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FIVE NEW SPECIES OF DEEP-SEA DESMOSCOLECIDS (NEMATODA - DESMOSCOLECIDA) FROM THE BAY OF BISCAY

BY

W. DECRAEMER

(with 5 plates)

BULLETIN

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ABSTRACT

The present paper deals with a study of desmoscolecids found in deep-sea samples from the Bay of Gascony. Five new species are described : *Desmoscolex multiannulatus, D. paralongisetosus, D. segonzaci, D. macrophasmatus* and *Quadricoma gascognensis. Desmolorenzenia longicauda* (TIMM, 1970) FREUDENHAMMER, 1975 is synonymous with *D. eurycricus* (FILIPJEV, 1922) FREUDENHAMMER, 1975 and *Quadricoma iberica* FREUDENHAMMER, 1975 is synonymous with *Q. brevichaeta* FREUDENHAMMER, 1975.

RESUME

L'article concerne les desmoscolécides de la plaine abyssale du Golfe de Gascogne. Cinq nouvelles espèces sont décrites : *Desmoscolex multiannalatus, D. paralongisetosus, D. segonzaci, D. macrophasmatus* et *Quadricoma gascognensis. Desmolorenzenia longicauda* (TIMM, 1970) FREUDENHAMMER, 1975 est synonyme de *D. eurycricus* (FILIPJEV, 1922) FREUDENHAMMER, 1975 et *Quadricoma iberica* FREUDENHAMMER, 1975 est synonyme de *Q. brevichaeta* FREUDENHAMMER, 1975.

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I. INTRODUCTION

Desmoscolecids, a small group of rather peculiar nematodes, are independent of the different bathymetrical zone, always found in very low numbers. They represent, however, a relatively high number of species (FREUDENHAMMER, 1975). The 25 specimens from BIOGAS IX-samples and the 35 specimens from BIOGAS XI-samples represent respectively 7 species belonging to three genera (*Desmoscolex* : 2, *Quadricoma* : 3, *Tricoma* : 2) and 18 species belonging to four genera (*Desmoscolex* : 13, *Desmolorenzenia* : 1, *Desmogerlachia* : 1, *Quadricoma* : 3).

Five new species are described : *Desmoscolex multiannulatus* sp. nov., *D. paralongisetosus* sp. nov., *D. segonzaci* sp. nov., *D. macrophasmatus* sp. nov. and *Quadricoma gascognensis* sp. nov. A redescription or additional information is given on the following known species : *Quadricoma brevichaeta* FREUDENHAMMER, 1975, *Desmolorenzenia eurycricus* (FILIPJEV, 1922) FREUDENHAMMER, 1975 and *Desmoscolex asetosus* DECRAEMER, 1975.

II. MATERIAL AND METHODS

Desmoscolecids from the BIOGAS IX- and the BIOGAS XI- cruises were kindly put at my disposal by Dr. M. SEGONZAC (Centre National de Tri d'Océanographie Biologique, CENTOB BREST).

The cruises BIOGAS IX and BIOGAS XI respectively took place from 8/5 to 22/5/1980 and from 23/9 to 13/10/1981. They were part of a series of cruises in the Bay of Biscay realized by the Centre Océanologique de Bretagne (COB, BREST), the purpose of which was a.o. to describe the fauna of the abyssal plain.

The species found are listed in Table 1. The specimens were fixed with 4 % formalin and for the transfer from fixative into pure glycerin the method of SEINHORST (1959) and DE GRISSE (1965) was followed. All type material and other specimens are deposited in the collection of the Muséum nationale d'Histoire naturelle, Paris. Some paratype specimens are deposited in the nematode collection of the Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussel (R. I. T. 30-R. I. T. 33).

III. ABBREVIATIONS

c s, length of cephalic setae; gub, length of gubernaculum; hd, maximum head dimensions (width by length); L, length of body; mbd, maximum body diameter; (mbd), maximum body diameter (foreign material not included); oes, length of oesophagus; sd_n, length of sub-dorsal setae on main ring n; sl_n, length of sublateral setae on main ring n; spic,

TABLE 1

Location of species

Nr slide	Sample	Date	Location	Depth (m)	Species
Biogas IX					
AN 336	KG 171	8-22-V-1980	47°31'N 09°05'W	2700	*Quadricoma brevichaeta* (form 2) : 1 ♂
RIT 30	KG 173				*Q. brevichaeta* (form 2) : 2 ♀♀ *Quadricoma* spec.$_1$: 1 ♂ *Desmoscolex cf falcatus* : 2 ♀♀, 1 ♂
AN 337	KG 174				*Q. brevichaeta* (form 1) : 1 ♂, 1 ♀ *Tricoma* spec.$_1$: 1 ♀ *Desmoscolex* spec.$_1$: 1 ♂
AN 338	KG 175				*Q. brevichaeta* (form 1) : 1 ♂ *Q. brevichaeta* (form 2) : 1 ♀
AN 339	KG 178				*Desmoscolex cf falcatus* : 2 ♀♀
AN 340	KG 179				*Quadricoma cobbi* : 1 ♂, 1 ♀ *Q. brevichaeta* (form 1) : 2 ♀♀ *Q. brevichaeta* (form 2) : 1 ♀ *Desmoscolex cf falcatus* : 1 ♀
AN 341	KG 181				*Desmoscolex cf falcatus* : 2 ♀♀
AN 342	KG 182				*Tricoma* spec.$_2$: 1 ♀
AN 343	KG 184				*Q. brevichaeta* (form 1) : 1 ♀
Biogas XI					
AN 344	KG 203	4-X-1981	47°34'89 09°39'83	4210	*Q. brevichaeta* (form 2) : 1 ♀
AN 345	KG 205	4-X-1981	47°35'59 09°35'73	4140	*Quadricoma* spec.$_1$: 1 ♀ *Desmoscolex* spec.$_2$: 1 ♀
AN 346					*D. multiannulatus* sp. nov. : 3 ♂♂ *Desmoscolex* spec.$_3$: 1 ♀
AN 347					*Desmoscolex* spec.$_3$: 2 ♀♀ *D. macrophasmatus* sp. nov. : 1 ♀
AN 348	KG 210	7-X-1981	47°35'24 09°39'16	4135	*Desmoscolex spec. apud. D. petalodes* : 1 ♀ *D. paralongisetosus* sp. nov. : 1 ♂ *D. multiannulatus* sp. nov. : 1 juv. *Desmoscolex* spec.$_4$: 1 ♂ *Desmoscolex* spec.$_6$: 1 juv.
RIT 31					*D. asetosus* : 1 ♂ *D. multiannulatus* sp. nov. : 3 ♂♂, 1 ♀

TABLE 1 : *(follow and end)*

Nr slide	Sample	Date	Location	Depth (m)	Species
RIT 32					*D. segonzaci* sp. nov. : 1 ♂ *Desmolorenzenia eurycricus* : 1 ♂ *Desmoscolex* spec.$_3$: 1 ♂ *Desmoscolex* spec.$_4$: 1 juv.
AN 349	KG 211	7-X-1981	47°34'74 09°39'10	4170	*Q. brevichaeta* (form 1) : 1 ♂ *Q. gascognensis* sp. nov. : 1 ♂ *D. multiannulatus* sp. nov. : 1 ♀ *Desmolorenzenia eurycricus* : 1 ♀
AN 350	KG 214	7-X-1981	47°34'65 09°39'44	4125	*Q. brevichaeta* (form 2) : 1 ♂ *Desmoscolex* spec.$_5$: 1 ♀ *Desmoscolex* spec.$_6$: 1 ♀
RIT 33	KG 215	7-X-1981	47°34'82 09°39'89	4110	*Q. brevichaeta* (form 1) : 1 ♂, 1 ♀ *Q. gascognensis* sp. nov. : 1 ♂ *Desmogerlachia* spec.$_1$: 1 ♀

length of spicules measured along the median line; sv_n, length of subventral setae on main ring n; t, tail length; tmr, length of terminal ring; tmrw, maximum width of terminal ring; (tmrw), maximum width of terminal ring, foreign material not included; hw, head width; D, dorsal body side; V, position of the vulva as percentage of the body length; a, b, c, proportions of DE MAN (1880); sd_1, length of terminal subdorsal setae.

All measurements are in micrometers (μm).

IV. DESCRIPTIONS

Subfamily DESMOSCOLECINAE SHIPLEY, 1896

Genus Desmoscolex CLAPAREDE, 1863

Desmoscolex Claparède, 1863 : 59.

Desmoscolex multiannulatus sp. nov.
(Plate I, Fig. 1-9)

Material

Holotype : male slide n^r AN346.

Paratypes : 2♂♂ (slide nr AN346), 3♂♂ (slide RIT 31), 1♀ (slide RIT 31), 1♀ (slide nr AN349), 1 juv (slide nr AN348).

Type locality. — Bay of Biscay, station 3, at 47°35'59N/ 09°35'73W, collected on 4/10/1981, at 4140 m depth (sample KG 205).

Measurements

Holotype male : L = 360, hd = 19 × 17, cs = 11, sd_1 = 9, sd_3 = 8, sd_{19} = 10, sd_{24} = 11, sd_{31} = 14-16, sl_2 = 7.5, sl_4 = 7, sv_{10} = 12, sv_{15} = 10, oes = 40, mbd = 58, (mbd) = 50, t = 62, tmr = 33, spinneret = 8, tmrw = 19, (tmrw) = 14, spic = 38.

