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The collection of scolopendromorph Centipedes (Chilopoda) in the Natural History Museum in Vienna: a critical re-evaluation of former taxonomic identifications

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Abstract

The collection of scolopendromorph centipedes in the Natural History Museum in Vienna is one of the most important in the world, having been studied by Carl Graf Attems (1868-1952) for his renowned publications on Scolopendromorpha. The present contribution provides necessary reidentifications as well as synonymies and adds important morphological details. Species of the genera *Arthrorhabdus*, *Asanada*, *Cormocephalus*, *Ethmostigmus*, *Newportia*, *Rhoda* and *Tidops* were examined.

Keywords: Scolopendromorpha, Attems' collection, new status, *Arthrorhabdus*, *Asanada*, *Cormocephalus*, *Ethmostigmus*, *Newportia*, *Rhoda*, *Tidops*.

Zusammenfassung

Die Scolopendromorpha Sammlung (Chilopoda) im Naturhistorischen Museum in Wien ist eine der wichtigsten weltweit, wurde sie doch von Carl Graf Attems (1868 - 1952) für seine bedeutenden Arbeiten über Scolopendromorpha herangezogen. In dieser Arbeit finden sich neben einigen notwendigen Synonymisierungen auch Neubestimmungen. Gleichzeitig werden zahlreiche bisher noch nicht bekannte morphologische Details zu den einzelnen Arten angegeben. Arten folgender Genera wurden untersucht: *Arthrorhabdus*, *Asanada*, *Cormocephalus*, *Ethmostigmus*, *Newportia*, *Rhoda*, *Tidops*.

Introduction

The myriapod collection in the National History Museum in Vienna is one of the largest and most important in the world. The collection includes Chilopoda, Pauropoda, Symphyla and Diplopoda. Carl Count Attems (1868 - 1952), without doubt one of the greatest specialists in myriapods, was active there for over fifty years, between 1894 and 1952. Due to his scientific work the collection gained high significance. Attems examined collections from all over the world for his systematic and taxonomic studies, including samples collected by famous scientists, expeditions and travellers. He examined series from the National History Museum in Vienna as well as series he received from other museums world-wide (STAGL 2001). ATTEMS (1930a) published a monograph of Scolopendromorpha in the "Tierreich"; it remains a fundamental work for specialists even today.

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The main purpose of the present work is to start both, the careful re-examination of the scolopendromorph collection and the creation of a complete inventory. A critical sighting of the material is conducted, some corrections are provided and new morphological details are added for poorly described species. The re-study of the whole scolopendromorph collection will be the aim over the next few years.

In this contribution the following genera are treated based largely on material in the Vienna Museum: *Arthrorhabdus* (1 species), *Asanada* (2 species), *Cormocephalus* (21 species), *Ethmostigmus* (3 species), *Newportia* (5 species), *Rhoda* (1 species), *Tidops* (1 species).

Material and methods

About 200 lots were examined and data were entered into an electronic database. The scolopendromorph collection contains about 2000 lots. Specimens are stored in glass tubes and preserved in 75% ethanol.

The main part of the collection dates back to the nineteenth and early twentieth century. Data on the specimens were obtained from books of acquisitions, inventories, Attems' register cards, publications but mainly from the labels. In many cases it was very difficult to retrieve and verify information from the labels in the jars; often it was impossible to recognise the localities. Question marks indicate uncertain or unknown localities. Under the heading "Material" the localities are written in the same way as on the labels.

Details about the single lots were added under the species names. Acquisition numbers - when known -follow the inventory numbers and are in square brackets. The following abbreviations are used: "leg" for collected (Latin legit), "don" for donated (Latin donavit), "det." for determined (Latin determinavit), "Ex" (exemplars) for the number of individuals, "ad" for adult, "sad" for semiadult, "juv" for juvenile. We were often able to add the date on which the specimens were collected.

The types studied detailed under the heading "Type material", are marked "syntypes", "lectotypes" etc. For all genera, the species are given in alphabetic order, except that the type species, when it is housed in the collection is listed first. An exception is *Cormocephalus*, in which some groups of morphologically closely related species are clearly recognisable.

Fam. Scolopendridae Leach, 1815

Subfam. Scolopendrinae Leach, 1815

Trib. Scolopendrini Leach, 1815

Genus *Arthrorhabdus* Pocock, 1891

Arthrorhabdus Pocock 1891: 221.

Type species: *Arthrorhabdus formosus* Pocock, 1891 (by monotypy).

Arthrorhabdus formosus POCOCK, 1891

Arthrorhabdus formosus POCOCK 1891: 222.
Arthrorhabdus interveniens: PORAT 1893: 46.
Arthrorhabdus formosus: KRAEPELIN 1903: 221; GROBBELAAR 1921: 259; ATTEMS 1928b: 91; 1930a: 59; LAWRENCE 1955b: 11, 40; 1959: 366; 1975: 40.

Material: S-Afrika, Kl. Namaland, Steinkopf, leg. Prof. Schultze 1904, 7 ad., 6 juv., NHMW 2015. – S-Afrika, Matroosberg, leg. R.W.T. Nov. 1907, don. Mus. Kapstadt 1928, 1 Ex., NHMW 2017 – S-Afrika, Kap Halbinal don. Mus. S-Afrika, 6 Ex., NHMW 2018. – S-Afrika, don. Mus. Kapstadt 1928, pl., NHMW 2019. – S-Afrika, Kl. Namaland, Kamaggas, leg. don L. Schultze 1904,. 12 Ex., 8 juv., NHMW 2020. – S-Afrika, Kowie, Port Alfred, leg. & don. Penther 1898, 1 Ex., NHMW 992. – S-Afrika, Mooselbay, leg. & don. Penther, 2 Ex., NHMW 991. – S-Afrika, Robinson's Pass, leg. & don. Penther, 25. Aug. 1896, 2 Ex., NHMW 990. – S-Afrika, Port Elisabeth, leg. Porath, don. Latzel 1919, 2 Ex., NHMW 993. – S-Afrika, Port Elisabeth, leg. & don. Brauns, 19. Nov. 1897, 2 Ex. [+1 headplate], NHMW 994.

Description: Previous descriptions are generally correct but incomplete, so that it was necessary to add further details.

Maxillae II: claw-shaped praetarsus with two spurs; telopodite with well-developed distal spur on the second telomere; sincoxite very slender, without medial suture.

Forcipules: tooth margin somewhat wider than tooth plate itself; teeth are leaf-shaped, somewhat radiating outward from their base.

Terga: only tergum XXI clearly marginate laterally, according to ATTEMS (1930a) lateral margination begins from terga XVII - XIX).

Sterna: sternum XXI with clear median longitudinal depression (not with sulcus).

Coxopleura: posterior process developed in various degrees; both shape of porose area and number of pores vary considerably; in some specimens medial part of porose area is covered by sternum XXI.

Locomotory legs of first pair with two tarsal and one praefemoral spur; penultimate pair without tarsal spurs.

Terminal legs: short and wide (ratio of praefemoral length: width is about 2:1). Long praetarsus with ventral ridge of numerous, very small "teeth" of different size and shape. Praefemur with various number of spines.

Variability: The amounts of both individual and geographic variability in *Arthrorhabdus formosus* are considerably wider than in most other Scolopendrinae.

The following characters vary markedly: 1) length of forcipular tooth plates; 2) length and shape of coxopleural posterior process; 3) number of coxopleural pores and size of porose area; 4) spinulation of terminal praefemur; 5) length of terminal praetarsus; usually it ranges from as long as to twice as long as tarsus II; the only specimen (NHMW 993) with praetarsus much shorter than tarsus II has abnormal terminal legs; 6) all the proportions of terminal legs; for instance both specimens (NHMW 994) have terminal legs remarkably shorter and larger than usual, with strongly reduced praefemoral spinulation.

Remarks: LAWRENCE (1975) wrote: "... though fairly common in Namaqualand south of the Orange river, has only been recorded from southern portions of SW Africa and then only once at Helmeringhausen".

Range: S Africa: widespread in Western Cape Province; Eastern Cape Province, Port Elizabeth (Locus typicus); Transvaal; Free State Province; Bangladesh (Dinajpur).

Genus *Cormocephalus* NEWPORT, 1844

Cormocephalus NEWPORT 1844: 275.
Cupipes KOHLRAUSCH 1881: 78.
Colobopleurus KRAEPELIN 1903: 169; GROBBELAAR 1921: 259; LAWRENCE 1955b: 37, 41; KOCH 1983a: 801.
Hemicormocephalus KRAEPELIN 1903: 211.
Cormocephalus (*Colobopleurus*) ATTEMS 1930a: 106.

Type species: *Scolopendra rubriceps* NEWPORT, 1843 (by subsequent designation of ATTEMS 1930a: 61).

Remarks: According to KRAEPELIN (1903), the only difference between *Cormocephalus* and *Colobopleurus* is the absence of apical and subapical coxopleural spines in *Colobopleurus,* but there are species within *Cormocephalus* which have no coxopleural spines.

In ATTEMS (1930a), the taxonomic status of *Colobopleurus* is reduced to a subgenus of *Cormocephalus*. The taxa are separated by the degree of contact between the headplate's posterior margin and tergum I. *Colobopleurus*: "Kopf nicht oder undeutlich vom 1. Tergit überlagert". *Cormocephalus* s. str. "Kopf deutlich vom 1. Tergit überlagert".

The difference between "deutlich" and "undeutlich" is very unclear. Moreover, both specimens of *Colobopleurus* (see below) have the headplate posterior margin clearly covered by the anterior margin of tergum I. On the other hand, in some typical representatives of *Cormocephalus* such as *Cormocephalus nitidus* PORAT, 1871 there is no contact between headplate and anterior margin of tergum I. Thus, as there are no real differences between *Cormocephalus* and *Colobopleurus* KRAEPELIN 1903, we regard the latter as a synonym of *Cormocephalus* NEWPORT, 1845. Our point of view is supported by the results of a numerical analyses made by KOCH & COLLESS (1986); the authors proposed *Colobopleurus* to be a synonym of *Cormocephalus*.

We also regard *Cupipes* KOHLRAUSCH, 1881 as another synonym of *Cormocephalus* following KOCH (1983a), who wrote in his monograph on the Australian *Cormocephalus* species: "I consider all the species of *Cupipes* KOHLRAUSCH 1881 as being synonyms of species of *Cormocephalus* or *Arthrorhabdus* ...". It should be noted, however, that KOCH & COLLESS (1986) suggested to re-elevate the generic status of *Cupipes*, but they included in their numerical analyses only one "*Cupipes*"-species - *Cupipes inermis* KRAEPELIN 1916.

Genus *Cormocephalus* includes about 70 species being the largest genus within the Scolopendrinae. In this paper a new subdivision of this large and variable taxon is provided. We divide *Cormocephalus* in 4 supergroups and in 9 species groups to facilitate the discussion of its taxonomy with a view to producing a new key (see also Discussion below).

Supergroup I:

Tergum I mainly without longitudinal sulci (very rarely with incomplete paramedian

sulci); paramedian sulci fully developed beginning from tergum II(III); terminal praefemur with ventro-lateral spines; coxopleuron mainly with well-developed posterior process:

1. *rubriceps* species group: Terminal praetarsus not longer than terminal tarsus II; terminal praefemur with a single row of spines ventro-laterally.

Cormocephalus rubriceps (NEWPORT, 1843), *Cormocephalus brachycerus* KOCH, 1983, *Cormocephalus turneri* POCOCK, 1901, *Cormocephalus bungalbinensis* KOCH, 1983, *Cormocephalus aurantiipes* (NEWPORT, 1844), *Cormocephalus violaceus* (NEWPORT, 1845), *Cormocepalus incongruens* KRAEPELIN, 1903, *Cormocephalus tumidus* LAWRENCE, 1960.

2. *nitidus* species group: Terminal praetarsus not longer than terminal tarsus II; terminal praefemur with 2 rows of spines ventro-laterally; tergum XXI without median longitudinal sulcus; wide coxopleural porose area considerably longer than sternum XXI.

Cormocephalus nitidus nitidus PORAT, 1871, *Cormocephalus nitidus calcaratus* PORAT, 1871 stat. n., *Cormocephalus aeruginosus* ATTEMS, 1928 *Cormocephalus milloti* LAWRENCE, 1960.

3. *westwoodi* species group: Terminal praefemur with 2(3) rows of spines ventro-laterally; tergum XXI with median longitudinal sulcus; wide coxopleural porose area considerably longer than sternum XXI.

Cormocephalus westwoodi westwoodi (NEWPORT, 1844), *Cormocephalus westwoodi anceps* PORAT, 1871 stat.n., *Cormocephalus westwoodi ribauti* ATTEMS, 1928 stat.n., *Cormocephalus westwoodi lambertoni* BRÖLEMANN, 1922 stat.n., *Cormocephalus westwoodi nubigenus* LAWRENCE, 1955, *Cormocephalus monteithi* KOCH, 1983, *Cormocephalus mecutinus* ATTEMS, 1928, *Cormocephalus humilis* ATTEMS, 1928, *Cormocephalus ferox* SAUSSURE & ZEHNTNER, 1902, *Cormocephalus multispinus* KRAEPELIN, 1903; *Cormocephalus brincki* LAWRENCE, 1955, *Cormocephalus novaehollandiae* (KRAEPELIN, 1908), *Cormocephalus spinosior* KOCH, 1983, *Cormocephalus inermipes* POCOCK, 1891, *Cormocephalus mecistopus* BRÖLEMANN, 1922.

4. *setiger* species group: Terminal praefemur with 2 rows of spines ventro-laterally; tergum XXI with median longitudinal sulcus; narrow coxopleural porose area as long or slightly longer than sternum XXI.

Cormocephalus setiger PORAT, 1871, *Cormocephalus strigosus* KRAEPELIN, 1908, *Cormocephalus multispinosus* KRAEPELIN, 1903, *Cormocephalus insulanus* ATTEMS, 1922, *Cormocephalus deventeri* LAWRENCE, 1970, *Cormocephalus oligoporus* KRAEPELIN, 1903, *Cormocephalus rhodesianus* LAWRENCE, 1955.

Supergroup II:

Tergum I mainly without any sulci (sometimes with incomplete paramedian sulci); paramedian sulci complete from tergum IV - VII (VIII); terminal praefemur with ventro-lateral spines; coxopleuron with well-developed posterior process:

5. *esulcatus* species group: Terminal praetarsus not longer than terminal tarsus II; coxopleural posterior process with 1 - 3 spines.

Cormocephalus esulcatus esulcatus POCOCK, 1901, *Cormocephalus esulcatus schultzei*

ATTEMS, 1909, *Cormocephalus pontifex* ATTEMS, 1928, *Cormocephalus similis* KOCH, 1983, *Cormocephalus punctatus* PORAT, 1871, *Cormocephalus pseudopunctatus* KRAEPELIN, 1903, *Cormocephalus hartmeyeri* KRAEPELIN, 1908.

Supergroup III:

Tergum I mainly with complete (rarely somewhat shortened) paramedian sulci; paramedian sulci complete from tergum II; terminal praefemur mainly with ventro-lateral spines; coxopleuron mainly with well-developed posterior process:

6. *dentipes* species group: Terminal praetarsus shorter than terminal tarsus II.

Cormocephalus dentipes POCOCK, 1891, *Cormocephalus albidus* KRAEPELIN, 1903, *Cormocephalus flavescens* KRAEPELIN, 1903, *Cormocephalus philippinensis* KRAEPELIN, 1903, *Cormocephalus pygmaeus* POCOCK, 1892, *Cormocephalus longipes* RIBAUT, 1923, *Cormocephalus cognatus* RIBAUT, 1923, *Cormocephalus michaelseni* KRAEPELIN, 1908, *Cormocephalus laevipes* POCOCK, 1891, *Cormocephalus granulosus* RIBAUT, 1923.

7. *gervaisianus* species group: Terminal praetarsus longer than terminal tarsus II.

Cormocephalus gervaisianus KOCH, 1841, *Cormocephalus andinus* KRAEPELIN, 1903, *Cormocephalus bonaerius* ATTEMS, 1928, *Cormocephalus mediosulcatus* ATTEMS, 1928, *Cormocephalus brasiliensis* HUMBERT & SAUSSURE, 1870, *Cormocephalus inermis* KRAEPELIN, 1916, *Cormocephalus lissadellensis* KOCH, 1983, *Cormocephalus ungulatus* MEINERT, 1886, *Cormocephalus amphieurys* KOHLRAUSCH, 1878, *Cormocephalus lineatus* NEWPORT, 1845, *Cormocephalus impressus* PORAT, 1876, *Cormocephalus impulsus* LEWIS, 1989, *Cormocephalus amazonae* CHAMBERLIN, 1914, *Cormocephalus pustulatus* KRAEPELIN, 1903.

8. *rugosus* species group: Tergum XXI with median longitudinal sulcus; terminal praefemur with a single row of ventro-lateral spines; terminal praetarsus as long as terminal tarsi together.

Cormocephalus rugosus (RIBAUT, 1923), *Cormocephalus mixtus* RIBAUT, 1923, *Cormocephalus neocaledonicus* (KRAEPELIN, 1903).

Supergroup IV:

Tergum I without sulci; paramedian sulci complete from tergum (II)IV - VIII; terminal praefemur without ventro-lateral spines; coxopleuron without well-developed posterior process:

9. *Colobopleurus* species group:

Cormocephalus devylderi PORAT, 1893, *Cormocephalus fontinalis* ATTEMS, 1928, *Cormocephalus parcespinatus* PORAT, 1893.

Taxonomical position too unclear to put in any group:

Cormocepalus buttneri KRAEPELIN 1903, *Cormocephalus inopinatus* (KRAEPELIN, 1908), *Cormocephalus makrosestrus* (ATTEMS, 1928), *Cormocephalus tricuspis* KRAEPELIN, 1916, *Cormocephalus bevianus* LAWRENCE, 1970, *Cormocephalus westangelasensis* KOCH, 1983, *Cormocephalus venezuelianus* (BRÖLEMANN, 1898), *Cormocephalus hirtipes* (RIBAUT, 1923).

Cormocephalus rubriceps (NEWPORT, 1843)

Scolopendra rubriceps NEWPORT 1843: 270.
Scolopendra rubriceps: NEWPORT 1844: 99.
Cormocephalus rubriceps: NEWPORT 1845: 419; KOHLRAUSCH 1881: 91; HAASE 1887: 57; POCOCK 1893: 128; KRAEPELIN 1903: 198; KOCH 1983: 820.
Scolopendra lobidens NEWPORT 1844: 99; 1845: 420.
Cormocephalus lobidens: KOHLRAUSCH 1881: 92.
Cormocephalus (*C.*) *rubriceps*: ATTEMS 1930a: 71.
Cormocephalus (*C.*) *rubriceps rubriceps*: ATTEMS 1930a: 72.

Material: E of N-Neuseeland, Guano Insel, leg. & don. Reischek, 12 ad., 19 sad., 15 juv., NHMW 907, [1891.V.]. – Neuseeland, leg. & don Reischek, 1911, 3 ad., 5 sad., NHMW 908. – Australien, "Neuholland", leg. & don. F.v.Hochstetter, 1868, 2 ad., 3 sad., NHMW 909. – Neuseeland, Auckland, leg. Frauenfeld, Expedition Novara, 2 ad., NHMW 910, [1866.I.15 u.20]. – Neuseeland, Auckland, leg. Dr. M. Brillant, 08. Apr. 1891, Expedition Saida, 1 ad., NHMW 911, [1892.I.32]. – Tahiti, Expedition Novara, 1 sad., 3 juv., NHMW 912, [1866.I.?].

Description: Additional details are given here as previous descriptions were incomplete.

Body length (without terminal legs) up to 130 mm (one of the largest species of the genus).

Antennae: Five basal antennomeres are glabrous.

Terga: lateral margination beginning from tergum VI - VIII; tergum XXI without median longitudinal sulcus.

Sterna: sternum XXI with posterior margin slightly bisinuate.

Terminal legs: long and slender, praefemoral dorso-distal process well-developed with two large apical spines. Tarsus II twice as long as praetarsus.

Variability: In one juvenile - just after moulting - (NHMW 912) the 5th basal antennomere is glabrous dorsally only. Two adults (NHMW 910) have a pattern of transverse sulci on the forcipular coxosternum (like in *Cormocephalus nitidus*). Sometimes terminal leg praefemur is abnormally spined by more numerous and smaller spines, which are randomly arranged (not in rows). Often such an abnormality correlates with having more than two apical spines on the praefemoral dorso-distal process, which are visibly smaller than normally. Among the 46 specimens (NHMW 907), there is a visible variability of spinulation of terminal praefemur (especially of dorso-medial spines) and of sizes of dorso-distal praefemoral process. Specimens (NHMW 908) have more slender and longer terminal legs than normal, with praefemoral dorso-distal process unusually short.

Remarks: In his monograph on Australian *Cormocephalus*-species KOCH (1983a) noted another related Australian species as *Cormocephalus turneri* POCOCK, 1901 (or *Cormocephalus* (*C.*) *rubriceps turneri* sensu ATTEMS, 1930a). *Cormocephalus rubriceps* "Differs ... principally in the anal-leg coxopleural process being very[?] long rather than short to long". As this character is a "quantitative" one and can vary somewhat in *Cormocephalus*-species, we like to note that *turneri* (and its very close relative *bungalbinensis* KOCH, 1983) differs additionally by the presence of very characteristic sulci at the forcipular coxosternum which also has "a pair of [longitudinal] lines or ridges, towards the posterior edge of the base-plates [tooth plates]".

Cormocephalus aurantiipes (NEWPORT, 1844) should be another relative of *rubriceps* according to ATTEMS (1930a). They differ mainly in the number of glabrous basal antennomeres - five in *rubriceps* - six in *aurantiipes* and the absence of median sulcus at tergum XXI in *rubriceps*. Actually the latter is also distingushable from *aurantiipes* by: (a) considerably larger maximal body length; (b) shape of forcipular tooth plates; (c) tergal lateral margination; (d) sternum XXI slightly bisinuated caudally; (e) more narrow coxopleural process; (f) more slender and longer terminal legs; (g) shorter terminal praetarsus.

Some of these characters (b), (f), (g) can change with age. From this perspective the most interesting fact is that in *rubriceps* terminal legs become comparatively longer with age (unlike in most *Cormocephalus* - species).

Range: SW, S, SE and E Australia (mainly coastal areas); New Zealand (Terra typica), common in central and southern areas of N Island; Loyalty Islands; Tahiti.

Cormocephalus aurantiipes (NEWPORT, 1844)

Scolopendra aurantiipes NEWPORT 1844: 99.
Scolopendra subminiata NEWPORT 1844: 100.
Cormocephalus aurantiipes: NEWPORT 1845: 421; KOHLRAUSCH 1881: 87; HAASE 1887: 57; POCOCK 1901: 455; KRAEPELIN 1903: 197; KOCH 1983a: 803.
Cormocephalus obscurus NEWPORT 1845: 421.
Cormocephalus subminiatus: NEWPORT 1845: 423; HAASE 1887: 60.
Cormocephalus miniatus NEWPORT 1845: 423.
Cormocephalus aurantiipes var. *obscurus*: HAASE 1887: 58.
Cormocephalus aurantiipes spinosus: HAASE 1887: 58.
Cormocephalus brevispinatus sulcatus BRÖLEMANN 1912: 49.
Cormocephalus (*C.*) *aurantiipes*: ATTEMS 1930a: 73.
Cormocephalus (*C.*) *violaceus sulcatus*: ATTEMS 1930a: 74.

Material: S-Australien, leg. & don. Wiesbauer, det. Attems as *Cormocephalus rubriceps*, 10 juv., NHMW 913. – Australien-S, don. Kalksburger Kloster, det. Attems as *Cormocephalus violaceus sulcatus* BRÖLEMANN, 1912, 4 ad., 10 sad., NHMW 926 – Australien, don. Zool. Inst. Univ. Wien, det. Attems as *Cormocephalus violaceus sulcatus* BRÖLEMANN, 1912, 1 ad., NHMW 928, [1929.XXI]. – Australien, Victorialand, don. Ferdinand von Mueller, 2 ad., NHMW 938, [1895.I.31]. – Australien, Sidney, leg. Frauenfeld, Expedition Novara, 3 ad., 2 sad., 1 juv., NHMW 940, [1866.I.16]. —Australien, don. Latzel, 1 ad., NHMW 941, [1919.]. – Australien, Adelaide, don. Kalksburger Kloster, 11 ad., 3 sad., NHMW 3193.

Description: A redescription is necessary.

Antennae: Usually 17 antennomeres. The six basal antennomeres are glabrous, both dorsally and ventrally.

Headplate: Paramedian sulci reach nearly to its middle, diverging anteriorly and sometimes slightly bifurcating caudally; the main part of basal plates covered by tergum I.

Forcipules: Coxosternum with one median and a few transverse sulci which form a pattern; each tooth plate with four distinct teeth of which the lateral one is isolated. Praefemoral median tooth well developed, with 3 - 4 lateral tubercles.

Terga: Unclear lateral margination from terga VIII - IX, clear from terga X - XI; tergum XXI with nearly complete longitudinal median sulcus, posteriorly rounded.

Sterna: sternum XXI clearly trapeziform, its posterior margin straight or slightly rounded.

Coxopleura: Conical posterior process well-developedand poreless, bearing twoapical spines; no spines at coxopleural posterior margin.

Terminal legs: Praefemur with three ventro-lateral, two (three) ventro-medial, one median and two dorso-medial spines (all of normal size); dorso-distal praefemoral process well developed, normally with two apical spines. Praefemoral length : width = 2.5 : 1. Praetarsus somewhat shorter or of the same length as tarsus II, usually with two spurs.

Variability: Two adults and two subadults (NHMW 940), being typical *Cormocephalus aurantiipes*, have no (only very short) median sulcus on tergum XXI. Also teeth of tooth plates and lateral tubercles of median tooth of forcipular praefemur in both adults are somewhat fused (perhaps this condition is merely age-related). All 10 juveniles (NHMW 913) have longer and more slender terminal legs with rather short praetarsus (this terminal leg structure seems to be due to the age of these specimens).

Remarks: According to ATTEMS (1930a) the closest species to *Cormocephalus aurantiipes* is *Cormocephalus violaceus* NEWPORT, 1845, from which former should differ mainly by: (a) more numerous (13 - 18 and not 3 - 10) laterally marginated posterior terga, (b) presence of median sulcus on tergum XXI. We have found no real difference in tergal margination between these two species, yet they are clearly distinguishable by the second character and other details (see below).

Cormocephalus brevispinatus sulcatus has been described by BRÖLEMANN (1912) from Australia (New South Wales, Darling River) and it is as a new combination given, *Cormocephalus* (*C.*) *violaceus sulcatus* BRÖLEMANN, 1912 in ATTEMS (1930a). KOCH (1983a), without designation of a new synonymy, included the latter name in the synonymy of *Cormocephalus aurantiipes*, but as he gave no reason for that act we note the following: *Cormocephalus violaceus sulcatus* should differ from *violaceus violaceus* by the presence of a median sulcus at tergum XXI. Such a character, however, is diagnostic for *Cormocephalus aurantiipes* and as no other differences exist between these forms, *Cormocephalus violaceus sulcatus* BRÖLEMANN, 1912 is clearly a junior synonym of *Cormocephalus aurantiipes* (NEWPORT, 1844).

According to the diagnosis, the Australian *Cormocephalus brachycerus* KOCH, 1983 should differ from *aurantiipes* by less of glabrous basal antennomeres (4 - 5 vs. 6 - 9) and longer praefemur of terminal legs. We note the complete absence of a median sulcus at tergum XXI in *brachycerus* as a more important difference.

In the same work, KOCH (1983a) pointed out, that the only Northern locality of *aurantiipes* (which is locus typicus) was taken from literature.

Range: W (mid-part), SW, S and E Australia (mainly coastal and near-coastal areas) and many offshore islands: Northern Territory, Port Essington (Locus typicus).

Cormocephalus violaceus NEWPORT, 1845

Cormocephalus violaceus NEWPORT 1845: 424.
Scolopendra violacescens GERVAIS 1847: 275.
Cormocephalus violacescens: POCOCK 1898: 60.
Cormocephalus brevispinatus C.L.KOCH 1867: 248.
Cormocephalus purpureus POCOCK 1893: 127.

Cormocephalus brevispinatus: KRAEPELIN 1903: 199.
Cormocephalus (C.) violaceus violaceus: ATTEMS 1930a: 74.

