

## New African species of *Notoxus* (Coleoptera Anthicidae)

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### Introduction

In a collection of Anthicidae which I had on loan from the Museum G. Frey I found 9 specimens of *Notoxus* which to the best of my knowledge belong to nine undescribed species: two from South Africa, two from West Africa and five from Tanzania.

The collectors of the specimens, mentioned in this paper, are:

Dr. G. Frey, who collected in South Africa, Transvaal, in 1952.

Herbert and Bernhard Frey, sons of Dr. G. Frey, who collected in Tanzania, Lake Manyara, in 1961.

Dr. Erwin Haaf, who was connected to the Museum and collected in Tanzania in 1951, 1959 and 1963.

Dr. Jan Bechyne, who was also connected with the Museum and collected in West Africa in 1951.

Dr. F. K. E. Zumpt of the Institute for Medical Research, Johannesburg, South Africa, who collected in South Africa.

Most of the species of *Notoxus* are difficult to recognize externally as they are very similar in appearance and show a great deal of variation in colour and size within the species. The male genitalia show a remarkable variety of form which is constant within the species and represent an ideal systematic character.

In this paper the male genitalia of all the new species were drawn from preparations in which the outer and median lobe of the aedeagus were dissected apart and drawn side by side, except in the case of *Notoxus parvus* in which the aedeagus is so delicate that it was not possible to separate the two parts.

Most of the descriptions in early literature refer to external features only and as a rule I find it impossible to decide about specific identity from the descriptions. Type material is often difficult to obtain.

I have been fortunate to have had access to the collection of H. von Krekich-Strassoldo in the National Museum for Natural History in Vienna. Several of the species from Tanzania were represented in this Collection, some provided with preliminary names which had not been published. Where possible I have retained these names.

Little is known about the methods of collecting of the specimens discussed in this paper. The series of specimens are mostly short with the exception of those of *Notoxus longisulcus* collected by Dr. Bechyne and *Notoxus freyi* collected by Dr. G. Frey. It is remarkable that of the six Tanzanian species collected by Dr. Haaf and the Frey Brothers only males were collected. There is a now well-known method of collecting only males by means of their attraction to cantharidin containing bait (van Hille 1954) but it is unlikely that this method was used. An explanation may be that the females of these species have reduced wings which is often the case in the genus *Notoxus*. Unless ground-level collecting is done, such females are usually not collected.

The types of the following species are deposited in the Museum G. Frey and paratypes are in the Albany Museum, Grahamstown, South Africa. The only exception is *Notoxus capeneri* of which the type is in the Albany Museum and paratypes are in the Museum G. Frey.

***Notoxus freyi* n. sp.**

Sabie, N. O. Transvaal, South Africa, Jan. 1952, coll. G. Frey: 16 specimens.

Umgebung Pretoria, South Africa, Jan. 1952, coll. G. Frey: 2 specimens.

Length: 3,30 mm (3,03–3,47).

Width over widest part of elytra: 1,16 mm (1,07–1,20).

Head: black to very dark testaceous, with fine colourless procumbent hairs and a few larger erect or semi-erect procumbent darker hairs.

Prothorax: black to very dark testaceous, with soft colourless recumbent hairs and some erect to semi-erect larger hairs especially on posterior erect recumbent hairs. Horn about 42 % of the length of the whole prothorax; with 3–4 inconspicuous crenulations on each side at the base and a broad median crest with many pustules; ventrally many fine procumbent hairs.

Elytra: black to dark testaceous, in the males as a rule darker than in the females; each with two light maculae, in the males as a rule larger than in the females; the anterior macula is roundish, not reaching the median

