INTRODUCTION (*)

In the last decade numerous researches have been made on the freeliving marine nemas of both the North Sea and the Baltic, so that nowadays we are fairly well informed upon the nemic fauna of that region. The nemic fauna of the Mediterranean however is very insufficiently known and we possess of that region only sporadic data, as the result of a few superficial studies of that sea.

I need to remember only to what has been done by EBERTH, ROUVILLE, MARION, DE MAN, MICOLETZKY, KREIS STEINER, COBB, ZUR STRASSEN, TUERK and SCHULZ being rather sure to have strived therewith all studies on the nemic fauna of this very interesting region, one of the most important traffic ways of the old world (1).

Therefore each gap, which may be filled up in our knowledge of this almost unknown field, is wellcome.

Now fortunately some very interesting collections of freeliving marine nemas, collected at different localities of this sea, which is the doorway to the Indies, touching at one side to the Atlantic, giving entrance at the other end to both the Sea of Marmora and the Black Sea and by means of the Canal of Suez to the Red Sea, were sent to me for study. Over these collections I hope to report in a near future (2). The most important of these collections,

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(*) The manuscript of the systematical part had been finished already as early as the end of 1937. The finishing touch to the figures and the introduction was closed in the beginning of 1942, since I found not sufficient time before that date to put the manuscript into final shape.

January 18th 1942.

(1) The results of these studies were published in 1942. Mediterranean freeliving Nematodes II Camarque III Balearic, Pityuses (Mededeelingen Leyden Museum and in 1943, IV freilebende marine Nematoden der Fischereigründe bei Alexandrien. *Zoologische Jahrbücher*, 1943 : 267-396 respectively).

(2) In 1942, after the manuscript was sent to the editor ALLGÉN published his : Die freilebenden Nematoden des Mittelmeeres : His own researches concern freeliving marine Nematoden of Banyuls-sur-Mer. For those who are interested I refer to this paper as it was impossible to take full account of this paper during the corrections of the printing proofs, 20th Dec. 1949, see page 23.

originated from Villefranche, and was collected by Dr. E. Leloup. « Conservateur à l'Institut royal des Sciences naturelles de Belgique », during his stay at the station of Villefranche in 1934. Prof. Dr. V. Van Straelen, Director of the Institute did entrust me this collection for further study, for which opportunity I will thank him very heartily at this place.

The collection embraces no less than 614 specimens belonging to 144 species of which 81 are new to science.

To give an idea of what has been performed on this field of research I will give a list of all species found up to the present date in the Mediterranean, the species in question arranged in the families to which they ought te be reckoned.

Order ENOPLOIDEA.

Family **LEPTOSOMATIDÆ.**

1. *Anticoma acuminata* (Eberth), Nice, Naples, different localities in the Adria, Banyuls, Cette, Mallorca, Ibiza, Alexandria.
2. *Anticoma leptura* (Marion), Marseille.
3. *Synonchus fasciculatus* Cobb, Naples.
4. *Synonchus hirsutus* Cobb, Naples.
5. *Synonchus strasseni* Tuerk, Naples.
6. *Platycoma cephalata* Cobb, Naples.
7. *Thoracostoma echinodon* Marion, Marseille.
8. *Thoracostoma steineri* Micoletzky, Naples, Alexandria.
9. *Thoracostoma figuratum* (Bastian), Nice, Marseille, Naples; according to Allgén (1942), synonymous with *Th. coronatum* (Eberth) like *Th. echinodon* Marion and *Th. coronatum* Villot.
10. *Thoracostoma montredonense* Marion, Marseille.
11. *Thoracostoma dorylaimus* Marion, Marseille.
12. *Thoracostoma zolæ* Marion, Marseille, Alexandria.
13. *Thoracostoma coronatum* (Eberth), Nizza.
14. *Thoracostoma globicaudatum* Schneider, Sicily, Messina.
15. *Cylicolaimus jaegerskjöldi* (Tuerk), Naples.
16. *Leptosomatum bacillatum* (Eberth), Nice, Naples.
17. *Leptosomatum punctatum* (Eberth), Nice.