Paratype males (n = 5) : L = 345-415, hd = 17-21 × 14-17, cs = 8-11, sd_1 = 7-9.5, sd_3 = 7.5-9, $sd_{(25,28,31)}$ = 9-12, sd_t = 11-19, sl_2 = 4.5-7, sl_4 = 6-8, sv_1 = 9-13, oes = 35-38, mbd = 48-61, (mbd) = 54-67, t = 55-69, tmr = 29-33 (D), spinneret = 1-5, tmrw = 17-19, (tmrw) = 12-14, spic = 30-36, gub = 11-12.

Paratype females (n = 2) : L = 380-550, hd = 18-20 × 14-16, cs = 6-11, sd_1 = 8-11, sd_3 = 6.5-8, $sd_{(30,31)}$ = 10-13, sd_t = 12-17, sl_1 = 6.5-8, oes = 43-44, mbd = 67-74, (mbd) = 62-67, t = 54-67, tmr = 27-29, tmrw = 15-19; V = 48-50 %.

Paratype juvenile (n = 1) : L = 215, hw = 14, cs = 7.5, sd_7 = 7, sd_{33} = 9.5, sd_{47} = 8.5, sd_{70} = 6, oes = 27, mbd = 37, t = 47, spinneret = 3.

Description

Body stout, tapered at both ends. Cuticle with 27-34 main rings with narrow desma, separated by broader interzones with two to four annules; the anteriormost interzones usually with two annules. Main rings may be partial, incomplete. The presence of incomplete main rings often involves a variability in the number of main rings between dorsal and ventral body side and (or) between individuals. Desma composed of secretion and fine foreign particles (plate 1, fig. 2).

Head wider than long, broadly rounded posteriorly and tapered anteriorly to a broadly truncated end. Its cuticle slightly thickened at the level of the insertion of the cephalic setae, is only posteriorly covered by a narrow ring of concretion.

Cephalic setae conspicuously stout, possess a fine central canal, and are inserted directly on the head-cuticle near the front end.

Amphids large vesicles, almost completely covering the lateral sides of the head; just posterior to the cephalic setae both amphids nearly meet each other on the dorsal and ventral sides of the head. Amphidial pore small, situated shortly anterior to the concretion ring.

Stoma small. Oesophagus typical for the genus and terminally surrounded by the nerve ring. Oesophago-intestinal junction at the level

of main ring 2 or 3 or interzone in between. Intestine a broad cylinder with a finely granular anterior (ventricular) part, posteriorly filled with small and large globules. A thin strain of fine granula may continue in the ventral intestinal wall, bordering the genital system. Intestine may or may not overlap the rectum.

Ocelli large, rounded, brownish pigment spots irregularly shaped, are between main rings 4 and 6 according to the animal.

Tail with about three main rings, sometimes incomplete. Terminal ring, completely surrounded by a desmos, is tapered posteriorly towards a minute to a long (8 μm) naked spinneret. The concretion ring may have an oblique anterior border resulting in a longer dorsal and a shorter ventral side of the terminal desmos. Large oval phasmata were observed about halfway the endring.

Males. — Somatic setae arranged as follows in the holotype :

sub-dorsal : left side : 1, 3, 6, 13, 19, 24, 31, 31 = 8 (31 main rings)
right side : 1, 3, 9, 13, 19, 23, 29, 31 = 8 (31 main rings)

sub-ventral : left side : 2, 4, 7, 8, 13, 18, 23, 26 = 8 (28 rings sub-ventrally)
right side : 2, 4, 6, 10, 14, 18, 22, 26 = 8 (30 rings ventrally)

and in a paratype male (slide nr AN346) :

sub-dorsal : left side : 1, 3, 6, 14, 18, 21, 27, 29 = 8 (29 main rings)
right side : 1, 3, 10, 14, 18, 22, 28, 30 = 8 (30 main rings)

sub-ventral : left side : 2, 4, 7, 10, 15, 20, 23, 27 = 8 (30 main rings)
right side : 2, 4, 6, 11, 15, 19, 23, 27 = 8 (30 main rings)

with the pairs on main rings 2 and 4 (or 5 in one specimen) in sublateral position. The setae, inserted on low peduncles, are mostly paired. They differ from the typical desmoscolecoid pattern by possessing only eight pairs of sub-dorsal setae instead of nine. In two specimens the terminl ring possesses two sub-dorsal setae on one body side (see Plate I, Fig. 2). The setae are about equally long except for the longer terminal pair. The somatic setae are often observed with an enlarged distal end, formed by a secretion bubble; at their base a granular gland is observed.

Reproductive system typical for the genus, with a single testis (see DECRAEMER, 1975). Vas deferens may show a posterior differentiation in the granulation.

Spicules, 30-38 μm long (38 μm in the holotype), are stout structures, narrowing distaly to a pointed tip; capitulum slightly marked.

Gubernaculum, a thin through-like structure parallel to the spicules; not always observed. Cloacal tube protruding from the ventral bodywall in main ring 24 or 26 or 27, or 29, according to the specimen.

Females. — Somatic setae arranged as follows in paratype female 1 :

sub-dorsal : right side : 1, 3, 6, 10, 14, 19, 23, 30, 32 = 9 (32 main rings)
left side : 1, 3, 6, 13, 18, 22, 28*, 30 = 8 (30 rings sub-dorsally)
sub-ventral : right side : 2, 4, 7, 16, 29 = 5 (32 main rings) and
left side : 2, 4*, 8, 11, 16, 29 = 6 (32 main rings)

in paratype female 2 :

sub-dorsal : right side : 1, 3, 10, 13, 19, 24, 31, 33 = 8 (33 main rings)
left side : 1, 3, 6, 13, 19, 24, 31, 33 = 8 (33 main rings)
sub-ventral : right side : 2, 6, 15, 30 = 4 (33 main rings)
left side : 2, 16, 22, 23 = 4 (33 main rings)

Some sub-ventral setae may be broken off in paratype female 2, however, if so, the insertion was not visible. The pairs on main ring 2 (and 4) are in sub-lateral position. Somatic setae comparable in shape and length with the setae in males.

Reproductive system didelphic-amphidelphic, with outstretched branches. Both branches slightly overlapping each other opposite the vulva. Two rounded spermathecae. Vulva situated between main rings 17 and 18 or 18 and 19, according to the individual i.e. at 48 or 50 % of the total body length from anterior.

Anal tube clearly protruding from the ventral body wall at the posterior end of main ring 29 or 30 according to the specimen.

Juvenile. — The stage of the only juvenile specimen is uncertain. It is possibly a second-stage juvenile, deduced from its setal pattern and the development of its reproductive system.

Body stout, tapered at both ends. Cuticle with 74-77 narrow homogeneous annules. Each annule with a ring of short spines, slightly becoming longer posteriorly, and with some fine particles caught between them.

Somatic setae arranged as follows :

sub-dorsal : right side : 6, 33, 47, 72 = 4
left side : 7, 24, 49, 70 = 4

Sub-ventral setae are lacking. Somatic setae comparable with the setae in adults.

Head wider than long, slightly tapered towards a more or less truncated end. Its cuticle thin and naked. Cephalic setae and amphids comparable with those in adults.

(*) Seta broken off.

Stoma small. Digestive system as in adults. Oesophagus posteriorly obscured by the presence of numerous nuclei. Anus obscure, possibly between annules 63-64; no anal tube.

Ocelli small, dark-yellowish structures, lying opposite annules 24-25.

Reproductive system consisting of a genital primordium with two small overlapping branches, each of a few cells.

Tail with about 14 annules; terminal ring tapered to a fine spinneret. No phasmata observed.

Diagnosis. — *Desmoscolex multiannulatus* sp. nov. is characterized by its stout body with 27-34 main rings, the structure and number of the somatic setae (glandular structures, 8 pairs of sub-ventral and sub-dorsal setae in males), the head-shape with stout cephalic setae and large vesicular amphids.

Differential diagnosis. — *Desmoscolex multiannulatus* sp. nov. has a similar number of main rings as *D. vinealis* WEISCHER, 1962 (26-27 rings), *D. bathybius* TIMM, 1970 (28 rings), *D. pusillus* LORENZEN, 1969 (29 rings), *D. rostratus* TIMM, 1970 (31 rings) and *D. labiosus* LORENZEN, 1969 (34-35 rings). It differs from all these species by its head-shape, its amphids and the shape of its cephalic setae.

Desmoscolex macrophasmata sp. nov.

(Plate II, Fig. 5-7)

Material

Holotype: female slide n^r AN347.

Type locality. — Bay of Biscay, station 3 at 47° 35' 59 N-09° 35' 73 W, collected on 4-10-1981, at 4140 m depth (sample KG 205).

Measurements

Holotype female: L = 200, hd = 9.5 × 10, cs = 6, sd_1 = 9.5, sd_3 = 9, sd_5 = 8, sd_{11} = 7.5, sd_{13} = 9, sd_{16} = 8.5, sd_{17} = 17, sv_8 = 7.5, sv_{12} = 8.5, sv_{14} = 8.5, t = 63, tmr = 25, tmrw = 9, oes = 25, mbd = 32.

Description

Female. — Body small, tapered at both ends. Cuticle with 17 main rings, separated by narrower to wider interzones, composed of three annules; two annules in anterior body region and tail. Each main ring with a desmos of secretion and fine foreign material on three cuticular annules, the middle one swollen.

Somatic setae arranged as follows:

sub-dorsal : right side: 1, 3, 5, 7, 9, 11, 13, 16, 17 = 9
left side: 1, 3, 5, 7, 9, 11, 13, 16, 17 = 9

sub-ventral : right side: — — 6, 8 — 12, 14 — = 4
left side: — — 6, 8 — 12, 14 — = 4

This arrangement differs from the typical desmoscolecoid setal pattern of 17 rings species (LORENZEN, 1969) by the absence of sub-ventral setae on main rings 2, 4, 10 and 15. No difference in structure was observed between sub-dorsal and sub-ventral setae; they all have about the same length, except for the elongated terminal pair of sub-dorsal setae. The setae are rather stout, tapered distally to a fine tip. They are inserted on high peduncles, protruding from the main rings.

