

**FREE-LIVING MARINE NEMATODES  
(SUBCLASS ADENOPHOREA) OF THE RIA DESEADO  
(SANTA CRUZ, ARGENTINA)**

**Systematic contributions I**

by

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**ABSTRACT**

The systematic study of twelve species of free-living marine nematodes of Puerto Deseado (Santa Cruz, Argentina) is dealt with. Seven of them, *Euchromadora permutable* WIESER; *Steineridora archaica* (STEINER & HOEPLI); *Paracanthochus austrospectabilis* WIESER; *Anoplostoma viviparum* WIESER; *Anoplostoma camus* WIESER; *Viscosia macramphida* CHITWOOD; *Paramonohystera proteus* WIESER, are new records for our country. Morphological characteristics and original drawings are added.

**INTRODUCTION**

In Argentina, there are very few records about the subclass Adenophorea. There are incomplete descriptions of some species of free-living marine nematodes by ALLGÉN (1930-1959) in particular for the Fuegian Province (Falkland Island, States Island and Fuegian Archipelago), but for this province there are also excellent descriptions e.g. VON LINSTOW (1907) (Scottish National Antarctic Expedition), DE MAN (1904) (Belgian Antarctic Expedition) and COBB (1914 & 1930) (Shakleton Expedition and Australasian Antarctic Expedition).

Due to the important functions that these organisms have in the marine ecosystem, it is felt necessary to study them in our country.

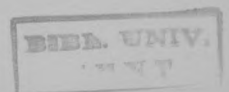
In this work we only consider the nematodes living on seaweeds (true epiphytics and pseudoepiphytics).

Twelve species are described, seven of which are new records for our country. In addition, new data have been given for incompletely described species.

**MATERIAL AND METHODS**

The nematodes were recovered from 24 samples from « La Pesquera », locality situated in Ria Deseado, Puerto Deseado, Santa Cruz province, Argentina. Sixteen of these were taken in summer (23/1/1975) and eight in winter (6/6/1976), numbered 21-1 and 28 respectively.

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The locality is characterized by the fact that it has a sandstone bottom with an inclination of six degrees and a high deposit of slime. More detailed descriptions of this particular bottom have been given in previous works (ZAIKSO, 1975 ; ZAIKSO and PASTOR, 1976).

Samples were taken along a line running from the lower supralittoral (LHS) to the transitional zone (TZ). Throughout this area, 200 grammes of different green, red and brown sea-weeds, typical of each horizon, were handpicked at lowtide.

In the lab the nematodes were picked out from amongst the sea-weeds with HOPPER's technique (HULINGS & GRAY, 1971) using a proportion of 4:1 sea-water to fresh-water.

They were fixed and dehydrated by DITLEVSEN's method (1911). They were mounted in glycerine-jelly. The drawings were made with a Wild drawing device. Spicules were measured along the curved median line. All samples are deposited in CIBIMA.

#### Abbreviations

- LHS = Lower Horizon Supralittoral  
 UHM = Upper Horizon Mesolittoral  
 MHM = Middle Horizon Mesolittoral  
 LHM = Lower Horizon Mesolittoral  
 TZ = Transitional Zone = Infralittoral fringe  
 c.d. = Cephalic diameter  
 o.d. = Diameter at base of oesophagus  
 a.d. = Anal body diameter (in females)  
 cl.d. = Cloacal body diameter (in males)

#### SPECIES STUDIED

- Euchromadora permutabilis*  
*Steineridora archaica*  
*Chromadora nudicapitata*  
*Paracanthonchus austrospectabilis*  
*Praeacanthonchus punctatus*  
*Dolicholaimus marioni*  
*Viscosia macramphida*  
*Enoplus michaelsoni*  
*Anoplostoma viviparum*  
*Anoplostoma camus*  
*Paramonohystera proteus*  
*Araeolaimus elegans*

#### *Euchromadora permutabilis* WIESER, 1954 (Plate I, Fig. 1a-e)

Measurements : five males and five females, in  $\mu\text{m}$ .

Length of body : 2040 ; 2000 ; 2000 ; 1800 ; 1940 ; 2280 ; 2200 ; 2060 ; 2140 ; 2100

Length of oesophagus : 340 ; 310 ; 310 ; 310 ; 340 ; 360 ; 360 ; 310 ; 345 ; 380.

Maximum width : 100 ; 120 ; 100 ; 100 ; 100 ; 100 ; 160 ; 140 ; 140 ; 140.

Length of tail : 260 ; 200 ; 240 ; 210 ; 240 ; 200 ; 260 ; 160 ; 210 ; 210.

*Length of spicules* : 108 ; 108 ; 108 ; 100 ; 80 ; — ; — ; — ; — ; —.

*Length of gubernaculum* (lateral piece) : 55 ; 55 ; 55 ; 55 ; 45 ; — ; — ; — ; — ; —.  
(dorsal piece) : 85 ; 87 ; 80 ; 85 ; 85 ; — ; — ; — ; — ; —.

*V* : — ; — ; — ; — ; — ; 52.5 ; 45.5 ; 44 ; 52.5 ; 53.5.

*de Man's ratios* : a = 20.4 ; 16.6 ; 20.0 ; 18.0 ; 19.4 ; 22.8 ; 13.7 ; 14.7 ; 15.3 ; 15.0 ;  
b = 6.0 ; 6.5 ; 6.5 ; 5.8 ; 5.7 ; 6.3 ; 6.1 ; 6.6 ; 6.2 ; 5.5 ; c = 7.8 ; 10.0 ; 8.3 ;  
8.6 ; 8.1 ; 11.4 ; 11.0 ; 12.9 ; 10.2 ; 10.0

#### *Description*

Head : diameter 33  $\mu\text{m}$ , with six external labial papillae and four cephalic setae (10  $\mu\text{m}$  long). The amphids are slit-like and 2.3 c.d. The buccal cavity has twelve cheilorhabdia (5  $\mu\text{m}$  long), that are followed by one big dorsal tooth (12  $\mu\text{m}$ ) with a small base and another subventral tooth (5  $\mu\text{m}$ ) that thins out at the end.

In males the spicules are slightly arched. The gubernaculum has a single dorsal piece and two lateral ones. The a.d. is 70  $\mu\text{m}$ . The caudal glands are well developed.

*Sample data* : 21-1 : 4 (UHM) ; 5, 11, 15 (LHM) ; 28 : 1 (LHS), 5 (MHM), 11, 5 (LMH), 19 (TZ).

*Geographic distribution* : Chilean coast.