Family **OXYSTOMATIDÆ.**

18. *Halalaimus gracilis* De Man, Adria, Rovigno, Bocche di Cattaro, Sea of Marmara.

Family **PHANODERMATIDÆ.**

19. *Phanoderma gracile* De Man, Naples.
20. *Phanoderma mediterranea* Micoletzky, Adria, Banyuls.
21. *Phanoderma aberrans* Micoletzky, Adria.
22. *Phanoderma laticolle* (Marion), Marseille, Alexandria.
23. *Phanoderma tuberculatum* (Eberth), Nice, Messina.
24. *Phanoderma setigerum* (Marion), Marseille.

Family **ENOPLIDÆ.**

25. *Enoplus striatus* Eberth, Nice, Messina, Banyuls.
26. *Enoplus hirtus* (Marion), Marseille, Sea of Marmara.
27. *Enoplus minus* (Marion), Marseille.
28. *Enoplus obtusicaudatus* Eberth, Nice.
29. *Enoplus meridionalis* Steiner, Teneriffa, Alexandria, Ibiza.
30. *Enoploides italicus* Steiner, Adria.
31. *Syringolaimus striaticaudatus* De Man, Adria, Rovigno, Ombla Bay, Bocche di Cattaro, Ischia, Sea of Marmara.

Family **ONCHOLAIMIDÆ.**

32. *Paroncholaimus parpapilliferus* Micoletzky, Adria, Bocche di Cattaro, Banyuls.
33. *Pelagonema simplex* Cobb, Ischia, Rovigno.
34. *Metaparoncholaimus campylocercus* (De Man), Naples.
35. *Viscosia glabra* (Bastian), Naples, Ischia, Rovigno, Bocche di Cattaro, Meleda, Ombla Bay, Alexandria, Ibiza, Banyuls.
36. *Prooncholaimus megastoma* (Eberth), Nice, Naples, Ischia, Adria, Rovigno, Ombla Bay, Bocche di Cattaro.
37. *Prooncholaimus mediterraneus* Schuurmans Stekhoven (= *Prooncholaimus megastoma* Micoletzky, nec Eberth), Naples, Alexandria.
38. *Oncholaimus dujardini* De Man, Naples, Cette, Ischia, Adria, Rovigno, Ombla Bay, Bocche di Cattaro, Alexandria, Mallorca, Ibiza, Banyuls.
39. *Oncholaimus papillosus* Eberth, Nice, Naples.

40. *Oncholaimus armatus* VON DADAY, Fiume.
41. *Metoncholaimus pristiurus* (zur STRASSEN), Naples, Cette, Banyuls.
42. *Metoncholaimus demani* (zur STRASSEN), Naples.
43. *Vasculonema cæruleum* EBERTH, Nice.

Family **ENCHELIDIIDÆ.**

44. *Eurystomatina ornatum* EBERTH, Nice, Fiume, Rovigno, Banyuls.
45. *Eurystomatina spectabile* MARION, Marseille.
46. *Enchelidium acuminatum* EBERTH, Nice, Naples, Ischia, Adria, Meleda, Rovigno.
47. *Enchelidium bierstedti* (MARION), Marseille.
48. *Enchelidium marinum* EHRENBERG, Nice.
48. *Enchilidium paradoxum* (MARION), Marseille.
50. *Enchelidium eberthi* DE MAN, Naples.
51. *Enchelidium exile* (MARION), Marseille.
52. *Enchelidium subrotundum* (EBERTH), Nice.
53. *Symplocostoma pauli* (MARION), Marseille, Naples, Ischia, ? Rovigno, Meleda, Bocche di Cattaro.
54. *Symplocostoma tenuicolle* DE MAN, Cette, Marseille, Banyuls.
55. *Bolbella cobbi* MICOLETZKY, Adria, Rovigno.

Order CHROMADORIIDEA.