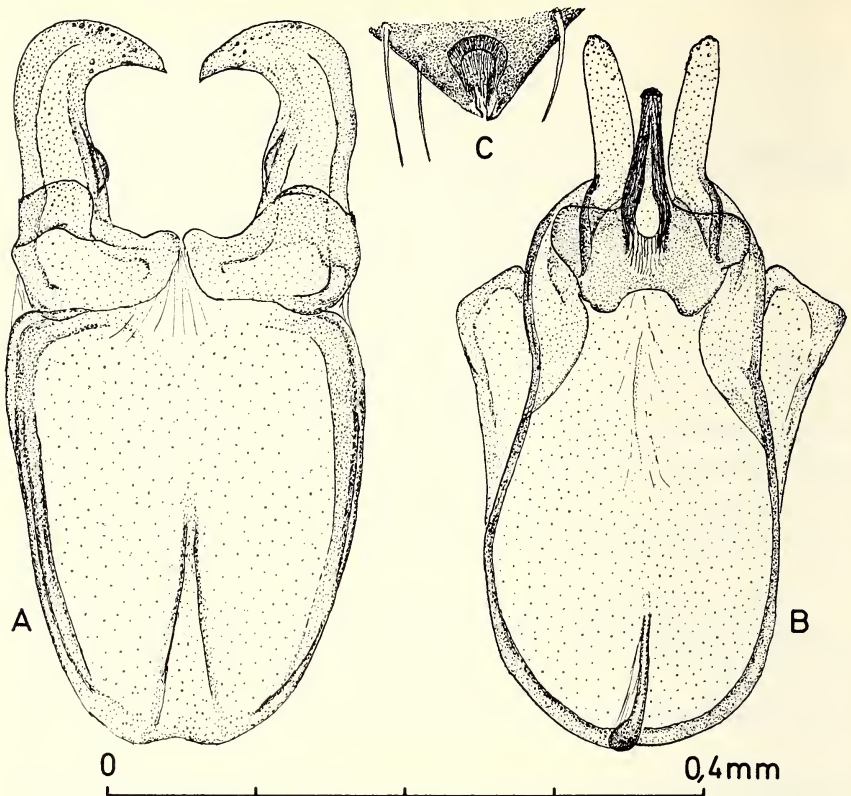


Fig. 1. *Notoxus freyi* n. sp. aedeagus: A: outer lobe. B: median lobe, ventral view. C: apical notch of elytron of male.

line but almost reaching the lateral margin; the posterior macula coming nearer to the median line, roundish in males, narrower in females, drawing into a point towards the lateral margin; with fine recumbent hairs and larger, coarser erect or semi-erect hairs. In the male the elytra are apically pointed, carrying a short, squarish notch (Fig. 1 C).

Wings: fully developed in males, reduced in females.

Antennae: testaceous, gradually darkening to the apex.

Legs: testaceous, with femur much darker and also the last tarsal segment darker.

Undersurface: black (especially in males) to dark testaceous; with recumbent hairs and some erect to semi-erect larger hairs especially on posterior half of abdomen.

Aedeagus (Fig. 1 A and B): with its short but well developed parameres and short apophyses of the median lobe it comes close to *N. cucullatus* Laf.,

(La Ferté-Sénectère, M. F. de, 1848 and van Hille 1961), *N. rudebecki* van Hille (1961) and other South African species.

In addition I have seen specimens of this species collected at Argent Tvl., South Africa by A. L. Capener, Dec. 1958.

***Notoxus capeneri* n. sp.**

South Africa, W. Transvaal, Bloemhof: 1 specimen, Dec. 1962, coll. Zumpt.

Length: 3,05 mm (2,70–3,30).

Width over widest part of elytra: 1,04 mm (1,00–1,13).

Head: dark testaceous to almost black; dorsally with fine procumbent hairs and larger erect hairs which are somewhat procumbent above the eyes and recumbent behind the eyes and on the front part of the head.

Prothorax: light to dark testaceous, always lighter than head; with soft hairs pointing to the dorsal median line and longer, stiff semi-erect recumbent hairs, especially laterally on the anterior part of the prothorax, behind the horn. Horn about 37 % of the length of the whole prothorax, laterally with 0 to 2 crenulations on each side at the base; with a median dorsal crest with unclear pustules; dorsally and ventrally with procumbent hairs.

Elytra: dark testaceous, each with two light testaceous maculae: the anterior pair may, but usually does not, reach the median line, the posterior pair usually does reach the median line thus forming a transverse light band over the posterior half of the elytra which is pointing forwards in the middle; hairs either fine and recumbent or larger and semi-erect, recumbent. Male with short apical notch.

Wings: fully developed in male, reduced in female, not exceeding the length of the elytra.

Antennae: testaceous.

Legs: testaceous, the coxae and femora somewhat darker.

Undersurface: dark testaceous, with fine recumbent hairs; last exposed abdominal sternite of male slightly indented at posterior apex.

Aedeagus as figured, (Fig. 2 A and B).

In addition to this single specimen in the Frey Collection, I have examined a series of 19 specimens from Argent, Transvaal, Dec. 1958, collected by A. L. Capener; from this series I have selected the Holo- and Allotype which have been deposited in the Albany Museum, Grahamstown, South Africa; paratypes in the Museum G. Frey.



