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MUSÉE ROYAL D'HISTOIRE NATURELLE  
DE BELGIQUE  
MEMOIRE N° 49

VERHANDELINGEN  
VAN HET  
KONINKLIJK NATUURHISTORISCH MUSEUM  
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THE  
FREELIVING MARINE NEMAS  
OF THE BELGIAN COAST

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INTRODUCTION

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The marine nemic Fauna of the Belgian Coast was until now quite unknown. Recently L. De Coninck, studying the freeliving nemas of Belgian soil and Belgian waters, made some observations upon nemas living in brackish soil and brackish waters (t Zwin, West-Flanders). During these studies this author found a number of species, which the same kind of habitats in other countries likewise contain. (Compare De Coninck's observations with those made by De Man and Schuurmans Stekhoven Jr. with respect to the nemic Fauna of the Zuiderzee, with the researches of Filipjev and Guido Schneider on the Bay of Neva and the Baltic sea, etc.). Now De Coninck found :

a) In brackish waters inter alia : *Adoncholaimus thalassophygus* (De Man), which species also occurred in common soil; *Monohystera microphthalma* De Man, *Penzancia (Monohystera) velox* (Bastian);

b) In brackish soil : *Adoncholaimus thalassophygus* (De Man), *Microlaimus globiceps* De Man, *Sphaerolaimus gracilis* De Man, *Penzancia (Monohystera) velox* (Bastian). All the aforementioned forms ought, like the senior author (Schuurmans Stekhoven Jr. 1931) could prove, to be considered as nemas bound to brackish waters and brackish soil, and no true marine nemas are

among them. Therefore all marine nemas, which will be enumerated or treated in this memoir are new for the Belgian Fauna, several of them are even new to science (in total 8 species). This contribution to our knowledge of the marine nemas, inhabiting european waters, will be the more wellcome, since it teaches us something about the nemic Fauna of an area, which is situated just between the Coast of France and that of Holland and just opposite to the Coast of England. Most of these areas are relatively well known by the studies of De Man, Kreis, Ditlevsen, Southern and Schuurmans Stekhoven Jr. Although the Collection of freeliving marine nemas of the Belgian Coast is comparatively small in comparison with that of the parasitic nemas of the same Museum, it contained some very interesting species, a closer study of which brought about some interesting morphological points of view. We owe much thank to Prof. Dr. Van Straelen, who gave us the collection of the Royal Belgian Museum in hand and to Dr. E. Leloup who gave himself much trouble in helping us with all indications about localities and other peculiarities which were of much value to us.

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Marine freeliving nemas were collected during several cruises for l' « Exploration de la Mer » and on some other occasions, on the following localities :

- Station 1, No. 33, No. C. 11, Locality, entre le Wenduyne et le Stroombank, Ostende S.-S.-E. jusqu'à Raverzijde S.-S.-E. Engin : Filet fin, 15.VI.05.
- Station 2, No. 65, No. 3240, 51°21'30"N., 2°30'15"E. Drague 5, 17.IX.04.
- Station 3, No. 66, No. 3270, 51°20'45"N., 2°30'45"E. Drague 5 avec herse, 27.IX.'04.
- Station 4, No. 67/68, No. 3345, 51°26'N., 3'E. Drague 5, 30.V.'05.
- Station 5, No. 70, No. 3404, 51°28'N., 2°32'E. Drague 5, 16.VI.'05.
- Station 6, No. 72, No. 3433, 51°32'30"N., 2°37'E. Drague 5, 21.VI.'05.
- Station 7, No. 73, No. 3438, 51°22'45"N., 2°36'30"E. Drague 5, 21.VI.'05.
- Station 8, No. 74, No. 3448, 51°29'N., 2°33'30"E. Drague 5, 23.VI.'05.
- Station 9, No. 75, No. 3406, 51°30'N., 2°35'30"E. Drague 5, 29.VI.'05.
- Station 10, No. 77, No. 3693. Huftrières de M. Janssens, à Ostende. Filet à main, 20. II.06.
- Station 11, No. 85, No. P. 385, 51°39'N., 1°41'E. Filet du fond, temp. 16,7°; sal. 35,01; profond. 24 m., 23.VIII.'01.
- Station 12, No. 95, No. 283. Coque du bateau « Talisman », Ostende. Filet à main. 29. IV.22.

From an ecological point of view the captures of the stations 2-4, those of station 10 and those of station 12 are of particular interest. The stations 2-4 gave us an insight in the composition of the nemic faunas living upon the colonies of *Alcyonium*. The stocks of the latter were covered with a rather thick layer of fibrous substances, at the inner side of which, thus closely appressed against the colonies of coelenterata nemas were found in large numbers. The quantitative composition of these biocoenoses proved to be almost identical in the cases brought to our attention. This point is mentioned here especially since similar biocoenoses could be studied by the senior author at den Helder at the Zoological Station of the Dutch Zoological Society.

Station 10 was particularly rich in species. Now it is well known that oysterbeds form a favourable breedingground for all kind of animal life, since the mentioned place have to offer in the main a great amount of food, especially detritus, to the representants of the biocoenosis. Detritusfeeders are particularly fond of this kind of habitat. Oysters, *Ascidia* and also nemas afford good evidence for this thesis. The presence of *Oncholaimus* is an indication that we deal with biocoenoses of the littoral zone. This is likewise true for the biocoenosis of Station 12. A ships hull with its rich epizootic fauna of hydroids affords excellent conditions for an opulent nemic fauna. Table I gives an account of the quantitative composition of two *Alcyonium* biocoenoses.

TABLE I.

The composition of two **ALCYONIUM-BIOCOENOSES.**

A. — SAMPLE 67.

Species	♂	♀	juv.	total	%
1. <i>Anticoma limalis</i> . . . . .	40	31	206	277	47
2. <i>Enoplus communis</i> . . . . .	—	1	229	230	39
3. <i>Thoracostoma trichodes</i> . . . . .	2	4	57	63	10,6
4. <i>Paracanthonchus polycyrtus</i> . . . . .	3	2	3	8	1,35
5. <i>Cyatholaimus dittevseni</i> . . . . .	2	1	1	4	0,67
6. <i>Araeolaimus filipjevi</i> . . . . .	1	1	1	3	0,40
7. <i>Monoposthia costata</i> . . . . .	—	—	1	1	0,25
8. <i>Camacolaimus tardus</i> . . . . .	—	—	1	1	0,25
9. <i>Axonolaimus paraspinosus</i> . . . . .	—	1	—	1	0,25
10. <i>Monohystera parva</i> . . . . .	—	1	—	1	0,25
				Total. . . . .	589 = 100 %

## B. — SAMPLE 66.

Species	♂	♀	juv.	total	%
2. <i>Enoplus communis</i> . . . . .	12	19	115	127	42
1. <i>Anticoma limalis</i> . . . . .	26	28	48	102	33,7
3. <i>Thoracostoma trichodes</i> . . . . .	9	3	55	67	22,1
4. <i>Paracanthonchus polycyrtus</i> . . . . .	—	1	3	4	1,32
11. <i>Oncholaimus denticaudatus</i> . . . . .	—	—	1	1	0,14
10. <i>Monohystera parva</i> . . . . .	—	1	—	1	0,14
Total. . . . .				302 = 100 %	

In both cases the three first species together make 96,6 %, respectively 97,8 % of the whole population.

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The Collection of nematodes of the Brussels Museum embraces in total 1,079 specimens belonging to 28 species. These are :

## I. — FAMILY ENOPLIDAE.

## SUBFAMILY LEPTOSOMATINI :

1. *Anticoma limalis* BASTIAN, in Sample 65, 66, 67, 77, Stat. 2, 3, 4, 10.
2. *Cylicolaimus magnus* (VILLOT), in Sample 72, Stat. 6.
3. *Stenolaimus marioni* SOUTHERN, in Sample 85, Stat. 11.
4. *Thoracostoma trichodes* (LEUCKART), in Sample 65, 66, 67, 72, Stat. 2, 3, 4, 6.
5. *Fiacra brevisetosa* SOUTHERN, in Sample 33, 70, 73, 74, 75, Stat. 1, 5, 7, 8, 9

## SUBFAMILY ENOPLINI :

6. *Enoplolaimus dentatus* DITLEVSEN, in Sample 85, Stat. 11.
7. *Enoplus communis* BASTIAN, in Sample 65, 66, 67, 68, 72, 77, Stat. 2, 3, 4, 6, 10

## SUBFAMILY ONCHOLAIMINI :

8. *Metoncholaimus denticaudatus* (nov. spec.), in Sample 77, Stat. 10.
9. *Oncholaimus aequedentatus* (nov. spec.), in Sample 95, Stat. 12.

## SUBFAMILY TRIPYLOIDINI :

10. *Tripylloides marinus* BUETSCHLI, in Sample 77, Stat. 10.
11. *Cothonolaimus filicaudatus* (nov. spec.), in Sample 72, Stat. 6

## II. — FAMILY CHROMADORIDAE.

## SUBFAMILY CYATHOLAIMINI :

12. *Cyatholaimus ditlevseni* (nov. spec.), in Sample 67, 77, Stat. 4, 10.
13. *Paracanthonchus polycyrtus* (nov. spec.), in Sample 66, 67, 77, Stat. 3, 4, 10.

## SUBFAMILY CHONIOLAIMINI :

14. *Halichoanolaimus robustus* BASTIAN, in Sample 77, Stat. 10.

## SUBFAMILY DESMODORINI :

15. *Monoposthia costata* DE MAN, in Sample 67, 77, Stat. 4, 10.

## SUBFAMILY SPILIPHERINI :

16. *Spilophorella paradoxa* DE MAN, in Sample 77, Stat. 10.
17. *Spilophorella papillata* KREIS, in Sample 72, Stat. 6.

## SUBFAMILY CHROMADORINI :

18. *Chromadorina parva* (DE MAN), in Sample 67, Stat. 4.
19. *Chromadora cephalata* DE MAN, in Sample 77, Stat. 10.
20. *Chromadora kreisi* (nov. spec.), in Sample 67, Stat. 4.
21. *Chromadorita obtusidens* (nov. spec.), in Sample 72, Stat. 6.
22. *Pareuchromadora amphidiscata* (nov. spec.), in Sample 95, Stat. 12.
23. *Hypodontolaimus inaequalis* BASTIAN, in Sample 77, Stat. 10.

## SUBFAMILY CAMACOLAIMINI :

24. *Camacolaimus tardus* DE MAN, in Sample 67, Stat. 4.

## III. — FAMILY MONOHYSTERIDAE.

## SUBFAMILY MONOHYSTERINI :

25. *Theristus (Monohystera) acer* (BASTIAN), in Sample 95, Stat. 12.
26. *Penzancia (Monohystera) velox* (BASTIAN), in Sample 67, 77, Stat. 4, 10.

## SUBFAMILY AXONOLAIMINI :

27. *Axonolaimus paraspinosus* (nov. spec.), from Sample 77, Stat. 10.

## SUBFAMILY DIPLOPELTINI, nov. subfamily :

28. *Araeolaimus filipjevi* (nov. spec.), in Sample 67, Stat. 4.

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From the foregoing List of species it is clear that the nemic Fauna of the Belgian Coast stays in connection with those of adjacent waters and has derived from the latter several of its representants.

With the Fauna of Ireland it has in common the species 2, 3, 4, 5, 7, 25.

With the Fauna of Holland along the Northsea Coast the species 4, 7, 10?, 15, 16, 18, 19?, 23, 24, 25, 26?, 27.

With the Fauna of the Zuiderzee, the species 4, 7, 10, 16, 19, 23, 26.

With the Fauna of the Southcoast of England, 1, 2, 7, 15, 24, 26.

With the Fauna of the Northcoast of France, 1, 2, 4, 7, 12, 17, 20.

With the Fauna of the Coast of Sweden the species 1, 4, 7, 10, 15, 16, 25, 26.

With the Fauna of the Coast of Norway, Oslofjord the species 1, 6, 7, 14, 15, 19, 23, 25.

With the Fauna of Denmark, 1, 4, 15, 23, 24.

With the colder Northern seas, 1, 3, 4, 6, 7, 15, 19, 26.

With the Mediterranean, 16, 18.

So it is clear that most of the species occurring in the seas along the Belgian Coast have a wide distribution. Most of them are true marine forms. Some however like *Tripyloides marinus*, and *Penzancia (Monohystera) velox* are frequent in the Zuiderzee, but, as we shall prove below, the species named *Penzancia (Monohystera) velox* Bastian, and stated by De Man to occur in the Zuiderzee is different from the true *Penzancia (Monohystera) velox* Bastian of the English Coast. So it is clear that the nemic Fauna of the Belgian Coast is essentially marine, although some of the treated forms are capable of penetrating into waters of lower salinity as a comparison of the lists of species of the different habitats proves. Compare also the paper on the ecology of the Zui-derzeenemas written by the senior author (Schuurmans Stekhoven, 1931).

At the time the manuscript was closed, September 1930, we had not to our disposition the papers of Filipjev (1925) and Allgén (1931). The proofs afforded us however a welcome opportunity to complete our descriptions and notices at the hand of these papers, as far as possible.



# MORPHOLOGICAL NOTES

## 1. — FAMILY ENOPLIDAE.

### SUBFAMILY LEPTOSOMATINI.

#### GENUS ANTICOMA BASTIAN.

#### 1. *Anticoma limalis* BASTIAN.

(Pl. I, fig. 1-6.)

ALLGÉN, 1929, p. 10.

ALLGÉN, 1931, p. 214.

BASTIAN, 1865, p. 141, Pl. XI, 146-148.

BUETSCHLI, 1874, p. 35, Pl. IV, 19 ♀, ♂.

DITLEVSEN, 1919, p. 159, Pl. II, 1, 7, 8, ♂.

DITLEVSEN, 1923, p. 132.

DITLEVSEN, 1926, p. 20

FILIPJEV, 1925, p. 76.

DE MAN, 1886, p. 53; Pl. IX, X, ♀, ♂.

STEINER, 1916, p. 654, Pl. XLVI, 46.

VILLOT, 1875, p. 462.

2 ♀♀ and 2 ♂♂ from Station 10, 77, No. 3693. Huitrières de M. Janssens à Ostende, 20.II.'06.

26 ♀♀ and 27 ♂♂, 185 juv. from Station 4, 67, 3345, 51°26'N., 3'E, 30.V.'05 on *Alcyonium*.

5 ♀♀, 13 ♂♂, 21 juv., batch 1 from Station 3, 66, 3270, 51°20'45"N., 2°30'45"E., 27.IX.'04 on *Alcyonium*.

28 ♀♀, 26 ♂♂, 48 juv. from same locality, batch 2.

1 ♀, 3 ♂♂, 3 juv. from Station 2, 65, 3240, 51°21'30"N., 2°30'15"E., 17.IX.'05 on *Alcyonium*.

In most localities the species was found together with *Thoracostoma trichodes* (Leuckart) and *Enoplus communis* Bastian. Its frequency proved to be highest in the *Alcyonium*-biocoenoses, where respectively 36,4 and 47,4 % out of 2 bags of nemas were representants of this species. For the allied species *Anticoma pellucida* Allgén states that it occurs under *Bryozoa* and among

*Algae.* Southern found the same species to be common in clean sands and in the sand of *Zostera* beds, also in sponges and amongst *Spirorbis* tubes. Mature specimens from May-September. Ditlevsen (1919) discovered it on *Halidrys*, on Hydroids and on bridge pillars.

Among the authors, who studied the species of *Anticoma* there exists no communis opinio as to their synonymity. De Man (1886) thinks *A. limalis* and *A. pellucida* to be identical, but since Buetschli's figures are not exact enough, he could find no other differences between both species than the larger size of the tail in *limalis*. Steiner (1916) concludes that both species are identical and that *A. limalis* is a mere long-tailed variety of *A. pellucida*. Ditlevsen (1919) does not agree perfectly with Steiner in this respect and seems to be inclined to think that both species really ought to be separated. Later on however (1926), he considers *A. limalis* as an arctic variety of *pellucida*. As to our opinion Filipjev's *A. limalis* from the Murman Coast is another species as the species described here, compare his fig. 3a.-d. with our fig. 1-6; differs in the position of the outlet of the ventral gland, the size of the amphidial opening and its relative position to the outlet of the ventral gland. *A. murmanica* Filipjev shows closer resemblance with our *A. limalis* Bastian.

After having studied the literature and after having compared the figures contained therein with the specimens of the Belgian Coast we have come to the conclusion that both species are really distinct. The main differences lie in the relative size of the tail which however is a variable character, in the position of the outlet of the ventral gland which is shifted further anteriorad in *limalis* and in the size and strength of the accessory copulatory apparatus. The outlet had the same position in our specimens as in those studied by Ditlevsen in 1919, where this is seen also in a far more anteriorad position than in the female and male figured by De Man in 1886. Here we have figured some of the most important features of a male. Fig. 1 presents the headend of a male with its small cup-shaped buccal cavity; the oesophagus reaches far orad and begins immediately behind the *papillae* of which 6 were counted, equally distributed over 3 lips.—Setal crown, composed of 10 setae, the lateral ones single, the others paired. Amphidial opening cyathiform, showing at its base the outlet of the narrow amphidial pouch. Ventral gland elongate, efferent duct cylindrical with a narrow outlet, opening at the same level as the base of the amphidial opening, just as in the figure of Ditlevsen, pl. II, fig. 8. Lateral cord with a set of small setae on some distance behind the head. Sphincter oesophagi as depicted in figure 2. Tail long, filiform. Spicula curved, finely pointed, gliding through the short irregularly outlined gubernaculum. Velum present. Some small setae are found in front of the cloaca, whereas the accessory copulatory apparatus deserves special mentioning, since it is stronger than the same piece in *A. pellucida* as figured by De Man. Dimensions of the ♂ : 2 mm.,  $\alpha = 32,75$ ,  $\beta = 4,7$ ,  $\gamma = 8,7$ .

Female with a bipartite sexual apparatus. Ovaries short and recurved. Vulva a short distance cephalad from the middle. Among the great lot of females we found a single one, which, although potentially belonging to the female sex, since it possessed ripe eggs in its uterus, showed at the same time 2 spini-form projections in its anal opening, which pieces we do consider as rudimentary spicula. The said female must therefore be considered as an intersex.

GEOGRAPHICAL DISTRIBUTION WIDE : France, Coasts of Bretagne and Rockal; Danmark : Kattegat, Limfjord and Little belt; Norway, Oslofjord; Sweden, Oeresund; Harbour of Kiel, Sylt, Oisterbanks; Barentzsea : 57°24' N., 7°25' E., — 70°50' N., 8°29' E., 550 M.; Murmancoast

*A. pellucida* mostly seems to be found at the same localities; it occurs likewise in Sweden, Oeresund, Algenvegetation; further Holland, Coast of Walcheren and Zuiderzee; England, West Coast of Ireland.

#### GENUS CYLICOLAIMUS DE MAN.

### 2. *Cylicolaimus magnus* (VILLOT).

(Pl. I, fig. 7-11; Pl. II, fig. 1-3.)

DITLEVSEN, 1923, p. 191.

JAEGERSKJOELD, 1901, pp. 5-32, Pl. I, 4-6; II, 1-3; III, 2-4; IV, 1, 2, 4-11.

DE MAN, 1889, p. 1.

SOUTHERN, 1915, p. 39, Pl. VI, VII, Fig. 19a, ♂.

VILLOT, 1875, p. 458, Pl. XI, 2.

1 ♀ from Station 6, 72, 3433, 51°32'30"N., 2°37'E., 21.VI.'05.

Although *C. magnus* (Villot) has been described already several times, first by Villot afterwards by De Man who did not give any figures, by Jaegerskjoeld and lastly by Southern it will be of some use if we give a short description of the female found by us in one of the samples from the Museum since Southern has seen no females.

This author correctly states : « The head is surrounded by a chitinous band with undulating margins. This is in correspondence with what other genera of this family like *Fiacra* and *Thoracostoma* show. Like in *Fiacra* this chitinous headcapsule serves the attachment of muscular bands. Setal crown situated just behind the undulating line; the crown composed of 10 setae, of which the lateral ones are unpaired. Skin beset with a number of short setae scattered all over the body. The lateral fields show two series of large glands. These series of glands begin just behind the oesophageal nerve ring. A correct

idea of the construction of the head and more especially of the very complicated buccal cavity can be got only when one observes the animal as well from the dorsal as from the ventral side. Seen from the dorsal side the animal shows a narrow oral opening, the entrance of which is adorned with 2 peculiar thick cuticularised plates, bearing at their distal side rows of teeth. These pieces may project to the exterior and are likewise depicted correctly by Southern. The function of these plates with their fingerlike projections is not clear, yet it may be asked if we are allowed to think at apparatuses of the prehension of food. If seen from the ventral side the entrance of the oral opening gives a quite distinct impression. Now we observe a bandlike construction, which apparently surrounds the opening totally, thickened along its caudal border and presenting rows of teeth, which are directed towards the lumen of the oral opening. At either side we observed a pear-shaped body with its point directed outwards, which must be the optical section of a second strongly cuticularised ring, which embraces the first bandlike ring and passes distally into the lips which surround the oral opening. The inner band-like ring, as we may explain the structure of it now is apparently split at the dorsal side of the buccal cavity and ends here in the toothbearing pieces. It may be asked if not this ring functions as a tunnelnet, which question eventually may be solved by further study on living material. The whole apparatus formed by the buccal cavity and the beginning of the oesophagus is strengthened and kept in position by a set of longitudinal bars of bands, a part of which runs along the bodywall, anchoring the outer ring firmly there, whereas the other ones are the optical sections of the thick borders of the oral cavity. At these longitudinal bars, if we may call them so for a moment, lamellar blades are firmly attached. These lamellar blades close up at the dorsal side, whereas they end in toothlike projections at the ventral side as if the mentioned teeth serve to guide the food, captured by the animal. The small cavity in front of the lamellar blades is the buccal vestibulum. The axis to which these teeth are placed symmetrically just points to the opening of the oesophagus, which is surrounded as may be observed in ventral view by 3 teeth, a dorsal tooth and two subventral ones, the latter serrated in their turn. Further a slightly larger undivided tooth is seen in dorsal view at the left side being apparently a homologon of the dorsal tooth of other nemas.