Family **CYATHOLAIMIDÆ.**

56. *Paracanthonchus steueri* (MICOLETZKY), Naples, Adria, Rovigno.
57. *Paracanthonchus arcuatus* KREIS, Taormina.
58. *Praeacanthonchus mediterraneus* MICOLETZKY, Cette.
59. *Praeacanthonchus guarneriensis* VON DADAY, Fiume, questionable species.
60. *Longicyatholaimus longicaudatus* (DE MAN), Naples, Alexandria.
61. *Cyatholaimus gracilis* (EBERTH), Nice Marseille, Naples, Cette, Messina, Sea of Marmara, Banyuls.
62. *Cyatholaimus canariensis* STEINER, Teneriffa, Mallorca.
63. *Cyatholaimus prinzi* (MARION), Marseille.
64. *Cyatholaimus oculatus* (MARION), Marseille.
65. *Cyatholaimus striatipunctatus* (MARION), Marseille.

Family **DESMODORIDÆ.**

66. *Heterodesmodora varioannulata* KREIS, Naples.
67. *Heterodesmodora ditlevseni* MICOLETZKY, Naples.
68. *Monoposthia costata* DE MAN, Teneriffa, Messina, Ibiza, Banyuls.
69. *Aculeonchus sphaericus* KREIS, Naples, Banyuls.
70. *Acanthopharynx perarmata* (MARION), Marseille, Naples, Ibiza.
71. *Acanthopharynx micans* (EBERTH), Nice, Marseille, Naples, Rovigno, Sea of Marmara, Banyuls.
72. *Acanthopharynx affinis* MARION, Marseille, Mallorca.
73. *Laxus contortus* COBB, Naples.
74. *Spirina parasitifera* (BASTIAN), Cette.

I think ALLGÉN (1932, p. 440) is right in considering *Desmodora angusticollis* DADAY and *Desmodora papillata* DADAY as questionable species. They are not considered here.

Family **CHOANOLAIMIDÆ.**

75. *Demonema rapax* COBB, Naples.

Family **CHROMADORIDÆ.**

76. *Spilophorella mediterranea* MICOLETZKY, Ischia, Adria, Rovigno, Ombla Bay, Bocche di Cattaro, Camarque, Banyuls.
77. *Chromadorina parva* (DE MAN), Teneriffa, Adria, Rovigno, Meleda, Ombla Bay, Bocche di Cattaro, Banyuls.
78. *Chromadorina læta* (DE MAN), Naples, Quarnero, Rovigno, Ombla Bay, Sea of Marmara, Banyuls.
79. *Chromadorita magna* SCHULZ, Messina.
80. *Euchromadora loricata* (STEINER), Naples, Bocche di Cattaro, Taormina.
81. *Euchromadora striata* (EBERTH), Nice, Fiume, Naples, Ischia, Adria, Alexandria, Sea of Marmara, Black Sea, Banyuls.
82. *Rhabdodotoderma morstatti* (MARION), Marseille.
83. *Prochromadorella neapolitana* (DE MAN), Naples, Adria, Bocche di Cattaro, Alexandria.
84. *Prochromadorella mediterranea* (MICOLETZKY), Adria, Rovigno, Meleda, Ombla Bay, Ragusa, Bocche di Cattaro, Mallorca.
85. *Dichromadora parapœcilosoma* (MICOLETZKY), Camarque, Adria, Meleda, Ombla Bay, Alexandria, Bocche di Cattaro, Sea of Marmara.
86. *Dichromadora pœcilosomoides* (FILIPJEV), Messina, Banyuls.

87. *Paroxystomina asymmetrica* MICOLETZKY, Rovigno, Bocche di Cattaro, Meleda.
88. *Chromadora quadrilinea* FILIPJEV, Naples, Adria.
89. *Chromadora chlorophthalma* DE MAN, an insufficiently known species, after Allgén (in litteris synonym with *C. nudicapitta*, Naples).
90. *Chromadora nudicapitata* BASTIAN, Cette, Quarnero, with which apart from *C. chlorophthalma*, *Chromadora flamoniensis* VON DADAY and *Chromadora quarneriensis* VON DADAY should by identical, Banyuls.
91. *Chromadorella membranata* MICOLETZKY, Adria.

