

**Article IV.—THE CHILOPODA AND DIPLOPODA COLLECTED  
BY THE AMERICAN MUSEUM OF NATURAL HISTORY  
CONGO EXPEDITION (1909–1915), WITH NOTES ON  
SOME OTHER AFRICAN SPECIES<sup>1</sup>**

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199 Text Figures, 1 Map

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INTRODUCTION

This paper is primarily a systematic report upon the valuable collection of chilopods and diplopods made in the Belgian Congo by Messrs. Herbert Lang and James P. Chapin, the courageous and efficient collectors of The American Museum of Natural History, who are to be

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<sup>1</sup>Scientific Results of the American Museum of Natural History Congo Expedition. General Invertebrate Zoology, No. 11.  
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congratulated on the results of their work. In addition, notes are also included on a few specimens from other parts of Africa which were included in the material sent to me for study. These additional specimens were taken by the Rev. E. A. Ford in Cameroon, West Africa, and Gaboon, French Equatorial Africa; by Mr. James L. Clark in the Upper Tana River region and the Yatta Plains, East Africa; by Mr. Richard Douglas in Matabeleland and Rhodesia, South Africa; and by Mr. B. H. Buxton at Biskra, Algeria, on the edge of the Sahara.

The collection from the Congo is highly important, not only because of its great size, but also because it goes far towards filling one of the largest gaps in our knowledge of the chilopod and diplopod fauna of Africa. Previous work upon the myriapods of the Congo basin had been represented by only a few scattered records in the writing of Voges, Porat, Attems, Cook and Collins, and Kræpelin. The myriopod fauna of some adjacent sections of western Africa, however, had been made known, particularly that of the Cameroon region, which was long ago the object of a careful study, based on extensive material, by C. O. von Porat.<sup>1</sup> J. Carl had reported on the diplopods of Spanish Guinea, and O. F. Cook, had given a short list from Loanda. The same authors had also reported upon collections from the more remote regions, Sierra Leone and Liberia. Voges, Silvestri, and Attems described forms from the neighboring Portuguese Guinea and from various other sections of Western Africa.<sup>2</sup>

There remains, of course, much to be learned about the chilopods and diplopods of western Africa. Future investigations will bring to light a great number of new forms, particularly among the smaller ones that naturally tend to be overlooked by the general collector. In the case of the Congo region represented by the present collection, for example, undoubtedly members of the Henicopidæ will be found and, among other

<sup>1</sup>Porat, 1894, 'Zur Myriopodenfauna Kameruns,' Bihang. Kongl. Sven. Vet.-Ak. Handl., Stockholm, XX, Afd. 4, No. 5, pp. 1-90, Pls. i-v.

1893, 'Myriopoder från Vest- och Syd-Afrika,' *Loc. cit.*, XVIII, Afd. 4, No. 7, pp. 1-52.

<sup>2</sup>Carl, J., 1905, 'Diplopodes de la Guinée Espagnole,' Mem. Soc. Esp. Hist. Nat., Madrid, I (1903-1910), pp. 261-284, Pls. vi-vii. 1913, 'Westafrikanische Diplopoden,' Rev. Suisse Zool., Genève, XXI, pp. 201-224, text figs. 1-18.

Cook, O. F., 1894, 'Notes on Myriapoda from Loanda, Africa, collected by Mr. Heli Chatelaine, including a Description of a New Genus and Species,' Proc. U. S. Nat. Mus., Washington, XVI (1893), pp. 703-708. 1896, 'A New Diplopod Fauna in Liberia,' Amer. Naturalists, XXX, pp. 413-420. 1896, 'Summary of New Liberian Polydesmoidea,' Proc. Ac. Nat. Sci. Philadelphia, XLVIII, pp. 257-267.

Voges, E., 1878, 'Beiträge zur Kenntniss der Juliden,' Zeitschr. Wiss. Zool., Leipzig, XXXI, pp. 127-194, Pls. xi-xiii.

Silvestri, F., 1907, 'Neue und wenig bekannte Myriopoden des Naturhistorischen Museums in Hamburg. (I. Teil),' Mitt. Naturhist. Mus. Hamburg, XXIV (1906), pp. 229-257, text figs. 1-86.

Attems, C. G., 1899, 'System der Polydesmiden. I. Theil,' Denkschr. Ak. Wiss., Math.-Naturwiss. Kl., Wien, LXVII, pp. 221-482, Pls. i-xi; 1900, idem, II. Theil, *loc. cit.*, LXVIII, pp. 251-436, Pls. xii-xvii. 1914, 'Afrikanische Spirostreptiden nebst Ueberblick über die Spirostreptiden orbis terrarum,' Zoologica, Stuttgart, XXV, Hefte 65-66, pp. i-x and 1-235, Pls. i-xv, text figs. 1-36. 1901, 'Neue Polydesmiden des Hamburger Museums,' Mitt. Naturhist. Mus. Hamburg, XVIII (1900), pp. 83-107, Pls. i-iii.

chilopods, a considerable number of geophiloids may be expected. Of the smaller diplopods, polyxenids doubtless occur, and a considerably increased number of cryptodesmids and other polydesmoids will appear. However, our knowledge of the fauna is now such that we may confidently draw some general outlines of its character which future investigations will confirm or supplement in the way the present study fits in with the work that has gone before.

It is obvious that the West African diplopod fauna in particular is a rich and varied one. It is also clear that this fauna is a largely distinct and peculiar one. It was to be expected that it would have little in common with the North African fauna; but it is also now certain that it lacks similarity to the fauna of East and South Africa. If we except such widespread chilopods as *Mecistocephalus insularis*, *Orphnæus breviliatus*, *Cryptops validus*, *Scolopendra morsitans*, and *Ethmostigmus trigonopodus*, no species are common to East and West Africa. Many of the genera are likewise peculiar, such as all those constituting the family Prepodesmidæ as well as many other polydesmoids and such spirostreptoid forms as *Thrinclulus* (*Porostreptus*), *Ophistreptus*, *Globanus*, *Aulonopygus*, *Trachystreptus*, *Myostreptus*, and *Peridontopyge*. Most species of the Spirostreptidæ, however, pertain to *Spirostreptus*, *sens. str.* Especially noteworthy is the apparently complete lack in the West African fauna of any representatives of the *Oniscomorpha* of which members are common in South Africa, as well as in Asia and Australia.

In the collection from the Belgian Congo there is an even more marked predominance of species of the Polydesmoidea over other groups than is indicated by reports from other sections. Among these are representatives of the following new and peculiar genera: in the Stronglylosomidæ, *Wubidesmus*; in the Gomphodesmidæ, *Sigmodesmus*, in the Prepodesmidæ, *Gitadesmus*, *Grallodesmus*, *Pimodesmus*, and *Doidesmus*; and in the Cryptodesmidæ, *Zikadesmus*. There are, however, as many genera represented in the Spirostreptoidea as in the Polydesmoidea. New spirostreptoid genera are *Tibiomus* (Spirostreptidæ), *Zinophora* and *Congopyge* (Harpagophoridæ). The sixty-seven species of diplopods belong to the three suborders represented as follows:

Spiroboloidea, 4

Spirostreptoidea, 24 (and 1 additional variety)

Polydesmoidea, 39

As against this number of diplopods there are only ten species of chilopods, of which *Rhysida togoensis*, *Ethmostigmus trigonopodus*, *Scolopendra morsitans*, and *Mecistocephalus insularis* are apparently widespread and abundant forms in the region.

For the privilege of studying this collection, the author wishes to express his gratitude to the officers of the American Museum, particularly to Dr. Roy W. Miner, whose courtesy and interest have added to the pleasure of the work.

LIST OF LOCALITIES, WITH NAMES OF THE SPECIES AND SUBSPECIES  
TAKEN AT EACH

Akenge	Garamba
<i>Pterodesmus moderatus</i>	<i>Cryptops validus</i>
Avakubi	<i>Rhysida togoensis</i>
<i>Alipes congoensis</i>	<i>Ethmostigmus trigonopodus</i>
<i>Cormocephalus minor</i>	<i>Scolopendra morsitans</i>
<i>Habrodesmus grallator</i>	<i>Mecistocephalus insularis</i>
<i>Plagiodesmus brachydon</i>	<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>virgator</i>
Babeyru	<i>redemptus</i>
<i>Mecistocephalus insularis</i>	<i>Spirostreptus</i> ( <i>Macrolenostreptus</i> )
Bafwabaka	<i>garambanus</i>
<i>Pimodesmus aglaus</i>	<i>Lophostreptus entomotropis</i>
<i>Pterodesmus fractus</i>	<i>Habrodesmus garambanus</i>
Banana	<i>Orodesmus garambanus</i>
<i>Scolopendra morsitans</i>	Leopoldville
<i>Haplothysanus retrorsus</i>	<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>rolini</i>
Basoko (near)	<i>Tibiomus congoensis</i>
<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>langi</i>	Malela
Biskra, Algeria	<i>Scolopendra morsitans</i>
<i>Orya barbarica</i> (Buxton coll.)	<i>Mecistocephalus insularis</i>
Bolengi and Irebu (between)	Medje
<i>Pachybolus macrosternus</i>	<i>Alipes congoensis</i>
<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>langi</i>	<i>Otostigmus</i> sp.
<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>mineri</i>	<i>Pachybolus intercalatus</i>
<i>Scaphiostreptus</i> ( <i>Scaphiostreptus</i> ) <i>apheles</i>	<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>medjensis</i>
<i>Orthoporus conchophor</i>	<i>Scaphiostreptus</i> ( <i>Scaphiostreptus</i> ) <i>con-</i>
Cameroon	<i>goensis flavomarginis</i>
<i>Rhysida togoensis</i> (Ford coll.)	<i>Haplothysanus medjensis</i>
Congo (no definite locality)	<i>Helicochætus</i> (?) <i>simplex</i>
<i>Gitadesmus gracilliramus</i>	<i>Habrodesmus viabilis</i>
Faradje	<i>Habrodesmus somber</i>
<i>Mecistocephalus insularis</i>	<i>Wubidesmus iugans</i>
<i>Habrodesmus faradjensis</i>	<i>Oxydesmus minor</i>
<i>Habrodesmus cursor</i>	<i>Oxydesmus ootypus</i>
<i>Orodesmus interioris</i>	<i>Oxydesmus conformans</i>
<i>Sigmodesmus nannus</i>	<i>Plagiodesmus mimus</i>
<i>Sigmodesmus faradjensis</i>	<i>Plagiodesmus medjensis</i>
	<i>Orodesmus eunis</i>
	<i>Sigmodesmus perditus</i>
	<i>Pterodesmus medjicolens</i>



LIST OF LOCALITIES, WITH NAMES OF THE SPECIES AND SUBSPECIES  
TAKEN AT EACH (Continued)

Niangara	<i>Habrodesmus latilobus</i>
<i>Alipes congoensis</i>	<i>Wubidesmus acarinatus</i>
<i>Ethmostigmus trigonopodus</i>	<i>Wubidesmus congoicolen</i>
<i>Trachycormocephalus langi</i>	<i>Oxydesmus eutypus</i>
Niapu	<i>Oxydesmus euchrus</i>
<i>Oxydesmus amplexiramus</i>	<i>Oxydesmus curtiramus</i>
<i>Oxydesmus clarimarginatus</i>	<i>Plagiodesmus antius</i>
<i>Plagiodesmus acutior</i>	<i>Sigmodesmus leigon</i>
Ogowe River (near), Gaboon	<i>Grallodesmus diplogon</i>
<i>Scolopendra morsitans</i> (Ford coll.)	<i>Gitadesmus gracilliramus</i>
Poko	<i>Doidesmus explorator</i>
<i>Gitadesmus pokanus</i>	Tana River (Upper) near base of Mt. Kenya, B.E.A.
Rhodesia	<i>Harmomastix kenianus</i> (Clark coll.)
<i>Scolopendra morsitans</i> (Douglas coll.)	Thysville
<i>Alloporus rhodesianus</i> (Douglas coll.)	<i>Zikadesmus cavernicolens</i>
<i>Zinophora munda</i> (Douglas coll.)	Vankerckhovenville
Stanleyville	<i>Ethmostigmus trigonopodus</i>
<i>Rhysida togoensis</i>	Yakuluku
<i>Cormocephalus minor</i>	<i>Haplothysanus clarus</i>
<i>Pachybolus barbarus</i>	Yatta Plains, B.E.A.
<i>Pachybolus sulcifer</i>	<i>Haplothysanus latifolius</i> (Clark coll.)
<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>innominatus</i>	Zambi
<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>auriculobus</i>	<i>Ethmostigmus trigonopodus</i>
<i>Scaphiostreptus</i> ( <i>Scaphiostreptus</i> ) <i>congoensis</i>	<i>Scolopendra morsitans</i>
<i>Odontopyge decipiens</i>	<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>rolini</i>
<i>Congopyge acanthophor</i>	<i>Spirostreptus</i> ( <i>Spirostreptus</i> ) <i>chapini</i>

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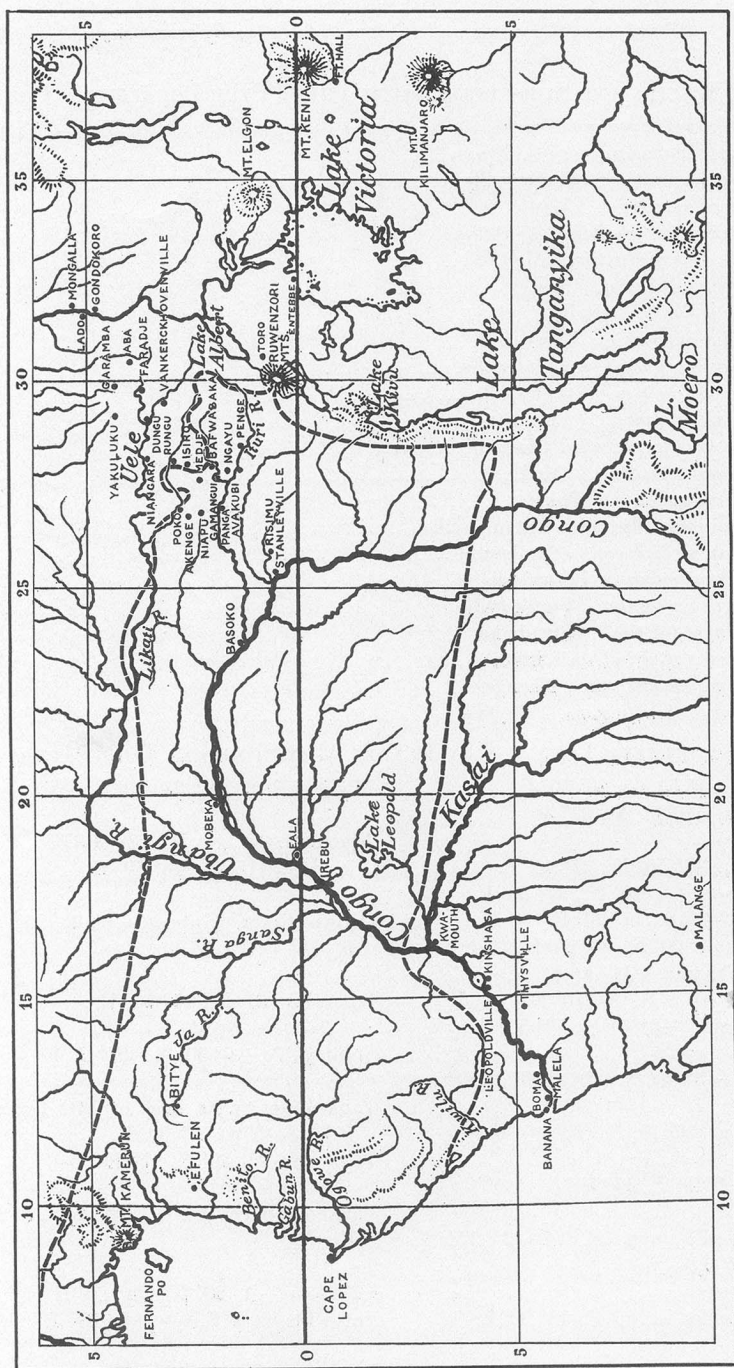
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## APPROXIMATE LOCATION OF PLACES MENTIONED IN THIS PAPER

Akenge.—2° 55' N., 26° 50' E.	Medje.—2° 25' N., 27° 30' E.
Avakubi.—1° 20' N., 27° 40' E.	
Babeyru.—1° 55' N., 27° 40' E.	Niangara.—3° 40' N., 27° 50' E.
Bafwabaka.—2° 10' N., 27° 50' E.	Niapu.—2° 15' N., 26° 50' E.
Banana.—6° S., 12° 20' E.	Ogowé River, Gaboon.—0°–2° 35' S., 9°–14° E.
Basoko.—1° 20' N., 23° 35' E.	
Biskra, Algeria.—34° 50' N., 5° 45' E.	
Bolengi.—0° 5' S., 18° 10' E.	Poko.—3° 10' N., 26° 50' E.
Boma-Sundi.—5° 20' S., 12° 50' E.	
Faradje.—3° 40' N., 29° 40' E.	Stanleyville.—0° 30' N., 25° 15' E.
Garamba.—4° 10' N., 29° 40' E.	Tana River, near base of Mt. Kenya, B.E.A.—5° S., 37° 30' E.
Irebu.—0° 35' S., 17° 50' E.	Thysville.—5° 30' S., 15° E.
Kibwezi Ukamba, B.E.A.—2° 25' S., 37° 55' E.	Vankerckhovenville.—3° 20' N., 29° 20' E.
Leopoldville.—4° 25' S., 15° 20' E.	Yakuluku.—4° 20' N., 28° 50' E.
Malela.—6° S., 12° 40' E.	Yatta Plains. B.E.A.—5° S., 37° E.
	Zambi.—6° S., 12° 50' E.



Map of the Congo and Lake Region of Africa, showing principal localities where Myriopods were collected by the Congo Expedition.

## CHILOPODA

## SCOLOPENDROMORPHA

**Cryptopidæ*****Cryptops validus* Meinert**

*Cryptops validus* MEINERT, 1886, Proc. Amer. Phil. Soc., XXIII, p. 210.

*Cryptops bottegii* SILVESTRI, 1897, Ann. Mus. Civ. Genova, XXXVII, p. 302.

LOCALITY.—Garamba, 2 specimens, May 3 and 17, 1912.

**Otostigmidæ*****Alipes congoensis*, new species**

Text Figures 1 to 3

Head smooth, finely and subsparingly punctate; two weak, longitudinal furrows on caudal portion. Antennæ of type with sixteen articles present of which the first two or two and a half are smooth and shining.

First two dorsal plates smooth and shining. The third and fourth plates more uneven, obscurely margined, but without median keels. Plates from the fifth caudad distinctly margined; with three median keels of which the middle is weaker than the laterals, all smooth; lateral keels not so sharp, in part incomplete; surface between keels with very fine and subspars points only. Last dorsal plate with a median keel ending in a median caudal depression; surface with fine granules or points.

Prosternum smooth and shining, with a short median sulcus anteriorly. Dental plates wider than long, each with four teeth. (Fig. 1). Ventral plates shining but uneven; without distinct furrows. Last ventral plate strongly narrowed caudad. Caudal margin straight or slightly convex, the corners rounded.

Coxopleuræ of anal legs but little produced, unspined; caudal line of pore-area laterally deeply and narrowly incurved; the incurving line rounded at bottom. Femur of anal legs wholly smooth, without a process at base. (Fig. 2). Tibia decidedly longer than broad (8.5 mm.). First tarsal joint much broader than the tibia (7.5 mm.), and obviously longer than wide (9.7 mm.); midrib heavier and much more distinct in proximal half; lateral veins fine; general surface areolated (Fig. 3).

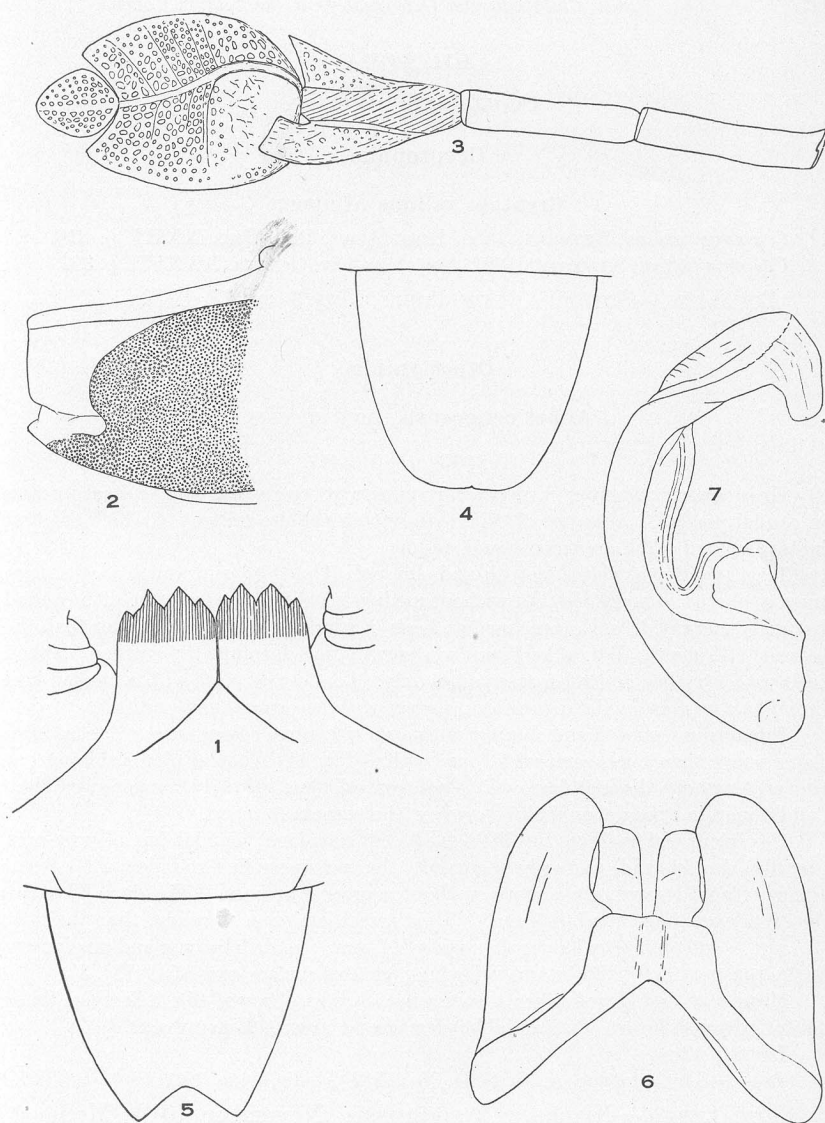
Head and first dorsal plate a somewhat chestnut-brown, the following plates lighter, greenish brown, the caudal borders clearer green. Legs fulvous.

Length, 92 mm,

TYPE.—The holotype, A. M. N. H. No. 5552, Medje, June, 1910.

LOCALITIES.—Niangara, 2 specimens, November, 1910; Medje 1, July, 1914; Avakubi, 1, June, 1914.

This species is closely related to *Alipes multicostis* Imhoff, which is also a West African form. It is separated chiefly on the basis of the different proportions and structure of the distal joints of the anal legs. The first tarsal joint, e.g., is obviously wider than the tibia instead of being of the same breadth.



*Alipes congoensis*, new species.

Fig. 1. Dental plates of prosternum.

Fig. 2. Coxopleura, lateral view.

Fig. 3. Anal leg, lateral view.

*Cormocephalus minor*, new species.

Fig. 4. Last ventral plate.

*Trachycormocephalus langi*, new species.

Fig. 5. Last ventral plate.

*Pachybolus barbarus*, new species.

Fig. 6. Gonopods of male, anterior view.

Fig. 7. A posterior gonopod, lateral view.

***Rhysida togoensis* Kræpelin**

*Rhysida togoensis* KRÆPELIN, 1902, 'Revision der Scolopendriden,' in Mitt. Nat. Mus. Hamburg, XX, p. 145, Figs. 84, 85.

LOCALITIES.—Garamba, 50 specimens, May 3–17, and June, 1912; Stanleyville, 1, March, 1915; also 1 defective specimen probably pertaining to this species was taken in Cameroon by Rev. E. A. Ford.

**Otostigmus species**

One specimen was taken at Medje, but in the absence of its anal legs cannot be specifically determined.

***Ethmostigmus trigonopodus* (Leach)**

*Scolopendra trigonopoda* LEACH, 1817, Zool. Miscell., III, p. 41.

*Ethmostigmus trigonopodus* KRÆPELIN, 1902, 'Revision der Scolopendriden,' in Mitt. Nat. Mus. Hamburg, XX, p. 157, Figs. 102, 103.

LOCALITIES.—Garamba, 9 specimens, June, 1912; Vankerckhoven-ville, 1, November, 1910; Niangara 1, November, 1910; Zambi, 4, June, 1915; Congo, without more definite localities being indicated on the labels, 15.

**Scolopendridæ*****Cormocephalus minor*, new species**

Text Figure 4

General color of body dark olive-green, the legs a lighter olive-green.