The long cylindrical buccal cavity is prolonged into the oesophagus, lined there with thick cuticularised walls. Oesophagus rather narrow at its anterior part which is muscular and gradually grows broader after it has passed the nerve ring; behind that ring glandular material is imbedded in the stroma of the oesophagus. No oesophageal bulb is present. Sphincter projecting conelike into the intestine. Amphidial openings slitlike, their walls with thick cuticular lining, compare figure 8. Genital apparatus relatively short with recurved ovaries and a few ripe eggs only. Vulva bordered with cuticularisations; Vulvar

glands present. Tail short, tapering but slightly, swollen again towards the apex, which presents a central boring, bearing the outlet of the spinneret gland, which consists of 3 cells, but does not reach to the anal opening. Tail bearing some short setae.

DIMENSIONS : ♀ Length = 25,8 mm.;  $\alpha = 142$ ;  $\beta = 6,7$ ;  $\gamma = 81$ .

Cobb's formula :

$$\frac{20,9}{0,6} \frac{14,7}{0,7} \frac{54,8}{0,7} \frac{57,4}{0,7} \frac{60,9}{0,7} \frac{64,5}{0,7} \frac{70,6}{0,7} \frac{98,7}{0,7} = 25,8 \text{ mm.}$$

GEOGRAPHICAL DISTRIBUTION : Ireland, Blacksod Bay, Clew Bay, 24 Fthms; England (Falmouth, Penzance); France, côtes de Bretagne; Sweden, Christineberg 10-20 M. (Amphioxussand); Norway, Bergen 150 M.; Trondjhem Fjord 150 M.; Belgian Coast.

#### GENUS STENOLAIMUS MARION.

### 3. *Stenolaimus marioni* SOUTHERN.

(Pl. II, fig. 4, 5.)

DITLEVSEN, 1926, p. 10, Pl. II, 5; III, 3, 8, ♂; IV, 4, 5, ♀; V, 2, ♀, VI, 1, ♂.

FILIPJEV, 1925, p. 119.

SOUTHERN, 1915, p. 23, Pl. IV, 12, ♂.

1 juv. from Station 11, 85, P. 385, 51°39'N., 1°41'E., Temp. 16,7°; Sal. 35,01; Depth. 24 Meter, 23.VIII.'01.

The present specimen is a larval form and has not yet developed any genital apparatus. So it was rather difficult to identify, but certainly ought to be reckoned to the species *Stenolaimus marioni* Southern. The specimen in question shows a typical headcapsula, which presents a sinuous line, showing sharp edges, which point backwards and downwards from the cephalic setae. As to our opinion 10 setae are present, although these could not be counted with great certainty. Southern indicates 6. « Rinnenförmige Grube » present as in *Fiacra*, large. Head with apparently six lips, each bearing a labial papilla. Oral opening slitlike; buccal cavity absent; the oesophagus follows the oral opening directly. Oesophageal gland opens in the oesophagus just caudad from the implantation of the cephalic setae. Skin almost bare, with a small number of setae only. Tail long rapidly tapering and becoming filiform. Rectum with 3 rectal glands. In the tail the long spinneret gland cells are to be seen, reaching about to the level of the anus.

DIMENSIONS : Length = 5,9 mm.;  $\alpha = 72,7$ ;  $\beta = 5,1$ ;  $\gamma = 12,3$ .

Cobb's formula :

$$\frac{0,12 \quad 2 \quad 2,5 \quad 6,8 \quad 19,5 \quad M \quad 91,8 \quad 93,8}{0,25 \quad 0,75 \quad 0,75 \quad 1 \quad 1 \quad 1,38 \quad 0,88 \quad 0,63} = 5,9 \text{ mm.}$$

GEOGRAPHICAL DISTRIBUTION: Ireland, Clew bay, 24 Fthms, on a bottom of sand and shells; N. of Iceland; Faroes, Hanstholm: 57°58' N., 8°15' E., — 67°19' N., 15°52' W., 237-702 Fthms.

GENUS THORACOSTOMA MARION.

4. *Thoracostoma trichodes* (LEUCKART).

*Hemipsilus trichodes* LEUCKART.

*Enoplostoma denticaudatum* A. SCHNEIDER.

Syn. : *Thoracostoma denticaudatum* A. SCHNEIDER.

*Thoracostoma schneideri* BUETSCHLI.

(IP. III, fig. 1-4; Pl. II, fig. 6-8.)

ALLGÉN, 1929, p. 10.

ALLGÉN, 1931, p. 217.

BUETSCHLI, 1874, p. 42, Pl. VIII, 33, ♂  
(*Thoracostoma schneideri* BUETSCHLI).

DITLEVSEN, 1919, p. 181, Pl. I, 9, ♂.

DITLEVSEN, 1928, p. 205.

FILIPJEV, 1916, p. 88, Pl. IV, Fig. 7.

FILIPJEV, 1925, p. 94, Pl. I, Fig. 12.

LEUCKART, 1849, p. 149, Pl. III, Fig. 1, 2.

LINSTOW, 1901, p. 126, Pl. VII, Fig. 36-37.

DE MAN, 1888, p. 22, Pl. II, 12, ♀; III,  
12a, ♂.

DE MAN, 1922, p. 251, Fig. 42, ♂.

SAVELJEV, 1912, p. 126.

A. SCHNEIDER, 1866, p. 58.

SCHUURMANS STEKHOVEN, 1931, p. 638.

R. SOUTHERN, 1915, p. 39.

STEINER, 1916, p. 623 (?), Pl. XVII,  
Fig. 30a; Pl. XXXI, Fig. 30b.

1 ♀, 1 ♂, 3 juv. from Station 2, 65, No. 3240, 51°21'30"N., 2°30'15"E., 17.IX.'04.

3 ♀, 9 ♂, 55 juv. from Station 3, 66, No. 3270, 51°20'45"N., 2°30'45"E., 27.IX.'04, together 67 specimens out of 302, picked of from a stock of *Alcyonium*, also 32,7 %, of this biocoenosis.

4 ♀, 2 ♂, 57 juv. from Station 4, 67, No. 3345, 51°26'N., 3'E., 30.V.'05 together 63 specimens out of 588=10,7 %, picked of from a stock of *Alcyonium*.

1 juv., Station 6, No. 3433, 51°32'30"N., 2°37'E., 21.VI.'05.

The large material enabled us to bring the question about the synonymy of both *Thoracostoma denticaudatum* A. Schneider and *Th. schneideri* Buetschli, nearer to its solution.

De Man gave a figure of a male *Thoracostoma schneideri* Buetschli with a dentiform process at the tailend; a similar process shows one of the males studied by Ditlevsen. Now our samples contain male, female and juvenile specimens of the same species as De Man observed (1922), whereas the senior author found in the Zuiderzee material a female of *Th. schneideri* without the dentiform process. In the Belgian material the male is in the possession of a dentiform process, which the female has not, so that this dentiform process must be a secondary sex character.

Further it may be worth while to give some additional notes on female and male *Th. denticaudatum* which our observations prove to be synonymous with *Th. schneideri* Buetschli whereas the latter like Filipjev (1925) has shown is synonymous with *Thoracostoma trichodes* Leuckart.

**THE FEMALE :** Head rounded at apex. The fenestrate head capsule is broadly lobed at its proximal end. Between the lobes on the lateral sides the oval amphibial openings are inserted, surrounded by a more or less irregular cuticularised rim. On the transverse bars which separate the caudal lobes from the anterior fenestrae of the capsule the setal crown is placed, composed of 10 setae in all, the lateral setae being single, the others paired. The setae are placed on cuticularised rings. In the anterior fenestrae typical lobed papillae could be observed, 6 in number. Lips fused. Head separated from the remainder of the body by a shallow groove. The anterior part of the body as such is strengthened by the mentioned capsule, the upper ends of these thick cuticularisations line the borders of the oral cavity. The latter is narrow with two dentiform structures, and is followed directly by the oesophagus. In longitudinal rows from the head downwards small thick bristles can be observed, those on the lateral line composed of 2 groups, each composed of 3 setae and 2 groups of a single seta each. Subdorsal and subventral rows composed of unpaired hairs, not forming groups. Amphidial pouch partly involuted into the opening as a kind of cone, pouch narrow enclosing some terminals. Tail without dentiform process, short, blunt, with a central bore, being the outlet of the spinneret gland; apex with 4 small setae.

**THE MALE :** In most features identical to the female, differing from the latter above all in the structure of the tail with the spiculae, the papillae, setae and the dentiform process. Tail short, conical, with centrale bore, being the outlet of the spinneret gland bearing at its tip 4 small setae, a ventral dentiform process with 4 grooves leading into the interior, and some small setae, scattered over the tail. Just behind the anal opening 2 longer setae are to be found. Spiculae curved, rather slender, swollen at the proximal end, pointed to the tip. The accessory apparatus is provided with a velum, accessory plates directed backwards, forming two grooves in which the spiculae slide, giving at the same time a point of attachment to the protractores spiculorum. From the

cloaca upwards in the direction of the head the midventral line presents papillae, crowned with small spines, 15 in all, whereas setae are scattered over the whole surface of the body.

GEOGRAPHICAL DISTRIBUTION : West Coast of Sweden, Langholmen, Ström-marne, Algenvegetation; Danmark, Little belt on the Pier of Middelfart, and off Lyngs Odde 30 M.; Norway, Oslofjord; Murmancoast; Godhavn, Greenland, Rootlets of Laminaria; Barentzsea; White Sea; Bear Island; Spitzbergen; Ice-land; Holland, Flushing, Zuiderzee, Helder; Kiel, Helgoland; Irland Blacksod Bay, under stones amongst tubes of Spirorbis.

GENUS FIACRA SOUTHERN.

5. *Fiacra brevisetosa* SOUTHERN.

(Pl. III, fig. 5-9; Pl. IV, fig. 1.)

SOUTHERN, 1914, p. 37, Pl. V, 14, ♂.

FILIPJEV, 1925, pp. 86, 88.

1 ♀, from Station 1, No. 33, No. C. 11. Locality entre le Wenduyne et le Stroom-bank, Ostende S.-S.-E. jusqu'à Raverzijde S.-S.-E., 15.VI.'05.

1 ♀, from Station 5, No. 70, 3403, 51°28'N., 2°32'E., 16.VI.'05.

1 ♀, from Station 7, No. 73, 3438, 51°32'45"N., 2°37'E., 21.VI.'05.

1 ♀, 1 ♂, 3 juv., Station 8, No. 74, 3448, 51°29'N., 2°33'30"E., 23.VI.'05.

1 ♀, 1 ♂, 3 juv., Station 9, No. 75, 3466, 51°30'N., 2°35'30"E., 29.VI.'05.

In 1914, Southern erected his new Genus *Fiacra* and gave excellent descriptions of two species belonging to it, *Fiacra longisetosa* Southern and *Fiacra brevisetosa* Southern. The present collection contains several specimens of a species of *Fiacra*. After having determined to which species the *Fiacras* of the Belgian Coast belong we will have to deal also with the systematic position of the genus *Fiacra* in the system of freeliving marine nemas founded by Filipjev and generally accepted by most authors on this field. Southern himself thinks the genus closely allied to the group embracing the genera *Thoracostoma*, *Enoplus* and *Triodontolaimus* and we are of the same opinion. This genus belongs also to the subfamily : *Leptosomatini* of the Family of *Enoplidae*. Southern himself had no occasion to make complete statements about this genus, since he says : « The precise numbers and arrangement of the teeth in the buccal cavity of the two species of this genus were not ascertained with precision. There seems to be considerable variation in different individuals and further observations are necessary on this point. It is possible that further investigations will show that the two following species belong to different genera »



Follows Southern's description of the male *F. longisetosa*, whereas from his species *brevisetosa* he had to his disposition males as well as females.

*F. longisetosa* and *F. brevisetosa* differ in the following particulars :

	<i>longisetosa</i> ♂	<i>brevisetosa</i> ♂	♀
α	122	46,2	57
β	10	6	6,6
γ	85,5	36,2	37,2

TABLE II.

The differences between **FIACRA LONGISETOSA** SOUTHERN  
and **FIACRA BREVISETOSA** SOUTHERN.

Features.	<i>F. longisetosa.</i>	<i>F. brevisetosa.</i>
Head.	Distinctly set off from the body.	Indistinctly set off from the body.
Demarcationline of the head.	Consisting of deep waves.	Consisting of flat waves.
Haircrown.	Composed of long setae.	Composed of short setae.
Amphidial opening.	Large, occupying almost 1/2 of width of head at same level.	Small, not stated if eventually differing to the sex.
Buccal cavity with :	2 large ventral teeth.	1 large dorsal and 2 small ventral teeth.
Tail.	Short, tapering rapidly with on each side of the anus a row of slender hairs; behind the anus 5 pairs.	Somewhat longer, tapering more gradually, each side with a row of hairs.
Between anus and median papilla.	12 pairs of setae.	14 pairs of setae.
Setae in front of median papilla in ♂.	17 pairs, 4 pairs as behind, 3 pairs on papillae. 12 papillae without hairs on top.	28 pairs (13 pairs similar to those behind, 15 pairs situated on rounded papillae, much shorter and thicker).
Spicules.	Stout and curved, comparatively broad.	Much more slender.
Testis.	Occupying 3/7 of bodylength.	Much shorter.

Follows the description of our specimens.

FEMALE. — DIMENSIONS : Length = 11,15;  $\alpha = 45$ ;  $\beta = 3,5-5,4$ ;  $\gamma = 30,7$ .

Cobb's formula :

$$\text{♀ } \frac{0 \quad 0,27 \quad 5,2 \quad 18,3 \quad 41,2 \quad 55,7 \quad 71,0 \quad 96,7}{0,2 \quad 0,48 \quad 1,24 \quad 1,8 \quad 2,08 \quad 1,9 \quad 1,8 \quad 1,24 \quad 0,20} = 11,25 \text{ mm.}$$

Head not set off from the rest of the body, the demarcationlines of the head capsule marked by a sinuous line with flat waves. The foreborder of the head is rounded. The lips are not distinct, but from the situation of the minute papillae and from the longitudinal ribs which strengthen the walls of the buccal cavity we may conclude that 6 lips are present, bearing faint indications of labial papillae. The mentioned sinuous line loops over the setal crown composed of 10 hairs disposed in six groups of which the lateral ones consist of one single hair, all other groups being paired. Further 5 longitudinal rows of hairs, composed of small groups of 3-4 hairs each run along the body slightly more than  $1/3$  the distance between the head and the nerve ring. The skin is apparently smooth but by closer examination very fine transverse striae are to be seen; the distance between each pair of striae is evenly divided by a transverse row of fine points. In Southern's Figure 14, the width of the amphidial opening is  $1/8$  of the width of the head at the same level; Measuring the width of the amphidial opening in our specimens we found for the female slightly less than  $1/7$ , which falls in the range of variation we may expect. The amphidial opening is cup-shaped, the effiliated amphidial tube resembles a taper and is not strongly chitinised. The narrow tube soon leads into the slightly wider amphidial pouch. The buccal cavity is indeed of a somewhat complicate structure, since it is composed of two superimposed portions; the lower portion being partly embedded into the oesophagus. The upper portion is a wide cup, the walls of which are strengthened by 6 strong longitudinal bars, each more or less swollen to its base and effilate towards its apex or blunted at the tip, confer Figures. These are the teeth, mentioned by Southern. The next portion is set off from the former by curved cuticularisations. These curved cuticularisations serve as a support for the headcapsule itself; they surround the core of this portion, the latter being the upperend of the oesophagus *sensiori strictu*. Further the « Rinnenförmige Grube » is to be found in the lateral field, just where the buccal cavity narrows towards the oesophagus, the anterior part of it being distinctly separated from the posterior part with its denser and stronger musculature. At a level with the sinuous line of demarcation of the so-called head the oesophageal gland opens into the lumen of the oesophagus. The lateral cords occupy  $1/4$  of the total width of the body; they are ornated with scattered glandular cells of granular structure. The tail tapers gradually, whereas the apex, bearing a subventral hair next to the opening of the spinneret gland, is slightly swollen again. The tail possesses 3 spinneret glandcells; which are almost of the same length. Opening of the spinneret gland central; apically the spinne-

ret glandcells reach slightly in front of the anal opening. Rectum short, rectilinear. Dorsal side of intestine near the anus covered with 2 glandular cells. Vulva with thickened walls. The distance between the head and the nerve ring is hardly more than one quarter of the length of the oesophagus, which widens slightly towards the intestine. Thus far the description of the female, to whose sexual organs we did not pay especial attention. Comparing this description with the description Southern gave of *F. brevisetosa* one will find identity in almost all essential points. Southern's description gives 1/6-1/8 for the relative width of the lateral cords, whereas here 1/4 was found. This may however partly be due to the spot on the body where this line was measured.

We believe therefore that his specimens and ours belong to the same species.

Final proof could be given by close examination of the male, but now some difficulties arise. In his description of the head end Southern apparently took a female as example and does not mention anything particular about the male.

**THE MALE :** Now we had the chance to observe a male engaged in shedding its last skin, preparing for future fatherhood. Here a very peculiar phenomenon could be observed. Figure 6 shows how the last larval skin of the male presents an amphid with the amphidial opening, being at the utmost as broad as 1/6 of the width of the head at the same level, whereas the amphidial opening of the male occupies almost 1/3 of the width of the body. So a typical secondary sex character comes to light, as this was also found for the amphidial opening of both sexes in some species of *Sphaerolaimus* and *Monohystera*. The amphidial pouches are likewise wider in the male than in the female. The shape of the longitudinal riblike structures, which resemble teeth, is different to that of the same structures in the female, but we ascribe this to the fact that these cuticularisations are now seen in profile and not on their back like this was the case in the female. The male tail is strongly haired. It has the same shape as Southern's male of *F. brevisetosa* Southern. The spicula are likewise rather slender; their tip is surrounded by small accessory pieces. Tail bearing a number of hairs. Cloaca surrounded by hairs. A median papilla is found cephalad from the anus; 14 to 15 hairs were observed between the anus and this median papilla, ahead of it 4 pairs of setae occur of the same structure as those behind the male orifice and cephalad from these 17 to 20 pairs of setiform papillae were observed, shorter than the aforementioned, many of them even shorter than those, depicted by Southern for *F. brevisetosa*.

**DIMENSIONS OF A MALE :** Length ♂ 10,6 mm.;  $\alpha = 67,9$ ;  $\beta = 5,6$ ;  $\gamma = 37,75$ .

Cobb's formula :

$$\text{♂} \frac{0 \quad 5,8 \quad 17,8 \quad M \quad 90,4 \quad 95,2}{0,36 \quad 1,17 \quad 1,32 \quad 1,46 \quad 1,32 \quad 1,32 \quad 1,17} = 10,6 \text{ mm.}$$

In this respect the forelaying male diverges from that of *brevisetosa*, since in *brevisetosa* Southern the male showed smaller indices as the female. Here the reverse is the case. Yet it is possible that this may be due at least partly to variation and so the number of points Southern's specimens and ours have in common is so large that we think it wise to identify our specimens as male and females of *Fiacra brevisetosa* Southern. Our males and females are slightly shorter than those of Southern who found 13,4 mm. for the male and 16 mm. for the female.

In his treatise of the *Enoplidae* Filipjev (1925) concludes that the Genus *Fiacra* Southern is a subgenus of the Genus *Synonchus* Cobb. The latter comprises 3 Subgenera: 1. *Fiacra* Southern with *F. longisetosa* as type; 2. *Synonchus* Cobb with *S. fasciculatus* as type and 3. *Jägerskjöldia* Filipjev with *J. acuticaudata* as type.

To the last Subgenus *Fiacra brevisetosa* Southern must also be reckoned according to Filipjev. The present material shows new light on this question. We are of the opinion that *Fiacra longisetosa* and *brevisetosa* are congeneric, and although, the Genus *Fiacra* undoubtedly is closely allied to *Synonchus*. Cobb's figures are not clear enough to allow the conclusion that *Synonchus* and *Fiacra* are congeneric.

GEOGRAPHICAL DISTRIBUTION : Irland, Clew Bay, 24-27 Fthms. on a bottom of sand and shells, Ostende.

#### SUBFAMILY ENOPLINI.

#### GENUS ENOPLOLAIMUS DE MAN.

#### 6. *Enoplolaimus (Oxyonchus) dentatus* DITLEVSEN.

(Pl. IV, fig. 2-4.)

ALLGÉN, 1928, p. 283.

ALLGÉN, 1931, p. 221.

DITLEVSEN, 1919, p. 209, Pl. XIII, 5, 8, 9; XV, 2, 3, ♀; XVI, 5, ♂.

FILIPJEV, 1925, p. 144.

A single juvenile specimen from Station 11, No. 85, P.385, 51°39'N., 1°41'E., Temp. 16,7°, Sal. 35,01, 24 Meter, 23.VIII.01.