Family **DRACONEMATIDÆ.**

92. *Draconema claparedei* METSCHNIKOFF, Naples, Salerno.
93. *Draconema cephalatum* COBB, Naples.
94. *Draconema ophiocephalum* CLAPARÈDE, Saint-Vaast.
95. *Draconema micoletzkyi* KREIS, Taormina.
96. *Draconema tristichochæta* PANCERI, Ischia, Naples.
97. *Draconema longirostrum* SCHEPOTIEFF, Naples.
98. *Draconema macrocephalum* SCHEPOTIEFF, Naples.

Family **EPSILONEMATIDÆ.**

99. *Prochætosoma cygnoides* (METSCHNIKOFF), Naples.

Family **COMESOMIDÆ.**

100. *Sabatieria cettensis* DE ROUVILLE, Cette.

Order ARÆOLAIMOIDEA.

Family **AXONOLAIMIDÆ.**

101. *Aræolaimus bioculatus* (DE MAN), Naples, Adria, Rovigno, Cattaro, Alexandria.
102. *Aræolaimoides mediterraneus* (DE MAN), Naples, Ischia, Adria, Rovigno, Meleda, Ombla Bay, Bocche di Cattaro.
103. *Metaræolaimoides oxystoma* DE CONINCK, Sardinia.
104. *Diplopeltis cirrhatus* (EBERTH), Nice, Naples, Banyuls.

Family **CAMACOLAIMIDÆ.**

105. *Ionema isseli* MICOLETZKY, Rovigno, Meleda, Bocche di Cattaro, Banyuls.

Family **HALAPHANOLAIMIDÆ.**

106. *Ægialoalaimus tenuis* (KREIS), Naples.

Order MONHYSTEROIDEA.

Family **LINHOMOEIDÆ.**

107. *Linhomœus obtusicaudatus* DE MAN, Adria, Rovigno, Melada, Ombla Bay, Bocche di Cattaro, Banyuls.
108. *Metalinhomœus elegans* KREIS, Naples.

Family **MONHYSTERIDÆ.**

109. *Paramonhystera paranormandica* (MICOLETZKY), Adria, Rovigno, Ombla Bay, Bocche di Cattaro, Naples, Ischia, Alexandria.
110. *Metalaimus gracilis* KREIS, Naples.
111. *Rhabdocoma macrurum* COBB, Naples.
112. *Monhystera macrolabiata* KREIS, Naples.
113. *Monhystera heteroparva* MICOLETZKY, Adria.
114. *Monhystera parva* DE MAN, Adria.
115. *Theristus tzhoricus* (FILIPJEV), Messina.

Family **SIPHONOLAIMIDÆ.**

116. *Siphonolaimus niger* DE MAN, Naples.
117. *Siphonolaimus weissmanni* (zur STRASSEN), Naples.
118. *Siphonolaimus nigricans* (COBB), Naples.
119. *Solenolaimus obtusus* COBB, Naples.

Order DESMOSCOLECOIDEA.

Family **DESMOSCOLECIDÆ.**

120. *Desmoscolex minutus* CLAPARÈDE, Brindisi, Naples.
121. *Desmocolex adriaticus* SCHEPOTIEFF, Rovigno, Brindisi, Naples.
122. *Desmoscolex lævis* KREIS, Taormina.
123. *Eudesmoscolex chætogaster* (GREEFF), Naples.
124. *Tricoma nematoides* (GREEFF), Naples.
125. *Tricoma cincta* COBB, Naples.

Family **GREEFFIELLIDÆ.**

126. *Greeffiella oxycaudata* GREEFF, Naples, Ischia, Salerno, Rovigno.

Order ANGUILLULOIDEA.