#### *Remark*

The specimens agree very well with the description given by WIESER (1954). This represents a new record for Argentina's coasts.

*Steineridora archaica* (STEINER & HOEPLI, 1926) Inglis, 1969  
(Plate I, Fig. 2a-g)

*Measurements* : four males and two females, in  $\mu\text{m}$ .

*Length of body* : 1800 ; 2100 ; 2200 ; 2000 ; 2200 ; 1900.

*Length of oesophagus* : 330 ; 330 ; 345 ; 315 ; 380 ; 340.

*Maximum width* : 100 ; 105 ; 105 ; 100 ; 125 ; 100.

*Length of tail* : 235 ; 210 ; 330 ; 220 ; 280 ; 220.

*Length of spicules* : 90 ; 95 ; 100 ; 90 ; — ; —.

*Length of gubernaculum* : 55 ; 55 ; 58 ; 60 ; — ; —.

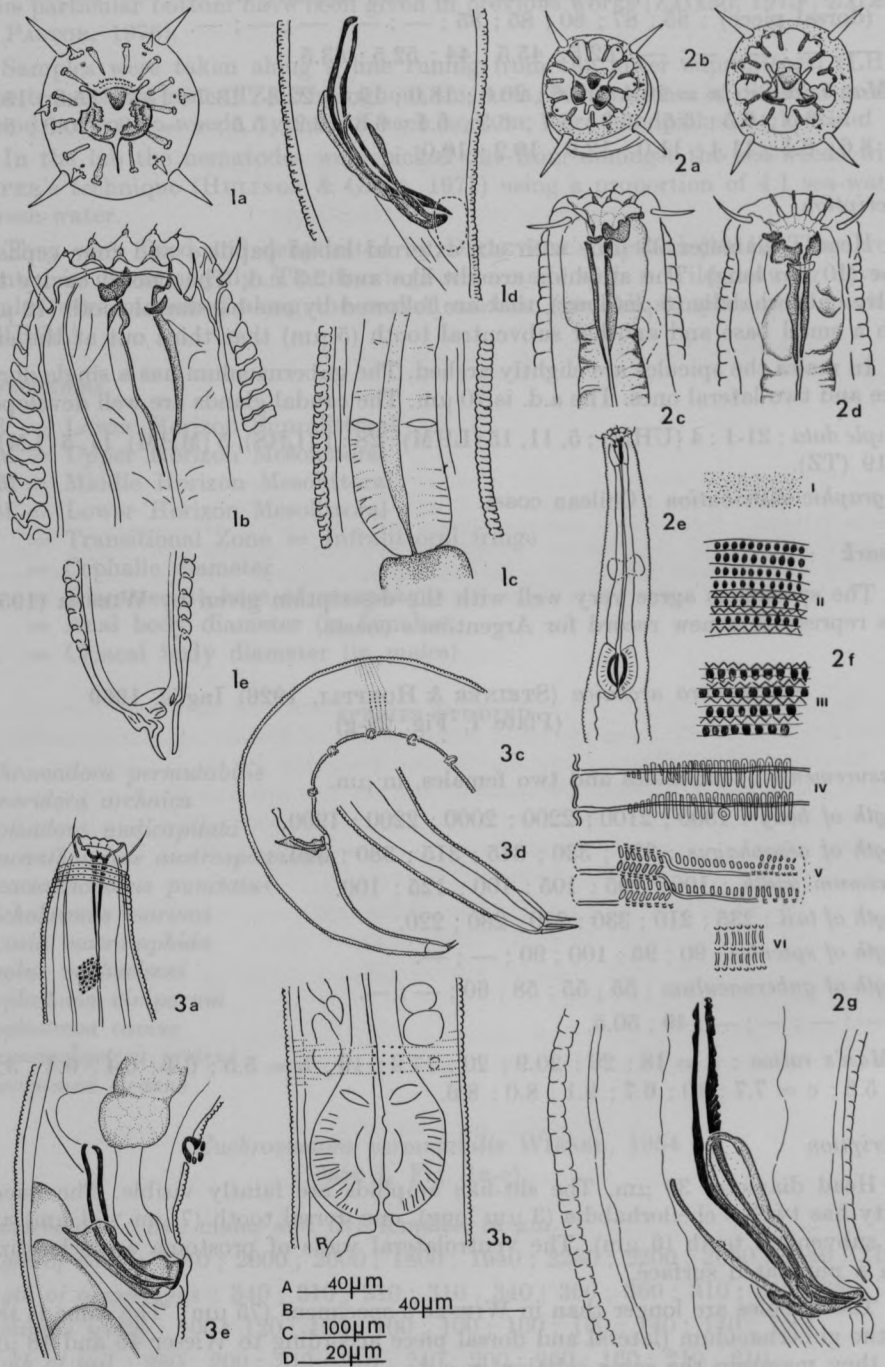
*V* : — ; — ; — ; — ; 49 ; 50.5.

*de Man's ratios* : a = 18 ; 20 ; 20.9 ; 20 ; 17.9 ; 19 ; b = 5.5 ; 6.4 ; 6.4 ; 6.4 ; 5.9 ;  
5.6 ; c = 7.7 ; 10 ; 6.7 ; 9.1 ; 8.0 ; 8.6.

#### *Description*

Head diameter 30  $\mu\text{m}$ . The slit-like amphids are faintly visible. The buccal cavity has twelve cheilorhabdia (3  $\mu\text{m}$  long), one dorsal tooth (7  $\mu\text{m}$   $\times$  4  $\mu\text{m}$ ) and two subventral teeth (6  $\mu\text{m}$ ). The ventrolateral walls of prostoma are sclerotized with a punctated surface.

The spicules are longer than in WIESER's specimens (75  $\mu\text{m}$ ). The same is true for the gubernaculum (lateral and dorsal piece according to Wieser 46 and 48  $\mu\text{m}$ ) but they maintain the same relation in a.d.



Sample data : 21-1 : 3 (UHM), 3, 5 (MHM), 5 (LHM) ; 28 : 1 (LHS).  
 Geographic distribution : Japan, Chilean coast.

Remarks

The specimens agree very well with the description given by WIESER (1954).  
 The species represents a new record for our country.

*Chromadora nudicapitata* BASTIAN, 1865  
 (Plate I, Fig. 3a-e)

Measurements : three males and three females, in  $\mu\text{m}$ .

Length of body : 743 ; 634 ; 857 ; 743 ; 914 ; 657.

Length of oesophagus : 120 ; 114 ; 114 ; 126 ; 171 ; 114.