Head bluntly conical, bearing two setal crowns like in all other species of the same genus, the upper crown composed of 6 rather short and thick setae, barely projecting beyond the oral opening. The latter is strengthened sideways by curved prongs, forming the edges of the labial field. Lips lamellar, like for example in *Sphaerolaimus*, giving entrance to the vestibulum oris, after which follows the buccal cavity s. s. The walls of this buccal cavity are strongly cuticularised from the base of the curved prongs till the bottom. These cuticularisations bear toothlike serrations at their upper edges, further downwards they project into the interior as toothlike elevations, whereas left

and right side are connected by a strongly curved bandlike cuticularisation thus limiting the upper border of the posterior third of the buccal cavity. From the bottom a strong pointed tooth projects into the cavity and reaches up to the base of the upper setal crown. The penultimate portion of the cavity bears at its interior an oval triangular plate, beset with two rows of small spines. This plate is situated just behind the implantation of the second setal crown, which consists of 12 longer setae. The oesophagus embraces the oral cavity partly and reaches slightly in front of the dental projections. This portion of the oesophagus, separated from the remainder by a transverse line of demarcation is faintly muscular, whereas in the next part triangular portions of glandular material are wedged in between the muscular tissue. One single point has especially to be mentioned, id est the triangular groove found at the base of one of the setae of the first setal crown. As to our opinion it is homologous with the « Rinnenförmige Grube » of the other representants of this Family. One might also think of an amphidial opening but so far no special amphidial organ could be found with certainty in this species. In Figure 2 some triangular striped spots are to be seen, as to our opinion the glands situated in the anterior part of the oesophagus. This anterior portion of the oesophagus runs quite as far as the anterior part of the body which generally is called the head.

Remainder of oesophagus like in all other species of *Enoplolaimus*, gradually becoming broader but without bulbus at the spot where this passes into the intestine. If the head is seen in lateral view (Fig. 3) some longitudinal striations are to be seen on it, whereas the tooth can be observed less distinctly. Tail long and tapering, slightly swollen towards its apex. The skin of the body is finely ringed and presents some fine setae, scattered all over the surface.

This species differs from species like *E. buetschlii* Southern, *E. diplochma* Southern and several others from the same group by the mode of dental armature of the buccal cavity. Here the long, sharply pointed tooth rises directly from the bottom of the buccal cavity, whereas the dental armature, — characteristic for representants of the Genus *Enoplolaimus* is a set of slender teeth, each with 2 anterior cusps and a median cusp in the middle —, seems to be absent. We doubt therefore if this species really belongs to the Genus *Enoplolaimus* and if not a closer study of the said genus will prove that it has to be subdivided into a number of genera and that a species like *E. dentatus* Ditlevsen belongs to quite another genus as for example the genus to which *E. diplochma* and *E. buetschlii* do belong. This is in accordance with Filipjevs view (1925) who brings *E. dentatus* Ditlevsen to his Subgenus *Oxyonchus*.

Since one single specimen only was found in the underlying material it would be premature to make this subdivision and so we think it better not to remove this species from the genus *Enoplolaimus*.

DIMENSIONS : Length = 3,5 mm.;  $\alpha = 32,6$ ;  $\beta = 5,1$ ;  $\gamma = 11,2$ .

Cobb's formula :

$$\text{juv. } \frac{0,63 \quad 4,8 \quad 19,4 \quad M \quad 91,1}{0,84 \quad 1,68 \quad 2,52 \quad 3,16 \quad 1,05} = 3,5 \text{ mm.}$$

Whilst describing his species *E. dentatus* Ditlevsen doubted if not this species would prove later on to be the same species as described by Steiner under the name of *E. hamatus* from the Barentzsea. Now we felt one moment the same doubt, but closer examination revealed so many differences that both species hardly can be considered as synonyms. Compare for instance the dimensions :

<i>E. dentatus</i> Ditlevsen ♀	measures 4,5 mm.	♂ 4,5 mm.	<i>E. hamatus</i> ♂	5,6 mm.
$\alpha =$	45	45		23
$\beta =$	5,0	5,0		5,2
$\gamma =$	17,0	15,3		17

The  $\alpha$ 's of both species differ so much that we feel obliged already from this point of view to separate the mentioned species, the armed plate with its double row of teeth, the dental armature of the strongly cuticularised walls of the buccal cavity separates this species from *E. hamatus* Steiner, whereas both species have in common that an isolate strong tooth rises from the bottom of the buccal cavity. Unluckily we had no male specimen to our disposition, but from our observations we are inclined to think that our specimen is identical with those of Ditlevsen. The only difference with the danish ones consists in the fact that the hindermost row of cephalic bristles is not single but double.

GEOGRAPHICAL DISTRIBUTION : Belgium; Danmark, off Helleback; Sweden, Smalsund in Schalensand, Christineberg; Norway, Oslofjord; Murman Coast, Cap Drovjanoj, 8 M.

#### GENUS ENOPLUS BASTIAN.

##### 7. *Enoplus communis* BASTIAN.

- |   |  |
|---|--|
| ALLGÉN, 1929, p. 13.                              | FILIPJEV, 1925, p. 137.                    |
| ALLGÉN, 1931, p. 221.                             | KREIS, 1928, p. 152.                       |
| BASTIAN, 1865, p. 148, Pl. XII, 164-166,<br>♀, ♂. | LINSTOW, 1900, p. 128.                     |
| BUETSCHLI, 1874, p. 40, Pl. VIII, 35.             | DE MAN, 1886, p. 14, Pl. I, II, III, ♂, ♀. |
| DITLEVSEN, 1911, p. 23.                           | RAUTHER, 1907, p. 407.                     |
| DITLEVSEN, 1919, p. 205.                          | SAVELJEV, 1912.                            |
| DITLEVSEN, 1923, p. 201.                          | SCHUURMANS STEKHOVEN, 1931, p. 676.        |
| DITLEVSEN, 1928, p. 207.                          | SOUTHERN, 1914, p. 50.                     |
| FILIPJEV and MICHAILOVA, 1924, p. 212.            | STEINER, 1916, p. 625.                     |
|   | VILLOT, 1875, p. 459.                      |

*Enoplus communis* is like its name already indicates one of the commonest marine nemas of the littoral zones of the European Coasts. In Belgium it was especially found in the *Alcyonium* biocoenoses. 39,5 %, respectively 42 % of all specimens found in a certain locality consisted of representants of this species. It equals therefore *A. limalis* in frequency. This species has been described so minutely by De Man that it is quite unnecessary to give a redescription of the same.

The Belgian material brought specimens from the following localities :

36 juv. from Station 2, 65, 3240, 51°21'30"N., 2°30'15"E., 17.IX.'04.

12 ♂, 115 juv. from Station 3, 66, 3270, 51°20'45"N., 2°30'45"E., 27.IX.'04.

1 ♀, 229 juv. from Station 4, 67, 3345, 51°26'N., 3'E., 30.V.'05.

1 ♂, from Station 6, 72, 3433, 51°32'30"N., 2°37'E., 21.VI.'05.

2 ♀ ♀, from Station 10, 77, 3693, Oisterbeds of Mr. Janssens at Ostende, 20.II.'06.

GEOGRAPHICAL DISTRIBUTION : Bretagne (Villot); Bretagne et Rockal (Ditlevsen); Falmouth, about the roots of *Corallina officinella* from tide-pools (Bastian); North Sea (De Man); Zuiderzee (Schuurmans Stekhoven); Bay of Kiel depth a few Fthms. (Buetschli); Danmark : Oeresund, Helleback; Little Belt near Middelfart, off Snoghøj, Lyngs Odde, and at Kongrebo; Kattegat Fredrikshavn and Tyborön; Limfjord, near Nyköbing and Fur; Sallingsund (Ditlevsen); Kristineberg Sweden, Algenvegetation (Allgén), Norway, Oslofjord (Allgén), Irland. Blacksod Bay, shore, Clew Bay, shore of Clare Island, 24 Fthms. Mature specimens in March, May, August, September (Southern); Spitzbergen (Kreis) : 20°30' E., 81°20' N. Near Spitzbergen (Linstow); Barentzsea (Steiner); Murman Coast, Catharina harbour, White Sea, Naval, *Biocoenosis* of *Corallina* (Filipjev). Greenland (Ditlevsen). We did not bring into this list the species *E. dujardini* Bastian and *E. cochleatus* Schneider which are according to Filipjev synonyms of *E. communis* Bastian.

#### SUBFAMILY ONCHOLAIMINI.

#### GENUS METONCHOLAIMUS FILIPIJEV.

#### 8. *Metoncholaimus denticaudatus* nov. spec.

(Pl. IV, fig. 5-8; Pl. V, fig. 7, 8.)

2 ♂, 3 ♀, 30 juv. from Station 10, 77, 3693. Oisterbeds of Mr. Janssens at Ostende, 20.II.'06.

The present species although strongly ressembling *O. albidus* in many respects, can be distinguished from the latter inter alia by the peculiar dental armature of the male tail, which bears apart from a number of small setae a row of

dentiform processes, running from halfway the length of tail to a short distance from its apex; by the long and slender spicula, which are much longer than those of *O. albidus* De Man, measuring more than twice the length of the tail.

MALE : Head rounded at apex, oral opening small; six labial papillae are distinctly visible. Just behind these each lip shows a sinuous line composed of two waves. Setal crown composed of 10 setae situated at 1/3 of the distance between top of head and amphidial opening. Amphidial opening slitlike not very broad, occupying slightly more than 1/6 of the width of the head. Buccal cavity rather wide, presenting a long ventral tooth with a medial bore, reaching almost to the level of the sinuous labial lines and two subdorsal teeth, one of them slanting, the other with an obtuse apex, both subdorsal teeth reach almost to the same level. Buccal capsule resting on the oesophagus, of which the portion situated caudad from the nerve ring gradually becomes broader and is strongly muscular. On a level with the caudal end of the buccal capsula some setae are to be found. Efferent duct of the ventral gland opening at a distance of the beginning of the oesophagus, which is only slightly more than the length of the buccal capsule. Tail curved. Anal lip beset with 4 or 5 setae; behind the cloaca a row of 10 setae could be observed, followed by 9 dentiform processes. Tip of tail bearing a central bore, three small setae being visible just before the tip.

DIMENSIONS : Length = 5 mm.;  $\alpha = 64$ ;  $\beta = 18,8$ ;  $\gamma = 26,6$ .

Cobb's formula :

$$\text{♂} \frac{0 \quad 0,62 \quad 5,3 \quad 12 \quad M \quad 96,25}{0,46 \quad 0,62 \quad 1,25 \quad 1,71 \quad 1,4 \quad 0,31} = 5 \text{ mm.}$$

FEMALE, identical with the male in most essential points. Apparently the amphids are slightly larger than those of the male. Demanian vessels long and distinct connecting the exterior with the intestine; tail rather slender, ending blunt with a seta at the apex. Ovary unilateral, not reflexed. One female had 6 ripe eggs, another 9 ripe eggs in its uterus.

DIMENSIONS :

Cobb's formula :

$$\text{♀ 1} \frac{0 \quad 0,6 \quad 11,08 \quad 35,18 \quad 69,39 \quad 91,8 \quad 96,06}{0,6 \quad 0,84 \quad 1,56 \quad 1,56 \quad 1,44 \quad 1,44 \quad 0,6} = 5,72 \text{ mm.}$$

$$\alpha = 63,8; \quad \beta = 9; \quad \gamma = 31,9; \quad \text{vulva } 69,39 \%$$

$$\text{♀ 2} \frac{0 \quad 0,39 \quad 4,97 \quad 9,94 \quad 40,55 \quad 65,80 \quad 88,27 \quad 95,22}{0,59 \quad 0,78 \quad 1,18 \quad 1,56 \quad 1,39 \quad 1,29 \quad 0,99 \quad 0,89} = 6,9 \text{ mm.}$$

$$\alpha = 62,8; \quad \beta = 9,9; \quad \gamma = 20,9; \quad \text{vulva } 65,8 \%$$

\* d. M. p. = demanian pore.



GENUS ONCHOLAIMUS DUJARDIN.

9. *Oncholaimus aequedentatus* DUJARDIN.

(Pl. V, fig. 1-6.)

2 ♀♀ and 13 larvae were found on *Balanus*. Station 12, 95, 293. Coque du bateau « Talisman », Ostende, 29.IV.22.

The present species is characterised by the fact that all teeth run up to the same level, the large ventral tooth as well as the smaller yet very distinct sub-dorsal teeth. The amphids are relatively small, barely as broad as half the width of the buccal cavity. The tail is rounded at the tip. Demanian vessels present in the female.

DIMENSIONS :

Cobb's formula :

$$\text{♀ 1} \frac{0 \ 0,83 \ 3,24 \ 6,07 \ 12,72 \ 25,54 \ 60,79 \ 97,48}{0,83 \ 1,04 \ 1,25 \ 1,46 \ 1,57 \ 1,57 \ 0,73} = 3,6 \text{ mm.}$$

$\alpha = 60,3; \ \beta = 8; \ \gamma = 39,7; \ \text{vulva } 60,79 \%$

							sp. gl. c.* 1	sp. gl. c. 2	sp. gl. c. 3	anus		
♀ 2	0	0,63	3,1	5,07	9,59	36,67	57,82	66,99	83,92	88,57	96,33	(97,74)
	0,56	0,84	0,91	0,98	1,12	1,26	—	—	—	—	1,05	0,49

= 5,3 mm.

$\alpha = 78,7; \ \beta = 10,4; \ \gamma = 44,3; \ V = 57,82$

\* sp. gl. c. means : spinneret glandcell.

The figures between brackets indicate the spot, where the tail is narrowed considerably.

The head is rounded at its apex, the minute papillae are to be seen with great difficulty only. M-shaped ornamentations present on the lips. Setal crown composed of 10 setae of which the lateral ones are unpaired, situated at about the level of the upper ends of the teeth. The small indistinct amphids are placed opposite the lower half of the buccal cavity, the walls of which are covered with a cuticularised thick lining. Entrance of the oesophagus thickly lined with cuticularisations. Upper part of the body with some small setae only,

placed in longitudinal rows. Nerve ring embracing the oesophagus halfway the distance between oral opening and the intestine. Oesophagus slightly swollen towards the connection between oesophagus and intestine. Efferent duct of the ventral gland opening halfway the distance between the nervering and the oral opening whereas the cellbody is situated caudad from the cardia at a distance equalling almost the length of the oesophagus itself. Depth of buccal cavity about 1/14 of oesophageal length. Sexual apparatus unilateral and not recurved. One of the females possessed in its uterus 3 ripe eggs. Intestine without particulars worth mentioning. Openings of the demanian vessels situated shortly cephalad from the anal opening. Tail conical, clavate at the posterior end, containing the tubes of the spinneret glandcells, which reach rather far upwards and are of unequal length.

SUBFAMILY **TRIPYLOIDINI.**

GENUS **TRIPYLOIDES** DE MAN.

10. **Tripylodes marinus** (BUETSCHLI).

*Tripyla marina* BUETSCHLI.

- |  |                                      |
|--|--------------------------------------|
| ALLGÉN, 1927, p. 52.                       | FILIPJEV, 1927, p. 195.              |
| ALLGÉN, 1929a, p. 14.                      | FILIPJEV, 1930, p. 9.                |
| ALLGÉN, 1929b, p. 24.                      | DE MAN, 1886, p. 16.                 |
| ALLGÉN, 1931, pp. 230, 231.                | DE MAN, 1922, p. 229, Fig. 18, ♀.    |
| BUETSCHLI, 1874, p. 33, Pl. III, 12, ♀, ♂. | GUIDO SCHNEIDER, 1906, 14, Pl. I, 8. |
| DITLEVSEN, 1919b, p. 299.                  | GUIDO SCHNEIDER, 1926, 12.           |
| FILIPJEV, 1925, p. 195.                    | SCHUURMANS STEKHOVEN, 1931, p. 618.  |

This species is very common in brackish waters. The Material of the Brussels Museum contained a small number of specimens only 2 ♀, 1 ♂ and 4 juv. spec. from Station 10, No. 77, 3693, Oisterbeds of Mr. Janssens at Ostende, 20.II.'06.

We think Allgén 1931, is right in assuming that *Cothonolaimus gracilis* Ditlevsen. = *Tripylodes gracilis* (Ditlevsen) is not synonymous with *Tr. marinus* (Buetschli). At the other hand his *Cothonolaimus similis* Allgén is as to our opinion a species of *Tripylodes* closely allied to *Tr. marinus* (Buetschli).

GEOGRAPHICAL DISTRIBUTION : North Sea (De Man); Zuiderzee (De Man, Schuurmans Stekhoven); Bay of Kiel, beach (Buetschli); Danmark : Little Belt, Pier of Middelfart (Ditlevsen); Sweden : Barsebäck, Algenvegetation; Lerberget,

West-Coast of Schonen, Oeresund; Kristineberg, Zosteravegetation (Allgén); Finland, Bay of Finland (Filipjev), Tvarminne (Guido Schneider); Murman-Coast, Catherine-Harbour (Filipjev).

GENUS COTHONOLAIMUS DITLEVSEN.

11. *Cothonolaimus filicaudatus* nov. spec.

(Pl. VI, fig. 1-3.)

1 ♀ in deteriorate condition from Station 6, No. 72, 3433, 51°32'30"N., 2°37'E., 21.VI.'05.

The female in question being in bad condition several particulars cannot be observed with detail. So for instance the structure of the female genital apparatus could not be studied, whereas the buccal cavity was filled entirely with sand particles, which made it rather troublesome to make a correct figure of the same. Yet we are sure that the species in question has to be reckoned to the genus *Cothonolaimus* erected in 1919 by Ditlevsen, since the oral cavity is rather deep; being wide at the beginning it is constricted slightly in front of the amphids. Here toothlike projections are to be seen, whereas behind them one finds a conical cavity, sunken in the oesophagus. Opposite this cavity the amphids are to be found. These are almost circular in outline. The circle is however not quite closed and so it would be better to speak of an incomplete spiral. From the amphids in apical direction the head tapers strongly. Lips and labial papillae could not be detected. Round the oral opening 4 labial setae are placed, not quite as long as half the diameter of the head. In the middle of the distance between the oral cavity and the amphids a second setal crown may be observed, apparently consisting of 8 setae, arranged in 4 pairs of which the caudal seta of each pair is distinctly shorter than the cephalic one. In the figure the left pair is only to be seen, since the right pair was broken.

Oesophagus almost rectilinear, at the utmost slightly swollen towards its connection with the intestine, the former without a bulb. Tail long, filiform, swollen at the extreme end. Skin finely ringed.

DIMENSIONS : Length = 2,3 mm.;  $\alpha = 50$ ;  $\beta = 9,3$ ;  $\gamma = 6$ .

Cobb's formula :

$$\frac{10,6}{1,2} \frac{47,4}{2,0} \frac{83,5}{1,4} = 2,3 \text{ mm.}$$

## II. — FAMILY CHROMADORIDAE.

## SUBFAMILY CYATHOLAIMINI.

## GENUS CYATHOLAIMUS BASTIAN.

12. *Cyatholaimus ditlevseni* nov. spec.

(Pl. VI, fig. 4-8.)

DITLEVSEN, 1923, p. 179 (*C. canariensis* STEINER in parte).

1 ♂, 1 ♀, 1 juv. from Station 4, No. 67, 3345, 51°26'N., 3'E., 30.V.'05.

3 ♂, 3 ♀, 8 juv. from Station 10, No. 77, 3693. Oisterbeds of Mr. Janssens at Ostende, 20.II.'06.

In 1923, Ditlevsen noted the presence of *Cyatholaimus canariensis* Steiner at Quiberon on the Coast of Bretagne. Although the specimen he found differed from the species described by Steiner above all by its size, since it was more than twice as large as the former, it had so many points in common with Steiner's species that he brought it to it. Now the collection of nemas of the Royal Belgian Museum of Natural History contained also some *Cyatholaimi* which at first sight seemed to belong to Steiner's species but closer examination learned us that the species is different from Steiner's but identical with that of Ditlevsen. This author therefore identified this species falsely as *Cyatholaimus canariensis* Steiner. In honour of this wellknown nematologist we propose to call it *Cyatholaimus ditlevseni* nov. sp. From *C. canariensis* Steiner it may be distinguished, apart from its size by the minuteness of the labial papillae, which are very large and setiferous in Steiner's species, which is not the case in the present species.

FEMALE : Head rounded in front, blunt, not much narrowed anteriorly. On each of the 6 lips a small, yet distinct conical papillae may be seen. Labial region separated from the rest of the body by a distinct demarcation line. Labial region smooth, without punctation but bearing the setal crown which is composed of 12 setae, the setae of each pair subequal, setae longer than the labial region is deep. The head, that is the portion of the body where the annulation is absent, reaches beyond the amphids. From the demarcation line of the labial region to the beginning of the annulation the skin is covered with transverse rows of fine points, like these are also found on the remainder of the body on the rings, each ring bearing on its surface 2 to 3 rows of these points apart from the rows, which separate the rings, so that on each ring come 4-5 transverse rows of points. Moreover the lateral fields present longitudinal rows of small circular ornamentations being the outlets of the skinglands.

Amphids large, slightly broader than long and therefore more or less elliptical; their centre is formed by a small point and from here the spire runs, forming 3 windings. Diameter of the amphid  $\frac{1}{3}$  of the diameter of the body.