Material: Australien, don. Zool. Inst. Univ. Wien, 1 ad., NHMW 927. – Australien, Queensland, leg. Amalie Dietrich?, don. Museum Godeffroy, det. Kohlrausch as *Cormocephalus aurantiipes* (NEWPORT, 1844), 2 ad., 1 sad., NHMW 932, [1882.I.14451].

Description: Antennae: 17 antennomeres, 7 - 9 basal ones glabrous.

Headplate: Sulcated as in *Cormocephalus aurantiipes*.

Forcipules: Coxosternum with median and a few transverse sulci. Tooth plates with fourteeth of which the lateral one is clearly isolated and the others are fused to various degrees. Praefemoral median tooth small, without clear lateral tubercles.

Terga: Tergum XXI without median sulcus, somewhat pointed caudally.

Sterna: Sternum XXI clearly trapeziform, its posterior margin slightly bisinuate.

Coxopleura: The entire surface is densely perforated with numerous small pores. Posterior process poorly developed (from short conical in smaller specimens to almost undeveloped in larger ones) with two apical spines; a single small lateral spine at posterior coxopleural margin. When present, posterior process is poreless.

Terminal legs: Prefemur ventrally with 2 - 3 lateral and 2 - 4 median spines of normal sizes, medially with 1 - 2 and dorso-medially with two small spines; dorsal spines visibly smaller compared with those in *aurantiipes*. Two small spines apically on poorly developed dorso-distal process or (when it absent) at its position. Praetarsus as long as tarsus II or somewhat shorter, praetarsal spurs rudimentary or absent.

Remarks. KOCH (1983a) included *Cormocephalus violaceus* (part.) under the name *Cormocephalus westwoodi,* giving no reasons for that action. But *violaceus* cannot be the same species as *westwoodi*, because they clearly differ in a diagnostic character; the type of terminal praefemur spinulation. Moreover, these two species definitely belong to different species-groups (see above).

Range: E Australia: Queensland; New S Wales.

Cormocephalus incongruens KRAEPELIN, 1903

Cormocephalus incongruens KRAEPELIN 1903: 200.
Cormocephalus incongruens: LAWRENCE 1960: 63, 66.
Cormocephalus (C.) incongruens: ATTEMS 1930a: 73.

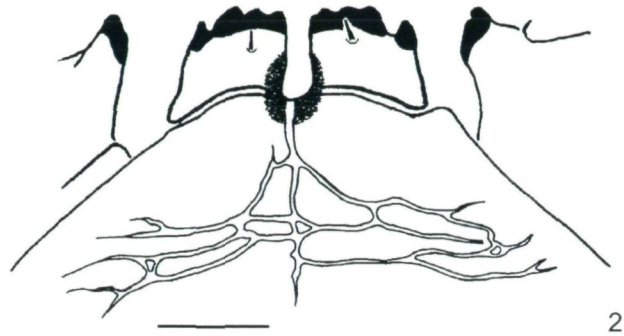
Material: Madagaskar, Ambanja, leg. P. Remy 1947, don. Remy, 1 ad., (3269).

Remarks: ATTEMS labelled NHMW 3269 as "*Cormocephalus incongruens carens*", which remains an unpublished manuscript-name.

ATTEMS (1930a) noted the absence of praetarsal spurs on the terminal legs in *Cormocephalus incongruens*, although the left terminal praetarsus of the specimen examined bears a single spur.

This species differs from *Cormocephalus aurantiipes* by: (a) 7 - 8 (versus 6) glabrous

1



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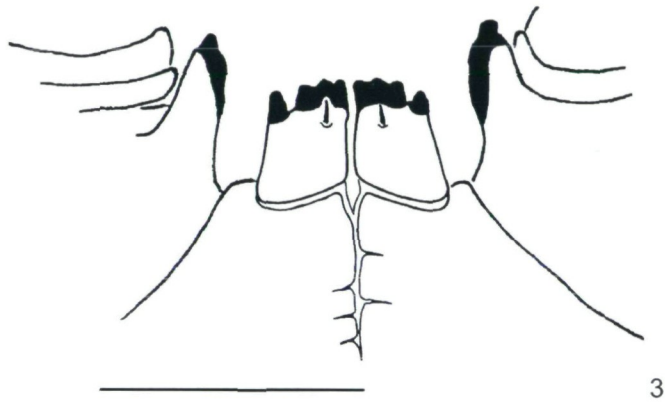

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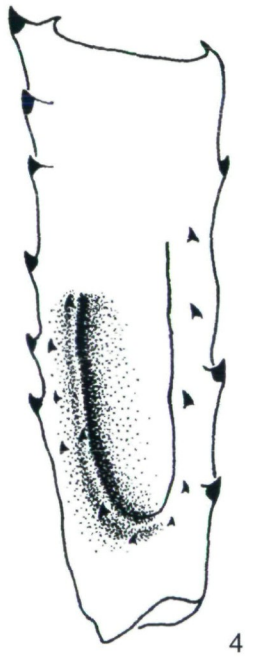

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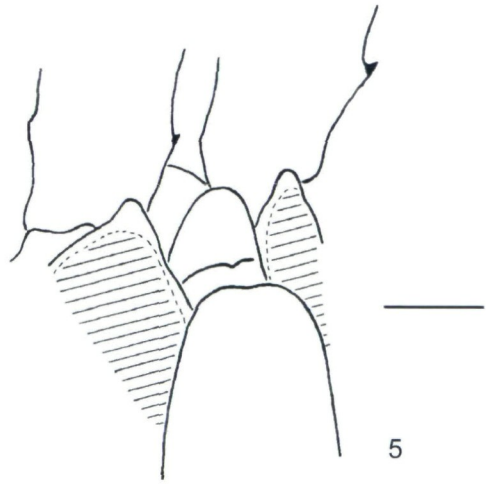

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Figs. 1 - 5: *Cormocephalus nitidus nitidus* PORAT, 1871: (1) anterior end of body in dorsal view (schematic), (2) forcipular coxosternum of NHMW 916 in ventral view. – *Cormocephalus nitidus calcaratus* PORAT, 1871 stat.n.: (3) forcipular coxosternum of NHMW 946 in ventral view, (4) terminal praefemur of NHMW 3258 in ventral view. – *Cormocephalus aeruginosus* ATTEMS , 1928: (5) posterior end of body of syntype NHMW 2056 in ventro-lateral view. Scale is 1 mm.

basal antennomeres, (b) tergum XXI not sulcate, (c) sulcate and more narrow terminal sternum, (d) much enlarged terminal legs.

Range: Central Madagascar: Abohimitomboo (Locus typicus), (Ambatondrazaka, Ambanja); East Madagascar (Andohahel).

Cormocephalus nitidus nitidus PORAT, 1871 (Figs. 1 - 2)

Cormocephalus nitidus PORAT 1871: 1154.
Cormocephalus ambiguus MEINERT 1886: 227 (nec BRANDT).
Cormocephalus ambiguus: KRAEPELIN 1903: 210 (nec BRANDT).
Cormocephalus nitidus: GROBBELAAR 1921: 255; ATTEMS 1928b: 100; LAWRENCE 1968: 78; 1975: 42.
Cormocephalus nitidus nitidus: LAWRENCE 1953: 414; 1955a: 155; 1955b: 13, 43, 46; 1959: 367; 1960: 63, 70; 1966: 232; 1975: 42.
Cormocephalus nitidus calvus ATTEMS 1928b: 101.
Cormocephalus nitidus calvus: LAWRENCE 1955b: 43, 46; 1959: 368.
Cormocephalus (*C.*) *nitidus*: LEWIS 2001: 15.
Cormocephalus (*C.*) *nitidus nitidus*: ATTEMS 1930a: 86.
Cormocephalus (*C.*) *nitidus nitidus* var. *calvus*: ATTEMS 1930a: 86.

Material: S-Afrika, Natal, Pinetown, Marianhill, leg. & don. Mission Zimmermann, 1 Ex., NHMW 915. – S-Afrika, Kapland, East London, Expedition Zenta, 1 Ex., NHMW 916. – S-Afrika, Port Alfred, leg. & don. Penther, 1896, 1 Ex., NHMW 917. – S-Afrika, Pietermaritzburg, don. Mus. Natal, 3 Ex., NHMW 918. – Australien, Victorialand, leg. & don. F. von Müller, det. C. Koelbel as *Cormocephalus foecundus*, NEWPORT, 1845, Attems as *Cormocephalus westwoodi* NEWPORT, 1844 3 sad., NHMW 954, [1895.I.32]. – Madagaskar, leg. & don. F. Sikora, det. Attems as *Cormocephalus dispar* PORATH, 1872, *Cormocephalus westwoodi dispar* PORATH, 1872, 1 Ex., 1 juv., NHMW 969, [1906.XI.?]. – S-Afrika, Transvaal, Barberton, "Kapland", leg. & don. Versleuys, 1936, det. Attems as *Cormocephalus aeruginosus* ATTEMS, 1928, 3 ad., NHMW 971. – S-Afrika, Robinson's Pass, leg. & don. Penther 25. Aug. 1896, det. Attems as *Arthrorhabdus formosus* POCOCK, 1891, 1 Ex., NHMW 2027. – S-Afrika, Zululand, Impolweni, don. Mus. Natal 1931, 1 Ex., NHMW 2028. – S-Afrika, Zululand, Impolweni, don. Mus. Natal, 1 Ex., NHMW 2034. – S-Afrika, Zwartkop-Saltpan, leg. & don. A. Penther, 14. Nov. 1897, 1 ad., NHMW 3259. – S-Afrika, Algoa Bay, leg. & don. A. Penther, 13. Aug. 1896, det. Attems as *Cormocephalus anceps segnis* ATTEMS, 1928, 1 sad., NHMW 3278.

Description: Some details are here added to the description of ATTEMS (1930a).

Body length up to 105 mm.

Headplate: somewhat diverging paramedian sulci do not reach the middle of the headplate, their caudal ends slightly bifurcate, reaching to interior edges of clearly developed basal plates (Fig. 1). Cephalic posterior margin usually closely attached to anterior margin of tergum I.

Forcipules: coxosternum with median sulcus which is crossed by some transverse sulci, forming a more or less complicated pattern (Fig. 2). Basal sutures of tooth plates form a straight line.

Terga: paramedian sulci at tergum II mainly complete, at terga II - III sulci rarely incomplete or interrupted.

Coxopleura: entire surface perforated with pores, only posterior process remaining poreless.

Terminal legs: in all specimens praetarsi are typically slender, long and clearly pointed apically; praetarsal spurs may be present (differs from Attems' diagnosis).

Variability: The combination of transverse sulci on the forcipular coxosternum shows considerable individual variation; we found the most numerous sulci in NHMW3259.

Anterior margin of tergum I in one specimen (NHMW 916) and in the largest specimen of NHMW 971 does not reach the cephalic posterior margin, remaining basal plates not covered.

(954) with paramedian sulci incomplete at terga II - III; one specimen with sulci interrupted medially on tergum V.

In three subadults of NHMW 954 ratio of length: width of terminal praefemur is 3:1; these specimens also have unusually short terminal praetarsi.

Remarks: ATTEMS (1930a) noted merely "feine Querfurche" on the forcipular coxosternum. However, such a pattern (more or less complicated) is the diagnostic character for this variable species. ATTEMS (1930a) quoted the spiracles at the "beintragenden Segmenten 3, 5 und 7" as very large, but actually there are none at the 7th body segment in Scolopendrinae. Together with *Cormocephalus rubriceps*, this species is one of the largest of the genus.

Cormocephalus nitidus calvus ATTEMS, 1928b has been synonymised to the nominative subspecies by LEWIS (2001) because the material from Mozambique shows unreliability concerning the only difference (number of glabrous basal antennomeres) between these two forms.

Range: Widespread in S and SW Africa; SE Africa: KwaZulu Natal; Transvaal; E Africa: Mozambique; Tanzania (near Tanga); Madagascar (Tsaranana Mountain); Australia: Victoria.

Cormocephalus nitidus calcaratus PORAT, 1871 stat.n. (Figs. 3 - 4)

Cormocephalus calcaratus PORAT 1871: 1159.
Cormocephalus calcaratus: KRAEPELIN 1903: 209; GROBBELAAR 1921: 256; nec.ATTEMS 1928b: 100; LAWRENCE 1955b: 13, 43, 45; 1959: 367.
Cormocephalus (*C.*) *calcaratus*: ATTEMS 1930a: 84 - 85.

Material: S-Afrika, Kapstadt, Tafelberg, leg. Constantin Neck, don. Versleuys, 1936, det. Attems as *Cormocephalus calcaratus* PORAT, 1871, 1 ad., NHMW 937. – S-Afrika, Botsuana, British Betschuanaland, leg. & don. A. Penther, 1893, det. Attems as *Cormocephalus anceps anceps* PORAT, 1872, 2 ad., NHMW 946. – S-Afrika, Kap, Table Mt., don. Mus. S Afrika, det. Attems as *Cormocephalus calcaratus* PORAT, 1871, 2 ad., NHMW 3258.

Description: The original description as well as the description in ATTEMS (1930a) is insufficiently detailed necessitating the addition of the following details. New or those differing from former descriptions are marked by (*).

Antennae consisting of 17 antennomeres, the five basal glabrous dorsally.

Forcipules: coxosternum with well-developed median sulcus (*) and some transverse sulci ("ohne Querfurche" sensu ATTEMS) which are developed in various degree (Fig. 3). Praefemoral median tooth (*) well developed, markedly longer than tooth plates, with one apical and one lateral tubercle.

Sterna: sternum XXI with posterior margin practically straight.

Coxopleura: porose area clearly longer than sternum XXI, does not extend to coxopleural posterior margin, which bears spine (*). Posterior process varies from long and slender (*) to medium-long and conical (not short as Attems mentioned).

Terminal legs: praefemur ventrally with a margined depression (Fig. 4); ventro-laterally with two parallel rows of 3 + 5, 4 + 4 or 4 + 5 spines; interio-medially two rows of 2 + 5, 3 + 5, 3 + 6, 5 + 5, 5 + 6 (rarely 1 + 7) spines ("3 - 4 medial spines" sensu ATTEMS); usually numbers of spines are not the same on both legs. Dorso-medially two spines; all praefemoral spines small. Praetarsus mainly (*) with spurs.

Variability: Transverse sulci of forcipular coxosternum in the adult NHMW 937 and in one adult (NHMW 946) are poorly developed but visible. The other adult (NHMW 946) exhibits these sulci very clearly. One of the specimens (NHMW 3258) has an additional subapical spine at coxopleural process. Adult NHMW 937 has 4 + 4 and 4 + 5 ventro-lateral spines at terminal praefemora. Terminal praetarsus without spurs in a few specimens of NHMW 937, NHMW 3258) versus ATTEMS (1930a).

Remarks: *Cormocephalus calcaratus* PORAT, 1871 closely resembles *Cormocephalus nitidus* PORAT, 1871 and *Cormocephalus aeruginosus* ATTEMS, 1928. According to ATTEMS (1928b, 1930a), *calcaratus* should differ from the latter by the number of basal glabrous antennomeres and from *nitidus* by the presence of praetarsal spurs on terminal legs. However, the last character is not reliable for distinguishing taxa of species rank in *Cormocephalus* because it is variable within some species (for instance *nitidus*, *westwoodi*).

Another minor difference is the shape of the transverse sulci of the forcipular coxosterum, which are always very clear in *Cormocephalus nitidus nitidus*, but may be less developed in *Cormocephalus calcaratus*. More definitively, these two forms may be separated by the ventro-lateral spinulation of terminal praefemur: two rows of 2 + 2 - 3 + 3 spines in *nitidus* vs. 4 + 4, 3 + 5, 4 + 5 spines in *calcaratus*.

In summary, the differences listed above allow us to suggest *Cormocephalus calcaratus* as a South African subspecies of *Cormocephalus nitidus*; thus the new synonymy is: *Cormocephalus calcaratus* PORAT, 1871 = *Cormocephalus nitidus calcaratus* PORAT, 1871 stat.n.

Range: Botswana; S Africa: Western Cape Province.

Cormocephalus aeruginosus ATTEMS, 1928 (Fig. 5)

Cormocephalus aeruginosus ATTEMS 1928b: 100.
Cormocephalus aeruginosus: LAWRENCE 1955b: 43; 1959: 366.
Cormocephalus (*C.*) *aeruginosus*: ATTEMS 1930a: 85.

Type Material: S-Afrika, Vredenburg, Wellington, don. Mus. S Afrika, syntype, 1 female, NHMW 2056.

Description: The original description is very short, so the following details should be added; new data are marked by an asterisk (*).

Body length up to 52 mm (55 according to ATTEMS 1928b), terminal legs up to 11 mm.

Antennae composed of 17 antennomeres, of which eight (nine sensu Attems) basal antennomeres are glabrous dorsally.

Headplate: its posterior proportion is covered by tergum I, so practically the whole basal plates are visible (*). Diverging paramedian sulci nearly reach to the cephalic midpoint.

Forcipules: coxosternum with the clear short median sulcus (*). Tooth plates clearly longer than wide; 3 median teeth of the right plate are fused and isolated from lateral tooth; left tooth plate seems to be abnormal (*), having medially two large and one rudimentary teeth and lateral tooth apically divided into two points. Praefemoral median tooth well-developed with one lateral tubercle (*).

Terga: tergum I with rudimentary paramedian sulci anteriorly, sulci complete, beginning from tergum II; tergum XXI with rudimentary median sulcus anteriorly (*).

Sterna II-XX with complete paramedian sulci; sternum XXI trapeziform, somewhat higher than wide, with posterior margin (Fig. 5) slightly truncated, "gerade abgestutzt" sensu ATTEMS (1930a).

Coxopleura: posterior processes (Fig. 5) short, conical, apically rounded and spineless.

Terminal legs: praetarsus considerably shorter than tarsus II, praetarsal spurs well developed.

Remarks: Being very similar to *Cormocephalus nitidus,* this species is distinguishable by the absence of transverse sulci on the forcipular coxosternum.

We do not consider an absence of coxopleural spines in the examined syntype as a diagnostic character because it seems to be an abnormality. Moreover, ATTEMS (1930a,b) noted two apical spines and one spine at posterior coxopleural margin in most syntypes.

Range: S Africa, Western Cape Province (Locus typicus); Zimbabwe.

Cormocephalus westwoodi westwoodi (NEWPORT, 1844) (Figs. 6 - 7)

Scolopendra Westwoodi NEWPORT 1844: 100.
Scolopendra westwoodi: NEWPORT 1845: 422.
Cormocephalus foecundus NEWPORT 1845: 421.
Cormocephalus foecundus: NEWPORT 1845: 421; KOHLRAUSCH 1881: 86.
Scolopendra foecunda: GERVAIS 1847: 272.
Cormocephalus dispar PORAT 1871: 1155.
Cormocephalus rugulosus: PORAT 1871: 1155.
Cormocephalus longicornis: PORAT 1871: 1159.
Cormocephalus dispar: PORAT 1893: 7; KRAEPELIN 1903: 202; GROBBELAAR 1921: 256; ATTEMS 1928b: 99.
Cormocephalus lanatipes KOHLRAUSCH 1881: 85.
Cormocephalus sarasinorum HAASE 1887: 63.
Cormocephalus fangaroka SAUSSURE & ZEHNTNER 1902: 432.
Cormocephalus westwoodi: KRAEPELIN 1903: 200.
Cormocephalus elegans KRAEPELIN 1903: 206.
Cormocephalus elegans: GROBBELAAR 1921: 255; ATTEMS 1928b: 102; DOBRORUKA 1969: 356.
Cormocephalus westwoodi dispar: LAWRENCE 1955a: 159; 1955b: 11, 42, 48; 1959: 368 ; 1966: 232.
Cormocephalus westwoodi elegans: LAWRENCE 1955a: 159.
Cormocephalus westwoodi microdens: LAWRENCE 1955a: 160; 1955b: 11.
Cormocephalus elegans elegans: LAWRENCE 1955b: 12, 43, 45; 1959: 367.
Cormocephalus dispar dispar: LAWRENCE 1960: 63, 67.

Cormocephalus dispar fangaroka: LAWRENCE 1960: 63, 67.
Cormocephalus westwoodi var. *foecundus*: KRAEPELIN 1903: 201.
Cormocephalus (*C.*) *elegans*: ATTEMS 1930a: 83.
Cormocephalus (*C.*) *westwoodi westwoodi*: ATTEMS 1930a: 78.
Cormocephalus (*C.*) *westwoodi dispar*: ATTEMS 1930a: 79.
Cormocephalus (*C.*) *elegans elegans*: ATTEMS 1930a: 84.
Cormocephalus (*C.*) *westwoodi dispar* var. *dispar*: ATTEMS 1930a: 79.
Cormocephalus (*C.*) *westwoodi westwoodi* var. *westwoodi*: ATTEMS 1930a: 79.
Cormocephalus (*C.*) *westwoodi dispar* var. *fangaroka*: ATTEMS 1930a: 80.
Cormocephalus (*C.*) *elegans elegans* var. *elegans*: ATTEMS 1930a: 84.

Type material: Australien, Gayndah, leg. A. Dietrich, don. Museum Godeffroy, det. Kohlrausch, syntype of *Cormocephalus lanatipes*, 1 sad. NHMW 955, [Mus. Godeffroy Nr.14944].

Material: Reunion, leg. & don. F. Sikora, det. Attems as *Cormocephalus anceps*, 1 ad., NHMW 944. – Australia, Sidney, leg. Frauenfeld, Novara Expedition, 1857 - 59, det. Attems as *Cormocephalus westwoodi* var. *foecundus*, 1 Ex., NHMW 953, [1866.I.17]. – Australien, Sidney, leg. A. Dietrich, don. Museum Godeffroy, det. Kohlrausch as *Cormocephalus westwoodi* var. *foecundus*, 1 ad., NHMW 956, [Nr.Mus.Godeffroy 14452]. – Madagskar, Insel Nossi Beh, leg. E. Billitzer, Expedition Frundsberg, det. Attems as *Cormocephalus dispar*, 1 ad., NHMW 967, [1885.II.14]. – Seychellen, Mahé, leg. E. Billitzer, 10. Feb. 1885, Expedition Frundsberg, det. Attems as *Cormocephalus* (*C.*) *westwoodi dispar*, 1 Ex., NHMW 968, [1885.II.13]. – S-Afrika, Consultation Beach, North Coast, leg. W.S. Rumf, don. Mus. Natal, det. Attems as *Cormocephalus* (*C.*) *westwoodi dispar*, 1 Ex., NHMW 2047. – Sansibar, det. Attems as *Cormocephalus dispar*, 14 ad., 9 sad., 4 juv., NHMW 3262. – Comoren, Moheli, leg. & don. A. Voeltzkow, 1903 - 1905, det. Attems as *Cormocephalus dispar*, 1 sad., NHMW 3263. – E-Afrika, Insel Pemba, Chake-Chake, leg. & don. Voeltzkow, 1903 - 1905, det. Attems as *Cormocephalus dispar,* 1 ad., NHMW 3264. – Madagaskar, Fort Dauphin, leg. P. Remy, 1947, don. Remy, det. Attems as *Cormocephalus westwoodi dispar*, 1 sad. + small larvae, NHMW 3265, [Larvae seem to belong to another female because of the small size of this specimen].

Description: This widespread form shows a high variability; it therefore includes some forms, that were recorded previously as seperate species.

Body length up to 64 mm (NHMW 944).

Antennae: 17 antennomeres, (5)6 - 14(15) basal ones glabrous both dorsally and ventrally.

Headplate: strongly diverging, incomplete paramedian sulci reach to the cephalic midpoint.

Forcipules: Coxosternum may be punctate in various degree, with a short median sulcus, normally without transverse sulci. Tooth plates approximately as long as wide; their basal sutures somewhat curved laterally.

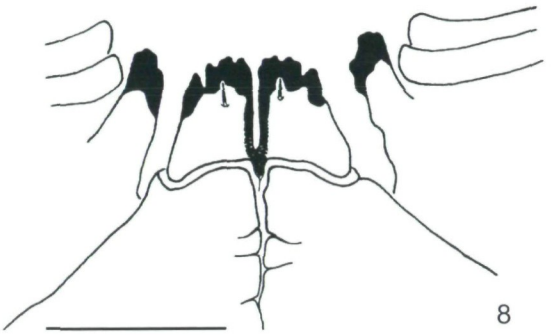
Terga: Tergum I may bear anterior rudiments of paramedian sulci; in some cases lateral margination is visible from tergum V; tergum XXI with a median sulcus of various length.

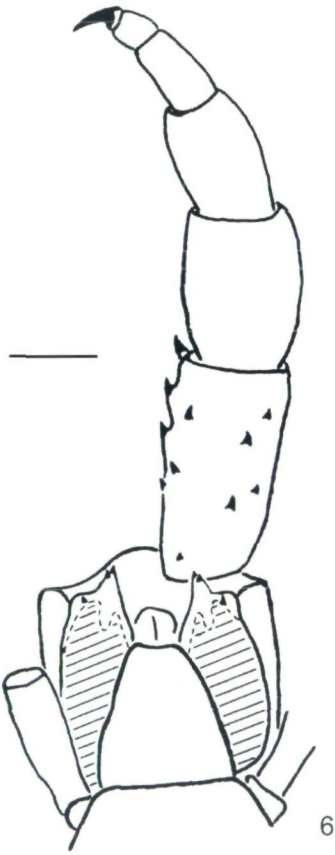
Sterna: sternum XXI with posterior margin from straight to slightly bisinuated (Figs. 6, 7).

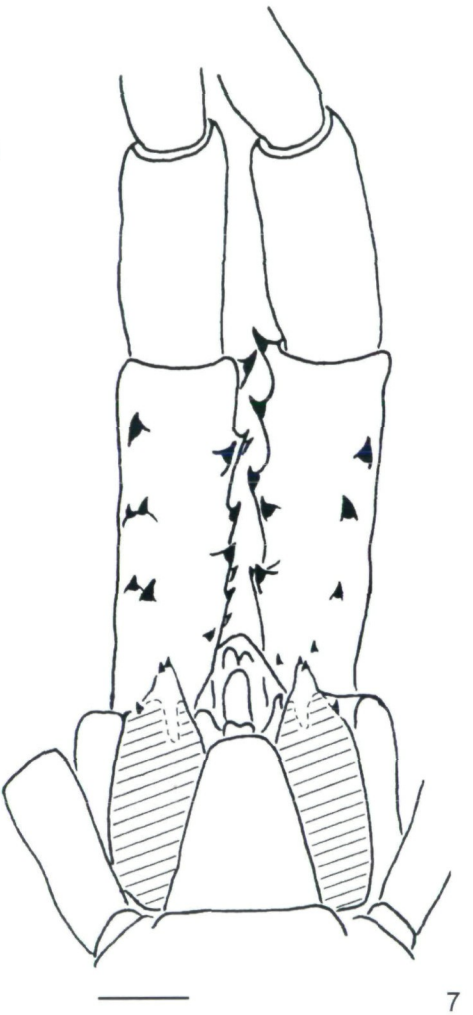
Coxopleura: virtually the entire surface is perforated with pores; poreless area includes the posterior process (Fig. 7) and, sometimes, narrow strip which partially borders coxopleuron (Fig. 6). Process usually with two apical spines; posterior coxopleural margin usually with a single spine of various size.

Locomotory legs: number with/without praetarsal spurs varies widly to their total absence (see below).

Terminal legs: from relatively long (Fig. 7) to short (Fig. 6) and wide. Ventral surface







Figs. 6 - 8: *Cormocephalus westwoodi westwoodi* (NEWPORT, 1844): (6) posterior end of body of syntype of *C. lanatipes* Kohlrausch, 1881 (NHMW 955) in ventral view, (7) posterior end of body (NHMW 3263) in ventral view. – *Cormocephalus westwoodi anceps* stat.n.: (8) forcipular coxosternum of NHMW 3271 in ventral view. Scale is 1 mm.

of praefemur medially with wide, more or less deep longitudinal depression, medial and lateral rows of spines disposed along these "borders". Normal ventro-lateral spinulation consists of two rows of 2+2 or 2+3 spines; praefemoral dorso-distal processes well developed, with two(3) apical spines. Praetarsus from twice as short to somewhat longer than tarsus II, with or without spurs.

Variability: Only one specimen (NHMW 2047) has the forcipular coxosternum with some transverse sulci (similar to *Cormocephalus nitidus*) and basal sutures of tooth plates in the form of a straight line. A few of the largest adults (NHMW 3262) have the coxosternal median sulcus with some very short lateral "branches" like *Cormocephalus westwoodi anceps* (NHMW 3271) (Fig. 8).

Forcipules: coxosternum may be "punctate" to a various degree - these "puncti" are very strongly developed, for instance in NHMW 3262.