Head smooth and shining, very finely and lightly punctate; with a median sulcus interrupted at middle of length; without basal plates. Antennæ consisting of seventeen articles of which the proximal six are smooth and shining.

Dorsal plates smooth. Second plate without median sulci or with traces only at caudal border. Sulci of third plate distinct but those of fourth and succeeding ones deeper.

Prosternum punctate; with a distinct median impressed line anteriorly; dental plates each with four teeth of which the two at the inner end are fused. Tooth of femur a little exceeded by the dental plate. Ventral plates from second to twentieth with deep paired sulci, without median sulcus or depressions; smooth and shining. Last ventral plate (Fig. 4) with sides converging caudad, the caudal corners widely rounded and the caudal margin slightly indented at middle; without a median sulcus.

Femur of anal legs about twice as long as thick at distal end; bearing ventrally on outer half four spines in two rows and on inner or ventromesial surface also four spines (2+2); along dorsomesial edge three spines and a two-spined distal process.

TYPE.—A. M. N. H. No. 5638. Avakubi, January, 1914.

LOCALITIES.—Avakubi, many specimens; Stanleyville, 1, March 1915.

This is a smaller form than the East African form *C. buttneri* Kræpelin, from which it may be distinguished also in lacking a median sulcus on the last ventral plate.

**Trachycormocephalus langi**, new species

## Text Figure 5

General color of head, anterior plates, and caudal borders of other plates olive-green. Legs greenish brown, the distal joints of the anal pair green.

Head smooth and shining; weakly finely punctate; without longitudinal or transverse furrows. Antennæ composed of twenty articles of which only the first four are smooth and shining.

Dorsal plates with paired median sulci from the third to the twentieth. Plates margined from the seventh. Last dorsal plate without median furrow; caudal margin strongly bowed caudad.

Dental plates of prosternum longer than wide, each bearing four teeth. The posterior limiting sulcus forming almost a right angle at median line. Ventral plates from second to twentieth with two longitudinal furrows, those of the second and third less distinct than others. Last ventral plate strongly narrowed caudad; its caudal border deeply excised. Fig. 5.

Coxopleuræ of anal legs produced caudad into conspicuous processes which bear two spinules at distal end; also one spinule above and one ventroectal in position. Anal legs of moderate length. Femur ventrally with two rows of spinules (3,2); mesial surface with two rows of spines (2,2) and one longer spine at distal end in line with upper series, or, as on right leg of holotype, with several (4) smaller spines in a transverse row at distal end; claw with a slender spine at base.

Length, 57 mm.

TYPE.—A. M. N. H. No. 5656, Niangara, November, 1910.

This very distinct form is dedicated to Mr. Herbert Lang.

**Scolopendra morsitans** Linnæus

*Scolopendra morsitans* LINNÆUS, 1758, 'Syst. Nat.,' 10th Ed., p. 638.

LOCALITIES.—Banana, July–August, 1915; Malela, 5 specimens, July, 1915; Zambi, June, 1915; Garamba, May 3–17, June, 1912; locality not recorded, many specimens. In addition to the Congo specimens, others were taken in Rhodesia by R. Douglas; and in the Gaboon, French Equatorial Africa, near the Ogowe River, by the Rev. E. A. Ford, 1912–1914.

A specimen from Banana, a female, is variant in its shorter antennæ consisting of only eighteen articles.

## GEOPHILOMORPHA

**Oryidæ****Orya barbarica** (Gervais)

*Geophilus barbaricus* GERVAIS, 1835, 'Mag. Zool.,' de Guérin, Cl. IX, p. 10, Pl. CXXXIII, fig. 3.

*Geophilus fusatus* C. KOCH, 1841, in Wagner, 'Reise Reg. Algier,' B. III, p. 225, Pl. XI.



*Orya barbarica* MEINERT, 1870, Myr. Mus. Hauniensis, I, Geophili, Naturh. Tidsskr., (3) VII, p. 16.

*Orya barbarica* ATTEMS, 1903, Zool. Jahrb. Abth. Syst., XVIII, p. 200.

LOCALITY.—Biskra, Algeria, at edge of Sahara, 2 specimens (male, female), September, 1911 (B. H. Buxton Coll.).

These specimens, a male and a female, agree with Meinert's description excepting in their small size and in the number of legs. Meinert's specimens showed a variation of from 109 to 125 pairs of legs, while the present female has 97 pairs and the male only 87 pairs. Meinert records specimens with the higher number of legs from the same locality and other parts of Algeria and also from southern Spain. Koch, however, in his account of this species under the name *Geophilus fusatus*, as above cited, records his smaller Algerian specimens, males, as having commonly from 97 to 103 pairs of legs. The present specimens would thus join on the lower end of his series and so cannot be separated on the basis of this character. The species has also been taken in Tunis and Morocco.

### **Mecistocephalidæ**

#### **Mecistocephalus insularis** (Lucas)

*Geophilus insularis* LUCAS, 1863, in Maillard's 'Note sur l'Ile de la Reunion,' pp. 39, 40.

*Mecistocephalus heros* MEINERT, 1886, Proc. Am. Phil. Soc., XXIII, p. 214.

LOCALITIES.—Garamba, 50 specimens, May and June, 1912; Faradje, 1, January, 1912; Babeyru, 1 female with numerous young, July, 1914, Malela, 3, July 5, 1915.

### **DIPLOPODA**

#### **SPIROBOLOIDEA**

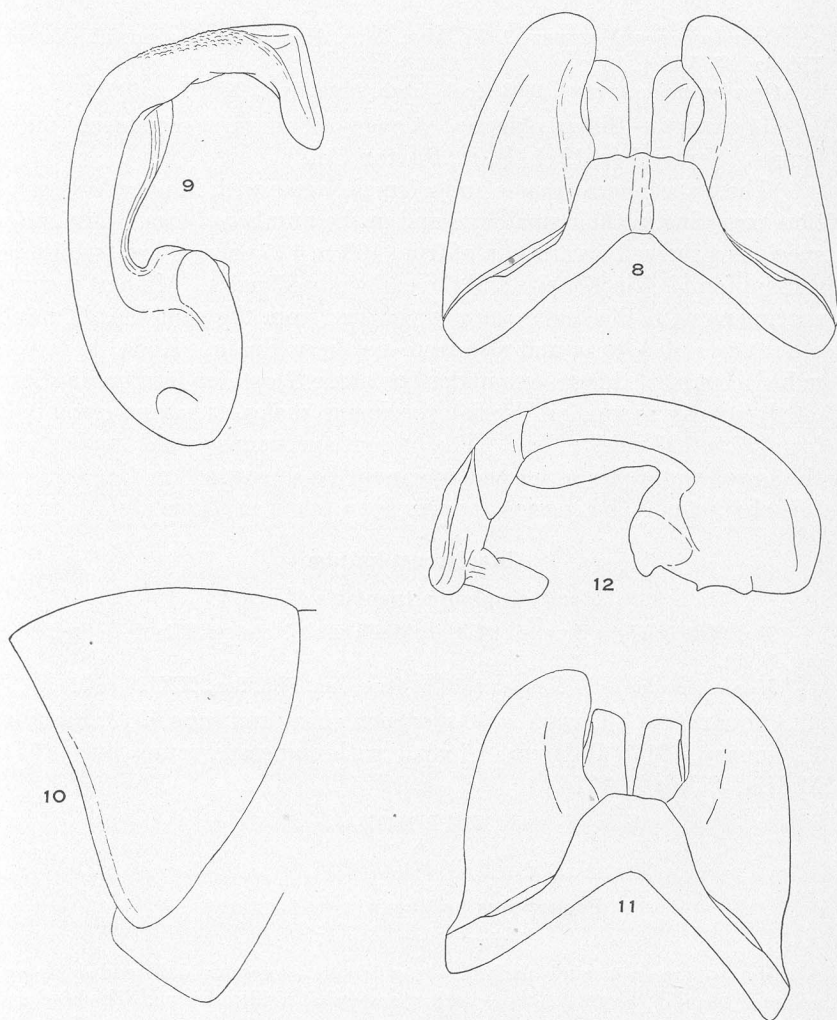
#### **Pachybolus barbarus**, new species

Text Figures 6 to 7

Metazonites in general blackish, the prozonites becoming dull reddish or vermilion as usual in the genus. Legs dark or somewhat reddish brown. The head and antennæ reddish or vermilion.

Labral excision wide and obtuse, showing five teeth or crenations. Clypeal foveolæ 2+2, widely separated. Surface of the head in general smooth and shining. The median sulcus is distinct from the labral margin upward excepting for an interruption just above the level of the antennal sockets. Inner ends of eyes extending mesad of inner side of antennal sockets; ocelli numerous, about 47 in number, arranged in six series, e.g., 9, 9, 9, 8, 7, 5.

Collum strongly narrowed below on each side, the anterior corner strongly rounded. Surface smooth and shining, showing no sulci. The second tergite on each side extending conspicuously below the level of the collum and the third segment similarly, but less strongly produced. The seventh segment in the male is completely



*Pachybolus sulcifer*, new species.

Fig. 8. Gonopods, anterior view.

Fig. 9. Right posterior gonopod, ectal view.

*Pachybolus intercalatus*, new species (male).

Fig. 10. Lateral view of collum.

Fig. 11. Gonopods, anterior view.

Fig. 12. Posterior gonopod, ectal view.

closed below and shows no sign of a median suture. In the ordinary segments of the body there is a shallow furrow or constriction encircling the segment, this constriction is deeper down the sides than across the dorsum, but there is no true segmental sulcus evident. The pore is just in front of this constriction. Surface in general appears smooth and shining, the lens revealing only weak punctæ. The longitudinal sulci of metazonites present only ventrally. The prozonites also showing ventrally some longitudinal oblique striæ. Last tergite with an acute cauda which curves a little downward at tip, the cauda exceeded by the valves. The cauda is set off by two distinct transverse sulci; its surface finely roughened, that of the tergite in general less strongly so. Median borders of anal valves strongly elevated, the surface of the rims, especially toward base, strongly rugose but the general surface of the valves smooth. Anal scale broadly triangular, its caudal angle obtuse.

Sternites with some short and wavy, mostly interrupted striæ.

In the gonopods of the male the anterior median plate is large and broad, distally somewhat as an *excisus*, but with the distal end more rounded (cf. Figs. 6 and 7).

Number of segments, fifty or fifty-one.

Width of male, 11.5 mm.; of female, 13 mm.

TYPE.—Male (holotype), A. M. N. H. No. 5544, Stanleyville, September 17, 1909.

LOCALITIES.—Stanleyville, 2 females, September 17, August, 1909.

### ***Pachybolus sulcifer*, new species**

Text Figures 8 to 9

In size and general coloration agreeing with the preceding species, *P. barbarus*.

Head as in *barbarus*. The inner angles of eyes appear more rounded.

The collum differs in having a distinct sulcus from the lower end on each side up to the level of the eye and parallel with the anterior margin. The form and markings of the somites nearly as in *barbarus*. The anal tergite similar but without any distinct transverse sulci at base of the cauda.

The sternites more strongly striate.

Median plate of anterior gonopods with the middle portion very wide and bearing a median keel-like swelling which is much higher proximally and distally protrudes as an angle beyond the general anterior margin as shown in the figures (Figs. 8 and 9).

Number of somites, fifty.

Width, 12 mm.

TYPE.—Male, A. M. N. H. No. 5547, Stanleyville, April, 1915.

LOCALITY.—Stanleyville, (one male and one female), April, 1915.

### ***Pachybolus intercalatus*, new species**

Text Figures 10 to 12

Metazonites appearing black or nearly so, the prozonites light brown to more or less clearly vermilion dorsally.

The labral margin as usual. The median vertical sulcus sharply defined to level of upper part of antennal sockets, not so distinct across vertex. Eyes and antennæ as usual.

The collum has a sulcus paralleling the anterior margin much as in *P. sulcifer* (Fig. 10). The metazonites of the ordinary segments obviously elevated above level of prozonites. The striation of both prozonite and metazonite rising rather higher on the sides than in *barbarus*, etc.

Last tergite transversely depressed at base of cauda. The sides of the elevated mesial rims are strongly roughened through a dense, coarse pitting rather than by ridges or rugæ.

In the gonopods of the male the middle division of the median plate is broad, truncate distally and with the distal portion of the series oblique; the median keel strongly developed, not protuberant distally. Anterior piece of anterior gonopods excised at level of apex of median plate. Posterior piece of anterior gonopod not excised or toothed distally. The posterior gonopods somewhat spatulate distally, channeled above (cf. Figs. 11 and 12).

Number of segments, fifty-two.

Width, 12.5 mm.

TYPE.—Male, A. M. N. H. No. 5574, Medje, August 12, 1910.

### ***Pachybolus macrosternus* Cook**

*Pachybolus macrosternus* COOK, 1899, Proc. U. S. Nat. Mus., XXI, p. 662, Pl. LI, figs. 3a–3d.

LOCALITY.—Near Bolengi Irebu, male, July, 1909.

The type locality for this species is also in the Belgian Congo, at Leopoldville.

## **SPIROSTREPTOIDEA**

### **Spirostreptidæ**

#### ***Spirostreptus* (*Spirostreptus*) *langi*, new species**

Text Figures 13 to 15

Metazonites deep chocolate-colored or blackish, with the caudal border reddish or ferruginous; prozonites pale. Legs light brown.

Labral excavation moderate, concave, with three stout conical teeth. Clypeal foveolæ 3+2. Surface of head in general smooth and shining. Interocular sulcus as usual finer and less distinct than that across vertex. Inner angle of each eye extending decidedly mesiad of the base of antenna.

Corner of collum on each side produced strongly cephalomesiad; four sulci above the angle (Fig. 13). Prozonites with conspicuous encircling striæ, which continue to the sternite on each side. Dorsally the space between the most caudal stria and the segmental sulcus is a little less than equal to the two preceding intervals between striæ. Posterior portion of prozonite and the metazonite with numerous fine punctæ, the metazonite in addition marked with numerous longitudinal sulci or impressions of varying lengths but mostly short. The sulcus is curved forward opposite the segmental pore at which level it is much more weakly marked than it is above. Last dorsal plate very obtuse behind, without special markings aside from the usual fine punctæ. At ectal base of raised mesial border of each anal valve is a wide but shallow furrow which is most developed anteriorly. Caudal margin of anal valve nearly straight.

Sternite with fine cross-striæ which anastomose with each other. The spiracular depression large, extending beyond edge of sternite.

Ventral pads present to most caudal pairs of feet.

Lateral piece of gonopod simply expanded and rounded distally. The median piece a little convexly extended on ectal side at distal end, a depression or pit on its ectal edge, but wholly without the usual conical process. Coxal spine of posterior gonopod of moderate length, slenderly pointed. Telopodite long, distally slender and without processes (Figs. 14 and 15).

Number of segments, fifty-six.

Thickness, 10 mm.

TYPE.—Male, A. M. N. H. No. 5554, near Basoko, July 29, 1909.

LOCALITIES.—Near Bolengi and Irebu, 1 female, July, 1909, and near Basoko, July 29, 1909.

### ***Spirostreptus (Spirostreptus) mineri*, new species**

Text Figures 16 to 18

Annulate, the caudal border of each segment being ferruginous and preceded by a blackish annulus in front of which the color is lighter, greenish gray or somewhat yellowish on anterior part of prozonite. Legs ferruginous brown.

Clypeal foveolæ 2+2. Surface of head in general smooth and shining. Sulcus of vertex fine but distinct. The interocular sulcus obsolete. Inner angles of eyes extending decidedly mesiad of bases of antennæ.

Lower end of collum conspicuously produced at anterior corner, the process distally strongly rounded. Above the lower corner are six sulci (Fig. 16). Prozonites strongly striate, the striæ extending to the sternites. Surface of metazonite and posterior portion of prozonite marked with the usual punctæ and network of impressed lines. Sulcus distinct throughout, slightly and widely curved opposite the pore which is about two-thirds the distance from caudal margin to sulcus. Series of longitudinal striæ on metazonite ending well below the pore. Last tergite with caudal margin widely rounded; surface densely finely punctate and with coriaceous impressed lines behind. Mesial borders of anal valves strongly elevated. Anal scale very wide, its caudal margin essentially straight.

Sternites over middle region with fine cross-striæ but with the lateral portions wholly smooth. Stigmal depression extending caudolaterad from spiracle beyond outer edge of sternite.

Pads of feet present to caudal end of body.

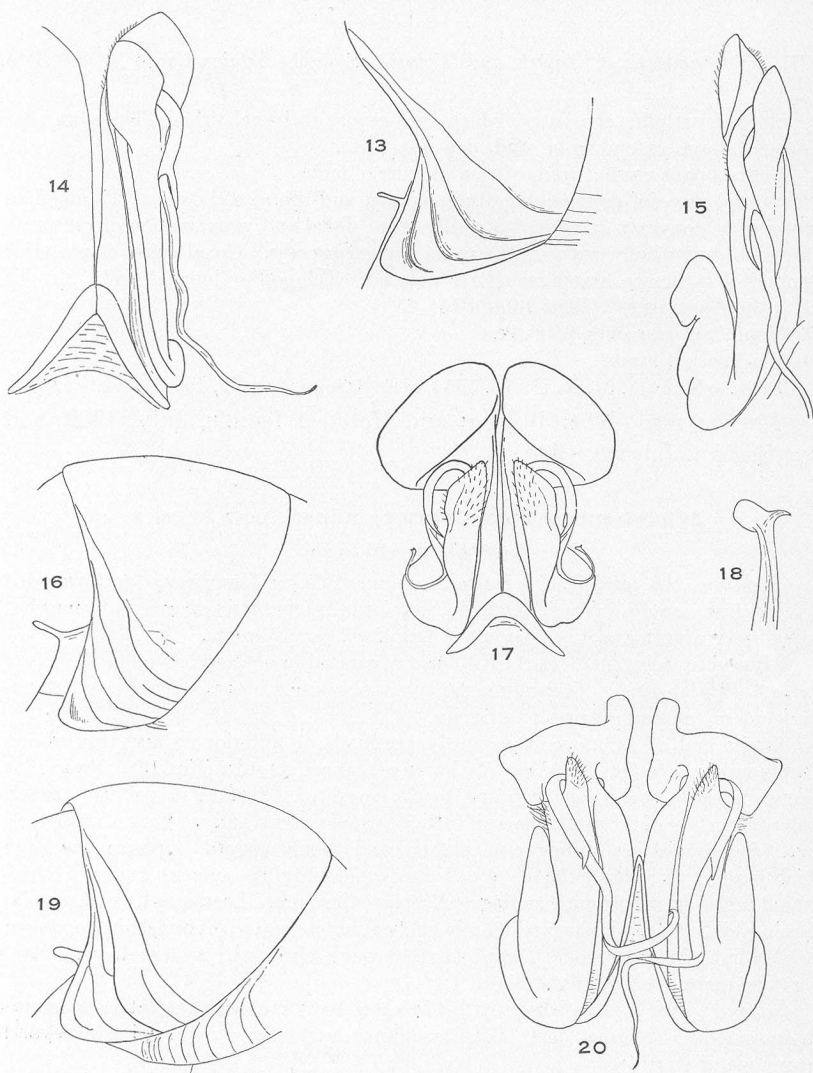
The gonopods are notable for the greatly expanded distal end of the median piece of the anterior pair. Lateral piece with distal end setose. Coxal spine of posterior gonopod of moderate length, distally slender and closely applied to base of telopodite (cf. Figs. 17, 18).

Number of segments, sixty-three.

Width, 9 mm.

TYPE.—Male, A. M. N. H. No. 5572, between Bolengi and Irebu, July, 1909.

Dedicated to Dr. Roy W. Miner, Curator of Lower Invertebrates of The American Museum of Natural History.



*Spirostreptus langi*, new species (male).

Fig. 13. Collum, lateral view of lower portion.

Fig. 14. Right gonopod, anterior view.

Fig. 15. Left gonopod, anterolateral view.

*Spirostreptus mineri*, new species.

Fig. 16. Collum, lateral view.

Fig. 17. Gonopods, anterior view.

Fig. 18. Tip of stylus of posterior gonopod, more enlarged.

*Spirostreptus (Spirostreptus) virgator redemptus*, new subspecies (male).

Fig. 19. Collum, lateral view.

Fig. 20. Gonopods, anterior view.

**Spirostreptus (*Spirostreptus*) *virgator redemptus*, new subspecies**

Text Figures 19 to 20

Prozonites and anterior portion of metazonites grayish to light brown, the posterior portion of segments blackish with the caudal edge more or less reddish. Collum and head blackish, with clypeal region much lighter, reddish brown. Legs light brown, distally darkened.

Labral pores 2+2. Median sulcus lightly impressed across vertex, not evident below. Inner angles of eyes extending mesiad of bases of antennæ, separated from each other by length of an eye. Antennæ short, reaching only to the third segment.

Anterior corner of collum in male produced forward, the angle bluntly rounded. With five subvertical sulci of which the first three are connected by branches (Fig. 19). In the female the anterior corner is carried only a little forward. The encircling striæ of the prozonites more widely separated toward the sulcus; the distance between the last of those striæ and the sulcus greater than the two preceding intervals combined. Sulcus sharply impressed, smooth. Metazonites smooth, with weak and short striæ in region above pores, finely punctate; the lateral sulci complete to sulcus, the uppermost of these well below pore. Last tergite obtusely rounded behind; exceeded by the anal valves; crossed a little in front of caudal angle with a deep transverse furrow. Anal valves with inner margins raised; outside of each elevated rim a rather wide but shallow furrow. Anal scale with posterior angle very obtuse, almost straight.

Ventral plates crossed with striæ but the borders free from these. Spiracles elongate, the long axis of each parallel to adjacent margin of ventral plate and thus running cephalad of ectad.

The two pads on penult and antepenult joints of legs of male present to last pair.

Median plate of anterior gonopods triangular and high. Median piece of anterior gonopods at distal and extended into processes both on ectal and on mesial side (Fig. 20). Lateral piece not distally spined or produced. Posterior gonopod with a short straight spine distad of the knee; distally slender.

Number of segments, fifty-one to fifty-three.

Length of male holotype, 110 mm.; width 8.5.

TYPE.—Male (holotype), A. M. N. H. No. 5550, Garamba, May 3-17, 1912.

LOCALITY.—Garamba, 3 females, May or June, 1912.

This form is undoubtedly very close to *S. virgator* (Silvestri)<sup>1</sup> which is apparently a common species in Uganda and German East Africa. The coxal spine of the posterior gonopods of *redemptus* is apparently better developed than in *virgator* and the number of segments in the body is 51-53 instead of 54-57.

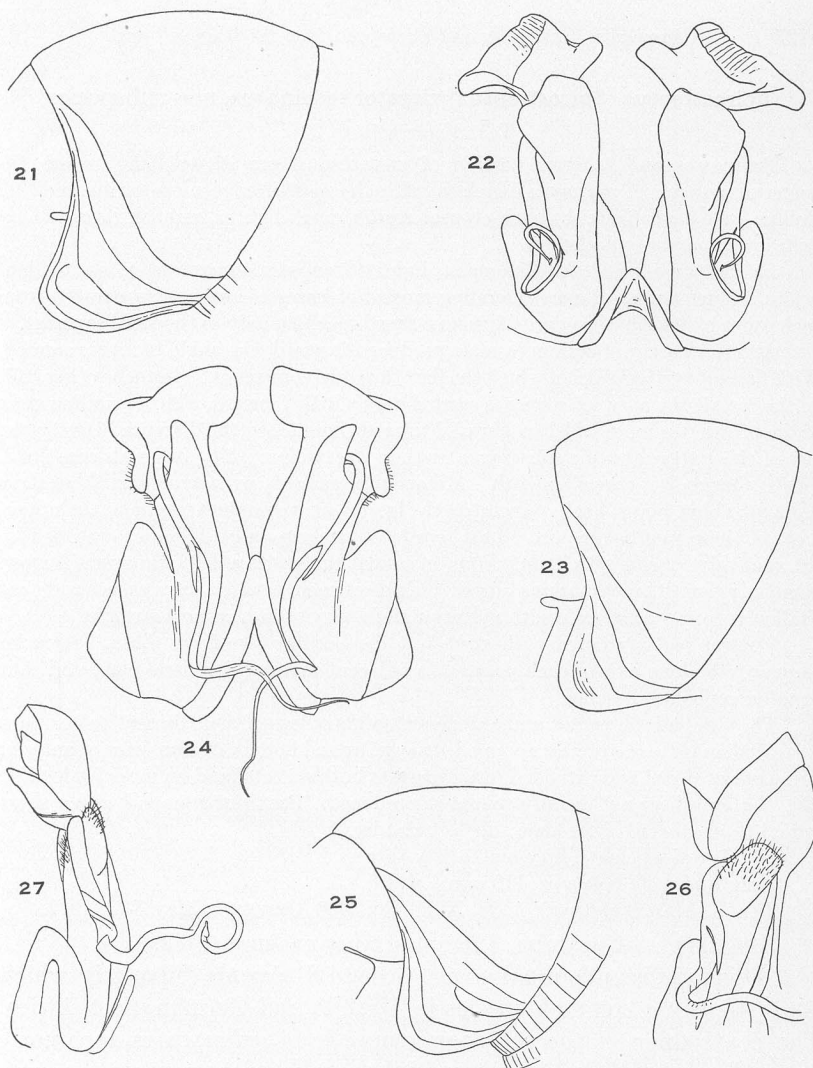
***Spirostreptus* (*Spirostreptus*) *rolini* (Silvestri)**

*Archispirostreptus Rolini* SILVESTRI, 1897, Ann. Soc. Ent. Belgique, XLI, p. 348, Figs. 9, 10.