Head about as long as wide, with narrower protruding labial region. Cuticle completely covered with fine concretion material except for the protruding labial zone and a small part under the amphids.

Amphids large vesicular structures, extending from base of labial region to shortly beyond the posterior head-end. Amphidial groove lying in naked cuticular zone in posterior head-region.

Cephalic setae short jointed setae with a broader proximal part. They are inserted on peduncles protruding from the head-cuticle in anterior half of the head.

Digestive system typical for the genus. Oesophago-intestinal junction at the posterior border of main ring 2. Intestine with narrow granular anterior part, widening at the level of the ocelli, into a broad cylinder. Intestine shortly (to the 16th main ring) overlapping the rectum posteriorly. Anal tube short, protruding from the ventral body wall at the end of main ring 15.

Ocelli relatively large (4.5 × 5.5 μm) dark-yellowish to brownish structures, situated at the level of main ring 4 and following interzone on the right body side and at the level of main ring 5 on the left side.

Reproductive system didelphic-amphidelphic with outstretched branches. Two spermathecae. Vulva at the interzone between main rings 10 and 11.

Tail with two main rings. Terminal ring, 25 μm long, consists of a broad cylindrical anterior part to the level of the sub-dorsal setae and a conical posterior part tapering to a rather long, fine naked spinneret. Large circular phasmata, 3.5 μm in diameter, situated at the level of the insertion of the terminal pair of sub-dorsal setae.

Diagnosis. — *Desmoscolex macrophasmatus* sp. nov. is characterized by its habit, a head-shape with protruding labial region, the arrangement of the somatic setae with only four pairs of sub-ventral setae and by the shape of the endring with obviously large phasmata.

Discussion. — A similar low number of sub-ventral setae was found in a female of *D. adenotrichus* LORENZEN, 1969. The new species differs from *D. adenotrichus* a.o. by the head-shape, by having interzones without spines on the annules, by the endring and by a different arrangement of the sub-ventral somatic setae.

Desmoscolex paralongisetosus sp. nov.
(Plate II, Fig. 1-4)

Material

Holotype : male lide AN 348.

Type locality. — Bay of Biscay, station 3, at 47° 35' 24 N/ 09° 39' 16 W, collected on 7-10-1981, at 4135 m depth (sample KG 210).

Measurements

Holotype male : L = 230, hd = 13 × 16, cs = 18, sd_1 = 22, sd_3 = 18, sd_5 = 16, sd_7 = 15, sd_9 = 15, sd_{11} = 15, sd_{13} = 18, sd_{15} = 28, sd_{16} = 28, sv_2 = 12, sv_6 = 10, sv_{10} = 10, sl_{14} = 8.5, t = 14, tmr = 27, tmrw = 9.5, oes = 27, mdb = 32, (mbd) = 20, spic = 19, gub = 9.

Description

Male. — Body small and slender, tapered at both ends. Cuticle with 16 main rings with secretion and fine and many coarse concretion particles (desmos); on the dorsal body side main ring 14 apparently double, however, covered by a single desmos. Main rings separated by narrower interzones of 2 to 3 annules.

Arrangement of somatic setae as follows :

sub-ventral : right side : 1, 3, 5, 7, 9, 11, 13, 15, 15, 16 = 10
left side : 1, 3, 5, 7, 9, 11, 13, 15, 16 = 9

sub-dorsal : right side: 2, —, 6, —, 10, —, 14 = 4
left side : 2 (*), —, 6, —, 10, —, 14 = 4

with the setae on main ring 14 in lateral position. The somatic setae, long fine setae, with slightly wider base, are inserted on relatively high peduncles surrounded by concretion material. Sub-dorsal and sub-ventral setae do not differ in structure, only in length. The sub-dorsal setae are longer, with the setae on main rings 1, 13, 15 and 16 elongated especially those on the tail.

(*) Seta broken off.

Head slightly longer than wide; posteriorly broadly rounded, anteriorly tapered to a truncated end. Cuticle thin, covered by concretion that extends further backward on the lateral sides than on the dorsal and ventral sides.

Cephalic setae fine, long, inserted almost directly on the head-cuticle about halfway the head-length.

Amphids large vesicular structures, nearly completely covering the head laterally. Anteriorly they are narrower and extend to the extreme end; from the level of the cephalic setae they become widened and reach beyond the head-end to the anterior (righ side) or posterior border (left side) of the first main ring (see Plate II, Fig. 1, 2). Amphidial pore in posterior head-region.

Ocelli obviously large and dark-brownish oval structures opposite main ring 5 and anterior interzone. Shortly anteriorly, slightly pigmented (yellowish) nuclei (?) were observed.

Digestive system typical for the genus. Oesophago-intestinal junction halfway main ring 2. Intestine, overlapping the rectum, extends to the end of main ring 15. Cloacal tube short, protruding from the ventral body-wall in the posterior half of the swollen main ring 14.

Reproductive system typical for the genus. Spicules, 19 μm long, slightly arcuated, distally tapered to a pointed tip. Guernaculum thin, parallel to the spicules. Just anterior to the cloacal tube lies a single short and thick copulatory supplement or papilla.

Tail with two main rings. Terminal ring 27 μm long, with a long cylindrical anterior part to the insertion of the terminal pair of sub-dorsal setae and a short more conical naked or covered (left side) end with minute spinneret and with small circular phasmata.

Diagnosis. — *Desmoscolex paralongisetosus* sp. nov. is characterized by its habit, the fine long somatic setae without difference in structure, the fine long cephalic setae, the head- and amphid-shape, the presence of a copulatory supplement on main ring 14, the shape of the endring and copulatory system.

Remark. — The presence of two sub-dorsal setae on main ring 15 right side is exceptional and not considered characteristic for the species; also the presence of only 16 main rings is not considered typical for the new species.

Differential diagnosis. — *Desmoscolex paralongisetosus* sp. nov. is closest to *D. longisetosus* by its similar habit, head- and amphid-shape, the copulatory apparatus (see DECRAEMER, 1974) and the marked elevated (however not sclerotized as in *D. longisetosus*) cuticular zone under the amphids in posterior head-region. It differs a.o. from *D. longisetosus* in the structure and arrangement of the somatic setae, the presence of a copulatory supplement in male and the shape of the endring.

Desmoscolex segonzaci sp. nov.
(Plate III, Fig. 1-2)

Material

Holotype : male slide RIT 32.

Type locality. — Bay of Biscay, station 3, at 47° 35' 24 N/ 09° 39' 16 W, collected on 7-10-1981, at 4135 m depth (sample KG 210).

Measurements

Holotype male : L = 265, hd 13 × 15, cs = 10, sd_1 = 16, sd_3 = 13, sd_5 = 15, sd_{11} = 15, sd_{13} = 13, sd_{16} = 24, sd_{17} = 36, sv_2 = 8, sv_4 = 11, sv_6 = 11, sv_{12} = 12, sv_{14} = 12, sv_{15} = 15, spic = 37, gub = 18, t = 52, tmr = 37, tmrw = 16, mdb = 52, (mbd) = 37, oes = 32.

Description

Male. — Body small, tapered at both ends. Cuticle with 17 main rings separated by equally broad or broader interzones formed by three annules; the four anteriormost interzones and those on the tail narrower and with two annules.

Somatic setae arranged according to the typical desmoscolecoid pattern (see LORENZEN, 1969) with 8 pairs of sub-ventral setae and 9 pairs of sub-dorsal setae. Setae inserted on low peduncles; sub-dorsal setae narrow lance-tipped, sub-ventral setae with fine open tip. First pair of sub-dorsal setae longer than the following pair, sub-dorsal setae on the tail clearly elongated. Sub-ventral setae equally long except for the shorter first pair and the longer posteriormost pair.

Head about as wide as long, tapered to a narrow naked labial region. Cuticle, except in labial region, covered by concretion material. Amphids bipartite with a rounded anterior part reaching to the stomatal region and a rounded posterior extension into the first main ring. Amphidial pore small, lying at the border of a naked central area on the lateral sides.

Cephalic setae shorter than the head, with broad basal shaft and slender distal part. They are inserted on low peduncles in anterior half of the head.

Stoma small. Oesophagus typical for the genus. Oesophago-intestinal junction at posterior end of the 3rd main ring. Intestine with brownish pigmented granules in its ventral wall, shortly overlaps the rectum

(*) *D. segonzaci* dedicated to Dr. M. SEGONZAC, CENTOB, Brest, France.

posteriorly. Cloacal tube clearly protruding from the ventral body-wall in main ring 15.

Reproductive system typical for the Desmoscolecinae, with a single testis (DECRAEMER, 1975). Spicules 37 μm long; corpus cylindrical, distally tapered to a pointed tip, proximally with an offset capitulum. Gubernaculum a thin, rather obscure though-like structure parallel to the spicules.

Tail with two main rings. Terminal ring, completely surrounded by a desmos, consists of a more or less cylindrical anterior half and a conical posterior part, ventrally orientated and ending on a minute spinneret. Phasmata, 2.5 μm in diameter, lying halfway posterior conical endpart.

Diagnosis. — *Desmoscolex segonzaci* sp. nov. can be distinguished from the other species of the genus by its head-shape with naked labial region, its amphids, its tail-shape and length and structure of the copulatory apparatus.