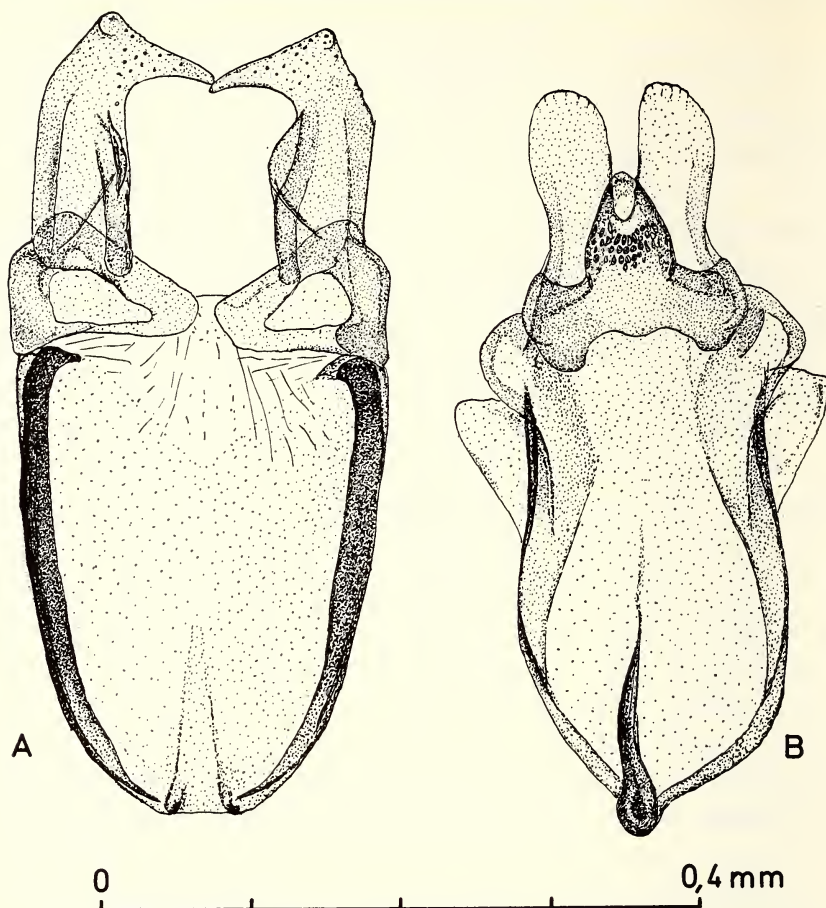


Fig. 2. *Notoxus capeneri* n. sp. aedeagus: A: outer lobe. B: median lobe, dorsal view.

***Notoxus parvus* n. sp. (Fig. 3 C)**

Région Coyah, Cercle de Dubréka, French Guinea, 20–21 Apr. 1951, coll. Bedyne: 4 specimens.

Length: 1,93 mm (1,88–2,00).

Width over widest part of elytra: 0,80 mm (0,79–0,82).

Head: testaceous to dark testaceous with some rather coarse dorsal hairs, light and procumbent behind and above the eyes, darker and semi-erect recumbent in front of the eyes.

Prothorax: lighter than head; with soft hairs, pointing upwards to dorsal median line. Horn about 40 % of the length of the whole prothorax; rather broad, with darker margin with 5–6 crenulations on each side and raised crest, outlined by about 7 pustules at each side.

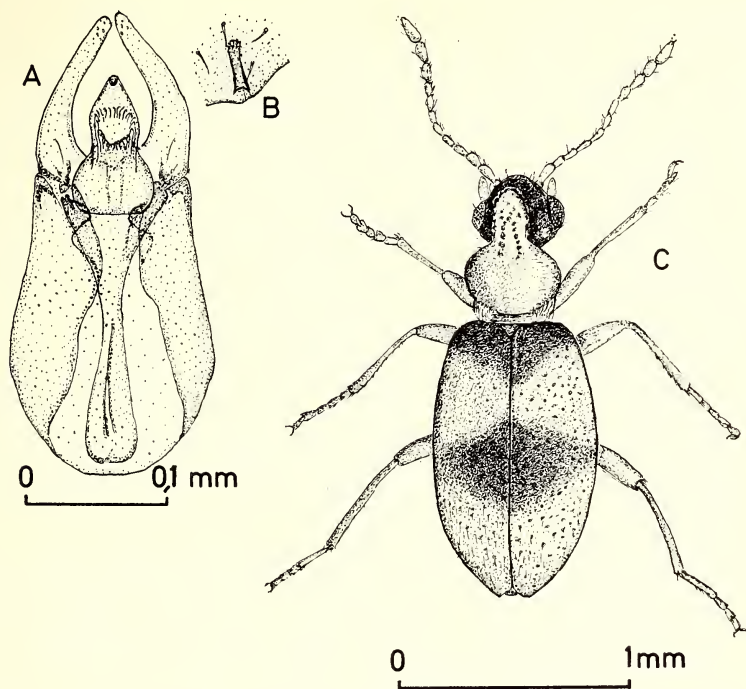


Fig. 3. *Notoxus parvus* n. sp. A: aedeagus. B: apical notch of elytron of male. C: whole specimen.

Elytra: light testaceous, anteriorly with narrow dark band and a broader dark band over the middle of the elytra; the latter is broadest in the median line and may not reach the lateral margins thus forming a roundish dark area in the middle of the elytra; with fine recumbent hairs. Male with an elongate notch at the apex of each elytron (Fig. 3 B).

Wings: fully developed in male.

Antennae and legs: light testaceous; penultimate tarsal joint bilobed in all legs.

Ventral surface: somewhat darker than prothorax; last exposed abdominal sternite without sexual characteristics.

Aedeagus (Fig. 3 A): small and delicate; no attempt has been made to separate the outer from the median lobe.

