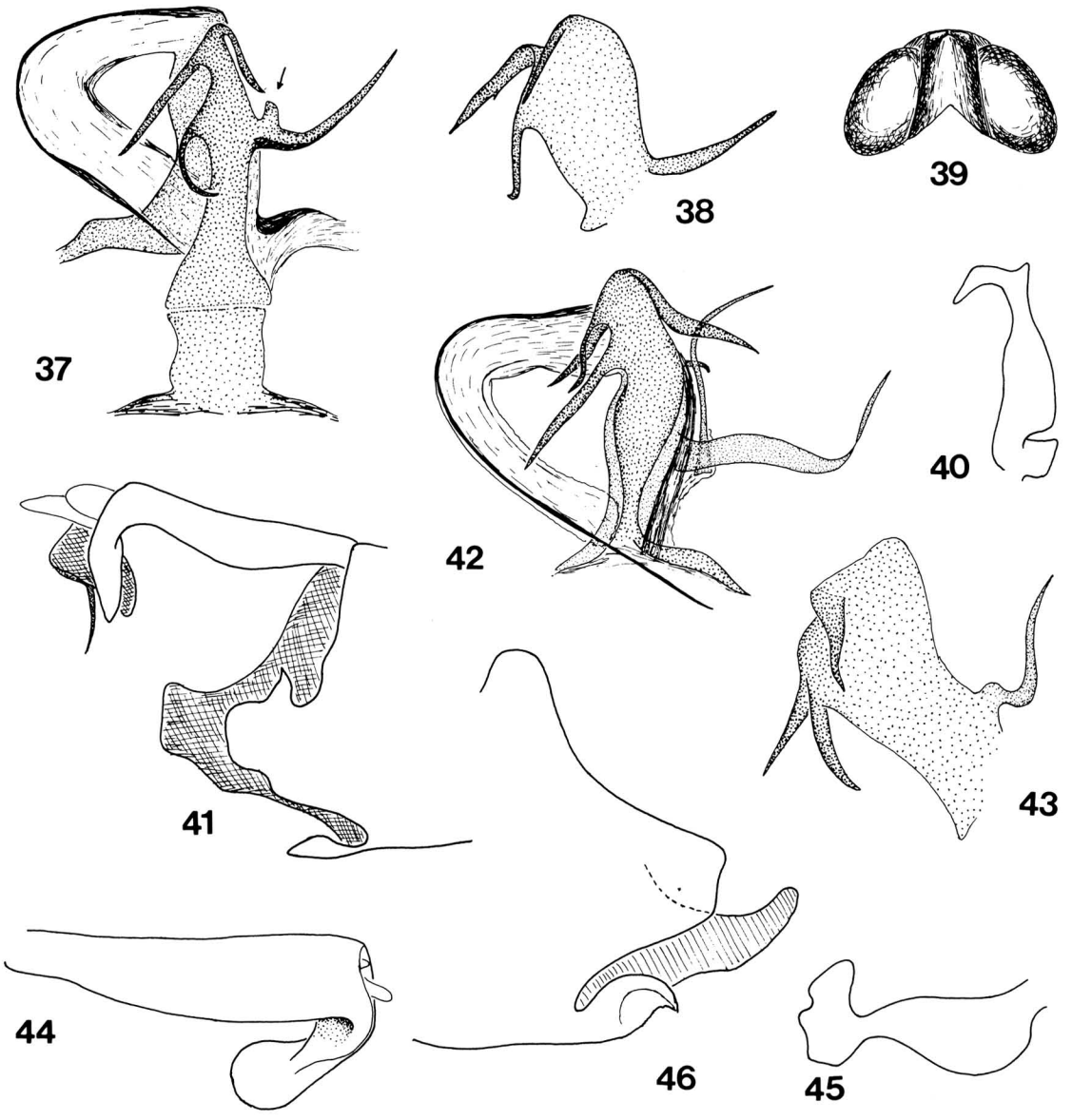
Oliarus pellucidus sp.n. (Figs. 37-41)

Material examined: Holotype ♂ — Upper Volta, Bobo Dioulasso, 1/2.XI.1973 (Coll. Linnavuori).

Paratype: 1 ♀, same locality (Coll. Linnavuori).

Description: Frons, clypeus, rostrum, vertex and mesonotum dark brown to black; pronotum and keels of frons, clypeus and vertex pale yellowish. Frons slightly broader along the widest part than long along the median line (33:28); vertex (Fig. 39) as broad as width of an eye, longer medially than broad at apex of posterior emargination (17:15). Tegmina hyaline, stigma dark brown, veins yellow, dark in the apical part. Legs yellow femora dark brown.

Male genitalia: Anal segment broad, asymmetrical, right lateroapical angle deflexed ventrally, left angle provided with a slender spine. Pygofer (Fig. 41) asymmetrical, lateral margins each produced into a subequal quadrate lobe, but right side with a supplementary tooth on dorsal part of quadrate lobe. Medioventral process large, triangular and obtusely rounded at apex. Genital styles (Fig. 40) as illustrated. Aedeagus (Fig. 37) with a dorsal chitinous plate (Fig. 38) provided with four spines: three along dorsal margin and one along ventral margin. A membraneous flagellum



Figs. 37-41. *Oliarus pellucidus* sp.n. — 37: aedeagus, ventral view; 38: chitinous plate of aedeagus; 39: vertex; 40: genital style; 41: pygofer and anal segment.

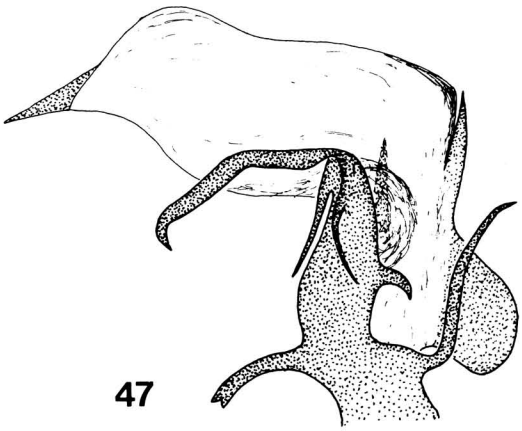
Figs. 42-46. *Oliarus meridianus* sp.n. — 42: aedeagus, ventral view; 43: ventral chitinous plate, lateral view; 44: anal segment; 45: genital style; 46: pygofer.

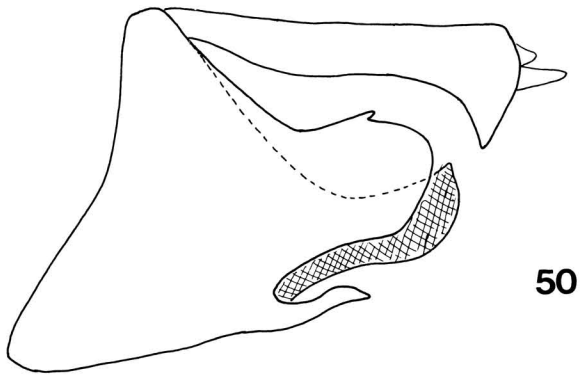
arising on right side of the stem with two flattened and curved spinose processes along its outer margin (only one visible in Fig. 37). It is possible that one spine broke off (indicated by arrow).

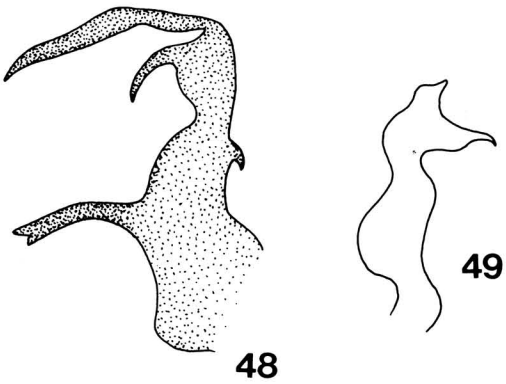
Total length: 5 mm.

Diagnosis: This species has the same type of aedeagus as *Oliarus nigriceps* Synave, *O. angolensis* Synave, *O. lamottei* Synave, *O. sakinae* Synave, *O. pidigalensis* Synave, *O. lupialensis* Synave, *O. kankundensis* Synave, and *O. lukawensis* Synave. All these species are easily distinguished from one another by the shape of the aedeagus, pygofer and genital styles. As far as I know, *Oliarus pellucidus* sp.n. is the only species with a spine on the left lateroapical angle of the anal segment.

Etymology: The name refers to the hyaline tegmina.







Figs. 47-50. *Oliarus obsoletus* sp.n. — 47: aedeagus, ventral view; 48: chitinous plate of aedeagus; 49: genital style; 50: pygofer and anal segment.

Oliarus meridianus sp.n. (Figs. 42-46)

Material examined: Holotype ♂ — Noord Transvaal, M'Pfeu's Kraal, 7.II.1941 (A.L. Capener, Coll. K.B.I.N.).

Description: General colour black, keels of face and vertex, and hind margin of pronotum yellow. Femora brown, tibiae and tarsi yellowish brown to yellow. Tegmina hyaline, veins yellowish brown, apical veins and stigma dark brown.

Male genitalia: Anal segment (Fig. 44) large, subsymmetrical, lateroapical angles meeting along median line and ventrally produced into a blunt process. Pygofer (Fig. 46) asymmetrical, left side with a truncate lobe, right side caudally produced into a finger-like appendix. Right genital style (Fig. 45) as illustrated, left style without an apical incision. Aedeagus (Fig. 42) with two slender spines along right side, inserted basally: the first directed caudally and running parallel to aedeagus, the second transverse to the first, and directed to the right side. Next, a long spine on left side running along flagellum, and a ventral sclerotized plate (Fig. 43) with four spines: three directed to left side and one directed to right side. Finally, a small transverse spine along ventral margin.