D. segonzaci sp. nov. is closest to *D. amaurus* LORENZEN, 1969 and *D. quadricomoides* TIMM, 1970 in possessing a head with narrow labial region and a typical desmoscolecoid setal pattern. It differs from both species a.o. by the shape of the somatic setae, the copulatory apparatus, the head and the amphids.

Desmoscolex asetosus DECRAEMER, 1975

Desmoscolex asetosus DECRAEMER, 1975 : 270-273.

Material

A male specimen : slide nr RIT 31.

The male specimen from a deep-sea sample from the Bay of Biscay is compared with the type material from Lizard Island, Great Barrier Reef (Australia), sampled at 21.5 m depth.

Measurements

Male (n = 1) : L = 350, hd = 13 × 15, sd_1 = 21, sd_3 = 15, sd_6 = 16, sd_{11} = 15, sd_{13} = 14, sd_{16} = 14, sd_{17} = 34, sv_2 = 11, sv_4 = 11, sv_6 = 13, sv_{12} = 12, sv_{14} = 11, sv_{15} = 11, t = 73, tmr = 48, tmrw = 20, oes = 40, mdb = 58, (mbd) = 46, spic = 36, gub = 13.

Discussion. — The male specimen agrees with the type specimens in all characteristics but is larger. It has a longer and wider body and slightly longer somatic setae and spicules.

Genus Desmolorenzenia FREUDENHAMMER, 1975

Desmolorenzenia FREUDENHAMMER, 1975 : 28.

Desmolorenzenia eurycricus (FILIPJEV, 1922) FREUDENHAMMER, 1975 (Plate III, Fig. 3-6)

Desmoscolex eurycricus FILIPJEV, 1922 : 147-148.
Desmolorenzenia eurycricus (FILIPJEV, 1922) FREUDENHAMMER, 1975 : 28. Syn. *Desmolorenzenia longicauda* (TIMM, 1970) FREUDENHAMMER, 1975 : n. syn.

For the first time since its description *Desmolorenzenia eurycricus* (syn. *D. longicauda*) is rediscovered.

Material

A female specimen slide nr AN 349.
A male specimen (aberrant form) slide RIT 32.

Locality. — Bay of Biscay, station 3, samples KG 210, KG 211.

Measurements

Female (n = 1) : L = 655, hd = 27 × 25 (34 including neck), cs = 15, sd_1 = 28, sd_3 = 19, sd_5 = 23, sd_{16} = 26, sd_{17} = 35, sv_2 = 14, sv_4 = 18, sv_{14} = 18, sv_{15} = 19, mbd = 76, t = 166, tmr = 126, tmrw = 31, oes = 55.

Description

Female. — Body with 17 quadricomoid main rings with the layer of secretion and fine foreign material (desmos) completely covering the interzone; interzones with two annules. Inversion of direction of the main rings situated within the double conical shaped main ring 14 (counted as two separate rings in *D. longicauda* in TIMM, 1970, 46). Beneath the cuticle of the main rings granular glands were observed. Somatic setae arranged according to the typical desmoscolecoid setal pattern.

Head globular, followed by a more or less cylindrical neck-region, is completely covered by desmos except in amphidial zone. Cuticle thin, non-sclerotized. Stomatal region narrow. Amphids rounded vesicles restricted to the globular head-region.

Digestive system typical for the genus. Oesophago-intestinal junction at the level of the second main ring. Intestine overlapping the rectum by a postrectal blindsac extending to the end of the 16th main ring.

Reproductive system didelphic-amphidelphic with outstretched branches. Two spermathecae. Vulva situated just anterior to main ring 11.

Anal tube long, thin-walled, protruding from the ventral body wall at the posterior end of main ring 15.

Tail consisting of two main rings. Terminal ring obviously long (75 % of total tail length), nearly cylindrical, slightly tapering to a ventral directed conical end with a minute naked spinneret. Terminal pair of sub-dorsal setae inserted far posteriorly at about 1/5th of total length of terminal ring from its endtip. Phasmata small circular structures situated halfway the conical part, posterior to the terminal sub-dorsal setae.

Discussion. — *D. eurycricus* (FILIPJEV, 1922) FREUDENHAMMER, 1975 and *D. longicauda* (TIMM, 1970) FREUDENHAMMER, 1975 are very closely related. Both species are originally described on a single specimen, respectively a female in *D. eurycricus* and a male in *D. longicauda*. The holotype male of *D. longicauda* (TIMM) has been studied.

D. eurycricus has a similar habit, an identical globular head-shape with neck-region, an identical arrangement of the cephalic and somatic setae, similar broad main rings with covered interzones, a similar long endring with a far posterior insertion of the terminal pair of sub-dorsal setae as in *D. longicauda*.

The holotype female of *D. eurycricus* has a shorter body i.e. 500 μm long against 745 μm in male (holotype) of *D. longicauda* and 655 μm in the female specimen from the Bay of Biscay. The male of *D. longicauda* has a longer tail in relation to the body length (c = 2.8) than the female described above.

The only diagnostic difference between *D. eurycricus* and *D. longicauda* deduced from data in literature, is found in the position of the anus i.e. at the end of main ring 14 in *D. eurycricus* instead of main ring 15 in *D. longicauda*. This results in a tail with 3 rings in *D. eurycricus* and 2 in *D. longicauda*. FILIPJEV (1922) mentioned the anal pore to be 'peu proéminent' i.e. hardly protruding; no anal tube was observed. The female from the Bay of Biscay has two tail rings and a weak anal tube protruding from the end of main ring 15.

Taking into account the very close resemblance of *D. eurycricus* and *D. longicauda* and the exceptional position of the non-protruding opening in *D. eurycricus* (the anal opening has in no other species of the genus been observed at the end of the double conical shaped main ring) I consider *D. longicauda* and *D. eurycricus* synonymous.

Remark. — A male specimen was found among the deep-sea material from the Bay of Biscay, resembling *D. eurycricus*, but being only half as long as the male of *D. eurycricus* (syn. *D. longicauda*).

Measurements (male slide RIT 32)

Male (n = 1) : L = 395, hd = 21 × 22, cs = 12, sd_1 = 13, sd_3 = 13, sd_5 = 12, sd_{11} = 15, sd_{16} = 16, sd_{17} = 22, sv_2 = 11, sv_4 = 11, sv_{12} = 11, sv_{14} = 11, sv_{15} = 11, t = 102, tmr = 70, tmrw = 21, oes = 48, spic = 31, gub = 13, mbd = 50.

It differs from *D. eurycricus* by its larger head-dimensions in relation to its body length and by its head-shape appearing less globular, without pronounced ' neck ' and with a wider stomatal region. It also possesses narrower main rings, separated by interzones (with two annules) only partly covered by concretion material. Its spicules are much shorter (37 μm against 87 μm) and the insertion of the terminal pair of subdorsal setae is about halfway the endring instead of more posteriorly as in *D. eurycricus*.

In view of the resemblance with *D. eurycricus* and since only one specimen is available, the male from the Bay of Biscay is tentatively considered as an aberrant form of *D. eurycricus*.

Subfamily TRICOMINAE LORENZEN, 1969

Genus Quadricoma FILIPJEV, 1922

Quadricoma FILIPJEV, 1922 : 150.

Quadricoma gascognensis sp. nov.

(Plate IV, Fig. 1-3)

Material

Holotype : male slide nr AN 349.
Paratype : male slide nr RIT 33.

Type locality. — Bay of Biscay, station 3, at 47° 34' 74 N/ 09° 39' 10 W, collected on 7-10-1981, at 4170 m depth (sample KG 211).

Measurements

Holotype male : L = 810, hd = 23 × 16, cs = 12, sd_6 = 9, sd_9 = 8, sd_{15} = 8, sd_{20} = 9, sd_{27} = 8, sd_{32} = 4.5, sd_{36} = 9, sv_4 = 6, sv_6 = 6.5, sv_{10} = 10, sv_{14} = 10, sv_{18} = 8.5, sv_{20} = 9.5, sv_{25} = 9.5, t = 156, tmr = 42, tmrw = 21, (tmrw) = 13, spinneret = 3.5, oes = 97, mbd = 71, (mbd) = 44, spic = 53, gub = 32.

Paratype male (n = 1) : L = 900, hd = 21 × 15, c s = 11, sd_4 = 2.5, sd_8 = 5, sd_{16} = 7.5, sd_{20} = 8.5, sd_{25} = 8, sd_{32} = 7.5, sd_{36} = 8, sv_4 = 7.5, sv_7 = 8, sv_{11} = 8.5, sv_{17} = 11, sv_{21} = 11, sv_{24} = 9, sv_{29} = 10, sv_{33} = 9, sv_{36} = 8.5, t = 150, tmr = 34, tmrw = 20, (tmrw) = 13, spinneret = 5, oes = 107, mbd = 73, (mbd) = 50, spic = 51, gub = 30.

Description

M a l e . — Body long and stout, tapered towards the extremities. Cuticle with 37 (36 on ventral side in holotype) broad quadricomoid main rings with the layer of secretion and fine foreign material (desmos) covering the interzones. Inversion of direction of the main rings situated in main ring 27 (ring 26 ventrally in holotype).

Somatic setae arranged as follows in holotype :

sub-dorsal : right side : 6, 9, 17, 20, 26, 32, 36 = 7
left side : 6, 9, 15, 20, 27, 32, 36 = 7

sub-ventral : right side : 4, 6, 9, 13, 16, 19, 24, 27, 33, 35 = 10
left side : 4, 6, 10, 14, 18, 20, 25, 29, 34, 36 = 10

Left body side sub-ventrally with 36 main rings, rings 7-8 forming a single desmos.