The holotype of this species was also from the Congo region, having been taken at Boma-Sundi. The gonopods as drawn by Silvestri agree

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<sup>1</sup>1907, Boll. Mus. Zool. Torino, XXII, No. 367.



*Spirostreptus (Spirostreptus) medjensis*, new species (male).

Fig. 21. Collum, lateral view.

Fig. 22. Gonopods, anterior view.

*Spirostreptus (Spirostreptus) innominatus*, new species (male).

Fig. 23. Collum, lateral view.

Fig. 24. Gonopods, anterior view.

*Spirostreptus (Spirostreptus) chapini*, new species (male).

Fig. 25. Collum, lateral view.

Fig. 26. Upper part of left gonopod, anterior view.

Fig. 27. Left gonopod, ectal view.



closely with those of the present specimens, which are a little smaller than the type.

LOCALITIES.—Zambi, 4 specimens, June, 1915; Leopoldville, 1 male, 1 female, July 11, 1909; and 4 smaller specimens "taken from an old termite nest at the base of a tree."

***Spirostreptus (Spirostreptus) medjensis*, new species**

Text Figures 21 and 22

The general color at present is dark greenish brown, with prozonites lighter. The specimen had been allowed to dry and the original color may have changed. Body strongly narrowed in anterior region.

Labral excavation small, filled with the three large teeth which are fused excepting apically where they are rounded or crenate. Clypeal foveolæ 3+2. Clypeus and head in general smooth and shining. Vertigial sulcus deep, the interocular one shallow. Inner angle of eyes acute, extending decidedly mesiad of the inner edge of the antenna.

Lower corner of collum strongly produced a little cephalad of ventrad, extending much below level of other segments; corner well rounded. Above the lower angle are four furrows of which the uppermost is longest (Fig. 21). The segments are strongly constricted a little behind the segmental sulcus. Prozonite strongly striolate, the striæ numerous and continuing parallel to each other and to the sternite. Metazonite smooth and shining, the punctæ being extremely fine. Last dorsal plate obtusely rounded behind. Mesial borders of anal valves strongly elevated and appressed together, the general surface smooth and shining, but under the lens showing exceedingly fine and close punctæ.

Sternites strongly marked with cross-striæ. Depression of spiracles large, extending from spiracle caudoectad well beyond outer margin of sternite. Pads of feet not present on posterior pairs.

Middle piece of anterior gonopods distally moderately elevated, the inner edge of distal end produced mesially in a conspicuous, distally rounded lobe and ectally into a conical lobe. Lateral piece broadly rounded and laminate at distal end, without teeth or any conspicuous setose area. Median piece narrowly triangular. Coxal spine of posterior gonopods short, straight and acute. The telopodite long and slender (cf. Fig. 22).

Number of segments, fifty-five.

Width, 10 mm.

TYPE.—Male, A. M. N. H. No. 5561, Medje, January 22, 1910.

***Spirostreptus (Spirostreptus) innominatus*, new species**

Text Figures 23 to 24

Metazonites greenish black, the prozonites somewhat brownish gray, in part also of a greenish tinge. Legs brown.

Clypeal foveolæ 2+2. Surface of head entirely smooth and shining. Vestigial sulcus distinct but the interocular one almost obliterated. Inner angles of eyes extending clearly mesiad of the bases of antennæ. Antennæ reaching to fourth segment.

Collum extended into a large lobe below on each side, the lobe strongly rounded. Four sulci, of which the submarginal one is interrupted at the rounded lower corner (Fig. 23). Last dorsal plate very obtusely rounded behind; surface like that of the metazonites in general. Borders of anal valves strongly elevated, not set off by definite furrows. Caudal margin of anal scale straight.

Sternites very lightly striate. Stigmal depressions triangular, extending well ectad of sternite on each side.

Pads of legs present to caudal pair.

Lateral piece of anterior gonopods evenly rounded at distal end. Median piece characterized by being strongly produced mesiad at the distal end; also extended on outer side but less strongly and the lobe not conical; its outer edge indented at middle; distal end transversely furrowed. Coxal spine of posterior gonopod of moderate length, slender and a little curved distally. Telopodite long and slender (cf. Fig. 24).

Number of segments, fifty-six.

Width, 10 mm.

TYPE.—Male, A. M. N. H. No. 5570, Stanleyville, August 6–19, 1909.

### **Spirostreptus (*Spirostreptus*) chapini, new species**

Text Figures 25 to 27

The general color is black, with the prozonites, or at least their caudal portion, tending to be reddish yellow. Collum black. Head black across vertex, of a reddish cast below level of antennæ, the labral region clearer except margin, which is black. Antennæ and legs reddish yellow.

Median labral excision moderately deep. Clypeal region roughened. Sulcus across vertex distinct, ending in the usual depression. Inner angles of eyes well within bases of antennæ, separated from each other by a distance equal to their length.

Anterior corner of collum on each side produced forward in a well rounded lobe over and behind which are six sulci of which two are incomplete (Fig. 25). Anterior encircling striæ of prozonite closer together than the more posterior ones as usual; the space between the most caudal of these and the sulcus greater than the two preceding spaces together. Metazonite and first space of prozonite, which is usually concolorous with the former, densely finely punctate. Lateral longitudinal striæ of metazonite extending nearly to level of pore. Last tergite obtusely angled behind, the posterior angle set off with a shallow transverse depression; surface densely punctate. Anal valves with inner margins strongly raised and appressed. Anal scale triangular, the posterior angle rounded.

Ventral plates with transverse striæ weak. Spiracles triangular, extending a little laterad of outer edges of ventral plate.

Ventral pads on feet present only in anterior region of body.

Ventral plate of anterior gonopods V-shaped. Lateral piece of anterior gonopods distally simply rounded, without processes, with a distal setose area. Median piece of anterior gonopods high at distal end, with a well-developed cone on outer side. In the posterior gonopods the spine distad of knee is short and straight; telopodite slender, not laminate, simple (cf. Figs. 26, 27).

Number of segments, forty-eight.

Length, about 90 mm.; width, 9.

TYPE.—Male, A. M. N. H. No. 5549, Zambi, June, 1915.

This species is named for Mr. James P. Chapin of the Congo Expedition of the American Museum.

***Spirostreptus (Spirostreptus) auriculobus*, new species**

Text Figures 28 and 29

Color in general a somewhat greenish black, paler on prozonites, the covered part of which is fulvous. Legs, head, and antennæ light brown.

Clypeal foveolæ 3+3. Head smooth and shining. Vertigial sulcus more distinct anteriorly, the interocular sulcus very fine. Inner angles of eyes acute, extending decidedly mesiad of bases of antennæ. Antennæ reaching to fourth somite.

Collum conspicuously produced below on each side, the rounded end of lobe carried a little forward. Above lower angle four long or principal sulci and three shorter ones across caudal portion of plate (Fig. 28). Prozonites strongly striolate, the striæ extending to sternite, not curved caudad. Sulcus distinct throughout, slightly widely curved opposite pore. Surface of metazonite and posterior portion of prozonite appearing smooth to naked eye; under lens seen to be finely punctate and finely rugose, the punctæ and rugæ becoming weaker in going toward caudal margin. Last tergite caudally obtusely rounded. Surface under lens seen to be densely finely punctate. Surface of anal valves similar to that of tergite; mesial borders strongly elevated as usual, the surface outside of elevated borders shallowly depressed. Caudal margin of anal scale very obtuse, almost straight.

Sternites striate. Stigmal depressions triangular, scarcely extending beyond edges of sternite.

The gonopods in general form similar to those of *virgator* and *innominatus*. The mesial lobe at distal end of median pair of anterior gonopod of a characteristically different shape, being broader, more auriculiform than in those species. The lateral piece densely setose at distal end as in related forms. The coxal spine of posterior gonopod long, distally acuminate and slightly curved. Sternite narrow and high (cf. Fig. 29).

Number of segments, fifty-two.

Length, 115 mm.; width, 8.5.

TYPE.—Male, A. M. N. H. No. 5576, Stanleyville, August, 1909.

LOCALITY.—Stanleyville, adult males and several, mostly immature, females taken "under rotten grass and twigs on an old coffee plantation," August, 1909.

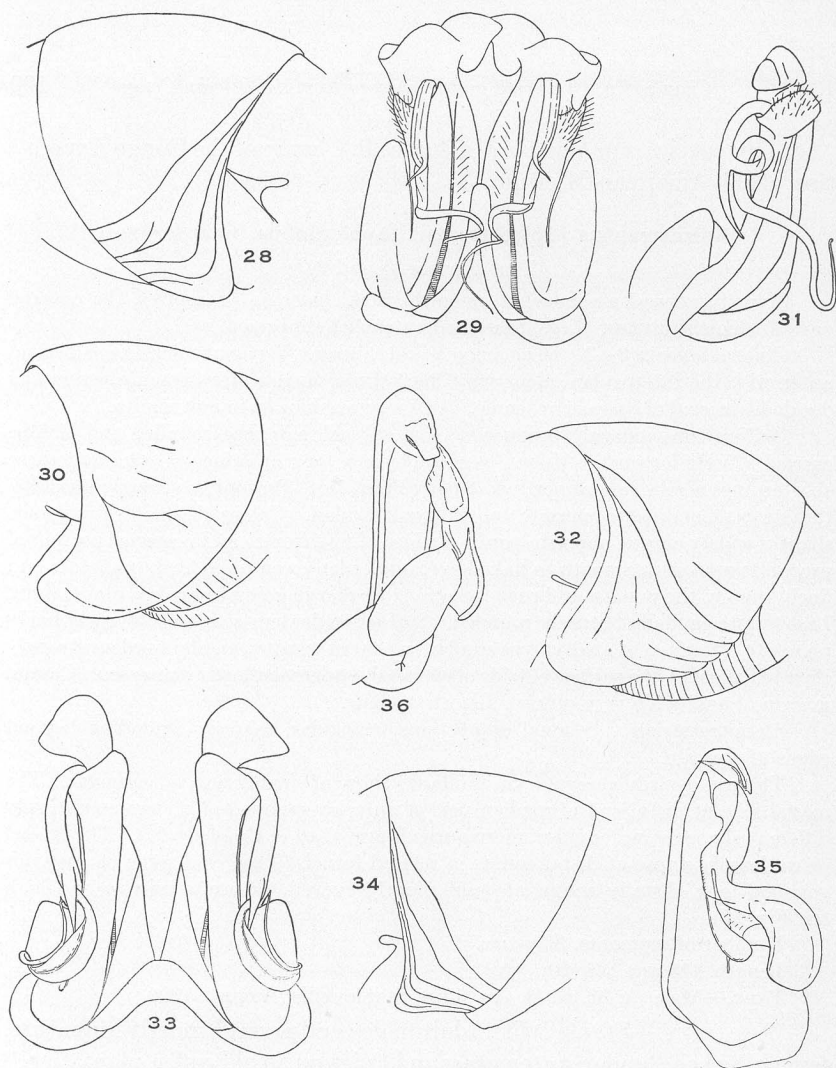
***Spirostreptus (Macrolenostreptus) garambanus*, new species**

Text Figures 30 and 31

The type, which had been allowed to dry, has the metazonites dusky brown or blackish, with the caudal border ferruginous. The prozonites paler. Legs light brown.

Clypeal foveolæ 2+2. Surface of head smooth and shining. Sulcus across vertex distinct, the interocular sulcus very fine. Inner angles of eyes extending much mesiad of bases of antennæ.

Collum strongly produced below on each side, the anterior corner curved forward. A submarginal sulcus below, and above this a strongly curved, sigmoidal sulcus and above this in turn a longitudinal sulcus (Fig. 30). Prozonites striolate,



*Spirostreptus (Spirostreptus) auriculobus*, new species (male).

Fig. 28. Collum, lateral view.

Fig. 29. Gonopods, anterior view.

*Spirostreptus (Macrolenostreptus) garambanus*, new species (male).

Fig. 30. Collum, lateral view.

Fig. 31. Left gonopods, ectal view.

*Scaphiostreptus (Scaphiostreptus) apheles*, new species (male).

Fig. 32. Gonopods, lateral view.

Fig. 33. Gonopods, anterior view.

*Orthoporus conchophor*, new species (male).

Fig. 34. Collum, lateral view.

Fig. 35. Right gonopods.

Fig. 36. Left gonopods, subectal view.

Fig. 37. Missing.

the last two spaces between striolæ above about equal to that between caudal striola and the sulcus. Metazonites punctate and with some weak rugæ and impressed lines above as usual.

Last tergite somewhat produced but strongly rounded caudally. A well-marked transverse furrow setting off the caudal third. The mesial borders of anal valves not set off by furrow or depression as a distinct rim.

Sternites smooth, only some very weak and short striolar marks at middle. Stigmal depressions subtriangular, their caudal ends extending a little laterad of sides of sternite.

Legs with no distinctly developed ventral pads on any of the joints.

Gonopods as shown in Fig. 31.

Number of segments, sixty-six.

Width, 7 mm.

TYPE—Male (holotype), A. M. N. H. No. 5545, Garamba, May 7 or 8, 1909. A not fully mature female, May 7-8, 1909.

LOCALITY.—Garamba.

In not having distinctly set-off marginal rims on the anal valves this species is unlike all others of the subgenus excepting *S. brachycerus* Gerstæcker<sup>1</sup> of Madagascar, and it differs from the latter species strongly in the form of the gonopods and in various other features.

### **Scaphiostreptus (Scaphiostreptus) apheles, new species**

Text Figures 32 and 33

The general color is black or nearly so, the covered portion of prozonite lighter, somewhat reddish. Legs dark chestnut.

Median excavation of clypeus shallow, the teeth nearly filling it. Clypeal foveolæ 2+2. Clypeus moderately roughened just above the foveolæ, the head elsewhere smooth. Vertigial sulcus very distinct, ending in a pit in front. The interocular sulcus much finer than the vertigial. Inner angles of eyes acute, extending much mesiad of bases of antennæ. Antennæ reaching to fourth somite.

Lower end of collum on each side produced into a conspicuous lobe which curves a little forward, this lobe distally rounded. Back of the anterior edge of the lobe are four long, deep sulci; between the second and third of these three short sulci at the caudal border of which the first and third are united with each other anteriorly; above fourth main sulcus also a short one. Striæ of prozonites strongly marked and extending to sternites. Segmental sulcus sharply impressed throughout. Prozonite in front of anterior stria and the metazonite densely finely punctate and finely roughened, the roughening weaker toward caudal border. Last tergite obtuse behind; a little depressed triangularly in front of caudal angle, the surface in the depression somewhat roughened, elsewhere smooth and shining. Borders of anal valves strongly elevated and compressed, smooth, each set off by a distinct depression or furrow. Caudal margin of anal scale convex.

Sternite densely cross-striate excepting over border. Stigmal depressions extending caudolaterad much beyond sides of sternite.

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<sup>1</sup>1873. Van der Decken's Reise, p. 511.

Ventral pads on fourth and fifth joints of legs present on legs of all regions.

Lateral piece of anterior gonopods without distal teeth or processes. Median piece with the usual conical process on ectal side as shown in the figure. In the posterior gonopods the slender terminal branch of the telopodite is unusually long and is bent back parallel with the lamellar proximal portion (cf. Figs. 32-33).

Number of segments, fifty-seven.

Width, 11 mm.

TYPE.—Male, A. M. N. H. No. 5565, between Bolengi and Irebu, July, 1909.

**Scaphiostreptus (Scaphiostreptus) congoensis** Attems

*Scaphiostreptus congoensis* ATTEMs, 1914, Zoologica, Stuttgart, XXV., Hefte 65-66, p. 81, Pl. III, figs. 49, 50.

LOCALITY.—Stanleyville, a single male, agreeing fully with Attems' description, September 17, 1909.

**Scaphiostreptus (Scaphiostreptus) congolensis flavomarginis**, new variety

Differing from the species in having a yellow caudal border dorsally on each segment and apparently also in a slightly larger number of segments, the number in specimens examined being fifty-two or fifty-three as against forty-nine or fifty in *congoensis*, *sens. str.*

TYPE.—Male, A. M. N. H. No. 5537, Medje, January 22 or 28, 1910.

LOCALITY.—Medje, males, 2 females, January 22 and 28, 1910.

**Lophostreptus entomotropis**, new species

Metazonites blackish above, paler on sides below; with two transverse rows of yellow dots, each dot lying between two carinae. Posterior portion of prozonites dusky yellow, the anterior portion clearer yellow. Legs light ferruginous.

Clypeal foveolæ 2+2. Below level of antennæ the face is nearly smooth, showing but a few impressed lines, with punctæ very small. The vertex is strongly roughened and thus the vertigial sulcus is distinct only anteriorly. Inner angles of eyes extending a little mesiad of sockets of antennæ.

Collum narrowed down each side, but the lower end not at all extended forward. Excepting the anterior border across the middle, the entire surface crossed with numerous low keels, some of which furcate caudally; in the middle region the keels on each side unite anteriorly at middle line; at caudal border there are twenty or more keels on each side of the median line. The prozonites are densely finely striate over their anterior portion, the striæ continuing to the sternites. Behind the striate region is a finely tuberculate zone and finally, at the sulcus, there is a zone of low, short, longitudinal keels. The metazonites are crossed over entire length by high sharp keels, each of which is indented at its middle somewhat as in *L. strongylotropis* Attems, and has its upper caudal angle rounded. The pore is borne on each side at the anterior end of a double keel, or a keel that partly furcates anteriorly, its outer branch being the lower. Between the porigerous keels there are typically nineteen or twenty keels. Below each porigerous keel about ten others which become lower and lower in going

ventrad until they reach the general level of surface. Last tergite widely and evenly rounded behind; its surface strongly tubercular; the inner elevated rim is separated by a wide furrow.

The sternites are cross-striate.

Number of segments, thirty-nine.

Width, 4.2 mm.

TYPE.—Female, A. M. N. H. No. 5585, Garamba, May 3–8, 1909.

LOCALITY.—Garamba, numerous females, May 3–8, 1909; and 1 male and 1 female dated May 3–17, 1909.

This form is the same in size as *L. strongylotropis* Attems, but differs conspicuously in the more numerous keels of collum, the arrangement of these conforming rather to the subgenus *Lophostreptus*, *sens. str.*, than to *Anastreptus* to which Attems' species belongs. The keels of the other somites are also more numerous.

### **Orthoporus conchophor, new species**

Text Figures 34 to 36

The animal is typically conspicuously annulate, a broad caudal border on each segment being ferruginous in color and the segment in front of this blackish or somewhat greenish black, the anterior portion of prozonites paler. Legs ferruginous.

Median excavation of clypeus rather large. Clypeal foveolæ 2+2. Head smooth. Sulcus across vertex weak and the interocular sulcus not evident. Inner angles of eyes extending mesiad distinctly beyond bases of antennæ.

Lower corner of collum on each side only moderately produced, the process in outline a little less than rectangular. On the process are three lighter sulci and above these three longer and deeper ones (Fig. 34). Prozonites encircled with striæ; dorsally the two caudal intervals between striæ together about equal to that between the most caudal stria and the sulcus. Surface of segment behind last stria densely lightly punctate but without rugæ or impressed lines. Pore about two-thirds the distance from caudal margin of segment to the segmental sulcus which is widely but only moderately curved forward opposite the pore. Sternites smooth, not striate. Spiracular depressions extending a little laterad of the sternite on each side. Last dorsal plate densely lightly punctate but not roughened; a little transversely depressed in front of the obtuse caudal angle. Inner borders of anal valves compressed and conspicuously elevated. Median portion of caudal edge of anal scale convexly rounded.

Ventral pads of legs projecting distad from fourth and fifth joints in legs of anterior and middle regions of body but absent from legs of caudal region.

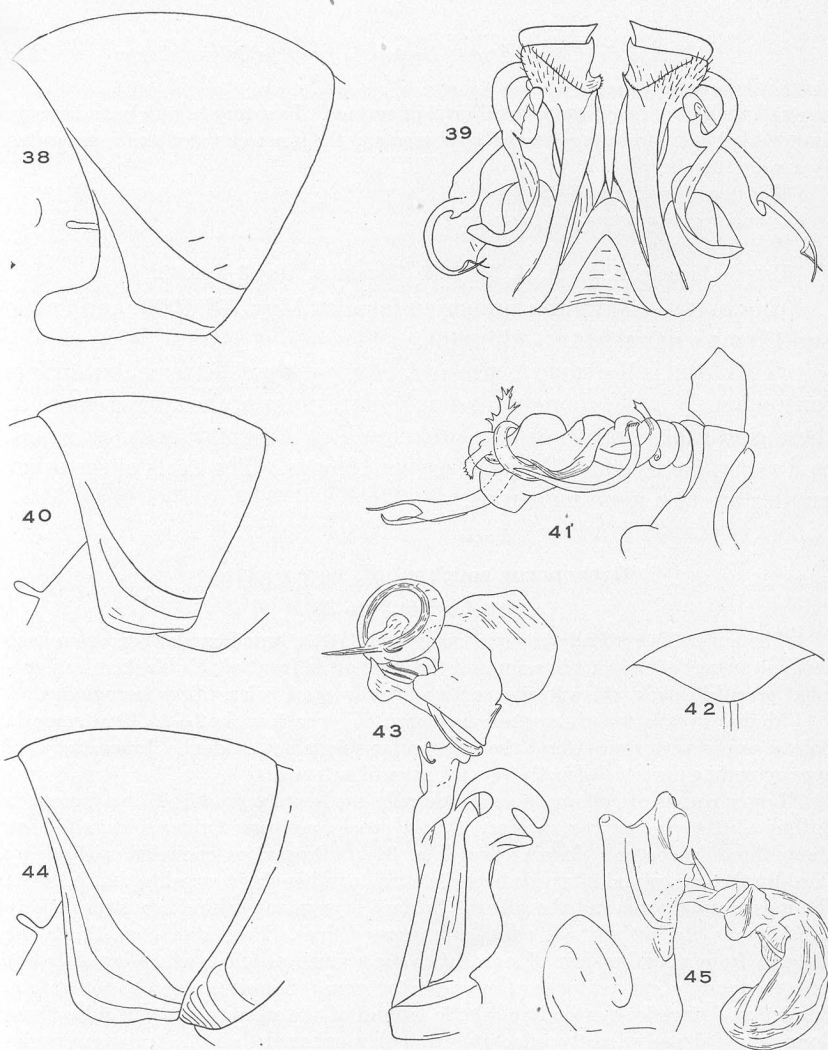
Lateral piece of anterior gonopods without any setose area and without processes distally, the distomesial corner acute. Median piece produced ectally into a short conical process. Telopodite of posterior gonopods broadly laminate and strongly curved, a broad lobe near base (cf. Figs. 35 and 36).

Number of segments, sixty-two.

Width, 7 mm.

TYPE.—Male, A. M. N. H. No. 5556, between Bolengi and Irebu, July, 1909.

LOCALITY.—Between Bolengi and Irebu, a second male, July, 1909.



*Alloporus rhodesianus*, new species (male).

Fig. 38. Collum, lateral view.

Fig. 39. Gonopods, anterior view.

*Tibiomus congoensis*, new species (male).

Fig. 40. Collum, lateral view.

Fig. 41. Right gonopods, anterior view.

*Haplothysanus retrorsus*, new species (male).

Fig. 42. Anal scale.

Fig. 43. Left gonopods, submesial view.

*Haplothysanus medjensis*, new species (male).

Fig. 44. Collum, lateral view.

Fig. 45. Left gonopods, caudal view.



**Alloporus rhodesianus**, new species

Text Figures 38 and 39

Color of body black, without markings. Legs and antennæ brown.

Median labral incision moderate, evenly concave. Clypeal foveolæ 2+2. Clypeal area coriaceously wrinkled. Upper portion of head smooth. Vertigial sulcus distinct, ending anteriorly in a deep depression. Interocular sulcus absent, or only vaguely indicated excepting near median pit. Antennæ reaching to fourth segment.

Anterior corner of collum strongly produced forward; the produced lobe also bent somewhat ectad distally, its end strongly rounded. Three strong furrows, of which the most caudal is longest and deepest (Fig. 38). Striæ of prozonites extending to ventral plate above which they tend to furcate into parallel branches; the distance from segmental sulcus to the first stria in the dorsal region nearly equal to the two preceding intervals. Posterior portion of prozonite and anterior portion of metazonite conspicuously finely punctate, the posterior portion of metazonite with punctæ gradually less pronounced toward caudal margin. The lateral longitudinal sulci of metazonite in anterior region crossing a distance about equal to the two uppermost intervals between sulci below level of pore, the series farther and farther from pore in going caudad. Pore about two-thirds the distance from caudal margin to segmental sulcus, the latter only slightly and widely curved opposite it. Last tergite obtuse behind, not at all caudate. Mesial borders of anal valves strongly raised and appressed; the valves ectad of each raised border widely furrowed at anterior end but the surface even and unfurrowed farther caudad. Anal scale very obtusely angled behind.