Total length: 7 mm.

Diagnosis: This species belongs to the same group as *Oliarus pellucidus* sp.n., characterized by the presence of a ventral sclerotized plate on the aedeagus. It is well-defined by the shape and proportions of the aedeagal spines, and by the form of the anal segment, pygofer and genital styles.

Oliarus obsoletus sp.n. (Figs. 47-50)

Material examined: Holotype ♂ — Nigeria, Birni Yauri, 22.VII.1973 (Coll. Linnavuori).

Paratype: 1 ♂, Nigeria, Katsina-Yahi, 25.VII.1973 (Coll. K.B.I.N.).

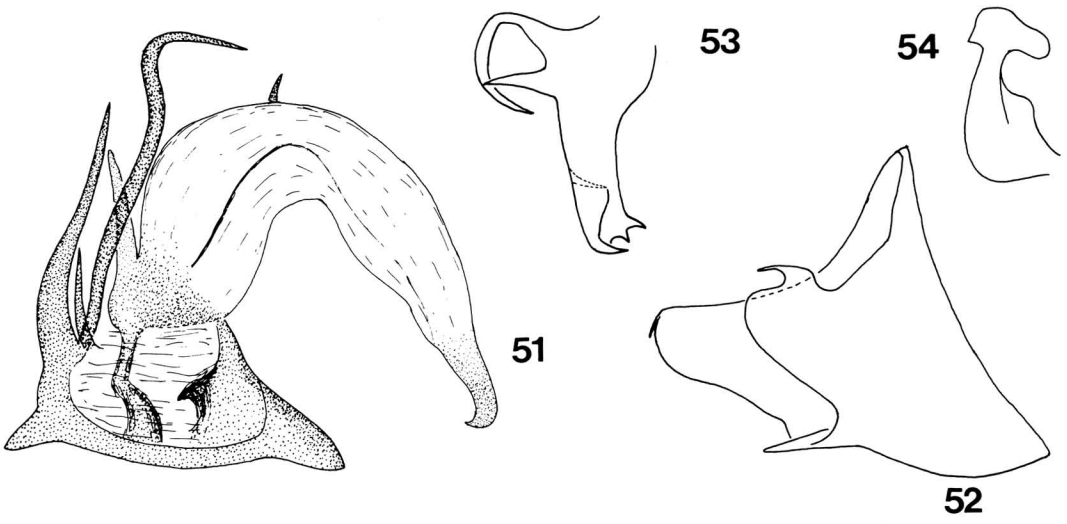
Description: Face, vertex, mesonotum, abdomen and lateral parts of pronotum dark brown to black. Dorsal part of pronotum, apex of mesonotum, tegulae, antennae, and carinae of face and vertex yellow. Carinae of mesonotum and space between outer keels castaneous. Tegmina hyaline with yellow veins. these densely covered with black pustules. Legs yellow. Vertex longer than broad (23:15), less broad than width of an eye; frons slightly broader than long (30:35).

Male genitalia: Anal segment long, symmetrical, lateroapical angles tapering. Pygofer (Fig. 50) asymmetrical, posterior lateral margins each produced into a large lobe; left lobe with a small tooth along its dorsal margin, right lobe more excavated than left. Genital styles asymmetrical, right genital style (Fig. 49) as illustrated, with a spine along its outer margin, left genital style spineless. Aedeagus (Fig. 47) with a dorsal chitinous plate (Fig. 48) armed with four large spines and a small one. Next, two spines on left side directed caudally, a spinose process on apex of flagellum and a minute tooth on ventral surface near base.

Total length: 5 mm.

Diagnosis: This species is characterized by the shape of the male genitalia.

Etymology: The name refers to the dull surface of the mesonotum.



Figs. 51-54. *Oliarus nigeriensis* sp.n. — 51: aedeagus, dorsal view; 52: pygofer; 53: chitinous plate of aedeagus; 54: genital style.

Oliarus nigeriensis sp.n. (Figs. 51-54)

Material examined: Holotype ♂ — Nigeria, Zaria, Samaru, 23.IV.1966 (J.C. Deeming, Coll. Nat. Museum of Wales).

Paratypes: 1 ♂ 2 ♀, same locality (Coll. N. Mus. Wales & Coll. K.B.I.N.); 2 ♂, Chad, Bebedja, 20/31.V.1973 (Coll. Linnavuori).

Description: Frons, clypeus, and vertex dark brown to black, carinae yellow. Pronotum yellowish, fumated with brown. Mesonotum brown, carinae paler. Tegmina milky hyaline, veins yellowish, densely covered with dark pustules. Ends of apical veins, transverse veinlets, and stigma brown. Legs yellowish-brown. Vertex slightly longer than broad (18:14), as wide as an eye.

Male genitalia: Anal segment like that of *Oliarus ndelelensis* Synave. Pygofer (Fig. 52) with lateral margins caudally produced into a large lobe, asymmetrical, right margin with a spinose process dorsally near apex, left side with a small spine. Genital styles (Fig. 54) as illustrated. Aedeagus (Fig. 51) in dorsal view with four slender spines and two short tooth-like spinose processes on flagellum: one at apex and one near base. A sclerotized plate (Fig. 53) ventrally with two basal spines and a spine along left margin; apex with a large tooth and five smaller teeth.

Total length: 5 mm.

Diagnosis: This species is closely related to *Oliarus ndelelensis* Synave. It differs from the latter in the spinulation of the aedeagus, the uniform colour of the tegmina and the proportions of the vertex.

Etymology: The name refers to the type locality.

Oliarus peregrinus sp.n. (Figs. 55-58)

Material examined: Holotype ♂ — Dahomey, nr. Kokoro, 6.IX.1973 (Coll. Linnavuori).

Description: Colour as the preceding, and vertex narrower; longer than broad (22:14), narrower than an eye (14:18).

Male genitalia: Anal segment as *O. ndelelensis*; right lateral margin of pygofer (Fig. 56) with a blunt appendix apically along dorsal margin (left margin damaged). Genital styles (Fig. 56) as figured. Aedeagus (Fig. 55) with three slender spines along right side, a flat median spinose process with a small subapical spine, and a short tooth-like spine on flagellum. A ventral sclerotized plate (Fig. 57), with two spinose processes proximally and tapering distally, and two teeth along caudal margin.

Total length: 5 mm.

Diagnosis: This species belongs to the group of *Oliarus ndelelensis*. It is distinguished from other species by the spinulation of the aedeagus and by the different form of the pygofer.

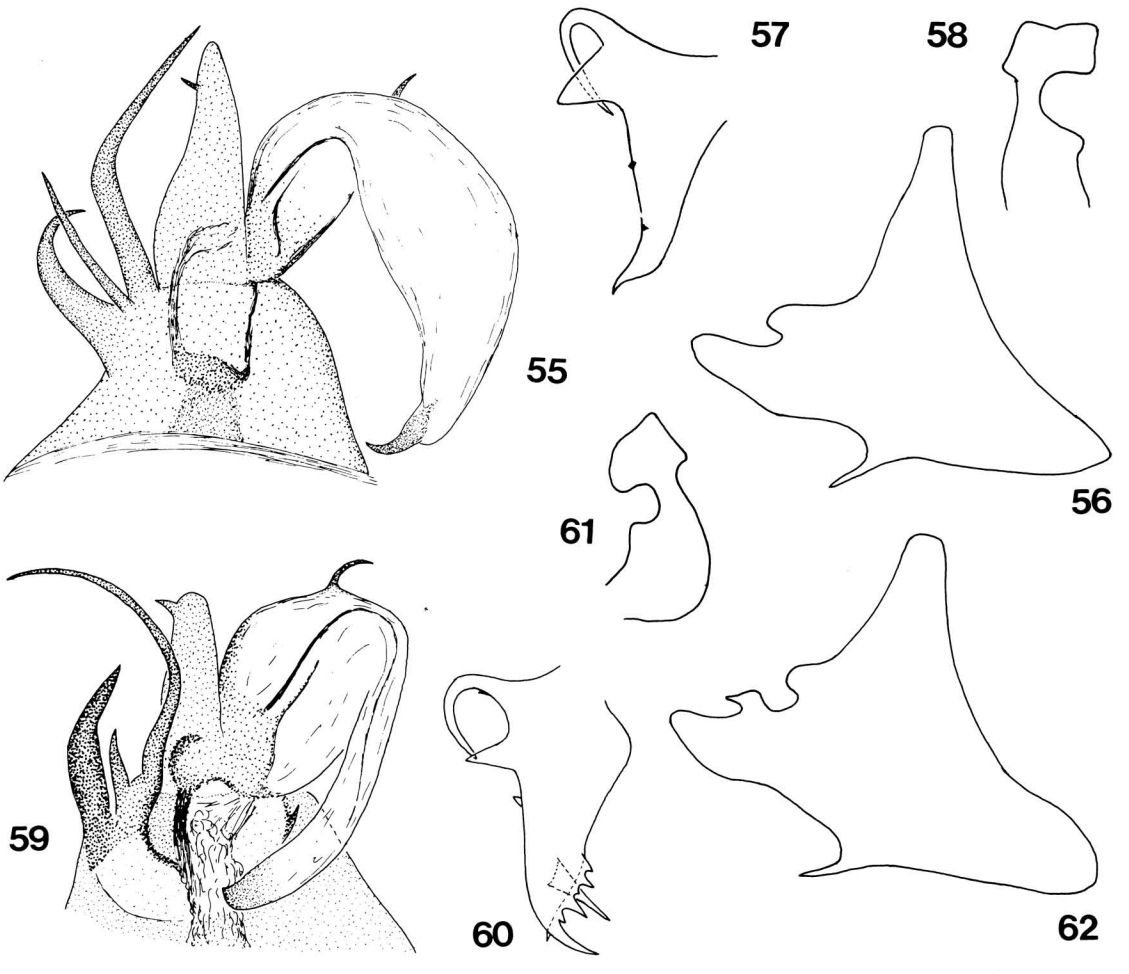
Etymology: The word "*peregrinus*" means "foreign".