In paratype male :

sub-dorsal : right side : 4, 8, 16, 20, 25, 32, 36 = 7
left side : 4, 8, 14, 20, 26, 32, 36 = 7

sub-ventral : right side : 4, 7, 11, 17, 21, 24, 29, 33, 36 = 9
left side : 4, 6, 10, 13, 18, 21, 25, 33, 36 = 9

Somatic setae are small stumpy setae, distally with a groove, giving the appearance of a splitted tip (Plate IV, Fig. 3). At the base they are triangular in cross section. They are short and have all about the same length except for the slightly shorter anterior setae. They are paired or single, inserted directly on the cuticular ring of the main ring.

Head heavily built, maximally almost 1.5 × wider than long and more or less rectangular in shape. Labial region with two crowns of minute labial papillae, only observed in the holotype. Cuticle conspicuously thickened and sclerotized, naked, except in a small posterior zone on the dorsal and ventral sides (i.e. between the amphids) covered with fine concretion material.

Cephalic setae short stumpy setae, 11-12 μm long, with comparable structure as the somatic setae, giving sometimes the impression of being flanked. They are inserted on low, broad peduncles in the anterior region.

Amphids covering the head almost completely, posteriorly extending onto the first main ring. Both amphids nearly reach each other on the dorsal and ventral side of the head posterior to the cephalic setae. Amphidial canal ending in a small groove in front of posterior head-border.

Stoma small; oesophagus protruding slightly into basal part of stomatal lumen. Oesophagus cylindrical, surrounded by the nerve ring at the level of main ring 5. Oesophago-intestinal junction at main ring 6. Intestine a broad cylinder, anteriorly with a short granular part, from the level of the ocelli filled with numerous small and large spherical inclusions. No postrectal overlapping. Cloacal tube protrudes medio-ventrally from the body wall between main rings 30-31 (holotype) and between main rings 31-32 in paratype (see difference in total number of main rings between ventral and dorsal side).

Ocelli large (17 × 11 μm in holotype) red-brownish structures irregularly shaped, situated at the level of main ring 7.

Reproductive system typical for the genus. Two testes, the left one posteriorly reflexed. One finely granular ejaculatory gland on both sides of vas deferens; a small rounded glandular cell with pale nucleus posterior to the spicules. Spicules 51-53 μm long, slightly arched; corpus distally tapered to a pointed tip and proximally with a slightly marked capitulum. Gubernaculum parallel to the spicules, with a slightly thickened distal tip and proximally with a 6.5-8.5 μm long apophyse at right angles (slightly bent posteriorly in holotype).

Tail with 6 main rings. Terminal ring 34-42 μm long, completely covered by desmos except for a short tube-like spinneret, 3.5-5 μm long. Caudal glands well developed in holotype. A large almost circular phasmata (6 μm or 6 × 5 μm in diameter) situated at the level of or just posterior to the cuticular ring (= widest part) of the terminal main ring.

Diagnosis. — *Quadricoma gascognensis* sp. nov. is characterized by its head-shape (broad rectangular with thickened cuticle), by the structure of cephalic and somatic setae (short, stumpy) and by the copulatory apparatus.

Differential diagnosis. — *Q. gascognensis* sp. nov. has the same number of main rings (37) as *Q. cobbi* (STEINER, 1916) FILIPJEV, 1922, *Q. iberica* FREUDENHAMMER, 1975 and *Q. noffsingerae* DECRAEMER, 1977. It differs from these three species e.g. in head-shape, structure of somatic and cephalic setae, structure of copulatory apparatus, and by its body being nearly twice as long. It can also be distinguished from *Q. noffsingerae* by its shorter spicules (51-53 μm against 72-78 μm), the structure of the oesophagus and spermatozoids, and the arrangement of somatic setae and from *Q. iberica* by its longer spicules (51-53 μ against 35 μm).

The stumpy structure of the cephalic and somatic setae in *Q. gascogenensis* sp. nov. resembles that of the cephalic setae in *Desmoscolex galeatus* FREUDENHAMMER, 1975 (in FREUDENHAMMER, 1975 : 7, 61).

Quadricoma brevichaeta FREUDENHAMMER, 1975

(Plate IV, Fig. 4-5; Plate V, Fig. 1-15)

Quadricoma brevichaeta FREUDENHAMMER, 1975 : 57-58.
syn. *Quadricoma iberica* FREUDENHAMMER, 1975 : 58 : n. syn.

Redescription of *Q. brevichaeta* based on specimens from the Bay of Biscay. Two forms have been distinguished : a form 1 with the amphids restricted to the head-region and a form 2 with an extension of the amphids beyond the head-border, reaching to the third main ring in a male specimen.

Material

form 1 : 4♂♂ (1 specimen broken), 5♀♀ (2 specimens broken or incomplete).
form 2 : 2♂♂, 5♀♀ (2 specimens incomplete).

Localities. — See table 1.

Measurements. — Form 1

Males (n = 3) : L = 585-865, hd = 18-26 × 14-21, cs = 12-18, sd = 10-14, sv = 9-14, t = 114-161, tmr = 29-32, tmrw = 13-23, spinneret = 5-11, mbd = 67-116, (mbd) = 43-86, oes = 81-112, spic = 41-61, gub = 30-38.
Females (n = 2) : L = 690-965, hd = 22-28 × 17-20, cs = 13-19, sd = 7.5-13, sv = 6-13, t = 119-150, tmr = 37-40, tmrw = 16-21, spinneret = 4-8.5, mbd = 73-132, (mbd) = 54-112, oes = 82-104, V = 49 %.

Description. — Form 1

Male. — Body relatively long to very long, tapered towards the extremities. Cuticle with 38 quadricomoid main rings with a layer of secretion and fine to coarse foreign particles (desmos) covering the interzone. Inversion of direction of the main rings situated in main ring 27.

Somatic setae with 7 (8) sub-dorsal setae and 10 (11) sub-ventral setae on each side. They are arranged as follows in male (slide RIT 33) :

sub-dorsal : right side : 5, 8, 16, 20, 25, 31, 36 = 7
left side : 5, 8, 13, 19, 26, 31, 36 = 7

sub-ventral : right side : 3, 6, 10, 13, 17, 20, 24, 29, 34, 36 = 10
left side : 3, 6, 10, 13, 17, 20, 24, 29, 34, 36 = 10

Somatic setae paired or single, with central canal. They are small, have all about the same length with the anterior setae slightly shorter.

Head wider than long, anteriorly tapered. Cuticle naked, thickened and sclerotized. Labial region with a crown of minute papillae (observed in two specimens) slightly protrudes beyond the head-cuticle in some specimens (Plate V, Fig. 1).

Cephalic setae broad, 12-18 μm long, are tapered to a fine end. They insert on low broad peduncles about halfway the head-length. Amphids covering the head almost completely, posteriorly extending to the head-border or beyond it onto the first main ring. Amphidial groove at posterior head-border.

Stoma small; oesophagus protruding slightly into basal part of stomatal lumen. Oesophagus cylindrical. Oesophago-intestinal junction at the level of main ring 6 or 7. Intestine a broad cylinder without postrectal overlapping. Cloacal tube protrudes from the ventral body wall between main rings 31-32.

Ocelli red-brownish, rounded small to large structures, situated at the level of main ring 7 or 8 or 9.

Reproductive system typical for the genus. Spicules 41-61 μm long, slightly arched; corpus distallly tapered to a pointed tip and proximally with a slightly differentiated capitulum. Gubernaculum, 30-38 μm long, with a widened distal tip and proximally with a 6.5-9.5 μm long apophyse, dorso-caudally orientated.

Tail with 7 main rings. Terminal ring, 29-32 μm long, covered by desmos, ends on a naked tube-like spinneret 5-11 μm long. Phasmata rounded (about 4 μm in diameter) about halfway the endring. Caudal glands well developed, extending anteriorly beyond the cloaca.

F e m a l e . — In most characters identical with the male. Body with 38-39 quadricomoid main rings. Setal pattern similar to that of the males e.g. in a female (slide RIT 33) with 38 main rings dorsally and 39 main rings ventrally (due to splitting up of the endring) :

sub-dorsal : right side : 5, 7 (*), 17, 21, 25, 31, 36 = 7
left side : 5, 8, 14, 20, 26, 31, 36 = 7
sub-ventral : right side : 4, 6, 10, 14, 16, 20, 25, 30 (*), 34, 36 = 10
left side : 4, 6, 9, 13, 16, 19, 24, 30, 34, 36 = 10

Digestive system as in male. Oesophago-intestinal junction at posterior end of main ring 5 or 6. Ocelli situated between main rings 6 and 8.

Reproductive systeem typical for the genus. Vulva large, situated between main rings 21-22 or 20-21, according to the specimen. Two spermathecae with globular spermatozoids.

(*) Seta broken off.

Tail with 6 main rings (one specimen with 7 rings ventrally). Terminal ring 37-40 μm long, with almost circular phasmata in posterior part. Tube-like spinneret, 4-8.5 μm long.

Measurements. — Form 2

Males (n = 2) : L = 820-905, hd = 20-23 × 16-17, cs = 16-19, sd = 13-18, sv = 11-17, t = 165-189, tmr = 34-48, tmrw = 17-21, mbd = 83-123, (mbd) = 64-93, oes = 104-125, spic = 52-57, gub = 36-39.

Females (n = 2) : L = 835-855, hd = 19-23 × 15, cs = 15-17, sd = 9-16, sv = 12-18, t = 102-161, tmr = 37-41, tmrw = 19-21, mbd = 83, (mbd) = 54-59, oes = 100-108.