Sternites smooth or with a few striæ, anteriorly. Spiracles triangular, posteriorly extending beyond margins of sternite.

Ventral pads of anterior gonopods narrowly V-shaped, with the distal angle incised. Lateral piece of anterior gonopod with the usual dentate lamella at inner side; the distal mesial angle a little produced. Mesial piece exceeding the lateral; its outer distal angle with a slight process or mucro (Fig. 39). In the posterior gonopods the coxal spine arises much below the knee and is distally laminate. The telopodite with the usual accessory branch at distal end and a stout tooth farther proximad. See figure for further details.

Number of segments, sixty-seven.

Diameter, 11.2 mm.

TYPE.—Male, A. M. N. H. No. 5766, Rhodesia, (Richard Douglas Coll.).

**Tibiomus**, new genus

Femur of posterior gonopods spirally twisted, bearing a curved spine of moderate length. Tibial spine long. The tibial process long, making several spiral turns and distally furcate, the seminiferous branch being accompanied by a similarly acute process or spine. One branch of tarsus narrow and bearing at its margin slender processes which are not retrorse. Median piece of anterior gonopods without conspicuous processes.

Metazonites not sulcate dorsally, smooth. Anal valves each with a caudal spine. Body slender.

GENOTYPE.—*Tibiomus congoensis*, new species.

In having an accessory spine to the tibial process and in the spiral turns of the latter this genus suggests *Plethocrossus*, but it is distinguished readily by the form of the tarsal division, the presence of a well-developed femoral spine, and other features. In having a slender spinous lobe to the tarsal division it agrees with *Prionopetalum*, but the spines are longer and are not retrorse, while in other features of the gonopods the genera are obviously different.

### ***Tibiomus congoensis*, new species**

Text Figures 40 and 41

The general color above is dark brown or blackish brown, paler along lower part of sides and over the venter. Caudal border of metazonites reddish yellow or ferruginous. Head, collum, and the last segment blackish, the clypeal region of head paler. Legs dark ferruginous.

Clypeal foveolæ 5. Vertigial and interocular sulci distinct. Eyes a little farther apart than are the bases of the antennæ.

Anterior corner of collum on each side well rounded. Back of the submarginal sulcus along the corner are two longer sulci (Fig. 40). Striæ of prozonites lightly impressed, occupying less than half the length of the subsegment. Metazonites with the usual short, fine, longitudinal markings above, these giving a somewhat silky lustre. Repugnatorial pores small, each situated about half-way between caudal margin and the segmental sulcus. Last tergite with cauda acute; ridged along mid-dorsal line. Anal valves with mesial borders narrowly margined, each with a spine above at caudal end. Anal scale broadly triangular.

Sternites smooth and shining. Spiracles small, depression not extending beyond sides of sternite.

Legs slender; the fourth and fifth joints in anterior and middle regions of body with ventral pads.

Lateral pieces of anterior gonopods with a short, blunt process on ectal side, this process bent distad. No conspicuous processes from middle piece. Details of anterior and posterior gonopods (Fig. 41).

Number of segments, fifty-seven.

Diameter, 2.2 mm.

TYPE.—Male, A. M. N. H. No. 5593, Leopoldville, May 3, 1915.

### **Odontopygidæ**

#### ***Haplothysanus latifolius* Attems**

*Haplothysanus latifolius* ATTEMs, 1914, Zoologica, XXV, part 66, p. 193, Pl. XI, Figs. 227, 228.

LOCALITY.—Yatta Plains, British East Africa, 1 female, March, 1909, (James L. Clark Coll.).

Although this specimen is a female, it is referred with but little doubt to this species. The agreement in the highly characteristic color pattern leaves but little room for question when taken in connection with

the fact that the holotype came from the same region (Kibwezi, Ukamba, British East Africa).

**Haplothysanus retrorsus**, new species

Text Figures 42 and 43

General color brownish, the color deeper in a band along the segmental sulcus. A paler longitudinal stripe along dorsum. Head light except across vertex and eyes. Legs light brown.

Clypeal foveolæ 3+3. Vertigial sulcus fine but very distinct. The interocular sulcus fine, indistinct laterally.

Collum narrowed down each side; anterior corner rounded, not produced. Two sulci back of the marginal one as usual. Segmental pore caudad of sulcus but well in front of middle of metazonite. Prozonites not striolate. Last dorsal plate weakly ridged along mid-dorsal region, without sulci. Anal valves with mesial borders elevated and closely appressed to each other, the borders not set off by distinct sulci. Anal scale as shown in Fig. 42.

Ventral plates smooth. Spiracles small, not extended laterad.

Median piece of anterior gonopods at distal end with two inner processes together resembling the beak of a parrot, and a short one on ectal side. In the posterior gonopods the tibial process has in the distal portion a retrorse spine. Femoral and tarsal spines present, acute. Other features as shown in Fig. 43.

Number of segments, fifty-five to fifty-seven.

Diameter, 3 mm.

TYPE.—Male, A. M. N. H. No. 5616, Banana, August, 1915.

LOCALITY.—Banana, 1 male and 1 female, August, 1915.

**Haplothysanus medjensis**, new species

Text Figures 44 and 45

Color in general brown; segments encircled just back of sulcus with a paler stripe which is more or less broken into spots down the sides. Legs brown.

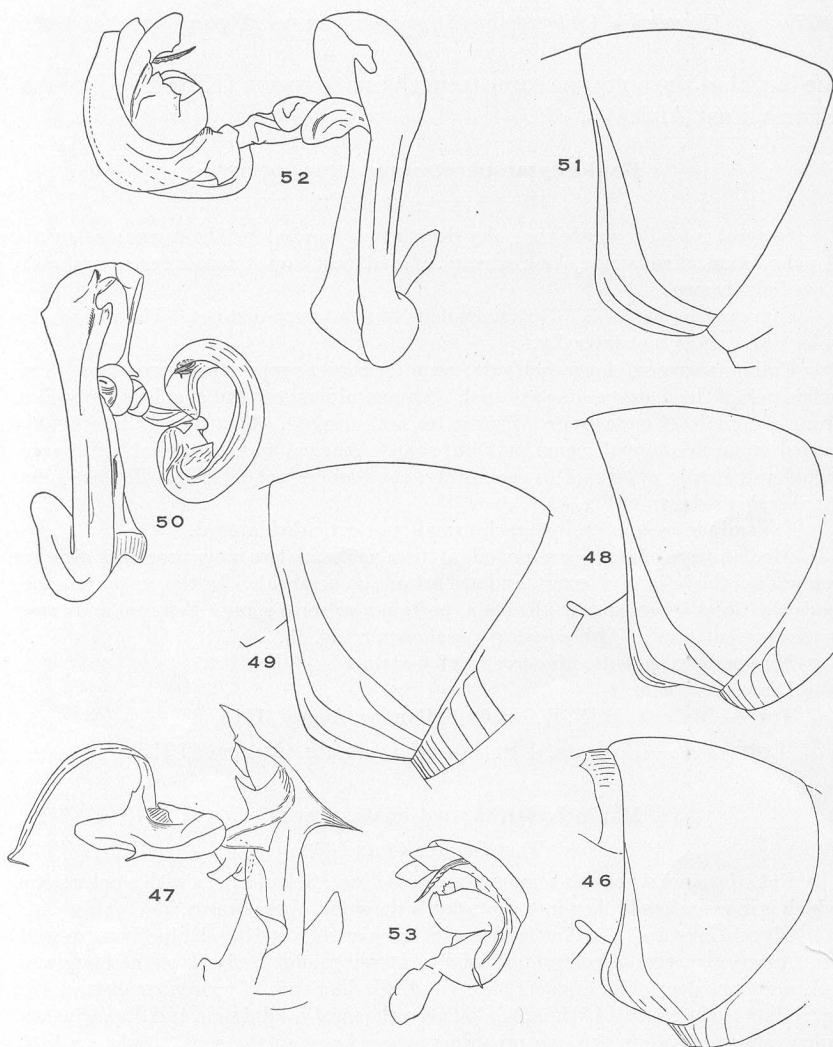
Clypeal foveolæ 3+3. Vertigial and interocular sulci fine but distinctly impressed.

Anterior corners of collum not produced, well rounded. Back of the margining sulcus are two deep oblique sulci (Fig. 44). Encircling striæ of prozonites distinct and extending to the sternites; the space between the most caudal stria and the segmental sulcus about equalling the two preceding spaces between the striæ. Sulcus a little curved opposite the pore. Metazonites smooth above; longitudinal striæ distinct below and laterally, but the series ends well below the pore. Last dorsal plate with no median ridge and with no furrow; caudal angle not acute or prolonged. Anal valves margined. the raised border narrow and not high; spines caudal end rather small, a little below upper edge.

Sternites smooth. Spiracles circular, small, their depression not extending ectad of lateral margins of sternite.

Ventral pads on fourth and fifth joints of legs of anterior, middle and most of posterior regions, but legs of last segments lacking them. Of these pads, that on the fourth joint is larger and on some of the posterior legs is the only one present.

Anterior and posterior gonopods as represented in Fig. 45,



*Haplothysanus clarus*, new species (male).

- Fig. 46. Collum, lateral view.  
Fig. 47. Right gonopods, anterior view.

*Helicochætus* (?) *simplex*, new species

- Fig. 48. Collum of male, lateral view.  
Fig. 49. Collum of female, lateral view.  
Fig. 50. Left gonopods of male, subanterior view.

*Odontopyge decipiens*, new species (male, type).

- Fig. 51. Collum, lateral view.  
Fig. 52. Right gonopods, anterior view.  
Fig. 53. Telopodite of posterior gonopod, caudal view.

Number of segments, sixty-three.

Diameter, 3.1 mm.

TYPE.—Male, A. M. N. H. No. 5610, Medje, June 11-20, 1910.

LOCALITY.—Medje, 1 male June, 18-20, 1910, and 1 female, June 11-19, 1910.

### **Haplothysanus clarus**, new species

Text Figures 46 and 47

General color brown, the caudal borders of segments more reddish and in front of this border a paler stripe. Legs brown.

Clypeal foveolæ 3+3. Sulcus across vertex of head sharply impressed, ending in a depression. Interocular sulcus obsolete.

Anterior corner of collum rather narrowly rounded; behind it are three furrows (Fig. 46). The encircling striæ of the prozonites occupy decidedly more than half of the subsegment and extend to the sternite. The remaining portion of the prozonite and the metazonite closely marked with lightly impressed longitudinal striæ and marks which tend to anastomose. The lateral striæ do not extend upward as far as the pores. Teeth of supplemental margin small and close-set, uniform. Anal tergite acutely pointed behind, a low median longitudinal ridge of caudal portion. Mesial borders of anal valves elevated but not set off by a furrow; not bearing setæ ectad of mesial borders; with the usual conspicuous spine at caudal end above. Anterior margin of anal scale convex; sides also convex, meeting behind in a very obtuse angle.

Ventral plates smooth. Spiracles small, the depression not extending beyond lateral margins of sternite.

Pads on feet of anterior and middle regions of body.

Anterior gonopods distally with characteristic processes (Fig. 47). In the posterior gonopods the femoral spine is long and is blunt at the free end. Tibial or seminiferous process slender and smooth, wholly without spines or articulations. Tibial spine short and acute. The tarsal division with two smooth laminæ of which one is long and curves about the anterior gonopods (cf. Fig. 47).

Number of segments, nearly forty-three.

Length, uncertain; width, 5.5 mm.

TYPE.—Male, A. M. N. H. No. 5583, Yakuluku, October, 1911.

LOCALITY.—A second male, August 14, 1911, but precise locality not recorded.

### **Helicochætus (?) simplex**, new species

Text Figures 48 to 50

The general color is of a bluish cast, the caudal border of each segment light brown, the body appearing distinctly annulate. Clypeal region of head yellowish brown, the upper part of head dark brown. Legs brown, of reddish or ferruginous cast; the antennæ darker brown.

Clypeal foveolæ 3+3. Vertigial and interocular sulci sharply impressed. Inner angles of eyes not extending mesiad of antennal sockets. Antennæ reaching to fifth segment.

Anterior corners of collum of male not at all produced, rounded. A short margining sulcus at the corner, and caudad of this two other longer and deeper sulci and a short intervening one. Collum of male (Fig. 48), and that of female (Fig. 49). Prozonites without encircling striæ, the markings consisting of small punctæ and weakly impressed anastomosing lines such as occur on metazonites. Teeth of supplemental margin uniform, ending in single points. Segmental pore remote from the sulcus but well in front of middle of metazonite. Last tergite without a dorsal keel, nearly smooth, two or three weakly impressed transverse lines at base of cauda, the latter narrow. Anal valves with mesial margin narrowly and abruptly raised; caudal spine at upper edge, extending dorsad of caudad, of moderate size, black at tip. Anal scale subtriangular, with sides convex.

Ventral plates smooth, not striate. Spiracular depressions subcircular, rather small, not extending ectad of lateral margin of the sternite.

Anterior gonopods with a conspicuous but simple rounded lobe on ectal side of distal end. In the posterior gonopods there is no spine borne at the twisted portion between coxa and femur. Tibial process narrow, at distal end curling into an almost flat spiral of only two turns; at its base an appendage of two lobes, one of which is laminiform and the other more strongly chitinous and spine-like. The tarsal lobe long and smooth-edged, curving mesiad distally over the tibial process (cf. Fig. 50).

Number of segments, fifty-five.

Length, about 48 mm.; width, 3.2 mm.

TYPE.—Male, A. M. N. H. No. 5605, Medje, January, 1910.

LOCALITY.—Medje, 1 female, January 22, 1910; without definite locality, 1 male, 1 female (No. 413).

The female taken at the same place and time as the type differs in color in lacking the bluish cast, the general color being yellowish brown with a darker stripe across the dorsum in front of light caudal border and a second one in front of suture, these dark bands not extending below.

### ***Odontopyge decipiens*, new species**

Text Figures 51 to 53

General color of bluish cast, with the caudal borders chestnut or darker. Collum with head and the last segment darker, blackish brown. Legs dark ferruginous.

Head smooth and shining. Vertigial sulcus deep, the interocular sulcus finer and weaker. Eyes separated by about the same distance as the bases of the antennæ.

Anterior corners of collum not produced, rounded. Two deep furrows above the margining sulcus. Prozonites without encircling striæ, the surface in general similar to that of the metazonites, which are marked with the usual fine impressed lines. Last tergite with a slight ridge along mid-dorsal surface as usual. Anal valves with a wide furrow ectad of raised mesial border; in this furrow are three conspicuous setigerous tubercles in a row. The spine of valve curves caudo-dorsad. Anal scale wide, obtusely angled behind.

Sternites smooth and shining.

Pads present on fourth and fifth joints of legs.

Anterior gonopod as shown in Fig. 52. Posterior gonopods with no femoral spine. The tibial spine short. Tibial process characterized by having the distal portion

crossed by low ridges of serrations. One margin of principal lobe of tarsus dentate (cf. Figs. 52 and 53).

Number of segments, sixty-two.

Diameter, 4 mm.

TYPE.—Male, A. M. N. H. No. 5622, Stanleyville, March 1915.

Readily distinguished from other species by the structure of the gonopods, as in the serration of the tibial process of the posterior pair, and the dentate border of the tarsal lobe. It is also characterized by the presence of the three setigerous tubercles in the furrow ectad of the margin of anal valves, a feature also present in certain species of *Haplothysanus*.

### **Harpagophoridae**

#### **ZINOPHORA**, new genus

Gonocœl of gonopods open on the oral or ectoral side. Lateral piece of anterior gonopods with a conspicuous pointed spine or process above coxal knee of posterior gonopod.

Posterior gonopod with a single long spine at the knee. Telopodite abruptly enlarged at base and then becoming more slender to the furcate distal portion, one of the lobes of which is spined in the usual way.

Segmental pores beginning on the sixth somite. Anal segment produced into a cauda which curves upward. Anal valves with mesial borders elevated. Anal scale separate. Prozonites striate. Metazonites with longitudinal striæ below, without them above.

Fourth and fifth articles of legs with well-developed pads.

GENOTYPE.—*Z. munda*, new species.

Differs from *Harpagophora* especially in having only a single spine on the knee of the posterior gonopods.

#### **Zinophora munda**, new species

Text Figures 54 and 55

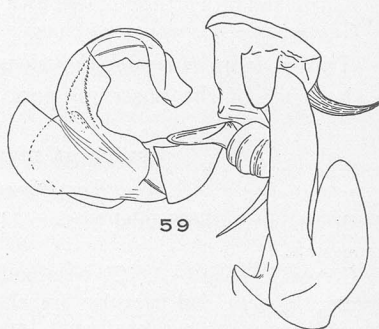
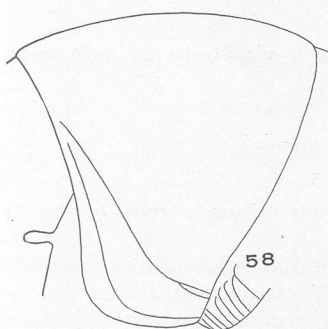
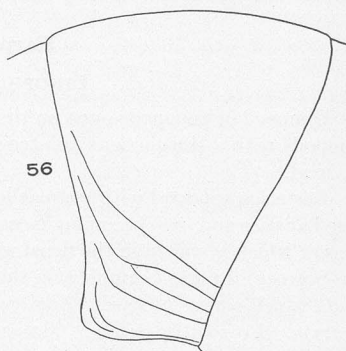
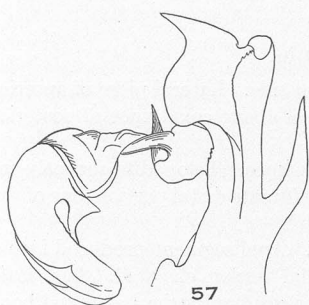
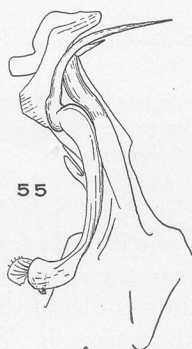
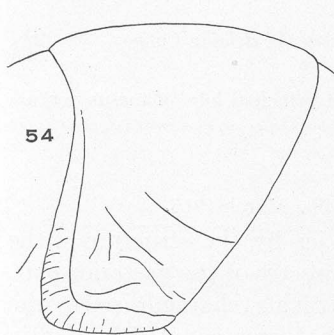
Brown, with the caudal borders blackish. Legs yellowish brown or slightly ferruginous.

Clypeal foveolæ 3+3. Clypeus under lens appearing somewhat roughened with impressed punctæ and irregular branched lines. Vertigial sulcus distinct but the interocular sulcus obscure or absent. Inner angles of eyes nearly on a level with mesial edges of antennæ.

Collum with border about lower angle thickened as in species of *Harpagophora*, without definite sulci, though showing strong irregular and sharply impressed lines on each side (Fig. 54). Entire prozonite striolate, the striolæ conspicuously anastomosing. Metazonite marked with punctæ and impressed longitudinal lines anteriorly, the caudal portion smooth. Pore rather low on side, the sulcus angled at level of its upper side. Anal scale very obtusely angled behind.

Sternites not striate. Stigmal depressions elongate, triangular, extending beyond edge of sternite laterally.

Tarsal pads of legs well developed to caudal pair.



*Zinophora munda*, new species (male, type).

Fig. 54. Collum, lateral view.

Fig. 55. Left gonopods, anterior view.

*Congopyge acanthophor*, new species (male).

Fig. 56. Collum, lateral view.

Fig. 57. Right gonopod, anterior view.

*Harmomastix kenianus*, new species (male).

Fig. 58. Collum, lateral view.

Fig. 59. Right gonopod, anterior view.



Anterior gonopod bearing a rather long curved spine directed mesiad just above level of coxal spine of posterior gonopod and with characteristic lobes above this level. The coxal spine of posterior gonopod long and moderately curved (cf. Fig. 55).

Number of segments, forty-six.

Length, about 98 mm.; width, 9 mm.

TYPE.—Male, A. M. N. H. No. 5767, Rhodesia, exact locality not given, (R. Douglas Coll.).

#### **CONGOPYGE, new genus**

Lateral piece of anterior gonopods with a stout prong arising at base on ectal side. Posterior gonopods with a spiral twist between coxal and femoral division; a single femoral spine. Tibial process distally laminiform, with a lateral spine.

Clypeal foveolæ 3+3.

Metazonites not dorsally furrowed. Anal valves spined caudally, their mesial borders raised but not set off distinctly by depressions or furrows.

Fourth and fifth joints of legs of anterior and middle regions of body with tarsal pads.

GENOTYPE.—*C. acanthophor*, new species.

Resembles *Solenozophyllum* and differs from other genera of the group in having the accessory distal spine on the tibial process and in having but a single femoral spine on the posterior gonopods.

#### **Congopyge acanthophor, new species**

Text Figures 56 and 57

The general color is blue or bluish black, with an annulus about posterior border of each segment of a lighter, typically chestnut, color. A median longitudinal ferruginous or somewhat yellowish stripe along middle of dorsum. In the holotype, a male, the anal tergite and valves are light, reddish yellow. The legs are ferruginous. Clypeal region of head lighter in color.

Clypeal foveolæ 3+3. Sulcus across vertex fine but distinct, ending in front in the usual depression. No interocular sulcus. Eyes a little more widely separated than are the bases of the antennæ.

Collum as shown in Fig. 56. Prozonites without distinct encircling striæ above and laterally, but these shown at ventral ends. Surface of metazonites in general marked with numerous fine short, impressed, longitudinal marks; series of lateral longitudinal striæ ending well below the pores. Pore at two-thirds the distance from caudal margin to segmental sulcus. Last tergite obscurely ridged along mid-dorsal line, the ridge more distinct caudally; ridge crossed by a shallow furrow at base of caudal angle. Mesial borders of anal valves elevated but not distinctly set off; anal scale broadly triangular, the sides weakly convex and the caudal angle rounded.

Sternites smooth.

Anterior gonopods with lateral piece characterized by the stout process on ectal side; median piece expanded at free end and with a distal spine (Fig. 57).

Number of segments, fifty-five.

Diameter, 4.4 mm.

HOLOTYPE.—Male, A. M. N. H. No. 5599, Stanleyville, March, 1915.

**Harmomastix kenianus**, new species

Text Figures 58 to 59

The general color above and over the upper sides is bluish black, the lower part of the sides and the venter being abruptly lighter, reddish yellow. Caudal border of metazonites chestnut and dorsal section of anterior half of prozonites paler, whitish, in color. Clypeal region of head and the caudal border of anal valves reddish yellow. The legs are a somewhat dark reddish yellow or light ferruginous.

Clypeal foveolæ 3+3. Sulcus across vertex distinct, the interocular sulcus very fine. Surface of head in general smooth and shining. Inner angles of eyes acute, each extending mesiad a little beyond antennal socket.

Anterior corner of collum not produced, well rounded. Behind the weaker sub-marginal sulcus are two deeper curved furrows (cf. Fig. 58.). Striæ of prozonite taking in half, or a little less, of the subsegment. The usual very fine longitudinal markings over surface of metazonite and anterior portion of prozonite above. Complete longitudinal sulci extending to a little below pore and above this occur two or three incomplete sulci adjacent to segmental sulcus. The segmental pore not far removed from the sulcus, being from it only about a fourth or fifth the distance to the caudal margin of metazonite. Teeth of supplemental margin simple, slender and acute. Last tergite extended into an acute point behind, across the base of which is a transverse sulcus and the base of which on each side is depressed. Anal valves with inner borders elevated and compressed, each extended caudally and above into a conspicuous, acute spine and at proximal end into a smaller process.

Sternites smooth. Spiracles small, not extending laterally beyond the sternite.

The gonopods much resemble those of *H. macracanthus* Attems. The femoral spine of the posterior gonopods is similarly long but is directed distad instead of proximad. The tibial spine is also very long. The tibial process at the free end makes a complete turn. The ribbed ridges of the tarsal lobe of the same character as in *macracanthus* (cf. Fig. 59).

Number of segments, fifty-seven in both male and female.

Length about 53 mm.; diameter 4.5 mm.

TYPE.—Male, A. M. N. H. No. 5768, Upper Tana River, near base of Mount Kenya, British East Africa, June, 1909, (James L. Clark Coll.).

LOCALITY.—Upper Tana River near base of Mount Kenia.

Aside from differences in the gonopods, etc., this species may be readily separated from *H. macracanthus* Attems in having six clypeal foveolæ instead of four. The males of the three known species of the genus may be separated as follows.

Key to Species of *Harmomastix*

a.—Clypeal foveolæ 3+3.

b.—Femoral spine of posterior gonopods short and blunt.

*H. tetracanthus* Attems.

bb.—Femoral spine of posterior gonopods very long and acute.

*H. kenianus*, new species.

aa.—Clypeal foveolæ 2+2. . . . . *H. macracanthus* Attems.

## POLYDESMOIDEA

**Strongylosomidæ****Habrodesmus grillator**, new species

Text Figure 60

The body above is dark brown, the posterior border of metatergites and keels yellowish; the body becomes lighter over the anterior region and head. The body adjacent to the pleural keels and ventrad of them lighter, yellowish. Legs yellow. Antennæ yellow and brown. Head brown above and yellow below, with a deeper brown or blackish quadrate area just above level of antennæ.

