

PROCTOTRUPIDAE <sup>(1)</sup>  
KEY TO THE GENERA OF THE WORLD  
(HYMENOPTERA PROCTOTRUPOIDEA)

BY

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Through the kindness of the President of the Institut des Parcs Nationaux du Congo et du Ruanda-Urundi, Mr. V. VAN STRAELEN, an extensive material — some 10,000 of specimens — of Proctotrupoids from the Upemba National Park has been delivered to the author for determination. The present paper is to be considered as a first attempt to work up this highly valuable collection.

The author uses this opportunity to express his best thanks to Mr. V. VAN STRAELEN and Dr. H. DE SAEGER (Institut des Parcs Nationaux du Congo et du Ruanda-Urundi, Bruxelles). At the same time the cordial thanks should be expressed to Dr. G. E. J. NIXON (Commonwealth Institute of Entomology, London).

**Afroserphus** n. gen.

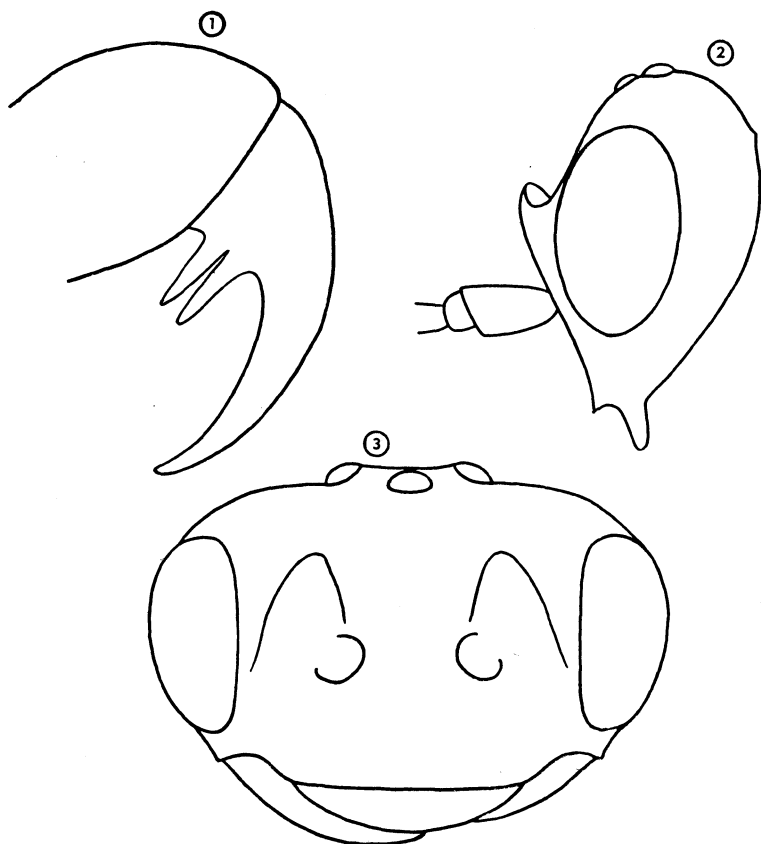
(Fig. 1-3.)

Male : Head transverse, considerably short, but not so much as in *Nothoserphus* BRUES or *Watanabeia* MASNER. Temples well developed; vertex straight, without blade-like prominences above lateral ocelli. Eyes normal, not extremely convex, bare. Frons with two massive prominent sharp horns above the antennal insertion. Mandibles edentate, sickle-like in shape. Maxillary palpi 4-jointed labial 3-jointed. Antennae 13-jointed, intensively pilose; scape unarmed, no one of flagellar joints with sclerotized lateral keels.

Prothorax inconspicuously developed above, not prominent anteriorly; propleurae with strong rough oblique striae, running from the front-upper

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*Afroserphus bicornis* n. sp. — Holotype.

FIG. 1: Claw. — FIG. 2: Head in lateral aspect. —

FIG. 3: Head in frontal aspect.

corner of propleura to the front coxa; distal narrow part of propleura without sculpture. Mesoscutum distinctly elongated, showing remarkable deep dense thimble-like punctures in combination with two irregularly reticulated patches, situated at the anterior margin. Parapsidal furrows completely wanting. A single central shallow furrow running from anterior margin of mesoscutum nearly up to its basal half. Scutellar pit deep, transverse, showing two longitudinal keels on the bottom. Surface of scutellum roughly reticulated; the whole surface divided in irregular polygonal cells, due to several elevated keels. Hind margin of scutellum deeply excised. Metanotum very short, unarmed. Propodeum extremely short, much shorter than in *Thomsonina* HELLÉN.