Oliarus aeneus sp.n. (Figs. 59-62)

Material examined: Holotype ♂ — Nigeria, Serti, 23.III.1970 (J.T. Medler, Coll. K.B.I.N.).

Paratypes: 2 ♂ 4 ♀, Nigeria, Takum, 19.VIII.1973 (J.T. Medler, Coll. K.B.I.N.).

Description: General colour as the preceding, one male and all females with brown marks on the tegmina as follows: a



Figs. 55-58. *Oliarus peregrinus* sp.n. — 55: aedeagus, dorsal view; 56: pygofer; 57: chitinous plate of aedeagus; 58: genital style.
Figs. 59-62. *Oliarus aeneus* sp.n. — 59: aedeagus, dorsal view; 60: chitinous plate of aedeagus; 61: genital style; 62: pygofer.

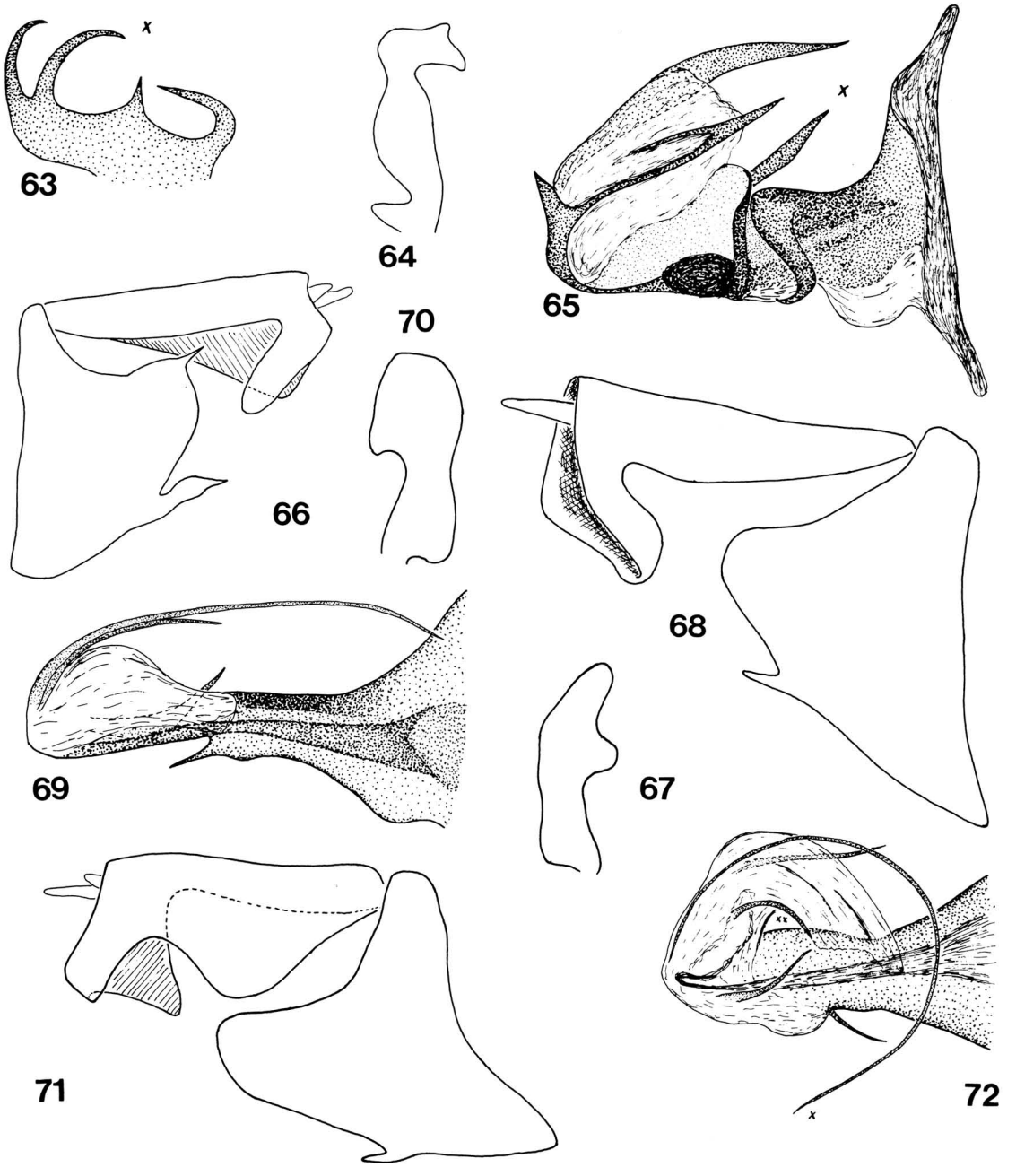
transverse band along base, at level of furcation of Cu, and at level of stigma; dark marks along transverse veinlets and along ends of apical veins, along apex of tegmina and along inner apical angle. Vertex narrower than an eye (16:19), longer than broad (16:20).

Male genitalia: Anal segment like that of *O. ndelelensis*; pygofer asymmetrical, left margin produced into a simple finger-like lobe, right margin (Fig. 62) protruding into a similar lobe, but provided with two small appendices along its dorsal part. Genital styles as figured (Fig. 61). Aedeagus (Fig. 59) with three long spinose processes along right side, the right one of which is very thick, and a median lamelliform process with a short tooth near apex. Further, a small spine caudally and a short tooth along apex of flagellum, one more small tooth visible in dorsal view near base. Finally, a sclerotized plate ventrally, as illustrated in Fig. 60.

Total length: 5-6 mm.

Diagnosis: In 1960 Dr. Synave described *Oliarus ndelelensis* from Ndelele (Zaire). In 1973, Dr. Linnavuori described *Oliarus ndelelensis* subsp. *cleon* from specimens captured in the Sudan (Equatoria, Maridi-Ibba); this subspecies is distinguished from the nominate form by the proportions of the vertex (shorter) and the spinulation of the aedeagal plate. According to the illustrations by Linnavuori (1973) p. 94, Fig. 34, the dorsal aspect of the aedeagus of both subspecies is the same.

In this paper, three new forms are presented, which I describe as separate species: *Oliarus peregrinus* sp.n., *Oliarus nigeriensis* sp.n. and *Oliarus aeneus* sp.n. They are distinguished from one another and from *O. ndelelensis* Synave by the spinulation of the ventral chitinous plate, and by



Figs 63-66. *Oliarus bouakeanus* Kirk. — 63: chitinous plate of aedeagus; 64: genital style; 65: aedeagus; 66: pygofer and anal segment.

Figs. 67-69. *Oliarus flavifrons* sp.n. — 67: genital style; 68: pygofer and anal segment; 69: aedeagus.

Figs. 70-72. *Oliarus fuscimarginatus* sp.n. — 70: genital style; 71: pygofer and anal segment; 72: aedeagus.

the relative length of the right spinose processes of the aedeagus (in dorsal view), in combination with the form of the right lobe of the pygofer. To my opinion, the form of the aedeagal spines is a difficult character, because it varies considerably with a slight change of the orientation of the aedeagus; only the spines' relative length and thickness are of importance.

It is also interesting to note the similar degree of complexity in the right lobe of the pygofer and the spinulation of the ventral aedeagal plate.

Etymology: The name refers to its close relationship to other species of the *ndelelensis* group.

Oliarus bouakeanus Kirkaldy (Figs. 63-66)

Oliarus bouakeanus Kirkaldy, S. W., 1906, Can. Entomol. 38:155.

Material examined: 1 ♂, 2 ♀, the Ivory Coast, Foro Foro, 25/28.IX.1973 (Coll. Linnavuori).

Description: Head, mesonotum and abdomen dark brown to black; legs yellowish; pronotum yellow with brown colour traces. Vertex broader than width of an eye, slightly broader than long (17:19) with two white spots on their lateral carinae; transverse carina prominent and deeply convex. Frons broader than long (30:35). Tegmina hyaline, with a brown transverse band, extending from junction of claval veins to costal margin. Veins yellow, densely covered with black pustules. Transverse veinlets fumated with brown, and indistinct brown colour traces in the apical cells.

Male genitalia: Anal segment asymmetrical, right side straight and broadening distally, left side strongly excavated apically. Pygofer (Fig. 66) almost symmetrical, posterior lateral margins produced into a tapering lobe. Genital styles (Fig. 64) as illustrated. Aedeagus (Fig. 65) on left side with a chitinous plate (Fig. 63) provided with four spinose processes; further a short tooth-like spine apically, two long spines reflected cephalically, and a short curved spine directed ventrally.

Total length: 5-6 mm.

Diagnosis: *Oliarus bouakeanus* Kirk. is easily characterized by the shape of the male genitalia.

Oliarus flavifrons sp.n. (Figs. 67-69)

Material examined: Holotype ♂ — Nigeria, NE. State, nr. Mai Fula, 24.VIII.1973 (Coll. Linnavuori).

Paratype: 1 ♂, the Ivory Coast, Lamto, 8/9.X.1973 (Coll. K.B.I.N.).