Antennæ slender, uniform in width, of moderate length. Collum strongly convex in front, weakly convex behind; lateral ends rounded; margined anteriorly and laterally. Pleural keel of second segment long and very low. Other pleural keels developed in the ordinary manner. Dorsal keels narrow, rounded in front and more or less angular behind, deeply margined above. Transverse sulcus on metatergite distinct. Cauda straight, not at all decurved. Anal valves smooth, the mesial border and the setigerous tubercles typical. Anal scale caudally rounded.

Legs very long.

Gonopods of male as shown in Fig. 60.

Length of male, about 28 mm; width, 2.25 mm.

TYPE.—Male, A. M. N. H. No. 5612, Avakubi, August, 1913.

**Habrodesmus garambanus**, new species

Text Figures 61 to 65

Dorsum brown, a narrow dusky stripe, sometimes obscure or absent, along mid-dorsal line and also deeper brown or blackish just above and below keels, but the caudal portion or all of the latter yellowish. Legs brown, with broad annuli of yellow. Antennæ brown. Head above dark brown, paler below level of antennæ.

Antennæ long and slender, reaching to fifth segment. Head smooth and glabrous. Vertical sulcus sharply defined to level of antennæ (cf. Fig. 61).

Collum transversely subelliptic, but the posterior margin less convex than the anterior, anteriorly and laterally margined, the portion set off by the sulcus laterally wider than that anteriorly. The keels narrow and rounded, the posterior corner more angular on caudal segments. Keels deeply margined above. Keel of second segment more compressed and lower, as usual in the family. Pleural keels developed; that of the second segment more produced, caudally angular (Fig. 63). A deep and wide furrow between metazonite and prozonite. Metatergites with a distinct transverse sulcus. Segments smooth and shining. Anal tergite strongly narrowed caudad, narrowly truncate, with setæ at end and across proximal portion. Anal valves mesially margined; with two setigerous tubercles, each bearing two long setæ. Anal scale as in Fig. 64.

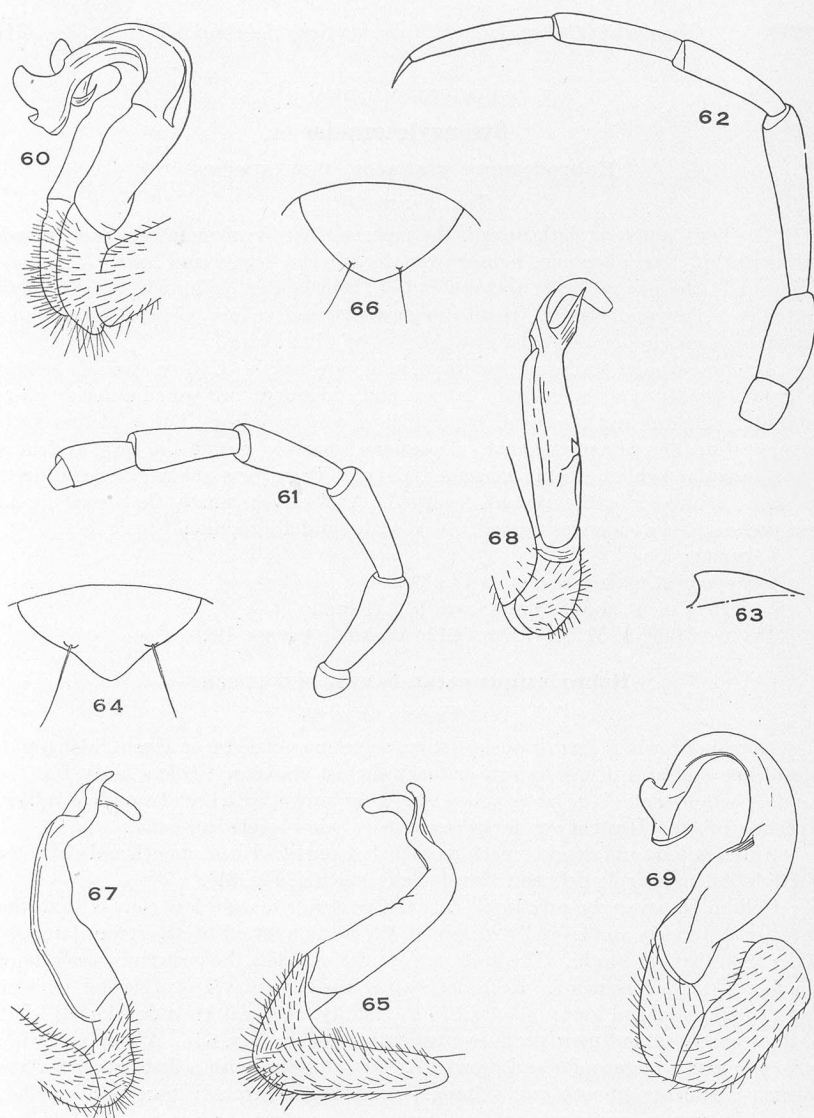
Legs very long (Fig. 62).

Gonopods as shown in Fig. 65.

Length of male about 27 mm.; width, 2.8 mm. Width of female, 3.2 mm.

TYPE.—Male, A. M. N. H. No. 5639, Garamba, May 3–8, 1909.

LOCALITY.—Garamba, several broken males, parts of 2 large females, May 3–8, 1909.



*Habrodesmus grillator*, new species (male). *Habrodesmus viabilis*, new species (male).

Fig. 60. Gonopods of male, from left side. Fig. 66. Anal scale.

*Habrodesmus garambanus*, new species (male). Fig. 67. Right gonopod, ectal view.

Fig. 61. Antenna, in outline.

Fig. 62. Leg, in outline.

Fig. 63. Pleural keel of second segment.

Fig. 64. Anal scale.

Fig. 65. Left gonopod, ectal view.

*Habrodesmus faradjensis*, new species (male).

Fig. 68. Gonopod of male, ectal view.

*Habrodesmus latilobus*, new species (male).

Fig. 69. Left gonopod of male, ectal view.

***Habrodesmus viabilis*, new species**

Text Figures 66 and 67

Dorsum brown, darker across anterior part of metatergite and in a spot just mesiad of keel and in one just below it. Sides yellowish. Legs brown, paler at proximal ends of joints, the last joint wholly pale. Head brown above, paler below level of antennæ. Antennæ brown.

Antennæ reaching upon fourth to or anterior border of fifth segment. Head smooth and shining above, the clypeus with sparse setæ. Sulcus across vertex as usual.

Collum as in *garambanus*. Segments deeply furrowed between prozonite and metazonite. Transverse sulcus evident on metatergite. Keels as in the preceding form. Pleural keels well developed; that of the second segment rounded at ends, not angular behind. Anal tergite nearly as in *garambanus*. Anal valves smooth and shining. Anal scale as shown in Fig. 66.

Gonopods of male as shown in Fig. 67.

TYPE.—Male, A. M. N. H. No. 5589, probably Medje, no date.

LOCALITY.—Probably Medje, 20 males and females.

***Habrodesmus faradjensis*, new species**

Text Figure 68

Coloration of body essentially as in *viabilis*. Legs, including ultimate article, brown; third joint yellowish over proximal half and the two succeeding joints lighter at proximal ends. Antennæ dark brown, uniform. The head dark above and lighter in clypeal region as usual.

Head smooth above, with the usual short setæ in clypeal region. Antennæ of the ordinary form and length.

Collum transversely subelliptic, short. General form of segments and keels as in the other species. Pleural keels similarly well developed. Anal tergite, valves and scale as in *viabilis*.

Gonopods as shown in Fig. 68.

In size about the same as *viabilis*. No one of the types being entire, the precise length cannot be given.

TYPE.—Male, A. M. N. H. No. 5580, Faradje, March, 1911.

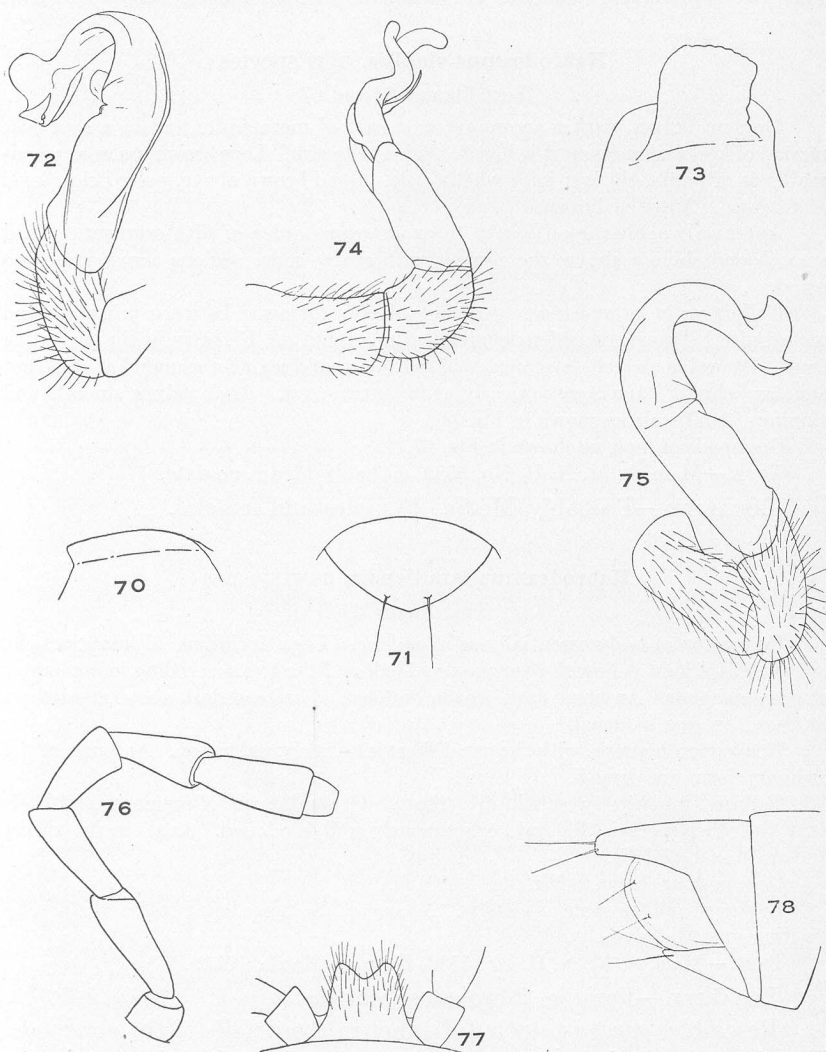
LOCALITY.—Faradje, 2 broken specimens.

Resembles *garambanus* but distinct in the details of the gonopods. The pleural keel of the second segment also differs in being lower and not angular at caudal end.

***Habrodesmus latilobus*, new species**

Text Figures 69 to 72

Body dorsally chocolate-brown, with the posterior border of metatergite, inclusive of keels, lighter. A lighter, yellowish, stripe on each side at level of pleural keels, the color below this stripe again darker. Legs yellow, darker distally. Antennæ brown. Head brown above, with a darker quadrate area between antennæ.



*Habrodesmus latilobus*, new species (male). *Habrodesmus somber*, new species (male).

Fig. 70. Pleural keel of second segment

Fig. 75. Right gonopod, ectal view.

Fig. 71. Anal scale.

*Wubidesmus acarinatus*, new species (male).

Fig. 72. Gonopod of male.

*Habrodesmus cursor*, new species

Fig. 76. Antenna, in outline.

Fig. 73. Pleural keel of second segment.

Fig. 77. Process of seventh sternite.

Fig. 74. Gonopod of male, ectal view.

Fig. 78. Caudal end of body, lateral view.

Collum strongly narrowed at each end, the anterior and posterior margins strongly convex. Pleural keel low of second segment, distal edge nearly straight, anteriorly rounded, angular behind (Fig. 70). Other pleural keels well developed. Dorsal keels and other features of segments as usual. Cauda a little bent down. Anal valves typical. Anal scale as shown in Fig. 71.

Gonopods as represented in Figs. 69 and 72.

Length, 28 mm., width, 2.25 mm.

TYPE.—Male, A. M. N. H. No. 5613, Stanleyville, March, 1915.

LOCALITY.—Stanleyville, a second male, March, 1915.

### **Habrodesmus cursor**, new species

Text Figures 73 and 74

The body of the single type specimen is at present nearly black in color and without distinct markings, though the usual contrasts are vaguely indicated. Legs blackish, with proximal ends of joints lighter in the usual way.

Anterior margin of collum strongly convex, the posterior margin much less convex. Margined laterally and anteriorly as in *garambanus*. General features of segments and of keels and pleural keels as usual. Pleural keel of second segment represented in Fig. 73. Anal tergite and valves typical, without distinctive features.

The species is established primarily on the basis of the peculiarities of the gonopods, one of which is represented in Fig. 74.

Width, 2.4 mm.

TYPE.—Male, A. M. N. H. No. 5617, Faradje, March, 1911.

### **Habrodesmus somber**, new species

Text Figure 75

Body in general dusky chocolate to nearly black. Legs much lighter, nearly yellow, sometimes of a greenish tinge. Antennæ dark brown.

Head and antennæ of usual type.

Collum with anterior margin strongly convex, the caudal margin nearly straight. The pleural keel of the second segment is narrow cephalocaudally but is exceptionally high. Other pleural keels well developed as usual. Constriction between prozonite and metazonite deep. Ordinary keels angular at caudal end, widely rounded anteriorly, the dorsal margining sulcus deep, wider behind than in front. Anal tergite, valves, and scale of the typical form, presenting no distinctive characteristics.

Gonopods of male as shown in Fig. 75.

Length of male, about 28 mm., width 2.2 mm. Width of female, 2.2 mm.

TYPE.—Male, A. M. N. H. No. 5633, Medje, July, 1910.

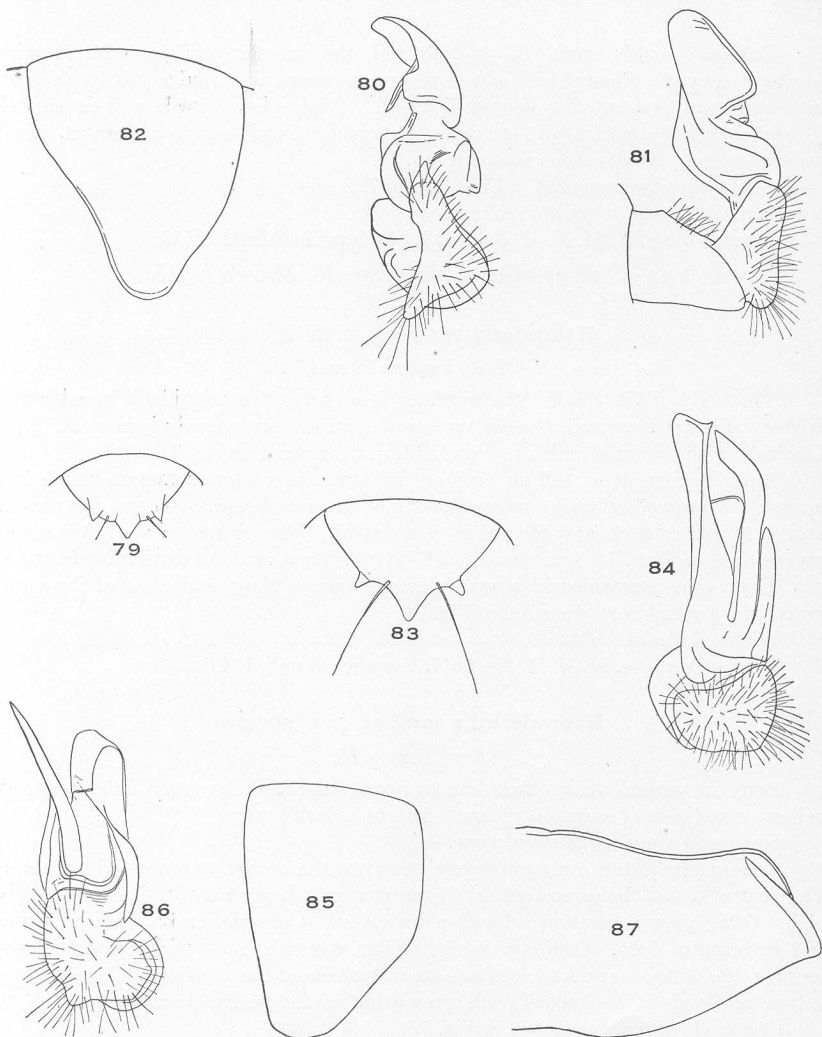
LOCALITY.—Medje, 2 males and 1 female, July, 1910.

### **WUBIDESMUS**, new genus

Consisting of the head and twenty segments.

Antennæ moderately long and slender, little or not at all thickened distad.

Collum transversely subelliptic, the anterior margin more strongly convex than the posterior. Second segment with a narrow keel at the usual level. The succeeding segments wholly lacking dorsal keels or swellings or these but vaguely indicated on



*Wubidesmus acarinatus*, new species  
(male).

Fig. 79. Anal scale.

Fig. 80. Left gonopod, ventral view.

Fig. 81. Right gonopod, ectal view.

*Wubidesmus iugans*, new species.

Fig. 82. Collum of female, lateral view.

Fig. 83. Anal scale of female.

Fig. 84. Right gonopod of male, ventral view.

*Wubidesmus congicolens*, new species  
(male)

Fig. 85. Collum, lateral view.

Fig. 86. Left gonopod, ventral view.

*Oxydesmus minor*, new species (male).

Fig. 87. Right half of collum, in outline.



the preporigerous segments. Pleural keels weakly developed on anterior segments. Segments deeply constricted, smooth, the prozonites and metazonites on same level. Cauda pointed, surpassing valves. Legs long.

Fifth sternite in the male with a laminate process. A laminate process also on seventh segment caudad of gonopods.

GENOTYPE.—*W. acarinatus*, new species.

### ***Wubidesmus acarinatus*, new species**

Text Figures 76 to 81

Female with body in general of a light horn-brown color, the caudal borders of metazonites much darker dorsally, the venter paler. Head and antennæ light brown of reddish cast. Legs yellow. In the male holotype the body is much darker, a dusky or chocolate-brown.

Antennæ slender, cylindrical, joints long, reaching to fourth or anterior border of fifth segment (Fig. 76). Head smooth. Vertex with a fine median sulcus, glabrous. Frontal and clypeal regions setose.

Collum with anterior and posterior margins straight at middle, narrowed and rounded laterally. Keel of second segment low, ridge-like, slightly below level of lower end of collum. No keels on succeeding segments, which are cylindrical. Metazonites striate ventrally. Cauda straight, much exceeding the anal valves. Anal valves with inner borders narrowly elevated; each with two setigerous tubercles, both of which are free from the raised border; smooth. Anal scale angularly produced between its tubercles and the setæ inserted mesiad of these tubercles (Fig. 79).

Gonopods of male as represented in Figs. 80 and 81. Sternal process of seventh segment of male distally excavated (Fig. 77).

Length of male holotype, 22 mm.; width, 2.3 mm. Width of female, 3.1 mm.

TYPE.—Male, A. M. N. H. No. 5640, Stanleyville, March, 1915.

LOCALITY.—Stanleyville, 1 male, several females, March, 1915.

### ***Wubidesmus iugans*, new species**

Text Figures 82 to 84

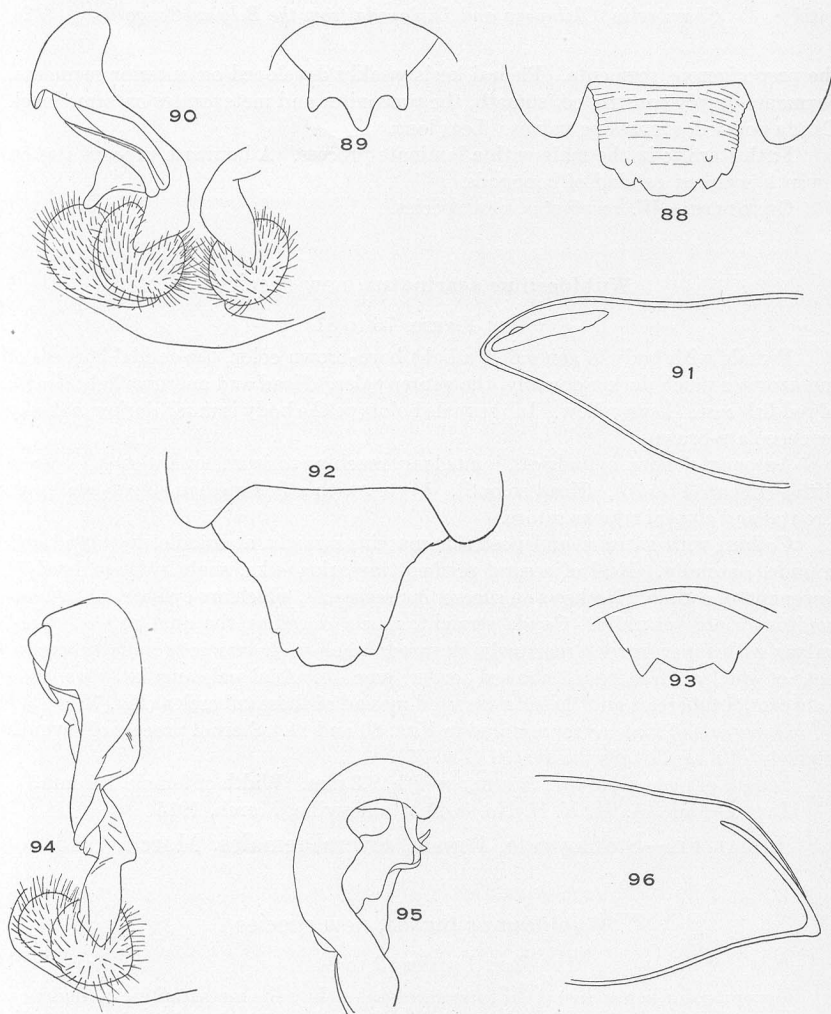
Brown, paler beneath and the prozonites paler than the metazonites; a tendency to chestnut more pronounced anteriorly, particularly on head and antennæ. Legs yellow.

Collum more strongly narrowed at the sides (Fig. 82). Segments smooth and shining throughout, deeply constricted between prozonite and metazonite, the prozonite on nearly same level as metazonite. The second keel developed as in *acarinatus*, the other segments without dorsal keels. Pleural keels developed as narrow, slightly raised lines or ridges on the anterior segments. Anal segment in general as in *acarinatus*. Anal scale as shown in Fig. 83. Gonopods as represented in Fig. 84.

Length of male, about 20 mm.; width 2 mm. Length of female, about 21 mm.; width, 2.25 mm.

TYPE.—Male, A. M. N. H. No. 5624, Medje (?), no date.

LOCALITY.—Medje (?), 1 male, 1 female.



*Oxydesmus minor*, new species (male).

- Fig. 88. Last tergite, dorsal view.  
 Fig. 89. Anal scale.  
 Fig. 90. Right gonopod, ventral view.

*Oxydesmus ootypus*, new species (male).

- Fig. 91. Left half of collum in outline.  
 Fig. 92. Last tergite, in outline, dorsal view.  
 Fig. 93. Anal scale.  
 Fig. 94. Right gonopod, ventral view.  
 Fig. 95. Left gonopod, distal end, ectal view.

*Oxydesmus conformans*, new species (male, type).

- Fig. 96. Right half of collum in outline.

**Wubidesmus congicolens**, new species

Text Figures 85 and 86

Prozonites light brown, the metazonites much darker, blackish. Head dark above, paler brown beneath. Venter and legs yellow. Antennæ yellow.

Collum as shown in Fig. 85. Metazonite rising considerably above level of prozonite. Pleural keels on anterior segments more strongly developed than usual. Dorsal keel of second segment as usual. Anal segment of typical form.

Gonopods as represented in Fig. 86.

Length of male, about 20 mm.; width, 1.9 mm.

TYPE.—Male, A. M. N. H. No. 5597, Stanleyville, March, 1915.

**Oxydesmidae****Oxydesmus minor**, new species

Text Figures 87 to 90

Body nearly black. Dorsum with a median longitudinal lighter, brownish stripe, and the keels marginally of the same color. Legs and antennæ dark brown.

Vertex of head very finely roughened. Setæ numerous and short. Antennæ short, reaching to anterior border of third segment.

Collum slightly narrower than the second tergite. Anterior margin a little bent forwards at ends (Fig. 87). Surface coriaceously marked; tubercles obscure. Metatergites more conspicuously coriaceously roughened caudad of middle. Tubercles of posterior rows well developed but small, those of anterior row obscure. Sides of cauda a little converging caudad. Caudal margin convex, the middle lobe subtruncate, two tubercles each side of middle lobe (Fig. 88). Valves with mesial borders strongly elevated, the tubercles as usual. Anal scale in outline as shown in Fig. 89.

Gonopods of male as shown in Fig. 90.

Length of male, about 58 mm.; width, 10.2 mm.