Fore wing with distinctly sclerotized C and Sc, pterostigma and  $R_2$ .  $R_1$  fused with the lower part of stigma. Subcosta remarkably distant from C, so that the intercostal area is considerably wide. Pterostigma as long as high. Remaining veins indicated as mere traces. Hind wing with a very short stout costal vein only.

Legs rather slender, the spur of hind tibia relatively long and distinctly curved. Claws I and II forked, bearing two smaller additional teeth.

Abdomen relatively short. Petiole completely overlapped by the anterior margin of second tergite. Second tergite the largest, being irregularly and deeply punctured. Second sternite intensively pilose. Apex of abdomen blunt.

Type species : *Afroserphus bicornis* n. sp., described below.

### ***Afroserphus bicornis* n. sp.**

Male : Black, shining; antennae dull yellow-brown, drakened toward apex; legs dirty-yellow, hind femur brown, coxae black; fore wing rather clear, slightly infuscated behind stigma.

Head with two types of sculpture; upper part of frons and vertex smooth and shining, only with scattered punctures; the whole portion of face (including the horns) and that of clypeus and labrum roughly and irregularly reticulated throughout. Frons (between horns) only with a feeble trace of a keel. Antennae thread-like in shape; scape moderately elongated, pedicel transverse; no anellus present; all funicular joints distinctly elongated, the 3rd and apical one the longest; the surface of joints shows a dense granulose sculpture throughout in combination with intensive pilosity. No special patches of sculpture (like in some European genera), nor lateral sclerotized keels on joints present.

Thorax intensively pilose, especially aside and on propodeum. Anterior part of propleurae with deep longitudinal striae; the posterior part (around the spiraculae) finely punctured; lower part smooth, highly shining. Meso-pleurae smooth and shining throughout. Metapleurae intensively pilose, so that the sculpture is not visible. Propodeum irregularly reticulated.

Spur of tibia II very long, being nearly as long as metatarsus (20 : 25), remarkably curved. Spur of tibia III not so long and not so curved (!). Claw bearing at base two small hyaline teeth, situated close to each other, so that the claw itself looks like semipectinated (fig. 1).

Length : 6.2 mm.

Holotype : 1 ♂, partially destroyed (deposited in Coll. Inst. Parcs Nat. du Congo et du Ruanda-Urundi, Bruxelles).

Female : Unknown.

Locality : Congo : Upemba National Park, Lusinga, 1,760 m, Dec. 12-17th, 1947.  
Exp. G. F. DE WITTE 1146a.

The generic name proposed refers to the African Continent; the specific name has been proposed because of anomalous horn-like prominences on the frons.

It is difficult to decide about the actual systematic position of this genus among the genera of *Proctotrupides*. Regarding the special shape of claws, it should be placed in the neighbourhood of the genus *Codrus* PANZ., which occurs also in several species in Africa. On the other hand, *Afroserphus* lacks some typical characters of *Codrus* PANZ. (petiole is not visible in *Afroserphus*, while in *Codrus* is well developed; propodeum in *Codrus*-spp.

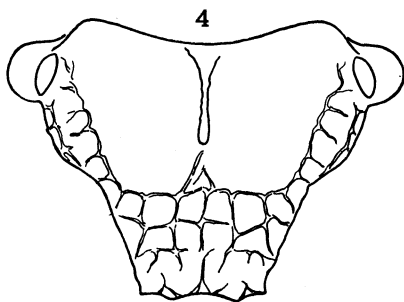


FIG. 4. — *Oxyserphus maculipennis* (CAMERON), propodeum.

is remarkably elongated, while in *Afroserphus* extremely short, etc.). Moreover, *Afroserphus* — owing to its large dimensions of the body (rather stout and short type) — reminds in some respects the genus *Watanabeia* MASNER and the large-sized species of *Proctotrupes* LATREILLE. The special horns of the frons make *Afroserphus* quite distinct, but simultaneously a bit outstanding genus in *Proctotrupidae*. Recently PSCHORN-WALCHER (1958 *a*, 1958 *b*) divided the Palearctic *Proctotrupidae* into two groups — group of *Cryptoserphus* KIEFF. and that of *Phaenoserphus* KIEFF. *Afroserphus* gen. n. should belong to the *Phaenoserphus*-group.