Tergum I (NHMW 944) with anterior rudiments of paramedian sulci.

Number of laterally margined posterior terga varies widely - generally from 8 to 16 - 18; lateral margination is recognisable beginning from tergum V in NHMW 944.

Median sulcus of tergum XXI from complete (more usually) to incomplete (2/3 of tergal length in NHMW 953) or, even short; when incomplete/short, it may has a variable configuration: positionned anteriorly (the most frequent condition), posteriorly or broken medially; note that such a character is species specific for most Scolopendrinae.

Posterior margin of terminal sternum from clearly straight (NHMW 944) to slightly bisinuated (NHMW 955).

Coxopleuron is bordered by narrow poreless strip in NHMW 944, 955, 967, 3264, etc. In NHMW 3264 posterior coxopleural margin without spine; unusually large coxopleural pores and processes slightly curved mediad in NHMW 956 (determined as *Cormocephalus westwoodi* var. *foecundus*).

NHMW 944 has all locomotory legs without praetarsal spurs.

Terminal legs vary most of all: (a) from relatively long - in juveniles (NHMW 3262) ratio of praefemoral length : width is 4.5 : 1 - and slender (as in *Cormocephalus multispinosus*) to short (as in *Cormocephalus setiger*) and very wide, pincers-shaped (NHMW 953), ratio of praefemoral length : width is 2.2 : 1; (b) ventral depression on praefemur is better developed when terminal legs are shorter and thicker; maximal depth in NHMW 2047; (c) ventral praefemoral spinulation varies; (d) NHMW 944 has dorso-distal processes of both terminal legs equipped with furnished by three apical spines; (e) NHMW 3262 adults have praetarsus twice and juveniles 2.5 - 3 times shorter than tarsus II; NHMW 953, 955, 956 have these joints nearly of the same length and in NHMW 2047 praetarsus is somewhat longer (note that praetarsal length correlates directly with enlargement of terminal legs and - indirectly - with length of tarsus II); (f) presence of praetarsal spurs correlates indirectly to enlargement of terminal legs (= to comparative length of terminal praetarsus); for example in NHMW 953 and NHMW 955 these spurs are absent, in NHMW 2047 only the lateral spur is present, in NHMW 3263 only the terminal leg bears spurs.

Remarks: The most variable characters listed above should not be used for subdividing this species.

ATTEMS (1930a) reduced the status of *Cormocephalus dispar* PORAT, 1871 to a subspecies of *Cormocephalus westwoodi*, distinguishing within this species the following subspecies and variations: (a) *Cormocephalus westwoodi westwoodi*: tergum XXI with or without median sulcus; margination beginning from terga VIII - XIV; terminal praefemur ventro-laterally with two rows (2+2) of spines, tergum XXI with or without [!] median sulcus; (b) *Cormocephalus westwoodi westwoodi* var. *westwoodi*: tergum XXI with median sulcus; (c) *Cormocephalus westwoodi westwoodi* var. *huttoni* POCOCK, 1893: tergum XXI without [!] median sulcus; (d) *Cormocephalus westwoodi dispar* PORAT, 1871: tergum XXI with median sulcus; margination beginning from terga III - V(VII); sometimes one of the terminal praefemora ventro-laterally with one row of 2 - 3 spines, locomotory legs I - XX with or without praetarsal spurs; (e) *Cormocephalus westwoodi dispar* var. *dispar*: locomotory legs I - XX with praetarsal spurs.

As for the name *westwoodi dispar*, KOCH (1983a) already placed it under the name *westwoodi* in his monograph on Australian species of *Cormocephalus*, giving, however, no reason for this . According to our own observations, there are no clear distinctions between "subspecies" and "varieties" listed above, except for *Cormocephalus huttoni* (see below), and all the conditions of their "diagnostic" characters fit well within the known range of intraspecific variability of *Cormocephalus westwoodi* (see above). Moreover, numerous combinations of the characters mentioned under Variability (see above) form some practically complete series of morphological transformations; such series are perfectly presented by 27 specimens of NHMW 3262. No clear geographical variability of any character has been found. *Cormocephalus westwoodi dispar* is not a geographical subspecies of *Cormocephalus westwoodi* because of their mutual distribution in Madagascar, Seychelles, S and E Africa.

KOCH (1983a) considered *Cormocephalus huttoni* POCOCK, 1893 (or *Cormocephalus* (*C.*) *westwoodi* var. *huttoni* sensu ATTEMS), as a synonym of *Cormocephalus westwoodi*. According to previous descriptions, this form has no median sulcus on tergum XXI: According to our own observations, however, the presence of this sulcus is diagnostic for *Cormocephalus westwoodi*. Moreover, KOCH (1983a) noted in the diagnosis of *westwoodi*: "... species without transverse grooves on maxilliped base-plates and with [!] median sulcus of tergite XXI present (except in very early instars and rarely in adults)". We therefore do not consider *huttoni* as a synonym of *westwoodi* but more material is required to clarify their relationship.

Note, that LAWRENCE (1955a) recognized from South Africa, KwaZulu-Natal and from Swaziland subspecies of *Cormocephalus westwoodi* (except for the nominative form): *westwoodi dispar*, *westwoodi elegans* KRAEPELIN, 1903 (which he noted in 1955b as *elegans elegans*) and a new subspecies *westwoodi microdens*, which is distinguishable mainly by "Emargination of the tergites begins on segments X - XVII ..." and "prefemur of end-legs usually with 2 - 2 small ventro-lateral spines, occasionally 2 - 3". In the same paper (LAWRENCE 1955a) he mentioned also a fourth subspecies: "*Cormocephalus westwoodi nubigenus* LAWRENCE". The description followed later (LAWRENCE, 1955b), based on a type-series of 26 specimens from mountaneous (altitude 7750 - 9000 ft) areas in Cape Province and Botswana. *Cormocephalus westwoodi nubigenus* differs from the other *westwoodi*-subspecies mainly by having "antennae with the fourbasal segment hairless; prefemur of end-legs with 2 - 2 ventro-lateral minute ("almost invisible") granuli-

form spines". KOCH (1983a) refers to LAWRENCE (1955a) "[he] states the typical form of *C. westwoodi* occurs in the Australian region, and he distinguishes four African subspecies from the Natal-Zululand area.", but placed *westwoodi dispar*, *westwoodi elegans*, *westwoodi microdens* and *westwoodi nubigenus* under the name *Cormocephalus westwoodi* (without giving an explanation and/or a note that he had studied their types). This synonymisation seems to be quite reasonable for the first three of these subspecies, because their diagnostic characters fit clearly inside the range of variability of *westwoodi westwoodi* (see above).

Cormocephalus westwoodi nubigenus seems to be (at least according to its diagnosis) a mountain form of *westwoodi*. This point of view is also supported by KRAUS (1958b) who investigated sixspecimens from three mountanous (750 - 1700 m alt.) localities in the Congo. Moreover, LAWRENCE (1955b) wrote about this form: "The present subspecies seems to have closer affinities with the typical *westwoodi* than with *dispar* though the latter and *nubigenus* both occur at high altitudes in the same[!] localities". Thus, as *westwoodi nubigenus* exists together with *dispar* (= *westwoodi westwoodi*) it seems to be an independent species. Having no specimens of this form we are unable to comment on its validity. LAWRENCE (1960), recorded *Cormocephalus dispar fangaroka* SAUSSURE & ZEHTNTER, 1901 and *Cormocephalus dispar alticursor*, a new subspecies from Madagascar. The former (originally *Cormocephalus fangaroka*) was listed under *Cormocephalus westwoodi* by KOCH (1983a). *Cormocephalus dispar alticursor* described on the basis ofat least five specimens as LAWRENCE (1960) noted three localities from Central- and two from Eastern Madagascar. The diagnostic character is the total absence of median sulcus on the terminal tergum. We consider such a condition as being out of the range of variability of *C. westwoodi* (see above about *Cormocephalus huttoni*). As none of the specimens studied by us resembles this form (whose rank should be formally elevated to full species following the synonymisation of *dispar*), its status will be questionable until more material will be investigated.

Among descriptions of forms of *Cormocephalus westwoodi*, ATTEMS (1930a) mentioned two closely related "species": *Cormocephalus foecundus* NEWPORT, 1845 (lateral margination beginning from terga IX - XIV) and *Cormocephalus sarasinorum* HAASE, 1887 (distal spine of ventro-medial row on terminal praefemur positionned directly under distal dorsal process). The author pointed out (but without synonymisation), that it is impossible to distinguish both *Cormocephalus foecundus* and *Cormocephalus sarasinorum* from *Cormocephalus westwoodi* and did not mention them in his key.KOCH (1983a) placed both names *foecundus* and *sarasinorum* under *westwoodi* giving no reason for that action. In support of the first synonymisation we note, that in specimen (NHMW 953) labelled by Attems as *Cormocephalus westwoodi* var. *foecundus*, the lateral margination actually begins at tergum XI, but this feature fits well within the borders of intraspecific variability of *Cormocephalus westwoodi westwoodi* (also sensu ATTEMS 1930a).

Cormocephalus lanatipes KOHLRAUSCH, 1881 was synonymised with *Cormocephalus westwoodi* by KRAEPELIN (1903). The investigated syntype of *Cormocephalus lanatipes* (NHMW 955) clearly belongs to *westwoodi westwoodi*.

The taxonomic status of specimen NHMW 2047, which has a transverse sulcus at the forcipular coxosternum like in *Cormocephalus nitidus* remains unclear.

Range: E and SE Australia; Tasmania; Sri Lanka; New Zealand, New Guinea; Loyalty Islands; Seychellen; Comores; Reunion; Madagascar: Northern (Montagne d´Ambre), NW coast (Toni Keli Island), Eastern (Ambilobe; Antsingy-Nord), Central (Tananarive; Ankaratra, etc.); S, SW and SE Africa; Botswana (Kalahari); E Africa: Zimbabwe; Zambia (Central Province). Very common.

Cormocephalus westwoodi anceps PORAT, 1871 stat.n. (Fig. 8)

Cormocephalus anceps PORAT 1871: 1157.
Cormocephalus anceps: KRAEPELIN 1903: 208; GROBBELAAR 1921: 256; ATTEMS 1928b: 101; LAWRENCE 1966: 232; 1975: 42; DOBRORUKA 1969: 356.
Cormocephalus brevicornis KRAEPELIN 1903: 206.
Cormocephalus brevicornis: ATTEMS 1928b: 102; LAWRENCE 1955b: 43, 44; 1959: 367.
Cormocephalus anceps segnis: ATTEMS 1928b: 101; LAWRENCE 1955a: 160; 1955b: 12, 43, 44; 1959: 367; 1975: 42.
Cormocephalus elegans zuluinus ATTEMS 1928a: 294.
Cormocephalus brevicornis longipalpus ATTEMS, 1930b: 289.
Cormocephalus anceps serrulatus VERHOEFF, 1941: 202.
Cormocephalus anceps anceps: LAWRENCE 1955a: 160; 1955b: 12, 43; 1959: 366; 1962: 222; DOBRORUKA 1969: 356.
Cormocephalus anceps zuluinus: LAWRENCE 1955a: 161.
Cormocephalus elegans zuluinus: LAWRENCE 1955b: 12, 43, 45.
Cormocephalus (*C.*) *brevicornis*: ATTEMS 1930a: 81.
Cormocephalus (*C.*) *anceps*: LEWIS 2001: 13.
Cormocephalus (*C.*) *anceps anceps*: ATTEMS 1930a: 81.
Cormocephalus (*C.*) *anceps segnis*: ATTEMS 1930a: 81.
Cormocephalus (*C.*) *elegans zuluinus*: ATTEMS 1930a: 84.

Material: S-Afrika, Cap der guten Hoffnung, leg. G. Frauenfeld, Expedition Novara, det. ? as *Cormocephalus ambiguus*, det. Attems as *Cormocephalus anceps segnis*, 2 ad., NHMW 929, [1866.I.24]. – S-Afrika, Cap, 1860, det. ? as *Cormocephalus anceps*, 1 ad., NHMW 930, [1866.I.253]. – S-Afrika, Cap der guten Hoffnung, leg. G. Frauenfeld, Expedition Novara, det. ? as *Cormocephalus ambiguus*, det. Attems as *Cormocephalus anceps segnis*, 1 ad., NHMW 931, [1866.I.24]. – S-Afrika, Kapstadt, 1908, Deutsche Südpolar Expedition, det. Attems as *Cormocephalus anceps*, 1 sad., NHMW 942. – S-Afrika, Port Elisabeth, don. Latzel, det. Attems as *Cormocephalus anceps segnis*, 1 ad., NHMW 943, [1919.]. – S-Afrika, Cap der guten Hoffnung, leg. G. Frauenfeld, Expedition Novara, det. Attems as *Cormocephalus anceps*, 1 ad., NHMW 945, [1866.I.24]. – S-Afrika, Grahamstown, stone hill, leg. A. Penther, 1896, don. A. Penther, det. Attems as *Cormocephalus anceps segnis*, 1 ad., NHMW 949. – S-Afrika, "Cap Bonae Spei", leg. & don. Ida Pfeiffer, 1852, det.? as *Cormocephalus ambiguus* Brandt, det. Attems as *Cormocephalus anceps segnis*, 2 ad., NHMW 950, [1866.I.266]. – SE-Afrika, Port Elisabeth, leg. C. Adler, 1873, det. Attems as *Cormocephalus anceps segnis*, 2 ad., NHMW 951 – [S Africa] Natal?, Telle, Janktron?, don. Mus. Natal, det. Attems as *Cormocephalus anceps segnis*, 1sad., NHMW 952. – S-Afrika, "Cap Bonae Spei", leg. & don. Ida Pfeiffer, 1852, det. ? as *Cormocephalus ambiguus,* det. Attems as *Cormocephalus anceps segnis*, 1 sad., NHMW 3270, [1866.I.266]. – S-Afrika, Cap Peninsula, don. Museum S-Africa, det. Attems as *Cormocephalus anceps*, 4 ad., NHMW 3271- – SE-Afrika, Zululand, Mseleni, don. Mus. Natal, 1931, det. Attems as *Cormocephalus anceps segnis*, 2 ad., NHMW 3273. – S-Afrika, Matrosberg, don. Museum Kapstadt, det. Attems as *Cormocephalus anceps anceps*, 2 ad., NHMW 3274. – S-Afrika, Kapstadt, Tafelberg, leg. Constantin Neck, don. Versleuys, 1936, det. Attems as *Cormocephalus anceps calcaratus*, 1 ad., NHMW 3275 – S-Afrika, Kapstadt, Tafelberg, leg. Constantin Neck, don. Versleuys, 1936, det. Attems as *Cormocephalus calcaratus*, 1 sad., NHMW 3276.

Description: Both the original description and that of ATTEMS (1928b) are not detailed enough; we therefore add the following details:

Antennae: 16 - 17 antennomeres, of those up to 16 basal ones are glabrous both dorsally and ventrally.

Forcipules: coxosternum with short median sulcus (Fig. 8), which may be slightly "branched"; basal sutures of tooth plates curved. Tooth plates clearly longer than wide (Fig. 8), a feature that is better visible in younger specimens; praefemoral median tooth well developed.

Terga: tergum XXI with median sulcus of various length.

Coxopleura: porose area does not reach posterior margin.

Terminal legs: short and wide; praefemur ventrally with a longitudinal depression as in nominative form; ventro-laterally with two rows of 2 + 3, 3 + 3, 3 + 4 spines. Praetarsus varies in length from slightly shorter to considerably longer than tarsus II; paretarsal spurs mainly absent.

Variability: NHMW 943 has antennae of 17 joints, of which 15 (16) basal ones are glabous, in NHMW 931 16 and 9 (10) joints correspondingly;

In both adults (NHMW 3273), tergum I does not reach cephalic posterior margin; lateral margination in these specimens is visible at terga XIX - XXI only.

Specimen NHMW 931 has median sulcus developed in the posterior half of tergum XXI only, one adult of NHMW 3271 has such a sulcus strongly shortened.

One specimen of NHMW 950 has coxopleural porose area much shorter than usually, more closely resembling *Cormocephalus insulanus* in this respect.

In specimen NHMW 3273 terminal praefemora with 2 + 2 ventro-lateral (i.e. as in nominative form) and three ventro-medial spines; all praefemoral spines are very small.

Specimens NHMW 930, NHMW 931 have terminal praetarsus nearly as long as tarsus II with small paretarsal spurs; in NHMW 3271 these spurs are well developed.

Remarks: PORAT (1871) described *Cormocephalus anceps* from "Caffraria" (E part of Cape Province). According to ATTEMS' (1930a) key for *Cormocephalus* species, both *Cormocephalus westwoodi* and *Cormocephalus anceps* have the terminal praefemur ventro-laterally with two rows of " 2 + 1 bis 4 + 5 " spines (couplet 7). At couplet 19 of this key, however, he separated *Cormocephalus anceps* with "2 + 3 or 1 + 3" ventro-lateral spines (which contrasts with his own description of this "species") from *Cormocephalus westwoodi* with "1 + 2 or 2 + 2" spines. It is thus impossible to distinguish these two "forms" using this key. ATTEMS (1930a) mentioned the median sulcus of tergum XXI in this species, but some specimens (altogether 33), identified by Attems as *Cormocephalus anceps* or *Cormocephalus anceps anceps*, have no trace of such a sulcus. Moreover, within those 33 specimens we found: *Cormocephalus westwoodi anceps* - 9 specimens, *Cormocephalus westwoodi westwoodi* - 1, *Cormocephalus nitidus calcaratus* - 2, *Cormocephalus oligoporus* - 1, *Cormocephalus multispinosus* - 15, *Cormocephalus insulanus* - 3, *Cormocephalus multispinus* - 1, *Cormocephalus pontifex* - 1, *Scolopendra* sp. - 1. This not only underlines the high degree of variability in *Cormocephalus anceps*, but also the absence of a clear diagnosis for this "species".

In LAWRENCE (1955a) we read (p. 154): "...the various forms of the two species *westwoodi* and *anceps* constitute a complex, the distinguishing characters of which are rather artificial; these forms, here regarded as subspecies, are distributed over a large part of South Africa and occur at all altitudes, but even specimens from a single locality are

subject to considerable variations with regard to the spinulation of the end-legs, the emargination of the tergites and the number of hairless antennal segments; any of these, taken by itself, is hardly reliable for distinguishing one subspecies from another."

From our point of view, however, some specimens of "*Cormocephalus anceps*" differ generally from *Cormocephalus westwoodi* by a combination of the following characters: (a) comparatively higher tooth plates, (b) presence of poreless strip at coxopleural margins, (c) usually more numerous ventro-lateral spines of terminal praefemur.

Such differences are not reliable enough to separate these two forms as species; we prefer, however, to keep the name *anceps* for the South and East African subspecies of *westwoodi*.

In summary the suggested synonymy is: *Cormocephalus anceps* PORAT, 1871 = *Cormocephalus westwoodi anceps* PORAT, 1871 stat.n.

Cormocephalus brevicornis KRAEPELIN, 1903 has been regarded as a junior synonym of *anceps* by LEWIS (2001) based on the study of material from Great Zimbabve Ruins (Zimbabve). ATTEMS (1930b) described *Cormocephalus brevicornis longipalpus* from "Elisabethville" in Belgian Congo (Lubumbashi/ Democratic Republic of Congo). This form differ from the nominative one by longer antenna and shape of sternum XXI. Both "differences", however, fit well into the range of variability of *westwoodi anceps*, so we regard it as a synonym of latter.

Cormocephalus anceps segnis ATTEMS, 1928b has been described from numerous localities in Cape Province without mentioning either the diagnosis or locus typicus. According to the original description and both identification keys for *Cormocephalus* (ATTEMS 1928b, 1930a) the only difference between this "subspecies" and *Cormocephalus anceps anceps* is the absence of praetarsal spurs of terminal legs in the former (the variability of this character has been already discussed above). ATTEMS (1928b, 1930a) also noted about *Cormocephalus anceps anceps*: "very frequent in the Cape Province". Therefore, *Cormocephalus anceps segnis* cannot be a geographical subspecies of *Cormocephalus anceps*. LEWIS (2001) considered *Cormocephalus anceps segnis* to be a junior synonym of *anceps anceps*, while we regard it as subspecies of *westwoodi*. (It should be noted, that Lewis had not compared *anceps segnis* to *westwoodi* having no specimens of the latter).

Of 13 specimens studied, which were previously determined as *Cormocephalus anceps segnis*, 10 actually are the typical representatives of *Cormocephalus westwoodi anceps* and the other threespecimens are: one subadult of *Cormocephalus esulcatus esulcatus* (NHMW 948), one subadult of *Cormocephalus nitidus nitidus* (NHMW 3278) and one specimen of *Cormocephalus* sp., (very strange small animal with strongly enlarged terminal legs whose praefemur totally lacks spinulation).

Considering all the facts above, we propose *Cormocephalus anceps segnis* ATTEMS, 1928 be *Cormocephalus westwoodi anceps* PORAT, 1871 stat.n.

Cormocephalus elegans zuluinus ATTEMS, 1928a has been described from Umtuli River in Zulul based on a single(!) specimen. Attems noted its similarity to *elegans* from which the new form differs by a reduced (only 4) number of laterally bordered posterior terga and the absence of cephalic basal plates ("... keine Basalplatten sichtbar [!] sind.").

Concerning the last character (which we regard as one of the diagnostic for *Cormocephalus*), these basal plates are sometimes (and always in some species) not easily visible, being completely covered by tergum I. In the same work Attems described *Cormocephalus humilis,* noting the absence of "visible" basal plates; however these structures are well developed in the studied syntype (see below).

LAWRENCE (1955a) combined *Cormocephalus elegans zuluinus* ATTEMS 1928a as *Cormocephalus anceps zuluinus*, later (LAWRENCE 1955b), however, he named this form again *elegans zuluinus*. This author wrote (1955a: 161): "Whether *zuluinus* should be regarded as a form of *anceps* or of *elegans* depends upon the relative weight assigned to the diagnostic characters used; the various subspecies of *westwoodi* and of *anceps* are already fairly closely related but I have regarded *elegans* as another subspecies of *westwoodi* rather than as an independent species; *zuluinus* is just as closely related to *anceps* as to *elegans* (i.e. to *westwoodi westwoodi*) and it has seemed more convenient to regard it as a variant of the former species".

In consideration of the very reduced number of laterally bordered posterior terga in some specimens of *westwoodi anceps* (see above) we regard *zuluinus* as a synonym of *westwoodi anceps*.
Cormocephalus anceps serrulatus has been described by VERHOEFF (1941) for a single [!] specimen from Africa without precise locality. This form was differentiated from the nominative one by the length ratio of coxopleuron to terminal sternum, shape of the latter and comparative length of terminal praetarsus. As these such diagnostic characters are not very reliable, we regard this poorly described form as a synonym of *westwoodi anceps.*

Range: S Africa: Cape Provinces (Terra typica); Northern Cape Province (Kimberley), Namaqualand ["south of Orange river"] (Concordia); KwaZulu-Natal; Free State Province (Kroonstad); Transvaal; Northern Province (Kruger National Park, Leydsdorp); Gauteng Province (Pretoria); SW Africa: Namibia (including valley of Kuiseb River in Namib Desert); Botswana; Lesotho (near Maseru); E Africa: Zimbabwe; Central Africa: Zambia; Democratic Republic of Congo (Lubumbashi).

Cormocephalus westwoodi ribauti ATTEMS, 1928 stat.n. (Fig. 9)

Cormocephalus ribauti ATTEMS 1928a: 289.
Cormocephalus (C.) ribauti: ATTEMS 1930a: 93.
Cormocephalus westwoodi (part.): C.L.KOCH 1983: 828.

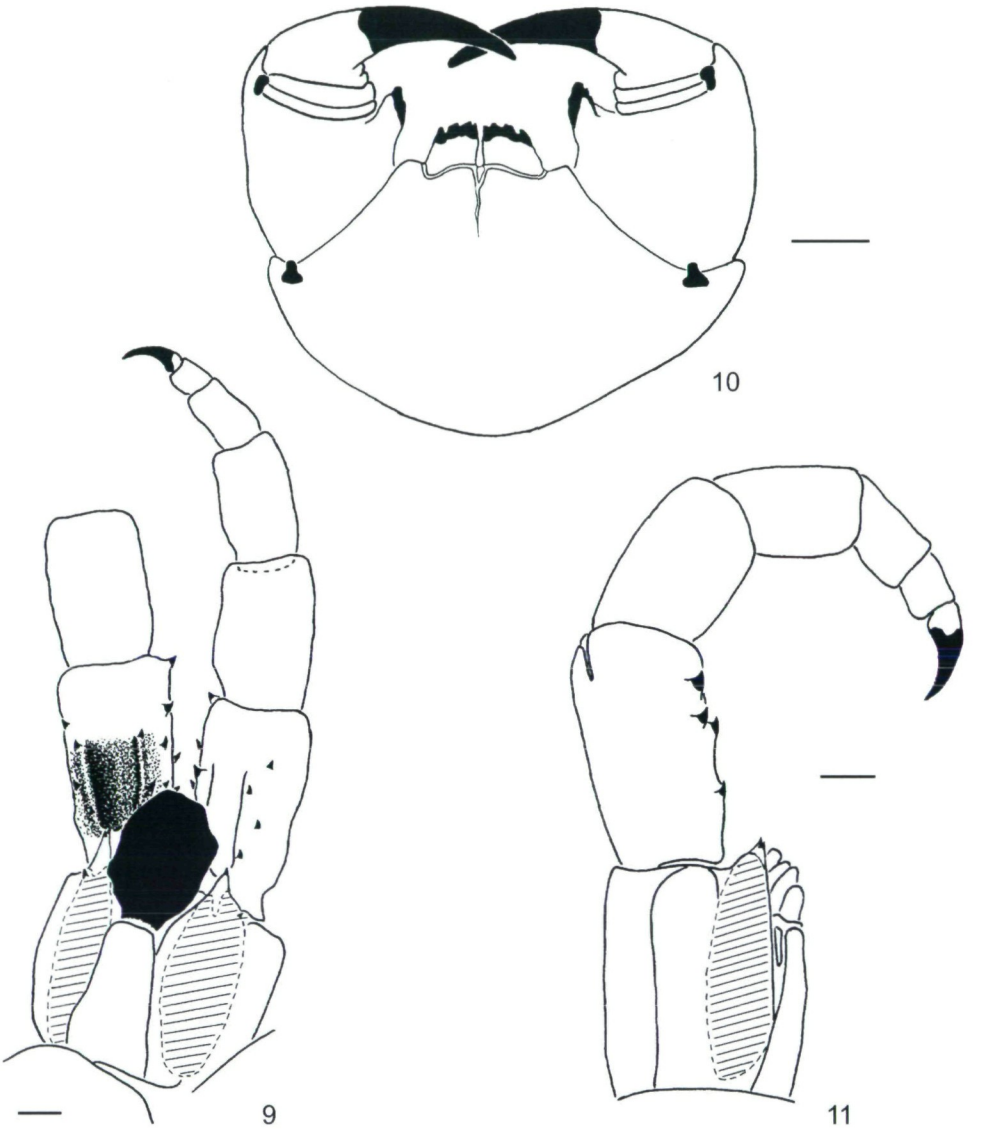
Type material: Australia, Sydney, don. Steindachner, det. Attems, syntype of *Cormocephalus (C.) ribauti*, 1 ad., NHMW 922, [1883.I.6].

Other material: Australia, NS Wales, Hunter River, Ash Island, det. Attems as *Cormocephalus westwoodi,* 1 ad., NHMW 957 – Australien, Sidney, leg. A. Dietrich, don. Museum Godeffroy, det. Kohlrausch as *Cormocephalus foecundus* NEWPORT, 1845, 1 sad., NHMW 3266, [1881.I.9].

Description: The specimens investigated correspond generally to ATTEMS (1928a, 1930a), but some new details should be added.

Antennae: 7 - 11 basal antennomeres glabrous.

Forcipules: Very strongly punctate.



Figs. 9 - 11: *Cormocephalus westwoodi ribauti* ATTEMS, 1928 stat.n.: (9) posterior end of body of syntype (NHMW 922) in ventral view. – *Cormocephalus westwoodi lambertoni* BRÖLEMANN, 1912 stat.n.: (10) forcipular coxosternum of NHMW 970 in ventral view, (11) posterior end of body of NHMW 970 in ventro-lateralal view. Scale is 1 mm.

Coxopleura: Porose area reaches to the posterior margin (Fig. 9), only the process is poreless; the latter with two apical spines, a single spine positionned close to posterior margin.