TYPE.—Male, A. M. N. H. No. 5641, Medje, July 5, 1909.

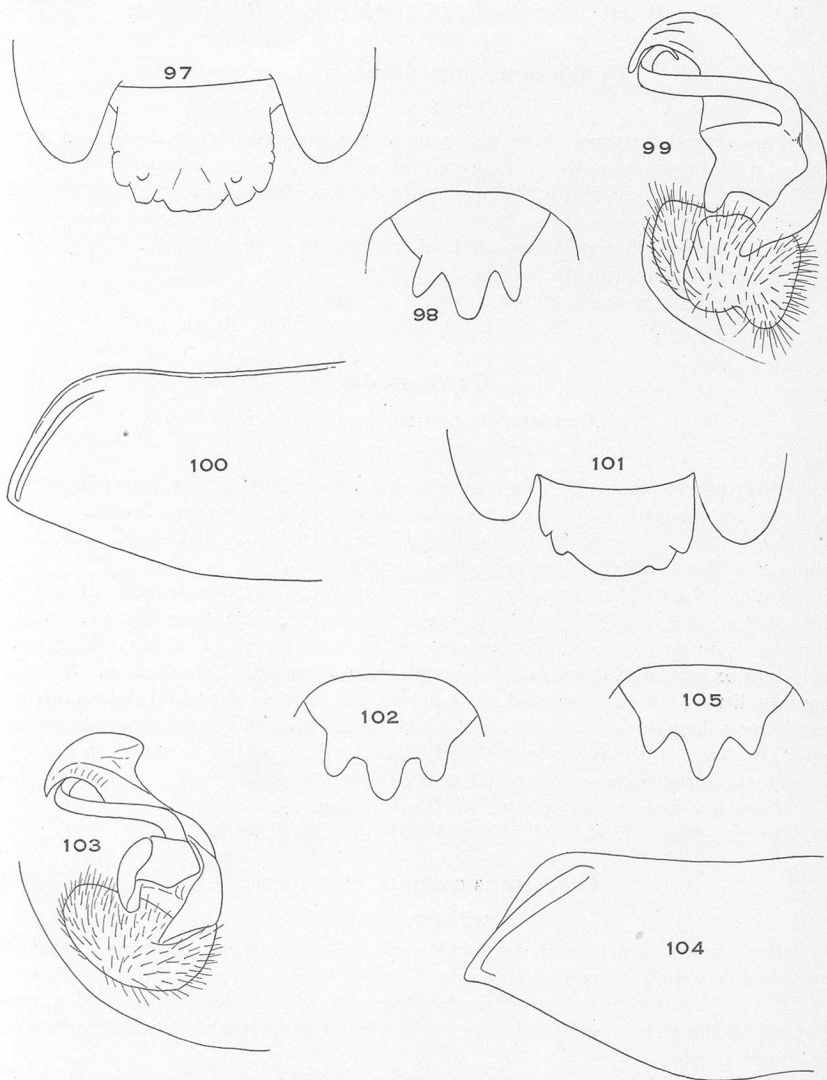
**Oxydesmus oatypus**, new species

Text Figures 91 to 95

Body nearly black, with median dorsal yellowish stripe. Legs and antennæ yellowish of a slightly greenish tinge.

Vertex of head strongly roughened. Sides of head more finely roughened, granular. Clypeal region smooth, with very fine setæ. Antennæ reaching to anterior border of fourth tergite.

Collum as wide as the second tergite. More strongly narrowed at ends than usual, the angle acute. Anterior margin convex at middle, the lateral portion not bent forward. Lateral ridges much more oblique than usual. Margined throughout. Surface coriaceously marked, uneven (cf. Fig. 19). Dorsum rather strongly convex and the keels more strongly depressed than usual. Anterior corners of keels strongly rounded. Surface densely finely granular. Tubercles of posterior row conspicuous, those of other two rows weaker. Cauda with sides a little converging caudad; median lobe broad, notched at middle, a large tubercle ectad of it on each side (Fig. 92). Anal scale with median lobe of caudal border broad, convex, the tubercles comparatively small (Fig. 93).



*Oxydesmus conformans*, new species  
(male, type).

Fig. 97. Caudal end of body in outline,  
dorsal view

Fig. 98. Anal scale.

Fig. 99. Right gonopod, ventral view.

*Oxydesmus eutypus*, new species (male).

Fig. 100. Left half of collum in outline.

Fig. 101. Caudal end, dorsal view.

Fig. 102. Anal scale.

Fig. 103. Right gonopod, ventral view.

*Oxydesmus euchrus*, new species (male).

Fig. 104. Collum, left half in outline.

Fig. 105. Anal scale.

Gonopods of male as shown in Figs. 94 and 95.

Length, about 60 mm.; width, 11 mm.

TYPE.—Male, A. M. N. H. No. 5577, Medje, no date.

LOCALITY.—Medje, 1 male, holotype, May 25–30, 1910; 1 female, at same place for which no date is given.

### ***Oxydesmus conformans*, new species**

Text Figures 96 to 99

Body nearly black. Legs and antennæ dark brown, the two proximal joints lighter.

Vertex of head strongly granulo-roughened. Clypeal region smooth, with setæ as usual. Antennæ reaching upon third tergite, slender, uniform.

Anterior margin of collum nearly straight, a little bent forwards at ends. Caudal margin arcuate. Margining and end ridges as in *O. eutypus*, etc. Surface weakly coriaceously marked. Tubercles absent (cf. Fig. 96). Surface of metatergites densely and uniformly granular. Tubercles obliterated. Sides of cauda a little convex, slightly diverging caudad. Caudal margin moderately convex; middle lobe caudally truncate; each side of middle lobe two tubercles; caudal border dorsally with several tubercles (cf. Fig. 97). Anal valves and their tubercles of the ordinary form. Anal scale as shown in Fig. 89.

Gonopods as shown in Fig. 99.

Length of male, 60 mm.; width, 12 mm.

TYPE.—Male, A. M. N. H. No. 5650, Medje, September 24–30, 1909.

### ***Oxydesmus eutypus*, new species**

Text Figures 100 to 103

Color of body nearly black, uniform. Legs dark brown, with tips and two proximal joints paler.

Surface of head nearly as in *O. curtiramus*. Antennæ shorter, reaching to third tergite.

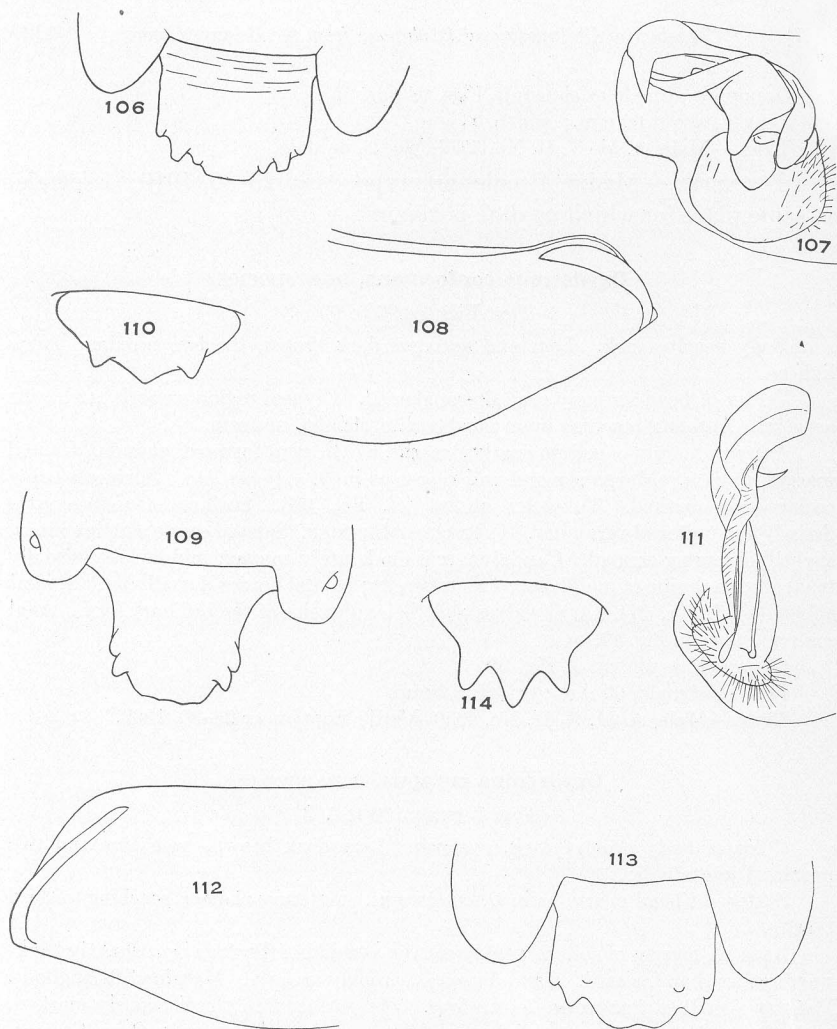
Anterior margin of collum weakly convex at middle, the ends bent slightly backward rather than forward. Caudal margin strongly arcuate. Margined throughout. With two shallow transverse depressions. The surface finely coriaceously marked, with the tubercles obliterated (cf. Fig. 100). Keels wider than in *O. curtiramus*. Transverse furrow scarcely indicated. Surface of metatergites finely coriaceously roughened. Tubercles absent or nearly so excepting in the caudal row. Median lobe of cauda convex; two tubercles on each side of it of which the inner one is the larger; surface roughened (Fig. 101). Anal valves as usual. Anal scale as shown in Fig. 102.

Gonopods of male represented in Fig. 103.

Length of male, 58 mm.; width, 12 mm. Length of female, 68 mm.; width, 13 mm.

TYPE.—Male, A. M. N. H. No. 5648, Stanleyville, April, 1915

LOCALITY.—Stanleyville, 1 male, 1 female, April, 1915; 1 male, 1 female, August, 1909, "under rotten grass and twigs on an old coffee plantation."



*Oxydesmus euchrus*, new species (male).

Fig. 106. Caudal end of body in outline, dorsal view.

Fig. 107. Right gonopod, ventral view.

*Oxydesmus curtiramus*, new species (male).

Fig. 108. Collum, right half in outline.

Fig. 109. Caudal end in outline, dorsal view.

Fig. 110. Anal scale.

Fig. 111. Right gonopod, ventral view.

*Oxydesmus amplexiramus*, new species (male, type).

Fig. 112. Collum, left half in outline.

Fig. 113. Caudal end, dorsal view.

Fig. 114. Anal scale.

**Oxydesmus euchrus**, new species

Text Figures 104 to 107

Dorsum blackish, with a median dorsal stripe and the borders of the keels brownish yellow. Legs light brown.

Vertex of head with usual deep sulcus. Surface in general finely granular and setose.

The collum obviously narrower than second tergite. Anterior margin with middle portion straight, the lateral portion bent forward. Anterior and lateral margins smooth and narrowly elevated. Smooth submarginal ridge at each end as usual (cf. Fig. 104). Dorsum weakly convex. Keels nearly horizontal, of the same general form as in *O. clarimarginatus*. The surface of metazonites at middle nearly smooth, more roughened laterally. Tubercles of anterior row obsolescent, those of caudal row better developed but also small and inconspicuous. Sides of cauda straight and parallel. The posterior margin convex; the median lobe subtruncate; three tubercles on each side, of which the median is largest and the ectal next in size. Cauda transversely wrinkled across proximal portion (cf. Fig. 106). Anal valves as in *O. clarimarginatus*, but the mesial borders more compressed and elevated. Anal scale similar, but with median lobe narrower (Fig. 105).

Gonopods as shown in Fig. 107.

Length, 58 mm.; width, 11 mm.

TYPE.—Male, A. M. N. H. No. 5634, Stanleyville, April, 1915.

LOCALITY.—Stanleyville, April, 1915, 1 female, August, 1909, "under rotten grasses and twigs on an old coffee plantation."

**Oxydesmus curtiramus**, new species

Text Figures 108 to 111

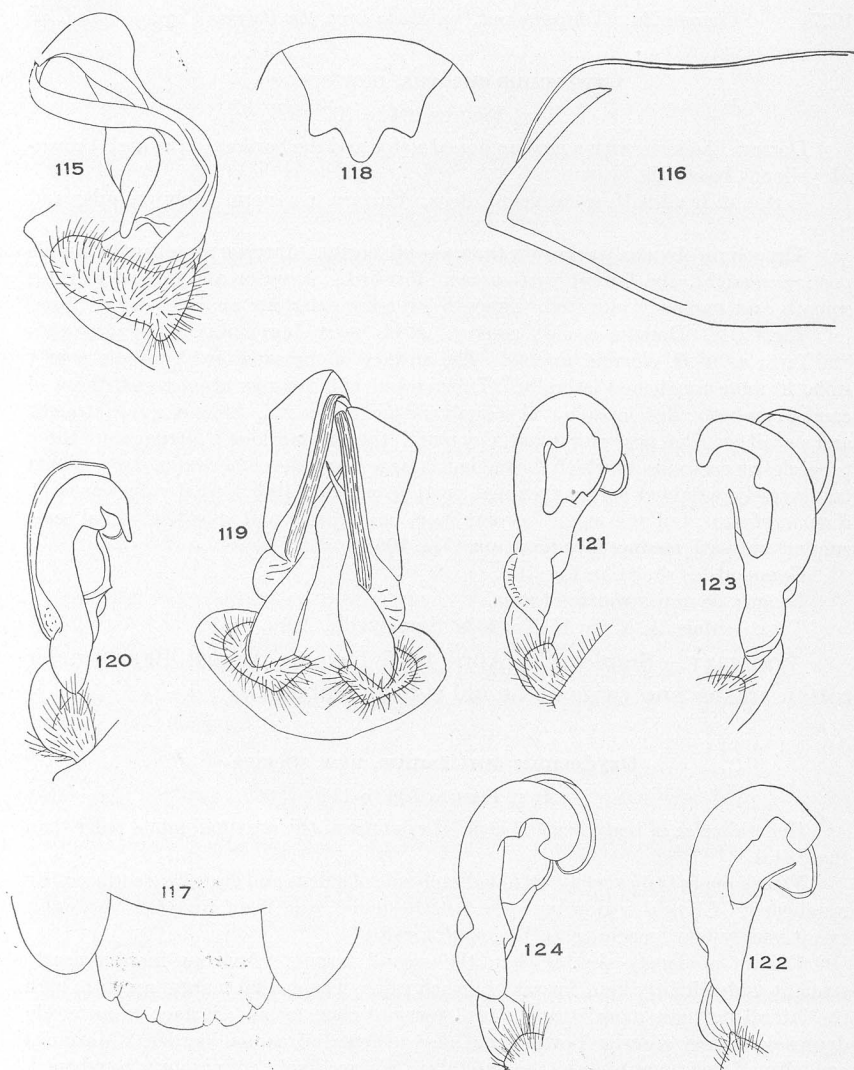
General color of body nearly black. Legs brown, the proximal joints paler than the distal.

Vertex finely transversely wrinkled each side of sulcus and elsewhere coriaceously roughened. Clypeal region smoother, with sparse setæ from foveolæ. Antennæ exceptionally long, reaching to the fourth tergite.

Collum obviously shorter than the second tergite. Anterior margin nearly straight, only slightly bent forward on each side. The caudal margin arcuate, with the lateral portions more strongly bent forward than usual. Surface transversely depressed across anterior portion and also in front of caudal border. Margined caudally as well as anteriorly and laterally. Surface finely coriaceously roughened. Tubercles very small and inconspicuous (cf. Fig. 108). Metatergites of the usual general form. A transverse furrow weakly developed. Surface very finely granular and coriaceously roughened. Tubercles obscure. Sides of cauda subparallel; middle lobe of caudal border with margin arcuate, the median emargination largest; on each side of middle lobe a single large setigerous tubercle followed on lateral margin just cephalad by a second setigerous tubercle. Surface finely roughened and with transverse wrinkles (cf. Fig. 109). Mesial borders of anal valves strongly elevated and set off. Anal scale as shown in Fig. 110.

Gonopods of male as represented in Fig. 111. Tip of gonopods when *in situ* not below rim of opening.





*Oxydesmus amplexiramus*, new species (male).

Fig. 115. Right gonopod, ventral view.

*Oxydesmus clarimarginatus*, new species (female).

Fig. 116. Collum, left half, dorsal view.

Fig. 117. Caudal end in outline, dorsal view.

Fig. 118. Anal scale.

*Plagiodesmus antius*, new species (male).

Fig. 119. Gonopods, ventral side.

Fig. 120. Left gonopod of male, ectal view.

*Plagiodesmus mimus*, new species (male).

Fig. 121. Left gonopod, ectal view.

*Plagiodesmus brachydor*, new species (male).

Fig. 122. Left gonopod, ectal view.

*Plagiodesmus medjensis*, new species (male).

Fig. 123. Right gonopod, ectal view.

*Plagiodesmus acutior*, new species (male).

Fig. 124. Left gonopod, ectal view.



Length, 65 mm.; width, 10.5 mm.

TYPE.—Male, A. M. N. H. No. 5654, Stanleyville, April, 1915.

LOCALITY.—Stanleyville, a second male, April, 1915.

***Oxydesmus amplexiramus*, new species**

Text Figures 112 to 115

Dorsum uniformly dark brown. Legs lighter brown, especially proximally.

Surface of head of the ordinary character, the elevated clypeal region being nearly smooth, the surface elsewhere finely granular. The usual short setæ.

Collum narrower than the second tergite. Lateral portions of anterior margin moderately bent forwards and forming an even curve with the median portion. Margins and ridges and surface as usual (cf. Fig. 112). Metatergites and keels of the ordinary form. Keels wide. Surface very finely coriaceously roughened. Tubercles of all rows distinctly developed but very small and inconspicuous. Cauda with sides a little diverging caudad. Caudal margin in general convex, median lobe a little notched or emarginate at middle; a small tubercle at caudoectal corner and a much larger one just mesiad of it (Fig. 113). Anal valves with mesial borders moderately elevated, the caudal tubercle fused with the mesial border, the anterior one free. Anal scale as in Fig. 114.

Gonopods as represented in Fig. 115.

Length of male, 60 mm.; width, 13.5 mm.

TYPE.—Male, A. M. N. H. No. 5630, Niapu, December, 1913.

***Oxydesmus clarimarginatus*, new species**

Text Figures 116 to 118

General color of body brown; the antennæ the same. The elevated lateral borders of keels abruptly lighter, clear yellowish brown, the posterior half of anal tergite of similar color. Legs also yellowish brown.

Vertex of head granulo-roughened, crossed longitudinally by a deep sulcus. Clypeal region elevated and smooth, this area extending upward in an angle that has its apex between the antennæ. Lateral portion of head granulo-roughened uniformly with vertex and bearing short setæ. Antennæ reaching to caudal border of second tergite, of uniform thickness.

Collum slightly narrower than the second tergite. Anterior margin scarcely convex over middle region, the lateral portion a little bent forward. Anterolateral corners rounded, the caudal corners more angular. Posterior margin arcuate. Narrowly margined anteriorly and laterally, the elevated margin smooth. A smooth, narrow ridge parallel to and but little removed from each lateral margin (Fig. 116).

Dorsum weakly arched. Keels depressed a little below the horizontal, scarcely longer than median region of metazonite; anterior and posterior margins nearly straight, the lateral convex, all smooth. General surface of metazonites finely coriaceously roughened; the tubercles of the three transverse rows small, widely separated, mostly inconspicuous. Caudal margin of metazonites on ventral side with several rows of hairs as usual. Cauda with sides parallel; caudal margin convex, with setigerous tubercles on each side (Fig. 117). Anal valves longitudinally wrinkled; with two setigerous tubercles on each side. Anal scale with median tubercle much larger than the lateral setigerous one on each side (cf. Fig. 118).

Length of female, 60 mm.; width, 12.5 mm.

TYPE.—Female, A. M. N. H. No. 5684, Niapu, December, 1913.

***Plagiodesmus antius*, new species**

Text Figures 119 and 120

The body, legs, and antennæ as they appear at present are a deep brown, almost black.

Antennæ slender, only very slightly thickened at end, reaching to third segment. The vertex roughened, sparsely setose, the sulcus deep anteriorly.

Collum as wide as second tergite; narrowing to an acute angle on each side, the anterior margin of each wing strongly convex, the margins throughout narrowly elevated and smooth. General surface roughened; over middle region three transverse series of tubercles of which those of the two anterior rows are small and widely separated, four in each series; in the posterior row there are two small tubercles on each side in line with a series of rounded swellings contiguous with caudal marginal rim at middle. At each end a little removed from and parallel with margin an oblique smooth ridge which is wider behind than in front. Dorsum well arched, the keels depressed. Metazonites with three transverse series of distinct tubercles of good size, the surface between tubercles strongly granulose and on the keels granulo-rugulose. Anterior corners of keels strongly rounded, the posterior corner angular, more or less acute, on the most anterior segments not at all produced, but caudad, gradually more and more obviously extended posteriorly, and on the most posterior keels strongly produced. The oblique submarginal ridges are distinct on collum and succeeding three tergites. On following plates they are broader and low and poorly defined excepting on the porigerous segments, on which the ridge is evident as a rim widely encircling the pore. Prozonites smooth.

On each side of metazonite above bases of posterior legs a large conical tubercle with several smaller adjacent ones and above base of anterior leg a group of small tubercles forming a rounded mass or swelling. Sides of cauda slightly converging caudad; caudal margin with a series of coarse setigerous teeth. Anal valves rugose, each with a setigerous tubercle just ectad of the inner raised border. Anal scale with a large setigerous tubercle each side of the caudal angle.

While the gonopods are of the same general type as in *P. occidentalis* (Karsch), the genotype, they are conspicuously different in details (Figs. 119 and 120).

Length of male, 70 mm.; width, 14 mm.

TYPE.—Male, A. M. N. H. No. 5631, Stanleyville, August, 1909.

LOCALITY.—Stanleyville, 5 males, 8 females, April, 1915; 5 males, 4 females, August, 1909, "taken under rotten grasses and twigs on an old coffee plantation"; 2 males, March, 1915.

***Plagiodesmus mimus*, new species**

Text Figure 121

Body and legs of preserved specimen brown.

Antennæ reaching to caudal border of third segment; slender, the distal end of sixth segment a little thicker. Vertex with sulcus deep; densely finely granulo-roughened, setose.

Collum a little narrower than the second tergite; acutely narrowed at each side; narrowly margined over entire circumference, the margin smooth throughout; with three transverse rows of tubercles over middle region, the most anterior consisting of two and the median of five tubercles, or with one or two additional smaller ones on each lateral portion. The caudal row consists of five tubercles more or less elongated antero-caudally into short ridges and in addition of two small ordinary tubercles on each side ectad of these middle ones. The usual smooth oblique ridge toward each lateral end parallel with antero-ectal margin. Surface in general densely granular. Dorsum moderately arched, the keels depressed a little below the horizontal. Metazonite with three transverse rows of smooth and shining tubercles, those of the posterior row larger and more close-set than those of others, those of anterior row widely separated. Surface in general densely finely granular. The oblique submarginal ridges are distinct on all keels. Caudal tergite with sides a little converging caudad, the caudal margin convex. Surface densely granular, the caudal portion roughened with tubercles. Anal valves with mesial borders elevated and compressed; the lateral portion longitudinally finely wrinkled; a setigerous tubercle on each side ectad of elevated border. Anal scale with the usual two setigerous tubercles on caudal edge.

Gonopods as shown in Fig. 121.

Length of male (holotype) about 80 mm.; width, 15 mm.

HOLOTYPE.—Male, A. M. N. H. No. 5614, Medje, May 28–June 4, 1910.

Close to *P. antius* but clearly differing in gonopods.

### ***Plagiodesmus brachydon*, new species**

Text Figure 122

Brown, a reddish background showing in wet specimens, particularly on the legs.