Although unusually small and delicate this species is a genuine *Notoxus*. The presence of hairs (absence of scales) on the body separates it from the genus *Pseudonotoxus* and the presence of wings and not specially elongated antennae and legs from the genus *Mecynotarsus* (van Hille, 1968).

***Notoxus longisulcus* n. sp.**

Dakar, Senegal, April 1951, coll. Bechyne: 2 specimens.

Damakanya, French Guinea, April-May 1951, coll. Bechyne: 10 specimens.

Région Kindie, Mt Gangan 500–800 m, French Guinea, April-May 1951, coll. Bechyne: 23 specimens.

Région Kindie, Fouta Djallon, Dalaba, French Guinea, June 1951, coll. Bechyne: 7 specimens.

Length: 2,80 mm (2,59–3,00)

Width over widest part of elytra: 1,03 mm (0,91–1,13).

Head: dark testaceous, with a ridge in the form of an inverted U, above the eyes, the insertion of the antennae and the anteclypeus; with a few lateral, semi-erect procumbent stiff hairs on posterior part of head and above the eyes, semi-erect recumbent in front of the eyes; fine procumbent hairs on clypeus and anteclypeus.

Prothorax: black to dark testaceous, usually somewhat lighter than head; with short recumbent hairs pointing towards dorsal median line and pointing backwards in the median dorsal area; with few semi-erect longer recumbent hairs. Horn about 37 % of the length of the whole prothorax, laterally with about four crenulations on each side; with a broad crest, laterally crenulated and with many dorsal pustules; hair on horn dorsally and ventrally procumbent.

Elytra: dark testaceous to testaceous, without colour pattern; with short recumbent hairs and fewer longer semi-erect, recumbent hairs; in male an elongated apical notch (Fig. 4 C).

Wings: well developed in both sexes.

Antennae: testaceous, darker towards apex.

Legs: very dark testaceous to testaceous, in dark specimens often somewhat lighter towards the apex.

Wings: well developed in both sexes.

Undersurface: dark testaceous; with fine recumbent and some larger semi-erect hairs.

Last exposed abdominal sternite (Fig. 4 C): with a slightly lighter median apical area in male, but not in female.

Aedeagus (Fig. 4 A and B): the median lobe similar to that of *N. guttulatus* (Buck 1958 and van Hille 1961) and *N. decorus* n. sp. (see below) but the outer lobe is different; these three species also have the elongated elytral notch in the male in common.

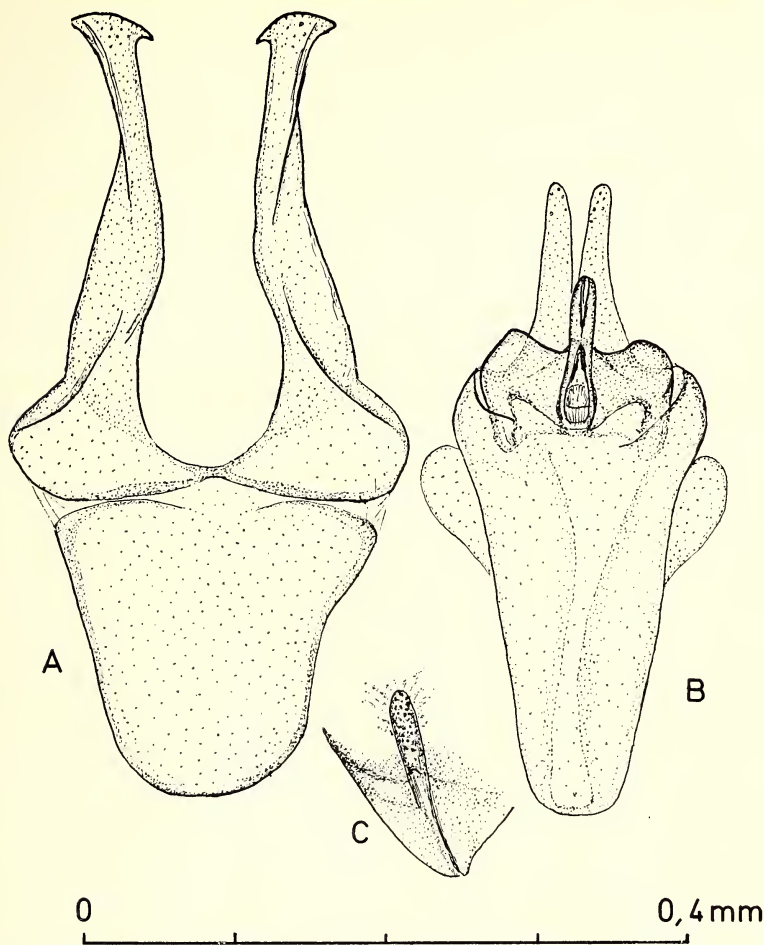


Fig. 4. *Notoxus longisulcus* n. sp. aedeagus. A: outer lobe. B: median lobe, ventral view. C: apical notch of elytron of male.