Maximum width : 29 ; 30 ; 30 ; 103 ; 29 ; 30.

Length of tail : 86 ; 57 ; 69 ; 86 ; 114 ; 103.

Length of spicules : 26 ; 26 ; 29 ; — ; — ; —.

Length of gubernaculum : 17 ; 21 ; 17 ; — ; — ; —.

V : — ; — ; — ; 46 ; 47 ; 48.

de Man's ratios : a = 25.6 ; 21.1 ; 28.6 ; 21.7 ; 31.5 ; 21.9 ; b = 6.2 ; 5.6 ; 7.5 ; 5.9 ;  
 5.3 ; 5.8 ; c = 8.6 ; 11.1 ; 12.4 ; 8.6 ; 8.0 ; 6.4.

Sample data : 21-1 : 3, 4 (UHM), 3, 4, 5 (MHM), 10, 13, 15, 5, 11, 7 (LHM) ; 28 :  
 1 (LHS), 11, 5 (LHM).

Geographic distribution : cosmopolitan.

Remarks

The specimens agree very well with the original description given by BASTIAN  
 (1865).

*Paracanthochus austrospectabilis* WIESER, 1954  
 (Plate II, Fig. 4a-f)

Measurements : five males and three females, in  $\mu\text{m}$ .

Length of body : 1920 ; 1840 ; 1820 ; 1870 ; 1960 ; 1860 ; 1480 ; 1340.

Length of oesophagus : 320 ; 360 ; 400 ; 350 ; 380 ; 360 ; 360 ; 330.

PLATE I

*Euchromadora permutabilis* Fig. 1a-e : a) head, apical view ; b) head, lateral view ;  
 c) oesophagus ; d) spicules ; e) tail.

*Steineridora archaica* Fig. 2a-g : a-b) head, apical view ; c-d) head, lateral view ;  
 e) anterior end ; f) cuticle : I. on head at the top, II. on head over buccal cavity, III-  
 IV. over oesophagus, V. on the middle of the body, VI. on tail ; g) spicules.

*Chromadora nudicapitata* Fig. 3a-e : a) head, apical view ; b) head, lateral view ;  
 c) posterior end ; d) tail ; e) spicules.

Scales : A = 1c, d & 3c ; B = 2a-d, f & g ; C = 2e ; D = 1a, b & e, 3a, b, d & e.

*Maximum width* : 80 ; 70 ; 70 ; 80 ; 100 ; 100 ; 75 ; 110.

*Length of tail* : 140 ; 140 ; 110 ; 120 ; 110 ; 130 ; 120 ; 140.

*Length of spicules* : 72 ; 66 ; 66 ; 68 ; 68 ; — ; — ; —.

*Length of gubernaculum* : 58 ; 57 ; 58 ; 60 ; 62 ; — ; — ; —.

*V* : — ; — ; — ; — ; — ; 49.5 ; 52.5 ; 63.5.

*de Man's ratios* : a = 24.0 ; 20.4 ; 26.0 ; 23.4 ; 19.6 ; 18.6 ; 19.7 ; 18.2 ; b = 6.0 ; 5.1 ; 5.1 ; 4.7 ; 5.6 ; 4.9 ; 4.1 ; 4.1 ; c = 13.7 ; 13.1 ; 16.2 ; 15.6 ; 17.8 ; 14.3 ; 12.3 ; 9.6.

### Description

The buccal cavity is formed by twelve cheilorhabdia 7  $\mu\text{m}$  long, continued by a dorsal tooth 6  $\mu\text{m}$  high. The walls of protostoma possess cuticular teeth, two on each wall. There are ten cephalic setae (6 + 4), 12  $\mu\text{m}$  and 8  $\mu\text{m}$  respectively. The spiral amphids have four turns.

In males, the spicules are arched. Gubernaculum is similar in size to the spicules and its ventral (distal) edge is provided with teeth of different sizes. The caudal glands are well developed. The a.d. is 60-65  $\mu\text{m}$ .

*Sample data* : 21-1 : 4 (UHM), 11 (LHM) ; 28 : 1 (LHS).

*Geographic distribution* : Chilean coast.

### Remarks

The specimens are somewhat smaller than the original description given by WIESER (1954), but de Man's ratios are very similar.

The gubernaculum is not exactly the same, but the high similarity of the other characters leads us to consider the species as *P. austrospectabilis*.

It represents a new record for our country.

*Praeacanthonchus punctatus* (BASTIAN, 1865) MICOLETZKY, 1924  
(Plate II, Fig. 5a-h)

*Measurements* : five males and five females, in  $\mu\text{m}$ .

*Length of body* : 2025 ; 2137 ; 1815 ; 2212 ; 2100 ; 2175 ; 2265 ; 2085 ; 2058 ; 1837.

*Length of oesophagus* : 225 ; 225 ; 195 ; 225 ; 225 ; 225 ; 225 ; 262 ; 244 ; 187.

*Maximum width* : 75 ; 75 ; 56 ; 75 ; 71 ; 94 ; 82 ; 94 ; 75 ; 82.

*Length of tail* : 187 ; 172 ; 157 ; 206 ; 195 ; 169 ; 187 ; 187 ; 187 ; 150.