Terminal legs: Large (Fig. 9), with their surface strongly dotted, praetarsus clearly longer than tarsus II.

Variability: ATTEMS noted 11, but NHMW 957 has 7 - 8 glabrous basal antennomeres.

Remarks: *Cormocephalus ribauti* was described by ATTEMS (1928a) for a single specimen and should differ from *Cormocephalus westwoodi* primarily by much longer terminal praetarsus (ATTEMS 1928a, 1930a). This joint should be no longer than terminal tarsus II in *Cormocephalus westwoodi* and "merklich länger als der 2. Tarsus" in *Cormocephalus ribauti.* But the high variability of this character in *Cormocephalus westwoodi* discussed above, shows that this character is certainly unsuitable for separating species in the *westwoodi* - group. No other differences have been found in known descriptions of these forms.

KOCH (1983a) synonymised *ribauti* under *westwoodi* but without any explanation; he did not recognise any subspecies among *westwoodi*. But our own experience shows one reliable difference between *Cormocephalus ribauti* and the nominative form of *westwoodi*, namely the strongly punctate surface of both forcipules and terminal legs in the former; this character is certainly insufficient to maintain *Cormocephalus ribauti* as an independent species. In summary, we consider this form to be an East Australian subspecies of *Cormocephalus westwoodi* i.e.: *Cormocephalus ribauti* ATTEMS, 1928 is *Cormocephalus westwoodi ribauti* ATTEMS, 1928 stat.n.

Range: E Australia: Sydney (Locus typicus); New South Wales.

Cormocephalus westwoodi lambertoni BRÖLEMANN, 1922 stat.n. (Figs. 10 - 11)

Cormocephalus lambertoni BRÖLEMANN 1922: 225.
Cormocephalus lambertoni: LAWRENCE 1960: 62, 65.
Cormocephalus (*C.*) *lambertoni*: ATTEMS 1930a: 93.

Material: Madagaskar, E-Küste, Wald bei Moramanga, 700m, leg. F. Sykora, don. Ministerium des Äusseren, det. Attems as *Cormocephalus* (*C.*) *westwoodi dispar*, 3 Ex., NHMW 970, [1894.I.65].

Description: Known descriptions lack sufficient detail.

Antennae: Reach to the posterior margin of tergum V; 11 basal antennomeres are glabrous.

Forcipules: characteristically broadened (Fig. 10), being clearly visible from the dorsal side, their surface clearly punctate. Praefemoral median tooth well-developed with one lateral tubercle, clearly higher than tooth margin.

Terga: tergum III with clear lateral margination, but tergum IV with unclear one; all the following terga clearly margined.

Sterna: sternum XXI very long and narrowed posteriorly, its posterior margin clearly bisinuated.

Coxopleura: porose area reaches to the posterior margin (Fig. 11), latter without spine.

Terminal legs: short and strongly enlarged (Fig. 11), their surface not punctate. Ventral surface of praefemur without well-developed median depression. Praetarsus (Fig. 11) as long as 1.5 tarsus II, praetarsal spurs absent.

Variability: Sizes of spines at terminal praefemur vary.

Remarks: According to ATTEMS (1930a), *Cormocephalus lambertoni* BRÖLEMANN, 1922 differs from *Cormocephalus westwoodi* by the length of terminal praetarsus, as the previous form (see Remarks to *Cormocephalus ribauti* above). The examined specimens may be distinguished from *Cormocephalus westwoodi westwoodi* only when a combination of the following data is used: (a) length of antennae, (b) number of terga laterally margined, (c) shape of posterior margin of sternum XXI, (d) length of terminal praetarsus. With regard to distribution, both *Cormocephalus westwoodi westwoodi* and *Cormocephalus lambertoni* are recorded from Madagascar, but because all of the few known precise localities are different for two these forms, *Cormocephalus lambertoni* is here currently regarded as a geographical subspecies of *Cormocephalus westwoodi.*

Thus, we suggest the new synonymy: *Cormocephalus lambertoni* BRÖLEMANN, 1922 is *Cormocephalus westwoodi lambertoni* BRÖLEMANN, 1922 stat.n.

Range: Madagascar: Tananarive (Locus typicus), Ambatondrazaka, Moramanga.

Cormocephalus cupipes POCOCK, 1891

Cormocephalus cupipes POCOCK 1891: 64.
Cormocephalus cupipes: ATTEMS 1928a: 284; 1928b: 99; LAWRENCE 1955a: 155; 1955b: 42, 45; 1959: 367; 1966: 232.
Cormocephalus (*C.*) *cupipes*: ATTEMS 1930a: 77; LEWIS 2001: 11.

Material: S-Afrika, Zululand, Ambonambi, don. Mus. Natal, 1931, det. Attems as *Cormocephalus setiger*, 1 Ex., NHMW 2045. - E-Afrika, Masiene, Chai Chai, don. Mus. S-Africa, 3 Ex., NHMW 2046.

Description: The following details are added to the descriptions:

Forcipules: coxosternum with short median sulcus only; tooth margin of tooth plates consists of 5 - 9 small teeth of which lateral tooth is not clearly isolated (as in *Scolopendra subspinipes* LEACH, 1815).

Sterna: Sternum XXI characteristically narrow, with a longitudinal depression (not longitudinal sulcus, as ATTEMS (1930a) noted).

Coxopleura: Porose area wide, considerably longer than sternum XXI.

Terminal legs: Strongly enlarged, of very characteristic shape, see ATTEMS (1930a). Praetarsus much shorter than tarsus II.

Variability: one specimen from NHMW 2046 has very narrow coxopleural porose area, slightly longer than sternum XXI.

Remarks: ATTEMS (1928b) described the narrow coxopleural porose area, but in (1930a) he noted this area as wide.

LAWRENCE (1955a) noted that "the flattening of end-legs has probably come about it conformity" with living "beneath the bark of trees and in no other habitat".

Range: S Africa: KwaZulu-Natal (Terra typica), (Durban; Amanzimtoti); Transvaal (Kruger National Park, near Skukuza); E Africa: Zimbabwe; Mozambique, Maputo Province (Masiene, near Chai Chai; Catuana; Namaacha).

Cormocephalus mecutinus ATTEMS, 1928

Cormocephalus mecutinus ATTEMS 1928a: 284.
Cormocephalus (*C.*) *mecutinus*: ATTEMS 1930a: 81.

Material: S-Afrika, Kl. Namaland, Kamaggas, leg. & don. L. Schultze, det. Attems as *Arthrorhabdus formosus*, 1 Ex., NHMW 2021.

Description: The following details should be added to known descriptions.
Body length 53 mm (40 mm sensu ATTEMS 1928a).
Coxopleura: the caudal borders of porose area in the specimen examined are not clearly visible, as this area seems to reach coxopleural posterior margin; the latter with one spine, versus ATTEMS (1930a).
Terminal legs: Short and very wide.

Remarks: Besides the holotype in the Museum Hamburg no other specimen of *Cormocephalus mecutinus* has been recorded until now.
From our point of view no differences exist between the original description of *Cormocephalus mecutinus* (which lacks illustration) and known descriptions of *Cormocephalus multispinosus*. ATTEMS' (1930a) key does not permit clear separation of these two species; according to couplet 16 *Cormocephalus mecutinus* should have terminal praefemur with "2 + 2 bis 2 + 3" ventro-lateral spines versus *Cormocephalus multispinosus* with "4 + 5 bis 5 + 6" spines. However, in both couplet 28 and the description of *mecutinus,* ATTEMS mentioned 9 - 11 spines, exactly the same as in *multispinosus*. Also, note that ATTEMS' Figure 89 shows the coxopleuron of *Cormocephalus multispinosus* rather than of *Cormocephalus mecutinus*, contrasting with the accompanying description of the latter.
According to the present authors' observations these two species seem to be generally distinguishable from each other by a combination of the following characters: (a) much shorter coxopleural porose area in *Cormocephalus multispinosus*, (b) shorter and larger terminal legs in *Cormocephalus mecutinus* and (c) 2 - 3[?] rows of ventro-lateral spines at terminal praefemur in *mecutinus* versus two such rows in *multispinosus* (latter condition may be an abnormality). At the same time we have seen in *multispinosus* some variations in the sizes of the coxopleural porose area. one specimen (NHMW 3267) has left terminal praefemur furnished ventro-laterally with three rows of spines (abnormality? see above). (It should be added that *Cormocephalus mecutinus angolensis* ATTEMS, 1930 is a synonym of *Cormocephalus multispinosus*; see Remark 2 to latter). Considering all the facts listed above, we provisionally keep the name *Cormocephalus mecutinus* until more material (including holotype) becomes available.

Range: SE Africa: Mozambique, "Landschaft" Mecutine, ca. 70 km W of Mozambique coast (Locus typicus); S Africa: Northern Cape Province, Little Namaqualand.

Cormocephalus humilis ATTEMS, 1928

Cormocephalus humilis ATTEMS 1928a: 294.
Cormocephalus humilis: LAWRENCE 1953: 413.
Cormocephalus (*C.*) *humilis*: ATTEMS 1930a: 82.

Type material: E-Afrika, Zanzibar, syntype, 1 juv., NHMW 2057. Another specimen. belongs to *Otostigmus* s.str.

Description: Headplate: with clear basal plates (vs. original description).

Remarks: In the original description the close resemblance to *Cormocephalus brevicornis* KRAEPELIN, 1903 (= *C. westwoodi anceps*) was noted. ATTEMS (1930a) mentioned *Cormocephalus humilis* as the closest species to *Cormocephalus mecutinus,* noting absence of cephalic basal plates in former as diagnostic character. We have found these structures well-developed in the single known syntype. However, as *Cormocephalus humilis* seems to be differentiable from *mecutinus* by the spinulation of the terminal praefemur, see ATTEMS (1930a), and the quite typical shape of the forcipular tooth plates, we provisionally maintain this name until more material from this part of E Africa becomes available.

Range: E Africa: Tanzania, Zanzibar Island (Terra typica); Malawi.

Cormocephalus multispinus (KRAEPELIN, 1903) (Figs. 12 - 13)

Hemicormocephalus multispinus KRAEPELIN 1903: 211.
Hemicormocephalus multispinus: GROBBELAAR 1921: 255; ATTEMS 1928b: 93.
Cormocephalus multispinus: LAWRENCE 1955a: 153, 154; 1955b: 13, 42, 46; 1959: 367.
Cormocephalus multispinus quadridens LAWRENCE 1953: 414.
Cormocephalus (C.) multispinus: ATTEMS 1930a: 86.

Material: S-Afrika, Pietermaritzburg, don. Mus. Natal, 1933, 2 juv., NHMW 2026 – S-Afrika, E-Zululand, don. Mus. Natal, det. Attems as *Cormocephalus (C.) multispinosus,* 1 juv., NHMW 2031 – [S-Africa], Natal, Margate, don. Mus. Natal, det. Attems as *Cormocephalus anceps*, 1 ad., NHMW 3255.

Description: Both the original description and ATTEMS' (1930a) data are not detailed enough; new data are marked by (*).

Body length up to 47 mm (40 mm sensu ATTEMS); long, relatively slim body contrasts with short, wide terminal legs (*).

Antennae: short, reaching to the posterior margin of tergum I only (as ATTEMS mentioned); of 17 antennomeres 6 - 7 basal ones glabrous.

Headplate: incomplete paired longitudinal sulci reach to cephalic midpoint (*), short median posterior sulcus (*) present (Fig. 12); basal plates very clear. Posterior cephalic margin more or less covered by tergum I, bearing some other (*) sulci (Fig. 12).

Forcipules: coxosternum without sulci; tooth plate nearly square-shaped with tooth margin consisting of 3 - 4 teeth, which have no common dark-brown base; basal sutures of tooth plates form straight line (*).Praefemoral median tooth very small but with large lateral tubercle (*).

Terga: paramedian sulci may be shortened anteriorly on terga II - III (*), at terga IV - XX the sulci always complete; terminal tergum with median sulcus. This tergum as long as penultimate one (*), a condition which is unusual for Scolopendrinae.

Sterna: very long terminal sternum strongly narrowed posteriorly, the ratio of its anterior : posterior margins being 2 - 2.5 : 1 (*).

Coxopleura: conical process (Fig. 13) with 2 - 3 apical, 1 - 2 subapical, 1 - 2 lateral and 0 - 1 dorsal (*) spines (i.e. every process with no less than 4 - 5 spines).

Terminal legs: clearly enlarged but with praetarsus much shorter (*) than tarsus II (Fig. 13). Praefemur with two ventro-lateral rows (Fig. 13) of 3 + 5, 4 + 5, 5 + 5 spines,

two ventro-medial rows of 3+5, 3+6 (*) spines and 3-4 dorso-medial spines. Long dorso-distal praefemoral process with two curved apical spines.

Remarks: This species clearly differs from *Cormocephalus multispinosus* by: (a) shorter antennae, (b) wider forcipular tooth plates, which have no solid tooth margin, (c) more numerous and larger coxopleural spines, (d) considerably shorter and larger terminal legs.

LAWRENCE (1953) described *Cormocephalus multispinus quadridens* based on a single specimen from Nyasaland (now Malawi) in E Africa. The author mentioned: "The single specimen differs very little from the typical form ... mainly in having only 4 spiniform teeth on the coxopleural process, instead of 5 or 6". This number of coxopleural spines falls within the variability of this species, thus we regard *multispinus quadridens* as a synonym of *multispinus*.

In 1955b describing *Cormocephalus rhodesianus* for six specimens from Zimbabwe, LAWRENCE noted: "This specimen [i.e. holotype, collected "30 miles North of Beit Bridge"] is probably most closely related to *Cormocephalus multispinus* (KRAEPELIN), the only South African species with more than 3 spines on the coxopleural process." According to the original description and the accompanying figure *rhodesianus* clearly belongs to the *setiger* - group, having narrow coxopleural porose area which is not longer than the terminal sternum.

LAWRENCE (1955a) wrote that *multispinus* is "a very characteristic representative of the forest humus fauna".

Range: S Africa: KwaZulu Natal, Port Durban (Locus typicus), (Pietermaritzburg); Lesotho (Mokhotlong); Mpumalanga province (E Transvaal); E Africa: Malawi (Shire river).

Cormocephalus setiger PORAT, 1871

Cormocephalus setiger PORAT 1871: 1158.
Cormocephalus setiger: KRAEPELIN 1903: 204; GROBBELAAR 1921: 255; ATTEMS 1928b: 96; LAWRENCE 1955a: 155; 1955b: 11, 42, 48; 1959: 368; 1975: 42.
Cormocephalus (*C.*) *setiger*: ATTEMS 1930a: 76.

Material: S-Afrika, Kowie, leg. & don. Penther, 2 Ex., NHMW 920. – S-Afrika, Cape Pr., Pacaltsdorp, don. Mus. SAfr., 2 Ex., NHMW 2016. – S-Afrika, Table Mt., 1 Ex., NHMW 2044. – S-Afrika, Transvaal, Acomhoek, don. Mus. SAfr., det. Attems as *Cormocephalus dispar*, 1 ad., NHMW 3261.

Description: Forcipules: coxosternum without transverse sulci; very small praefemoral median tooth closely pressed to praefemur.

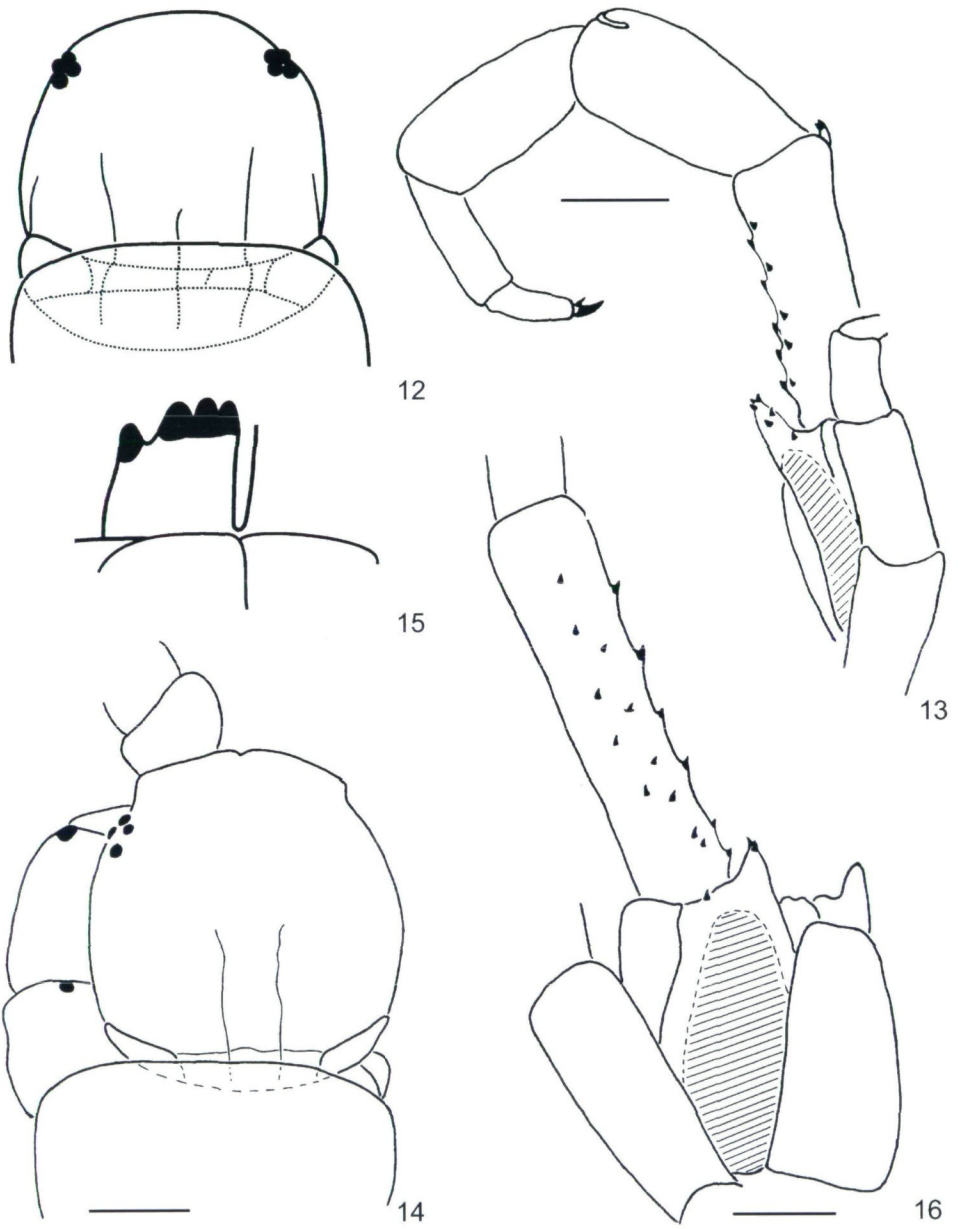
Terga: tergum XXI with medial sulcus.

Sterna: with longitudinal depression.

Coxopleura: pores occupy narrow oval area in the middle of coxopleuron.

Body segment XXI strongly enlarged.

Terminal legs: enlarged, but praetarsus much shorter than tarsus II; praetarsal spurs absent. Both tibia and tarsal joints are densely covered by short semitransparent setae (ATTEMS 1930a mentioned such setae as a male character).



Figs. 12 - 16: *Cormocephalus multispinus* (KRAEPELIN, 1903): (12) anterior end of body in dorsal view (schematic), (13) posterior end of body of NHMW 3255 in lateral view. – *Cormocephalus multispinosus* ATTEMS, 1909, syntype of *C. spinulosus* ATTEMS, 1928 (NHMW 2022): (14) anterior end of body of in dorsal view, (15) right forcipular tooth plate in ventral view (schematic), (16) posterior end of body in ventro-lateral view. Scale is 1 mm.

Variability: NHMW2044 has unusually long coxopleural porose area.

Remarks: This species is very similar to *Cormocephalus westwoodi*; according to ATTEMS' (1930a) key, they may be distinguished from each other by the length and width of the coxopleural porose area. Although the first character is too variable in some Scolopendrini (*Arthrorhabdus*, some *Cormocephalus*) to be diagnostic, the width of this area seems to be species specific. Thus, *Cormocephalus setiger* may be separated from *Cormocephalus westwoodi* by: (a) narrower coxopleural porose area, (b) fewer (2 + 2 versus (2)3 + 3 - 4 in *westwoodi*) ventro-medial spines of terminal praefemur and (c) considerably more slender body.

Cormocephalus rhodesianus LAWRENCE, 1955b - a certain member of the *setiger* - group (see also Remarks to *multispinus* above) - has in this group a quite independent position (first of all because of abundant ventro-lateral spinulation of terminal praefemur). Besides the type-series, some other specimens have been reported by LAWRENCE (1966) from Kruger National Park (Transvaal).

Range: S Africa: Eastern Cape Province (terra typica) (Porth Elizabeth); Western Cape Province (Table Mountain, Cape Town, Mosselbaai); Transvaal; KwaZulu Natal (Durban, Hluhluwe Game Reserve); Lesotho (Mount Moorosi, Quthing); Botswana, Kalahari; Zimbabwe (Salisbury).

Cormocephalus multispinosus ATTEMS, 1909 (Figs. 14 - 17)

Cormocephalus oligoporus multispinosus ATTEMS 1909: 14.
Cormocephalus multispinosus: ATTEMS 1928b: 98; LAWRENCE 1955b: 11, 42, 46; 1959: 366.
Cormocephalus (*C.*) *spinulosus* ATTEMS 1928b: 290 **syn.n.**
Cormocephalus (*C.*) *spinulosus*: ATTEMS 1930a: 80; LAWRENCE 1955b: 12, 42, 48; 1975: 42.
Cormocephalus (*C.*) *multispinosus*: ATTEMS 1930a: 75.
Cormocephalus mecutinus var. *angolensis* ATTEMS 1930c: 373 **syn.n.**.

Type Material: SW-Afrika, Okasise bei Okahandja, leg. Zinski, 1914, don. Mus. Hamburg, 1934, syntype of *Cormocephalus* (*C.*) *spinulosus*, 1 Ex., NHMW 2022. – Angola, Rio Mbali, Miss.scient.suisse en Angola, 1928-1930, don. Mus. Genf, syntypes of *Cormocephalus mecutinus* var. *angolensis*, 4 ad., NHMW 2033.

Other material: SW-Afrika, Otjikoto (20km W Tsumeb), Grootfontein, leg. W.Michaelsen Jun. 1911, Hamb. dtsch-s.w.afr.Studienreise, don. Michaelsen, det. Attems, 2 Ex., NHMW 960. – SW-Afrika, Tsumeb, leg. W. Michaelsen, 18. Jun. 1911, Hamb. dtsch-s.w.afr.Studienr., don. Michaelsen, 3 Ex., NHMW 961. – SW-Afrika, Farm Paulinenhof an den Auas Bergen (36 km E Windhuk), leg. W. Michaelsen, 18. May 1911, Hamb. dtsch-s.w.afr.Studienreise, don., 2 ad., 5 sad., NHMW 962. – SW-Afrika, Farm Voigtsland a.d. Bismarck-Bergen (38 km E Windhuk), leg. W. Michaelsen, 16. May 1911, Hamb. dtsch-s.w.afr.Studienreise, don. Michaelsen, 5 Ex., NHMW 963. – SW-Afrika, Windhuk, leg. W. Michaelsen, 29. Apr. 1911, Hamb. dtsch-s.w.afr.Studienreise, don. Michaelsen, 4 Ex., NHMW 964. – SW-Afrika, Okahandja, leg. W. Michaelsen, 27. Apr. 1911, Hamb. dtsch-s.w.afr.Studienreise, don. Michaelsen, 1 Ex., NHMW 965. – SW-Afrika, Brakwater (20km N Windhuk), leg. W. Michaelsen, 28. May 1911, Hamb. dtsch-s.w.afr.Studienreise, don. Michaelsen, 1 Ex., NHMW 966. – S-Afrika, Otjimb., Kunene River, don. Mus. SAfr., 1 Ex., NHMW 2029. – S-Afrika, Vryburg, don. Mus. SAfr., 1 Ex., NHMW 2030. – S-Afrika [locality?], don. Mus. Kapstadt, det. Attems as *Cormocephalus* (*C.*) *nitidus nitidus*, 1 ad., 2 juv., NHMW 2032. – SW-Afrika, Neudamm (42km ENE Windhuk), leg. W. Michaelsen, 10. May 1911, Hamb. dtsch-s.w.afr.Studienreised., don. Michaelsen, det. Attems as *Cormocephalus* (*C.*) *oligoporus*, 8 Ex., NHMW 2040. – Namibia, Warmbad, don. Mus. Kapstadt, det. Attems as *Cormocephalus anceps anceps*, 1 ad., 1 sad., NHMW 3257. – S-Afrika, Kapland, det. Attems as *Cormocephalus anceps anceps*, 1ad., 1 sad., NHMW 3256. – S-Afrika [without locality], don. Mus. Kapstadt, det. Attems as *Cormocephalus anceps*, 8 ad., 3 juv., NHMW 3267.

Description: The following details should be added to the original description and to ATTEMS (1930a).

Antennae: 10 - 11 basal antennomeres are almost glabrous.

Headplate: with well-developed basal plates and paramedian sulci which reach to cephalic mid point (Fig. 14).

Forcipules: coxosternum with clear median sulcus. Tooth plates (Fig. 15) slightly longer than wide; 3 median and one isolated lateral teeth may be fused into more or less solid tooth margin. Plates' basal sutures form a straight line, with their lateral ends curved caudally (Fig. 15). Praefemoral median tooth with one lateral tubercle.

Terga: tergum I not sulcate, terga II - XX with complete paramedian sulci, tergum XXI with complete median sulcus. Only 5 - 6 posterior terga with clear lateral margination.

Sterna: sternum XXI (Figs. 16, 17) with median longitudinal depression and straight posterior margin.

Coxopleura: porose area narrow-oval, somewhat longer than terminal sternum (Figs. 16, 17); pores numerous, of small and very small size. Posterior process (Figs. 16, 17) with two apical spines; one spine at coxopleural posterior margin.

Locomotory legs: all with praetarsal spurs.

Terminal legs: generally slender, pretarsal spurs present. Praefemur (Figs. 16, 17) ventro-laterally with two rows of 4 + 5, 5 + 5, 4 + 6, 5 + 6 spines; dorso-distal praefemoral process with two apical spines of usual sizes, other praefemoral spines considerably smaller.

Variability: Length of coxopleural porose area varies from slightly longer than sternum XXI to clearly longer, but it does not extend to coxopleural posterior margin (Figs. 16, 17). Shape of terminal legs varies from more to less slender. NHMW 2022 has left coxopleural process abnormally spineless (Fig. 16). One of specimens NHMW 3267 has two ventro-lateral rows of spines at the right and three rows at the left terminal praefemur.

Remarks: *Cormocephalus spinulosus* ATTEMS, 1928 has been described from Okasise near Okahandja (Namibia), closely resembling *Cormocephalus anceps* sensu ATTEMS (1928a, 1930a). According to the key of ATTEMS (1930a), *spinulosus* has terminal prefemur with "2 + 2 bis 2 + 3" ventro-lateral spines (differing from *Cormocephalus multispinosus*), but in the same key *spinulosus* should differ from *anceps,* having 11 such spines (i.e. as in *multispinosus*).

LAWRENCE (1955b) noted about one of 5 specimens of *Cormocephalus spinulosus* he had: "The specimen from Kaoko-Otavi differs from Attems' description in having 4 + 4 ventro-lateral spines on the [terminal] prefemur instead of 5 + 6 or 6 + 6, the claw of end-legs without spurs."

The syntype examined is typical representative of *Cormocephalus multispinosus,* including the presence of well-developed cephalic basal plates (vs. ATTEMS 1930a).

Thus, as the observed conditions of the diagnostic characters fit well within the limits of individual variability of *Cormocephalus multispinosus*, we suggest the new synonymy: *Cormocephalus spinulosus* ATTEMS, 1928 is *Cormocephalus multispinosus* ATTEMS, 1909 syn.n.

In the same work Lawrence described two specimens ("much contracted and twisted" holotype and juvenile syntype, which "differing somewhat [?] in the spinulation of the end-legs") as *Cormocephalus brincki* (locus typicus Pakhuis Mts. in Cape Province). We read: "The species resembles *spinulosus* ATTEMS (i.e. *multispinosus*) in the antennae, lateral emargination, and the fairly large number of small spines on the prefemur of the end-legs." However, according to the original description and accompanied picture, *brincki* (if it really exists) should belong to the another species-group (*westwoodi*-group) having long coxopleural porose area which "far surpassing the posterior margin of the [terminal] sternite" and three ventro-lateral spine-rows at the terminal praefemur.