***Notoxus decorus* n. sp.**

Mt Meru, Momella, Tanganyika (Tanzania), Dec. 1959, coll. E. Haaf: 5 specimens, all males.

Length: 3,02 mm (2,97–3,13).

Width over widest part of elytra: 1,00 mm (0,95–1,04).

Head: testaceous with fine, short, procumbent hairs and a few semi-erect hairs, procumbent at the back and over the eyes, recumbent in front of the eyes.

Prothorax: testaceous, somewhat lighter than head: with fine recumbent hairs, pointing towards the dorsal midline and some semi-erect recum-



bent hairs. Horn about 39 % of the length of the whole prothorax; laterally with 3–4 crenulations on each side of basal half of horn; the apical half with darker margin; dorsally with broad crest with many pustules, ventrally with short procumbent hairs.

Elytra: about same colour as prothorax or a little lighter; with two transverse dark bands, the first anteriorly across the shoulders, the second just behind the anterior half. In progressively coloured specimens the bands may be connected along the median line and the posterior band may also extend backwards along the median line and extend laterally towards the apex of the elytra; with longer and shorter recumbent hairs.

In male a much elongated apical elytral notch.

Wings: fully developed in male (no females have been seen).

Antennae and legs: testaceous.

Undersurface: testaceous with recumbent hairs.

Last exposed abdominal sternite: in male slightly cut in.

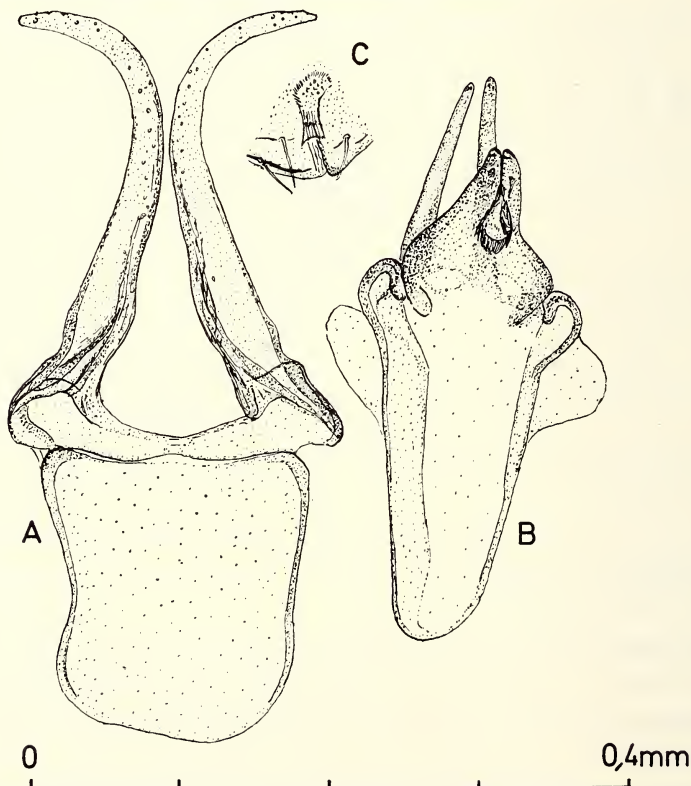


Fig. 5. *Notoxus decorus* n. sp. aedeagus. A: outer lobe. B: median lobe ventral view. C: apical notch of elytron of male.

Aedeagus (Fig. 5 A and B): the median lobe strongly resembles that of *N. guttulatus* Buck (1958), described from Zambia (N. Rhodesia) and also collected in the Congo; however the outer lobe is very different. Also the elongated elytral notch in the male is very similar in these two species; see also *N. longisulcus* n. sp.

In the collection of von Krekich-Strassoldo in the National Museum of Natural History in Vienna are seven specimens of this species labelled „Type *N. decorus* det. Krekich; Africa or. Katona, Arusha Chini (Tanzania) 1904“. This species was never described.

***Notoxus haafi* n. sp.**

Dakawa, Tanganyika (Tanzania), Febr. 1951, coll. E. Haaf: 2 specimens, both males.

Length: 3,33 mm.

Width over widest part of elytra: 1,13 mm.

Head: black to dark testaceous, dorsally chagreened; dorsally with fine procumbent hairs and a few semi-erect hairs which are procumbent posteriorly, recumbent in front of the eyes and procumbent again on frons and clypeus; ventrally fine procumbent hairs.

Prothorax: testaceous but horn somewhat darker; with fine obliquely recumbent hairs, pointing to the dorsal midline. Horn about 41 % of the length of the whole prothorax; laterally with 4–6 crenulations on each side, dorsally with a wide crest with many pustules; ventrally with fine procumbent hairs.

Elytra: black to dark testaceous, each with two lighter maculae, the anterior not reaching the lateral margin, the posterior may be less clear and may reach the lateral margin; with rather coarse recumbent hairs implanted in margined punctures. In male a slightly elongated apical notch (Fig. 6 C).