Buccal cavity shallow, wide at opening. Its walls are strengthened by 12 longitudinal ridges, which project screen-like into the cavity. The tooth at the beginning of the oesophagus is very small, proving that the species in question really belongs to the genus *Cyatholaimus* like it was diagnosed by Micoletzky. The construction of the spicular apparatus and the absence of true preanal papillae points into the same direction.

Oesophagus like in *C. canariensis*, although comparatively shorter. Nerve ring backwards from the middle of the oesophagus. Eyes absent. Tail comparatively short, beset with many short setae like these are also to be seen on the rest of the body and containing 3 spinneret-glandcells, which are seriate. In the female the vulva is situated slightly in front or just after the middle of the body. Female genital apparatus bipartite.

MALE : Its copulatory apparatus consists of 2 spicula, — these are pointed at the apex and broaden towards the base, — and a gubernaculum, which is only slightly shorter than the spicula. Distally this gubernaculum widens into a kind of manubrium with finger-shaped teeth. True praeanal papillae are absent but 3 to 4 circular ornamentations are to be seen, which however do not run into the interior like this is the case with the papillae of the species of *Paracanthochus*. Tail in both sexes short and far from slender, provided with a conical outlet.

Apart from the similarity which the present species shows with *C. canariensis* Steiner it has likewise many points in common with *C. simulatus* Kreis from Büsum but from this species it may be distinguished inter alia by the annulation of the skin which begins anterior of the amphids, by the number of cephalic setae (10 in *simulatus*) and by the construction of the spicula and the relative size of the gubernaculum.

DIMENSIONS :

♀ Length = 2,37 mm.;  $\alpha = 16$   $\beta = 8,17$ ;  $\gamma = 11,5$ ; vulva : 50,1%.

♀ Length = 2,21 mm.;  $\alpha = 18,67$ ;  $\beta = 8,23$ ;  $\gamma = 11,2$ ; vulva : 48,9%.

Cobb's formula :

$$\text{♀ 1} \quad \frac{0 \quad 6,63 \quad 12,23 \quad 34,17 \quad 50,1 \quad 65,95 \quad 91,35}{3,32 \quad 4,25 \quad \quad \quad 6,23 \quad \quad \quad 3,98} = 2,37 \text{ mm.}$$

$$\text{♀ 2} \quad \frac{0 \quad 7,14 \quad 12,14 \quad 39,28 \quad 51,78 \quad 66,07 \quad 91,07}{3,21 \quad 3,75 \quad 4,64 \quad 5,35 \quad 5 \quad 3,21} = 2,27 \text{ mm.}$$

DIMENSIONS : ♂ Length = 1,7 mm.;  $\alpha = 24,1$ ;  $\beta = 7,2$ ;  $\gamma = 9,6$ .

Cobb's formula :

$$\begin{array}{cccccc} \text{♂} & 0 & 6,89 & 13,78 & 29,88 & M & 89,65 \\ & \hline & 1,37 & 3,21 & 3,44 & 3,9 & 4,13 & 3,21 \end{array} = 1,7 \text{ mm.}$$

GEOGRAPHICAL DISTRIBUTION : Bretagne, Quiberon, Belgium, near Ostende.

GENUS · PARACANTHONCHUS MICOLETZKY.

### 13. *Paracanthonchus polycyrtus* nov. spec.

(Pl. VI, fig. 9-12; Pl. VII, fig. 1-2.)

5 ♂, 3 ♂, 4 juv. from 51°26'N., 3'E. Collection number 67, 3345, 30.V.'05.

1 ♀, 3 juv. from 51°20'45"N., 2°30'45"E. Collection number 66, 3270, 27.IX.'04.

2 ♀, from Oisterbeds of Mr. Janssens, Ostende, 77, 3693, 20.II.'06.

The present species strongly resembles *P. abnormis* Allgén 1929, which species is characterised from all other species hitherto described by the forward position of its amphids. The same feature was observed in the present species. Allgén's description was made after a female which he himself states to be in rather bad condition, since he says : « Weibliche Organe schlecht erhalten ». The question is if not the same fits for the buccal cavity, confer the position of the tooth and the outline of the buccal wall and what he says about the setal crown, of which the number, of setae could not be counted with certainty. The annulations in his figure begin at any case at a lower level than in ours and moreover nothing is to be seen nor said about the labial papillae. So it will be wise to describe our species as new, although closely related to Allgén's species *abnormis*, which to all probability will not be so abnormal as stated by this author, when fresh specimens will be examined. The abnormality of Allgén's specimens is as to our opinion largely due to artificial causes, insufficient fixation and rapid changes in the osmotic pressure, which gave the head an abnormal outlook.

*Paracanthonchus polycyrtus* may be characterised as a rather plump species. Labial region smooth, labial papillae distinct bearing conical setae, Amphids large, showing 4 windings. Punctuation of the skin distinct, coarser on the lateral fields than elsewhere. Here peculiar circular ornamentations are to be seen. Oral cavity with 12 longitudinal screenlike bars, the sharp tooth reaches up to the core of the amphid. Beginning of the oesophagus wide. In the male 6 preanal papillae are present, 2 small ones and 4 of larger size.

FEMALE : Head not distinctly set off from the remainder of the body. Setal crown composed of 10 hairs, the laterals being unpaired, the submedials paired, each pair formed by a longer and a shorter hair, the longer hair reaching

far forward. The punctation of the body all at once begins behind the labial region. The outer winding of the amphid reaches to the labial region. Punctation as described above. The larger circles have halfmoon-shaped thickenings at the upper and lower border. The annules of the body are bordered by the punctation and no special punctation covers the annules themselves. Body devoid of setae. Buccal cavity cylindrical with 12 thickenings occupying the anterior half of the whole cavity. Further downward the buccal cavity is asymmetrically prolonged into the oesophagus and from the bottom of the buccal cavity, where this passes into the oesophagus, a sharp long tooth arises and points to the core of the large amphid. Oesophagus slightly widening from the headend towards the intestine. Nerve ring embracing the oesophagus almost halfway the distance between the head and the intestine. Tail rather short with a conical outlet and 3 seriate spinneret gland cells. Vulva slightly ahead of the middle of the body. Vulva-glands present. Female genital apparatus bipartite, each uterus containing some embryonated eggs, in one female 2 eggs were found in the anterior uterus, 3 in the posterior one.

MALE with the mentioned preanal glands and tubelike openings of the same. Genital apparatus showing a broad spermathotheca. Spicula effilate at the tip, widening distinctly towards the proximal end, slightly constricted a short distance from the base. Gubernaculum pointed proximally, widening considerably towards the cloacal opening, where it is plate-shaped. On the distal border no dental armature could be observed. A distinct genital musculature consisting in pro- and retractores gubernaculi could be observed.

DIMENSIONS : ♀ 1, Length = 1,88 mm.;  $\alpha = 27,6$ ;  $\beta = 5,2$ ;  $\gamma = 13,4$ , each uterus presenting one egg.

Cobb's formula :

0	7,44	19,14	40,42	51,06	61,7	92,55
1,48	2,76	3,4	3,83	3,83	3,83	2,55

DIMENSIONS : ♀ 2, Length = 2,4 mm.;  $\alpha = 30,5$ ;  $\beta = 6,4$ ;  $\gamma = 13,5$ , anterior uterus with 2, posterior uterus with 3 eggs.

Cobb's formula :

0	6,55	15,57	35,24	47,54	92,62
0,98	2,13	2,62	3,11	3,27	1,3

DIMENSIONS : ♂ 1, Length = 1,88 mm.;  $\alpha = 29,3$ ;  $\beta = 5,2$ ;  $\gamma = 15,6$ .

Cobb's formula :

0	8,51	19,14	36,19	M	93,61
1,27	2,76	3,4	3,4	3,4	2,55

DIMENSIONS : ♂ 2, Length = 1,8 mm.;  $\alpha = 26,4$ ;  $\beta = 5,6$ ;  $\gamma = 15$ .

Cobb's formula :

0	7,78	17,78	35,56	M	93,34
1,56	2,89	2,89	3,56	3,78	2,67

DIMENSIONS : ♂ 3, Length = 1,73 mm.;  $\alpha = 29,6$ ;  $\beta = 5,5$ ;  $\gamma = 14,8$ .

ECOLOGY : This species was found in the *Alcyonium* biocoenoses and on oysterbeds.

#### SUBFAMILY CHONIOLAIMINI.

GENUS HALICHOANOLAIMUS DE MAN.

#### 14. *Halichoanolaimus robustus* (BASTIAN).

Syn. : *Smalsundia* ALLGÉN.

*Spilophora robusta* BASTIAN.

*Spilophora robusta* BUETSCHLI.

(Pl. VII, fig. 3-8; Pl. VIII, fig. 1-3.)

ALLGÉN, 1929, p. 46.

ALLGÉN, 1931, p. 236.

BASTIAN, 1865, p. 166, Pl. XIII, 226, 227,  
♀.

BUETSCHLI, 1874, p. 46, Pl. VII, 29.

DITLEVSEN, 1919, p. 170.

FILIPJEV, 1918, p. 200.

FILIPJEV, 1922, p. 117.

KREIS, 1929, p. 44.

DE MAN, 1888, p. 38, Pl. IV, Fig. 17 ♂.

SAVELJEV, 1912, p. 121.

SOUTHERN, 1915, p. 24.

2 ♂♂, 2 ♀♀ from Station 10, 77, 3693, on oysterbeds of Mr. Janssens at Ostende, 20.II.'06.

In 1929, Allgén erected the new genus *Smalsundia* for a species *punctata*, which differs from *Halichoanolaimus* — to which genus it greatly resembles, — only by the presence of a strongly cuticularised covering of the head, by a spicular apparatus which is said to be distinct and by a different structure of the buccal cavity. After having studied carefully specimens of a species of *Halichoanolaimus*, present in the Belgian material and after having compared our observations with the figures of De Man and of Kreis, we have come to the conclusion that the Genus *Smalsundia* Allgén is synonymous with the Genus *Halichoanolaimus* De Man.

DIMENSIONS : ♂, Length = 2,53 mm.;  $\alpha = 29,6$ ;  $\beta = 10$ ;  $\gamma = 17$ .

Cobb's formula :

0	1,23	10,18	94,13	(97,22)*	
2,15	2,46	3,39	3,39	2,46	0,62

De Man's data : Length = 2,4 mm.;  $\alpha = 30$ ;  $\beta = 6-7$ ;  $\gamma = 22$ .

\* For the figures between brackets confer species 9.



Allgén's *Smalsundia punctata* Allgén : Length = 2,4 mm.;  $\alpha = 21,8$ ;  $\beta = 7,2$ ;  $\gamma = 20,9$ .

MALE : Skin ornamentation consisting of transverse rows of fine points evenly covering the part of the body situated ahead of the ellipsoïdal amphids. This striation stops anteriorly at the strongly cuticularised capsule of the frontal portion of the head, which is incised into 10 lips, each bearing conical papillae, prolonged into the interior by means of bandlike strings, having a darker central core, probably representing the terminals of a nerve fibre. De Man apparently had not to his disposition the strong lenses, we use now for this purpose, but nevertheless has seen several of the features, observed by us, since he mentions the presence of 10 papillae in his species and depicts the demarcation line of the strongly cuticularised apical portion of the head at the same point as figure of the present paper does. Likewise De Man has seen the bandlike strings, confer his Figure 17 and also the sinuous curved line surrounding the middle of this strongly cuticularised portion. De Man's description : « La tête est tronquée, non hérissée de soies » is not quite fitted for our form, since close observation reveals a crown of 10 setae, the lateral ones being unpaired, the subdorsal and subventral setae being paired, all setae very small. Buetschli likewise has given a rather fine figure of his *Spilophora robusta* Bastian, on which the oral papillae, the cuticularised capsule, the lips as well as the setae are to be seen.

The described strongly cuticularised apical headportion as well as the thick bodywall at the anterior border serve as points of attachment to the musculature of the buccal cavity and of the anterior portion of the oesophagus. This musculature Buetschli has observed correctly. The buccal cavity and the anterior portion of the oesophagus are of a very complicate structure.

This cavity is composed of two different parts, the anterior one : a wide cyathiform cavity, lined by thick cuticularisations, connected with the bodywall by the retractores infundibuli at their upper border and by the retractores partis anterioris oesophagi with the anterior part of the oesophagus. Further special muscles seem to connect the strongly cuticularised head capsule with the buccal cavity, the hindermost portion of the oral cavity, being at the same time the anterior part of the oesophagus, begins on a level with the middle line of the amphids. Here a row of denticles is to be seen. These denticles are the cuticularised upper ends of the screen-like folds of the second portion of the buccal cavity, which rectangular in the beginning ends as a kind of trap. The denticles in question are curved like boomerangs, giving thus the impression of being double. We describe it to this aspect that Allgén describes the denticles as triple, whereas De Man distinctly pictures them as double. In front of this row of denticles at the right side a separate denticle is to be seen on a somewhat higher level. The denticles do not serve the purpose of triturating the food, but help to get hold of the prey and prevent that it will slide back.

Amphids ellipsoïdal, composed of 4 loops. Slightly behind the lower end of the distinct anterior portion of the oesophagus (already observed by Buetschli) a small seta is found at either side of the body. Oesophagus as described by De Man and Allgén, a ventral gland is found in the angle between the oesophagus and the intestine. Excretory pore on 6/11 of the whole length of the oesophagus from the anterior end. Width of amphid just 2/9 of the width of the body at the same level. Depth of oral cavity almost 1/7 of the whole length of the oesophagus.

Spicula not unlike those of *Smalsundia punctata*, but broader at the cephal end, pointed at the tip, gubernaculum of slightly different shape as in the latter species. Ventral surface with a single row of 8 small, yet distinct papillae, crowned with small setae. Buetschli's description tells us that his male is in the possession of 2 rows of about 7 preanal papillae each. De Man says that 3 rows of preanal papillae may be observed in the male *Halichoanolaimus robustus* Bastian; the lateral rows consist of 7 papillae each and are homologous with those observed by Buetschli, the median row, overlooked by Buetschli is composed of 8 papillae.

A very careful examination and reexamination has not revealed more than a single row of 8 papillae in our male.

Allgén's Figure of *Smalsundia punctata* Allgén does not show any preanal papillae. Further the amphids of his species are distinct, as also the lower portion of the buccal cavity and the shape of the tail. Spinneret glandcells of the tail in our species ending at the upper end of the gubernaculum; tail distinctly constricted at the middle, with a central bore at the apex.

FEMALE : In many respects it resembles the male. Tailending with a conical tube with central bore. Ovaries short, uteri with 2 eggs in each uterus only. Vulva with thick glandular walls, these glands open to the exterior. Female tail much shorter than that of the male.

DIMENSIONS : Length = 2,25 mm.;  $\alpha = 17,8$ ;  $\beta = 7,15$ ;  $\gamma = 20,4$ ; vulva : 48,9 %.

Cobb's formula :

$$\frac{2,79 \quad 5,3 \quad 13,98 \quad 34,96 \quad 48,95 \quad 67,33 \quad 95,1}{3,49 \quad 3,63 \quad 4,89 \quad 5,59 \quad 5,59 \quad 4,89 \quad 2,79} = 2,25 \text{ mm.}$$

De Man says : Length = 2,8 mm.;  $\alpha = 30$ ;  $\beta = 6-7$ ;  $\gamma = 18-20$ , vulve chez des individus long de 2 mm. à quelque distance en avant du milieu du corps.

Buetschli ♂ or ♀ ? : Length = 2,5 mm.;  $\beta = 6-7$ ;  $\gamma = 20$ .

Before coming to the synonymy of the genus *Smalsundia* with *Halichoanolaimus* we must say some words about the function of the buccal cavity. It

is clear that the oral cavity can be widened or narrowed at will by the muscles depicted in our figure and observed also by De Man. Relatively large preys can be swallowed and pressed into the trap-like portion where they may be mangled to some extent and shifted to the oesophagus, which possesses a rather strong suction power. This is in accordance with Ditlevsen's observations. This author says about *H. ovalis* : « As the other species of this genus, the species under consideration is of a voracious habit. In the hinder most part of the intestine of one of my specimens is seen the chitinous skeleton of the buccal cavity of an *Oncholaimus*; the intestine of the other specimen includes the spicular apparatus of a *Parasabatieria mortensi* Ditlevsen ». In 1919, the same author found pieces of the spicular apparatus of a *Cyatholaimus* species in the intestine of *Halichoanolaimus robustus*.

We must now ask if the present species is identical with *Halichoanolaimus robustus* (Bastian). As far as we can trust De Man's figures it differs in the cuticularised lining of the lower portion of buccal cavity, in the possession of a single row of 8 preanal papillae instead of 3 rows and in some differences in its dimensions, which are apparently of minor importance and due to the age of the animals.

Therefore it might be distinct from De Man's species although it has very many points in common with it. So we are inclined to consider it as the same species. The only essential difference consists in the number and distribution of the preanal papillae. It is certainly distinct from *H. punctata* (Allgén) since the latter has no preanal papillae, at least such structures are not depicted in the rather incomplete figure of Allgén, which also gives a very superficial idea of the cuticularised covering of the head (His figure is not more than schematical or even not so good like that), in the number of denticles at the end of the anterior portion of the buccal cavity and in the shape of the spicula and the amphids. In essential points however both species agree in so far that they have to be reckoned to the same Genus.

GEOGRAPHICAL DISTRIBUTION : Clare Island, Ireland. In weeds from the shore, under stones on the shore amongst *Spirorbis* tubes. Danmark, Little Belt; off Lyngs Odde,  $\pm$  30 m. Kongrebo, shallow water, off Snoghøj. Germany, Kieler Bucht. Holland (De Man).

#### SUBFAMILY DESMODORINI.

#### GENUS MONOPOSTHIA DE MAN.

In the genus *Monoposthia* there exists almost as much confusion as in so many other genera of Nemas. The genus *Monoposthia* was erected by De Man in 1889 for *Spilophora costata* Bastian. Later on the following new species of the northern hemisphere were added to this genus : 2. *Monoposthia mielcki*

Steiner from the Barentzsea; 3. *Monoposthia loricata* Kreis from Trébeurden; 4. *Monoposthia constricta* Ditlevsen from the Danish Coast and 5. *Monoposthia chinensis* Steiner from China. *Monoposthia costata* De Man is said to have a rather wide distribution, but in one of his papers Steiner remarks that the specimens of *M. costata* from the Barentzsea diverge in several respects from De Man's description and therefore ought to be reckoned to a variety of this species. With Filipjev we are however of the opinion that Steiner's specimens must not be considered as a variety of *M. costata* but belong to quite another species: 6. *Monoposthia steineri* Filipjev.

Below we will have to come back on this point. *Monoposthia constricta* Ditlevsen is very insufficiently known especially in respect to its headend. The difference the author and Allgén indicate as the most essential point between *M. costata* Bastian and *M. constricta* Ditlevsen cannot be used as such, since a constriction is found at the same place in all other species of *Monoposthia* described up to the present date. The smaller number of longitudinal crests may be due to youth. The exact relative position of the amphids to the annulations near the headend is not given by Ditlevsen. Allgén found 8 papillae. Males became known from 5 of the 6 species. Only *M. steineri* is in the possession of a gubernaculum. Another characteristic which may serve to separate the species in question is the distribution and relative size of the rings on the headend of the animal. So *M. mielcki* Steiner has a broad anterior ring at the level of the amphid and a smaller ring preceding it. The amphids of *M. loricata* Kreis are found in the first annulation, quite in front of the body. The cephalic region is therefore very small in this species.

*M. chinensis* Steiner is characterised by the presence of setiform labial papillae. *M. costata* Bastian has minute papillae not crowned by setae but possesses 4 cephalic setae, which *chinensis* misses and as for *M. constricta* apart from the mentioned constriction, which is as to our opinion no essential characteristic, no peculiar differences with other species exist and it may be asked if this species which was described after juvenile specimens is not the younger generation of *M. costata* De Man. Allgén in his paper in *Capita Zoologica* does not bring evidence that *M. constricta* Ditlevsen is a separate species.

#### KEY.

- 1a Annulation uniform... 2.
- 1b The amphidial ring twice as broad as the ring in front of it and much broader than the following rings. *M. mielcki* Steiner.
- 2a Amphid on the first annulus. *M. loricata* Kreis.
- 2b Amphid on the second or third annulus... 3.
- 3a Cephalic setae long and slender, projecting far beyond the head.  
In the male sex a gubernaculum is present. *M. steineri* Filipjev.

3b Cephalic setae thick and less long, no gubernaculum in the male.  
*M. costata* Bastian.

3c Cephalic setae wanting, labial papillae setiform. *M. chinensis* Steiner.

### 15. *Monoposthia costata* (BASTIAN).

(Pl. VIII, fig. 4-7.)

ALLGÉN, 1927, p. 56.

ALLGÉN, 1929, p. 31.

ALLGÉN, 1931, p. 237.

BASTIAN, 1865, p. 166.

BUETSCHLI, 1874, p. 45, Pl. V, 22, ♀.

DITLEVSEN, 1919, p. 195.

FILIPJEV, 1921, p. 237, Pl. VII, 48.

DE MAN, 1889, p. 192, Pl. V, VI, 6, ♂.

Nec STEINER, 1916, p. 552, Pl. XXIII,  
11a, b, ♂ (*Monoposthia steineri* FILIP-  
JEV).

Nec STEINER, 1921a, p. 23; b, p. 196.

1 juvenile spec. from Station 4, 67, 3345, 51°26'N., 3'E., 30.V.'05.

1 ♂, 3 ♀ from Station 10, 77, 3693. Oisterbeds of Mr. Janssens at Ostende, 20.II.'06.