Cormocephalus mecutinus var. *angolensis* ATTEMS 1930 differs from the nominative form by: "kleinen Dorn am Hinterrand der Coxopleuren und durch die zwei Klauensporne der Endbeine". The high degree of variability of these characters already has been discussed; moreover, Attems himself mentioned their instability.

According to ATTEMS (1930a) *Cormocephalus mecutinus* should have 2 + 2 or 2 + 3 ventro-lateral spines at the terminal praefemur, but in the original description of *Cormocephalus mecutinus* var. *angolensis* ATTEMS noted 4 + 4 ventral-lateral spines; this data corresponds to *Cormocephalus multispinosus* (Fig. 17).

Thus, as all revised syntypes of *Cormocephalus mecutinus* var. *angolensis* clearly belong to *Cormocephalus multispinosus*, the new synonymy is: *Cormocephalus mecutinus* var. *angolensis* ATTEMS, 1930 = *Cormocephalus multispinosus* ATTEMS, 1909.

Range: S Africa: Northern Cape Province, Little Namaqualand ["south of Orange river"] (terra typica) (Concordia, Komaggas); Gauteng Province (Vryburg); Western Cape Province (Worcester, Malmesbury); Botswana; SW Africa: Namibia; Angola.

Cormocephalus oligoporus KRAEPELIN, 1903

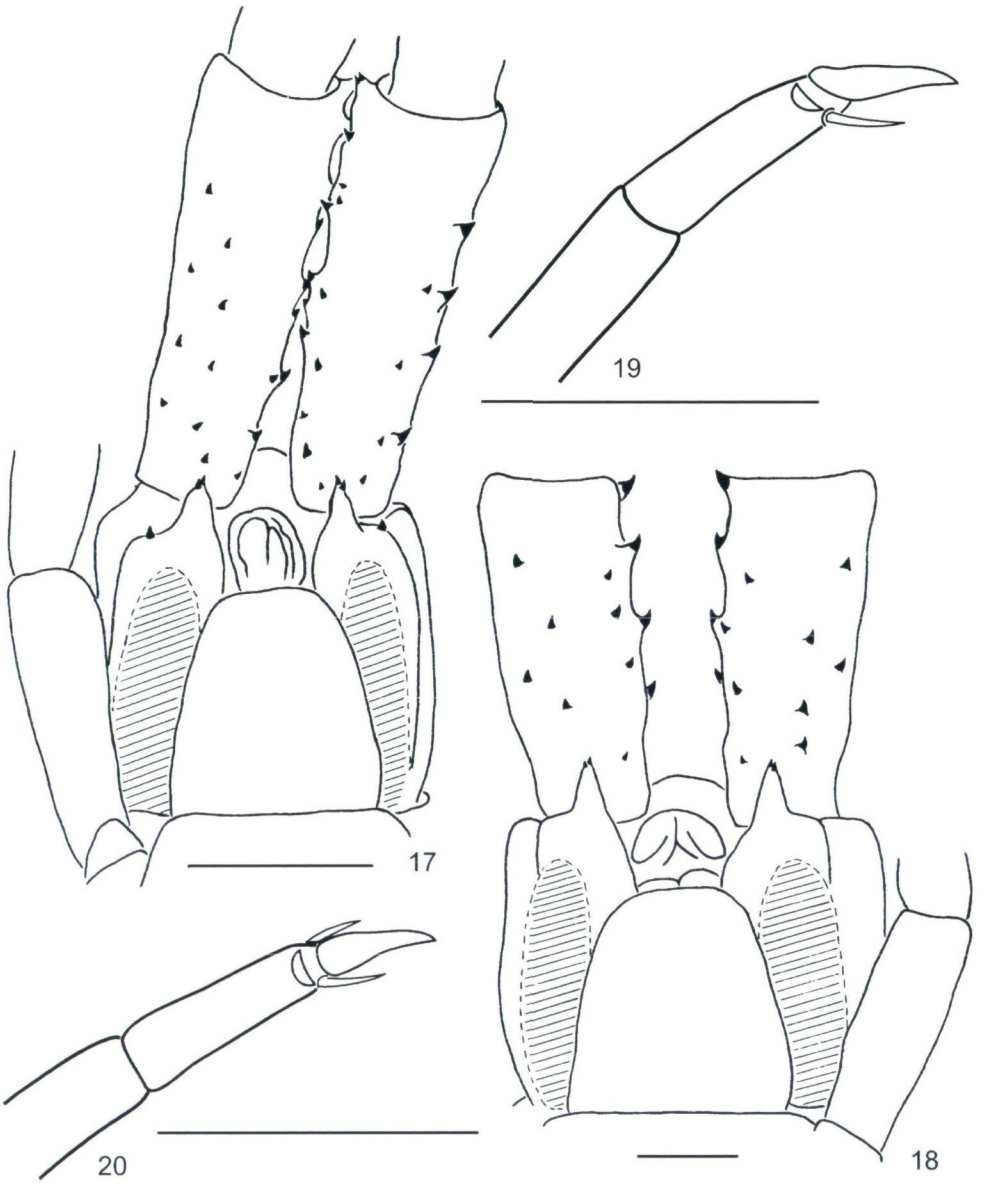
Cormocephalus oligoporus KRAEPELIN 1903: 205.
Cormocephalus oligoporus: ATTEMS 1928b: 97; LAWRENCE 1955b: 11, 42, 47; 1959: 368; 1975: 42.
Cormocephalus (*C.*) *oligoporus*: ATTEMS 1930a: 76.

Material: SW-Afrika, Neudamm (42 km ENE Windhuk), leg. W. Michaelsen, 10. May 1911, Hamb.dtsch-s.w.afr. Studienreise, don. Michaelsen, 1 Ex., NHMW 923. – SW-Afrika, Keetmanshoop, leg. W. Michaelsen, 20. Jul. 1911, Hamb.dtsch-s.w.afr. Studienreise, don. Michaelsen, 1 Ex., NHMW 924. – SW-Afrika, Omaruru, leg. W. Michaelsen, 21. Jun. 1911, Hamb.dtsch-s.w.afr. Studienreise, don. Michaelsen, 1 Ex., NHMW 925. – S-Afrika, Eierfontain, 1 Ex., NHMW 2041. – S-Afrika, Kapland, det. Attems as *Cormocephalus anceps anceps*, 1 sad., NHMW 3260.

Description: Tergum I with incomplete paramedian sulci between its middle and posterior margin.

Remarks: This species is closely related to *Cormocephalus multispinosus*, from which it is distinguishable by: (a) presence of incomplete paramedian sulci on tergum I; note that ATTEMS (1930a) mentioned presence of short anterior paramedian sulci at tergum I in *Cormocephalus multispinosus*, (b) shorter and larger terminal legs; (c) less abundant spinulation of terminal praefemur.

Range: SW Africa (Namibia, etc.); Botswana; S Africa: Cape Provinces; S Zimbabwe, (Hawange).



Figs. 17 - 20: *Cormocephalus multispinosus* ATTEMS, 1909: (17) posterior end of body of syntype of *C. mecutinus* var. *angolensis* ATTEMS, 1930 (NHMW 2033) in ventral view. – *Cormocephalus insulanus* ATTEMS, 1928, syntype (NHMW 935): (18) posterior end of body in ventral view, (19) distal part of locomotory leg XIV in lateral view, (20) distal part of locomotory leg XIII in dorsal view. Scale is 1 mm.

Cormocephalus insulanus ATTEMS, 1928 (Figs. 18 - 20)

Cormocephalus michaelseni: ATTEMS 1922: 98 (nec KREAPELIN, 1903: 215).
Cormocephalus insulanus ATTEMS 1928a: 283; 1928b: 97; LAWRENCE 1955b: 42, 46; 1970: 90; 1975: 42.
Cormocephalus (*C.*) *insulanus*: ATTEMS 1930a: 76.

Type material: SW-Afrika, Pinguin Insel bei der Lüderitzbucht, leg. W. Michaelsen, 10. Jul. 1911, Hamb.dtsch-s.w.afr. Studienreise, don. W. Michaelsen, syntypes of *Cormocephalus* (*Hemiscolopendra*) *michaelseni*, 6 ad., 2 juv., NHMW 935.

Other material: SW Afrika, Lüderitzbucht, leg. W. Michaelsen, don. Mus. Hamburg, 1934, det. Attems as *Cormocephalus oligoporus,* NHMW 2042. – S-Afrika [without locality], don. Mus. Kapstadt, 1928, det. Attems as *Cormocephalus anceps*, 2 ad., 1 juv., 3268.

Description: Forcipules: tooth plates as long as wide (similar to those in *Cormocephalus oligoporus*).

Terga: tergum XXI with median sulcus.

Coxopleura: porose area very clearly bordered, from as long to somewhat longer (also in some syntypes, Fig. 18) than sternum XXI; latter condition is contrary to ATTEMS' (1930a) data.

Posterior coxopleural margin without spines; long slim posterior process with two curved spines apically (Fig. 18).

Locomotory legs: praetarsi very large; pretarsal spurs long, widely radiating outward from praetarsal base (Figs. 19, 20).

Variability: Three specimens (NHMW 3268) have both, forcipular tooth plates and coxosternal median sulcus like *Cormocephalus westwoodi anceps* (Fig. 8).

Remarks: This species has been described from Namibia by ATTEMS (1922) as *Cormocephalus michaelseni*, but KRAEPELIN (1908) already used this name for the species from SW Australia. In the key for *Cormocephalus* ATTEMS (1928a) re-named this species as *Cormocephalus insulanus* with footnote as "Nomen novum pro *Cormocephalus michaelseni* ATTEMS, 1922 (nec KRAEPELIN, 1908)". Oddly, the type-series of *Cormocephalus insulanus* (NHMW 935) was labelled by Attems as *Cormocephalus* (*Hemiscolopendra*) *michaelseni*.

Cormocephalus insulanus is quite similar to *Cormocephalus westwoodi anceps* but, belonging to the other species-group, is readily distinguishable by much shorter coxopleural porose area; another remarkable difference is very special structure of both praetarsi and praetarsal spurs of locomotory legs (Figs. 19, 20).

Quite similar structures were described for *Cormocephalus deventeri* by LAWRENCE (1970: fig. 1b). The adult holotype and two subadult syntypes were collected at Sylvia Hill in Central Namibia. We read: "... the new form does not seem to show any special relationships with the other five species of the genus found in South West Africa [namely: *esulcatus schultzei*, *insulanus*, *multispinosus*, *oligoporus* and *spinulosus* (= *multispinosus*)]; it is easily distinguished from any of them by the unusually long and conspicuous claws and claw spurs of the legs as well as by the small number of spines of the end-legs, which are themselves small and granuliform.". But both *insulanus* and *esulcatus schultzei* (see below) show locomotory praetarsi (and their spurs) of quite

similar form with *deventeri*. Latter seems to be more similar to *insulanus* than to *esulcatus schultzei*, having complete median sulcus at tergum XXI and complete (altough interrupted) paramedian sulci at tergum III. The spines at the terminal praefemur are considerably smaller as in *multispinosus*. *Cormocephalus deventeri* differs from other members of the *insulanus*-group mainly by the reduced number (2 + 2 ventro-lateral and 1 + 3 ventro-medial) of terminal praefemur spines. Summing up, we regard this species to the *insulanus*-group but the validity is still questionable, because the type specimens have not been investigated.

Range: SW Africa: Namibia, "Lüderitzbucht" (Locus typicus); S Africa: Cape Provinces.

Cormocephalus esulcatus esulcatus POCOCK, 1901

Cormocephalus esulcatus POCOCK 1901: 458.
Cormocephalus esulcatus: KRAEPELIN 1903: 195;KOCH 1983a: 811.
Cormocephalus (*C.*) *esulcatus esulcatus*: ATTEMS 1930a: 88.

Material: S-Afrika, Algoa Bay, leg. & don. Penther, 13 Aug. 1896, det. Attems as *Cormocephalus anceps segnis*, 1 sad., NHMW 948. – S-Afrika, Transvaal, Barberton, "Kapland", leg. & don. Versleuys, 1936, det. Attems as *Cormocephalus aeruginosus*, 2 sad., NHMW3200.

Description: Forcipules: coxosternum without transverse sulci.

Terga I - IV not sulcate, terga V - VI with strongly shortened paramedian sulci.

Sterna: sternum XXI trapeziform, less narrowed caudally than in *Cormocephalus nitidus*.

Coxopleura: porose field occupies a narrow area in the middle, does not extend to both lateral margins of sternum XXI and coxopleural margin. Posterior coxopleural margin with spine.

Locomotory legs: praetarsi and their spurs of usual shape.

Terminal legs: praetarsus with spurs; without them according to ATTEMS (1930a).

Variability: One of the investigated specimens has terga of the anterior body half "bordered" by small spots of dark pigment; the same spots are also scattered on pleura of this specimen.

Remarks: In the very short original description, Pocock noted the close resemblance of this species to *Cormocephalus westwoodi* from which *esulcatus* should differ by body coloration, the absence of median sulcus on tergum XXI and more slender terminal legs.

According to the much more detailed description given by ATTEMS (1930a), *Cormocephalus esulcatus* is closer to *Cormocephalus pontifex*, *Cormocephalus punctatus* and other species which have complete paramedian sulci beginning from terga IV - VII rather to *westwoodi* - group (in which these sulci are complete beginning from tergum II).

Note that a few juvenile specimens of *Cormocephalus nitidus* are quite similar to *esulcatus*, having incomplete (or interrupted) paramedian sulci at terga II - III. Thus, *esulcatus* is distinguishable from the juvenile specimens of *nitidus* by: (a) absence of transverse sulci at forcipular coxosternum, (b) much narrower coxopleural porose area.

Two subspecies of this species have been described: *esulcatus schultzei* ATTEMS 1909

(see below) from Kubub in Namibia and *esulcatus capensis* ATTEMS 1928b from two localities in Cape Province.

KOCH (1983a) noted in Range of *esulcatus:* "...LAWRENCE (1955b) follows ATTEMS (1930b) in retaining two South African taxa, *schultzei* and *capensis*, as subspecies of *esulcatus*". He placed both names under *Cormocephalus esulcatus*. (It is not clear, whether he has studied LAWRENCE's types). There are no specimens of *esulcatus capensis* in the collection studied, so we do not discuss this form here. But we have not put this form under the name *esulcatus esulcatus,* because of the differences in their diagnostic characters: presence of short paramedian sulci at terga II - IV and much longer and wider coxopleural porose area in *esulcatus capensis*.

Range: SE Australia: Victoria, Ferntree Gully (Locus typicus); SE New South Wales; Australian Capital Territory; S Africa: Eastern Cape Province (Algoa Bay); Transvaal.

Cormocephalus esulcatus schultzei ATTEMS, 1909

Cormocephalus esulcatus schultzei ATTEMS 1909: 13.
Cormocephalus esulcatus schultzei: ATTEMS 1928b: 95; LAWRENCE 1955b: 43, 45; 1970: 90; 1975: 42.
Cormocephalus (*C.*) *esulcatus schultzei*: ATTEMS 1930a: 88.

Type material: Namibia, Kubub, leg. Schultze, 1903 - 1905, syntype, 1 ad., NHMW 3201.

Description: Details marked by asterisk (*) differ from Attems' data.

Antennae: with 17 antennomeres, of which the 5 basal ones are glabrous.

Forcipules: coxosternum with median sulcus; praefemoral median tooth considerably longer than tooth plate, with the only lateral tubercle.

Terga: tergum XXI without sulcus.

Coxopleura: posterior margin without (*) spine. Oddly, ATTEMS (1909, 1930a) noted presence of small spine, but this structure is clearly absent in the accompanying drawings.

Locomotory legs with very long praetarsal spurs (*) reaching at least to middle of paretarsus (like in *Cormocephalus insulanus*, Figs. 19, 20).

Terminal legs: dorso-distal process of left praefemur with 3 (*), of right one with two apical spines; praetarsus with spurs.

Remarks: According to the original description, the main difference between *Cormocephalus esulcatus schultzei* and the nominative form is a presence of short anterior paramedian sulci at tergum I (other indicated differences are of minor taxonomic importance or non-existent). We note also the very unusual structure of praetarsal spurs of locomotory legs as another important character. Another known species with similar distal parts of the locomotory legs is *Cormocephalus insulanus* (see above), but the latter is readily distinguishable by a presence of median sulcus at tergum XXI.

Summing up, we prefer to retain this subspecies vs. KOCH (1983a), who synonymised it with this nominative form without any reason.

Range: SW Africa: Namibia, Great Namaqualand, Kubub (Locus typicus) (Rooibank near Walvis Bay, Farm Barby).

Cormocephalus pontifex ATTEMS, 1928 (Fig. 21)

Cormocephalus pontifex ATTEMS 1928b: 95.
Cormocephalus pontifex: LAWRENCE 1955b: 47; 1975: 42
Cormocephalus (C.) pontifex: ATTEMS 1930a: 87.

Type material: S-Afrika, Kapland, don. Mus. Kapstadt, 1924, syntypes, 4 Ex., (2043).

Other material: S-Afrika, Kl. Namaland, Steinkopf, leg. & don. Schulze, 1909, 1 ad., NHMW 2053. – S-Afrika, Klein Namaland, Steinkopf, leg. L. Schulze, 1903-1905, don. Schulze, det. Attems as *Cormocephalus anceps*, 1 ad., NHMW3277.

Description: Neither the original description nor the description in ATTEMS (1930a) is complete, so we add the following details.

Headplate: paramedian sulci reach to the cephalic midpoint, bifurcating somewhat anteriorly; about the last third of headplate is covered by tergum I.

Forcipules: tooth plates somewhat longer than wide, with 4 teeth of which the lateral one is clearly isolated.

Terga: tergum I with the short posterior paramedian sulci, tergum II not sulcate. Terga III - V with very short paramedian sulci anteriorly and posteriorly; these sulci complete from tergum VI.

Sterna: with very unclear median longitudinal depression; sternum XXI with slightly rounded posterior margin (Fig. 21).

Coxopleura (Fig. 21): porose area nearly as long as sternum XXI, oval-shaped and clearly narrower than wide coxopleuron; large pores rather scattered. Conical posterior process with two apical spines, usually one small spine is positioned at the posterior margin of one or both coxopleura.

Terminal legs: comparatively thick with ratio of praefemoral length : width = 3.5(4) : 1. Praefemoral spinulation (Fig. 21): ventro-laterally two rows of (1)2 + 2 spines, ventro-medially two rows of 1 + 3 (or 0 + 4) spines, medially 0-1 and dorso-medially two spines. Dorso-distal praefemoral process well developed, with two apical spines. Praetarsus shorter than tarsus II, with spurs.

Variability: NHMW 3277 has coxopleural porose area clearly shorter than sternum XXI; its right coxopleuron posteriorly with one, but left one with two spines. In the same adult, terminal legs are more enlarged than usually, their praefemur ventro-laterally with 2 + 1 spines.

Remarks: This species seems to be very closely related to *Cormocephalus oligoporus*, including such a rare character as the presence of short posterior paramedina sulci at tergum I. According to the key proposed by ATTEMS (1930a), *Cormocephalus pontifex* differs by the complete paramedian sulci beginning from terga IV - VI versus beginning from terga II(III) in *oligoporus*. Our own observations indicate these species are also distinguishable by wider terminal legs with less ventro-laterally spined praefemur in *pontifex*.

One adult (NHMW 2053) is distinguishable from the nominative form by: (a) terga I - III with short posterior paramedian sulci, terga IV - V with the same sulci longer; (b) sterna with clear longitudinal depression; (c) thicker terminal praefemur (length : width

= 2.5 : 1); (d) absence of dorso-distal process at terminal praefemur; (e) terminal praefemur ventro-laterally with two rows of 2 + 3 (0 + 3) spines, ventro-medially with 2 + 3 or 5, medially with two and dorso-medially with 2 - 4 spines.

Range: SW Africa: Namibia; Botswana; S Africa: Gauteng Province Vryburg (Locus typicus); Northern Cape Province, Little Namaqualand.

Cormocephalus andinus (KRAEPELIN, 1903)

Cupipes andinus KRAEPELIN 1903: 182.
Perustigmus rapax VERHOEFF 1941: 77 - 81.
Perustigmus alticolus VERHOEFF 1941: 82, 83.
Cupipes annectans CHAMBERLIN 1941: 501.
Cupipes andinus: CHAMBERLIN 1944a: 182.
Cormocephalus andinus: BÜCHERL 1974: 99.
Cormocephalus (C.) andinus: ATTEMS: 1930a: 105; BÜCHERL 1941b: 300; 1943: 23; KRAUS 1954: 317; 1957b: 381; 1958a: 100.
Cormocephalus (C.) andinus rubrifrons BÜCHERL 1950: 177.
Cormocephalus andinus rubrifrons: BÜCHERL 1974: 100.

Material: Mexico, Campeche Bay, don. Mus. Basel, det. Attems as *Cormocephalus bonaerius*, 1 sad., NHMW 3204.

Description: Body length 50 mm, with somewhat curved terminal legs measuring 57 mm.

Antennae: 16 + 17 antennomeres, 8 basal ones glabrous.

Headplate: somewhat diverging paramedian sulci are complete.

Terga: tergum I with complete paramedian sulci; terga XVII (XVIII) - XXI with clear lateral margination.

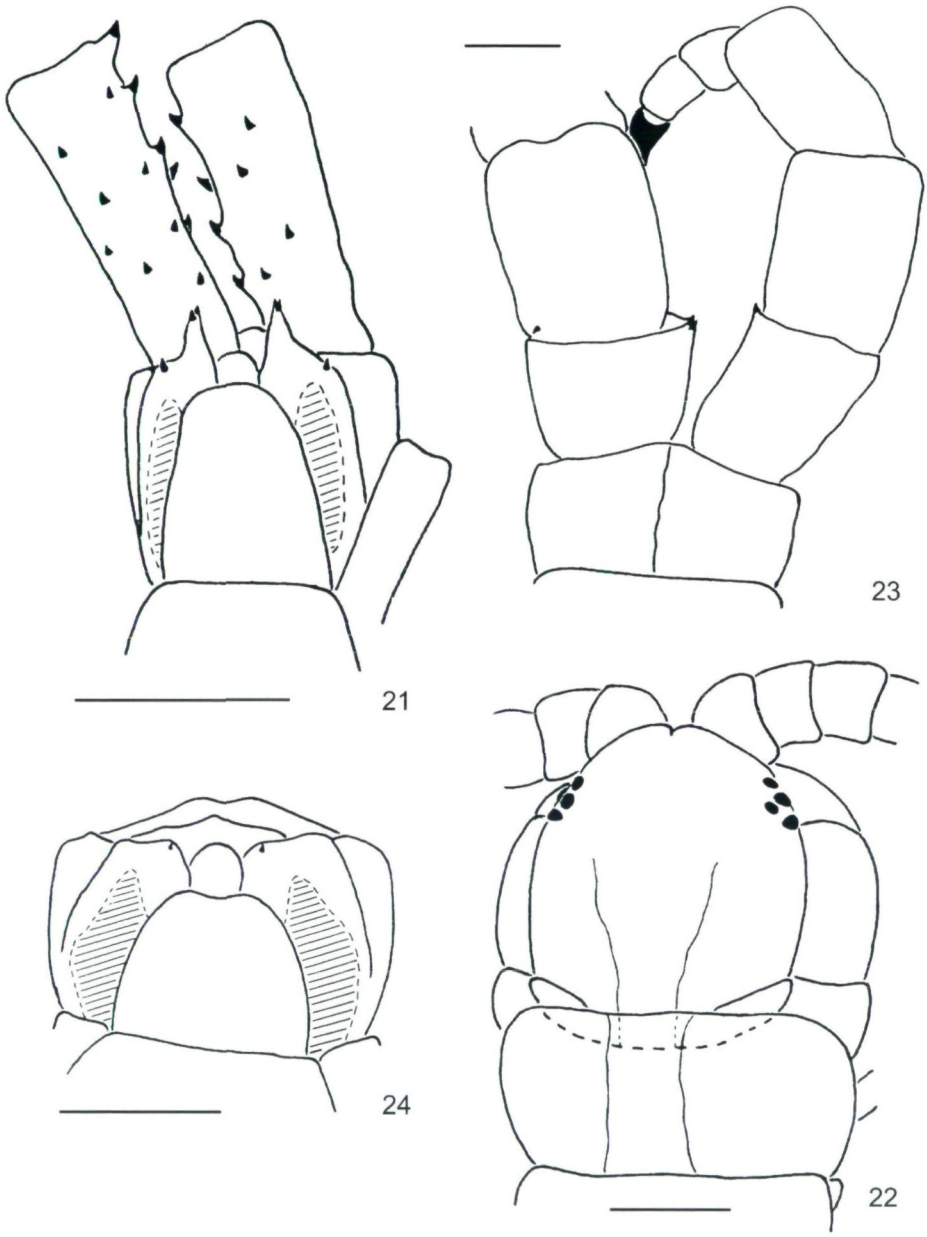
Range: Mexico: Campeche Bay; Bolivia: La Paz (Terra typica) (Volcano Sorata); Peru (to alt. 3500 m); Ecuador (including Galapagos Islands); Brazil: Amazonas, Para.

Cormocephalus bonaerius ATTEMS, 1928 (Figs. 22 - 25)

Cormocephalus bonaerius ATTEMS 1928a: 287.
Cormocephalus bonaerius: BÜCHERL 1974: 100.
Cormocephalus (C.) bonaerius: ATTEMS 1930a: 99; BÜCHERL 1941b: 298; 1943: 22; KRAUS 1957b: 382.

Type material: Antillen, Insel Bonnaire bei Insel Curaçao, leg. & don. A. Gabriel, lectotype [designated herein] 1 ad., paralectotype 1 sad., NHMW 919. – [Lesser Antilles, Island] Bonnaire bei Insel Curaçao, leg. & don. A. Gabriel, paralectotypes 10 sad., NHMW 921.

Description: The original description lacks some important taxonomic details, so we selected the largest syntype as a lectotype. The forcipules of this specimen are figured in the original description (they are quite recognisable because of the unusual structure of the tooth plates). Antennae: in the lectotype the right antenna of 18 (not of 16) antennomeres, the left one is broken after the 13th antennomere; in the paralectotype (NHMW 919) the right antenna of 17 antennomeres, the left one is broken after 12th antennomere. In both specimens only 6 basal anetnnomeres are glabrous both dorsally and ventrally (instead of 7 - 8 basal ones according to ATTEMS).



Figs. 21 - 25: *Cormocephalus pontifex* ATTEMS, 1928, syntype NHMW 2043: (21) posterior end of body in ventral view. – *Cormocephalus bonaerius* ATTEMS, 1928: (22) anterior end of body of lectotype NHMW 919, dorsal view, (23) posterior end of body of paralectotype NHMW 921, dorsal view, (24) posterior end of body and (25) left terminal leg of paralectotype NHMW 919, ventral view. Scale is 1 mm.

Headplate (Fig. 22): paramedian sulci cover more than half of head, strongly diverge anteriorly. Basal plates well bordered, extending somewhat beyond the lateral margins of headplate.

Forcipules: praefemoral median tooth with a single lateral tubercle, clearly higher than tooth margin.

Terga: tergum I with complete paramedian sulci (Fig. 22). Terga beginning from XVII with unclear lateral margination, which is clear at tergum XXI only; this tergum (Fig. 23) is very short (in the lectotype its length : width = 1 : 2, in the paralectotype 1 : 1.5), with somewhat rounded posterior margin. This tergum has a complete or almost complete median sulcus.

Sterna: sternum XXI (Fig. 24) with posterior margin very slightly bisinuated (sometimes nearly straight).

Spiracles: small, almost round, see ATTEMS (1930a) with a "flap" consisting of two (not three, as in overwhelming majority of Scolopendrinae) cuticular folds.

Coxopleura (Fig. 24): porose area does not reach to the lateral coxopleural margin; rather scattered pores are of various sizes. Posterior process absent, with only a small spine positioned at its place.

Locomotory legs: all with praetarsal spurs.

Terminal legs: short and thick (Figs. 23, 25); praetarsus clearly longer than tarsus II (Fig. 25), praetarsal spurs absent.

Variability: Forcipular tooth plates in the lectotype of rather atypical structure - at the right plate the lateral tooth is strongly isolated as opposed to those in the paralectotype (in which both tooth plates are nearly symmetrical).

Paralectotypes (NHMW 921) have antenna composed of 15 - 19 (mainly of 17) antenno-meres (also 17 + 19), of which 6 - 6.5 basal ones are glabrous dorsally.