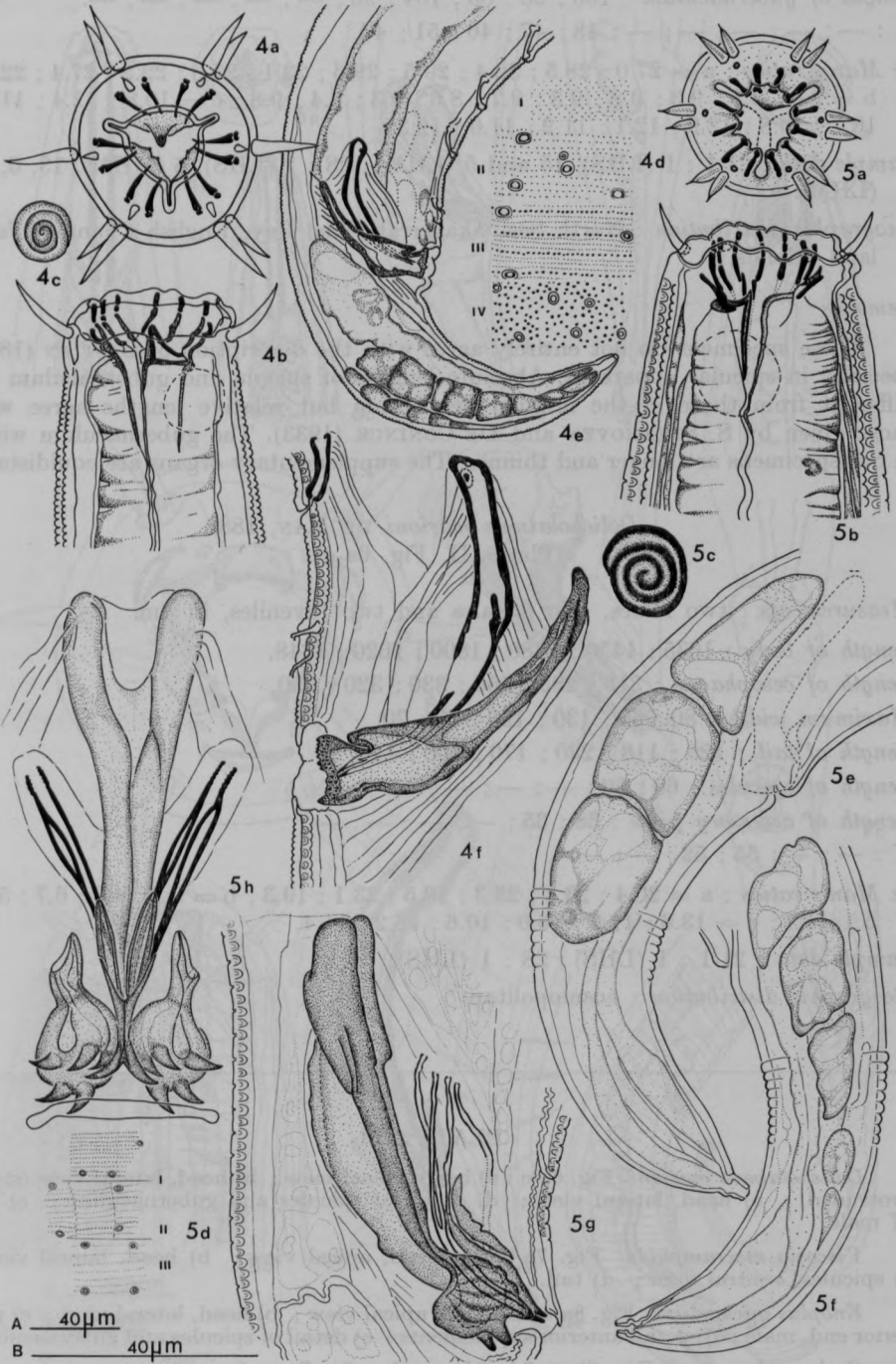
## PLATE II

*Paracanthonchus austrospectabilis* Fig. 4a-f : a) head, apical view ; b) head, lateral view ; c) amphid ; d) cuticle : I. on head, at the top, II. on head, over buccal cavity, III. on the middle of the body, IV. over tail ; e) posterior end, general aspect ; f) spicules.

*Praeacanthonchus punctatus* Fig. 5a-h : a) head, apical view ; b) head, lateral view ; c) amphid ; d) cuticle : I. on head, II. on the middle of the body. III. on tail ; e) tail of male ; f) tail of female ; g) detail of spicules and gubernaculum, lateral view ; h) detail of spicules, ventral view.

*Scales* : A = 4e, 5e & f ; B = 4a-d & f, 2a-d, g & h.

PLATE II



*Length of spicules* : 60 ; 44 ; 40 ; 60 ; 60 ; — ; — ; — ; — ; —.

*Length of gubernaculum* : 100 ; 90 ; 80 ; 104 ; 96 ; — ; — ; — ; — ; —.

*V* : — ; — ; — ; — ; — ; 48 ; 47 ; 46 ; 51 ; 47.

*de Man's ratios* : a = 27.0 ; 28.5 ; 32.4 ; 29.5 ; 29.6 ; 23.1 ; 27.6 ; 22.2 ; 27.4 ; 22.4 ;  
b = 9.0 ; 9.5 ; 9.3 ; 9.8 ; 9.3 ; 9.7 ; 8.6 ; 9.3 ; 8.4 ; 9.8 ; c = 10.8 ; 12.4 ; 11.6 ;  
10.7 ; 10.8 ; 12.9 ; 12.1 ; 11.2 ; 11.0 ; 12.3.

*Sample data* : 21-1 : 1 (LHS), 15 and 5 (LHM) ; 28 : 1 (LHS), 5 (MHM), 13, 5, 19 (LHM).

*Geographic distribution* : North Sea, Skagerrak, Kiel Bay, English Channel, Falkland Islands.

#### Remarks

These specimens do not entirely agree with the description of BASTIAN (1865) specially in spicular apparatus. Absolute lengths of spicula and gubernaculum are different from those in the original description but relative lengths agree with those given by S. STEKHOVEN and DE CONINCK (1933). The gubernaculum wings in our specimens are longer and thinner. The supplementary organs are equidistant.

#### *Dolicholaimus marioni* DE MAN, 1888

(Plate III, Fig. 6a-e)

*Measurements* : two males, two females and two juveniles, in  $\mu\text{m}$ .

*Length of body* : 1635 ; 1450 ; 3680 ; 1800 ; 1620 ; 1348.

*Length of oesophagus* : 315 ; 285 ; 550 ; 330 ; 320 ; 290.

*Maximum width* : 80 ; 60 ; 130 ; 190 ; 70 ; 70.

*Length of tail* : 120 ; 118 ; 230 ; 170 ; 100 ; 118.

*Length of spicules* : 60 ; 60 ; — ; — ; — ; —.

*Length of accessory piece* : 38 ; 35 ; — ; — ; — ; —.

*V* : — ; — ; 55 ; 52 ; — ; —.

*de Man's ratios* : a = 20.4 ; 23.4 ; 28.3 ; 19.5 ; 23.1 ; 19.3 ; b = 5.2 ; 4.9 ; 6.7 ; 5.5 ;  
5.1 ; 4.7 ; c = 13.6 ; 11.9 ; 16.0 ; 10.6 ; 16.2 ; 11.4.

*Sample data* : 21-1 : 1 (LHS) ; 28 : 1 (LHS).

*Geographic distribution* : cosmopolitan.

#### PLATE III

*Dolicholaimus marioni* Fig. 6a-e : a) head, apical view ; b) head, lateral view (stylet protruded) ; c) head, lateral view ; d) detail of spicules and gubernaculum ; e) tail of male.