Family **TYLENCHIDÆ.**

127. *Halenchus mediterraneus* (MICOLETZKY), Adria, Rovigno, Meleda, Bocche di Cattaro, Banyuls.

During my studies of the freeliving marine nematodes of the Baleares, Alexandria. and the Camarque I observed the following forms :

Order ENOPLOIDEA.

Family **LEPTOSOMATIDÆ.**

128. *Anticoma pellucida* BASTIAN, Alexandria.
129. *Leptosomatum longiseta* SCHUURMANS STEKHOVEN, Alexandria.

Family **OXYSTOMATIDÆ.**

130. *Halalaimus longicauda* ALLGÉN, Mallorca.
131. *Trefusia filum* SCHUURMANS STEKHOVEN, Mallorca.

Family **PHANODERMATIDÆ.**

132. *Phanoderma albidum* BASTIAN, Alexandria, Banyuls.

Family **ENOPLIDÆ.**

133. *Enoplus littoralis* FILIPJEV, Alexandria,
134. *Enoplus flagellicaudatus* SCHUURMANS STEKHOVEN, Alexandria.
135. *Enoploides longisetosus* SCHUURMANS STEKHOVEN, Alexandria.

Family **DORYLAIMIDÆ.**

136. *Syringolaimus brevicaudatus* MICOLETZKY, Alexandria.
137. *Dolicholaimus nudus* SCHUURMANS STEKHOVEN, Alexandria.
138. *Dorylaimus filiformis* BASTIAN, Alexandria.

Family **ONCHOLAIMIDÆ.**

139. *Oncholaimus paroxyuris* SCHUURMANS STEKHOVEN, Camarque.
140. *Oncholaimus brevicaudatus* FILIPJEV, Alexandria, Black Sea.
141. *Oncholaimellus mediterraneus* SCHUURMANS STEKHOVEN, Mallorca.
142. *Viscosia langrunenis* DE MAN, Alexandria.
143. *Viscosia palmæ* SCHUURMANS STEKHOVEN, Mallorca.
144. *Viscosia cobbi* FILIPJEV, Alexandria.
145. *Viscosia ægyptica* (STEINER), Alexandria.
146. *Anoplostoma viviparum* DE MAN, Camarque.
147. *Mononcholaimus elegans* KREIS, Camarque.

Family **ENCHELIDIIDÆ.**

148. *Eurystomatina terricola* (EBERTHJ, Mallorca.
149. *Eurystomatina assimile* (DE MAN), Alexandria, Black Sea, Fiume, Naples.
150. *Symplocostoma marioni* FILIPJEV, Alexandria.
151. *Symplocostoma ponticum* FILIPJEV, Alexandria, Sea of Marmara, Black Sea.
152. *Conistomella brevicaudata* SCHUURMANS STEKHOVEN, Mallorca.
153. *Bradystoma longisetosum* SCHUURMANS STEKHOVEN, Alexandria.
154. *Bolbella alexandriæ* SCHUURMANS STEKHOVEN, Alexandria.

Order CHROMEDOROIDEA.

Family **CYATHOLAIMIDÆ.**

155. *Cyatholaimus paragracilis* SCHUURMANS STEKHOVEN, Mallorca.
156. *Cyatholaimus demani* FILIPJEV, Alexandria, Black Sea.
157. *Paracyatholaimus choanolaimoïdes* SCHUURMANS STEKHOVEN, Mallorca.
158. *Metacyatholaimus hirschi* SCHUURMANS STEKHOVEN, Mallorca.
159. *Paracanthonchus micoletzkyi* SCHUURMANS STEKHOVEN, Alexandria.
160. *Paracanthonchus elongatus* (DE MAN), Alexandria.

Family **DESMODORIDÆ.**

161. *Desmodora pontica* FILIPJEV, Alexandria.
162. *Metadesmodora amphidiscata* SCHUURMANS STEKHOVEN, Mallorca.
163. *Acanthopharynx micramphis* SCHUURMANS STEKHOVEN, Ibiza.
164. *Acanthopharynx setosissima* SCHUURMANS STEKHOVEN, Alexandria.