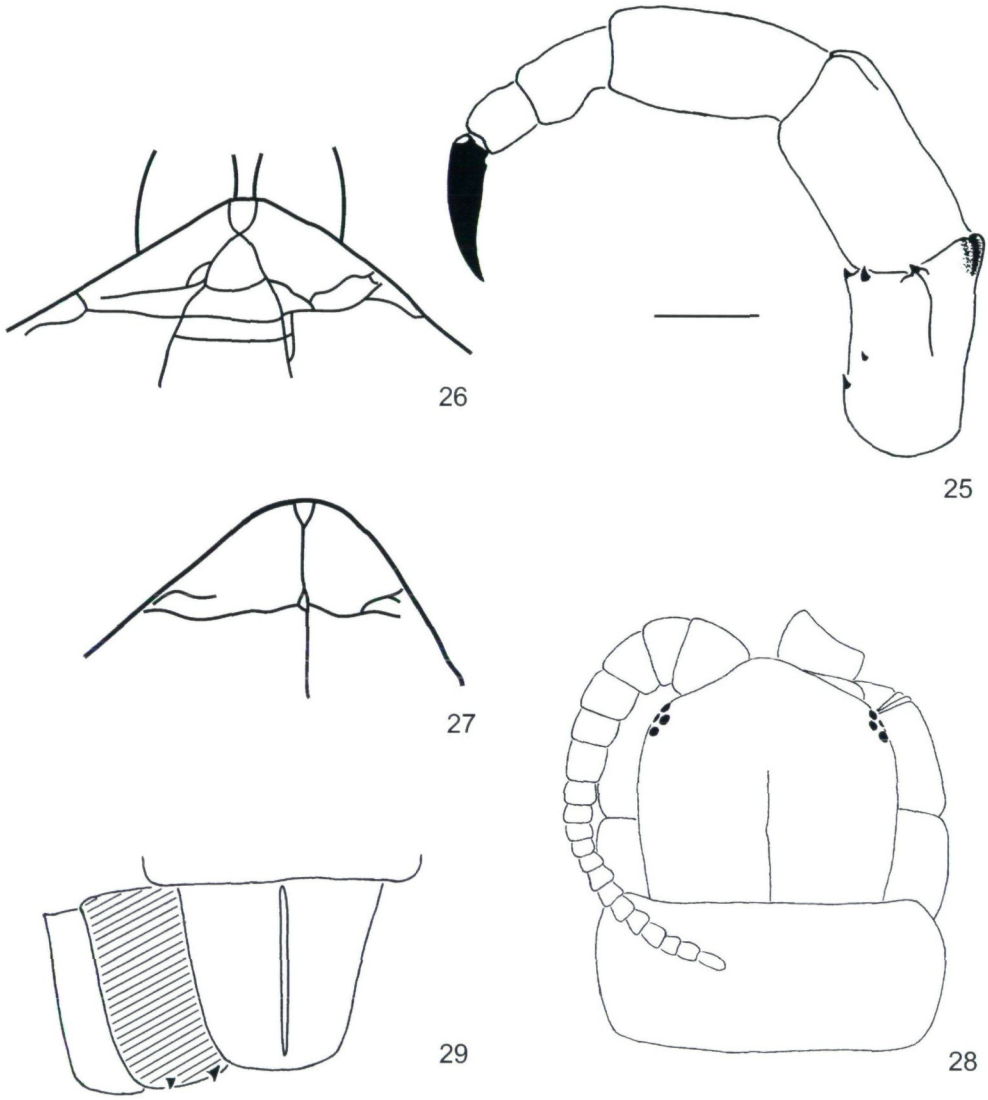
In the most paralectotypes (NHMW 921), the median sulcus of tergum XXI does not reach to its posterior margin.

One paralectotype has one coxopleuron without an apical spine; in other paralectotypes coxopleura with additonal small spine at the posterior margin.

Remarks: No specimen was designated as holotype and the original description lacks some important taxonomic details, so the largest syntype has been selected as a lectotype. We have selected this specimen because its forcipules have been drawn in the original description (they are quite recognisable because of the unusual structure of the tooth plates). This species is very closely related to *Cormocephalus andinus,* from which it may be distinguished by the absence of coxopleural process (Fig. 24), shorter cephalic paramedian sulci (Fig. 22) and fewer laterally margined posterior terga.

The only adult specimen of *bonaerius* from Peru (without more precise locality) was mentioned by BÜCHERL (1943).

Range: Lesser Antilles: Bonnaire Island near Curaçao Island (Locus typicus); Peru (?).



Figs. 26 - 30: *Cormocephalus devylderi* PORAT,, 1893: (26) forcipular coxosternum, ventral view (schematic). – *Cormocephalus. fontinalis* ATTEMS, 1928: (27) forcipular coxosternum, ventral view (schematic). – *Rhoda calcarata* (POCOCK, 1891): (28) anterior end of body, dorsal view (schematic), (29) posterior end of body, ventral view (schematic). Scale is 1 mm.

***Cormocephalus devylderi* PORAT, 1893** (Fig. 26)

Cormocephalus Devylderi PORAT 1893: 8.
Colobopleurus devylderi: KRAEPELIN 1903: 183; ATTEMS 1909: 15; 1928b: 104; GROBBELAAR 1921: 259; LAWRENCE 1955b: 41.
Cormocephalus (*Colobopleurus*) *devylderi*: ATTEMS 1930a: 107.

Material: [W coast of] S-Afrika, Kl. Namaland, Steinkopf, leg. & don. L. Schultze, det. Attems as *Colobopleurus devylderi*, 1 Ex., NHMW 2023, [with 2 spermatophores].

Description: Investigated specimen corresponds well to known descriptions, but the following details should be noted.

Forcipules: clearly visible from dorsal point of view; anterior ends of two diverging sulci cross each other close to anterior margin of coxosternum, (Fig. 26) together with some transverse sulci.

Coxopleura: without any spines.

Terminal legs: with nor praefemoral or praetarsal spurs.

Remarks: Specimen examined has pattern of sulci at forcipular coxosternum (Fig. 26) somewhat more complicated than ATTEMS (1930a) showed.

Range: S Africa: Northern Cape Province, W coast, Little Namaqualand ["south of Orange river"], (Locus typicus) (Kimberley, Concordia); North West Province, Transvaal, (Rustenburg); Gauteng Province (Pretoria).

Cormocephalus fontinalis ATTEMS, 1928 (Fig. 27)

Colobopleurus fontinalis ATTEMS 1928b: 105.
Colobopleurus fontinalis: LAWRENCE 1955b: 41, 42; 1959: 368.
Cormocephalus (*Colobopleurus*) *fontinalis*: ATTEMS 1930a: 107.

Material: S-Afrika, Algoa Bay, leg. & don. Penther, 13. Aug. 1896, det. Attems as *Colobopleurus devylderi*, 1 Ex., NHMW 1570.

Description: The investigated specimen generally corresponds to the original description, but the following details should be added.

Forcipules: are clearly visible from dorsal side, their coxosternum with anteriorly bifurcated median sulcus which is crossed by a single transverse sulcus (Fig. 27). Praefemoral median tooth with 1 - 2 small tubercles; tooth margin very similar to *Cormocephalus devylderi*.

Coxopleura: nearly entire surface perforated with pores; rudimentary knob at position of posterior process bears two tiny spines apically.

Terminal legs: praefemur with 1 - 3 tiny dorso-medial spines, one spine at position of dorso-distal process.

Remarks: This species seems to be most closely related to *Cormocephalus devylderi* because of: (a) unusually long tooth plates, (b) absence of coxopleural process and (c) very long and slender terminal legs. However, it is distinguishable by lack of median sulcus and more complicated "pattern" at forcipular coxosternum in *Cormocephalus devylderi* (Fig. 26) and by presence of minor spinulation of both coxopleura and terminal praefemora in *fontinalis*.

Range: S Africa: Western Cape Province, Matjiesfontein (Locus typicus); Northern Cape Province (Hanover); Eastern Cape Province (Burgersdorp, Dunbrody, Algoa Bay); Free State Province (Smithfield); Transvaal.

Genus *Rhoda* MEINERT, 1886

Rhoda MEINERT 1886: 188.

Type species. *Rhoda thayeri* MEINERT, 1886 (by monotypy).

Rhoda calcarata (POCOCK, 1891) (Figs. 28 - 29)

Pithopus calcaratus POCOCK 1891: 224.
Pithopus calcaratus: KRAEPELIN 1903: 170.
Rhoda calcarata: ATTEMS 1930a: 119; BÜCHERL 1941b: 53; 1974: 103.
Scolopendropsis calcaratus: BRÖLEMANN 1909: 32.
Rhoda calcarata calcarata: BÜCHERL 1941a: 126; 1941b: 304; 1943: 23.

Material: Brasilien, Serra, 1903, Österr. Brasilien Exp., 2 Ex., NHMW 995. – Brasilien, Joazeiro, 1000m, 05. Mar. 1903, Österr. Brasilien Exp., 2 Ex., NHMW 996. – Brasilien, Soledad, 15. Mar. 1903, Österr. Brasilien Exp., det. Attems as *Pithopus calcaratus*, 1 Ex., NHMW 997.

Description: Antennae: of 19 - 21 antennomeres.

Maxillae II: second joint of telopodite with well-developed distal spur.

Headplate (Fig. 28): comparatively small, with incomplete median sulcus which begins at its posterior margin; a large posterior proportion of head is covered by tergum I. Narrow sulci form a pattern at certain places on the cephalic basal plates.

Forcipules: clearly visible from dorsal view (Fig. 28); coxosternum with a median and one transverse sulcus. Basal sutures of tooth plates form a straight line.

Sterna: sternum XXI (Fig. 29) clearly trapeziform, somewhat longer than wide, with caudal angles rounded, posterior margin slightly curved (or straight). Complete well developed narrow median depression (not sulcus!). Both sternum XXI and coxa form a common flat surface (Fig. 29), being closely impressed to each other.

Coxopleura (Fig. 29): practically as long as terminal sternum, without any process and with (one) two spines at straight posterior margin. Entire coxopleural surface is perforated by small pores.

Locomotory legs: praetarsus slightly shorter than tarsus I, latter usually is clearly shorter than tarsus II (diagnostic character for *Rhoda*); only distal part of praetarsus (about ¾) is strongly chitinised. Praetarsal spurs well developed.

Terminal legs: very short and very strongly enlarged.

Variability: In NHMW 996 the smaller specimen has one coxopleural spine; some of the examined specimens have locomotory tarsus II nearly as long as tarsus I.

Remarks: *Scolopendropsis bahiensis* BRANDT, 1841 is the same form as *Rhoda calcarata* (POCOCK, 1891), being abnormal in having 23 leg-bearing segments (SCHILEYKO, in prep.).

Range: Brasil: Bahia (Locus typicus); Pernambuco; Serra; Joazeiro; Soledad; Para; Mato Grosso; Alagoas; Barra do Tapirare; Peru (Amancais near Lima).

Tribe Asanadini VERHOEFF, 1907

Genus *Asanada* MEINERT, 1886

Asanada MEINERT 1886: 189.
Pseudocryptops POCOCK 1891: 225.

Type species. *Asanada brevicornis* MEINERT, 1886 (by monotypy).

Remarks: Original description of *Asanada* lacks information about presence of locomotory tarsal spurs; ATTEMS (1930a) mentioned their total absence as a diagnostic character for this genus. However, tarsal spurs on all the locomotory legs have been found in *Asanada brevicornis* from continental Vietnam, while specimens from Vietnamese islands have no such spurs, SCHILEYKO (1995).

Asanada brevicornis MEINERT, 1886

Asanada brevicornis MEINERT 1886: 189.
Asanada brevicornis: HAASE 1887: 66; KRAEPELIN 1903:173; ATTEMS 1928b: 105(part); 1930a: 123; 1938: 336; KOCH 1983c: 75; SCHILEYKO 1995: 78; SHELLEY 1996: 280.

Material: Indien, Katch (Bombay), 1 Ex., NHMW 998 – Zentral Annam, Cauda bay, Nhatrang, leg. & don. C. Dawydoff, 1 Ex., NHMW 2035.

Description: Locomotory legs with one tarsal spur each.

Variability: Cephalic posterior margin (NHMW 2035) placed in transverse fold of anterior margin of tergum I (see also SCHILEYKO 1995).

Range: India: Bombay; Himalayas: Kooloo (?) (Locus typicus); China; N Myanmar; Central and S Vietnam; Reef Island; Andaman Islands; New Guinea; Australia: Queensland, Saibai Island; NE, Iron Range, Line Hill.

Asanada socotrana POCOCK, 1899

Asanada socotrana POCOCK 1899: 9.
Asanada brevicornis: KRAEPELIN 1903: 173; ATTEMS 1928b: 105.
Asanada brevicornis var. *afra* SILVESTRI 1918: 311.
Asanada socotrana: GROBBELAAR 1921: 253; ATTEMS 1930a: 124; BÜCHERL 1941b: 305; LEWIS 2001: 19.
Asanada socotrana kalaharina LAWRENCE 1936: 100.
Asanada socotrana kalaharinus: LAWRENCE 1955b: 17.
Asanada socotrana kalaharina: LAWRENCE 1955b: 41.
Asanada sokotrana [sic]: KRAUS 1957a: 397; LEWIS 1968: 175; 1973: 98, 104; 1986: 28.
Asanada kalaharinus: LAWRENCE 1966: 233
Asanada sokotrana sokotrana (sic): LEWIS 1967: 193.
Asanada sokotrana [sic] *attemsi* LEWIS 1967: 193.
Asanada walkeri attemsi: LEWIS 1968: 176.
Asanada walkeri walkeri: LEWIS 1968: 176.
Asanada zambiana DOBRORUKA 1969: 356.
Asanada zambiana: LEWIS 1973: 105.
Asanada sokotrana [sic]: LEWIS & WRANIK 1990: 63.

Material: Uganda, Desert du Turkana, Omo Exped., 1 Ex., NHMW 999. – Sudan, Gebel Gulfan, leg. & don. F. Werner, 14. Mar. 1914, 2 Ex., NHMW 1000. – Rhodesia, Bulawayo, det. Attems as *Asanada*

brevicornis, 1 Ex., NHMW 2036. – E-Afrika, Tavern.Nangoro bay Porto Amelia, don. Mus. Hamburg, 1934, 1 Ex., NHMW 2037. – E-Afrika, Tavern. Nangoro bei Porto Amelia, don. Mus. Hamburg, 1934, 1 Ex., NHMW 2038. – Indien, Katch (Bombay), det. Attems as *Asanada brevicornis*, 1 Ex., NHMW 2039.

Description: Locomotory legs: tarsal spurs absent completely.

Terminal legs: femur with complete median sulcus on dorsal surface.

Variability: Number of antennomeres is the same in all specimens studied, although antennal length varies considerably (the shortest antennae reach to posterior margin of headplate, having basal antennomeres much wider than high).

Remarks: There is considerable confusion about separating the species in *Asanada*. According to ATTEMS (1930a) *socotrana* might be distinguished from *brevicornis* by a complete dorsal median sulcus of the terminal femur (versus incomplete in the latter). But LEWIS (1967) described *sokotrana attemsi* (should be "*socotrana*") with "[terminal] femur with narrow complete longitudinal sulcus" and noted various[!] length of this sulcus in the nominative subspecies. He wrote (page 195): "However, POCOCK (1903) in his supplementary description of *A. sokotrana* [should be "*socotrana*"] says of the anal legs 'patella [femur] sulcate above in its distal half' ... all the [Pocock's] specimens examined [eight specimens at all] have only the last half to two-thirds of the femora sulcate ... Various authors give different lengths for the femoral sulcus but this may represent differences in subjective assessment as the 'fade-out' is very gradual ... The structure of the sulcus is very different in the two subspecies, of equal length throughout in *attemsi*, widening posteriorly in *sokotrana*".

LEWIS (1973) recorded specimens of *socotrana* from Nigeria with both, incomplete sulci (so-called "form 1" and "form 3") and with complete ones (so-called "form 2"). He gave detailed analysis of taxonomic important characters and their variability in *Asanada*. About these sulci (p. 99): "When the apophysis [which is disposed beneath dorsal median sulcus of terminal femur] is well developed it creates the impression of a trough-like groove when seen the semi-transparent cuticle of the femur". (All personally examined specimens of *socotrana*, however, have real dorsal sulcus at the terminal praefemur).

So, we suppose *socotrana* and *brevicornis* to be distinguishable mainly by a structure of sternum XXI, which is much wider and shorter in *socotrana*.

Another confusion is about the status of *Asanada walkeri* (POCOCK, 1891) (formerly *Pseudocryptops walkeri*). LEWIS (1968) re-examined the types of *walkeri* and concluded that it is conspecific with *socotrana*. He suggested the following synonymies: *Asanada socotrana socotrana* POCOCK, 1899 = *Asanada walkeri walkeri* (POCOCK, 1891) and *Asanada socotrana attemsi* LEWIS, 1967 = *Asanada walkeri attemsi* LEWIS, 1967. LEWIS (1973), however, re-established *socotrana* as a separated species (also synonymising *walkeri attemsi* (i.e. *socotrana attemsi*) with *socotrana socotrana*) and later (LEWIS 1986, 2001) considered both *socotrana* and *walkeri* as two different species. In the last paper (LEWIS 2001) synonymised *socotrana*'s "form 1"with *Asanada zambiana* DOBRORUKA, 1969.

Range: Socotra (Locus typicus); Witu Islands; Arabian Peninsula: Saudi Arabia, Oman, Yemen; Africa: Sudan; Nigeria; Uganda; Congo; Guinea; E Africa: Zimbabwe; Zambia (Central Province); SE Africa: Transvaal; Botswana; India (Bombay).

Subfam. Sterropristinae VERHOEFF, 1937

Genus *Ethmostigmus* POCOCK, 1898

Heterostoma NEWPORT 1845: 413.
Dacetum KOCH C.L. 1847: 156.
Ethmostigmus POCOCK 1898: 327.

Type-species: *Scolopendra trigonopoda* LEACH, 1817 (by subsequent designation of ATTEMS 1930a: 174).

Ethmostigmus trigonopodus (LEACH, 1817) (Figs. 30 - 31)

Scolopendra trigonopoda LEACH 1817: 36.
Heterostoma trigonopoda: NEWPORT 1845: 413; GERVAIS 1847: 245.
Ethmostigmus trigonopodus: KRAEPELIN 1903: 157; GROBBELAAR 1921: 248; ATTEMS 1928b: 107; 1930a: 176; 1930b: 288; LAWRENCE 1953: 417; 1955b: 38; 1959: 368; 1966: 232; 1975: 40; CHAMBERLIN 1944a: 182; KRAUS 1958b: 11; LEWIS 1967: 199; 1968:174; 1992: 450.
Ethmostigmus australianus stechowi VERHOEFF 1941: 202.
Ethmostigmus trigonopodus trigonopodus: LEWIS 2001: 44.

Material: D-Ostafrika, Tansania, Mikindani, leg. & don. Reimer, 2 ad., NHMW 1567, [1898.XXI]. – Somali, leg. & don. Prof. Paulitschke, 3 ad., NHMW 3206, [1898.XII.1]. – Zaire, Belgisch Congo, 4 ad., 2 sad., NHMW 3209. – Türkei, Aksehir, leg. & don. Ing. Leinfest, 7 ad., 3 sad., NHMW 3231, [1981.LI.1].

Description: Headplate: sometimes rudimentary "basal plates" are visible at the posterior margins.

Maxillae II: with two - not one, as ATTEMS (1930a) noted - well-developed praetarsal spurs, sometimes upper spur is much thinner than lower one.

Forcipules: each tooth plate (Fig. 30) with four teeth, of which two median ones have common base.

Sterna II - XX with clear and almost complete paramedian sulci.

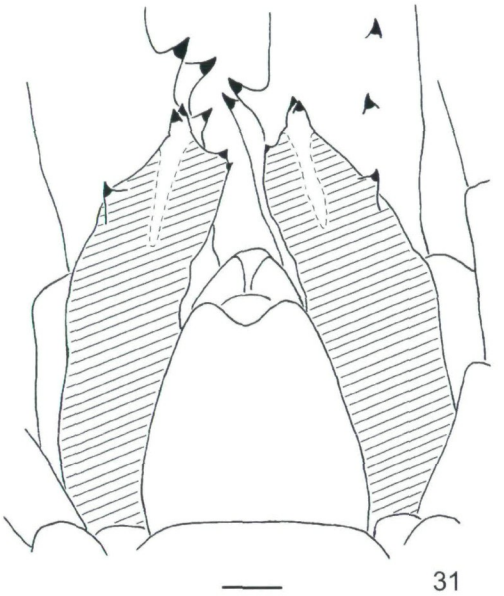
Coxopleura (Fig. 31): posterior process approximately as long as sternum XXI, with two apical spines of normal size, one enlarged ventro-lateral spine and 1 - 3 spines at the dorso-medial arcuate edge.

Terminal legs: praetarsus with two rudimentary spurs.

Variability: Rudimentary cephalic "basal plates" in NHMW 3231 and in some specimens from NHMW 3209. All specimens of NHMW 3209 have upper praetarsal spur of maxilla II much thinner than lower one. One adult of NHMW 3209 has right forcipular tooth plate like *Ethmostigmus rubripes*.

Remarks: *Ethmostigmus australianus stechowi* VERHOEFF 1941 has been synonymyzed with *trigonopodus* by LEWIS 1968.

As the most closely related form to this species, ATTEMS (1930a) noted *Ethmostigmus pygomegas* (KOHLRAUSCH, 1881) (see below). LEWIS (1992) described *Ethmostigmus trigonopodus pygomenasoides* for 8 specimens from Nepal (Districts: Myagdi, Lalitpur,



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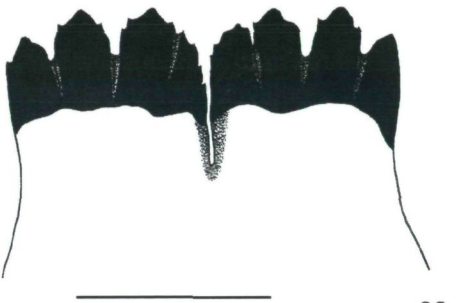

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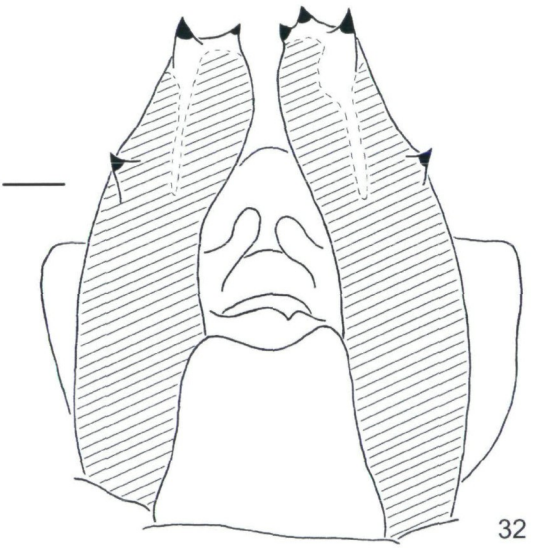

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Figs. 30 - 32: *Ethmostigmus trigonopodus* (LEACH, 1817): (30) forcipular tooth plates of NHMW 3209, ventral view, (31) posterior end of body of NHMW 3209, ventral view. – *Ethmostigmus pygomegas* (KOHLRAUSCH, 1881): (32) posterior end of body of NHMW 1561, ventral view. Scale is 1 mm.

Taplejung and Gorkha), that subspecies "appears to be more closely related to *trigonopodus* than to *pygomenas* [should be *pygomegas*] and is, therefore described as a subspecies of the former". LEWIS (2001), however, wrote in his remarks to *trigonopodus pygomenasoides*: "The Langtang [National Park in Nepal] specimen is very similar to *E. t. trigonopodus*".

Study of five specimens of *trigonopodus* from West- and three specimens from Central Nepal show us no special differences from the typical representatives of the nominative form.

Another closely related species is *Ethmostigmus rubripes* (BRANDT, 1840), which should be distinguishable by three (four in *trigonopodus*) teeth of the forcipular tooth plates (ATTEMS 1930a). But as two median teeth in *trigonopodus* have a common base

(Fig. 30), these species differ only by the degree[!] of fusion of these teeth (we observed situations in *trigonopodus* when one tooth plate is typical, but another has three teeth as in *rubripes*).

Among four adults of NHMW 3206, determined as *Ethmostigmus trigonopodus*, we found one adult of *Scolopendra v. valida* H. LUCAS, 1840 which is very similar superficially to *trigonopodus*.

LAWRENCE (1955b) wrote about *trigonopodus*: "This large, predominantly tropical species occurs only in the northern Transvaal and southern Rhodesia (Zimbabwe) thence northwards throughout Africa. It is certainly not found in the Cape Province as stated by Attems quoting Kraepelin and does not seem to have been recorded from the South West Africa, Natal and Zululand".

Range: From Algeria and Ethiopia to South Africa, excluding westsoutherrn and southern provinces; Zanzibar Archipelago; Witu Islands; Fernando Po Island; Turkey: Aksehir; W Nepal, Anapurna reservation area.

Ethmostigmus pygomegas (KOHLRAUSCH, 1881) (Fig. 32)

Heterostoma pygomega KOHLRAUSCH 1881: 63.
Heterostoma rapax HAASE 1887: 91.
Ethmostigmus pygomegas: KRAEPELIN 1903: 158; ATTEMS 1930a: 176 - 177.
Ethmostigmus pygomenas (sic): LEWIS 1992: 449 - 450.

Material: Himalaya, don. Museum Godeffroy, det. Koelbel as *Heterostoma rapax*, 1 Ex., (NHMW 1561), [1882.I.14], [Godeffroy number: 4946].

Description: We emphasise the following details:

Maxillae II with two praetarsal spurs.

Forcipules: tooth plates as in *trigonopodus*.

Terga: tergum I with incomplete paramedian sulci.

Sterna: sternum XXI clearly bisinuated posteriorly (Fig. 32).

Coxopleura: posterior process much longer than sternum XXI (Fig. 32), with one - two apical and one enlarged subapical spine ventrally; another enlarged spine ventrolaterally. All coxopleural processes perforated with pores except for both apical ends of process and narrow ventral strip.

Remarks: According to ATTEMS (1930a) this species should mainly differ from the previous one by (a) SE [?] Asian distribution (versus Africa and Turkey for *trigonopodus*), (b) structure of coxopleural process, (c) two (one in *trigonopodus*) praetarsal spur of maxillae II. But these two spurs have also been found in *trigonopodus* (see also LEWIS 1968). These species are only distinguishable by the length and spinulation of the coxopleural process (considerably shorter in *trigonopodus*). Concerning the different distribution we know some typical specimens of *trigonopodus* collected in Nepal (see above).

Taking in consideration all these facts we prefer to keep provisionally the name *pygomegas* until more material becomes available.

Range: Himalaya (Terra typica): Silhet, Bhutan; E Himalayas, Assam; Myanmar.

Ethmostigmus rubripes (BRANDT, 1840)

Description: Previous descriptions are generally correct, but this widespread and variable species includes some forms previously noted as independent taxa of species rank. Thus the true range of variability of the main characters is as follows:

Antennae reach to tergum IV - VI, with 17 - 20 antennomeres, of which four basal ones are glabrous dorsally and three ventrally. Small seta, which cover more distal antennomeres, are arranged in longitudinal parallel rows.

Forcipules: tooth plates with three teeth (Fig. 33), of which median one often bears the trace of fusion of two "primary" teeth.

Terga: complete paramedian sulci mainly beginning from tergum III (sometimes tergum I with incomplete paramedian sulci); unclear lateral margination from terga VI - XX.

Sterna: paramedian sulci poorly developed as short anterior rudiments; sternum XXI with complete median depression, not sulcus as ATTEMS (1930a) noted, bisinuation of its posterior margin in shape of an angle of about 100 - 150° (Figs. 34 - 36, 39).

Coxopleura: posterior process from short (as long as sternum XXI), not pointed apically, with dorso-medial arcuate edge (Fig. 34) furnished with longitudinal row of 5 - 7(8) spines (in typical *Ethmostigmus rubripes*) to much longer, pointed apically, rounded dorsally (i.e. without dorso-medial arcuate edge; Fig. 37) and furnished with fewer dorsal spines (in most specimens formely determined as *Ethmostigmus platycephalus*). Poreless strip on ventral coxopleural surface is narrowed anteriorly in both "*rubripes*" and "*platycephalus*" (Figs. 34 - 36, 38, 39); the distal part of process is also poreless.