Wings: fully developed in male (no females have been seen).

Antennae and legs: testaceous, antennae may be slightly darker towards apex.

Undersurface: testaceous with recumbent hairs.

Last exposed abdominal sternite in male: with a median apical round area slightly paler.

Aedeagus (Fig. 6 A and B): the outer lobe with broad parameres, bifid at apex; median lobe simple, without lateral apophyses.

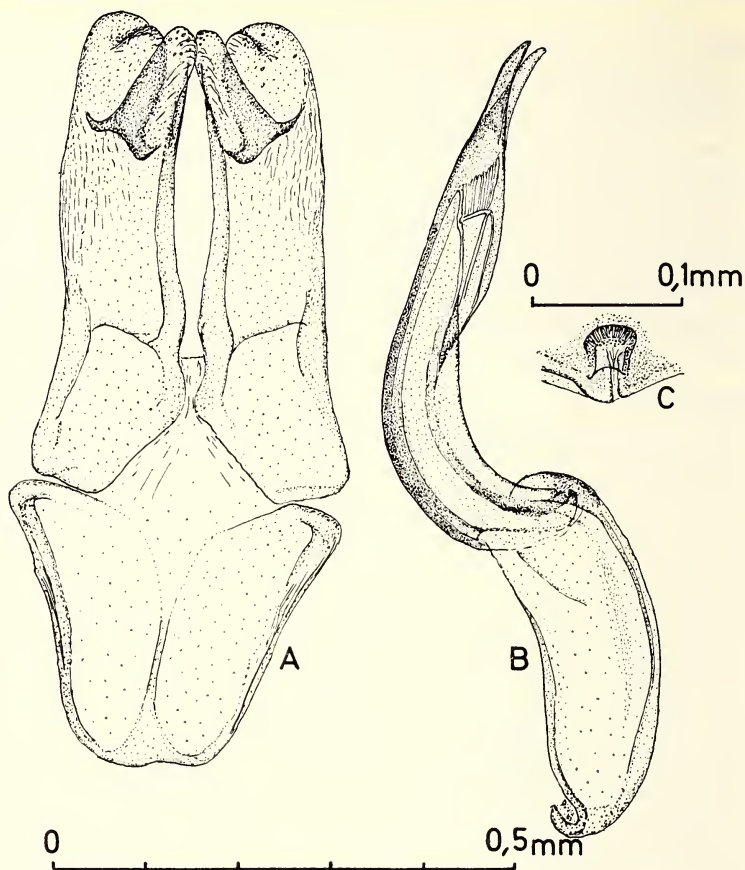


Fig. 6. *Notoxus haafi* n. sp. aedeagus. A: outer lobe. B: median lobe side view. C: apical notch of elytron of male.

*Notoxus manyarensis* n. sp.

Manyara See, Tanganyika (Tanzania), Dec. 1961, coll. H. and B. Frey: 1 male specimen.

Sao Hill, Tanganyika (Tanzania), Jan. 1963, coll. E. Haaf: 2 male specimens.

Length: 3,41 mm (3,35–3,48).

Width over widest part of elytra: 1,06 mm (1,04–1,08).

Head: black to dark testaceous, with fine procumbent hairs and dorsally some larger semi-erect procumbent hairs behind the eyes and some semi-erect recumbent hairs in front of the eyes.

Prothorax: dark testaceous, lighter than head: with fine recumbent hairs pointing to dorsal median line and a few, somewhat longer semi-erect

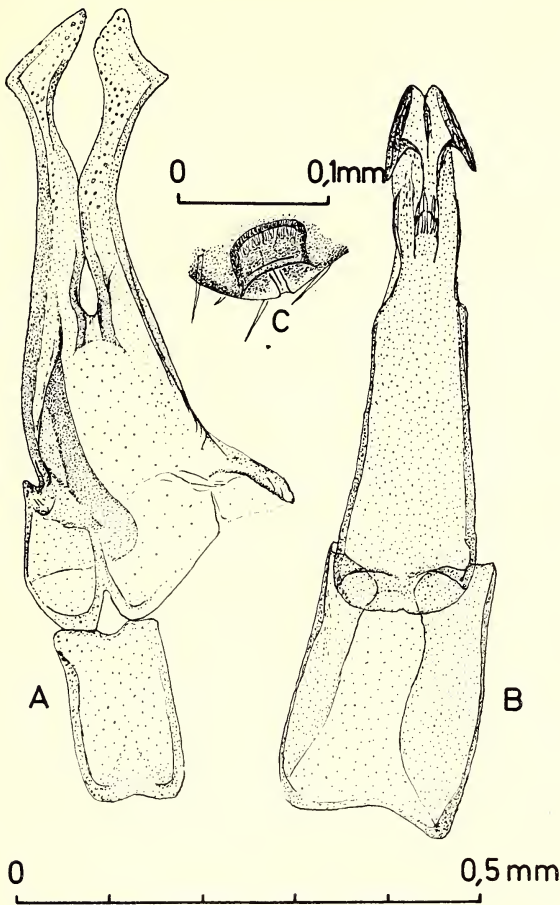


Fig. 7. *Notoxus manyarensis* n. sp. aedeagus. A: outer lobe. B: median lobe dorsal view. C: apical notch of elytron of male.

recumbent hairs. Horn about 42 % of the length of the whole prothorax; lateral margins parallel, with 4–6 crenulations on each side; dorsally with raised broad crest with many pustules; dorsally with few, small erect hairs, ventrally many fine procumbent hairs.