Family **CHROMADORIDÆ.**

165. *Spilophorella euxina* FILIPJEV, Mallorca.
166. *Dichromadora microdonta* KREIS, Mallorca.
167. *Chromadora brevipapillata* MICOLETZKY,
168. *Pareuchromadora setifer* n. sp., Alexandria. Alexandria, Mallorca.
169. *Chromadorina gracilis* FILIPJEV, Alexandria, Black Sea.
170. *Hypodontolaimus ponticus* FILIPJEV, Mallorca, Black Sea.
171. *Hypodontolaimus monodon* SCHUURMANS STEKHOVEN, Camarque.

Family **MICROLAIMIDÆ.**

172. *Microlaimus obtusicauda* SCHUURMANS STEKHOVEN, Alexandria.

Family **COMESOMIDÆ.**

173. *Sabatieria hilarula* DE MAN, Mallorca.
174. *Sabatieria tenuicaudata* (BASTIAN), Alexandria.

Order ARÆOLAIMOIDEA.

Family **HALAPHANOLAIMIDÆ.**

175. *Halaphanolaimus minutus* SCHUURMANS STEKHOVEN, Mallorca.
176. *Ægialoalaimus tenuicaudatus* ALLGÉN, Mallorca.

Family **CERAMONEMATIDÆ.**

177. *Pselionema annulatum* (FILIPJEV), Mallorca,

Family **TRIPYLOIDIDÆ.**

178. *Tripyloides demani* FILIPJEV, Camarque, Black Sea.
179. *Bathylaimus assimilis* DE MAN, Camarque.

Order MONHYSTEROIDEA.

Family **LINHOMOEIDÆ.**

180. *Metalinhomœus effilatus* SCHUURMANS STEKHOVEN, Mallorca.
181. *Paralinhomœus amphilabiatus* SCHUURMANS STEKHOVEN, Mallorca.
182. *Linhomœus macramphis* SCHUURMANS STEKHOVEN, Mallorca.
183. *Eleutherolaimus elegans* SCHUURMANS STEKHOVEN, Mallorca.
184. *Sphærocephalum bulbifera* SCHUURMANS STEKHOVEN, Alexandria.

Family **MONHYSTERIDÆ.**

185. *Monhystera capitata* SCHUURMANS STEKHOVEN, Mallorca.
186. *Monhystera microcephalon* SCHUURMANS STEKHOVEN, Mallorca.
187. *Theristus oxycerca* DE MAN, Camarque.

Family **SIPHONOLAIMIDÆ.**

188. *Siphonolaimus cylindricaudatus* SCHUURMAN STEKHOVEN, Camarque.

Family **SPHÆROLAIMIDÆ.**

189. *Sphærolaimus gracilis* DE MAN, Camarque.

Order ANGUILLULOIDEA.

Family **RHABDITIDÆ.**

190. *Rhabditis monhystera* BUETSCHLI, Alexandria.

Order DESMOSCOLECIDA.

Family **DESMOSCOLECIDÆ.**

191. *Tricoma nematoides* (GREEFF), Mallorca.
192. *Tricoma septuaginta* SCHUURMANS STEKHOVEN, Mallorca.

Moreover some other species of doubtful position and systematic affinity are known from this region, which, like the foregoing summary as well as the present study shows is particularly rich in forms.