Description: Frons, clypeus and rostrum yellow, with two whitish spots along frontoclypeal suture. Frons broader than long (49:43). Vertex almost as wide as an eye (21:26), longer than broad (31:20), black, carinae and hind edges yellow, lateral carinae parallel and transverse keels deeply convex. Pronotum and tegulae yellow, lateral portions of pronotum fumated with brown, mesonotum castaneous, black along median line, keels paler. Legs yellow. Tegmina hyaline, two black streaks along commisural suture, alternating with two yellow spots. Veins yellow and castaneous, black in apical part; transverse veinlets fumated with black; stigma yellowish brown.

Male genitalia: Anal segment asymmetrical; left lateroapical angle rectangulately deflexed ventrally, right angle less broad and more excavated. Pygofer (Fig. 68) symmetrical or nearly so, caudally projected into a blunt lobe. Genital styles short (Fig. 67), asymmetrical, left one shorter than right one. Aedeagus (Fig. 69) with four spines; two long and flattened spines on left side directed cephalically and a curved one ventrally (partly visible on Fig. 69). Further, a short spinose process dorsolaterally directed caudally.

Total length: 7 mm.

Diagnosis: This species is related to *Oliarus orithyia* Fennah and *O. pleone* Linnavuori. It is easily distinguished from these species by the shape of the pygofer and the number and form of aedeagal spines.

Etymology: The name refers to the yellow frons.

Oliarus fuscimarginatus sp.n. (Figs. 70-72)

Material examined: Holotype ♂ — Chad, Farcha, 20/22.V.1973 (Coll. Linnavuori).

Paratype: 1 ♂, same locality (Coll. K.B.I.N.).

Description: Frons dark brown, clypeus yellowish brown with a whitish spot and a dark brown spot along each lateral margin. Vertex as broad as an eye, longer than broad (18:22), dark brown to black, lateral carinae and a spot halfway along yellow. Tegulae and pronotum yellow, lateral portions fumated with brown. Mesonotum dark brown to black, carinae and space between outer keels paler. Tegmina hyaline, commisural margin dark brown with a white spot. An indistinct transverse band from bifurcation of Cu to bifurcation of Sc+R. Apex of tegmina, stigma, and transverse veinlets broadly fumated with dark brown. Veins partly yellow, partly brown. Femora brown, tibiae yellowish-brown, tarsi yellow.

Male genitalia: Anal segment asymmetrical: left ventral margin straight and rectangulately deflexed in a broad lateroapical angle; right ventral margin strongly sinuated and excavated before apex, lateroapical angle less broad. Pygofer (Fig. 71) symmetrical, strongly produced caudally into a blunt triangular lobe, and with a small medioventral process. Genital styles (Fig. 70) as illustrated. Aedeagus (Fig. 72) with five spines divided as follows: a long subcircular flat spine curved inwards and extending beneath level of right side (dorsal view). Two short curved spines dorsally, and two longer ventral ones directed cephalically. There seems to be some variation as regards the length and shape of the aedeagal spines: in the paratype, the spine marked with "x" in Fig. 72 is less curved and much shorter, and does not extend beneath the level of the right margin; the spine marked with "xx" is more curved than that of the holotype.

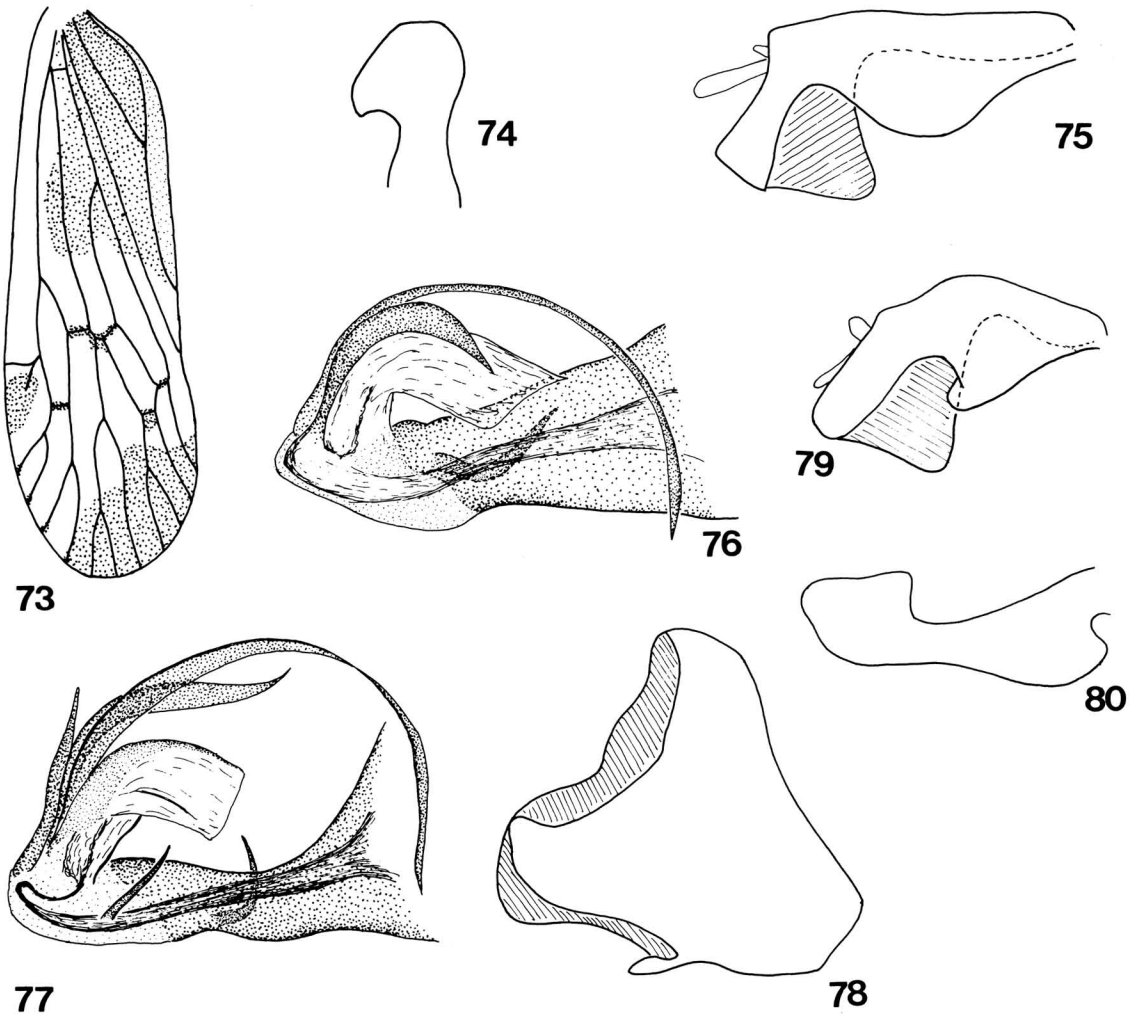
Total length: 5-5.5 mm.

Diagnosis: This species is closely related to *Oliarus mendax* Synave, from which it differs in the brown apex of the tegmina and the presence of one more aedeagal spine.

Oliarus fuscisignatus sp.n. (Figs. 73-76)

Material examined: Holotype ♂ — Nigeria, Zaria, Samaru, 11.VIII.1966 (J.C. Deeming, Coll. Nat. Mus. Wales).

Description: Frons and clypeus yellow, clypeus with a whitish spot on each side near the frontoclypeal suture. Vertex as broad as an eye or nearly so (21:23), slightly longer than broad (24:21), dark brown, carinae and a spot halfway along yellow. Tegulae and pronotum yellow, mesonotum dark brown with pale carinae. Abdomen dark brown. Tegmina hyaline, basal part of tegmina, apex, stigma, and



Figs. 73-76. *Oliarus fuscisignatus* sp.n. — 73: left tegmen; 74: apex of genital style; 75: anal segment; 76: aedeagus, dorsal view.
Figs. 77-80. *Oliarus decempunctatus* sp.n. — 77: aedeagus, dorsal view; 78: pygofer; 79: anal segment; 80: genital style.

transverse veinlets dark brown (Fig. 73). Legs yellow, femora partly fumated with brown and a small dark ring on proximal part of tibiae.

Male genitalia: anal segment asymmetrical (Fig. 75), right ventral margin firmly sinuated and left lateroapical angle broader than right one. Genital styles (Fig. 74) as illustrated. Pygofer damaged. Aedeagus (Fig. 76) with three spines: a long flat one curved inwards along left side and extending to the level of right lateral margin (dorsal view); a short one, flattened and strongly bent, and a third ventral one directed cephalically and curved.

Total length: 6 mm.

Diagnosis: This species is characterized by the conspicious brown marks on the tegmina and by the male genitalia.