Although *Monoposthia costata* Bastian has been described already several times, none of the authors seems to have understood correctly the construction of the head in this genus, which really is rather complicate. One should think of a volcano, whose exterior wall bears 6 small papillae, indicated in the figure as minute elevations of the caldera wall. Towards the oral cone the craterwall slopes. Like in the centre of a caldera the active volcanic crater rises, the oral cone rises in the centre of the surrounding cephalic fold. The oral cone is composed of six lips, each lip being in reality double; its upper and lower borders are curved outwards. Seen in profile each lip has the shape of a C seen as a reflected image at one side, normal at the other side. The upper border of the oral cone therefore is crenulated and leads into a rather shallow buccal cavity into which a dorsal tooth projects. Upper portion of the oesophagus embracing the larger part of the buccal cavity. Oesophagus broad with a large bulb at its base. Head with 4 submedian thick setae. Haircloth on the remainder of the body fine and rather long, especially so on the tailend.

The exact number of longitudinal crests could not be counted, but reckoned after what one can observe from the animal put now on one and afterwards on the other side their number must be at least 14 on both lateral surfaces and we may be sure that the total number of crests will be as high as De Man states for a male, that is 19. The annulation is very complicate and we get the impression that the rings are telescoped into each other, one ring being partly covered by the foregoing one. The longitudinal crests are composed of single V-shaped incisions of the lines demarcating the segments. In the front part of the animal the V points backwards, near the tailend the reverse is the case. Here the number of longitudinal crests diminishes and finally stops totally. A

short distance ahead of the anus a ventral crest of spines is to be seen, apparently serving the animal during the act of copulation. The spicules are simple, rodlike, pointed at the apex, moved by a retractor and a protractor. They peep through the cloacal opening in the accompanying figure; the latter is surrounded by an elevated ringlike wall, ornamented with some dartlike elevations. Extreme tip of tail free from annulations and setae.

DIMENSIONS OF THE MALE IN QUESTION : Length = 1,7 mm.;  $\alpha = 27$ ;  $\beta = 7,4$ ;  $\gamma = 10,8$ .

De Man's male measured : Length : = 1,8 mm.;  $\alpha = 27-30$ ;  $\beta = 7$ ;  $\gamma = 11$ .

It is doubtful if Buetschli's specimens belong to the same species or to *M. constricta* Ditlevsen, which is in the possession of a smaller number of longitudinal crests. It may however be that Buetschli's specimen was likewise a juvenile specimen and has to be reckoned to the same species.

GEOGRAPHICAL DISTRIBUTION : England, Falmouth (Bastian); Holland, in the mouth of the Schelde (De Man); Kiel (Buetschli)? (Südküste von Norwegen, Calvados, la Manche) (De Man); Limfjord, Danmark (Ditlevsen), 2-4 fathoms Norway, Oslofjord « Algenvegetation », 5-6 m.; Teneriffa (Steiner), doubtful if belonging to the same species, size much smaller, annulation and longitudinal crests different; Oeresund, Sweden (Allgén).

#### SUBFAMILY SPILIPHERINI.

#### GENUS SPILOPHORELLA FILIPJEV.

#### 16. *Spilophorella paradoxa* DE MAN

ALLGÉN, 1929, p. 39.

GUIDO SCHNEIDER, 1906, p. 25.

DE MAN, 1888, p. 45, Pl. IV, Fig. 19,  
♀, ♂.

SCHUURMANS STEKHOVEN, 1931, p. 617.

STEINER, 1921, p. 17.

DE MAN, 1922, p. 244, Fig. 34.

1 ♀ from Station 10, 77, 3693. Oisterbeds of Mr. Janssens at Ostende, 20.II.'06.

GEOGRAPHICAL DISTRIBUTION : Christineberg, Sweden (Allgén) « Algenvegetation »; Holland, Coast of Walcheren (De Man); Bay of Finland (G. Schneider); W. and former German Southwest Africa (Steiner), Teneriffa (Steiner).

#### 17. *Spilophorella papillata* KREIS.

KREIS, 1929, 57, Pl. IV, 20*a-i*, ♀, ♂,

1 ♀ from Station 6, No. 72, 3433, 51°32'30"N., 2°37'E., 21.VI.'05.

The tooth of the female is placed in a horizontal position, the vestibulum apparently projects out of the oral cavity as a consequence of fixation. Tooth

distinct; oral wall with thickened cuticularisation, oral end of oesophagus asymmetrical.

DIMENSIONS : ♀, Length = 1,05 mm.;  $\alpha = 29$ ;  $\beta = 5,1$ ;  $\gamma = 8,4$ ; vulva : 52 %.

Cobb's formula :

$$\text{♀} \frac{0 \quad 13,89 \quad 19,45 \quad 52,08 \quad 88,19}{1,38 \quad \quad \quad 3,46 \quad 3,46 \quad 1,73} = 1,05 \text{ mm.}$$

GEOGRAPHICAL DISTRIBUTION : Trébeurden, Bretagne (Kreis); Belgium, near Ostende.

#### SUBFAMILY CHROMADORINI.

#### GENUS CHROMADORINA FILIPJEV.

The Genus *Chromadorina* Filipjev is characterised inter alia by its spiral amphids, which are placed far forward opposite the vestibulum oris. Micoletzky brought to this Genus *Spilophora parva* De Man and the study of a female of this species proved us that his conclusion was correct.

### 18. *Chromadorina parva* (DE MAN).

(Pl. VIII, fig. 8-11.)

COBB, 1914 ? p. 24.

MICOLETZKY, 1924, p. 153, Fig. 3.

DE MAN, 1893, p. 89, Pl. V, 5, ♂.

STEINER, 1921, p. 18.

2 ♀ from Station 10, 77, 3693. On oisterbeds of Mr. Janssens at Ostende.

The headportion of this species is very small, the annulation begins just behind the crown of cephalic setae. According to De Man there must be 6 setae; we have not seen more than 4, each seta being but slightly longer than half the diameter of the head at the same level. There are 2 rows of papillae, 1 row of labial papillae, 6 in all, and another row of cephalic papillae, the exact number of which could not be determined with certainty. There must however be at least 4 cephalic papillae. The spiral amphids occupy the whole width of the oral end. The ornamentation of the skin is typical in so far that 4 longitudinal rows of rather large points are seen on the lateral fields, the points of both median rows being larger than those of the external rows. To the sides of the rings the punctation grows still finer. Buccal cavity conical presenting near its bottom 3 teeth, two of which are to be seen in the accompanying figure, overlapping each other. The buccal cavity shows 6 longitudinal ridges. Ocelli present. Oesophagus swollen bulblike at its connection with the intes-

tine. Excretory glandcell double, situated directly caudad from the oesophageal bulb. Efferent tube widened to an ampulla and opening at the level of the nerve ring. Ovaries reflexed. Tail rather slender, ending with a short tube forming the outlet of the spinneret gland.

DIMENSIONS : Length = 0,82 mm.;  $\alpha = 24,2$ ;  $\beta = 6,8$ ;  $\gamma = 6,4$ ; vulva : 45,4 %.

Cobb's formula :

$$\frac{0 \quad 8,7 \quad 14,6 \quad 24,3 \quad 30,7 \quad 45,4 \quad 54,5 \quad 61,4 \quad 84,4}{2,7 \quad 3,6 \quad 3,6 \quad 3,6 \quad 4,1 \quad 3,6 \quad 3,6 \quad 2,7} = 0,82 \text{ mm.}$$

GEOGRAPHICAL DISTRIBUTION : North Sea, Falmouth, Ténériffa? Antarcis? Suez, Adria, Sea of Marmora.

#### GENUS CHROMADORA BASTIAN.

#### 19. *Chromadora cephalata* DE MAN.

ALLGÉN, 1929, p. 23.

GUIDO SCHNEIDER, 1926, p. 25.

ALLGÉN, 1931, p. 243.

STEINER, 1916, p. 543, Pl. XXII, Fig. 8.

DE MAN, 1922, p. 245, Fig. 36.

1 ♂, 1 ♀ from Station 10, 77, 3693, on oisterbeds of Mr. Janssens at Ostende.

GEOGRAPHICAL DISTRIBUTION : On Algae, Barentzsea, where this sea stays in connection with the White Sea? Zuiderzee; Oeresund; Norway, Oslofjord « Algenvegetation », 5-6 m.; Finland, Tvarminne, in shallow water.

#### 20. *Chromadora kreisi* nov. nom. for *Chromadora exigua* KREIS.

(Pl. VIII, fig. 12-14.)

KREIS, 1929, p. 55, Pl. I, IV, 19a-d, ♀.

2 ♀ ♀ from Station 4, No. 67, 3345, 51°26'N., 3'E., 30.V.'05.

The females in question answer in their structure to Kreis' description. Their size is however larger and probably the same is the case with the dorsal tooth. The accompanying figures may give an impression from the headend, the extreme tip of the tail and the genital apparatus, which is bipartite; each ovary is curved back. The oral opening is surrounded by labial papillae. Amphids could not be observed.

DIMENSIONS : Length = 0,93 mm.;  $\alpha = 35,4$ ;  $\beta = 7,3$ ;  $\gamma = 6,5$ ; vulva : 44,35 %.



Cobb's formula :

$$\frac{1,20 \quad 13,70 \quad 32,25 \quad 35,48 \quad 44,35 \quad 52,41 \quad 57,25 \quad 84,67}{1,20 \quad 1,61 \quad 1,61 \quad 2,01 \quad 2,82 \quad 2,01 \quad 1,61 \quad 1,61} = 0,93 \text{ mm.}$$

Here we must point to an incorrectness in the nomenclature. In 1926, also years before Kreis, Ditlevsen has given the name *exigua* to a species of *Chromadora* from the Greenland Waters. The name *exigua* is therefore preoccupied and *Chromadora exigua* Kreis has to change its name. We propose to call it *Chromadora kreisi* in honour of the father of this species.

GEOGRAPHICAL DISTRIBUTION : Trébeurden, Belgian Coast.

#### GENUS CHROMADORITA FILIPJEV.

#### 21. *Chromadorita obtusidens* nov. spec.

(Pl. IX, fig. 1-4.)

2 ♀♀ from Station 12, 95, 283. Coque du bateau « Talisman », Ostende.

The identification of this species proved to be rather difficult, since no male specimens were available. Moreover the finer morphology of the *Chromadorini* is insufficiently known, which may easily be understood, if one takes in consideration that most species are of extremely small size and have their amphids shifted far anteriorad. In bringing the different species, formerly reckoned to the Genus *Chomadora* to the Genera to which this Genus has been split up, one has to pay attention to shape and position of the amphids, either slitlike or spiral, to the shape and position of the tooth or teeth and to the ornamentation of the skin, which may be uniform or shows longitudinal rows of larger points on the lateral fields. The Genus *Chromadorita*, to which the present species is brought is in the possession of uniform skin punctation, a mostly single rather large dorsal tooth, slitlike amphids on a level with the 4 submedian cephalic setae, etc.

The present species is in the possession of slitlike amphids, a headportion which is rather high and demarcated from the remainder of the body by the first transverse row of points on the first annulus of the body. These points are more or less elongated or rodshaped like in the Genus *Euchromadora*. The head anteriorad of the first annulus shows faint impressions in the shape of fine rodlike ornamentations. Towards the tail the rings show an uniform punctation except at the extreme tip, which remains smooth whereas its conical end contains the outlet of the spinneret gland. Body devoid of setae, except the 4 short submedian cephalic setae, which are even shorter than half the diameter of the

head. Oral opening wide. 6 Lips with as many labial papillae. Moreover one finds a row of cephalic papillae, the exact number of which could not be counted, but which probably is also 6. The slitlike amphidial opening at the level of the cephalic setae, occupies more than half the diameter of the head. Oral cavity shallow, cyathiform, with longitudinal crests and a ventral tooth, which is comparatively large and rather blunt at apex. It is however firmly attached to the wall of the oesophagus with a long cuticularised prolongation. The oesophagus differs at this spot from the rest in its anterior portion with the tooth being separated from the next portion by a kind of constriction. This musculature apparently serves to move the tooth. The oesophagus is slender and widens at its posterior end to a short not very voluminous bulb. A short distance a head of the bulb the nerve ring may be observed. The elongate ventral gland is situated just behind the beginning of the intestine; its efferent duct runs anteriorly as a rather fine tube; it possesses a distal swelling, which represents the ampulla. From here the efferent duct runs and opens shortly caudad from the base of the oral cavity. The female genital apparatus is bipartite, both ovaries are reflexed. The vulva is situated slightly ahead of the middle of the animal, its walls are thickened, sphincterlike. The spinneret glandcells in the tail are seriate. Tail 5 times as long as the width of the animal at the level of the anal opening.

DIMENSIONS : Length = 1,64 mm.;  $\alpha = 43,4$ ;  $\beta = 6,3$ ;  $\gamma = 9,4$ .

Cobb's formula :

$$\frac{8,29 \quad 15,66 \quad M \quad 89,4}{1,38 \quad 1,84 \quad 2,3 \quad 1,38} = 1,64 \text{ mm.}$$

Filipjev mentions for this genus a dorsal tooth. Our figure however distinctly shows that the tooth is ventral since it is placed at the same side as the opening of the ventral gland.

GENUS PAREUCHROMADORA nov. genus.

## 22. *Pareuchromadora amphidiscata* n. g., n. sp.

(Pl. IX, fig. 5-8.)

1 juv. spec, from Station 6, No. 72, 3433, 51°32'30"N., 2°37'E., 21.VI.'05.

It is with great hesitation only that we have come to a conclusion about the species in question. For instance we are not quite sure about the subfamily this species belongs to, although we are inclined to reckon it to the *Chromadorini*

because it shows some resemblance with species like *Euchromadora vulgaris* (Bastian), since it is strongly armoured, and the annulations bear a distinct punctation, which passes more caudad to fine striae or rodlike structures. The amphids usually very small in *Chromadorinae*, slitlike in shape when visible, are very distinct and large in the present species. In general shape, as well as in some minor details like the rodlike crests, seen on the lateral fields our species resembles *Chromadora craspedota* Steiner, 1916, Taf. 21, Fig. 6, but in our species the longitudinal rows of points in the lateral fields, which can be observed on the anterior half of the oesophagus of this animal are wholly absent. The shape of the oral cavity, its dental armature, the absence of cephalic setae in the present species are so many features, that distinguish *Chromadora craspedota* from our species. The oesophagus moreover is not in the possession of a bulb like Steiner found in *Chromadora craspedota* Steiner.

In the last of 1929, Allgén described as new a species which he called *Spilophora fragilis* nov. sp. Our species strongly resembles Allgén's species as well in general habitus as in several details, like for instance the annules, with their punctation the latter are seen as distinct points; each annulus presents a single row of points only, the large size of the amphids, which however are not spiral like in Allgén's species but elliptical. They are surrounded by a strong cuticular wall and have in their centre a transverse crest. Their situation is not slanting to the longitudinal axis like Allgén indicates for his species but quite transverse. It seems very improbable that Allgén's species possesses slanting amphids. Distinct is likewise the ornamentation of the headend. Allgén depicts a number of rings in front of the amphids, our species did not possess such rings; oral headend rounded, bearing 6 papillae. The headend is covered with transverse rows of rather faint points. At the lateral sides the optical section through the armour of the head shows that the skin of this portion consists of fused rings, the latter building up together the headcapsule which becomes thinner more anterior till it ends at the edge of the buccal cavity. This cavity has almost the same shape as in Allgén's figure 12A; the cavity is rather shallow whereas its walls are strengthened by 6 longitudinal crests, like these are to be seen in almost all species of this subfamily and equally occur in the *Cyatholaimini* and in the *Spiliphcrini*. A small dorsal tooth projects from the bottom of the buccal cavity. The walls of the oesophageal lumen are strengthened by cuticularisations, which are fragmented at the level of the amphids. Oesophagus without a bulb. In this feature our species differs from *Spilophora fragilis* Allgén, where according to Allgén an elongate bulb is to be found, although it is not sharply demarcated from the remainder of the oesophagus. On the middle portion of the body the rings are broken by rather broad lateral fields, occupying almost one third of the width of the body. In the centre of this lateral field crosslike structures may be observed connecting

the rings mutually. The areas at each side of the lateral field are ornamented with longitudinal striations. Tail long and slender, tapering quickly, the apical portion without rings, tubelike. The shape of the tail is identical with that of *Spilophora fragilis*. Allgén however does not mention anything about the ornamentation of the body or about the presence of lateral fields. He remarks : « In the structure of the skin and of the lateral organs this species reminds at the species of the Genus *Euchromadora* », which is likewise the case with our species.

It remains however possible that a revision of the original specimens of Allgén and a comparison of the same with our specimens would prove that both species are identical. If this would be the case, Allgén's figures are incorrect as to the shape of the amphids, the ornamentation of the head, whereas he does not mention in his description the rows of longitudinal points his figure shows. Moreover Allgén observed that the points become striae towards the posterior end of the animal, like this is also the case with our specimen.

DIMENSIONS : Length = 1,5 mm.;  $\alpha = 41$ ;  $\beta = 6,8$ ;  $\gamma = 8$ .

Cobb's formula :

$$\frac{0 \quad 0,81 \quad 14,59 \quad M \quad 87,56}{1,08 \quad 1,35 \quad 2,43 \quad 1,35} = 1,5 \text{ mm.}$$

From our description it is clear that the species in question does not belong to the Genus *Spilophora*. The suggestion is at hand that this is also not the case with Allgén's species. Without further examination however it will not be possible to prove the identity of Allgén's species and ours. A final conclusion about this point must therefore be postponed, although we will point to the probability that both species belong to the same Genus. The Genus *Pareuchromadora* is closely allied to *Euchromadora*, although the amphids in the former Genus are much larger than in the representants of the latter Genus whereas the ornamentation of the skin is distinct like also the buccal cavity. Therefore we create a new Genus for this species and that of Allgén, which we propose to call *Pareuchromadora* with the species *Pareuchromadora amphidiscata* and *Pareuchromadora fragilis* Allgén.

DIAGNOSE OF GENUS : Small nemas, strongly armoured, with a distinct headcapsule and large amphids of elliptical shape, occupying almost 3/4 of the head. Skinornamentation variable, punctiform; more caudad this ornamentation passes into longitudinal striae. Lateral fields with cross-shaped ornamentation. Tail slender. Oral cavity with dorsal tooth and longitudinal crests. Head rounded anteriorly, with 6 labial papillae. Oesophagus without a true bulb.

## GENUS HYPODONTOLAIMUS DE MAN.

23. *Hypodontolaimus inaequalis* (BASTIAN).

(Pl. IX, fig. 9-10.)

ALLGÉN, 1927, p. 54,

ALLGÉN, 1931, p. 239.

BASTIAN, 1865, p. 166, Pl. XIII, 223-225,

♀, ♂.

DITLEVSEN, 1919, p. 193.

JAEGERSKJÖELD, 1904, p. 417, Fig. 1-3,

♀, ♂.

DE MAN, 1888, p. 41, Pl. IV, 18, ♂.

9 ♂♂ and 7 ♀♀ from Station 10, 77, oisterbeds of Mr. Janssens at Ostende, 20.II.'06.

The male as well as the females of this species, captured along the Belgian Coast answer to De Man's classic description. This author however gave in 1888 a picture of a specimen seen from the ventral side. Seen in profile however the species can be recognised much easier. Therefore we will depict the animal from the lateral side to show the tooth, the shape of the buccal cavity, the situation of the amphid as well as its shape and the position of the ventral gland with its outlet. De Man suggests the cyathiform oral cavity is deca-gonous, but we found it cyathiform, its walls strengthened by 8 longitudinal screenlike bars (Jägerskjöld found « 10 fingerähnlichen, wenigstens scheinbar freistehenden Zapfen, ganz dicht am Saum der Mundhöhle, welche wohl... den bei manchen Nematoden, z. B. Strongyliden vorkommenden, von Looss als internal leave crown bezeichnete Bildungen entsprechen »); 6 labial papillae and 4 submedian cephalic bristles, which when stretched forward slightly project beyond the oral opening, are present. Buccal cavity embraced by the oesophageal musculature. Dorsal tooth large, curved upwards, strongly anchored in the oesophageal wall. This side of the buccal cavity is lined with a very thick cuticularisation, which midway runs mediad and projects there toothlike. Slightly ahead of the dorsal tooth a dentiform projection is seen, which points in median direction. This is however no tooth but a cuticular fold indicating the bottom of the buccal cavity and thus separating the buccal cavity from that at the beginning of the oesophagus. The dorsal tooth is no oral structure but rises from the walls of the oesophageal lumen. The insertion of this tooth is such that it can be moved separately from the rest of the oral structures. Amphid transversely oval, situated on a level with the cephalic setae. The dorsal strengthening of the oral and oesophageal lumen is prolonged caudally into three legs, two of which are seen as well in our figure as that of Jägerskjöld Fig. 1. Along the dentiform projection the dorsal tooth glides to and fro. Oesophageal bulb oval, strongly muscular. Headportion of the animal with several stout setae. The ornamentation of the skin con-

sists of points, but just in the middle of the lateral field the points of each side are connected by bar-shaped curved lines. From here towards both sides the points grow finer. Oesophagus swollen bulblike at its base. Ventral gland with an oval glandcell situated a short distance caudad from the connection of the intestine with the oesophagus. The efferent tube runs forward and opens a short distance in front of the bulb. Ovaries recurved. Each uterus contains a number of ripe eggs, the anterior uterus and ovary being slightly longer than the posterior one. In one of the females 8 ripe eggs were present. In the older female the posterior ovary was longer. Jägerskjöld says that one of his ♀ was in the possession of 7 ripe eggs. Intestine filled with green algae.