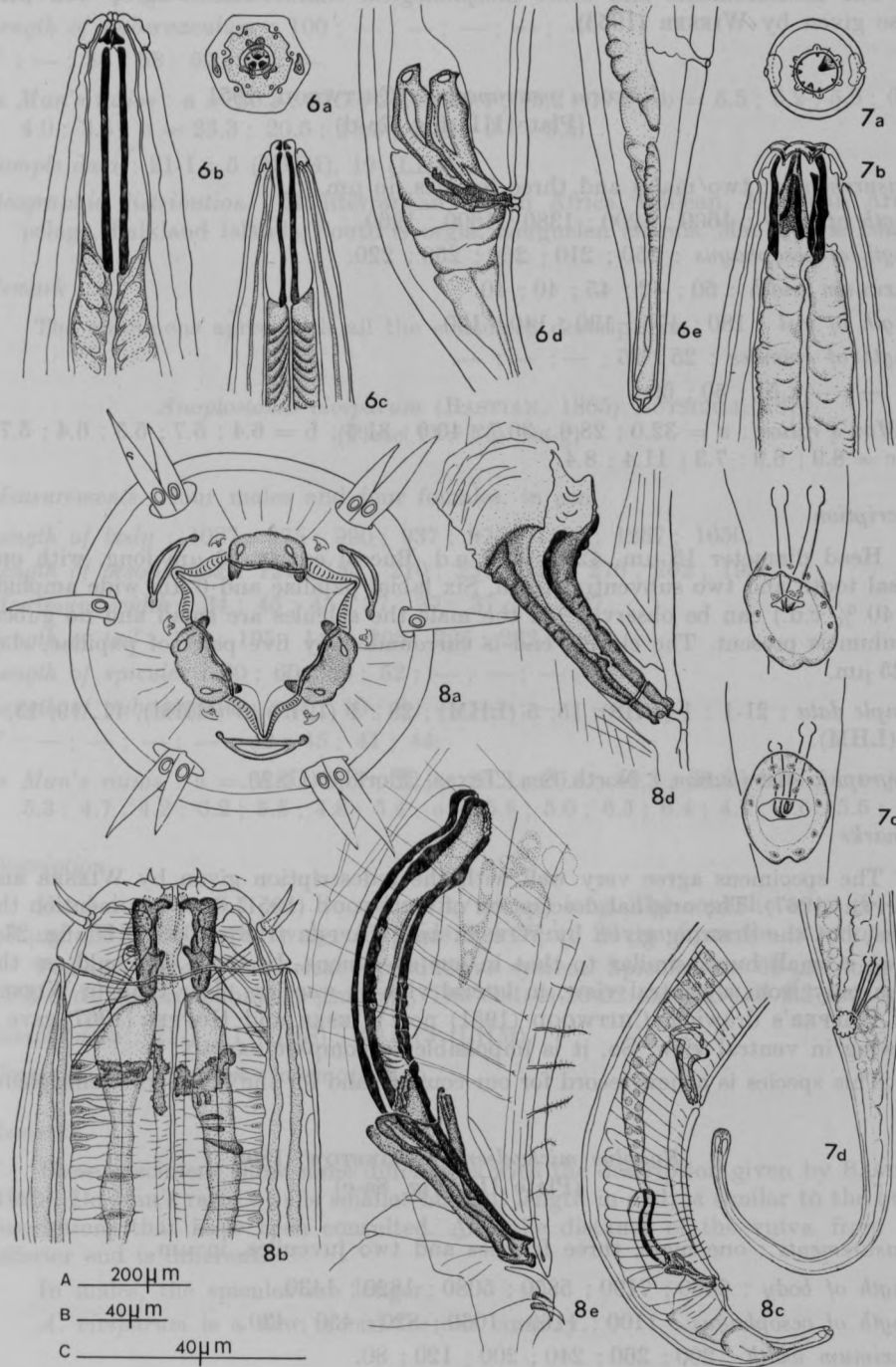
*Viscosia macramphida* Fig. 7a-d : a) head, apical view ; b) head, lateral view ; c) spicules, ventral view ; d) tail.

*Enoplus michaelsoni* Fig. 8a-e : a) head, apical view ; b) head, lateral view ; c) posterior end, male ; d) detail anterior supplements ; e) detail of spicules and gubernaculum.

*Scales* : A = 8c ; B = 6b-e, 7d, 8d-e ; C = 6a, 7a-c, 8a.



PLATE III



*Remark*

The measurements and other morphological characteristics agree well with those given by WIESER (1953).

*Viscosia macramphida* CHITWOOD, 1951  
(Plate III, Fig. 7a-d)

*Measurements* : two males and three females, in  $\mu\text{m}$ .

*Length of body* : 1600 ; 1200 ; 1380 ; 1600 ; 1260.

*Length of oesophagus* : 250 ; 210 ; 260 ; 250 ; 220.

*Maximum width* : 50 ; 42 ; 45 ; 40 ; 40.

*Length of tail* : 180 ; 175 ; 190 ; 140 ; 150.

*Length of spicules* : 25 ; 25 ; — ; — ; —.

*V* : — ; — ; 51 ; 50 ; 60.

*de Man's ratios* : a = 32.0 ; 28.6 ; 30.7 ; 40.0 ; 31.5 ; b = 6.4 ; 5.7 ; 5.3 ; 6.4 ; 5.7 ;  
c = 8.9 ; 6.9 ; 7.3 ; 11.4 ; 8.4.

*Description*

Head diameter 15  $\mu\text{m}$ , 42.8 % of o.d. Buccal cavity 20  $\mu\text{m}$  long, with one dorsal tooth and two subventral teeth. Six labial papillae and 6  $\mu\text{m}$  wide amphids (= 40 % c.d.) can be observed. In the male the spicules are small and no gubernaculum is present. The cloacal end is surrounded by five pairs of papillae, c.d. is 25  $\mu\text{m}$ .

*Sample data* : 21-1 : 1 (LHS), 15, 5 (LHM) ; 28 : 1 (LHS), 5 (MHM), 11, 19, 13, 5 (LHM).

*Geographic distribution* : North Sea, Texas, Florida (USA).

*Remarks*

The specimens agree very well with the redescription given by WIESER and HOPPER (1967). The original description of CHITWOOD (1951) does not mention the bursa, but the drawing given by WIESER and HOPPER (1967, Plate XII, fig. 23c) shows a small bursa similar to that in our specimens. In these we could see the bursa only from a ventral view, in lateral view it was less clear than in WIESER and HOPPER's drawing. CHITWOOD (1951) nor WIESER and HOPPER (1967) gave a drawing in ventral view. So, it is impossible to compare exactly.