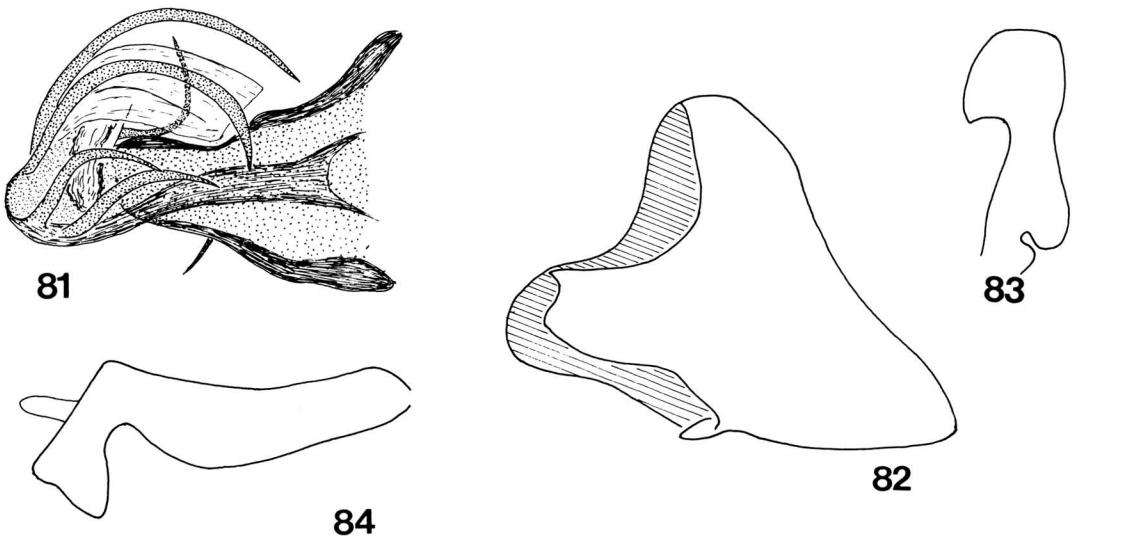
Etymology: The name refers to the colour pattern on the tegmina.

Oliarus decempunctatus sp.n. (Figs. 77-80)

Material examined: Holotype ♂ — Nigeria, Agbabu, 3.III.1973 (J.T. Medler, Coll. K.B.I.N.).

Paratypes: 1 ♂, same locality: 1 ♂ 1 ♀, Onya, 18.III.1971: 1 ♂ 1 ♀, Ile-Ife, 1.VII.1970; 2 ♂ 1 ♀, Umuahia, 10.IV.1975; 2 ♂ 5 ♀, Central African Republic, Bangui, Orstom, 1.V.1970 (Coll. K.B.I.N.).

Description: Frons and postclypeus yellow, the latter with two whitish spots near frontoclypeal suture; anteclypeus and rostrum brown. Vertex dark brown, carinae and hind corners yellowish, as broad as an eye, as long as wide. Pronotum yellow, mesonotum brown, keels and space between two outer keels paler. Abdomen dark brown. Tegmina hyaline, commisural margin brown with a yellowish spot halfway along and near apex. Stigma and five apical transverse



Figs. 81-84. *Oliarus flavescens* sp.n. — 81: aedeagus; 82: pygofer; 83: genital style; 84: anal segment.

veinlets fumated with brown. Veins yellowish-brown with dark pustules. Ends of apical veins dark brown. Legs yellow, fore- and middle femora fumated with brown.

Male genitalia: Anal segment (Fig. 79) large, asymmetrical, dorsal margin convex, right ventral margin strongly incised at middle, left ventral margin convex and abruptly deflexed ventrally at apex, with a subquadrate lateroapical angle. Pygofer (Fig. 78) asymmetrical, caudally produced into a pair of broad unequal lobes, left one broad and subcircular, right one less wide and more acute. Genital styles (Fig. 80) as illustrated. Aedeagus (Fig. 77) with five spines: three flat spinose processes inserted apically and recurved inwards along left side, and two short spines, one inserted dorsally on one-third of apex and one inserted ventrally halfway along aedeagus and curved to left side.

Total length: 7 mm.

Diagnosis: This species resembles *Oliarus africanus* Synave and *Oliarus mendax* Synave. From the first it is easily distinguished by the broader vertex and by the shape of the aedeagus. From the second it differs in the proportions of the spines and in the different shape of the anal segment.

Etymology: The name refers to the number of brown spots on the apical transverse veinlets.

The male paratype of Onya lacks the short ventral spine, which was probably broken off.

Oliarus flavescens sp.n. (Figs. 81-84)

Material examined: Holotype ♂ — Nigeria, Ogoia, 1.III.1971 (Coll. K.B.I.N.).

Paratype: 1 ♂, Onya, 1.IV.1971 (Coll. K.B.I.N.).

Description: General colour yellow, vertex and mesonotum brownish, keels paler. Vertex less broad than an eye (20:23), longer than broad (23:20). Tegmina hyaline, commisural border and stigma yellowish brown.

Male genitalia: Anal segment large, subsymmetrical, dorsal margin concave, ventral margin strongly incised near apex. Pygofer (Fig. 82) asymmetrical, each lateral margin caudally produced into a large lobe, right one slightly excavated apically. Genital styles (Fig. 83) as illustrated. Aedeagus (Fig. 81) with six spines, four of which inserted dorsally near apex and directed cephalically, two along ventral margin, one implanted near apex and another insertd about halfway along the aedeagus.

Total length: 5-6 mm.

Diagnosis: This species is characterized by its yellow colour and the male genitalia.

Etymology: The name refers to its yellow colour.

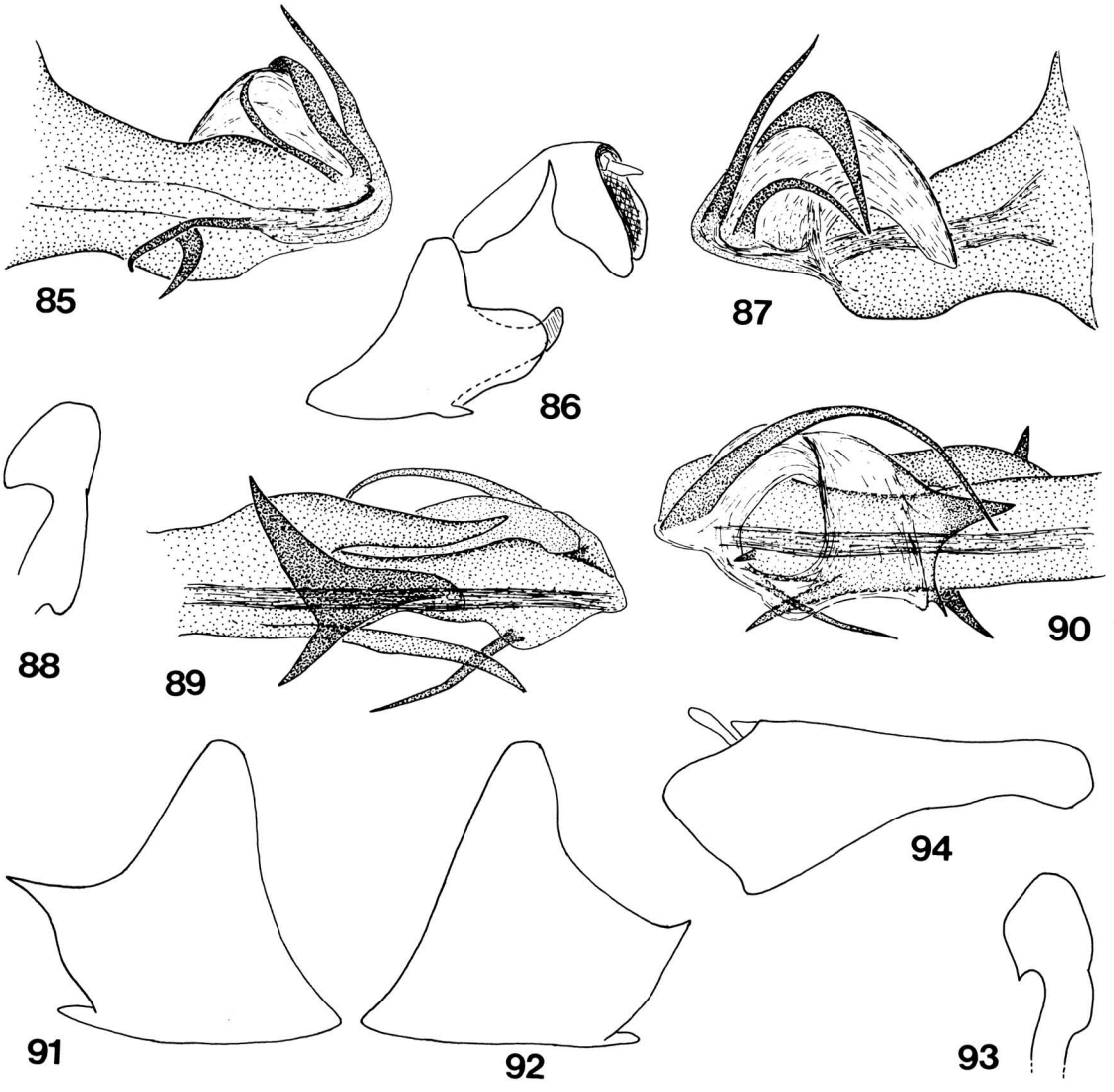
Oliarus nitens sp.n. (Figs. 85-88)

Material examined: Holotype ♂ — Zimbabwe, Mweru-Wantipa, I.1945 (H.J. Brédo, Coll. K.B.I.N.).

Paratypes: 3 ♂ 4 ♀, same locality.

Description: Frons and postclypeus yellow, anteclypeus brown. Vertex brown, carinae and a spot halfway along yellow, as broad as an eye, as wide as long. Pronotum yellow, lateral parts brown. Mesonotum dark brown to black, carinae paler. Legs yellow, femora brown. Tegmina hyaline, shining, veins yellow, stigma yellowish brown.

Male genitalia: Anal segment large, subsymmetrical, dorsal margin convex, left ventral margin deeply and sharply incised near apex, right ventral margin more bluntly excavated. Pygofer (Fig. 86) asymmetrical, left lateral margin with a blunt lobe, right lateral margin with a large finger-like projection. Genital styles (Fig. 88) as illustrated. Aedeagus (Figs. 85 & 87) with six spines: two inserted apically on dorsal margin, one inserted on ventral margin and recurved dorsally; further, three spines inserted along ventral margin, respectively near apex, at one-third of way up to apex, and halfway along aedeagus.