Locomotory legs I - III with two tarsal spurs; legs I with one praefemoral, one femoral and one tibial spur.

Terminal legs: varying considerably in the structure. Praetarsus from clearly shorter to twice as long as tarsus II; when shorter, it has praetarsal spurs. Praefemoral dorso-distal process (Figs. 35, 39) with 1 - 3 apical spines.

Variability: The main variability is in the length and structure of the posterior coxopleural process (see Remarks below). Between the populations, the length of the terminal praetarsus varies from clearly shorter to twice as long as tarsus II; however, every population contains animals whose terminal praetarsus and tarsus II are equally long.

Remarks: According to ATTEMS' (1930a) key, *Ethmostigmus platycephalus* (NEWPORT, 1845) has a coxopleural process more than twice as long as sternum XXI, with 0 - 3 dorsal spines, dorsally only slightly "gewölbt" (= arcuate). In *Ethmostigmus rubripes,* the coxopleural process is "relatively" short, less than twice as long as sternum XXI, not lyriform and strongly "ausgebaucht" (= arcuate ?) dorsally. In the latter species this dorsal arcuate edge bears a longitudinal row of "3 - 5, selten nur zwei" spines; no other real differences exist between known descriptions of these two forms. Specimens examined, labelled as *Ethmostigmus rubripes* and *Ethmostigmus platycephalus* are generally distinguishable by the structure of the coxopleural process which, however, varies considerably (Figs. 34 - 38). The shape of the terminal legs is also a character that varies in the same way in both these forms. A virtually complete transformational series of coxopleural configuration has been found among investigated specimens. This

character varies not only between the populations, but also within one locality.

Examples of variability: (a) NHMW 1040, the smallest adult has a long ("*platycephalus*-type") coxopleural process which however bears five dorsal spines; (b) among NHMW 1035 the armament of the coxopleural process varies in three specimens (labelled as *Ethmostigmus platycephalus*); (c) coxopleural processes in three adults (NHMW 1042) are both of "*rubripes*-type" (typically short, Fig. 35) and of "*platycephlus*-type" (very long, but with 3 - 4 dorsal spines); (d) both specimens of (NHMW 1032) have coxopleural processes spined as abundantly as in *Ethmostigmus rubripes*, but of intermediate length; (e) some specimens in NHMW 1562 have typically short (of "*rubriceps*-type"), but lyriform coxopleural processes (Fig. 34).

Unfortunately, because there are few precise localities on the old labels, it is currently rather problematic to estimate a degree of mutual distribution for "typical *rubriceps*" and "*platycephalus*".

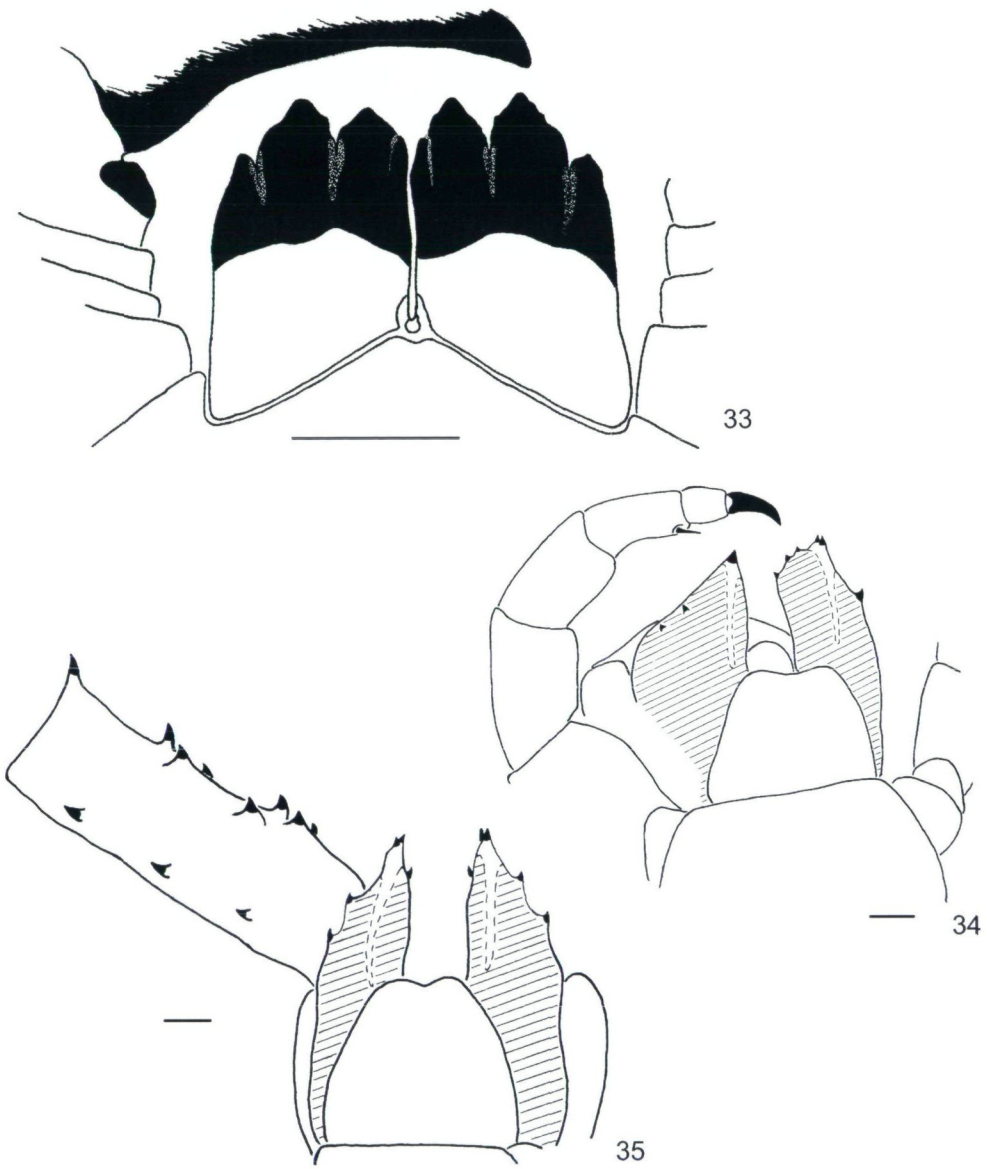
Nevertheless, as there are no clear borders of variability in the main diagnostic character (structure of coxopleural process) between "typical *rubripes*" and "*platycephalus*", the latter should not be retained as an independent species.

In summary we suggest the new synonymy: *Ethmostigmus platycephalus* (NEWPORT, 1845) is *Ethmostigmus rubripes platycephalus* (NEWPORT, 1845) stat.n.

Ethmostigmus rubripes rubripes (BRANDT, 1840) stat.n. (Figs. 33 - 35)

Scolopendra rubripes BRANDT 1840: 156.
Scolopendra rubripes: BRANDT 1841: 65.
Heterostoma sulcidens NEWPORT 1844: 416.
Scolopendra rapax GERVAIS 1847: 248.
Heterostoma bisulcatum TÖMÖSVARY 1885: 65 **syn.n.**.
Heterostoma rubripes: HAASE 1887: 89.
Heterostoma bisulcatum: HAASE 1887: 92.
Ethmostigmus bisulcatus: KRAEPELIN 1903: 160; ATTEMS 1930a: 179.
Ethmostigmus rubripes: ATTEMS 1930a: 179; CHAMBERLIN , 1939: 5; 1944b: 3; KOCH 1983b: 836, 837, 844 - 848.
Ethmostigmus australianus CHAMBERLIN, 1920: 20.
Ethmostigmus australianus: ATTEMS 1930a: 177.
Heterostoma rubripes var. *grossipes*: POCOCK 1891: 58.

Material: N-Neuseeland, leg. A. Reischek, 1884, don. A. Reischek, 3ad., 1 sad., NHMW 914, [1890.II.17]. – Borneo, leg. & don. Ida Pfeiffer, det. Koelbel as *Heterostma bisulcatum* TÖMÖSVARY, 1885, det. Attems as *Ethmostigmus bisulcatus*, 1 ad., NHMW 1026, [1866.I.339]. – Borneo, leg. & don. Graeger, 1876, det. Haase as *Ethmostigmus bisulcatum*, 1 ad., NHMW 1025, [1876]. – Australien, Adelaide-Umgebung, don. Kalksburger Kloster, 2 ad., NHMW 1037. – Java, 4 ad., NHMW 1041. – Australia, Sidney, don. Steindachner, det. Koelbel as *Heterostoma sulcidens*, 3 ad., NHMW 1042, [1883.I.5]. – Neuguinea, Mt. Kuta, Kubor Mountains, S.Mt. Hagen?, 22. Aug. 1971, don. WHD (?), 1 ad., NHMW 3205, [1979.LIII.]. – Australien-S, Kalksburger Kloster, det. Attems as *Cormocephalus* (*C.*) *violaceus sulcatus*, 1 sad., NHMW 3203. – [locality?], leg. & don. F. Steindachner, det. Koelbel as *Heterostoma sulcidens*, 2 ad., NHMW 1032, [1881.I.15]. – Neuseeland-N, leg. & don. Reischek, 1 ad., NHMW 1033, [1891.?]. – Australien, New South Wales, Hunter River, 2 ad., NHMW 1038. – Laos, M. Attopeu, Plateau, 130 Loven, leg. & don. C. Da-wydoff, 1 sad., NHMW 1646. – Australien-S, don. Kalksburger Kloster, 1 sad., NHMW 1034. – Java, Expedition Novara, 1 sad., NHMW 1562, [1866.I.30b]. – [Australia] Sidney, leg. G. Frauenfeld, Expedition Novara, 5 ad., 2 juv., NHMW 1040, [1866.I.16?]. – Neuseeland, Guano Insel, Wangari Heads, leg. Reischek, Jan. 1881, don. Reischek, det. Koelbel as *Heterostoma rubripes*, NHMW 1036, [1890.II.18]. –



Figs. 33 - 35: *Ethmostigmus rubripes rubripes* (BRANDT, 1840): (33) forcipular tooth plates of NHMW 1039, ventral view, (34) posterior end of body of NHMW 1562, ventro-lateral view, (35) posterior end of body of NHMW 1042, ventral view. Scale is 1 mm.

Java, don. Plason, 5 ad., NHMW 1039, [1878.I.]. – Neuguinea, Merauke, leg. Koch, 1904, 2. niederl. Neu Guinea Expedition, 2 ad., 2 juv., NHMW 3222.

Variability: The posterior margin of sternum XXI may be bisinuated from slightly to nearly forming a right angle; the latter condition seems to be a male-character: in a few

adults (NHMW 1041, NHMW 1036, etc.) the penis is evaginated, being closely adpressed to the bisinuate sternal margin. Apical one- to two-thirds of the coxopleural posterior process sometimes coloured lighter than rest of coxopleuron; this character is apparently directly correlated with the previous one, being observed in all the specimens noted above. In many localities the animals have terminal legs of usual shape, with praetarsus clearly shorter than tarsus II and with praetarsal spurs. In all five adults from Java (NHMW 1041, NHMW 1562) however, these legs are considerably enlarged, with praetarsus nearly as long as tarsus II; both adults from Borneo (identified as *Ethmostigmus bisulactus*; NHMW 1025, NHMW 1026) have the terminal praetarsus as long as 1.5 times tarsus II. All these seven specimens lack terminal praetarsal spurs, except for one outer one on the right terminal leg of one specimen of NHMW 1041. The most enlarged, dorsally flattened terminal legs are in two adults from the Solomon Archipelago, having the terminal praetarsus twice as long as tarsus II. Their praefemoral spinulation is reduced to two ventro-lateral, two ventro-medial and four dorso-medial spines plus a strongly enlarged dorso-distal process. In NHMW 1562 forcipular tooth plates with three usual teeth, the inner of which is solid (i.e. without traces of fusion of two previous teeth).

Remarks: *Ethmostigmus bisulcatus* was described by TÖMÖSVARY (1885) as *Heterostoma bisulcatum*. According to ATTEMS (1930a) this form occurs on Borneo, Java, Siam and differs from *Ethmostigmus rubripes* by having much shorter antenna. Antennomeres are wider than high in *bisulcatus,* but higher than wide in *rubripes*. No other differences exist between these two species according to the known descriptions. However, within *rubripes* these two characters vary considerably and some typical *rubripes* (NHMW 1562, NHMW 3222, etc.) have antennae reaching to posterior margin of tergum III (i.e. as *bisulcatus* should have), being composed of square-shaped antennomeres.

Both examined adults of *Ethmostigmus bisulcatus* (NHMW 1025, NHMW 1026) have antennae of 20 joints from which the four basal ones are glabrous dorsally and three ventrally, i.e. as in typical *Ethmostigmus rubripes*. Both antennae of NHMW 1025 and the right one of NHMW 1026 reach the anterior margin of tergum IV, having antennomeres of usual shape. Only the left antenna of NHMW 1026 reaches to the middle of tergum III, having joints much shorter than wide. These minor variations clearly fit well into the range of intraspecific variability of *rubripes*.

Thus, in all other taxonomically important respects (poorly developed sternal paramedian sulci; structure and spinulation of coxopleural processes; structure, spinulation and joint proportions of typically enlarged terminal legs), the examined specimens are normal representatives of the nominative form. We therefore feel confident in suggesting the new synonymy: *Ethmostigmus bisulcatus* (TÖMÖSVARY, 1885) is *Ethmostigmus rubripes rubripes* (BRANDT, 1840).

Ethmostigmus australianus CHAMBERLIN, 1920 has been synonymised with *rubripes* by KOCH (1983b); this author did not recognize any *rubriceps'* subspecies, *australianus* is regarded here as a synonym of *rubripes rubripes*.

Range: Indonesia: Borneo, Java (Terra typica); Laos; China; widespread in Australia; Fitzroy and Baudin Islands; Solomon Islands; Sunday Island; N New Zealand (Guano Island); New Guinea.

Ethmostigmus rubripes platycephalus (NEWPORT, 1845) stat.n. (Figs. 36 - 38)

Heterostoma platycephala NEWPORT 1845: 415.
Heterostoma platycephala: GERVAIS 1847: 246.
Heterostoma Loriae SILVESTRI 1894: 631.
Scolopendra cribrifera GERVAIS 1847: 248 **syn.n.**.
Ethmostigmus platycephalus: ATTEMS 1930a: 180; CHAMBERLIN 1939: 4; 1944a: 182; 1944b: 3.
Ethmostigmus platycephalus cribrifer: ATTEMS 1930a: 182.
Ethmostigmus platycephalus loriae: CHAMBERLIN 1939: 4.

Material: Sri Lanka, leg. Emil Riebeck, don. Paul Riebeck, det. Attems *as Ethmostigmus platycephalus*, 3 juv., NHMW 1559. – [Oceania] Insel Umboi (zwischen Neu Guinea und Neu Britannien), don. Mus. Basel, 1939, det. Attems as *Ethmostigmus platycephalus*, 1 ad., NHMW 3202. – [Oceania] Insel Mioko, Duke of York Island, don. Ribbe, det. Attems as *Ethmostigmus platycephalus*, 1 ad., 1sad., NHMW 1560, [1893.I.98]. – Neuguinea, leg & don. Prof. Pöch, (1928), det. Attems as *Ethmostigmus rubripes*, 2 ad., 1 sad., NHMW 1035. – Molukken, Ambon, leg. Dr. Kopstein, don. Mus. Leiden, det. Attems as *Ethmostigmus platycephalus cribrifer*, 1 sad., NHMW 3232. – Neuguinea-N, Kaiserin Augusta Fluss, leg. & don. P.van Kampen, 1910/11, det. Attems as *Ethmostigmus platycephalus*, 1 ad., NHMW 3233. – Neuguinea, Mansinam, leg. van Hasselt, 1903, 1.niederl. Neuguinea Expedition, det. Attems as *Ethmostigmus platycephalus*, 1 ad., NHMW 3234. – Molukken, Insel Boeroe S, Wae ? Katin, leg. Dr. Kopstein, 1922, don. Museum Leiden, det. Attems as *Ethmostigmus cribrifer* GERVAIS. 1 ad., NHMW 3235. – Neuguinea; 1) Neuguinea-N, Hollandia (Biwak an der Kajo Bucht); 2) Neuguinea, Friedrich Wilhelm Hafen; Eitape [02°¡32'29''S 14°04'412''E] leg. van Kampen, 1910/1911, don. 2) Museum Berlin, det. Attems as *Ethmostigmus platycephalus*, 2 ad., 1 juv., NHMW 3236, [two series mixed together or wrong label, Attems 1914: 54/380, 1917: 59/18]. – Molukken, Ceram, SE-Küste, bei Dorf Kwaos, leg. Dr. Kopstein, Feb. 1924, don. Mus. Leiden, det. Attems as *Ethmostigmus platycephalus cribrifer*, 2 sad., NHMW 3237. – Molukken, Ceram-W, leg. Dr. Stresemann, det. Attems as *Ethmostigmus platycephalus cribrifer*, 1 ad., NHMW 3238. – Laos, Luang Prabang, leg. & don. C. Dawidoff, 1938/39, det. Attems as *Ethmostigmus platycephalus cribrifer*, 2 sad., NHMW 3239. – Vietnam, (N. Annam), Dong Hoi, leg. & don. C. Dawidoff, 1938/39, det. Attems as *Ethmostigmus platycephalus cribrifer*, 1 sad., NHMW 3240. – Vietnam-S (Cochinchina), Soetrang (sumpfige Ebene, Mangrove), leg. & don. C. Dawidoff, 1938/39, det. Attems as *Ethmostigmus platycephalus cribrifer*, 1 sad., NHMW 3241. – Kambodscha, Sre Umbell, leg. & don. C. Dawidoff, 1938/39, det. Attems as *Ethmostigmus platycephalus cribrifer,* 1 ad., NHMW 3242. – Neu Guinea, Sepik Strom, don. Mus. Berlin? / Attems, det. Attems as *Ethmostigmus platycephalus*, NHMW 3243. – Vietnam, Da Lat, leg. & don. C. Dawidoff, 1938/39, det. Attems as *Ethmostigmus platycephalus cribrifer*, 1 sad., NHMW 3244. – Molukken, Halmaheira, leg. & don. Kükenthal, det. Attems as *Heterostoma cribriferum*, 1 ad., NHMW 3245. – Australien, det. Koelbel as *Heterostoma cribriferum*, 1 ad., 1 juv., NHMW 1558, [Alte Sammlung]. – Vietnam, (N. Annam), Dong Hoi, leg. & don. C. Dawidoff, 1938/39, det. Attems as *Ethmostigmus platycephalus cribrifer*, 1 ad., NHMW 3246.—Vietnam-S (Cochinchina), Soetrang (sumpfige Ebene, Mangrove), leg. & don. C. Dawidoff, 1938/39, det. Attems as *Ethmostigmus platycephalus cribrifer*, 1 ad., NHMW 3247. – China, Spratly Inseln, leg. & don. C. Dawidoff, 1938/39, det. Attems as *Ethmostigmus platycephalus cribrifer*, 1 sad., NHMW 3248. – Neuguinea-N, Hollandia (Biwak an der Kajo Bucht), [02°32'29"S 14°04'41"'E], leg. & don. van Kampen, 1910/1911, det. Attems as *Ethmostigmus platycephalus cribrifer*, 2 ad., 1 sad., NHMW 3249. – Salomo Inseln, leg. Dr. A. Kukic, Expedition Fasana, det. Attems as *Ethmostigmus platycephalus*, 1 ad., NHMW 1029, [1895.I.18]. - Salomo Inseln, St. Georg Insel, 15. Feb. 1897, Expedition Albatross, det. Attems as *Ethmostigmus platycephalus*, 2 ad., NHMW 1027, [1897.XXVI.]. – Philippinen? Sans Miguelle Inseln, det. Attems as *Ethmostigmus platycephalus cribrifer*, 1 sad., NHMW 3280, [locality not clear].

Variability: In the adult of NHMW 3234 tergum I does not reach to cephalic posterior margin, the latter with clearly developed "basal plates"; tergum I bears semilunar sulcus anteriorly.

The most variable structure is the coxopleural process; in the adult ofNHMW 3242 it is about three times as long as sternum XXI.

Remarks: ATTEMS (1930a) distinguished two subspecies of *Ethmostigmus platycephalus*: *Ethmostigmus platycephalus spinosus* (NEWPORT, 1845) (see below) and *Ethmostigmus platycephalus cribrifer* (GERVAIS, 1847). The latter differs from the nominative form by one (versus 2 - 4) apical and 2 - 3 (versus 0 - 1) dorsal spines on the coxopleural process. However, among the examined specimens, labelled as *Heterostoma cribriferum* or *Ethmostigmus platycephalus cribrifer* (Fig. 38), we have found a complete transformation series for the number of dorsal coxopleural spines between these two subspecies. In some animals examined here the dorsal spines are more numerous: six and seven in NHMW 3241 or five and seven in NHMW 3242. In 1953 ATTEMS described *Ethmostigmus platycephalus cribrifer* in more detail, noting 2 - 6 dorsal coxopleural spines and the impossibility of separating *Ethmostigmus platycephalus cribrifer* from *Ethmostigmus platycephalus platycephalus* because, usually, there is no clear border between subapical and the most caudal dorsal coxopleural spines (Fig. 38). It should be noted that, in the same locality (1030), one animal may have coxopleural process clearly of "*cribrifer*-type" (with one apical spine), but another has typical process of "*platycephalus*-type".

Also, the number of apical spines on the coxopleural process varies sometimes in the animals of the same series: the adult specimen in NHMW 1558 clearly has one apical spine (Fig. 37), while the NHMW 1558 juvenile has two apical spines. Besides, there are intermediate forms between "*rubripes*-" and "*cribrifer*-type": NHMW 3232 subadult has coxopleural process more than twice as long as sternum XXI and with one apical spine, but its dorsal edge is strongly arcuate and abundantly spined as in typical "*rubripes*". Thus, as the representatives of this form clearly belong to *Ethmostigmus rubripes* and generally have a long coxopleural process (of "*platycephalus*-type"), the suggested new synonymy is: *Ethmostigmus platycephalus cribrifer* (GERVAIS, 1847) is *Ethmostigmus rubripes platycephalus* (NEWPORT, 1845).

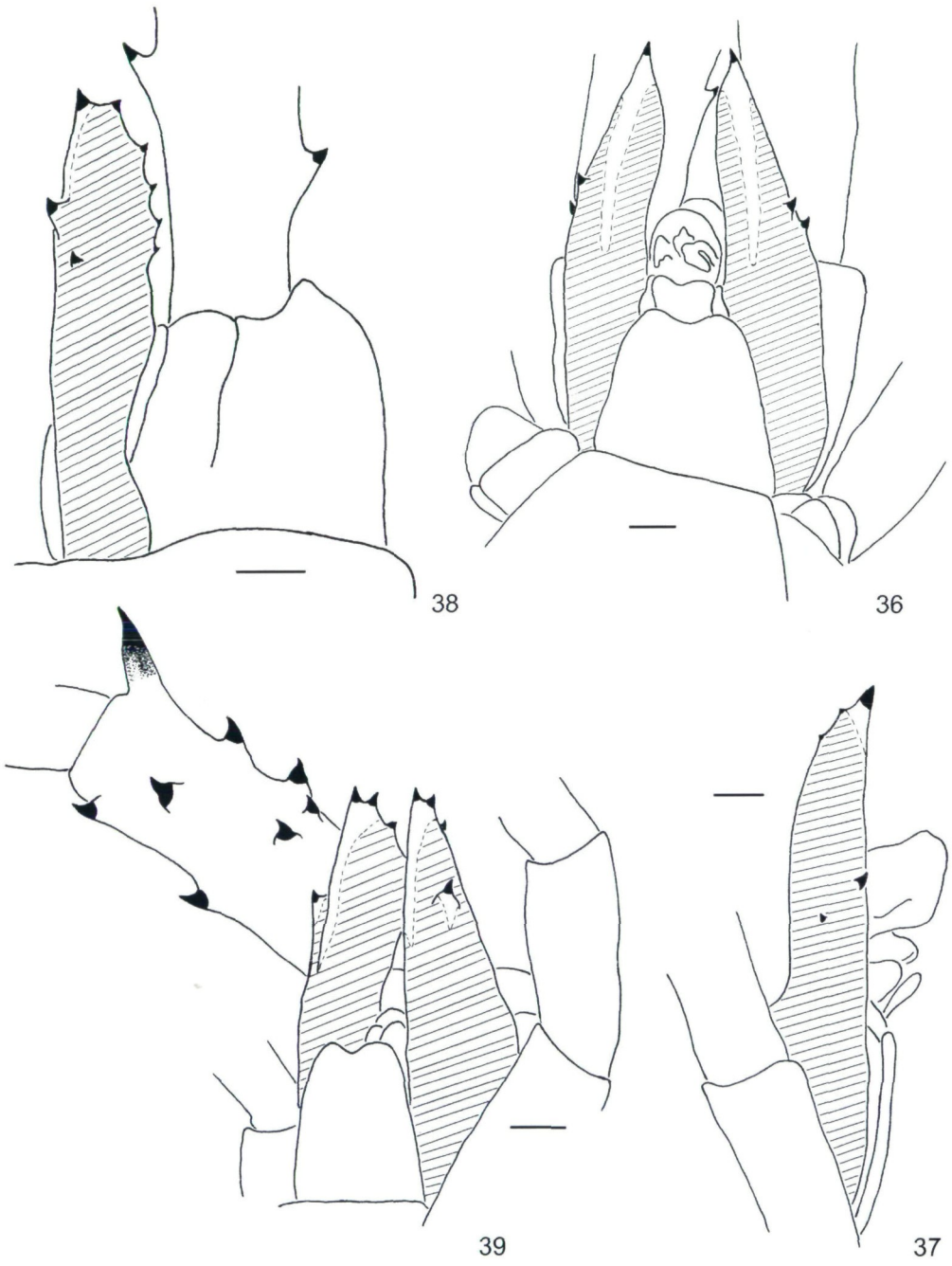
This subspecies never has been recorded from Australia before - not even in the most recent and detailed monograph by KOCH (1983b). Thus, the two specimens NHMW 1558 from "Australien" without more precise locality is the first Australien record of *rubripes platycephalus* if label was correct (this vial is also marked as "Alte Sammlung").

Range: Oceanian Islands: Umboi, Mioko, Duke of York; New Britain; Tahiti; Solomon Islands; New Guinea; Indonesia, Moluccas Islands; Philippines: Spratly Island; Australia(?); Sri Lanka; Laos; N and S Vietnam; Cambodia; China.

Ethmostigmus rubripes spinosus (NEWPORT, 1845) stat.n. (Fig. 39)

Heterostoma spinosa NEWPORT 1845: 414.
Heterostoma spinosa: GERVAIS 1847: 246.
Ethmostigmus spinosus: KRAEPELIN 1903: 103.
Ethmostigmus platycephalus spinosus: ATTEMS 1930a: 181.

Material: Sri Lanka, Trinkomali, leg. Schmarda, don. Zool. Inst. Univ. Wien, det. Attems as *Ethmostigmus platycephalus spinosus*, 2 ad., 6 sad., NHMW 1031, [1929.XXI.?]. – [locality ?] leg. ?, det. Koelbel as *Heterostoma spinosum*, Attems misidentified as "*Ethmostigmus sexspinosus*", 1 ad., NHMW 1563, [1866.I.299]. – Sri Lanka, leg. & don. Georges Redemann, det. Koelbel as *Heterostoma spinosum*, det. Attems as *Ethmostigmus platycephalus spinosus*, 2 ad., 2 sad., 23 juv., NHMW 1564, [1892.I.2]. – Sri Lanka,



Figs. 36 - 39: *Ethmostigmus rubripes platycephalus* (NEWPORT, 1845) stat.n.: (36) posterior end of body of NHMW 3238, ventral view, (37) posterior end of body of NHMW 1558, lateral view, (38) posterior end of body of NHMW 3244, lateral view. – *Ethmostigmus rubripes spinosus* (NEWPORT , 1845) stat.n.: (39) posterior end of body of NHMW 1565, ventro-lateral view. Scale is 1 mm.

leg. Emil Riebeck, don. Paul Riebeck, det. Attems as *Ethmostigmus spinosus*, 1 ad., 1 sad., NHMW 1565, [1885.V.3]. – Sri Lanka, Kandy, leg. Lorenz Liburnau, 1892/93, Weltreise Franz Ferdinand, det. Koelbel as *Heterostoma spinosum*, 1 ad., NHMW 3250.

Description: The following detail should be corrected.

Body length up to 125 mm.

Headplate: sometimes with small but well-developed "basal plates", which may be present at one side only.