Description. — Form 2

Body with similar habit as the first group; cuticle with 38 or 39 (on one body side) quadricomoid main rings. Arrangement of somatic setae comparable with first group of specimens, with the same number of sub-dorsal setae (7) and sub-ventral setae (10) except in one male specimen with 13 sub-ventral setae on the right side and 12 on the left side; this specimen has 38 main rings dorsally, 39 rings ventrally, due to splitting up of the endring :

sub-dorsal : right side : 5, 8, 15, 19, 24, 30, 35 = 7
left side : 5, 8, 13, 19, 25, 30, 34 (*) = 7

sub-ventral : right side : 3, 6, 8, 11, 14, 16, 19, 19, 22, 25, 29, 33, 36 = 13
left side : 3, 6, 8, 10, 13, 16, 19, 22 (*), 25, 29, 32, 36 = 12

Sub-ventrally on the right side an additional seta on main ring 19 was observed; it differs in structure from the other setae, being fine, distally tapered, not flattened nor with distinct central canal as the other setae.

Head similar in shape. Amphids covering the head almost completely, posteriorly with narrower prolongation, extending maximally to the end of the third main ring.

Internal morphology, and shape and length of copulatory apparatus in male, as in the first group. Female with the vulva situated between main rings 20-21 or 21-22 according to the specimen. Tail with 7 main rings in male, 6 or 7 rings in female.

Discussion. — The specimens found among the deep-sea material from the Bay of Biscay, are closest to *Quadricoma brevichaeta* FREUDENHAMMER, 1975 described on a single female and to *Q. iberica* FREUDENHAMMER, 1975 described on a single male specimen.

(*) Setae broken off.

They resemble Q. *brevichaeta* in general habit, in an identical number of main rings (38), a comparable body length, head-shape, tail shape in male and female and in the number of tail rings (6) and position of the vulva in females.

They differ from Q. *brevichaeta* by the number of sub-ventral somatic setae (10 instead of 8 as in Q. *brevichaeta)* and by possessing a naked head-cuticle instead of a cuticle covered by fine foreign material as in Q. *brevichaeta* (see FREUDENHAMMER, 1975 : 58).

They resemble Q. *iberica* in general habit, arrangement and number of somatic setae, head-shape, shape of spicules and gubernaculum (personal observation).

They differ, however, from Q. *iberica* by the number of main rings (38 in ♂, 38-39 in ♀ against 37 rings in Q. *iberica*), by possessing shorter cephalic setae in relation to the head-dimensions, by the number of tail rings in male (7 rings against 6 in Q. *iberica*) and by the longer spicules (41-61 μm against 35 μm in Q. *iberica*).

The specimens from the Bay of Biscay have characters of both closely related species Q. *brevichaeta* and Q. *iberica,* the type material of which is no longer available. Based on 1) the few and small differences between both species Q. *brevichaeta* and Q. *iberica* (number of main rings, number and length of somatic setae), 2) the low number of type specimens (a single specimen for each species), 3) the holotypes being of different sex, 4) the difference in type locality and the variability of the diagnostic features (known from other species and observed among the specimens from the Bay of Biscay) I consider Q. *iberica* synonymous with Q. *brevichaeta.*

The type specimens of Q. *brevichaeta* and Q. *iberica* are no longer available (RIEMANN, personal communication). However, I have had the opportunity to study Q. *iberica* in 1974, and know it to be identical with the specimens from the Bay of Biscay.

V. CONCLUSIONS

In our deep-sea samples from the Bay of Biscay we found the same genera (*Desmoscolex, Desmolorenzenia, Quadricoma, Tricoma*) as in other studies from other localities (TIMM, 1970, FREUDENHAMMER, 1975). However, the genus *Desmogerlachia* FREUDENHAMMER, 1975 is for the first time found to occur beyond 200 m depth.

A comparison was made between the desmoscolecid fauna from deep-sea samples from beyond 750 m depth from the few localities known from the literature (Atlantic : off North Carolina, Pacific : Antarctica, off Peru, Indian Ocean, Iberian Deep-Sea) and the fauna from the Bay of Biscay. The desmoscolecid fauna from the Bay of Biscay has one species (Q. *brevichaeta* n. syn. for Q. *iberica*) in common with the Iberian

Deep-Sea fauna and one species (*D. eurycricus* n. syn. for *D. longicauda*) was also found in deep-sea dredgings off Peru. The other species found are new species, or species known until now, as sublittoral species (e.g. *D. asetosus, D. falcatus*).

No morphological differences were found between the sublittoral specimens of *Desmoscolex asetosus* from Lizard Island, Great Barrier Reef, Australia, and the deep-sea specimen (at 4135 m depth) from the Bay of Biscay.

Among the deep-sea specimens from the Bay of Biscay, I observed within the Desmoscolecinae several specimens with large phasmata, rare or unusual in specimens from lower depths; no data on this feature is available in literature. I also found more specimens with a long endring, with large (elongated) amphids and with cephalic setae with aberrant structure : thickened, knobbed or with a flag-like membrane. These observations were confirmed by data on deep-sea species in literature e.g. *Desmoscolex eftus* FREUDENHAMMER, 1975, *D. lapilliferus* FREUDENHAMMER, 1975 (long endring), *D. longiamphis* TIMM, 1970 (obviously elongated amphids) and *D. bathybius* TIMM, 1970, *D. chaetalatus* FREUDENHAMMER, 1975, *D. velifer* TIMM, 1970 (aberrant shape and structure of the cephalic setae).

Most of the undescribed specimens (see Table 1) belong to new species, but because of the low number of specimens (usually a single individual) available or the poor inner condition, they remain unnamed.

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EXPLANATION OF PLATES

PLATE I

Desmoscolex multiannulatus sp. nov.

Fig. 1. — Male, anterior body region (holotype, slide AN 346).

Fig. 2. — Male, entire specimen in surface view (holotype, slide AN 346).

Fig. 3. — Male, tail in surface view (paratype, slide RIT 31).

Fig. 4. — Male, reproductive system and tail (paratype, slide AN 346).

Fig. 5. — Female, tail in surface view (paratype, slide AN 349).

Fig. 6. — Female, surface view of head (paratype, slide AN 349).

Fig. 7. — Female, reproductive system (paratype, slide AN 349).

Fig. 8. — Juvenile, entire specimen (paratype, slide AN 348).

Fig. 9. — Juvenile, surface view of head (paratype, slide AN 348).

PLATE II

Desmoscolex paralongisetosus sp. nov.

Fig. 1. — Male, surface view of head, right body side (holotype, slide AN 348).

Fig. 2. — Male, surface view of head, left body side (holotype, slide AN 348).

Fig. 3. — Male, anterior body region (holotype, slide AN 348).

Fig. 4. — Male, copulatory apparatus and tail (holotype, slide AN 348).

Desmoscolex macrophasmata sp. nov.

Fig. 5. — Female, surface view of head (holotype, slide AN 347).

Fig. 6. — Female, anterior body region (holotype, slide AN 347).

Fig. 7. — Female, tail in surface view (holotype, slide AN 347).

PLATE III

Desmoscolex segonzaci sp. nov.

Fig. 1. — Male, surface view of head (holotype, slide RIT 32).

Fig. 2. — Male, entire specimen (holotype, slide RIT 32).

Desmolorenzenia eurycricus (FILIPJEV)

Fig. 3. — Male, copulatory apparatus and tail region, aberrant form (slide RIT 32).

Fig. 4. — Male, surface view of head, aberrant form (slide RIT 32).

Fig. 5. — Female, surface view of head (slide AN 349).

Fig. 6. — Female, tail region (slide AN 349).

PLATE IV

Quadricoma gascognensis sp. nov.

Fig. 1. — Male, entire specimen (holotype, slide AN 349).

Fig. 2. — Male, surface view of head (holotype, slide AN 349).

Fig. 3. — Detail of somatic setae sv_{13}, sv_{21} and sd_8 with sections a-c from top seta to its base (paratype male, slide RIT 33).

Quadricoma brevichaeta FREUDENHAMMER
(n. syn. for *Q. iberica* FREUDENHAMMER)

Fig. 4. — Male, surface view of head (holotype *Q. iberica*, slide NSIMB 367a Bremerhaven).

Fig. 5. — Male, copulatory apparatus and tail region (holotype *Q. iberica*).

PLATE V

Quadricoma brevichaeta FREUDENHAMMER

Form 1

Fig. 1. — Male, surface view of head (slide RIT 33).

Fig. 2. — Male, surface view of head (slide AN 349).

Fig. 3. — Female, surface view of head (slide RIT 33).

Fig. 4. — Male, surface view of head (slide AN 337).

Fig. 5. — Female, surface view of head (slide AN 337).

Fig. 6. — Male, copulatory apparatus and tail (slide AN 337).

Fig. 7. — Male, copulatory apparatus and tail (slide AN 349).

Fig. 8. — Female, tail (slide RIT 33).

Fig. 9. — Female, tail (slide AN 337).

Form 2

Fig. 10. — Male, surface view of head (slide AN 350).