Figs. 85-88. *Oliarus nitens* sp.n. — 85: aedeagus, dorsal view; 86: pygofer and anal segment; 87: aedeagus, ventral view; 88: genital style.

Figs. 89-94. *Oliarus somaliensis* sp.n. — 89: aedeagus, ventral view; 90: aedeagus, dorsal view; 91: pygofer, right side; 92: pygofer, left side; 93: genital style; 94: anal segment.

Total length: 6-7 mm.

Diagnosis: This species is characterized by the colourless hyaline tegmina, and the shape of the male genitalia.

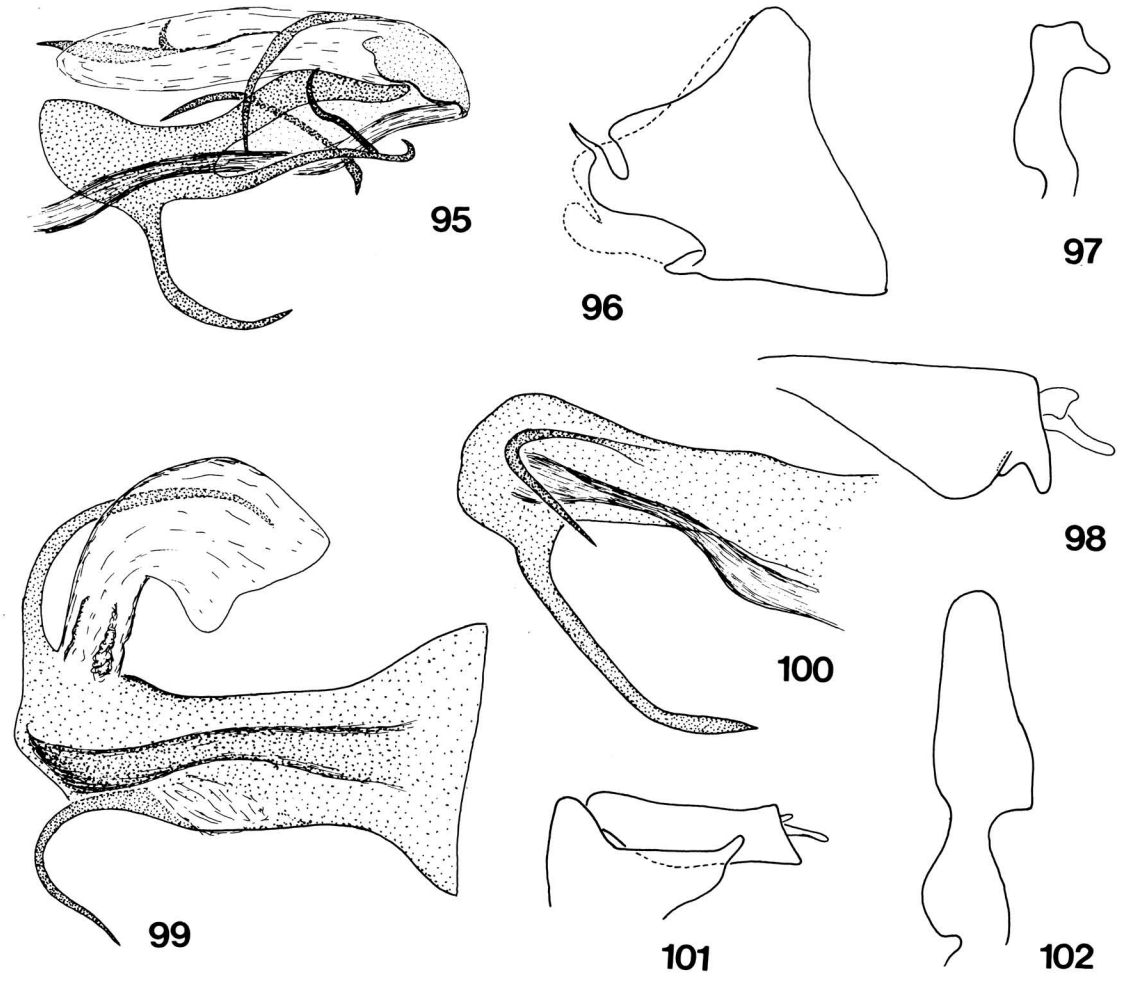
Oliarus somaliensis sp.n. (Figs. 89-94)

Material examined: Holotype ♂ — Somalia, Afgoi, Lower Shabelli Valley, IV.1977, Malaise trap (F. Bin, Coll. K.B.I.N.).

Paratypes: 3 ♂ 2 ♀, same locality (Coll. K.B.I.N.).

Description: Frons yellowish brown, clypeus yellowish. Vertex brown, narrower than an eye (14:17), longer than broad (14:22). Pronotum, legs and lateral parts of mesonotum yellow, the latter brown between the keels. Tegmina hyaline, veins yellow with dark pustules: stigma, transverse veinlets, commisural margin, and apical part of veins coloured with brown. Abdomen brown.

Male genitalia: Anal segment (Fig. 94) large, subsymmetrical, widening distally, right ventral margin as illustrated, left margin more blunter. Pygofer (Fig. 91 & 92) asymmetrical: right side distally produced into a finger-like



Figs. 95-98. *Oliarus fusculus* sp.n. — 95: aedeagus; 96: pygofer; 97: genital style; 98: anal segment.

Figs. 99-102. *Oliarus aethiops* sp.n. — 99: aedeagus, dorsal view; 100: aedeagus, right lateral view; 101: dorsal portion of pygofer and anal segment; 102: genital style.

process, same process on left side shorter. Genital styles (Fig. 93) as illustrated. Aedeagus (89 & 90) with two long spines inserted basally and running caudally along aedeagal shaft, a large two-pronged process along ventral margin directed cephalically, a thin spine and a short dorsal tooth more apically, a long curved spine inserted on apex and running cephalically along dorsal margin, and finally, a broad flagellum with a large tooth and a small spine near apex.

Total length: 5 mm.

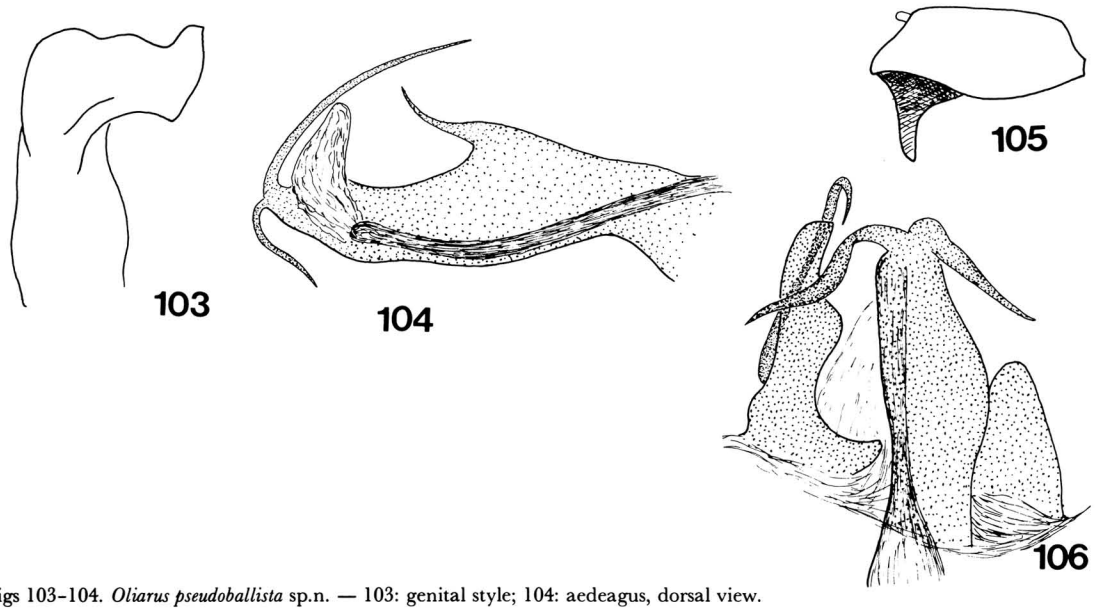
Diagnosis: This species is distinguished by the shape of the male genitalia. In Synave's key it runs to *Oliarus frenatus* Jacobi. From the latter it is distinguished by the absence of a brown band on the face.

Etymology: The name refers to the country where the holotype was sampled.

Oliarus fusculus sp.n. (Figs. 95-98)

Material examined: Holotype ♂ — Zaire, Lubumbashi, 14.IV.1939 (H.J. Brédo, Coll. K.B.I.N.).

Description: Frons and clypeus dark brown to black, two whitish spots near frontoclypeal suture. Vertex black, carinae and a spot one-third of way up base yellowish, as broad as an eye, longer than broad (24:18). Pronotum yellowish, lateral parts brown. Mesonotum dark brown, keels and space between outer keels paler. Legs yellowish, femora fumated with brown. Tegmina hyaline, with brown marks divided as follows: base, a streak near costal margin at level of bifurcation of Cu, stigma and ends of apical veins brown. Veins yellow with brown pustules, commisural border brown except for a white spot one-third of way up apex of clavus.



Figs 103-104. *Oliarus pseudoballista* sp.n. — 103: genital style; 104: aedeagus, dorsal view.

Figs. 105-106. *Oliarus atricollis* sp.n. — 105: anal segment; 106: aedeagus, dorsal view.