This species is a new record for our country and for the Southern Hemisphere.

*Enoplus michaelsoni* v. LINSTOW, 1896  
(Plate III, Fig. 8a-e)

*Measurements* : one male, three females and two juveniles, in  $\mu\text{m}$ .

*Length of body* : 6060 ; 7190 ; 5850 ; 5080 ; 1820 ; 1430.

*Length of oesophagus* : 1100 ; 1160 ; 1060 ; 820 ; 450 ; 430.

*Maximum width* : 200 ; 260 ; 240 ; 200 ; 120 ; 80.

Length of tail : 260 ; 350 ; 320 ; 300 ; 200 ; 150.

Length of spicules : 220 ; — ; — ; — ; — ; —.

Length of gubernaculum : 100 ; — ; — ; — ; — ; —.

V : — ; 56 ; 58 ; 59 ; — ; —.

de Man's ratios : a = 30.3 ; 27.7 ; 24.4 ; 25.4 ; 15.2 ; 17.9 ; b = 5.5 ; 6.2 ; 5.5 ; 6.2 ; 4.0 ; 3.3 ; c = 23.3 ; 20.5 ; 18.3 ; 16.9 ; 9.1 ; 9.5.

Sample data : 21-1 : 5 (MHM), 19 (LHM).

Geographic distribution : Mediterranean, South Africa, Chilean, Fueguian Archipelago, Falkland Islands, South Georgia, Kerguelen Islands, Mac Quarie Island.

#### Remark

The specimens agree with all the consulted descriptions.

*Anoplostoma viviparum* (BASTIAN, 1865) BÜTSCHLI, 1874  
(Plate IV, Fig. 9a-g)

Measurements : four males and four females, in  $\mu\text{m}$ .

Length of body : 1087 ; 975 ; 990 ; 937 ; 975 ; 1492 ; 1267 ; 1050.

Length of oesophagus : 127 ; 184 ; 210 ; 221 ; 157 ; 270 ; 262 ; 195.

Maximum width : 34 ; 45 ; 45 ; 37 ; 37 ; 37 ; 45 ; 37.

Length of tail : 187 ; 195 ; 146 ; 206 ; 225 ; 232 ; 187 ;

Length of spicules : 60 ; 60 ; 60 ; 52 ; — ; — ; — ; —.

Length of gubernaculum : 10 ; 10 ; 8 ; — ; — ; — ; — ; —.

V : — ; — ; — ; — ; 42 ; 45 ; 41 ; 44.

de Man's ratios : a = 32.0 ; 21.7 ; 22.0 ; 25.3 ; 26.4 ; 40.3 ; 28.2 ; 28.4 ; b = 8.6 ; 5.3 ; 4.7 ; 4.2 ; 6.2 ; 5.5 ; 4.8 ; 5.4 ; c = 5.8 ; 5.0 ; 6.3 ; 6.4 ; 4.7 ; 6.6 ; 5.5 ; 5.6.

#### Description

Head diameter 6-7  $\mu\text{m}$ . Buccal cavity 10  $\mu\text{m}$  long. The cephalic setae (6 + 4) 8-9  $\mu\text{m}$  and 6  $\mu\text{m}$  respectively. Amphids  $3 \times 5 \mu\text{m}$ , 20  $\mu\text{m}$  from the anterior end.

Females have symmetrical reproductive system. Spicules are 60  $\mu\text{m}$  long i.e. 2.9-3 cl.d., gubernaculum 10  $\mu\text{m}$  long. The cl.d. is 20-22  $\mu\text{m}$  and tail 9.3 cl.d. long.

Sample data : 21-1 : 1 (LHS) ; 28 : 13 (LHM).

Geographic distribution : cosmopolitan.

#### Remarks

These specimens show some differences with the description given by BASTIAN (1865). De Man's ratio « c » is smaller but tail length in cl.d. is similar to the other descriptions that have been consulted. Also the distance of the vulva from the anterior end is different.

In males, the spicules are longer.

*A. viviparum* is a new record for our country.

*Anoplostoma camus* WIESER, 1953

(Plate IV, Fig. 10a-e)

*Measurements* : one male and two juveniles, in  $\mu\text{m}$ .*Length of body* : 1050 ; 930 ; 900.*Length of oesophagus* : 232 ; 187 ; 195.*Maximum width* : 34 ; 37 ; 30.*Length of tail* : 82 ; 75 ; 82.*Length of spicules* : 64 ; — ; —.*de Man's ratios* : a = 30.9 ; 25.3 ; 30.0 ; b = 4.5 ; 5.0 ; 4.6 ; c = 12.8 ; 12.4 ; 11.0.*Description*

Cephalic diameter 7  $\mu\text{m}$ . Buccal cavity 13  $\mu\text{m}$  long. The (6 + 4) cephalic setae measure 8 and 5  $\mu\text{m}$  respectively. The excretory gland is 23  $\mu\text{m}$  from the anterior end. Cl.d. is 20  $\mu\text{m}$  ; the spicules are 62  $\mu\text{m}$  (3 cl.d.) and the gubernaculum 11  $\mu\text{m}$  (0.5 cl.d.).

*Sample data* : 21-1 : 7 (LHM) ; 28 : 5 (MHM), 19 (LHM).*Geographic distribution* : Chilean coast.*Remarks*

The specimens agree with the description given by WIESER (1954).

It represents a new record for our country.

*Paramonohystera* subgen. *Paramonohystera proteus* WIESER, 1956

(Plate V, Fig. 11a-e)

*Measurements* : four males and one female, in  $\mu\text{m}$ .*Length of body* : 900 ; 900 ; 862 ; 900 ; 975.*Length of oesophagus* : 187 ; 184 ; 169 ; 150 ; 187.*Maximum width* : 37 ; 22 ; 34 ; 45 ; 56.*Length of tail* : 94 ; 105 ; 79 ; 82 ; 112.*Length of spicules* : 120 ; 120 ; 100 ; 116 ; —.*Length of gubernaculum* : 20 ; 20 ; 20 ; 24 ; —.*V* : — ; — ; — ; — ; 50.1.

*de Man's ratios* : a = 24.3 ; 40.9 ; 25.3 ; 20.0 ; 17.4 ; b = 4.8 ; 4.9 ; 5.1 ; 6.0 ; 5.2 ;  
c = 9.6 ; 8.6 ; 10.9 ; 11.0 ; 8.7.