This paper contains the key to the genera of the world. Meanwhile it is has been under the preparation for print, the author was able to gain some detailed dates concerning the peculiar *Proctotrupes maculipennis* CAMERON, 1888 (New Zealand). The type is preserved in British Museum N. H., London. Already KIEFFER (1914 : 1915) suggested this species should belong to an independent genus and Dr. NIXON (British Museum, London)

is of the same opinion (in litt). CAMERON's species is, no doubt, one of the striking types of *Proctotrupides* and we do not hesitate to create a new genus for it.

**Oxyserphus** n. gen.

(Fig. 4.)

1888, *Proctotrupes* (part.) CAMERON, Mem. Manchest. Soc., 1-4 : 175.

1909, *Serphus* (part.) KIEFFER, Gen. Ins., fasc. 95 : 5.

1914, *Serphus* ? (part.) KIEFFER, Das Tierreich, 42 : 15.

Male : In general resembling *Proctotrupes* LATR. but not related to it. Head transverse, built as in *Proctotrupes* LATR. Angles of prothorax bluntly prominent anteriorly. Mesoscutum, scutellum and metanotum similar to *Proctotrupes* LATR. Propleurae perfectly smooth, shining, highly polished, with a longitudinal impression running from anterior pronotal angle to the front coxa. Mesopleurae perfectly smooth and highly shining. Metapleurae with a distinct large speculum, this surrounded by short dense piles around. Fore wing with *C* and *Sc*, small triangular stigma, very short  $R_1$ , a bit longer  $R_2$  and a closed narrow radial cell. Remaining veins spurious. Hind wing normal. Propodeum of a very remarkable shape and sculpture, never seen in *Proctotrupidae* so far. The dorsal surface is divided into two parts — the anterior, which is perfectly bare, smooth and polished, forming there two mirror-like shining areas, and the posterior (resp. antero-lateral) which is sculptured by coarse polygonal cells in addition to an intensive pilosity. Propodeal spiracles protruded to form blunt and very prominent angles. The central keel of the propodeum (dividing those two mirror-like areas) elevated upwards to form a blade-like carina. Petiole practically fully concealed under the front margin of the second tergite. Gaster elongated, genital claspers rather long, blunt apically.

Type species : *Oxyserphus maculipennis* (CAMERON, 1888) n. comb.

On the first sight, *Oxyserphus* n. gen. approaches to *Proctotrupes* LATR., but this is only due to the convergence. The distinct speculum, concealed petiole as well as smooth propleurae not only separate *Oxyserphus* from *Proctotrupes* but simultaneously point to the *Cryptoserphus*-group (see PSCHORN-WALCHER, 1958 a). The shape of propodeum is a specific character and makes *Oxyserphus* quite distinct.

In 1958, MASNER published the key to genera of *Proctotrupides* of the World. Somewhat later PSCHORN-WALCHER (1958 a) made a division of Palearctic genera of *Proctotrupidae*, proposing simultaneously some new genera and subgenera. So far as the work of PSCHORN is concerned, together with the discovery of *Afroserphus* n. gen., the author presumes that it will be useful to present a new key to all genera of *Proctotrupidae* in

this paper <sup>(1)</sup>. As a basis for the key given below, the former MASNER's (1958) key has been used.