Male genitalia: Anal segment (Fig. 98) moderately long, subsymmetrical. Pygofer (Fig. 96) subsymmetrical, with two large lobes along each lateral margin, strongly incised apically along dorsal margin, right side with a sharp apical spine, left side with a small rounded process. Genital styles (Fig. 97) as illustrated. Aedeagus (Fig. 96) with a curved spine along ventral margin near base; a slender spine along right side with a small tooth basally; two spinose processes on flagellum: a flat one apically and a short curved spine subapically, directed to right side. Three more spines visible on left side: a long one inserted subapically along dorsal margin and curved downwards, a straight one inserted ventrally one-third of way up base, directed caudally, and running along ventral margin, with a hook-shaped apex, and finally, a third one, shorter than the two preceeding ones, inserted subapically and directed dorsocephalically.

Total length: 4-5 mm.

Diagnosis: *Oliarus fusculus* sp.n. is easily characterized by the shape of the male genitalia.

Etymology: The name refers to its dark colour.

Oliarus aethiops sp.n. (Figs. 99-102)

Material examined: 1 ♂, Ethiopia, Omo valley, 12.VI.1963 (Coll. Linnavuori).

Description: Frons dark brown, carinae yellow, two whitish spots along the frontoclypeal suture. Vertex black with yellow keels, as broad as an eye, longer than broad (25:22). Pronotum yellow with brown suffusions. Mesonotum dark brown, keels castaneous. Abdomen dark brown. Legs yellowish brown, hind tarsi yellow. Tegmina hyaline, stigma black, veins yellow and brown, apical veins black. Transverse veinlets suffused with brown.

Male genitalia: Anal segment (Fig. 101) subsymmetrical, right ventral margin shallowly excavated near apex. Pygofer (partly damaged) with a long dorsal projection. Genital styles (Fig. 102) as illustrated. Aedeagus (Figs. 99 & 100) with three spines: two lateral spines curved cephalically and a ventral one also directed inwards.

Total length: 8 mm.

Diagnosis: This species is easily characterized by the shape of the male genitalia.

Etymology: The name refers to the country where the species was sampled.

Oliarus pseudoballista sp.n. (Figs. 103-104)

Material examined: Holotype ♂ — Nigeria, nr. Mokwa, Zugurna, 30.IV.1973 (J.C. Deeming, Coll. Nat. Mus. Wales).

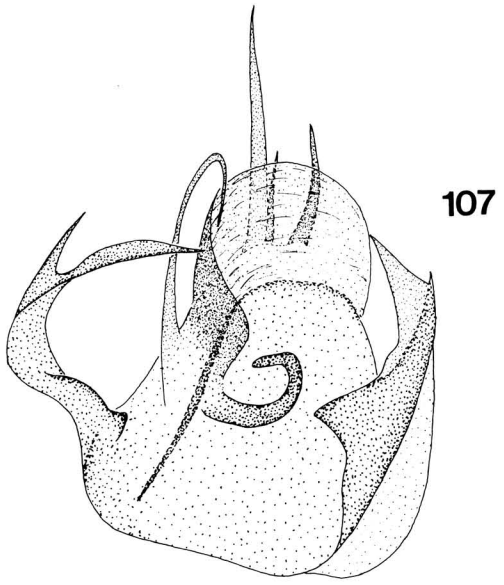
Description: Frons and clypeus yellowish-brown. Vertex brown, lateral carinae and hind edges yellowish, broader than half width of an eye (19:31), longer than wide (19:37). Pronotum and tegulae yellow, mesonotum dark brown, keels and space between outer keels paler. Tegmina hyaline, veins dark brown, stigma, a small spot on inner apical angle and suffusions on transverse veinlets dark brown. Legs yellow, femora slightly fumated with brown.

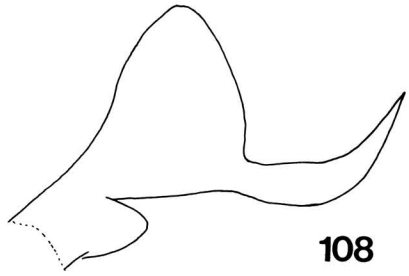
Male genitalia: Anal segment symmetrical, distally deflexed into a quadrate lobe. Lateral margins of pygofer produced into a large triangular lobe. Genital styles as figured (Fig. 103). Aedeagus (Fig. 104) with three spines: two apical ones recurved inwards and a third one directed caudally and inserted halfway along left side.

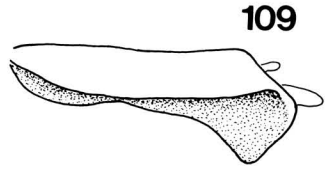
Total length: 8 mm.

Diagnosis: This species is very closely related to *Oliarus lootensi* Synave and *O. ballista* Synave, but differs from the latter in the shape and proportions of the aedeagal spines.

Etymology: The name refers to its resemblance to *Oliarus ballista.*







Figs. 107-109. *Oliarus pseudovarians* sp.n. — 107: aedeagus, ventral view; 108: dorsal part of pygofer; 109: anal segment.

Oliarus atricollis sp.n. (Figs. 105-106)

Material examined: Holotype ♂ — Ethiopia, Mt. Maigudo, 16/17.VI.1963 (Coll. Linnavuori).

Description: Frons and clypeus black, lateral carinae yellow. Vertex broader than an eye (19:15), as wide as long, transverse keel moderately excavated, straight along median line. Pronotum and tegulae black, keels and posterior margin yellow. Mesonotum entirely black. Legs with femora black, tibiae and tarsi yellow, the first with dark longitudinal lines. Tegmina hyaline, veins yellow.

Male genitalia: Anal segment (Fig. 105) short, circular in dorsal view with an apical excavation, lateroapical angles non-existing, but with a median triangular depression. Pygofer damaged. Aedeagus (Fig. 106) with three spinose processes, two directed inwards and one directed caudally, with a hook-shaped apex.

Total length: 5 mm.

Diagnosis: The species is characterized by its black colour and by the shape of the male genitalia.

Etymology: The name refers to the black pronotum, which is yellowish in many *Oliarus* species.

Oliarus pseudovarians sp.n. (Figs. 107-109)

Material examined: Holotype ♂ — South Africa, Natal, Umkomaas, VII.1948 (A.L. Capener, Coll. K.B.I.N.).

Description: Frons, clypeus and vertex brown, carinae yellow. Vertex as long as broad, wider than an eye. Pronotum yellow, mesonotum yellowish-brown, keels paler. Tegmina milky hyaline, covered with brown marks like those of *Oliarus varians* Synave. Fore- and middle legs fumated with brown, hind legs yellowish.

Male genitalia: Anal segment (Fig. 109) moderately long, flat, with a medioventral ridge as illustrated. Pygofer symmetrical or nearly so, each lateral margin with a large spinose process (Fig. 108). Aedeagus (Fig. 107) short, flattened, with spinose processes divided as follows: a large process along each lateral margin, inserted basally and directed caudally, right one more lamelliform, left one two-pronged and curved inwards; three small spines along apex, a slender spine on left side, a curved spine inserted in middle of ventral margin. Finally, a long slender spine along dorsal margin, inserted on right side, curved to left side and then directed straight cephalically.

Total length: 4-5 mm.

Diagnosis: This species is closely related to *Oliarus varians* Synave (Natal, Umtentuweni). The marks on the tegmina are almost the same and the aedeagi of both species resemble eachother very closely. However, this species is well-defined by the relative proportions and the shape of the aedeagal spines.

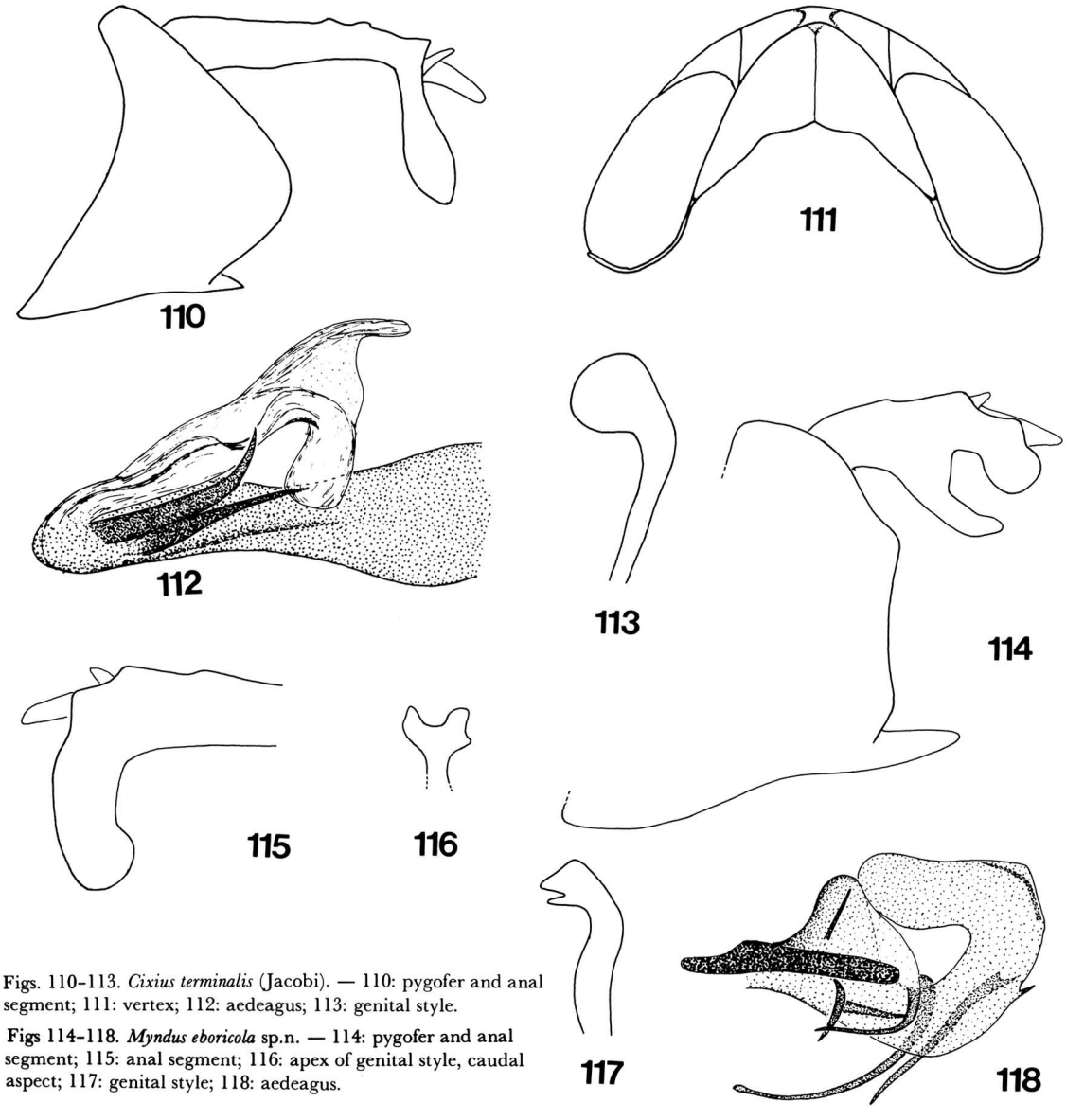
Etymology: The name refers to its resemblance to *Oliarus varians*.