Male with thirteen preanal papillae. Jägerskjöld found in his ♂ the same number of preanal papillae. Allgén, 1931, observed 12 preanal papillae which are not quite of the same size and separated by distances growing gradually wider between the papillae 6-8.

DIMENSIONS : ♂, Length = 1,18 mm.;  $\alpha = 17,9$ ;  $\beta = 5,68$ ;  $\gamma = 11,8$ .

Cobb's formula :

$$\frac{0 \quad 10,9 \quad 17,6 \quad 31,6 \quad 91,5}{3,8 \quad 4,5 \quad 5,6 \quad 4,2} = 1,18 \text{ mm.}$$

De Man's male : ♂, Length = 1,3 mm.;  $\alpha = 20$ ;  $\gamma = 6-6 \frac{1}{2}$ ;  $\beta = 11-12$ .

Jägerskjöld's male : ♂, Length 0,94 — 1,14 mm.; ♀, 0,98 — 1,12 mm.

There exists also a good conformity between De Man's male and ours.

GEOGRAPHICAL DISTRIBUTION : Holland, Walcheren (De Man); Canal (Bastian). In the large shallow littoral waters of the Southern Westcoast of Jutland. On ducdalves among algae; Danish and Swedish side of the Sound (Ditlevsen). This author states that the species is euryhaline; Swedish Coast of the Oeresund near Pillhaken « Algenvegetation », 8-20 mm., and on other localities always in the « Algenvegetation », the swedish males had 10 preanal papillae (near Christineberg, Schalensand) (Allgén); Südliche Westküste Jütlands (Jägerskjöld), Norway, Oslofjord, 5-6 m. (Allgén).

#### SUBFAMILY CAMACOLAIMINI.

#### GENUS CAMACOLAIMUS DE MAN.

#### 24. *Camacolaimus tardus* DE MAN.

(Pl. IX, fig. 11-12.)

DITLEVSEN, 1919, p. 156, Pl. II, 2; III,  
· 9, ♀.

DE MAN, 1889, p. 3, Pl. V, 2, ♀.

STEINER, 1916 p. 607, Pl. XXIX, 26, ♀.

DE MAN, 1889, p. 8.

1 juvenile specimen from Station 4, 67, 3445, 51°26'N., 3'E., 30.V.'05.

The juvenile specimen answers wholly to the descriptions of De Man and Steiner. We could confirm Steiners statement as to the shape of the amphid, the 4 cephalic setae, the thickened dorsal lining of the oesophageal wall, this feature being typical for the Genus *Camacolaimus*. Tail short, stout, constricted conspicuously near the end where one finds a fine acute tip. Compare Figure 12.

GEOGRAPHICAL DISTRIBUTION : Holland, Walcheren; Belgium; Little Belt, Pier of Middelfart; Barentzsea.

FAMILY MONOHYSTERIDAE.

SUBFAMILY MONOHYSTERINI.

GENUS MONOHYSTERA BASTIAN.

In the Genus *Monohystera* a hopeless confusion exists as to the names of the different species, which may be understood easily, if one takes into consideration the fact that the first species were described by Bastian and that it is not quite easy to reconstruct the nemas Bastian had before him; further one must compare his descriptions and figures with fresh material. Moreover the Genus *Monohystera* is one of the most difficult genera, because many species are uniform in shape and can be identified from minute details only. Often it is very difficult to state which species lies before us, if no other than the female sex could be studied. Males and females of several species possess amphids of different size and so it may be clear that we hesitated very long before bringing the *Monohystras* of the Belgian material to distinct species.

SUBGENUS PENZANCIA DE MAN.

25. *Penzancia (Monohystera) velox* (BUETSCHLI).

(Pl. X, fig. 4-5.)

ALLGÉN, 1927, p. 56.

ALLGÉN, 1929, p. 28.

ALLGÉN, 1929, p. 42.

BASTIAN, 1865, p. 157, Pl. XIII, 189-191,  
♀.

BUETSCHLI, 1874, p. 26, Pl. II, 6, ♀.

1 ♂ from Station 10, 77, 3693 on oisterbeds of Mr. Janssens at Ostende, 20.II.'06.

GUIDO SCHNEIDER, 1926, p. 31.

STEINER, 1916, p. 645, Pl. XVII, 42, ♀;  
XXXIV, 42, ♂.

SCHUURMANS STEKHOVEN, 1931, p. 615.  
nec DE MAN, 1922, p. 221, Fig. 6.

One never can be safe that the representant of this species are identified correctly. This is an illustration of what we said above. So for instance we

have a strong suspicion that *Monohystera velox* Buetschli is not identical with *Monohystera velox* Bastian. The same difficulty was encountered by Steiner during his studies of the nemas of the Barentzsea, where this author remarks : « Die Art ist nach Bastian's Beschreibung kaum wieder zu erkennen, besser nach der von Buetschli, wobei gleich beigefügt sei, dass weder Buetschli noch ich selbst bestimmt sagen kann, dass uns die ursprüngliche Form wirklich vorlag ». According to De Man 1922 and Allgén 1929, p. 42. Steiner's specimens do not belong to this species.

When one compares the figures of these authors, Bastian, Steiner and Buetschli with the figure De Man gave in his Zuiderzee-monograph, we may be rather sure that the latter species is not identical with those of the first 2 authors, since the shape of the spicula is quite different. After a careful examination of the figures and descriptions of our predecessors we have come to the conclusion that the male in question belongs to this species. In the structure of the buccal cavity, in the haircloth of the body, the situation of the amphids, the size and shape of the spicula, it most resembles *Penzancia (Monohystera) velox* (Bastian) like this was figured by Buetschli and Steiner. This is the reason, why we have put the name of the german author behind the specific name and not that of Bastian.

GEOGRAPHICAL DISTRIBUTION : South-Coast of England (Falmouth), Bay of Kiel, Finnland, Bay of Finnland, Tvarminne, Oeresund, Belgium, Holland? Barentzsea?

SUBGENUS **THERISTUS** BASTIAN.

**26. Theristus (Monohystera) acer BASTIAN.**

(Pl. IX, fig. 13; Pl. X, fig. 1-3.)

ALLGÉN, 1927, p. 56.

ALLGÉN, 1929, p. 28.

ALLGÉN, 1929, p. 41.

ALLGÉN, 1931, p. 246.

BASTIAN, 1865, p. 156, Pl. XIII, 187-188.

DE MAN, 1889, pp. 182-184, Pl. V, 1, ♀.

DE MAN, 1928, p. 97.

SOUTHERN, 1915, p. 12.

1 ♂ and 5 juv. from Station 12, 95, 283. Coque du bateau « Talisman », Ostende, 29.IV.'22.

Although the male in question differs in some points from the description of De Man, it has at the other hand so many essential points in common with the said species, that we have brought it to this species but not without some doubt. Typical in the figure, given by De Man is the bow-like cuticularisation of the oral cavity which is rather strong in the present species. It ends downwards in a ring indicated in the figure as distinct points. From here the rather thick cuticular linings of the oesophageal wall run caudad. There exists a second anterior ring, not quite halfway between the oral opening and the entrance of



the oesophagus. The constriction of the head is found on a level with the entrance of the oesophagus, whereas the setal crown is found at the same height. Now in this point the present male essentially differs from the figure of De Man since the latter author states that groups of 3 hairs are to be seen on the lateral fields, whereas we could find in this male only a single hair on this spot. Now it may be that this was due to denudation, since the larvae, which after our opinion belong to the same species, had at least a couple of hairs at the lateral side of the setal crown, but for a final conclusion we want further material. The buccal aperture is surrounded by 6 lips, bearing fine papillae.

Total number of cephalic setae in this male : 10; submedian hairs arranged in couples. Size and position of the amphids as figured by De Man. We did not find however an inner circle in the amphids like De Man depicted it in his figure. Skin finely ringed, covered with long rather delicate setae, particularly so on the tail. The latter is blunt and plump and contains the cells of the spinneret gland : Spicula strongly curved, rather short and bluntly pointed at the tip. Apparently they are shorter than in De Man's figure, the gubernaculum when seen in side view is shaped like an irregular plate of roughly diamond-shaped outline. The larvae present in the same sample diverge in so far from the described male that they possess a larger number of setae on the head, but a smaller number on the body, which may perhaps be due to youth. At the same time the size of the amphids is smaller, which may be ascribed to the same cause, since the amphids of the fullgrown *Monohystera* are often larger than those of the young ones and we have to take in consideration that several *Monohystera* have females with amphids, being considerably smaller than in the male sex. Opening of the ventral gland situated half way the distance between the head and the beginning of the intestine.

DIMENSIONS : ♂, Length = 1,6 mm.;  $\alpha = 36,3$ ;  $\beta = 6,8$ ;  $\gamma = 9,8$ .

De Man's : ♂, Length = 1,7 mm.;  $\alpha = 35$ ;  $\beta = 5,3$ ;  $\gamma = 10,5$ .

GEOGRAPHICAL DISTRIBUTION : Holland, Walcheren, Penzance, Calvados, England, Irland, Oeresund, Oslofjord, Belgium. Southern found many specimens under stones on the shore, amongst *Spirorbis* tubes in Blacksod Bay Irland.

#### SUBFAMILY AXONOLAIMINI FILIPJEV.

In 1922, Filipjev brought to his subfamily *Axonolaimini* the genera *Axonolaimus* De Man; *Conolaimus* Filipjev; *Araeolaimus* De Man; *Araeolaimoides* (De Man); *Diplopeltis* Cobb; *Acmaeolaimus* Filipjev and *Sphaerocephalum* Filipjev. Formerly in 1918 his subfamily *Axonolaimini* comprised only the genera *Axonolaimus*, *Conolaimus*, *Araeolaimoides* and *Sphaerocephalum*.

*lum*. In 1930, he mentions as representants of this subfamily the genera *Margonema* Cobb; *Axonolaimus* De Man; *Synodontium* Cobb, the latter being a doubtful genus according to Filipjev; *Ascolaimus* Ditlevsen; *Apodontium* Cobb, this being again a doubtful Genus and possibly identical with *Monohystera elongata* Buetschli; *Odontophora* Buetschli? and finally *Conolaimus* Filipjev; *Trigonolaimus* Ditlevsen.

We think it wise to divide the mentioned genera into two subfamilies, the subfamily *Axonolaimini* sensu strictiori comprising all genera with a wide buccal cavity and without eyes, the amphids being generally loop-like, elongate spiral to oval to which subfamily we have to reckon the Genera *Axonolaimus*, *Conolaimus*, *Margonema*, *Synodontium*, *Ascolaimus*, *Apodontium*? *Odontophora* and the subfamily *Diplopeltini* formerly erected in 1918 by Filipjev but lateron retracted for the Genera *Diplopeltis* and *Acmaeolaimus* to which subfamily we bring all the genera with small and greatly reduced buccal cavity, with ellipsoïdal circular to spiral amphids and pigmented eyes (except perhaps *Acmaelaimus* which species was erected on a specimen in bad condition). This subfamily would then comprise the Genera *Araeolaimus*, *Araeolaimoides*, *Diplopeltis* and possibly *Acmaeolaimus* Filipjev. We doubt if the Genus *Sphaerocephalum* does belong to this subfamily. Probably it must be placed in the neighbourhood of *Linhomeus*, *Paralinhomeus* and *Metalinhomeus*.

GENUS AXONOLAIMUS DE MAN.

27. *Axonolaimus paraspinosus* nom. nov.

Nec *Axonolaimus typicus* DE MAN.

Syn. *Anoplostoma spinosum* DE MAN 1888.

(Pl. X, fig. 6-9.)

DE MAN, 1888, p. 19, Pl. II, 11, ♂.

In 1888, De Man described a species which he called *Anoplostoma spinosum* Buetschli. Lateron it was proved that the name *spinosum* Buetschli had to be given to a species of *Axonolaimus*, which is characterised by its large amphids in the form of a tube, the reflexed legs of which lie closely appressed. In 1922, De Man found in the Zuiderzee a species, which he thought to be identical with the species *A. spinosum* of 1888. The latter species whose name was already preoccupied had therefore to change its name for which De Man proposed *Axonolaimus typicus* nom nov. Now we had the chance to rediscover the same species which De Man in 1888 called *Anoplostoma spinosum* Buetschli.

Whilst studying this species we found that *Axonolaimus typicus* and the form studied by De Man in 1888 really belong to different species, but that our specimen and those of De Man of 1888 are conspecific. So it would have been better if De Man had called his specimen of 1888 : *Axonolaimus typicus*, since this species of must be considered as the type species. Now the name *A. typicus* has been given to the Zuiderzee-species and as a consequence we have to give a new name to the species of 1888, which will be redescribed here. For the latter species we propose the name *paraspinosus*.

From this species a single female could be studied.

DIMENSIONS : Length = 1,55 mm.;  $\alpha = 28,1$ ;  $\beta = 7,2$ ;  $\gamma = 8,1$ ; vulva : 55,8.

De Man found for his female : Length = 1,5 mm.;  $\alpha = 30-35$ ;  $\beta = 7-8$ ;  $\gamma = 9-10$  (vulve s'ouvre un peu après le milieu du corps).

Therefore the dimensions of De Man's female and ours are almost identical. In the structure of the head and the buccal cavity both species are conform. The animal in question possesses a deep buccal cavity which is *Axonolaimus*-like in shape. The atrium is surrounded at its apex by a set of riblike structures resembling the homologous parts in the Genus *Conolaimus* but of a much finer sculpture. The head portion is set off from the remainder of the body by a shallow constriction. The lips, four in number, bear two rows of papillae, the uppermost apparently composed of 4 papillae, the caudal one of 8 similar structures. The setal crown is composed of 4 setae. There are no small setae next to the long setae on the head, which are indeed much longer than the homologous setae of *Axonolaimus typicus* of the Zuiderzee, whereas the small setae are juxtaposed to the longer setae in the latter species. A second distinction lies in the position and size of the amphids which are much smaller in *typicus* and shifted further apicad in this species than in *A. paraspinosus*. In *A. typicus* the upper end reaches to the base of the haircrown of the longer setae, whereas in *A. paraspinosus* the amphids cover the caudal half of the oral cavity. The crown of small setae is placed on a level with the upper end of the surface embraced by the loop of the amphidial spiral, which is not wholly closed like in *A. spinosus* Buetschli. Oesophagus, intestine and ovaries like described by De Man. Ventral gland present, its efferent duct opens a short distance behind the oral cavity, whereas the cell of the same is situated just behind the connection between the oesophagus and the intestine. Tail rather long, clavate at the tip with 3 seriate caudal glands.

GEOGRAPHICAL DISTRIBUTION : Walcheren, Ostende.

From *Axonolaimus* sp. (De Man, 1928) to which *A. paraspinosus* is closely allied this species may be distinguished i. a. by its dimensions, by its indices, the absence of a second setal crown, etc.

SUBFAMILY **DIPLOPELTINI** FILIPJEV.**28. Araeolaimus filipjevi** nov. spec.

(Pl. X, fig. 10-12.)

1 ♂, 1 ♀, 1 juv. from Station 4, 51°26'N., 3'E., 30.V.'05 on *Alcyonium*.

Body not very slender, almost the same width throughout from the beginning of the intestine towards the anal opening. To both ends it gradually tapers. Quite in front the diameter of the body is barely more than 1/4 of the width on the level with the beginning of the intestine. Tail tapering rather strongly.

Head rounded at the anterior end. Neither distinct lips nor labial papillae are to be seen. Setal crown shifted to a forward position, composed of 4 short setae, which are as long as 1/3 of the diameter of the body at the same level. Buccal cavity greatly reduced. Oesophagus almost directly beginning after the oral opening; the uppermost portion of the oesophagus has the shape of an elongate cylinder, the walls of which are slightly thickened at some points. In total 3 longitudinal lines are to be seen, like De Man depicts them in his species *A. elegans*. Oesophagus narrow, cylindrical in the beginning, widening a short distance ahead of the eyes and widening again towards the intestine. We did not pay special attention to eventual thickenings of the walls of the oesophageal lumen at the same level as the eyes, so that we are unable to say anything about this feature, which is to some authors essential for most species of *Araeolaimus*, although we must point to the fact that Steiner was unable to detect this swelling in several of his specimens of *A. steineri*. The amphids, large in size — in a fullgrown ♂ their diameter was more than 1/2 of the body diameter, whereas the juvenile specimen possessed amphids whose diameter was 2/5 of the body diameter only — are almost circular in outline, yet spiral in construction.

On a level with the amphids a double crown of setae may be observed consisting of 4 setae each, distinctly longer than those placed at the anterior end of the head. Another double crown is found on a level with the small rectangular eyes. Upper border of amphid situated at a distance of 2/9 of the whole distance between the oral opening and the eyes. Next to the eyes one finds the ampulla of the ventral gland, whose efferent duct opens at the upper border of the amphidial opening, a feature which our species has in common with *A. macrocirculus* Kreis, *A. longicauda* Allgén, *A. steineri* Filipjev if we may conclude so from Steiner's figure, and *A. elegans* De Man, at least according to Steiner, whereas Ditlevsen denies that the efferent duct runs as far forward, so

that we consider it with Kreis as a generic character, essential for species of the Genus *Araeolaimus*. The ventral glandcell is situated caudad from the base of the oesophagus; in the studied ♂ at a distance equalling 0,6 of the whole length of the oesophagus; in the female at a distance equalling 0,8 of the whole length of the same. Nerve ring situated at 3/5 of the distance head-intestine.

Female genital apparatus bipartite. Ovaries stretched out, first ovary occupying 32,5 %, second ovary occupying 26,2 % of the total length of the animal. Tail tapering and ending with a conical outlet with thickened walls. Spinneret glandcells distinctly seriate. The male possesses delicate, strongly curved spicula, the tail is about 3 1/2 times as long as the length of the spicula. A gubernaculum could not be observed in the male in question. Directly cephalad from the spicula one finds the long and wide spermathotheca filled with spermatocytes.

DIMENSIONS : ♂, Length = 1,44 mm.;  $\alpha = 42,7$ ;  $\beta = 8,5$ ;  $\gamma = 15,5$ .

Cobb's formula :

$$\frac{0 \quad 1,9 \quad 7,17 \quad 11,7 \quad 19,29 \quad 28,65 \quad 93,56}{0,46 \quad 1,16 \quad 1,75 \quad 1,9 \quad 2,32 \quad 2,32 \quad 1,87} = 1,44 \text{ mm.}$$

DIMENSIONS : ♀, Length = 1,35 mm.;  $\alpha = 32$ ;  $\beta = 9,4$   $\gamma = 16$ ; vulva : 57,5 %.

Cobb's formula :

$$\frac{0 \quad 1,5 \quad 6,25 \quad 10,62 \quad 20 \quad 25 \quad 57,5 \quad 83,7 \quad 93,7}{1,25 \quad 2 \quad 2,37 \quad 2,5 \quad 2,5 \quad 3,1 \quad 2,5 \quad 1,87} = 1,35 \text{ mm.}$$

JUVENILE : Length = 1,18 mm.;  $\alpha = 36,6$ ;  $\beta = 4,4$ ;  $\gamma = 11$ .

Our species may be reckoned to the same groupe as *A. macrocircuitus* Kreis and *A. ponticus* Filipjev since it has in common with them the large circular amphids which have a diameter equal to or even surpassing half the diameter of the head. From *A. ponticus* Filipjev it may be distinguished by the more dense haircloth and by the shape of the tail which is more slender in the latter species. From *A. macrocircuitus* it can be divided by the more forward position of the nerve ring in the latter species. From *A. steineri* it can be distinguished by the larger amphids. In *A. steineri* their diameter is not quite 1/3 of the diameter of the body. *A. elegans* De Man has a denser haircloth, the shape and position of the amphids is distinct in this species, whereas the male is in the possession of a distinct gubernaculum. Of *A. dolichoposthius* the only thing we know is that the length of the tail is thrice the length of the spicula, whereas the tail in *elegans* is 3,41 times as long as the spicula, if we calculate the dimensions of these bodyparts after De Man's figure and 4 times if we

follow the synopsis of Filipjev. We think *A. dolichoposthius* has to be considered as a doubtful species.

The same may be said of *A. longicaudatus* Allgén but in a different sense. Here we doubt if the species really belongs to the Genus *Araeolaimus* and think it shows closer connections with *Araeolaimoides* when the shape of the amphids which are elongate in outline and not circular is considered. The species at hand is therefore new to science and we propose for it the name *A. filipjevi*, after the founder of modern nematology.

Ecologically *Araeolaimus filipjevi* belongs to the biocoenoses living upon *Zostera* and hydroids, like the senior author found for *A. elegans* De Man at den Helder.