1. Scape produced into an acute spine. Medialis well developed; venation considerably complete ..... 2
- Scape unarmed. Medialis in form of a mere trace or spurious vein or entirely absent; venation considerably reduced ..... 3
2. Metanotum medially raised into long, backwardly curved projection. — Australia ..... *Acanthoserphus* DODD.
- Metanotum medially not raised to form such projection. — Australia ... *Austroserphus* DODD.
3. Head — in dorsal aspect — extremely transverse and thin. Temples absent, eyes extremely developed. Thorax short and stout, abdomen short ..... 4
- Head of other shape, temples well developed ..... 6
4. Parapsidal furrows developed at most of so-called lateral furrows, running along the margin of mesoscutum from tegula to anterior part of mesoscutum, ending here in small impressed pits. Metapleurae with smooth, shining and bare speculum. — Europe, Japan ..... *Thomsonina* HELLÉN.
- Parapsidal furrows well developed (i.e. on the dorsal area of mesoscutum), crenulated on the bottom and enlarged posteriorly. Metapleurae completely pilose and reticulated ..... 5
5. Vertex — above lateral ocelli — raised into thin blade-like projections. Parapsidal furrows forked anteriorly, fused posteriorly, forming there a deep common pit. Petiole practically concealed under the front margin of the second tergite. — Taiwan, Indonesia ..... *Nothoserphus* BRUES.
- Vertex quite stright above, with no projections. Parapsidal furrows not forked, simple, being distinctly separated from each other posteriorly. Petiole distinctly visible from above. — Japan, China, Indonesia ..... *Watanabeia* MASNER.
6. Propodeum of a peculiar shape, almost triangular, with the spiracul extremely protruded laterally to form blunt corners. Central keel of propodeum raised up to form a sharp blade-like carina (fig. 4). There are two mirror-like shining areas in the anterior part and a reticulated

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<sup>(1)</sup> CEBALLOS (1957) transferred *Vanhornia* CRAWFORD and *Ropronia* PROVANCHER from *Vanhorniidae* resp. *Roproniidae* into *Proctotrupidae*. This suggestion, however, does not correspond with the contemporary conception of *Proctotrupidae* and is neglected in this paper.

- posterior (as well as lateral parts) on the propodeum. Propleurae smooth, with a longitudinal impression ..... *Oxyserphus* n. gen.
- Propodeum of other shape, never with protruded spiraculs and of other sculpture. Propleurae sculptured or smooth ..... 7
7. Claws I and II forked, bifide or trifide ..... 8
- Claws simple ..... 9
8. Frons — above the antennal insertion — with 2 massive horns (figs. 2, 3). Hind margin of scutellum deeply excavated and excised. Mesoscutum with dense, deep, thimble-like punctures. Petiolus concealed under the front margin of the second tergite. Propleura in proximal half with rough striation. — Congo ..... *Afroserphus* n. gen.
- Frons never showing such horns, being frequently raised between the antennal insertions to form an acute keel. Hind margin of scutellum rounded. Mesonotum never with thimble-like punctures. Petiole distinctly visible dorsally. Propleurae smooth — without sculpture (nearly world-wide in distribution) ..... *Codrus* PANZER.
- a) Frons (in dorsal aspect) usually with a raised sharp keel between antennal insertions; if the keel is indistinct or fully absent, the ovipositor is then elongated ..... subg. *Codrus* s. str.
- b) Frons (in dorsal aspect) with no keel-like prominence at all. Ovipositor remarkably shortened, stout and distinctly curved ..... subg. *Eocodrus* PSCHORN-W.
9. Propodeum smooth and polished above, without longitudinal central keel, ridge or furrow. Maxillary palpi 3-jointed; female apterous, wing venation in male very pale and indistinct. Petiole overlapped by second tergite. — Europe ..... *Paracodrus* KIEFFER.
- Propodeum not quite smooth above, sculptured, with keels, ridges or furrows. Maxillary palpi 4-jointed. No apterous forms; several brachypterous forms are known ..... 10
10. Propleurae with a distinct sculpture (rough oblique wrinkles or irregular rugulosity) even sometimes very fine ..... 11
- Propleurae quite smooth and mirror-like shining ..... 12
11. Ovipositor in female short, stout and massive, hook-like in shape, curved downwards at apex. Mandibles bidentate (!). Head — seen laterally — almost as long as high. No patch of reddish colour on abdomen. Male unknown (? parthenogenetic). — Europe ..... *Parthenocodrus* PSCHORN-W.
- Ovipositor with very long and thin sheaths, sabre-like in shape. Mandibles edentate, sickle-like in shape. Head — seen laterally — distinctly higher than long. Abdomen usually bright-reddish at the base. Males