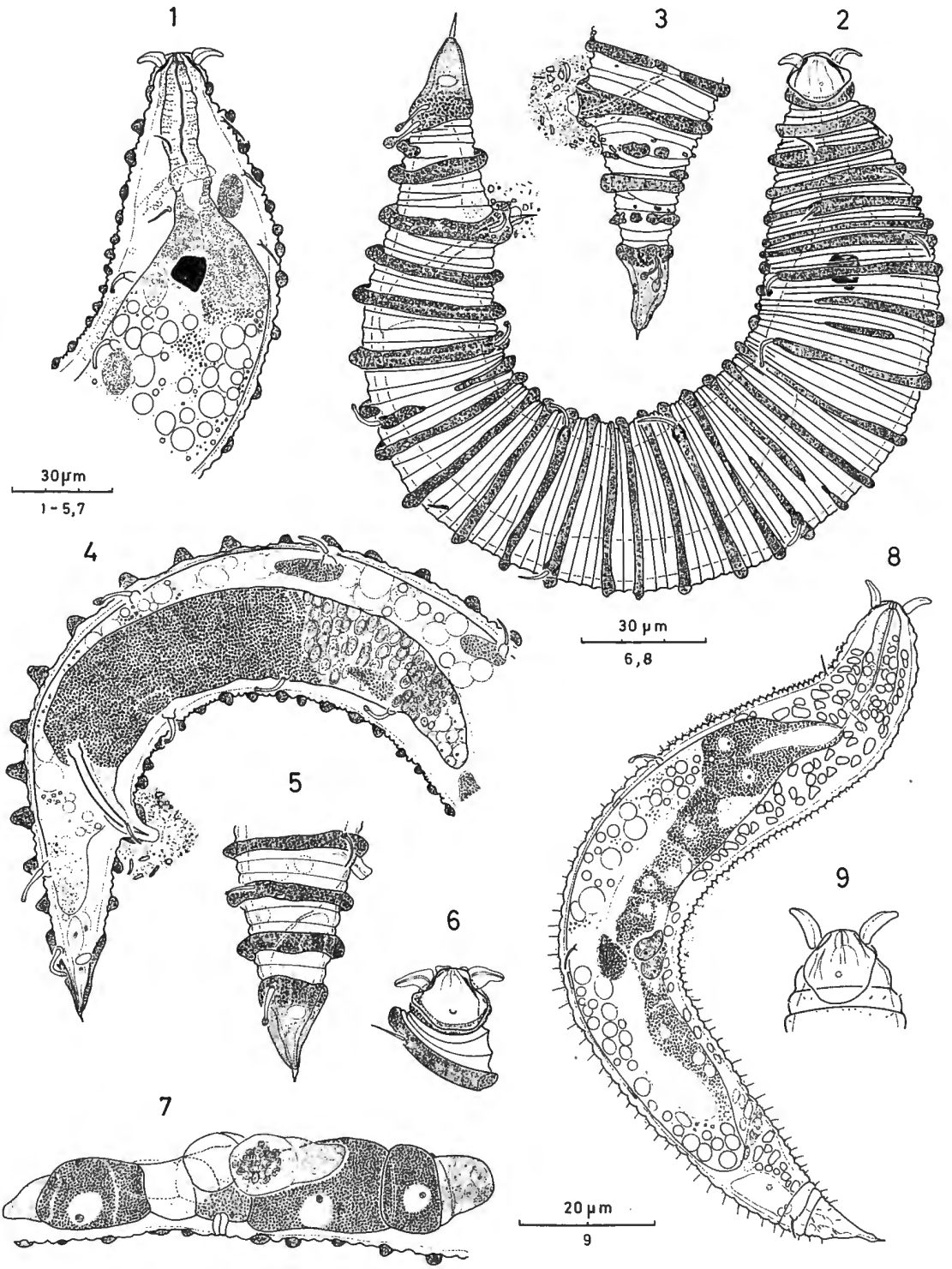
Fig. 11. — Male, head region in optical section (slide AN 350).

Fig. 12. — Male, surface view of head (slide AN 336).

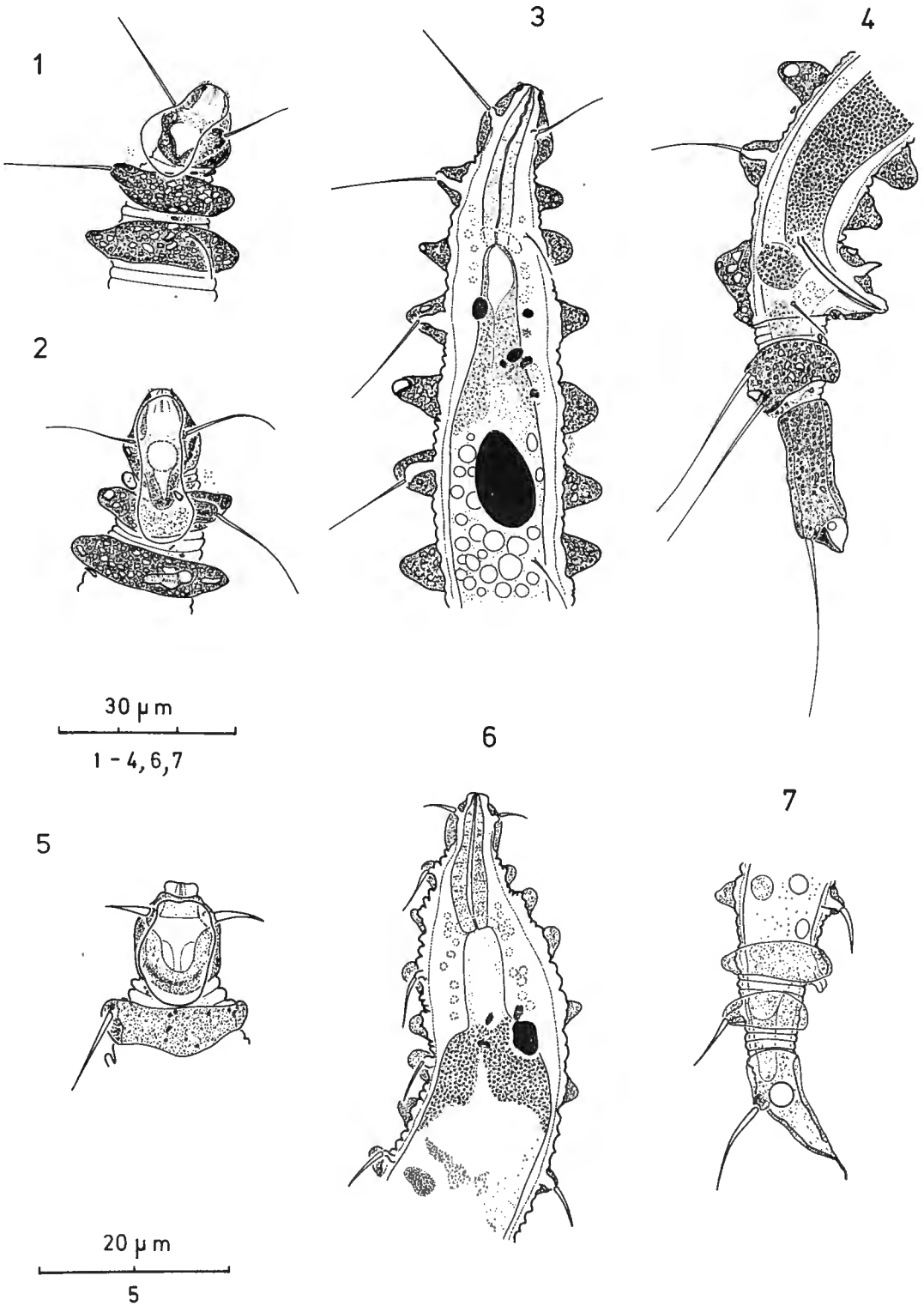
Fig. 13. — Female, surface view of head (slide AN 344).

Fig. 14. — Male, reproductive system and tail region (slide AN 350).

Fig. 15. — Female, tail (slide AN 344).



W. DECRAEMER. — Five new species of Deep-Sea Desmoscolecids (Nematoda — Desmoscolecida) from the Bay of Biscay



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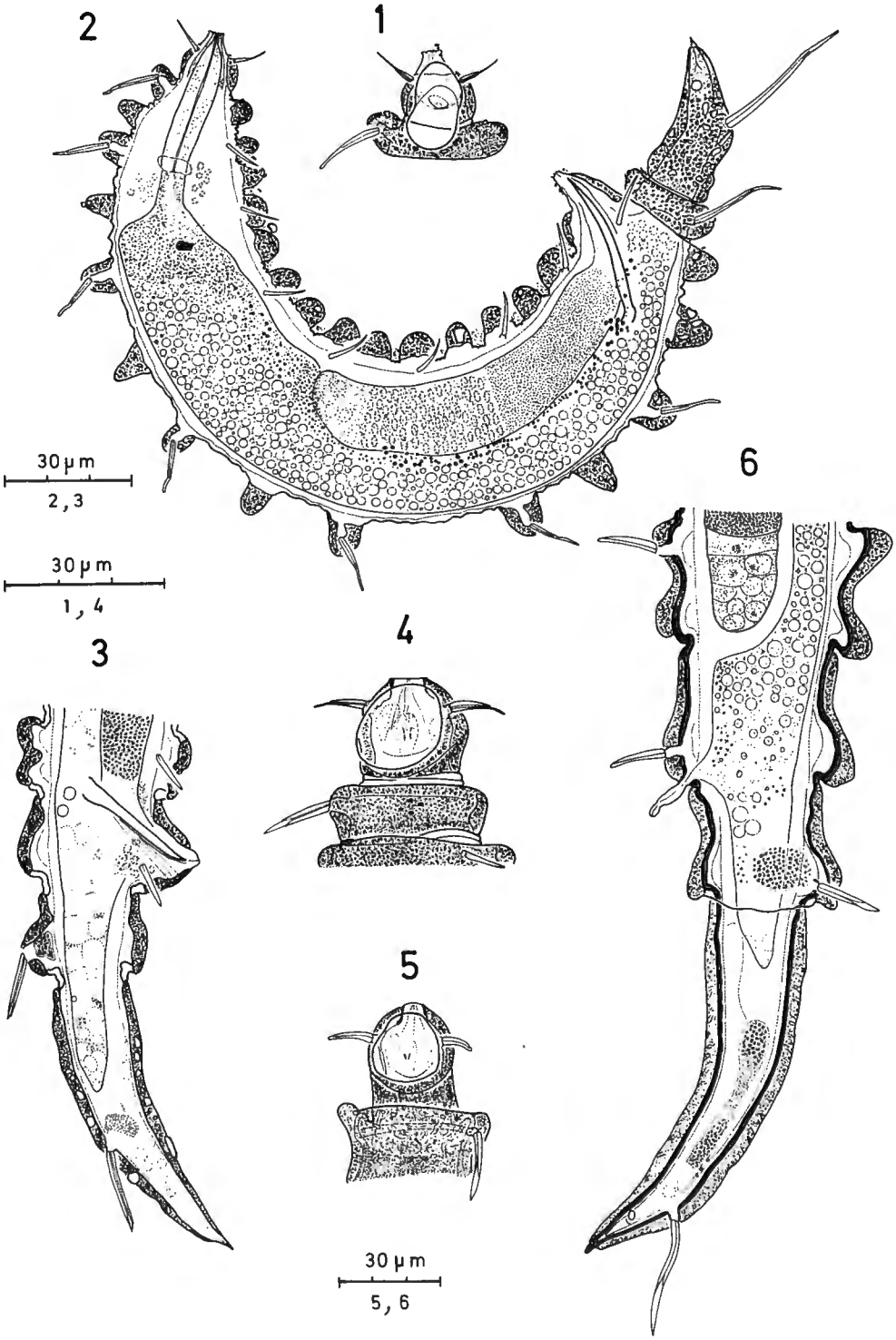