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## EXPLANATION OF THE PLATES

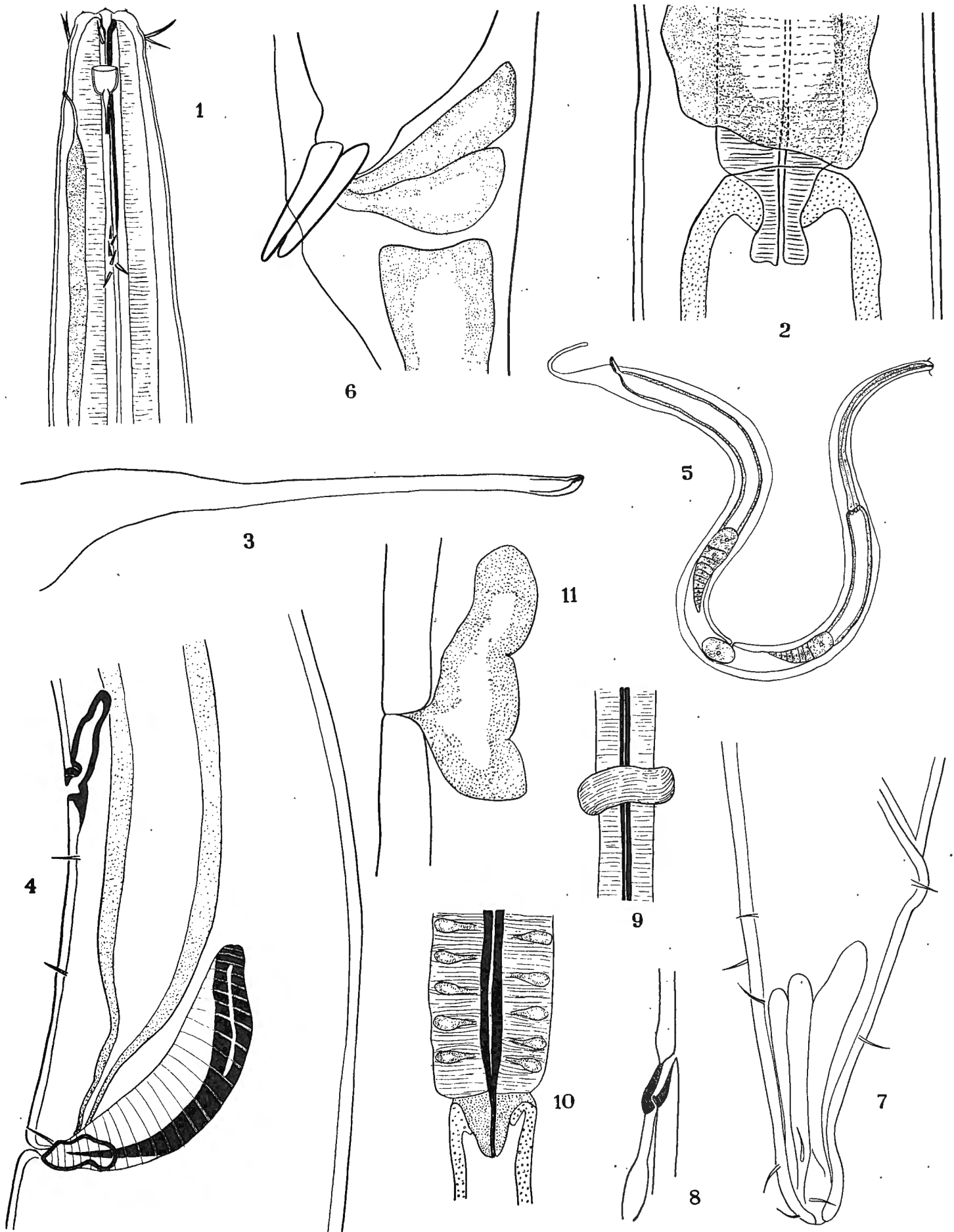
PLATE I.

*Anticoma limalis* BASTIAN.

- Fig. 1. — Head-end.
- Fig. 2. — Sphincter oesophagi and ventral gland.
- Fig. 3. — Tail.
- Fig. 4. — Male genital apparatus.
- Fig. 5. — Female intersex.
- Fig. 6. — Anal opening with spicular buildings.

*Cylicolaimus magnus* (VILLOT).

- Fig. 7. — Tail . . . . . Magn. Oc. 6. Obj. 40.  $\times 2/3$ .
  - Fig. 8. — Amphid . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .
  - Fig. 9. — Oesophagus with nerve-ring . . . . . Magn. Oc. 1. Obj. 40.  $\times 2/3$ .
  - Fig. 10. — Sphincter oesophagi . . . . . Magn. Oc. 1. Obj. D.  $\times 2/3$ .
  - Fig. 11. — Gland of the lateral cord . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .
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PLATE II.

*Cycolaimus magnus* (VILLOT).

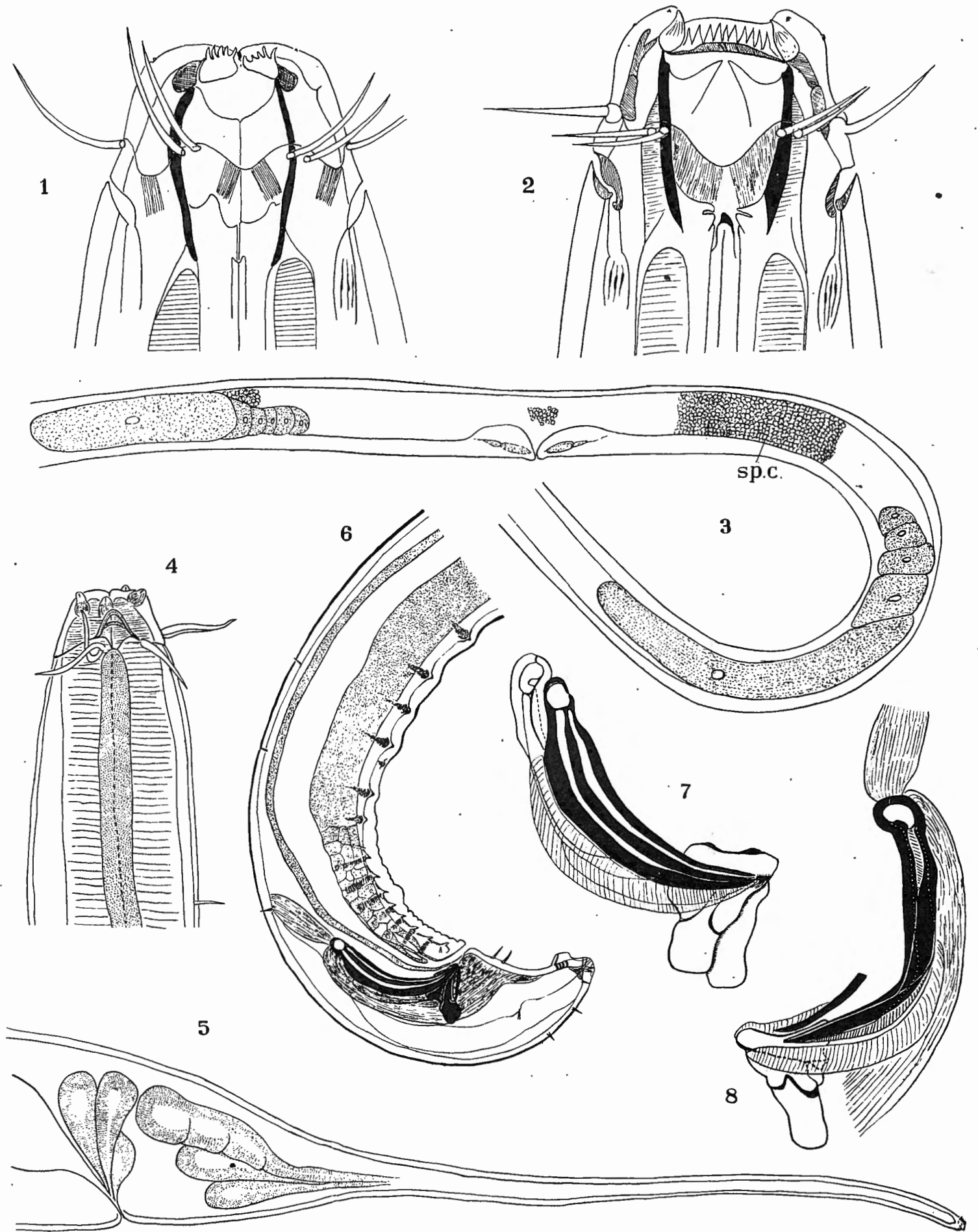
- Fig. 1. — Side of the head . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 2. — Side of the head . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 3. — Female genital apparatus, sp. c. spermatocytes . . . . . Magn. Oc. 2. Obj. 3.  $\times 2/3$ .

*Stenolaimus marioni* SOUTHERN.

- Fig. 4. — Head-end. Note « rinnenförmige Grube » Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 5. — Tail-end . . . . . Magn. Oc. 6. Obj. D.  $\times 2/3$ .

*Thoracostoma trichodes* (LEUCKART).

- Fig. 6. — Male tail . . . . . Magn. Oc. 5 $\times$ . Obj. D.  $\times 2/3$ .  
Fig. 7. — Spicula, Gubernaculum and Velum . . Magn. Oc. 10 $\times$ . Obj. D.  $\times 2/3$ .  
Fig. 8. — Idem seen from the other side with pro- and retractores . . . . . Magn. Oc. 10 $\times$  Obj. D.  $\times 2/3$ .
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PLATE III.

*Thoracostoma trichodes* (LEUCKART).

- Fig. 1. — Head-end . . . . . Magn. Oc. 10×. Obj. Oel Imm. 90×. ×2/3.  
Fig. 2. — Head-end . . . . . Magn. Oc. 10×. Obj. Oel Imm. 90×. ×2/3.  
Fig. 3. — Female tail . . . . . Magn. Oc. 10× Obj. Oel Imm. 90×. ×2/3.  
Fig. 4. — Amphid . . . . . Magn. as fig. 3.

*Fiacra brevisetosa* SOUTHERN.

- Fig. 5. — Head-end. Note « rinnenförmige Grube » Magn. Oc. 6. Obj. Oel Imm. 2 mm. ×2/3.  
Fig. 6. — ♂ surrounded by larval skin; l. a.=larval amphid, m. a.=male amphid. r. Gr.=  
« rinnenförmige Grube . . . . .  
Fig. 7. — Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm. ×2/3.  
Fig. 8. — Tail-end . . . . . Magn. Oc. 1. Obj. D. ×2/3.  
Fig. 9. — Head-end . . . . . Magn. Oc. 2. Obj. 3. ×2/3.
-



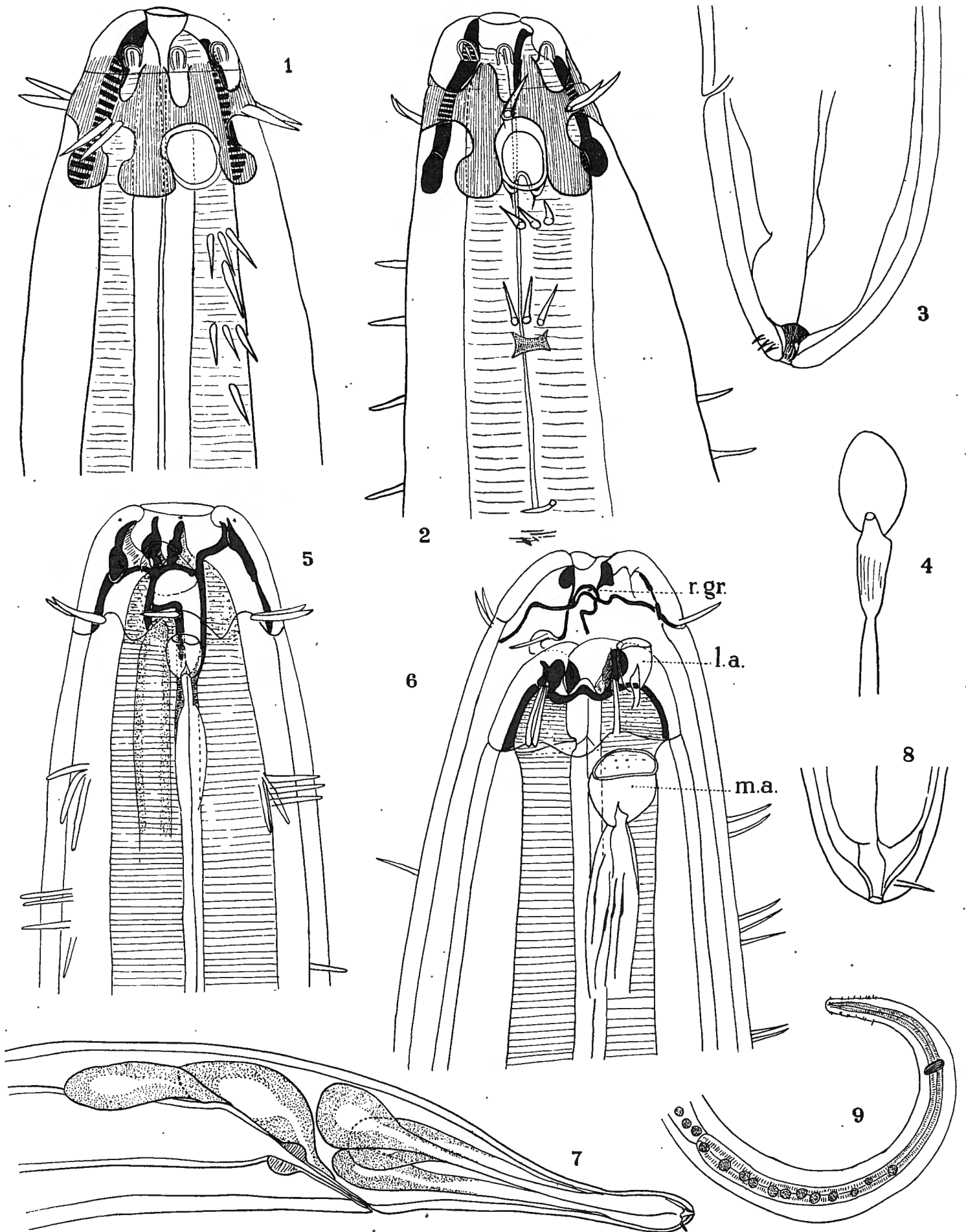


PLATE IV.

*Fiacra brevisetosa* SOUTHERN.

Fig. 1. — ♂ Tail with spicula and papillae . . . Magn. Oc. 6. Obj. D. ×2/3.

Fig. 1a. — Glandcell of the lateral cord.

*Enoplolaimus dentatus* DITLEVSEN.

Fig. 2. — Head-end of larva . . . . . Magn. Oc. 12. Obj. Oel Imm. 2 mm. ×2/3.

Fig. 3. — Head-end of larva . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm. ×2/3.

Fig. 4. — ♀ Tail of the same . . . . . Magn. Oc. 6. Obj. D. ×2/3.

*Metoncholaimus denticaudatus* nov. spec.

Fig. 5. — ♂ Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm. ×2/3.

Fig. 6. — ♂ Head-end from the other side . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm. ×2/3.

Fig. 7. — ♂ Head-end with amphid . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm. ×2/3.

Fig. 8. — ♀ Tail . . . . . Magn. Oc. 6. Obj. D. ×2/3.



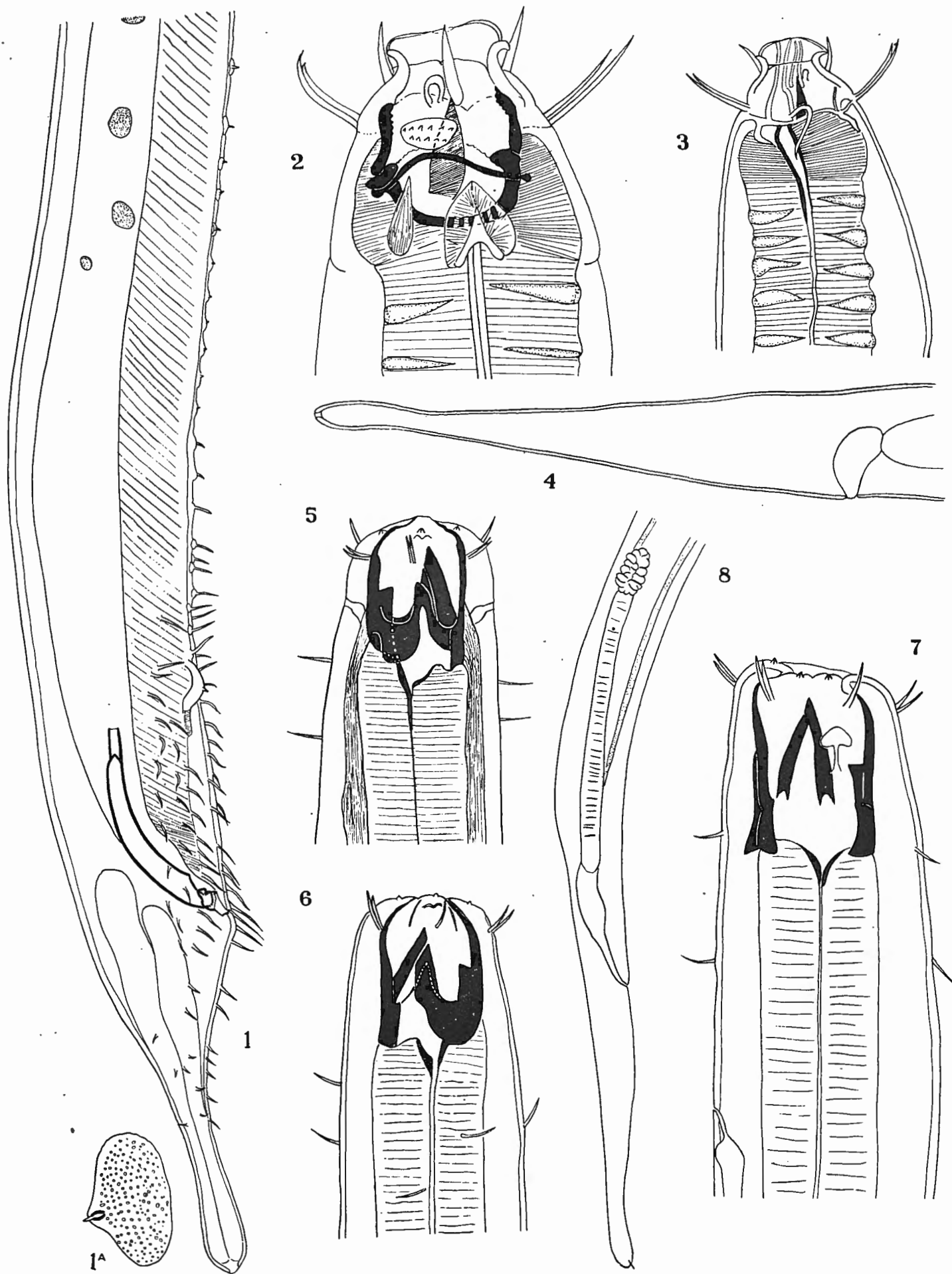


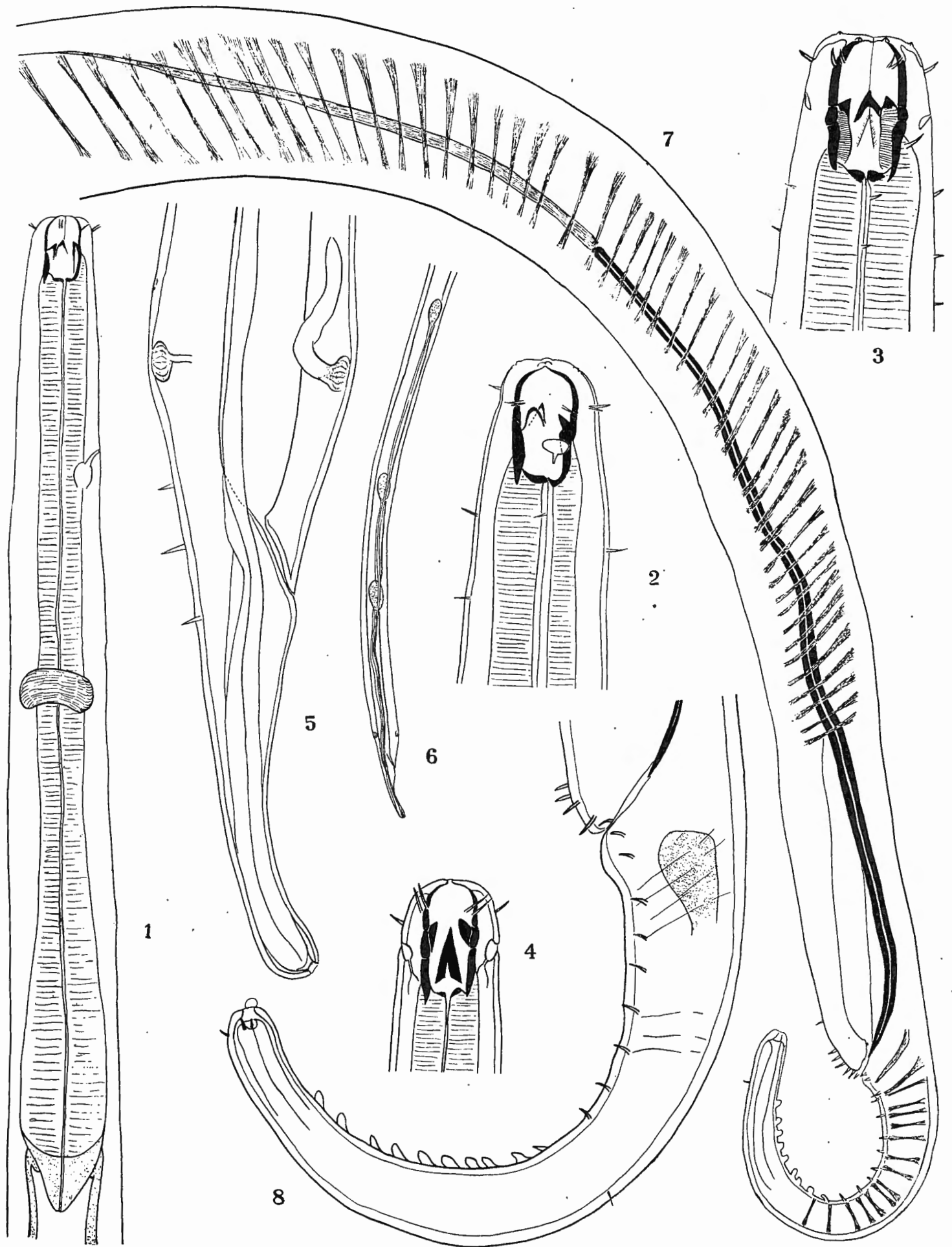
PLATE V.