Elytra: same colour as prothorax or slightly lighter, without colour pattern; with fine recumbent hairs and some larger semi-erect recumbent hairs.

Male with short apical notch (Fig. 7 C).

Wings: fully developed in male; no females have been seen.

Antennae: dark testaceous, darker towards apex.

Legs: testaceous; coxa and femur somewhat darker.

Undersurface: dark testaceous, with fine recumbent hairs.

Last exposed abdominal sternite of male: pointed at apex.

Aedeagus: (Fig. 7 A and B).

This species is similar in colour to *N. longisulcus* n. sp. but it differs in the more elongated general shape, the shape of the prothoracic horn, the elytral notch of the male, the last exposed abdominal sternite and the aedeagus.

***Notoxus rungweensis* n. sp.**

Rungwe-Berge, 2500 m, S. Tanganyika (Tanzania), Jan. 1963, coll. E. Haaf: 2 males.

Rungwe Mission, 1600 m, S. Tanganyika (Tanzania), Jan. 1963, coll. E. Haaf: 7 males.

Mikumi Game Reserve, Tanganyika (Tanzania), Jan. 1963, coll. E. Haaf: 1 male.

Sao Hill, Tanganyika (Tanzania), Jan. 1963, coll. E. Haaf: 1 male.

Length: 3,10 mm (2,82–3,57).

Width over widest part of elytra: 0,95 mm (0,87–1,09).

Head: dark testaceous to testaceous, dorsally finely chagreened; with fine procumbent hairs and a few dorsal semi-erect hairs which are procumbent behind and above the eyes, recumbent in front of the eyes and procumbent again on frons and clypeus.

Prothorax: testaceous, lighter than head; with rather coarse recumbent hairs, pointing to dorsal median line and a few semi-erect hairs in the posterior region. Horn about 44 % of the length of the whole prothorax; the lateral margins parallel, each with 4–5 crenulations; with median raised crest, laterally crenulated, with many pustules; hairs dorsally erect, ventrally procumbent.

Elytra: about the same colour as the prothorax, each with two lighter maculae, not contrasting strongly with the surrounding darker area; the anterior macula may extend to the lateral margin, but right and left anterior maculae are separated by a narrow dark median area; the posterior maculae usually do not extend to the lateral margin and fade out gradually towards the apex; probably these colour patterns vary; with recumbent hairs and somewhat larger semi-erect recumbent hairs. Male with short apical notch.

Wings: fully developed in male (no females were collected).

Antennae: testaceous, slightly darker over the distal half but the apex of the last segment lighter.



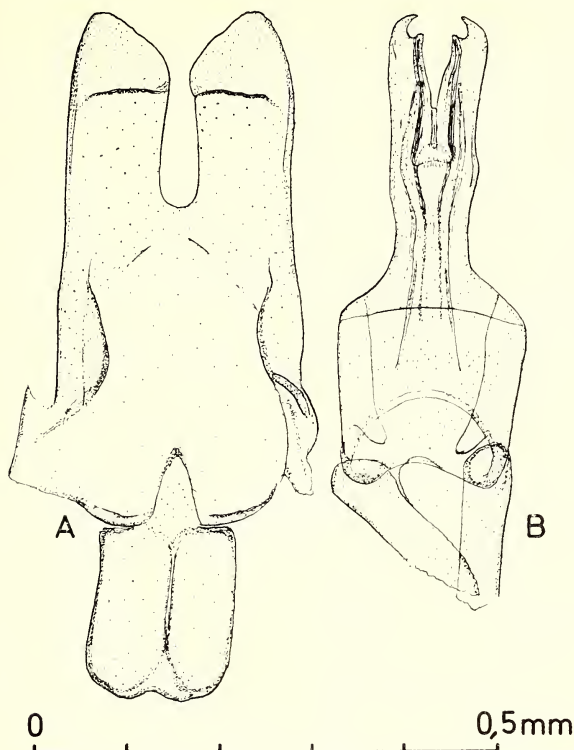


Fig. 8. *Notoxus rungweensis* n. sp. aedeagus. A: outer lobe. B: median lobe dorsal view; basal piece damaged.

Legs: testaceous.

Undersurface: testaceous, with fine recumbent hairs.