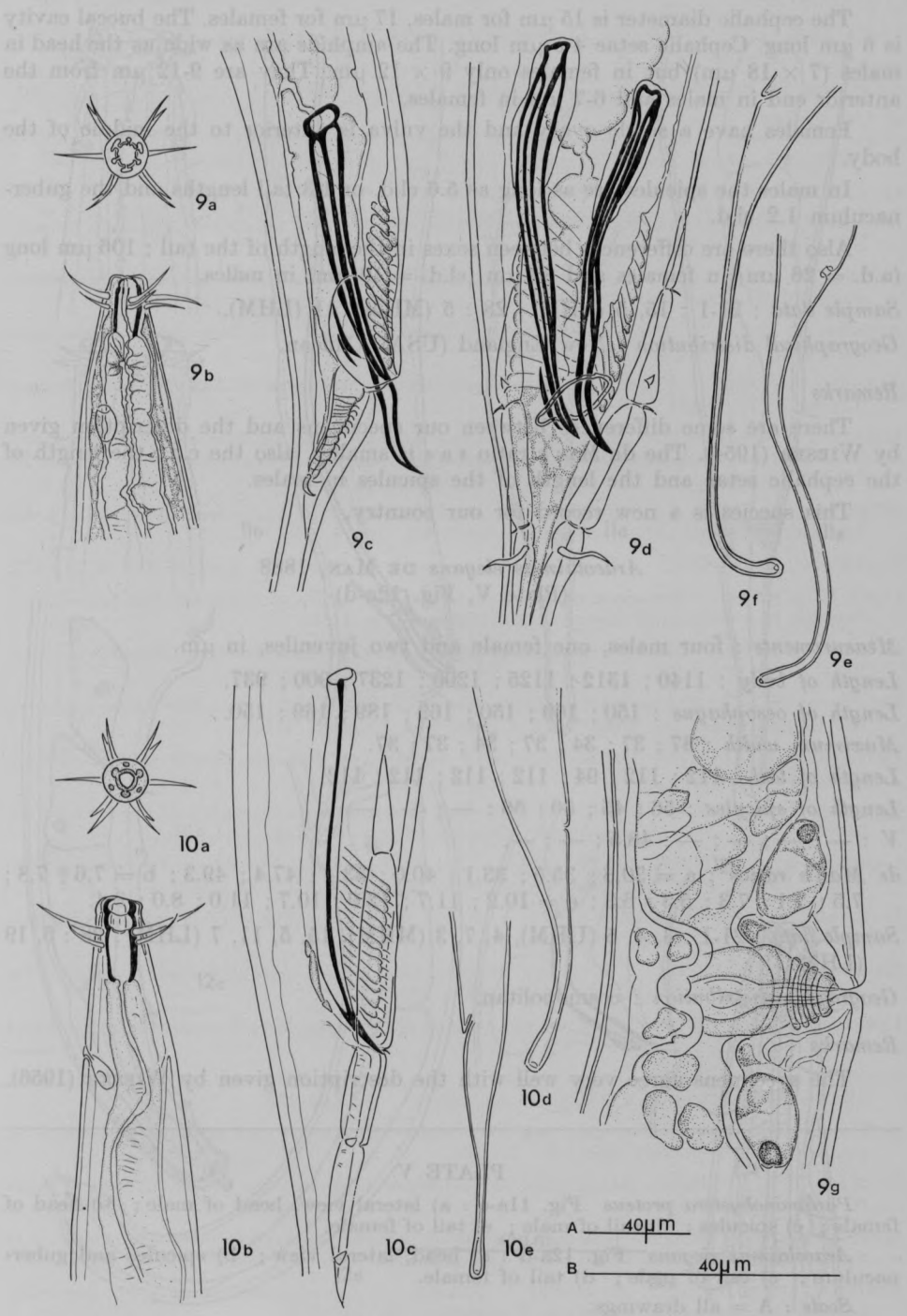
## PLATE IV

*Anoplostoma viviparum* Fig. 9a-g : a) head, apical view ; b) head, lateral view ; c) spicules, lateral view ; d) spicules, ventral view ; e) tail of male ; f) tail of female ; g) detail of vulva.

*Anoplostoma camus* Fig. 10a-e : a) head, apical view ; b) head, lateral view ; c) spicules, lateral view ; d) tail of male ; e) tail of female.

*Scales* : A = 9e-f, 10d-e ; B = 9a-d, 9g, 10a-c.

PLATE IV



*Description*

The cephalic diameter is 15  $\mu\text{m}$  for males, 17  $\mu\text{m}$  for females. The buccal cavity is 6  $\mu\text{m}$  long. Cephalic setae 4-5  $\mu\text{m}$  long. The amphids are as wide as the head in males ( $7 \times 18 \mu\text{m}$ ) but in females only  $9 \times 12 \mu\text{m}$ . They are 9-12  $\mu\text{m}$  from the anterior end in males and 6-7  $\mu\text{m}$  in females.

Females have a single ovary and the vulva is anterior to the middle of the body.

In males the spicules are as long as 5.6 cl.d. or 1.3 tail lengths and the gubernaculum 1.2 cl.d.

Also there are differences between sexes in the length of the tail : 106  $\mu\text{m}$  long (a.d. = 26  $\mu\text{m}$ ) in females and 80  $\mu\text{m}$  (cl.d. = 19  $\mu\text{m}$ ) in males.

*Sample data* : 21-1 : 15, 5 (LHM) ; 28 : 5 (MHM), 11 (LHM).

*Geographical distribution* : New England (USA), Chilean.

*Remarks*

There are some differences between our specimens and the description given by WIESER (1954). The de Man's ratio « a » is smaller, also the c.d., the length of the cephalic setae and the length of the spicules in males.

This species is a new record for our country.

*Araeolaimus elegans* DE MAN, 1888

(Plate V, Fig. 12a-d)

*Measurements* : four males, one female and two juveniles, in  $\mu\text{m}$ .

*Length of body* : 1140 ; 1312 ; 1125 ; 1200 ; 1237 ; 900 ; 937.

*Length of oesophagus* : 150 ; 169 ; 150 ; 169 ; 189 ; 169 ; 150.

*Maximum width* : 37 ; 37 ; 34 ; 37 ; 34 ; 37 ; 37.

*Length of tail* : 112 ; 112 ; 94 ; 112 ; 112 ; 112 ; 112.

*Length of spicules* : 56 ; 45 ; 56 ; 56 ; — ; — ; —.

*V* : — ; — ; — ; — ; 48.5 ; — ; —.