*Oncholaimus aequedentatus* nov. spec.

- Fig. 1. — Head-end . . . . . Magn. Oc. 6. Obj. D.  $\times 2/3$ .  
Fig. 2. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 3. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 4. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 5. — ♀ Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 6. — ♀ Tail . . . . . Magn. Oc. 1. Obj. 3.  $\times 2/3$ .

*Metoncholaimus denticaudatus* nov. spec.

- Fig. 7. — ♂ Tail . . . . . Magn. Oc. 1. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 8. — ♂ Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .
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PLATE VI.

*Cothonolaimus filicaudatus* nov. spec.

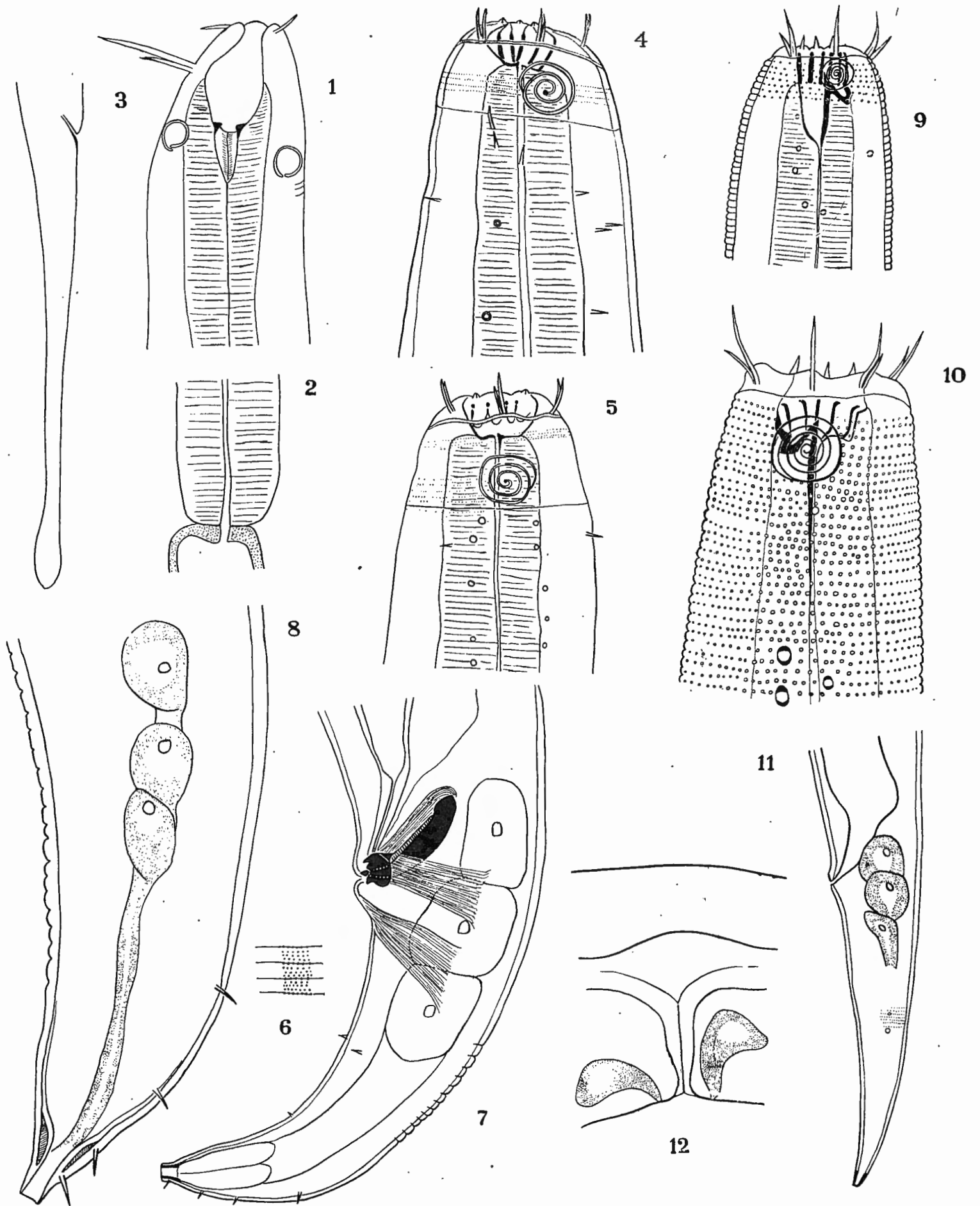
- Fig. 1. — Head-end . . . . . Magn. Oc. 6. Obj. 3.  $\times 2/3$ .  
Fig. 2. — End of Oesophagus . . . . . Magn. Oc. 6. Obj. 3.  $\times 2/3$   
Fig. 3. — Tail.

*Cyatholaimus ditlevseni* nov. spec.

- Fig. 4. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 5. — Head-end from the other side . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 6. — Pattern of punctation.  
Fig. 7. — ♂ Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 8. — ♀ Tail . . . . . Magn. Oc. 10 $\times$ , Obj. Oel Imm. 90 $\times$ .  $\times 2/3$ .

*Paracanthonchus polycyrtus* nov. spec.

- Fig. 9. — Head-end.  
Fig. 10. — Head-end from the other side . . . . . Magn. Oc. 10 $\times$ , Obj. Oel Imm. 90 $\times$ .  $\times 2/3$ .  
Fig. 11. — ♀ Tail . . . . . Magn. Oc. 1. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 12. — Vulva.
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PLATE VII.

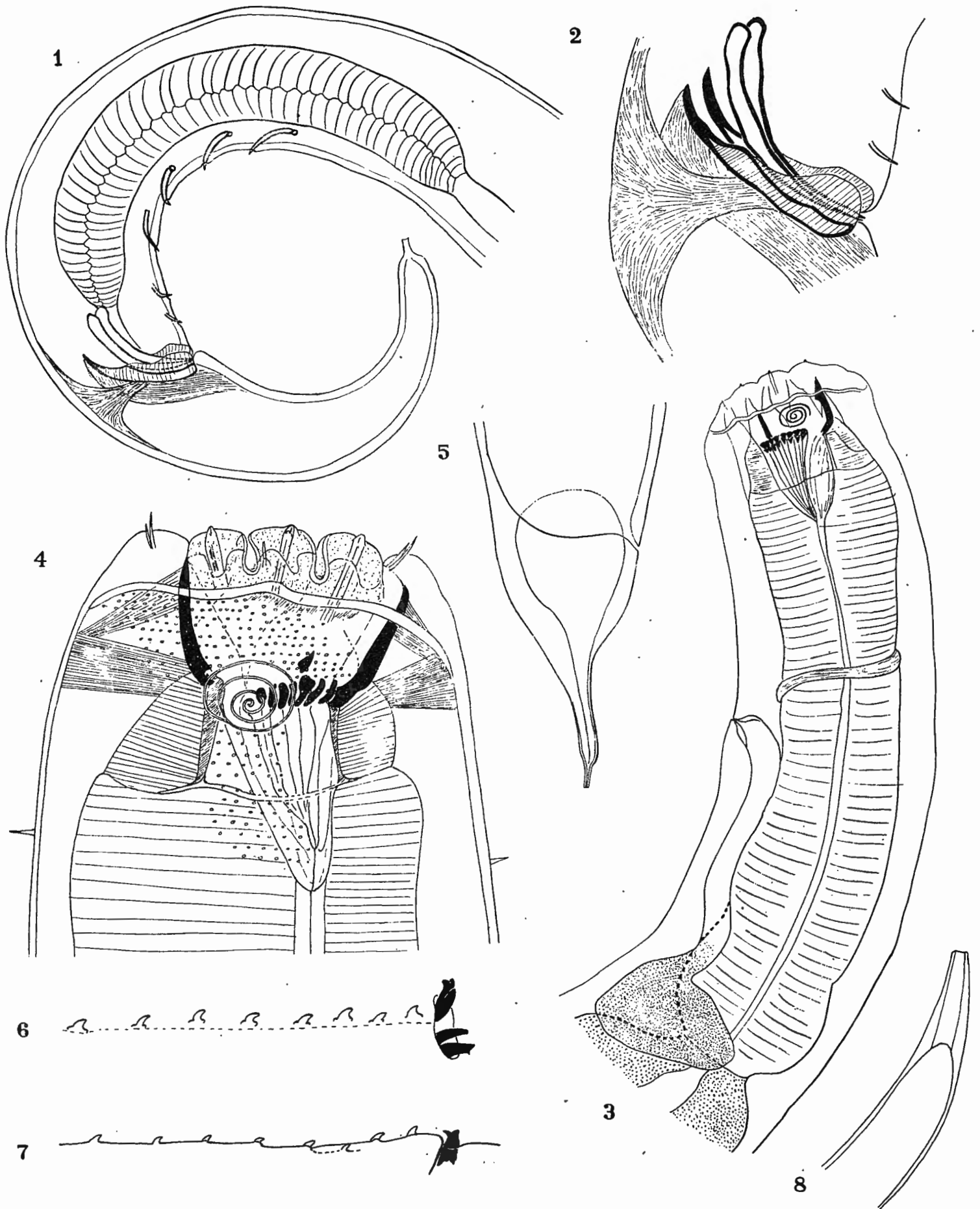
*Paracanthonchus polycyrtus* nov. spec.

- Fig. 1. — Tail . . . . . Magn. Oc. 5x. Obj. Oel Imm. 90x.  $\times 2/3$ .  
Fig. 2. — Spicula and gubernaculum . . . . . Magn. Oc. 10x Obj. Oel Imm. 2 mm:  $\times 2/3$ .

*Halichoanolaimus robustus* (BASTIAN).

- Fig. 3. — Head-end . . . . . Magn. Oc. 10x Obj. D.  $\times 2/3$ .  
Fig. 4. — Head-end . . . . . Magn. Oc. 12. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 5. — Tail . . . . . Magn. Oc. 10x Obj. D.  $\times 2/3$ .  
Fig. 6. — Caudal papillae . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 7. — Caudal papillae  
Fig. 8. — Tail.
-





J. H. SCHUURMANS STEKHOVEN Jr and W. ADAM. — The freelifving marine Nemas.

PLATE VIII.

*Halichoanolaimus robustus* (BASTIAN).

- Fig. 1. — Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 1/3$ .  
Fig. 2. — Genital apparatus . . . . . Magn. Oc. 5 $\times$ . Obj. D.  $\times 2/3$ .  
Fig. 3. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .

*Monoposthia costata* (BASTIAN).

- Fig. 4. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 5. — Head-end . . . . . Magn. Oc. 15 $\times$  Obj. Oel Imm. 90.  $\times 2/3$ .  
Fig. 6. — Ornamentation of the skin . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 7. — Tail . . . . . Magn. Oc. 1. Obj. Oel Imm. 2 mm.  $\times 2/3$ .

*Chromadorina parva* (DE MAN).

- Fig. 8. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 9. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 10. — End of oesophagus . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 11. — Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .

*Chromadora kreisi* nov. spec.

- Fig. 12. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 90 $\times$ .  $\times 2/3$ .  
Fig. 13. — Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 14. — Genital apparatus . . . . . Magn. Oc. 6. Obj. Oel Imm. 90 $\times$ .  $\times 2/3$ .
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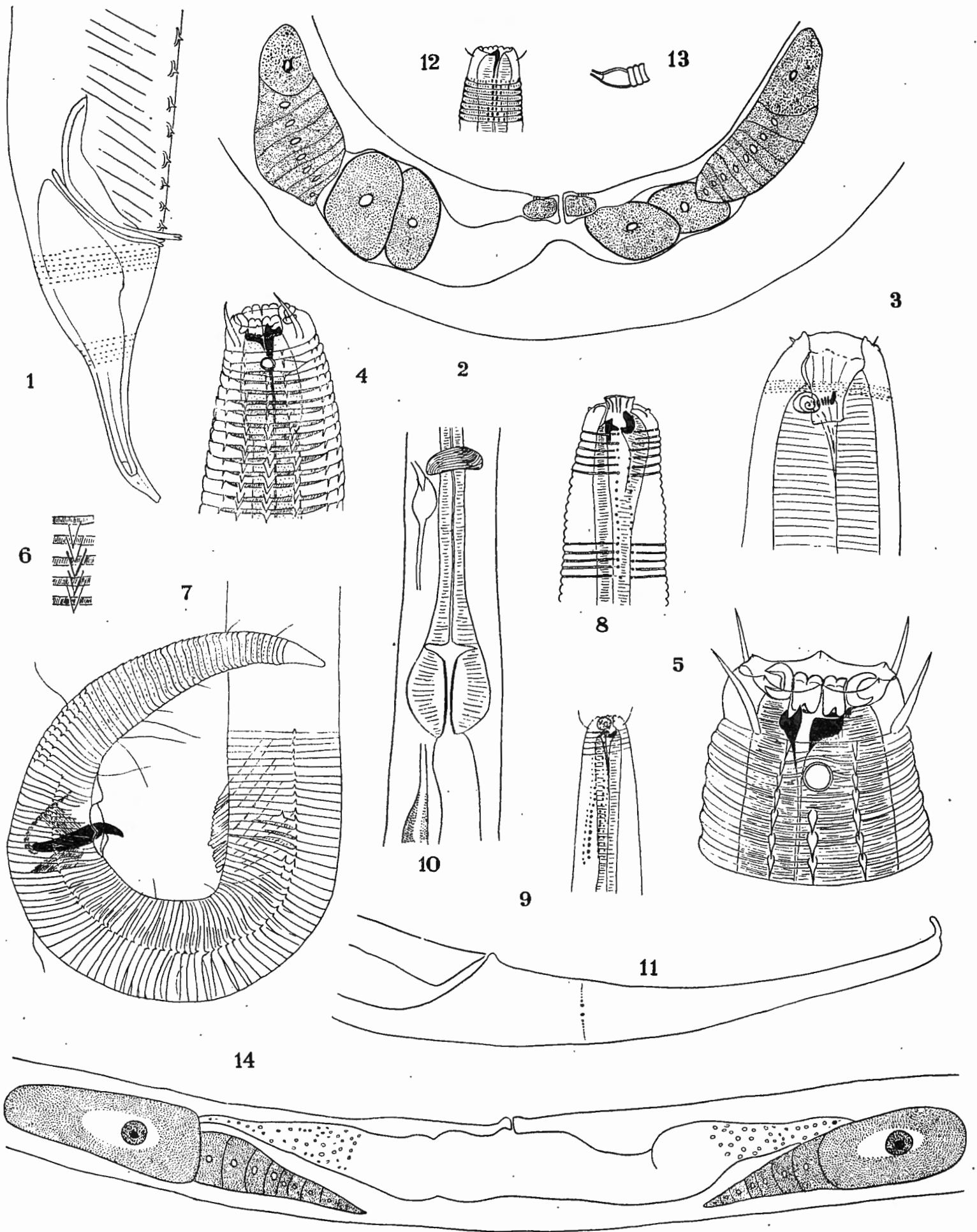


PLATE IX.

*Chromadorita obtusidens* nov. spec.

- Fig. 1. — ♀ . . . . . Magn. Oc. 6. Obj. 3.  $\times 2/3$ .  
Fig. 2. — Head end . . . . . Magn. Oc. 6. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .  
Fig. 3. — Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .  
Fig. 4. — End of oesophagus and ventral gland.

*Pareuchromadora amphidiscata* nov. spec.

- Fig. 5. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .  
Fig. 6. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .  
Fig. 7. — Tail.  
Fig. 8. — Ornamentation of the skin . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .

*Hypodontolaimus inaequalis* (BASTIAN).

- Fig. 9. — Head-end . . . . . Magn. Oc. 15 $\times$  Obj. Oel Imm. 90 $\times$ .  $\times 2/3$ .  
Fig. 10. — End of oesophagus and ventral gland.

*Camacolaimus tardus* DE MAN.

- Fig. 11. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 90 $\times$ .  $\times 2/3$ .  
Fig. 12. — Tail.

*Theristus (Monohystera) acer* (BASTIAN).

- Fig. 13. — Head-end with widely opened oeso-  
phagus . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .
-

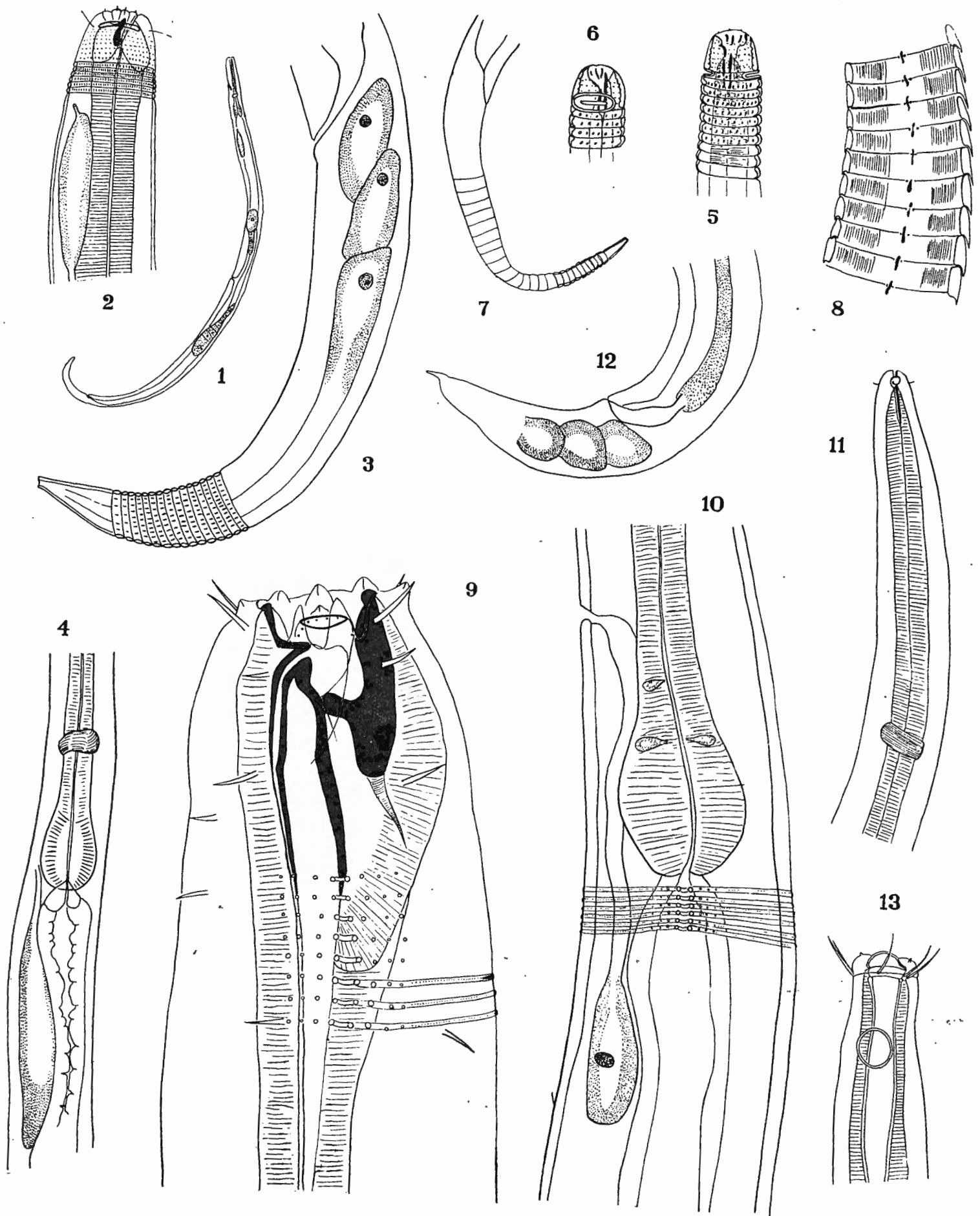


PLATE X.

*Theristus (Monohystera) acer* (BASTIAN).

- Fig. 1. — Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .  
Fig. 2. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .  
Fig. 3. — Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .

*Penzancia (Monohystera) velox* (BUETSCHLI).

- Fig. 4. — Head-end . . . . . Magn. Oc. 6. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .  
Fig. 5. — Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .

*Axonolaimus paraspinosus* nov. spec.

- Fig. 6. — Head-end . . . . . Magn. Oc. 18. Obj. Oel Imm. 1/12 2 mm.  $\times 2/3$ .  
Fig. 7. — Opening of ventral gland.  
Fig. 8. — Ventral gland and base of oesophagus Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .  
Fig. 9. — Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 2 mm.  $\times 2/3$ .

*Araeolaimus filipjevi* nov. spec.

- Fig. 10. — Head-end with opening of ventral gland Magn. Oc. 6. Obj. Oel Imm. 90 $\times$ .  $\times 2/3$ .  
Fig. 11. — ♂ Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 90 $\times$ .  $\times 2/3$ .  
Fig. 12. — ♀ Tail . . . . . Magn. Oc. 6. Obj. Oel Imm. 90 $\times$ .  $\times 2/3$ .
-