Last exposed abdominal sternite in male: very slightly indented at apex.

Aedeagus (Fig. 8 A and B): in the preparation the basal piece of the median lobe was damaged and has been drawn in this condition.

***Notoxus arcuatipes* n. sp.**

Manyara See, Tanganyika (Tanzania) Dec. 1961, H. and B. Frey: 1 male.

S. Manyara See, Tanganyika (Tanzania) Mar. 1963, E. Haaf: 1 male.

Length: 3,13 mm.

Width over widest part of elytra: 1,12 mm.

Head: slender, dark testaceous; with fine procumbent hairs and a few semi-erect hairs.

Prothorax: testaceous to dark testaceous, somewhat lighter than head; hairs fine, pointing to the dorsal median line and a few semi-erect hairs.

Horn about 42 % of the length of the whole prothorax; seen from

above the basal  $\frac{2}{3}$  of sides being parallel; with dark thickened margin, which is especially broad in front, laterally with 5–7 crenulations on each side; median dorsal crest with many pustules; procumbent hairs dorsally and ventrally.

Elytra: dark testaceous, each with two light maculae: the anterior pair not reaching the median line, nor the lateral margin, the posterior forming a transverse light band across the elytra; with fine recumbent hairs and few larger semi-erect recumbent hairs. Male with short and broad apical notch (Fig. 9 C).

Wings: fully developed in male; no females have been seen.

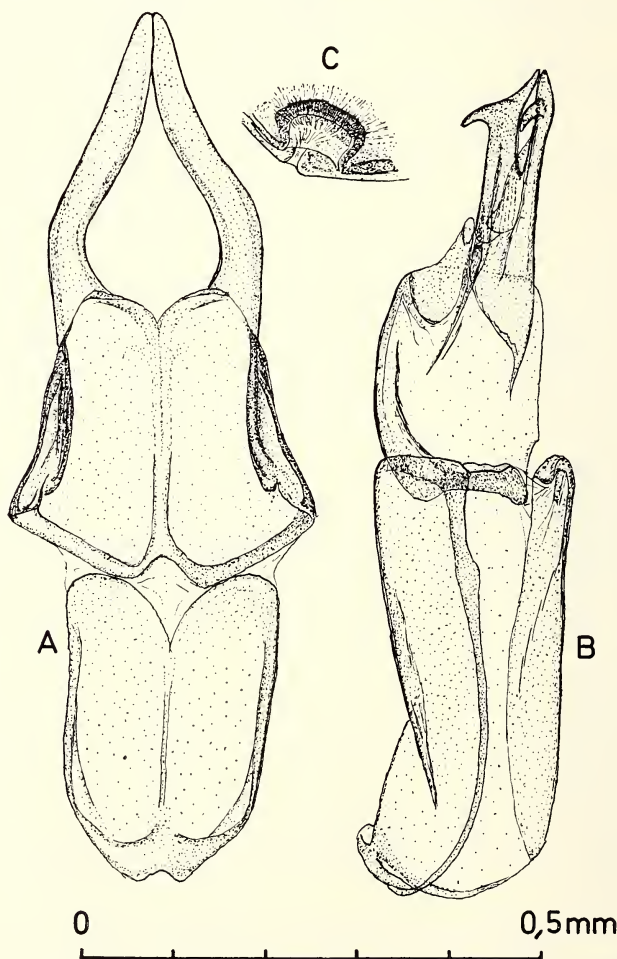


Fig. 9. *Notoxus arcuatifipes* n. sp. aedeagus. A: outer lobe. B: median lobe  $\frac{3}{4}$  ventral view. C: apical notch of elytron of male.

Undersurface: testaceous to dark testaceous; with fine recumbent hairs.

Last exposed abdominal sternite of male: slightly indented at apex.

Antennae: testaceous, apical four segments somewhat darker.

Legs: testaceous, the distal  $1/2$  of the femora and the proximal  $1/4$  of the tibiae somewhat darker.

Aedeagus: as figured (Fig. 9 A and B).

In the collection of H. von Krekich-Strassoldo in the National Museum of Natural History in Vienna are six specimens, five of which are labelled.

„Type *N. arcuatipes*“ det. Krekich. The localities of these specimens are:

Mwika, D. O. Afr. (Tanzania) 2 specimens, without abdomen.

Lindi, D. O. Afr. (Tanzania) 1 specimen, without abdomen.

Muansa, D. O. Afr. (Tanzania) leg. Holt, Apr. 1915, without abdomen.

Katona, Arusha Chini, Afr. orientalis (Tanzania), 2 specimens, one without abdomen.

In addition there are three slides of the male genitalia, labelled:

171 B, Sanya Arusha,

175 B, Muansa,

177 A, Kobosho, D. O. Afr. (Tanzania).

All these localities are within an area of 500 km. The name applies to the fact that in some of the specimens the femora of the hindlegs are slightly bent; in other specimens this is not clear. This name has not previously been published.

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