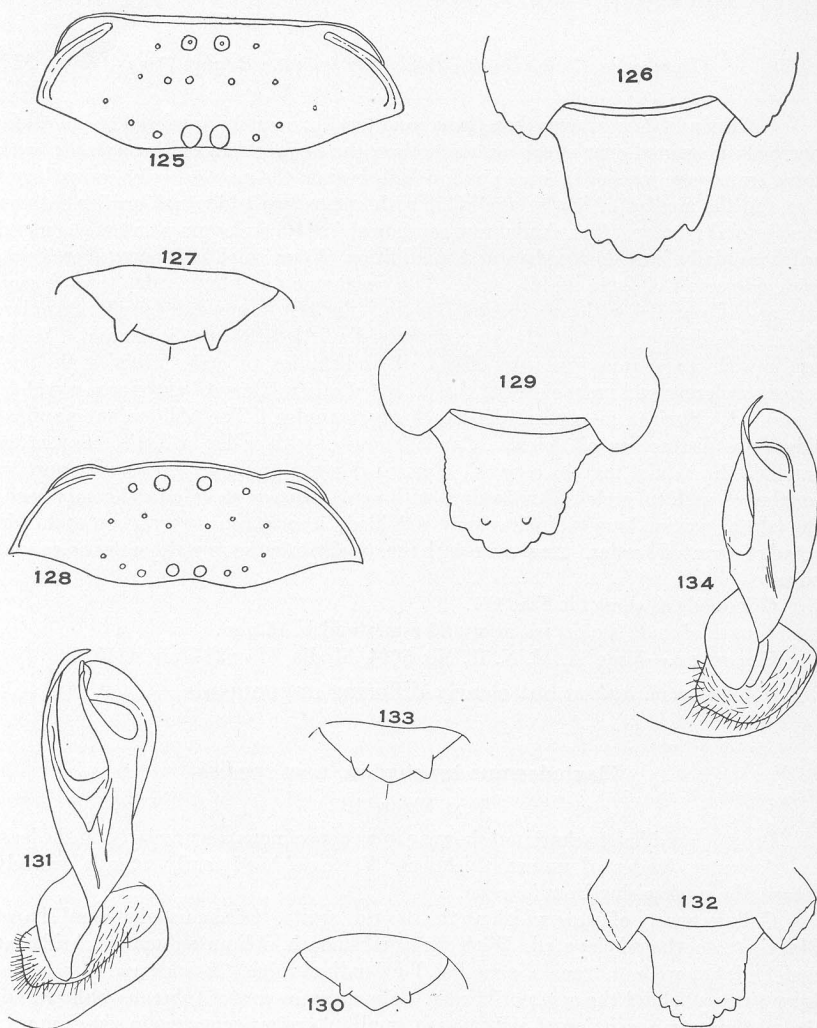
Antennæ slender, of uniform thickness. Vertex of head nearly smooth, sparsely setose, the setæ arising from foveolæ.

Collum nearly of same width as the second tergite. Of the usual general shape. Margins smooth and elevated. With the usual smooth, oblique submarginal ridge at each end, but with no trace of a median longitudinal ridge. A wide and deep transverse furrow behind the anterior border. The anterior row of tubercles obliterated; the median row consisting of eight to ten small tubercles decreasing in size each way from middle; in the caudal row the four middle tubercles are much larger than the others and show a tendency to coalesce. On the succeeding tergites the three transverse rows of tubercles are well developed, the more dorsal ones being large and often nearly contiguous, the tubercles decreasing in size laterad; all tubercles smooth and shining. General surface granular, for the most part rather weakly developed excepting toward their caudal ends. On the sides a large granular tubercle above base of each anterior leg; above caudal leg a similar elevated area above which is a series of pointed teeth. Cauda of usual outline; surface transversely wrinkled. Anal valves as usual. Anal scale on anterior portion transversely wrinkled.

Gonopods as shown in Fig. 122.

Length, 85 mm.; width, 14.5 mm.

TYPE.—Male, A. M. N. H. No. 5588, Avakubi, October, 1909.



*Orodemus eunis*, new species (female).

- Fig. 125. Collum.  
 Fig. 126. Caudal end, dorsal view, in outline.  
 Fig. 127. Anal scale

*Orodemus interioris*, new species (male).

- Fig. 128. Collum.  
 Fig. 129. Caudal end of body, dorsal view, in outline.  
 Fig. 130. Anal scale.  
 Fig. 131. Left gonopod ventral view.

*Orodemus garambanus*, new species (male).

- Fig. 132. Caudal end of body in outline, dorsal view.  
 Fig. 133. Anal scale.  
 Fig. 134. Left gonopod, ventral view.

**Plagiodesmus medjensis**, new species

Text Figure 123

Of the ordinary dull brown color.

Vertex of head strongly granular; the median sulcus wide and shallow, not sharply defined. Antennæ of uniform thickness, reaching upon third tergite.

Collum slightly narrower than second tergite. Margins smooth and raised and the smooth oblique submarginal ridges well developed. With no median ridge. The three rows of tubercles present; in the posterior row the four middle tubercles enlarged and fused with the elevated caudal margin. On succeeding tergites the tubercles are well developed, the more lateral ones much smaller than the others. Oblique ridges well developed on porigerous keels and on second, third and fourth; on other non-porigerous keels they are represented mainly by wide granular swellings. Cauda, anal valves and anal scale without distinctive characteristics.

Gonopods as shown in Fig. 123.

Length of male, 75 mm.; width, 14 mm. The female considerably larger.

TYPE.—Male, A. M. N. H. No. 5619, Medje, September 24–30, 1909.

LOCALITY.—Medje, 1 male, 1 female, September 24–30, 1909.

**Plagiodesmus acutior**, new species

Text Figure 124

Body brown, with chestnut background. Legs chestnut.

A deep, sharply cut sulcus across vertex; vertex coarsely granular across caudal portion, finely granular elsewhere. Antennæ as in *P. minus*.

Margin of collum sharply elevated. The usual smooth submarginal ridge at each end. A median longitudinal ridge from anterior margin fading out caudally. General surface finely granular, with the usual three transverse rows of tubercles which are smooth; the two submedian tubercles of the caudal row united transversely into a smooth ridge. The general form and sculpturing of the tergites as in *mimus*, but the oblique submarginal ridges nearly obliterated on the non-porigerous keels. Cauda in outline as usual; dorsal surface granular and roughened, without distinct tubercles. Valves and anal scale as usual.

Gonopods as shown in Figure 124.

TYPE.—Male, A. M. N. H. No. 5603, Niapu, December, 1913.

Locality.—Niapu, December, 1913.

**Orodesmus eunis**, new species

Text Figures 125 to 127

Body and legs brown, the keels yellow.

Antennæ slender, of uniform thickness throughout, the sixth article nearly cylindrical. Vertigial sulcus fine, distinct; vertex finely roughened.

Collum similar to that of *O. interioris* but the anterior corners not so strongly rounded. Four minute tubercles in middle row, of which the two inner ones are widely separated from each other. Four tubercles in anterior row of which the two inner ones are much larger than the outer and much closer together than the two corresponding ones of the middle row. In the posterior row the four inner tubercles are much larger than the two outer minute ones at each end of the series (Fig. 125).

Segments and keels in general much as in *O. interioris*, but a row of small tubercles in front of transverse sulcus distinct. Surface between tubercles and especially laterally strongly granular. The keels from second to fifth wider than the following ones. Cauda in form as shown in Fig. 126. Anal scale as shown in Fig. 127.

Length, 38 mm.; width, 5.5 mm.

TYPE.—Female, A. M. N. H. No. 5642, Medje, unknown date.

### ***Orodesmus interioris*, new species**

Text Figures 128 to 131

Dorsum and the sides below keels black, the venter a distinctly reddish brown; keels yellow. Legs brown of a reddish or purplish cast, the antennæ similar.

Clypeal region of head smooth, the vertex granularly roughened. Sixth article of antennæ swollen on one side at base.

Collum with anterior margin nearly straight across middle, at sides convexly bowed forward and then backward over the rounded anterior corners and back to the acute caudal corner. Posterior margin strongly convex, straight at sides, subacute. A series of eight to ten tubercles along caudal border which decrease in size laterad, the outermost being minute. Middle row of tubercles embracing six very small ones and the anterior row of same number but with middle ones larger. A strong smooth ridge along lateral and ectal portion of outer margin (cf. Fig. 128). Dorsum of second, third, and fourth keels more strongly convex than the others. The middle tubercles of the posterior row of these segments much enlarged, particularly those of the third segment, rounded, contiguous or nearly so but not fused. Second and third keels wider than those immediately following. In all keels the anterior corner bears a small but distinct tooth; behind this tooth a second small tooth on outer keels; on most keels there are two and, on the caudal segments, more than two low crenations caudad of the anterior tooth. Dorsum of metatergites with weak transverse furrow behind which are two transverse rows of tubercles; in front of the transverse furrow the surface is strongly granular but presents no distinct row of tubercles. The usual lateral submarginal ridges. Cauda broad, the lateral margin a little converging caudad; caudal margin strongly convex, bearing six contiguous tubercles (Fig. 129). Mesial borders of valves thickened and raised; a large setigerous tubercle ectad of each. Anal scale as shown in Fig. 130.

Structure of gonopods of male as represented in Fig. 131.

Length of male, 35 mm.; width, 5 mm.

TYPE.—Male, A. M. N. H. No. 5579, Faradje, April, 1911.

LOCALITY.—Faradje, 1 male, 1 female, April, 1911.

### ***Orodesmus garambanus*, new species**

Text Figures 132 to 134

Body dusky brown above, darker toward keels. Keels yellow. Venter light brown. Legs brown, the first two joints paler than the others. Head darker brown, paler over lower portion of clypeal region.

Antennæ slender, of uniform thickness, the sixth joint clavate. Vertigial sulcus deep. Vertex strongly finely granular.

Collum in outline as in *O. eunis*. A tooth caudad of each anterior corner. Four middle tubercles of posterior row larger, conspicuously elongate cephalo-caudally. Keels nearly as usual. Dorsal tubercles more strongly developed than in the other two species here described. Tubercles of posterior row of second, third and fourth tergites large, elongate cephalocaudally, elevated; the two middle tubercles of the third tergite fused. Three rows of tubercles well developed on all tergites, the surface between them strongly granular. Sides of cauda nearly parallel, caudal margin strongly convex, with tubercles as shown in Fig. 132. Anal valves roughened, longitudinally wrinkled ectad of raised inner border. One free setigerous tubercle anteriorly and one fused with inner border posteriorly as usual. Anal scale as shown in Fig. 133.

Gonopods of male (Fig. 134).

Length of male, 34 mm.; width, 4.6 mm. Width of female, 5.2 mm.

TYPE.—Male, A. M. N. H. No. 6015, Garamba, May 3–17, 1912.

LOCALITY.—Garamba, 1 male, 1 female, May 3–17, 1912.

### **Gomphodesmidae**

#### **SIGMODESMUS, new genus**

Composed of head and twenty segments.

Repugnatorial pores on segments, five, seven, and nine to nineteen.

Coxæ of male gonopods short, contiguous, densely clothed with long hair. Femur short, gradually passing into a long, laminate tibia at the end of which there is a short, acute process. Telepodite slender, attenuate and curved, with the usual stout spine process at base but otherwise unbranched, forming with tibia a sigmoidal curve.

In the male there is an entire laminate process between anterior legs of sixth segment, the sternites otherwise without processes.

Setigerous tubercles of anal scale in genotype of small size, greatly exceeded by caudal angle.

GENOTYPE.—*S. leigon*, new species.

#### **Sigmodesmus leigon, new species**

Text Figures 135 to 140

Body and legs a light horn-brown.

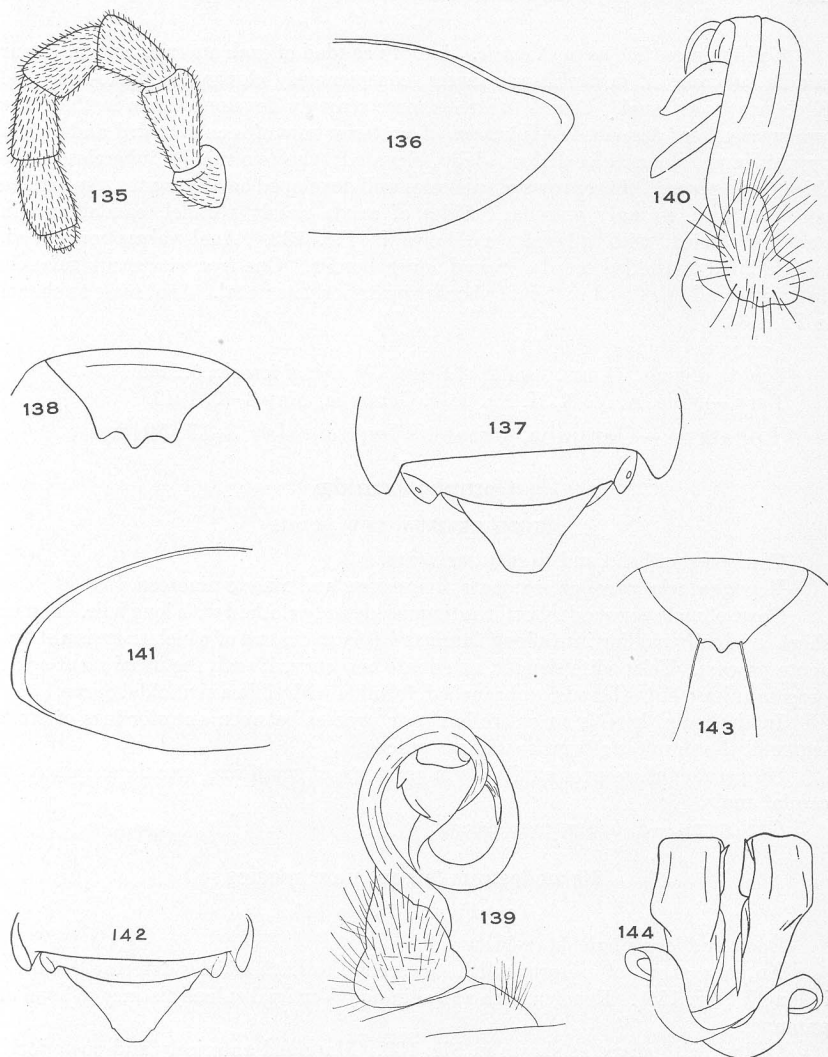
Antennæ short, of uniform width, the second to sixth articles differing but little in length (Fig. 135). Head smooth and shining. Vertigial sulcus distinct to level of antennæ.

Collum with shape as shown in Fig. 136. Margined anteriorly and posteriorly but not caudally. Smooth and shining. A deep constriction between prozonite and metazonite. Dorsum strongly convex. Keels narrow, the marginal callus thick, smooth; caudal angle weakly produced on middle segments, more strongly and acutely on the posterior ones. Caudal tergites as shown in Fig. 137. Anal scale, Fig. 138.

Gonopods of male as shown in Figs. 139 and 140.

TYPE.—Male, also female allotype, A. M. N. H. No. 5620, Stanleyville, April, 1915.

LOCALITY.—Stanleyville, 8 specimens, April, 1915, 2 females, August, 1909.



*Sigmodesmus leigon*, new species (male).

- Fig. 135. Antenna.  
 Fig. 136. Collum, right half, in outline.  
 Fig. 137. Caudal end of body, dorsal view, in outline.  
 Fig. 138. Anal scale.  
 Fig. 139. Left gonopod, ectal view.  
 Fig. 140. Left gonopod, caudal view.

*Sigmodesmus nannus*, new species (male)

- Fig. 141. Left half of collum, in outline.  
 Fig. 142. Caudal end of body, dorsal view.  
 Fig. 143. Anal scale.  
 Fig. 144. Gonopods, anterior view.



***Sigmodesmus nannus*, new species**

Text Figures 141 to 144

Dorsum dull brown, becoming somewhat paler over the keels. The sides similarly brown but the venter paler, more yellowish brown. Legs brownish yellow, the antennæ brown.

Vertigial sulcus fine but sharply impressed. Head smooth throughout. Antennæ slender.

Collum of the form shown in Fig. 141. Keels of ordinary segments produced at caudal corners rather more than in *leigon*. Dorsum smooth and shining, or showing but few longitudinal impressed lines or wrinkles. Caudal and preceding tergites as shown in Fig. 142. Anal scale, Fig. 143.

Gonopods of male represented in Fig. 144.

Length of male, 15 mm.; width, 3.5 mm.

TYPE.—Male. A. M. N. H. No. 5590, Faradje, March, 1911.

***Sigmodesmus faradjensis*, new species**

Text Figures 145 to 150

Body brown, in part dusky, the keels paler. Legs also a somewhat dusky brown. Antennæ and head a clear brown.

Antennæ more slender than in *S. leigon*. Vertigial sulcus distinctly impressed, furcate ventrally. Head smooth and shining.

Collum, Fig. 145. Segments of the typical general form, but the caudal processes of keels more developed than in the genotype (cf. Fig. 146). The anal tergite and preceding segments as shown in Fig. 147. Anal scale, Fig. 148.

Gonopods of male as represented in Fig. 150.

Sternal process of sixth segment of form shown in Fig. 149.

Length of male about 32 mm.; width, 6 mm.

TYPE.—Male, A. M. N. H. No. 5637, Faradje, March, 1911.

***Sigmodesmus perditus*, new species**

Text Figures 151 to 154

Dorsum a brownish gray, a more yellowish color anteriorly. Keels lighter, yellowish.

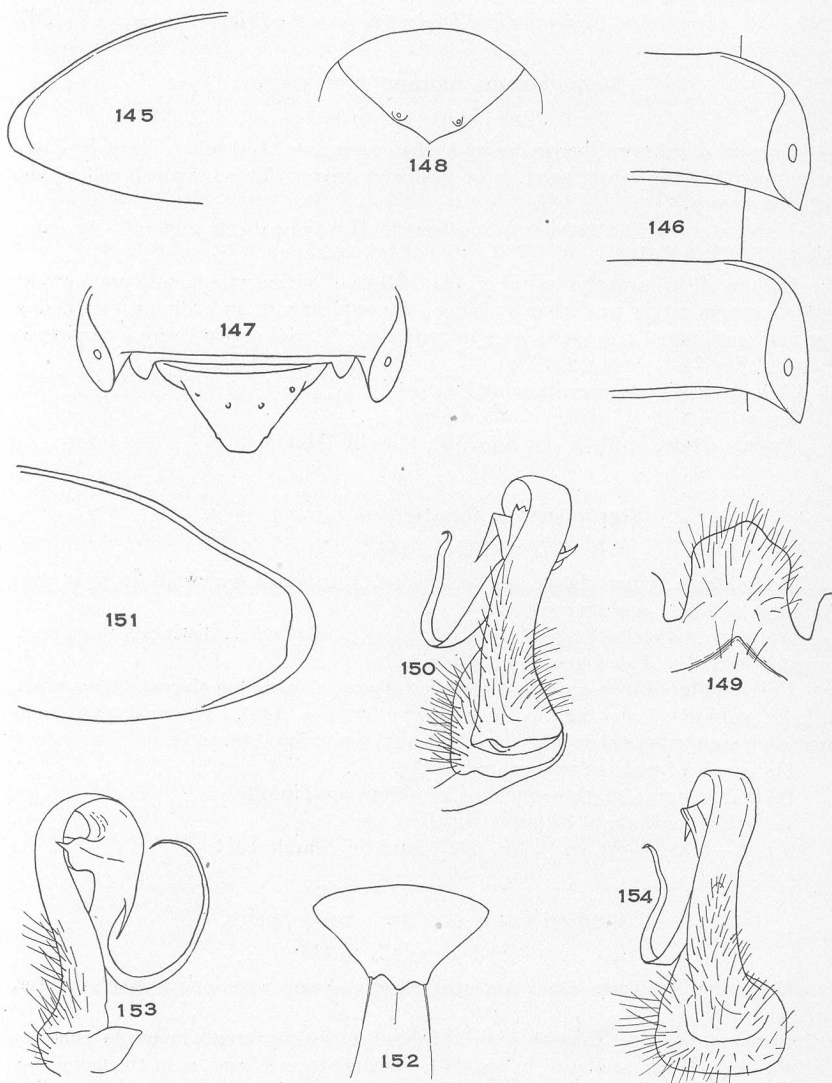
Antennæ slender. Head smooth and shining. Sulcus furcate below as usual.

Form of collum as shown in Fig. 151. Segments and keels as in the genotype. Nineteenth segment reduced as usual, the caudal processes of its keels not exceeding those of the preceding segment. Anal tergite as in the genotype. Anal scale as in Fig. 152

Gonopods, Figs. 153 and 154.

TYPE.—Male, and female allotype, A. M. N. H. No. 5582, Medje, no date

LOCALITY.—Med'e.



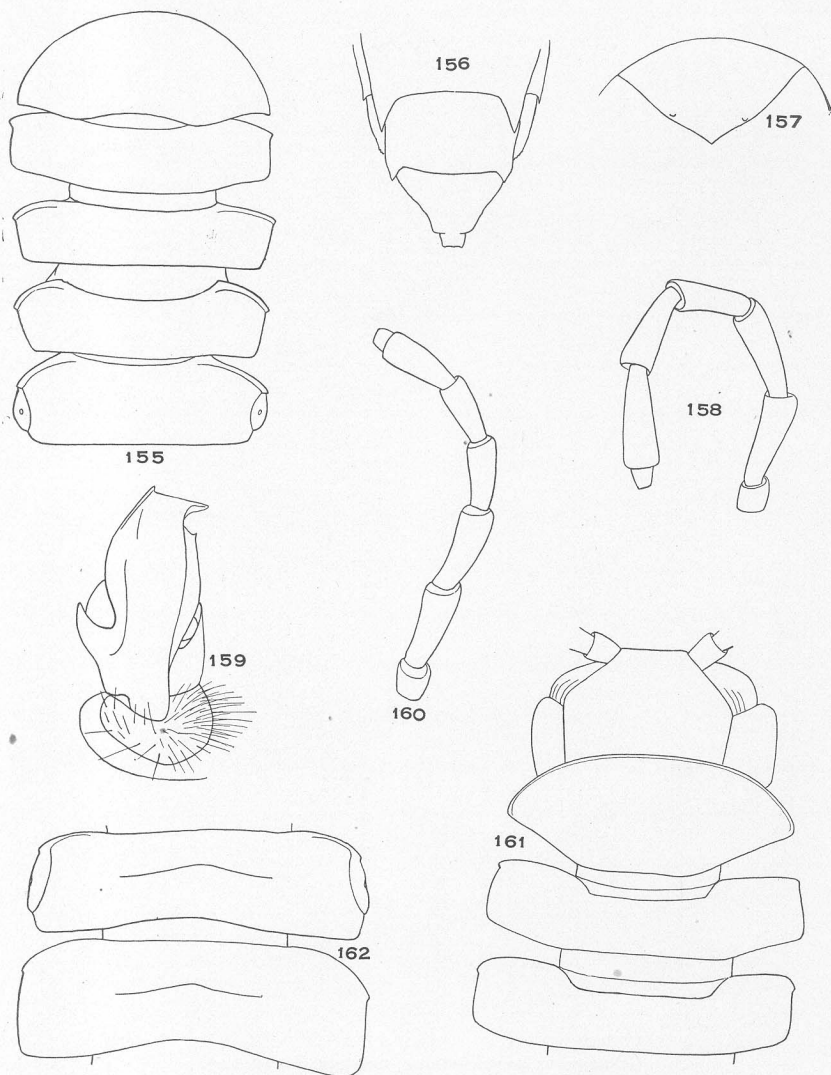
*Sigmodesmus faradjensis*, new species  
(male).

- Fig. 145. Left end of collum.  
Fig. 146. Thirteenth and fourteenth  
keels of right side.  
Fig. 147. Caudal end of body, dorsal  
view.  
Fig. 148. Anal scale.  
Fig. 149. Sternal process of sixth segment.

Fig. 150. Left gonopod, ventral view.

*Sigmodesmus perditus*, new species  
(male).

- Fig. 151. Collum, right half.  
Fig. 152. Anal scale.  
Fig. 153. Left gonopod, ectal view.  
Fig. 154. Left gonopod, caudoventral  
view.

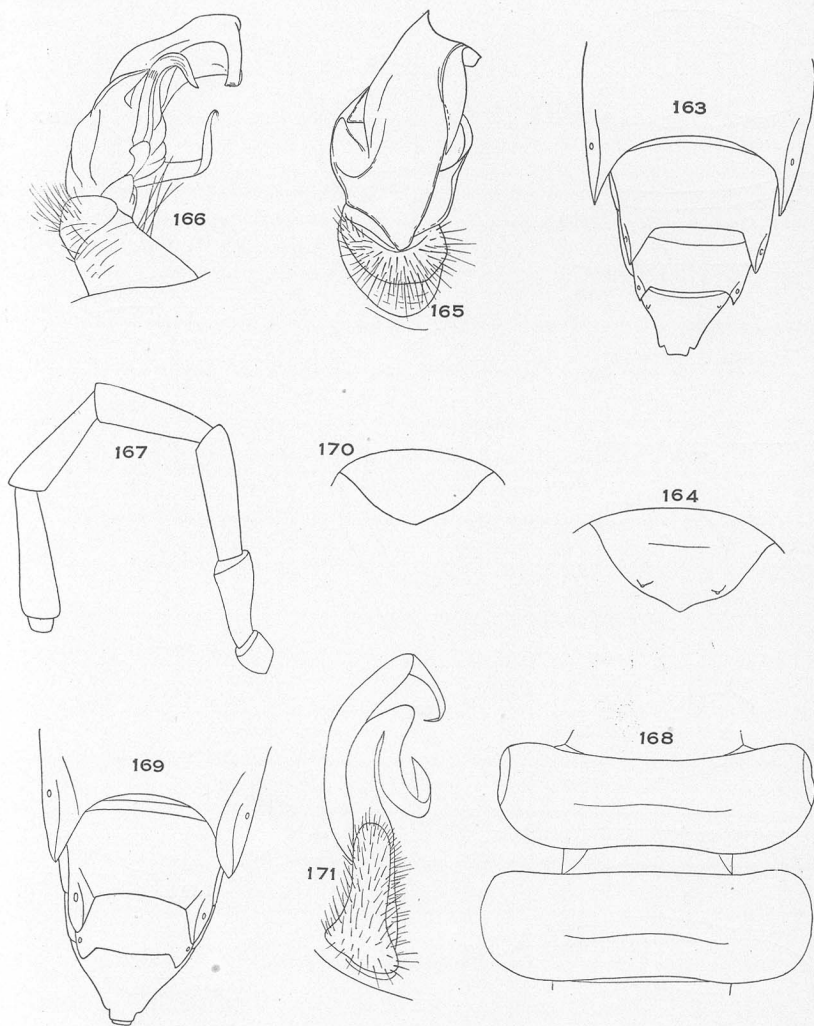


*Gitadesmus pokanus*, new species (male).