- present, numerically more abundant than females (world wide in distribution) ..... *Proctotrupes* LATREILLE.
12. Petiole fully overlapped and concealed under the second tergite above ..... 13  
 — Petiole free at least at its proximal part ..... 15
13. Eyes — seen laterally — longitudinally oval in shape, i.e. longer than high. Head — in lateral aspect — strongly elongated, nearly Bethyloid-like in shape. — Europe ..... *Cryptocodrus* PSCHORN-W.  
 — Eyes — seen laterally — distinctly higher than long. Head — in lateral aspect — remarkably higher than long ..... 14
14. Radial cell nearly as long as the stigma (measured at the costal edge). Stigma longer than high;  $R_1$  short, but yet developed. Sheaths of ovipositor very long and thin, as long as hind tibia (nearly world-wide in distribution) ..... *Cryptoserphus* KIEFFER.  
 — Radial cell considerably shorter than stigma, this being very large, usually as long as high;  $R_1$  fused with the lower part of stigma. Sheaths of ovipositor stout, short, shorter than hind tibia. — Europe .....  
*Brachyserphus* HELLÉN.
15. Parapsidal furrows distinct at least in anterior part of mesoscutum. Sheaths of ovipositor very long and thin, nearly as long as hind tibia (nearly world-wide in distribution) ..... *Disognus* FÖRSTER.  
 — Parapsidal furrows completely absent. Sheaths of ovipositor stout and short, considerably shorter than hind tibiae (nearly world-wide in distribution) ..... *Phaenoserphus* KIEFFER.
- a) Frons with a longitudinal sharp keel between antennal insertions. Radial cell nearly as long as stigma. Spur of hind tibia longer than the basal half of the metatarsus .....  
 subg. *Phanoserphus* PSCHORN-W.
- Frons without sharp keel, being at most bluntly elevated medially. Radial cell much shorter, the same with hind spur ..... b
- b) Head — seen from front — nearly cut off beneath the antennal insertion; cheeks very short. Propodeum finely reticulated, without central longitudinal keel. Sheaths of ovipositor very short and massive. Wings remarkably narrow, with a very small stigma ..... subg. *Phaulloserphus* PSCHORN-W.
- Head — seen from front — of normal shape i.e. cheeks well developed. Propodeum usually with a central elevated keel. Wings not narrow, in one species shortened .....  
 subg. *Phaenoserphus* s. str.



**SUMMARY.**

A new genus of *Proctotrupidae* — *Afroserphus* n. gen. with *bicornis* n. sp. as type-species — originating from Upemba National Park (Congo) is described. A short discussion dealing with the systematic position of the new genus is attached. *Oxyserphus* n. gen. is proposed for *Proctotrupes maculipennis* CAMERON. The phylogenetic relationships are discussed. A new key comprising all genera of the World is given.

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# INDEX.

## GENUS AND SUBGENUS.

	Pages
<i>Acanthoserphus</i> DODD .. .. .	42
<i>Afroserphus</i> n. gen. .... .	37
<i>Austroserphus</i> DODD .... .	42
<i>Brachyserphus</i> HELLEN . ....	44
<i>Codrus</i> PANZER . ....	43
<i>Codrus</i> subg. s. str. .... .	43
<i>Cryptocodrus</i> PSCHORN-WALCHER .... .	44
<i>Cryptoserphus</i> KIEFFER .... .	44
<i>Disognus</i> FOERSTER .... .	44
<i>Eocodrus</i> PSCHORN-WALCHER subg. .... .	43
<i>Notoserphus</i> BRUES .... .	42
<i>Oxyserphus</i> n. gen. .... .	41
<i>Paracodrus</i> KIEFFER .... .	43
<i>Parthenocodrus</i> PSCHORN-WALCHER .... .	43
<i>Phaenoserphus</i> PSCHORN-WALCHER .... .	44
<i>Phaenoserphus</i> subg. s. str. .... .	44
<i>Phanoserphus</i> PSCHORN-WALCHER subg. .... .	44
<i>Phaulloserphus</i> PSCHORN-WALCHER subg. .... .	44
<i>Proctotrupes</i> LATREILLE .... .	44
<i>Thomsonina</i> HELLEN .... .	42
<i>Watanabeia</i> MASNER .... .	42

## SPECIES.

	Pages
<i>bicornis</i> ( <i>Afroserphus</i> ) n. sp. . ....	39
<i>maculipennis</i> ( <i>Oxyserphus</i> ) n. comb. .... .	41

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