*de Man's ratios* : a = 30.8 ; 35.5 ; 33.1 ; 40.0 ; 33.4 ; 47.4 ; 49.3 ; b = 7.6 ; 7.8 ; 7.5 ; 7.1 ; 7.3 ; 5.3 ; 6.3 ; c = 10.2 ; 11.7 ; 12.0 ; 10.7 ; 11.0 ; 8.0 ; 8.4.

*Sample data* : 21-1 : 3, 4, 5 (UHM), 4, 7, 3 (MHM), 15, 5, 11, 7 (LHM) ; 28 : 5, 19 (LHM).

*Geographic distribution* : cosmopolitan.

*Remarks*

The specimens agree very well with the description given by WIESER (1956).

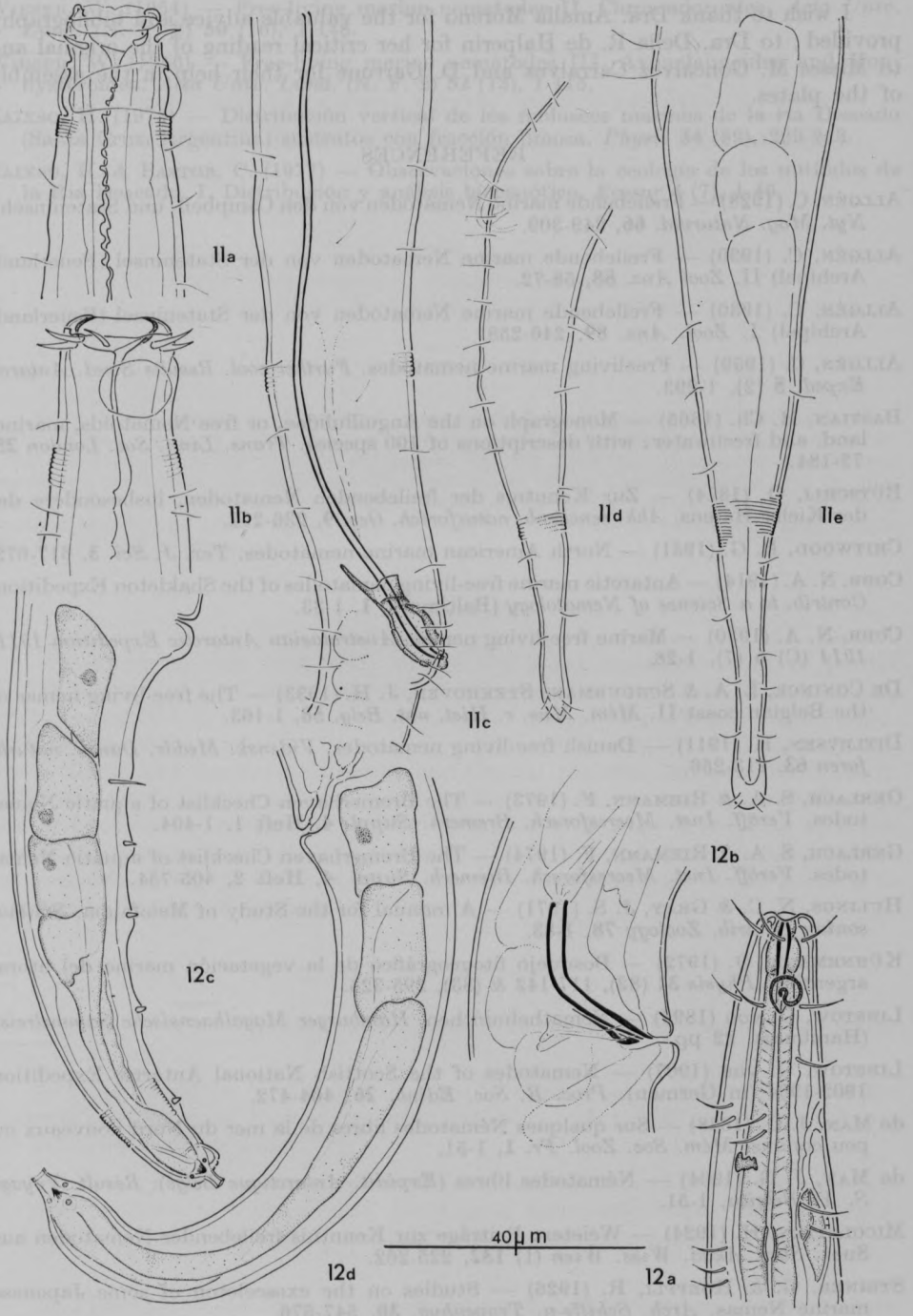
## PLATE V

*Paramonohystera proteus* Fig. 11a-e : a) lateral view, head of male ; b) head of female ; c) spicules ; d) tail of male ; e) tail of female.

*Araeolaimus elegans* Fig. 12a-d : a) head, lateral view ; b) spicules and gubernaculum ; c) tail of male ; d) tail of female.

*Scale* : A = all drawings.

PLATE V



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ABSTRACT

Over thirty genera of free-living nematodes from seventeen families have been found during a survey of the benthic macrofauna of the Pacific Coast near Vancouver. Their distribution appears to be influenced by the quality of organic matter and associated bacteria in the sediment. The taxonomy of the Cyatholaimidae will be examined, especially those members of the *Cyatholaiminae*. The use of light and scanning electron microscope observations of pores and penetrations as taxonomic aids within this family will be discussed.

INTRODUCTION

We report on part of a study of the free-living nematode fauna of coastal British Columbia. Until now, the only comprehensive studies on the free-living marine nematodes of the west coast of North America are those from: Puget Sound, Washington (WIESER, 1953); Oregon (BEHRENS, 1951); Northern California (CHRISTENSEN, 1960), and Southern California and Central America (ALLEN, 1947, 1951). Only two reports are available for the Canadian Pacific coast, namely, the redescription of *Oncholaimus restuarius* (NELSON et al., 1971) and the description of a new species, *Luoplia antioquioides* (ZAIKSO et al., 1972). Since no comprehensive studies are available for the West Coast of Canada, a primary purpose of our study is to investigate the nematode fauna of this area.

MATERIAL DESCRIPTION

Nematodes were collected from three different sites in Greater Vancouver (Fig. 1), namely:

(1) Long Island: a tidal flat with a gently sloping beach in the estuary of the Fraser River, south of Vancouver, with jetties on either side of it that minimize the influence of fresh water.

(2) Stanley Park: a sandy beach at the mouth of Burrard Inlet which contains the dock facilities of a major port. The slope is somewhat steeper than the beach at Long Island and it is heavily used for recreational and educational purposes.

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