- Fig. 155. First five segments in outline, dorsal view.  
 Fig. 156. Caudal end, dorsal view.  
 Fig. 157. Anal scale.  
 Fig. 158. Antenna in outline.  
 Fig. 159. Right gonopod, ventral view.

*Gitadesmus gracilliramus*, new species (male).

- Fig. 160. Antenna.  
 Fig. 161. Head and first three segments, dorsal view, in outline.  
 Fig. 162. Fifth and sixth tergites.



*Gitadesmus gracilliramus*, new species (male).

Fig. 163. Caudal segments in outline, dorsal view.

Fig. 164. Anal scale.

Fig. 165. Right gonopod, ventral view.

Fig. 166. Left gonopod, ectal view.

*Grallodesmus diplogon*, new species (male).

Fig. 167. Antenna.

Fig. 168. Fifth and sixth tergites.

Fig. 169. Caudal segments in outline, dorsal view.

Fig. 170. Anal scale.

Fig. 171. Right gonopod, ventral view.

**Prepodesmidæ****Gitadesmus**, new genus

Consisting of head and twenty segments.

Antennæ long and slender.

Collum as wide as second tergite, narrowed laterally.

Keels horizontal or a little raised, the anterior ones not bent forward. Keels laterally smooth, excepting on anterior segments, but the porigerous callus may project laterad so as to produce the appearance of a tooth in front of caudal angle. Pore formula normal.

Metatergites simply granular as usual, the transverse sulcus evident.

Sternites without processes.

Anal segment as in related genera.

GENOTYPE.—*G. pokanus*, new species.

**Gitadesmus pokanus**, new species

Text Figures 155 to 159

Dorsum deep chocolate-brown, the keels yellow. Venter lighter brown. Legs brownish yellow, the antennæ somewhat darker, especially at distal end of joints. Head lighter over frontal and clypeal regions.

Antennæ as shown in Fig. 158.

Collum subsemicircular, the anterior and lateral margins together forming a smooth convex curve and the caudal margin arcuate (Fig. 155). Keels of second tergite transverse, not bowed forward, with a tooth on lateral margin at anterior corner. The third and fourth keels similar to second (Fig. 155). Fifth keel with anterior corner more rounded; anterior tooth nearly obliterated; the porigerous callus projecting as a tooth behind. Sixth keels without any lateral tooth, the anterior corner strongly rounded. Posterior angles more and more produced in going caudad. The last and immediately preceding tergites are shown in Fig. 156. Anal scale (Fig. 157).

Gonopods represented in Fig. 159.

Length of male about 23 mm.; width, 2.5 mm. Width of female, 3.1 mm.

TYPE.—Male, A. M. N. H. No. 5763, Poko, August, 1913.

LOCALITY.—Poko, 1 male, 1 female, August, 1913.

Characterized by form of anterior plates and gonopods.

**Gitadesmus gracilliramus**, new species

Text Figures 160 to 166

Dorsum brown, paler toward and over the keels. Venter, legs and antennæ also brown.

Antennæ, Fig. 160.

Collum, Fig. 161. The keels of the second segment but little bent forward. The anterior lateral tooth on second, third and fourth keels minute, almost obliterated. Second and third keels transverse, both corners narrowly rounded (Fig. 161). Anterior lateral tooth of fifth tergite also nearly obliterated; the callus projecting a little laterad. Back of the small anterior tooth on sixth keel a low crenation which on the eighth is caudally more dentiform (Fig. 162). On the porigerous keels in general

the anterior tooth is more distinct and the callus in dorsal view appears excised near its middle and projects in a dentiform angle behind. The transverse sulcus of dorsal plates distinct. At each end of sulcus a low mound of closely arranged granules. Posterior segments and cauda as shown in Fig. 163. Anal scale of form shown in Fig. 164.

Gonopods represented in Figs. 165 and 166.

Length of female about 41 mm.; width, 6 mm. Width of male, 4.8 mm.

TYPE.—Male, A. M. N. H. No. 5764, Stanleyville, August, 1909.

LOCALITY.—Stanleyville, several males and females, August, 1909.  
“Taken under rotten grasses and twigs on an old coffee plantation.”

#### **GRALLODESMUS, new genus**

Consisting of head and twenty segments.

Antennæ slender, not clavate, articles long.

Collum nearly as wide as second tergite, laterally rounded. Keels of following segments wide, horizontal or slightly above the horizontal. All keels laterally smooth, without teeth or processes. Non-porigerous keels not margined. The porigerous keels with margins laterally thickened, but the callus not at all projecting as it does in *Pimodesmus*. Pores present on segments five, seven, nine, ten, twelve, thirteen, and fifteen to nineteen. Dorsal plates without tubercles; transverse sulcus weak. Anal tergite narrowed caudad. Anal valves margined. Anal scale broad.

Sternites without processes.

Legs long, distally slender.

Gonopods with telopodite consisting of two principal branches of which the ventral (mesial) is typically geniculate.

GENOTYPE.—*G. diplogon*, new species.

#### **Grallodesmus diplogon, new species**

Text Figures 167 to 172

Dorsum brown, all the keels lighter, yellowish. Head and antennæ brown. Legs light brown or yellowish, clothed with soft hair.

Sulcus across vertex extending down between antennæ. Lower part of head and antennæ clothed with numerous fine hairs. Antennæ as shown in Fig. 167.

Collum with anterior margin nearly straight, anterior corners rounded. Posterior margin arcuate, bending forward about the posterior corners. Laterally rounded. Margined (Fig. 172). Second, third and fourth segments narrower than the following ones. Second keels strongly bent forward, their anterior corner acute, the posterior rounded. Third keel similar but less bent forward and the anterior angle less acute. In the fourth keel the anterior angle is still less acute and is more rounded. Fifth and sixth segments as in Fig. 168. In going caudad the anterior corner of the keels becomes more and more rounded. In posterior segments the caudal angle of keels is produced as shown in Fig. 169. Anal tergite as shown in the figure cited. Anal valves strongly margined, the elevated borders smooth; with two setigerous tubercles free from this border. Anal scale as represented in Fig. 170.

Form of gonopods (Fig. 171).

Length, about 38 mm.; width, 5.1 mm.

TYPE.—Male, A. M. N. H. No. 5598, Stanleyville, March, 1915.

**PIMODESMUS**, new genus

Composed of head and twenty segments.

Antennæ slender, not clavate or scarcely so, the articles long.

Collum nearly as wide as the following segment, strongly narrowed laterally. Keels bent a little upward, laterally weakly margined or turned up. The callus which surrounds the pore projecting laterad from margin; keels laterally dentate. Pores present on segments five, seven, nine, ten, twelve, thirteen and fifteen to nineteen. Metatergites without tubercles; with a transverse sulcus. Anal tergite strongly narrowed caudad. Anal scale broad, not triangular.

Sternites wide, without processes.

Legs long.

Telopodite of gonopod triramous.

GENOTYPE.—*P. aglaus*, new species.

**Pimodesmus aglaus**, new species

Text Figures 173 to 181

Dorsum and head deep chocolate-brown to blackish, a lighter brown below; the porigerous keels yellow, the yellow extending mesiad more or less upon dorsum; the non-porigerous keels blackish, concolorous with rest of dorsum. Legs and antennæ dark red or dark reddish brown.

Head smooth and shining throughout. Vertigial sulcus fine but distinct. Antennæ (Fig. 173).

Collum strongly narrowed laterad, acute at the ends; narrowly margined anteriorly and about the keels (Fig. 174). The second segment only a little bent forwards at the ends, the lateral margins smooth, a little incurved. Third segment similar but keels less bent forward (Fig. 174). The fourth segment straight, the anterior corner projecting more laterad. Fifth segment with a small tooth at each anterior corner in front of the porigerous callus; the latter smooth (Fig. 175). Sixth keel also with an anterior tooth on lateral margin and a wide, low submedian one caudad of it (Fig. 176). The succeeding non-porigerous keels similar to the fourth. On the fourteenth keel the caudal angle more acute, and its caudal margin may have a tooth (Fig. 177). The porigerous keels similar to the fifth but in the posterior region the caudal angles become more and more strongly produced. The nineteenth segment reduced and its keels small (Fig. 178). Anal tergite strongly narrowed caudad, truncate or a little excised at end; a large setigerous tubercle on each side in front of end (Fig. 178). Margins of anal valves raised; two setigerous tubercles of which the caudal is fused with the raised border. Anal scale (Fig. 179).

Length of male, about 38 mm.; width, 5 mm.

TYPE.—Male, also female allotype, A. M. N. H. No. 5591, Bafwabaka, January, 1910.

LOCALITY.—Bafwabaka, 1 male, 1 female, January, 1910.

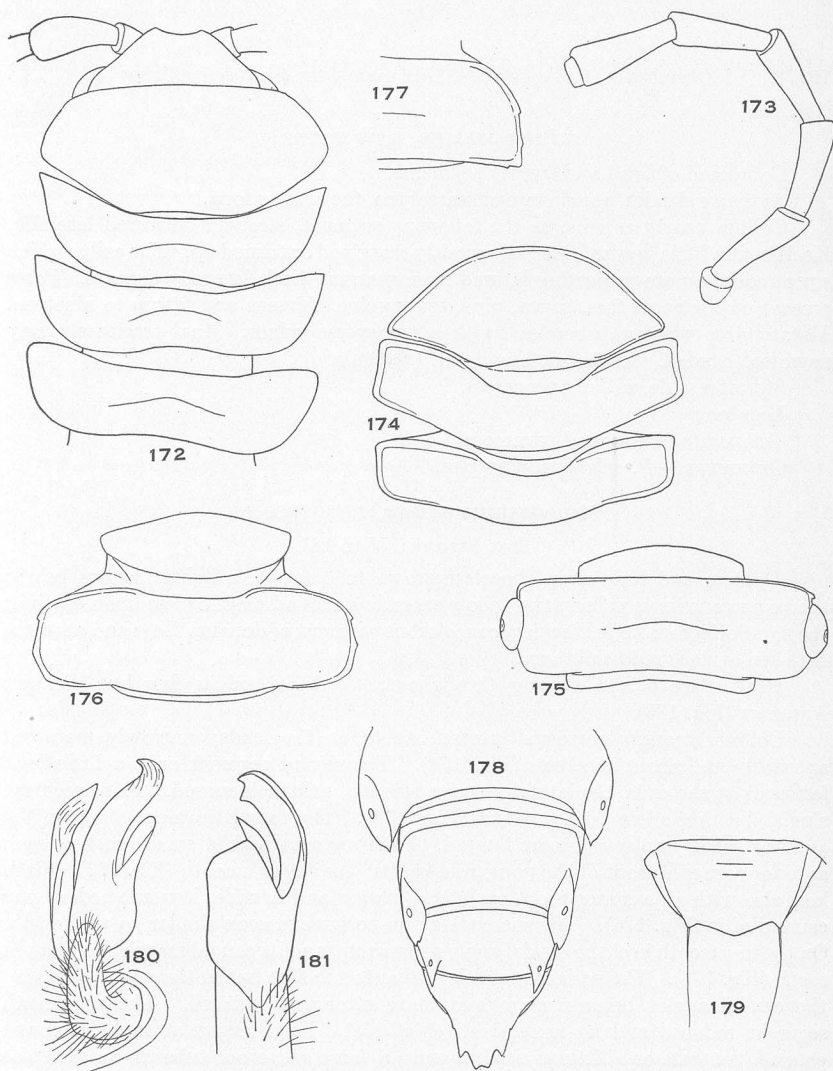
**DOIDESMUS**, new genus

Consisting of head and twenty segments.

Antennæ very long and slender.

Collum about as wide as the second segment, narrowed laterally. Keels horizontal, narrower caudad of third segment and rounded anteriorly and posteriorly, the





*Grallodesmus diplogon*, new species (male).

Fig. 172. Head and anterior tergites in outline.

*Pimodesmus aglaus*, new species (male).

Fig. 173. Antenna.

Fig. 174. First three tergites in outline.

Fig. 175. Fifth tergite.

Fig. 176. Sixth tergite.

Fig. 177. Fourteenth keel of right side.

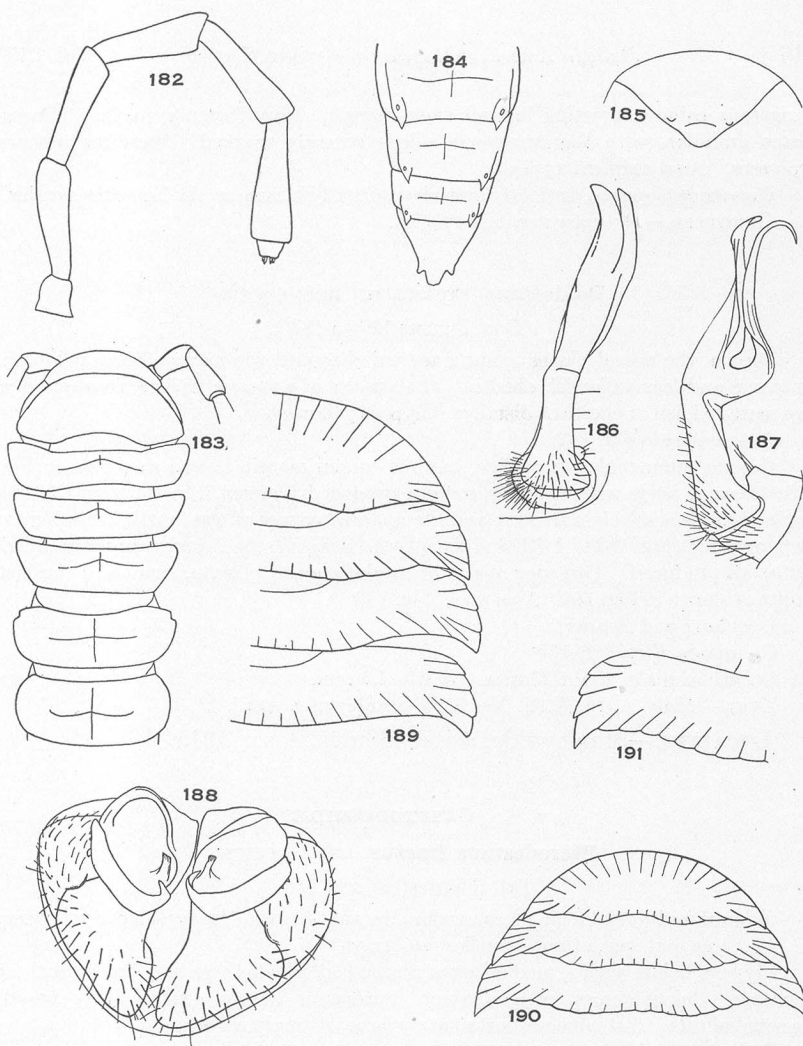
Fig. 178. Caudal segments in outline.

Fig. 179. Anal scale.

Fig. 180. Left gonopod, ventral view.

Fig. 181. Right gonopod, ectal view.





*Doidesmus explorator*, new species (male).

- Fig. 182. Antenna, in outline.  
 Fig. 183. Head and anterior segments.  
 Fig. 184. Caudal segments, dorsal view.  
 Fig. 185. Anal scale.  
 Fig. 186. Left gonopod, ventral view.  
 Fig. 187. Left gonopod, ectal view.

*Pterodesmus fractus*, new species (male).

- Fig. 188. Gonopods, ventral view.  
 Fig. 189. Anterior tergites, right half, in outline.

*Pterodesmus medjicolens*, new species (female).

- Fig. 190. First three tergites in outline.  
 Fig. 191. Tenth keel, left side.

porigerous callus projecting laterad from margin. Pore formula normal. Dorsal plates granular, with the transverse sulcus strongly marked. Sternites without processes. Anal segment typical.

Gonopods elongate, distinctly articulate, distally biramous, the branches slender.

GENOTYPE.—*D. explorator*, new species.

### ***Doidesmus explorator*, new species**

Text Figures 182 to 187

Brown, the dorsal plates tending toward chestnut, the narrow keels yellowish. Antennæ and legs yellowish chestnut, the articles of antennæ darker distally. The legs more reddish or chestnut distally. Clypeus yellowish.

Antennæ as in Fig. 182.

Collum semicircular in outline, but the caudal margin bowed as shown in Fig. 183. Second keels with anterior corners produced forward, the third and fourth similar but successively narrower and the anterior corner of the fourth in particular more rounded (Fig. 183). Fifth and sixth keels narrower, the anterior corner rounded, not at all produced. Posterior angles of caudal segments acute, small and the last tergite as shown in Fig. 184. Anal scale, Fig. 185.

Legs long and slender.

Gonopods, Figs. 186–187.

Length of male, about 25 mm.; width, 2.5 mm.

TYPE.—Male, A. M. N. H. No. 5592, Stanleyville, April, 1915.

LOCALITY.—Stanleyville, a second male, April, 1915.

### **CRYPTODESMIDÆ**

#### ***Pterodesmus fractus*, new species**

Text Figures 188 and 189

Color of mid-dorsal region a somewhat chestnut-brown, the keels more yellowish.

Antennæ and legs a light or yellowish brown.

Clypeus below with a median emargination in which there is a single tooth or crenation. Sulcus across vertex distinct. Surface of head in general finely hispid, the setæ minute. Antennæ proportionately large, strongly clavate.

Collum completely covering the head from above; narrower than the second tergite which, in turn, is narrower than the third, the lateral margins of these tergites taken together forming an even curve. Anterior margin of collum continuous with lateral and forming a segment of a circle. Anterior and lateral border wide and smooth, divided by radiating lines into eighteen lobes (Fig. 189). Second tergite with keels convex in front and concave behind, the anterior corner widely rounded, the posterior acutely produced; border of keels wide and smooth, divided laterally and posteriorly by radiating lines; margin not serrate, at most obscurely incised at ends of radiating lines. The succeeding segments are similar but the lateral margin of keels is distinctly serrate. A serration for each of the five lobes into which the lateral border is divided. The serrations become more strongly marked in going caudad (cf. Fig. 189).

Gonopods as represented in Fig. 188.

Caudal segments missing.

Width, 5 mm.

TYPE.—Male, A. M. N. H. No. 5602, Bafwabaka, January, 1910.

***Pterodesmus medjicolens*, new species**

Text Figures 190 to 193

Mid-dorsal region in general brown, the keels lighter, more yellowish brown. Legs and antennæ light brown.

Surface of head finely hispid as usual. The vertigial sulcus well-marked. Antennæ moderately clavate.

Collum of the typical general form, with the border areas as usual. On the following tergites the caudal angles of keels acutely and rather strongly produced, the produced angles somewhat darkened. Serrations of lateral margin as usual, the crenations of caudal margin pronounced. Two transverse rows of tubercles and an area of granules at each end of these granules on base of keels; the anterior row of tubercles often irregular or incompletely forming two rows (cf. Figs. 190 and 191). Caudal tergites and keels as shown in Fig. 192.

Anal scale, Fig. 193.

Length 24 mm.; width, 7.2 mm.

TYPE.—Female, A. M. N. H. No. 5765, Medje, June 11–19, 1910.

***Pterodesmus moderatus*, new species**

Text Figures 194 to 196

Brown, the keels but little lighter. Legs yellowish brown.

Antennæ moderately clavate. Surface of head as usual. Tooth in labral margin filling the latter.

Collum differing from those of the two preceding species in having twenty-one border areas instead of eighteen. Posterior corners also less produced. In the second and succeeding tergites the keels and their lobes and lateral serrations as in the preceding species, the posterior angles of keels less produced (Fig. 194). Posterior segments as shown in Fig. 195. Surface of tergite with two well-developed rows and an incomplete row of tubercles, the two developed rows extending out upon bases of keels. Anal scale, Fig. 196.

Length, 16 mm.; width, 4.5 mm.

TYPE.—Female, A. M. N. H. No. 5594, Akenge, October, 1913.

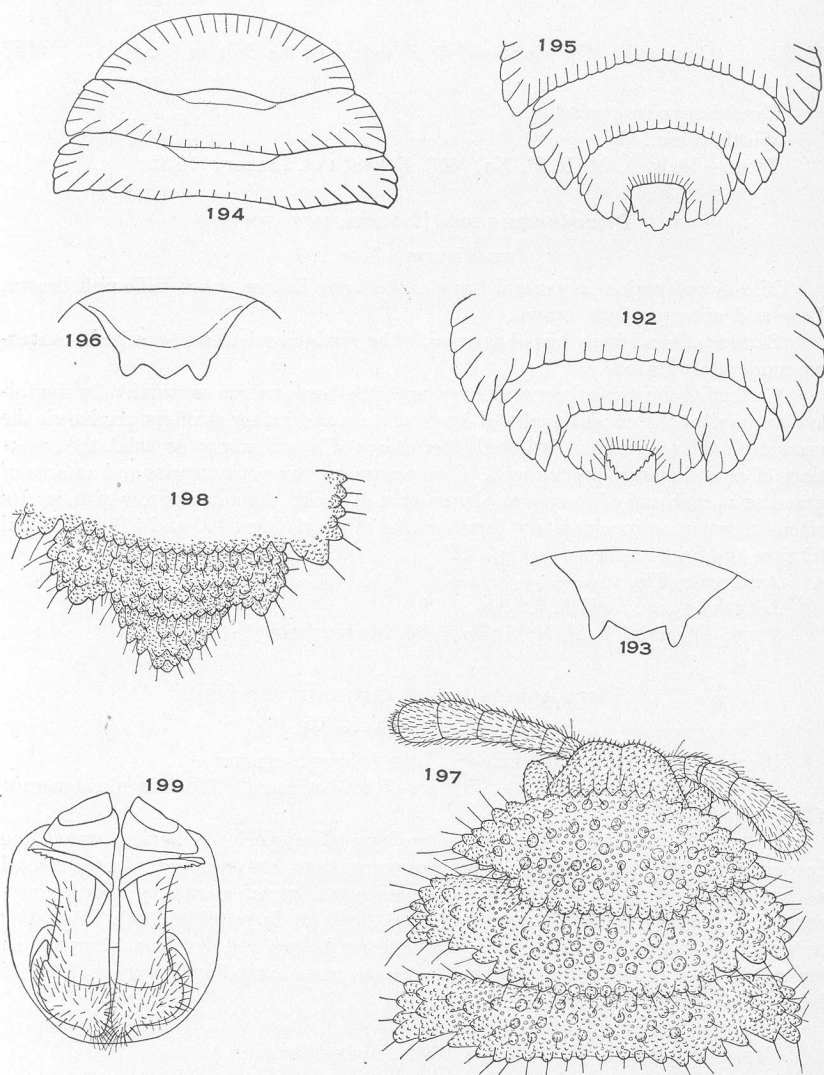
LOCALITY.—Akenge, a second female, October, 1913.

***ZIKADESMUS*, new genus**

Composed of head and twenty segments.

Antennæ clavate. Surface of head finely granular and hispid.

Collum not completely covering head from above. With numerous tubercles of which a marginal series project as marginal lobes of which, in the type species, there are twenty-two. Entire surface, including tubercles, finely granular. Succeeding tergites with four transverse series of setigerous tubercles. Keels wide, depressed, the lateral margin with conical tubercles projecting as lobes of which the genotype presents five, similar but more widely separated lobes along caudal margin, lobes on



*Pterodesmus medjicolens*, new species (female).

Fig. 192. Caudal tergites, dorsal view, in outline.

Fig. 193. Anal scale.

*Pterodesmus moderatus*, new species (female).

Fig. 194. First three tergites in outline.

Fig. 195. Caudal tergites.

Fig. 196. Anal scale.

*Zikadesmus cavernicolens*, new species (male).

Fig. 197. Head and anterior segments, dorsal view.

Fig. 198. Caudal end, dorsal view.

Fig. 199. Gonopods, ventral view.

anterior margin more weakly developed. Surface densely granular as on collum. Caudal tergite projecting much beyond caudal angles of keels of nineteenth segment. Surface covered with tubercles and also granular.

Repugnatorial pores not detected in genotype.

Gonopods as illustrated under type species.

GENOTYPE.—*Z. cavernicolens*, new species.

***Zikadesmus cavernicolens*, new species**

Text Figures 197 to 199

Color light horn-brown, legs and antennæ scarcely paler.

Antennæ as shown in Fig. 197.

Collum obviously narrower than the second tergite; laterally acutely narrowed, the keels being triangular in outline (Fig. 197). Second and immediately succeeding tergites as shown in Fig. 197. The posterior angles of keels only slightly produced even on caudal segments (Fig. 198). Surface of anal valves finely granular as over tergites.

Gonopods as represented in Fig. 199.

TYPE.—Male, A. M. N. H. No. 5595, Thysville, June 2, 1915, "taken on the shelves of a cave."