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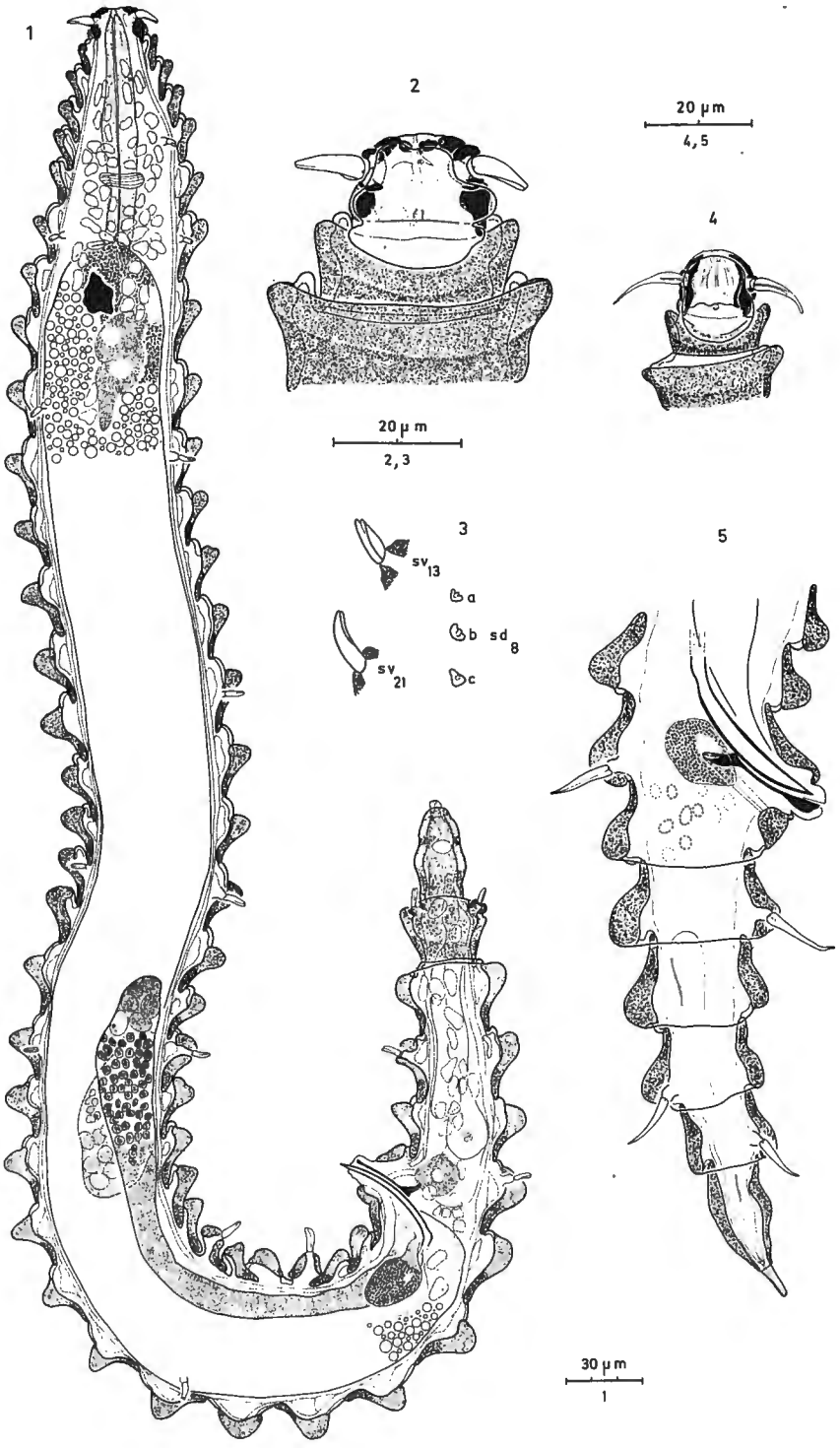

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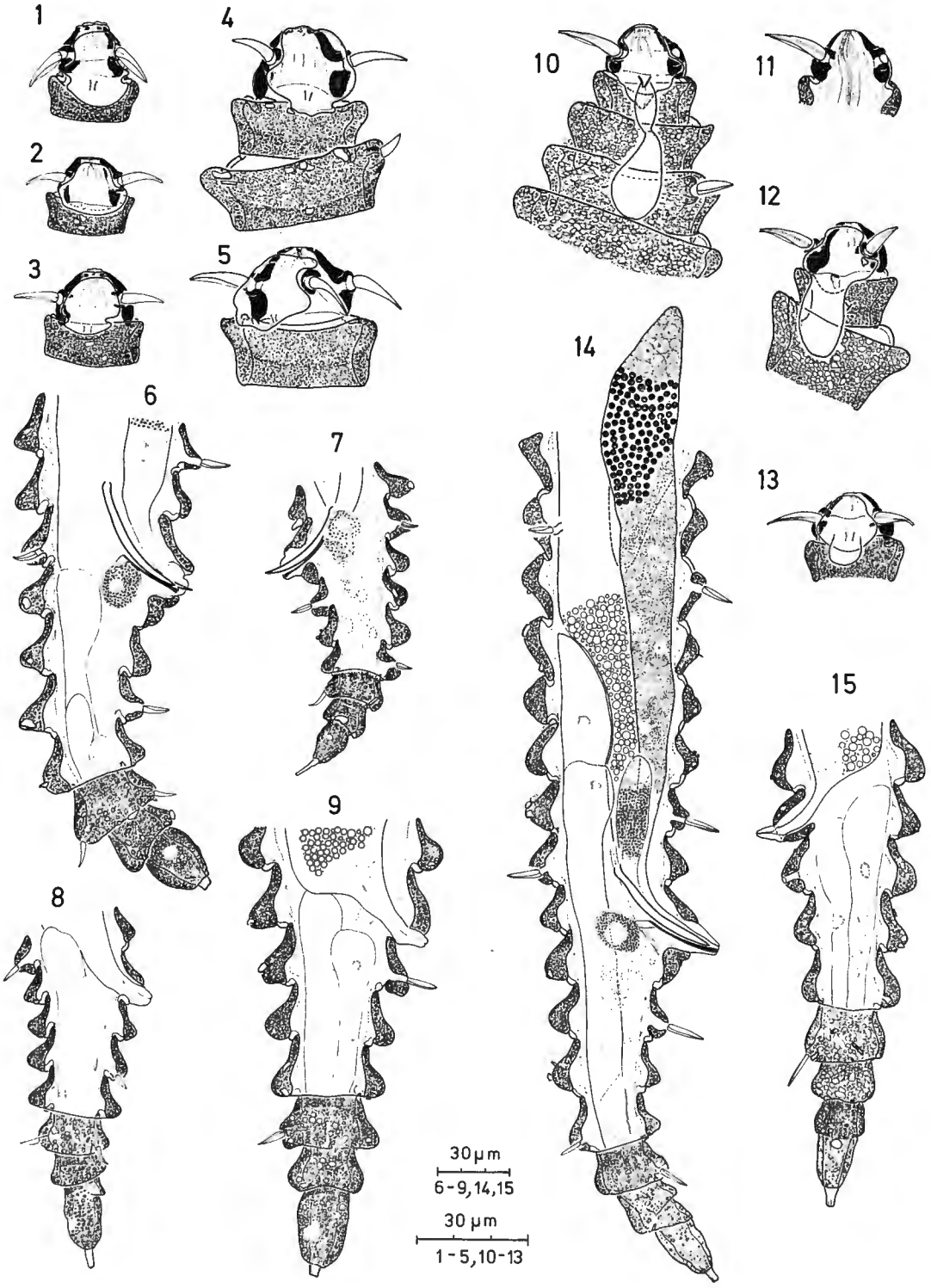

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