Genus Cixius Latreille

Cixius terminalis (Jacobi) comb. nov. (Figs. 110-113)

Achaemenes terminalis Jacobi, A., 1910, Sjöstedts Kilimandjaro-Meru Expedition 12: 107, Taf. 1, Figs. 7, 7a, 8, 8a.

Achaemenes terminalis; Synave, H., 1953, Expl. Parc nat. Albert, Fasc. 79(2): 20.



Figs. 110–113. *Cixius terminalis* (Jacobi). — 110: pygofer and anal segment; 111: vertex; 112: aedeagus; 113: genital style.

Figs 114–118. *Myndus eboricola* sp.n. — 114: pygofer and anal segment; 115: anal segment; 116: apex of genital style, caudal aspect; 117: genital style; 118: aedeagus.

Description: Face, pronotum and legs yellowish-brown. Vertex and mesonotum darker, the latter with two short and two longer black streaks. Tegmina hyaline, veins yellow; tegmina of female paratype strongly fumated with brown basally and near apex.

Male genitalia: Anal segment long, apical angles strongly depressed ventrally. Posterior lateral margins of pygofer (Fig. 110) strongly convex. Genital styles (Fig. 113) narrow, abruptly broadening distally. Aedeagal shaft (Fig. 112) bilaterally symmetrical, with two spines on each side: the ventral one straight, the dorsal one broader and upcurved apically.

Total length: 6 mm.

The species was first referred to the genus *Achaemenes* by Jacobi (1910), and later by Synave (1953), because of the absence of a distinct spinulation on the hind tibia. However, the form of the vertex (Fig. 11) and the structure of the male terminalia allow us to place this species in the genus *Cixius*. The examined type specimens, kindly sent to me by Dr. Per Lindskog show traces of spinulation, and one female even shows a distinct small spine on the lateral parts of the hind tibia.

Genus Achaemenes Stål

Achaemenes wittei Synave

Achaemenes wittei Synave, H. 1953, Expl. Parc nat. Albert, Fasc. 79(2): 22, Figs. 3, d-f.

Material examined: 1 ♂ 1 ♀, Zaire, Lubumbashi, 15.XII.1938 (H.J. Brédo, Coll. K.B.I.N.).

Genus Myndus Stål

Myndus medleri Synave

Myndus medleri, Synave, H. 1971, Bull. Inst. r. Sci. nat. Belg., 47(39): 6, Figs. 10-13.

Material examined: 1 ♂, Nigeria, R. State, nr. Mbiama, 4.VII.1973 (Coll. Linnavuori); 1 ♂, the Ivory Coast, Man, 14/21.X.1973 (Coll. Linnavuori).

Myndus eboricola sp.n. (Figs. 114-118)

Material examined: Holotype ♂ — The Ivory Coast, Man, 14/21.X.1973 (Coll. Linnavuori).

Paratypes: 3 ♂ 6 ♀, same locality (Coll. Linnavuori & Coll. K.B.I.N.).

Description: Clypeus, distal half of frons, posterior part of vertex, pronotum, tegulae, legs, and lower surface yellowish; proximal part of frons, anterior part of vertex and mesonotum except hind margin brown. Tegmina hyaline, veins yellowish, densely covered with small pustules.

Male genitalia: Anal segment (Fig. 115) short, asymmetrical, left ventral margin with a ventral projection halfway along its length, right margin strongly deflexed apically into a long blunt process. Pygofer (Fig. 114) with posterior lateral margins subtruncate and a large medioventral process. Genital styles (Figs. 116 & 117) with a U-shaped incision apically. Aedeagus (Fig. 118) curved upwards, a short tooth-like spine along caudal margin, three spines along left side, two directed ventrally and a thin one directed dorsally; four spines along right side, two long ones directed ventrally and inwards, a shorter one inserted near base and caudally directed, and a thin one running parallel to caudal border.

Total length: 4 mm.

Diagnosis: This species is closely related to *Myndus mutakatoensis* Synave and *M. minutus* Van Stalle. It is distinguished from both species by the chaetotaxy of the aedeagus and by the shape of the anal segment and genital styles.

Etymology: The name *eboricola* means "ivory" (*ebori-*) and "to inhabit" (*-cola*) and is an allusion to the country of the type specimens.

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References

Fennah, R.G. 1957: Fulgoroidea from the Belgian Congo. —Ann. Mus. R. Congo Belge, 8°, Sci. Zool. 59: 1-206.

—"— 1958: Fulgoroidea from West Africa. — Bull. I.F.A.N. 20: 460-538.

—"— 1961: XXXIII. Homoptera Fulgoroidea. — Mém. I.F.A.N. 62: 305-320.

Jacobi, A. 1910: Hemiptera, Homoptera. — In: Sjöstedts Kilimandjaro-Meru Expedition 12: 97-136.

Linnavuori, R. 1973: Hemiptera of the Sudan, with remarks on some species of adjacent countries. 2. Homoptera Auchenorrhyncha: Cicadidae, Cercopidae, Machaerotidae, Membracidae and Fulgoroidea. — Notulae Entomol. 53: 65-137.

Muir, F. 1923: New species of Fulgorids (Homoptera). — Ann. Mag. Nat. Hist. (9) 11: 553-561.

Synave, H. 1953: Cixiidae (Hemiptera Homoptera). — Expl. Parc Nat. Albert 79(2): 9-34.

—"— 1953: Cixiidae (Hemiptera Homoptera). — Expl. Parc Nat. Upemba 23: 3-49.

—"— 1956: Trois esp éces nouvelles d'Homopt éres africains. —Rev. Zool. Bot. Afr. 53(3-4): 365-369.

—"— 1959: Fulgoroides nouveaux d'Afrique du Sud. — Bull. Inst. R. Sci. Nat. Belg. 35(30): 1-14.

—"— 1959: Cixiidae nouveaux du Congo belge. — Rev. Zool. Bot. Afr. 59(1-2): 1-18.

—"— 1960: Cixiidae (Homoptera-Fulgoroidea). — Expl. Parc Nat. Garamba 18(2): 7-44.

—"— 1962: Descriptions de quelques Fulgoroides africains nouveaux (Homoptera Fulgoroidea). — Rev. Zool. Bot. Afr. 65(1-2): 33-47.

—"— 1963: La réserve naturelle intégrale du Mont-Nimba XXIV. Homoptera. — Mém. I.F.A.N. 66: 447-478.

—"— 1968: Contributions a la connaissance de la faune entomologique de la Côte-d'Ivoire XXIV. - Homoptera Cercopidae et Fulgoroidea. —Ann. Mus. R. Afr. Centr., 8°, Sci. Zool. 165: 441-460.

—"— 1969: Some African Fulgoroidea in the United States National Museum. — Proc. Entomol. Soc. Wash. 71: 174-190.

—"— 1971: Contribution a la connaissance des Fulgoroides du Nigéria (Homoptera). — Bull. Inst. R. Sci. Nat. Belg. 47(39): 1-34.

—''— 1979: Description d'espèces nouvelles appartenant aux familles: Cercopidae, Cixiidae, Derbidae, Dictyopharidae et Tropiduchidae (Homoptera). — Bull. Inst. R. Sci. Nat. Belg. 51(6): 1-31.

—''— 1980: Le genre Brixidia Haglund (Homoptera - Cixiidae). —Bull. Inst. R. Sci. Nat. Belg. 52(4): 1-15.

Van Stalle, J. 1982: Scientific results of the Belgian Mount Cameroon Expedition (Feb. - April 1981) III: Fam. Cixiidae, Derbidae, Meenoplidae, Dictyopharidae, Achilidae, Lophopidae, and Tettigometridae (Homoptera - Fulgoroidea). — Bull. Inst. R. Sci. Nat. Belg. 54(6): 1-18.

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