Forcipules: tooth plates as in nominative form.

Coxopleura (Fig. 39): posterior process dorsally with more or less arcuate edge, 1.2 - 2.5 times as long as sternum XXI. Laterally with 1 - 2 spines of which lower one of normal size (not very small as stated by ATTEMS (1930a)), dorsally with 1 - 2 spines (0 - 1 sensu ATTEMS).

Locomotory legs: two anterior pairs with two tarsal spurs (the first pair only according to ATTEMS (1930a).

Variability: Three subadults (NHMW 1031) and adult (NHMW 1563) have small but clear cephalic "basal plates" (one subadult has basal plates at one side only). Among six specimens of NHMW 1031, length of coxopleural process varies from 1.2 to twice the length of sternum XXI; a very large adult of NHMW 1563 has coxopleural process 2.5 times as long as sternum XXI. Adults of NHMW 1564 and one subadult of 1031 have one coxopleural process with two, but another one with one dorsal spine. Subadults of NHMW 1564 have no dorsal spines. Proportion of body length to terminal leg length differs sharply in subadult and adult animals: in NHMW 1564 subadults this ratio is 55 mm: 20 mm, in adults 105 mm: 25 mm. This probably means that the terminal legs do not grow gradually. 23 juveniles (NHMW 1564) (which seem to be freshly hatched) have no such spurs on legs; their exuvia are not pigmented.

Remarks: *Heterostoma spinosa* NEWPORT, 1845 was reduced by ATTEMS (1930a) to a subspecies of *Ethmostigmus platycephalus*, differing from the nominative form by features of terminal praefemur (Fig. 39): (a) enormously enlarged dorso-distal process and (b) mainly two (three in *p. platycephalus*) vento-lateral spines.

If *Ethmostigmus platycephalus* belongs (as a subspecies) to *Ethmostigmus rubripes*, then *Ethmostigmus spinosus* also must belong to *rubripes*. However, we consider this form to be a good subspecies because of: (a) its distribution in Sri Lanka (and Myanmar?), (b) stable combination of the following characters: strong enlargement of both dorso-distal process and all other spines of terminal praefemur, this joint ventro-laterally with two spines, coxopleural process with two apical, 1 - 2 dorsal and 1 - 2 lateral spines.

In summary, the suggested synonymy is: *Ethmostigmus platycephalus spinosus* (NEWPORT, 1845) = *Ethmostigmus rubripes spinosus* (NEWPORT, 1845) stat.n.

CHAMBERLIN (1939) proposed *Ethmostigmus spinosus nannus* for two subadults from Doormanpad, New Guinea, with only one diagnostic character: an absence of the dorsal spine(s) of coxopleural process. Some subadults of *rubripes spinosus* (1564; see above) do not have those dorsal spines and both known specimens of *spinosus nannus* are also subadult. So the question about the validity of this form remains open.

Range: Sri Lanka (Trinkomali; Kandy, etc.); Myanmar ?; S Vietnam, Dong Nai Province.

Fam. Scolopocryptopidae POCOCK, 1896

Subfam. Scolopocryptopinae POCOCK, 1896

Genus *Tidops* CHAMBERLIN, 1915

Tidops CHAMBERLIN 1915: 495.
Tidops: ATTEMS 1930a: 284; BÜCHERL 1941b: 341.

Type-species. *Tidops simus* CHAMBERLIN, 1915 (by monotypy).

Remarks: This genus has been transferred from Newportiinae to Scolopocryptopinae by SCHILEYKO (2002).

Tidops collaris (KRAEPELIN, 1903)

Newportia collaris KRAEPELIN 1903: 90.
Newportia bicegoi BRÖLEMANN 1905: 67.
Newportia (*Newportia*) *bicegoi bicegoi*: BÜCHERL 1974: 124.
Newportia (*Newportia*) *bicegoi collaris*: BÜCHERL 1974: 124.
Tidops echinopus CHAMBERLIN 1921: 4.
Tidops echinopus: ATTEMS 1930a: 286; BÜCHERL 1941b: 341.
Tidops collaris: SCHILEYKO & MINELLI 1998: 296.

Material: Paraguay, San Lois, leg. Reimoser, 1908, don. Reimoser, det. Attems as *Newportia lasia*, 4 Ex., NHMW 2010, [1910.II.].

Description: Investigated specimens correspond well to the known descriptions.

Range: French Guyana: Bas Carsevenne [?] (Locus typicus); Guyana: Dunoon [?]; Brazil: Amazonas; Parà; Paraguay.

Subfam. Newportiinae POCOCK, 1896

Genus *Newportia* GERVAIS, 1847

Newportia GERVAIS 1847: 243, 298.

Type-species: *Newportia longitarsis* (NEWPORT, 1845) (by monotypy).

Newportia amazonica BRÖLEMANN, 1905

Newportia (*Scolopendrides*) *amazonica* BRÖLEMANN 1905: 69.
Newportia amazonica: ATTEMS 1930a: 283; BÜCHERL 1941b: 340; SCHILEYKO & MINELLI 1998: 272.
Newportia (*Newportides*) *amazonica*: BÜCHERL 1974: 128.

Material: Brasilien, Untl. d. Amazonas, Taperinka? bei Santarem, leg. & don. Zerny, 1927, det. Attems as *Newportia unguifer*, 1 Ex., NHMW 1571.

Description: Antennae: 17 antennomeres, four basal ones with a few short setae dorsally and with some long setae ventrally.

Headplate: with divergent, incomplete paramedian sulci extend reach to cephalic middle, no transverse sulcus. Headplate clearly covers the anterior margin of tergum I.

Forcipules: anterior margin of the coxosternum with two wide and low tooth plates with strongly chitinized tooth margins.

Terga: tergum I with complete paramedian sulci and complete semilunar sulcus in anterior half. Paramedian sulci of tergum II very short and developed only anteriorly and posteriorly, complete from tergum III. Lateral sulci present on terga V - XX. Midbody terga with poorly-expressed medial keel. Tergum XXIII with lateral margination and shallow medial depression in posterior half.

Sterna II - XX with longitudinal median sulcus. Last sternum trapeziform, some wider than long, with posterior margin almost straight.

Coxopleura: posterior process long and slender, apically pointed. Porose area consists of about 35 large, scattered pores.

Locomotory legs I - XXI with tarsi completely fused; tibia with lateral spur only, no tarsal spurs.

Terminal legs: praefemur with 4 and femur with one curved spine ventrally, all of them equally large. Tarsus long, tarsal joints nearly equal in length and poorly separated from each other; tarsus II without clear division. Claw-shaped praetarsus well developed.

Variability: According to the original description and to ATTEMS (1930a) the locomotory legs lack any spurs. However, NHMW 1571 (being a typical representative of this species) has a lateral tibial spur (SCHILEYKO & MINELLI 1998).

Range: Brazil: Amazonas Manaus (Locus typicus), Para (Santarém Novo).

Newportia lasia CHAMBERLIN, 1921

Newportia lasia CHAMBERLIN 1921: 10.
Newportia lasia: ATTEMS 1930a: 279; BÜCHERL 1941a: 145; 1941b: 338; SCHILEYKO & MINELLI 1998: 277.
Newportia (Scolopendrides) lasia: BÜCHERL 1974: 128.

Material: Paraguay, San Lois, leg. Reimoser, 1908, don. Reimoser, 1 Ex., NHMW 1557, [1910.II.].

Description: Investigated specimen corresponds well to the known descriptions.

Range: Guyana: Dunoon? (Locus typius). Brazil: Amazonas; Paraguay.

Newportia monticola POCOCK, 1890

Newportia monticola POCOCK 1890: 144.
Newportia rogersi POCOCK 1896: 34.
Newportia rogersi: BRÖLEMANN 1903: 130; KRAEPELIN 1903: 79, 83, 91 - 92; CHAMBERLIN 1922: 5; 1943: 5.
Newportia parva: CHAMBERLIN 1921: 12 - 13; non *Newportia monticola*, BÜCHERL 1953: 119 - 120.
Newportia monticola: ATTEMS 1930a: 277; BÜCHERL 1941b: 336; SCHILEYKO & MINELLI 1998: 284.
Newportia peruviana KRAUS 1954: 319.

Newportia koepckei KRAUS 1954: 320.
Newportia occidentalis KRAUS 1954: 320.
Newportia cuzcona CHAMBERLIN 1955: 39.
Newportia perucola CHAMBERLIN 1955: 39.
Newportia atopa CHAMBERLIN 1957: 37.
Newportia caldes CHAMBERLIN 1957: 37 - 39.
Newportia ecuadorana CHAMBERLIN 1957: 39.
Newportia schlingeri CHAMBERLIN 1957: 40.
Newportia (*Newportia*) *monticola*: BÜCHERL 1974: 125.

Material: S-Amerika, Alto von Sibade, 2800m, leg. O. Bürger, det. Attems as *Newportia longitarsis*, 1 Ex., NHMW 2011. – Costa Rica, S. Isidro, leg. Reimoser, 06. Juni. 1930, Österr. Costa Rica Exp., don. Reimoser, 2 Ex., NHMW 2013. – Costa Rica, Volcan Yrazu, 2200m, 26. May 1930, Österr. Costa Rica Exp., don. Reimoser, 2 Ex., NHMW 2014.

Description: See SCHILEYKO & MINELLI (1998).

Variability: *Newportia monticola* is one of the most widespread and common representatives of this genus; the following variability in terminal legs is thus expected: number of joints of tarsus II from five to 11, three or four praefemoral ventral spines, 0 - 2 medial and 0 - 2 ventral spines on femur.

Range: Costa Rica (including Cocos Island); Guyana; Ecuador (including Galapagos Islands): Chimborazo (Locus typicus); Colombia; Venezuela: Merida; Peru; Brazil: Amazonas.

Newportia simoni BRÖLEMANN, 1898

Newportia simoni BRÖLEMANN 1898: 251.
Newportia simoni: ATTEMS 1930a: 276; BÜCHERL 1941b: 336; 1974: 127; SCHILEYKO & MINELLI 1998: 291.
Newportia (*Newportia*) *simoni*: BÜCHERL 1974: 127.

Material: Costa Rica, La Caya bei S. Jose, leg. Schmidt, österr. Costa Rica Expedition, det. Attems as *Newportia diagramma*, 3 Ex., NHMW 1554. – Costa Rica, leg. & don. Reimoser 1930, österr. Costa Rica Expedition, det. Attems as *Newportia monticola*, 1 Ex., NHMW 1555. – Costa Rica, Volcan Yrazu, 2200 m, leg. & don. Reimoser, 24. May 1930, österr. Costa Rica Expedition, det. Attems as *Newportia longitarsis*, 6 Ex., NHMW 1556. – Costa Rica, Poás, 2750m, leg. & don. Reimoser, 26. Apr. 1930, österr. Costa Rica Exp., det. Attems as *Newportia monticola,* 1 Ex., NHMW 2012.

Remarks: In the specimens studied, outer branches of bifurcated paramedian sulci of tergum I do not reach to its anterior margin, but clearly cross semilunar sulcus.

This species differs from *Newportia monticola* only by the shape of paramedian sulci of tergum I (other differences indicated by ATTEMS (1930a) are erroneous). The fact that they are sympatric in some areas (for instance on the Yrazu Volcano in Costa Rica) is good evidence for the validity of *Newportia simoni* (SCHILEYKO & MINELLI 1998).

Range: Venezuela: La Guayara (Locus typicus); Columbia (Corozal); Costa Rica.

Newportia stolli (POCOCK, 1896)

Scolopendrides stolli POCOCK 1896: 31.
Newportia stolli: KRAEPELIN 1903: 85; ATTEMS 1930a: 282; CHAMBERLIN 1944a: 176; BÜCHERL 1941b: 339; SCHILEYKO & MINELLI 1998: 291.

Newportia mimetica CHAMBERLIN 1922: 5.
Newportia sulana CHAMBERLIN 1922: 6.
Newportia sulana: BÜCHERL 1941b: 341.
Newportia mimetica: ATTEMS 1930a: 280; BÜCHERL 1941b: 339; 1974: 128.
Newportia (*Scolopendrides*) *stolli*: BÜCHERL 1974: 128.
Newportia (*Newportides*) *sulana*: BÜCHERL 1974: 128.

Material: Kolumbien, Los Pacharitos, Ubabé, leg. O. Bürger, det. Attems as *Newportia ernsti*, 1 Ex., NHMW 2009.

Range: Mexico: Chiapas, Campeche; Guatemala: Quezaltenango (Locus typicus), Tikal Reserve, San Rafael, Izabal; Belize; Honduras; El Salvador; Colombia; Brazil: Amazonas, Parà.

Discussion

Genus *Ethmostigmus*

Of the three studied species two (*trigonopodus* and *rubripes*) have a very wide occurence in the Old World (see above), but *rubripes* is more variable, including two subspecies, which have previously been recorded as separate species. The third species, *pygomegas*, seems to be endemic for the continental part of SE Asia and for adjacent mountaneous region of Central Asia. This form is very close to *trigonopodus*, being possibly a geographic variation [subspecies] of the latter.

In a few species the length proportion between the body and the terminal legs are clearly related to the age of the specimens (a similar trend has been recorded by LEWIS 1989 for *Newportia*); we do not suppose the variations in the terminal legs of *rubripes,* decribed above, to be sexual difference. The terminal legs stop growing quite early for example in *Ethmostigmus rubripes spinosus*.

Genus *Tidops*

CHAMBERLIN (1915) describing this genus wrote: "Eleven pairs of elliptic spiracles, one pair being present on the seventh segment". According to this basic character, SCHILEYKO & PAVLINOV (1997) regarded *Tidops* as a member of Newportiinae [and SCHILEYKO & MINELLI (1998) noted it as the closest genus to *Newportia*].

Further investigations of a large amount of material showed actual absence of this spiracle pair in *Tidops collaris* (KRAEPELIN 1903). This species seems to be the only real representative of *Tidops*, because both other species are only known from the type-series. One of them (*Tidops simus*) is a very doubtful form, being described from Grenada by only a single specimen, which seems not to be adult (length 19 mm and only 13 antennomeres). So this genus has been transferred from Newportiinae to Scolopocryptopinae (SCHILEYKO 2002).

Genus *Asanada*

Asanada brevicornis occurs in SE Asia and the adjacent region of Central Asia, in Australia and some Pacific islands, while the second species - *A. socotrana* (not *sokotrana*, as some authors wrote) – is certainly an African endemic. We assume that the specimen of *socotrana* known from "Indien, Katch" (see above) has been artificially introduced, or labels were interchanged.

Genus *Cormocephalus.*

Two thirds of species, examined in this paper, belong to the genus *Cormocephalus* and to the former genus *Colobopleurus* (now *Cormocephalus*). We do not discuss the validity and status of other related taxa, not presented in the paper, like *Hemiscolopendra*, *Psiloscolopendra*, *Dekanonyx* VERHOEFF, 1937, *Tangopleurus* VERHOEFF, 1941, *Dolichonychius* VERHOEFF, 1941.

Cormocephalus is the largest genus within the Scolopendrinae, including about 100 described species, about 70 we regard as valid ones. At this moment the taxonomy of *Cormocephalus* - one of the most morphologically variable taxa among eyed Scolopendromorpha - is far away from satisfactory. ATTEMS (1930a) was the last to revise *Cormocephalus*; many species - included in ATTEMS (1930a) and described after 1930 - are unclearly or/and poorely described.

Another problem is the absence of a really recent (and accepted) subdivision of this large and variable taxon. According to ATTEMS (1930a), there are four subgenera, with the absence of tarsal spurs at the locomotory legs as a characteristic attribute: *Cormocephalus* s.str., *Cormocephalus* (*Colobopleurus*) KRAEPELIN, 1903, *Cormocephalus* (*Hemiscolopendra*) KRAEPELIN, 1903 and *Cormocephalus* (*Psiloscolopendra*) KRAEPELIN, 1903 - the last three taxa have been originally described as independent genera. For *Cupipes* KOHLRAUSCH, 1881 see above; *Hemicormocephalus* KRAEPELIN, 1903 was synonymised with *Cormocephalus* by ATTEMS (1930a), confirmed by KOCH (1983a).

This *Cormocephalus* subdivision has also been used in the more recent papers of LAWRENCE (1955, 1968) on the fauna of South Africa.

According to the (a) distribution of sulci on the anterior terga, (b) presence of coxopleural spines and (c) ventro-lateral spinulation of the terminal praefemur we recognise four large groups of species (or supergroups) within *Cormocephalus*; the fifth group includes 8 species with unclear position (see Remarks on *Cormocephalus*). The supergroups contain the following basic groups of species which differ from each other by: (a) distribution of sulci on the terminal tergum, (b) comparative sizes of coxopleural porose area, (c) spinulation of terminal praefemur, (d) comparative length of terminal praetarsus.

Supergroup I: *rubriceps* species group (8 species), *nitidus*- (3 species), *westwoodi*- (11 species) and *setiger*- (7 species) species group.

Supergroup II: *esulcatus* species group (6 species).

Supergroup III: *dentipes*- (10 species), *gervaisianus*- (14 species) and *rugosus*-

(3 species) species group.

Supergroup IV: *Colobopleurus* species group (3 species).

KOCH & COLLES (1986) obtained "Four subgroups of *Cormocephalus*" for the Australian fauna. They wrote: "Only the lack of a substantial moat prevents these subgroups from being strong candidates for generic status". But at the recent level of knowledge the question about taxonomic rank/status of any species group inside *Cormocephalus* should remain open.

According to the original description, the former genus/subgenus *Colobopleurus* includes two South African species (*Cormocephalus devylderi* PORAT, 1893 and *Cormocephalus parcespinatus* PORAT, 1893), differing from *Cormocephalus*-species by the complete absence of apical and subapical coxopleural spines. But some typical *Cormocephalus*-species - such as *C. amphieurys* (KOHLRAUSCH, 1878), *C. mediosulcatus* ATTEMS, 1928, *C. brasiliensis* HUMBERT & SAUSSURE, 1870 - have no coxopleural spines at all.

ATTEMS (1930a) added to *Colobopleurus* species *Colobopleurus fontinalis* ATTEMS, 1928 (S Africa), *Colobopleurus inopinatus* KRAEPELIN, 1908 (Australia) and *Colobopleurus makrosestrus* ATTEMS, 1928 (India); in all these species 1 - 2 small coxopleural spines may be present. Accordingly, in Attems' key for the subgenera, a coxopleural structure - in VERHOEFFS' (1941) key - the absence of coxopleural process - has been used to separate *Colobopleurus* from *Hemiscolopendra* and *Psiloscolopendra*, not from *Cormocephalus* s.str. ATTEMS (1930a) and VERHOEFF (1941) separated *Colobopleurus* and *Cormocephalus* s.str. by the contact between cephalic posterior margin and tergum I, an unstable character, sometimes variable even at specific level (for example in *Cormocephalus nitidus nitidus*).

Another original diagnostic character of *Colobopleurus* is the absence of ventral and ventro-lateral spines on the terminal praefemur vs. their presence in all species of *Cormocephalus*. ATTEMS (1930a) placed *inopinatus* and *makrosestrus* into *Colobopleurus,* although they did not fit the definition of that genus. Note that only species of *Colobopleurus* and *Cormocephalus* have well-produced cephalic basal plates. Thus, as no real differences of generic rank exist between *Colobopleurus* and *Cormocephalus*, we propose former to be a junior synonym of *Cormocephalus*.

Three of five nominative species of *Colobopleurus* (*devylderi*, *fontinalis* and *parcespinatus*, i.e. all its South African members) form the ninth basic group of species (see above), having terminal praefemur spineless, ventrally and ventro-laterally. Both the remaining species, *inopinatus* and *makrosestrus* (which seem to be Australian and Indian endemics respectively), have as is usual for *Cormocephalus,* ventro-lateral spines on the terminal praefemur and are, for the moment, placed in the last basic group of "unclear" species.

Summing up, as characters as (a) distribution of sulci on the anterior terga, (b) presence of coxopleural spines, (c) ventro-lateral spinulation of the terminal praefemur, (d) comparative sizes of coxopleural porose area and (e) distribution of sulci on the terminal tergum, are the most reliable in the taxonomy of *Cormocephalus*. Other characters are much more variable (for example length of terminal praetarsus vary within some species, like in *Cormocephalus westwoodi*) or show convergence between different

groups (for instance absence of developed coxopleural process in all species of the supergroup IV and in a few members of supergroup III. Thus, as many characters as possible should be used for certain identification of the groups.

A new general key to this large and widespread genus is hardly needed, the last one (ATTEMS 1930a), does not permit to separate some species groups (for example *westwoodi-* from *nitidus* species group). The most recent papers contain only regional keys (LAWRENCE 1955a, 1955b, 1960, KOCH 1983a), or completely lack keys and contain certain mistakes (BÜCHERL 1974). The suggested division of *Cormocephalus* in supergroups and basic groups on a base of the most reliable characters, could be the first step to create a general key.

Summary

I. The following taxa of species rank are examined:

Arthrorhabdus formosus POCOCK, 1891
Cormocephalus rubriceps (NEWPORT, 1843)
Cormocephalus aurantiipes (NEWPORT, 1844)
Cormocephalus violaceus NEWPORT, 1845
Cormocephalus incongruens KRAEPELIN, 1903
Cormocephalus nitidus nitidus PORAT, 1871
Cormocephalus nitidus calcaratus PORAT, 1871
Cormocephalus aeruginosus ATTEMS, 1928
Cormocephalus westwoodi westwoodi (NEWPORT, 1844)
Cormocephalus westwoodi anceps PORAT, 1871
Cormocephalus westwoodi ribauti ATTEMS, 1928
Cormocephalus westwoodi lambertoni BRÖLEMANN, 1922
Cormocephalus cupipes POCOCK, 1891
Cormocephalus mecutinus ATTEMS, 1928
Cormocephalus humilis ATTEMS, 1928
Cormocephalus multispinus (KRAEPELIN, 1903)
Cormocephalus setiger PORAT, 1871
Cormocephalus multispinosus ATTEMS, 1909
Cormocephalus oligoporus KRAEPELIN, 1903
Cormocephalus insulanus ATTEMS, 1928
Cormocephalus esulcatus esulcatus POCOCK, 1901
Cormocephalus esulcatus schultzei ATTEMS, 1909
Cormocephalus pontifex ATTEMS, 1928
Cormocephalus andinus (KRAEPELIN, 1903)
Cormocephalus bonaerius ATTEMS, 1928
Cormocephalus devylderi PORAT, 1893
Cormocephalus fontinalis ATTEMS, 1928
Rhoda calcarata (POCOCK, 1891)
Asanada brevicornis MEINERT, 1886
Asanada socotrana POCOCK, 1899
Ethmostigmus trigonopodus (LEACH, 1817)

Ethmostigmus pygomegas (KOHLRAUSCH, 1881)
Ethmostigmus rubripes rubripes (BRANDT, 1840)
Ethmostigmus rubripes platycephalus (NEWPORT, 1845)
Ethmostigmus rubripes spinosus (NEWPORT, 1845)
Tidops collaris (KRAEPELIN, 1903)
Newportia amazonica BRÖLEMANN, 1905
Newportia lasia Chamberlin, 1921
Newportia monticola POCOCK, 1890
Newportia simoni BRÖLEMANN, 1898
Newportia stolli (POCOCK, 1896)

II. A new subdivision of the genus *Cormocephalus* in 4 supergroups which include 9 species groups is provided.

III. The following taxonomic changes/notes are made:

1) *Colobopleurus* KRAEPELIN, 1903 is the synonym of *Cormocephalus* NEWPORT, 1845.

2) *Cormocephalus violaceus sulcatus* BRÖLEMANN, 1912 is a new synonym of *Cormocephalus aurantiipes* (NEWPORT, 1844).

3) *Cormocephalus incongruens careens* ATTEMS remains an unpublished manuscript-name.

4) *Cormocephalus calcaratus* PORAT, 1871 = *Cormocephalus nitidus calcaratus* PORAT, 1871 stat.n.

5) Synonyms of *Cormocephalus westwoodi westwoodi* (NEWPORT, 1844): *Cormocephalus dispar fangaroka* SAUSSURE & ZEHTNTER, 1901; *Cormocephalus westwoodi dispar* PORAT, 1871; *Cormocephalus westwoodi elegans* KRAEPELIN, 1903; *Cormocephalus westwoodi microdens* LAWRENCE, 1955; *Cormocephalus foecundus* NEWPORT, 1845 and *Cormocephalus lanatipes* KOHLRAUSCH, 1881.

Cormocephalus westwoodi nubigenus LAWRENCE, 1955, *Cormocephalus dispar alticursor* LAWRENCE, 1960 and *Cormocephalus huttoni* POCOCK, 1893 (or *Cormocephalus westwoodi westwoodi* var. *huttoni* POCOCK, 1893 sensu Attems 1930a) can not be (at least formally) synonymised to *Cormocephalus westwoodi westwoodi* (NEWPORT, 1844) at this moment.

6) *Cormocephalus anceps* PORAT, 1871 = *Cormocephalus westwoodi anceps* PORAT, 1871 stat.n.
Synonyms of *Cormocephalus westwoodi anceps* PORAT, 1871: *Cormocephalus brevicornis longipalpus* ATTEMS, 1930; *Cormocephalus anceps segnis* ATTEMS, 1928; *Cormocephalus elegans zuluinus* ATTEMS, 1928 and *Cormocephalus anceps serrulatus* VERHOEFF, 1941.

7) *Cormocephalus ribauti* ATTEMS, 1928 is *Cormocephalus westwoodi ribauti* ATTEMS, 1928 stat.n.

8) *Cormocephalus lambertoni* BRÖLEMANN, 1922 is *Cormocephalus westwoodi lambertoni* BRÖLEMANN, 1922 stat.n.

9) *Cormocephalus multispinus quadridens* LAWRENCE, 1953 = *Cormocephalus multispinus* (KRAEPELIN, 1903).

10) New synonyms of *Cormocephalus multispinosus* ATTEMS, 1909: *Cormocephalus spinulosus* ATTEMS, 1928 and *Cormocephalus mecutinus* var. *angolensis* ATTEMS, 1930. *Cormocephalus brincki* LAWRENCE, 1955 is a questionable form not close to *multispinosus*, being a member of another (*westwoodi*-) species group.

11) *Cormocephalus insulanus* ATTEMS, 1928 has been described by ATTEMS 1922 as *Cormocephalus michaelseni* (nomen preoccupatum), and re-named as *insulanus* by ATTEMS in 1928b. We regard *Cormocephalus deventeri* LAWRENCE, 1970 (if really exists) to the *insulanus* species group.

12) We do not consider provisionally *Cormocephalus esulcatus schultzei* ATTEMS, 1909 and *Cormocephalus esulcatus capensis* ATTEMS, 1928 as the synonyms of *Cormocephalus esulcatus esulcatus* POCOCK, 1901.

13) Lectotype has been designated for *Cormocephalus bonaerius* ATTEMS, 1928.

14) *Scolopendropsis bahiensis* BRANDT, 1841 is the same form as *Rhoda calcarata* (POCOCK, 1891) (SCHILEYKO, in prep.).

15) Difference between *Asanada brevicornis* MEINERT, 1886 and *Asanada socotrana* POCOCK, 1899 was reduced.

16) *Ethmostigmus trigonopodus pygomenasoides* LEWIS, 1992 from Nepal seems to be the same with *Ethmostigmus trigonopodus trigonopodus* (LEACH, 1817). Difference between *Ethmostigmus trigonopodus* and *Ethmostigmus rubripes* (BRANDT, 1840) has been reduced.

17) Difference between *Ethmostigmus pygomegas* (KOHLRAUSCH, 1881) and *Ethmostigmus trigonopodus* (LEACH, 1817) has been reduced.

18) *Ethmostigmus bisulcatus* (TÖMÖSVARY, 1885) is *Ethmostigmus rubripes rubripes* (BRANDT, 1840).

19) *Ethmostigmus platycephalus* (NEWPORT, 1845) is *Ethmostigmus rubripes platycephalus* (NEWPORT, 1845) stat. n., *Scolopendra cribriferum* GERVAIS, 1847 (ATTEMS' (1030a) *Ethmostigmus platycephalus cribrifer*) is *Ethmostigmus rubripes platycephalus* (NEWPORT, 1845).

20) *Heterostoma spinosa* NEWPORT, 1845 (or *Ethmostigmus platycephalus spinosus* sensu ATTEMS 1930a) is *Ethmostigmus rubripes spinosus* (NEWPORT, 1845) stat. n. Validity of *Ethmostigmus spinosus nannus* CHAMBERLIN, 1939 is questionable.

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