From a zoogeographical point of view, the nemic fauna of the Mediterranean shows no peculiar resemblance to the nemic fauna of both Baltic and North Sea. Up to 1935, at the moment SCHUURMANS STEKHOVEN published his summary on the freeliving nematodes of North Sea and Baltic, these seas had only 27 species in common with the Mediterranean. Since then this number has risen to 41, that is on the 190 species, known up to this date from the mediterranean 24,5 % and 13,6 % from the 299 species known in 1935 from North Sea and Baltic. That means, that although we may take into consideration that our knowledge about the Nematodes of North Sea and Baltic has been enlarged in different ways, so as by the newer monograph of ALLGÉN (1935) on the Nematodes of the Oeresund, smaller papers of the same author on several localities of the Coast of Norway, as well as by the third Monograph of SCHUURMANS STEKHOVEN (1935) on freeliving Nematodes of the Belgian Coast, the percentage of forms, which North Sea and Baltic at one side and the Mediteranean at the other side have in common remains small and is inconsiderable in comparison with the forms found either exclusively in that sea, or in that

sea and in the seas, adjacent or neighbouring to the Mediterranean, like the Black Sea, the Sea of Azov, the Sea of Marmora and the Red Sea. We have also to think at intruders from the Coast of North Africa as valuable elements which might have contributed to the composition of the nemic fauna in the Mediterranean.

A clear insight in the composition of the nemic fauna of the Meditteranean will not be possible before more is known about the nemic fauna of the Atlantic Coast from Portugal and Spain and about the North Coast of Africa.

After having treated the nemic fauna of the Bay of Villefranche and Lilong I hope to come back on the geographical aspect of that fauna. To begin with I may point to the fact, that the biocoenoses, although rich in forms, a well-known fact, known to all who have made studies on that field in the Mediterranean, had a very low nemic index, opposite what has allways been emphasized by FILIPJEV (1918-1921) and ALLGÉN (1933-1935), who repeatedly have stated, that the Amphioxus-ground is a rich breeding-ground for nemas.

In Villefranche and Lilong the following species have been found. Those that are new for the Mediterranean are marked with an asterisk.

Order ENOPLOIDEA.

Family **LEPTOSOMATIDÆ.**

1. *Leptosomatum bacillatum* EBERTH.
2. *Thoracostoma steineri* MICOLETZKY.
3. *Anticoma pellucida* BASTIAN.
*4. *Anticoma insulæ-albæ* FILIPJEV.
5. *Anticoma acuminata* (EBERTH).
*6. *Stenolaimus paralepturus* n. sp.
*7. *Stenolaimus metagracilis* n. sp.
*8. *Stenolaimus brevicauda* n. sp.
9. *Halalaimus gracilis* DE MAN.
*10. *Trefusia longispiculosa* BRESSLAU et SCHUURMANS STEKHOVEN.

Family **PHANODERMATIDÆ.**

11. *Phanoderma ditlevseni* FILIPJEV.
*12. *Phanoderma nasutum* n. sp.
13. *Phanoderma laticolle* (MARION).
*14. *Phanoderma parasiticum* DITLEVSEN.
*15. *Phanoderma elegans* n. sp.
*16. *Galeonema longicauda* n. sp.

Famiy **ENOPLIDÆ.**

17. *Enoplus meridionalis* STEINER.
*18. *Mesacanthion tricuspis* n. sp.
19. *Enoploides amphioxi* FILIPJEV.
20. *Oxyonchus dubius* FILIPJEV.

Family **DORYLAIMIDÆ.**

21. *Dolicholaimus nudus* SCHUURMANS STEKHOVEN.
*22. *Anoncholaimus rhopalurus* n. sp.
23. *Oncholaimus dujardini* DE MAN.
24. *Oncholaimellus mediterraneus* SCHUURMANS STEKHOVEN.
*25. *Filipjevia mediterranea* n. sp.
26. *Metoncholaimus pristiurus* (zur STRASSEN).
27. *Metoncholaimus demani* (zur STRASSEN).
28. *Prooncholaimus mediterraneus* n. sp.
29. *Viscosia glabra* DE MAN.
*30. *Viscosia elongata* FILIPJEV.
*31. *Viscosia brachylaima* FILIPJEV.
32. *Viscosia macrorhopalocera* KREIS.
33. *Mononcholaimus elegans* KREIS.

Family **ENCHELIDIIDÆ.**

*34. *Bolbella hexabulba* FILIPJEV.
*35. *Pareurystomatina tenuicaudata* n. sp.
36. *Eurystomatina ornatum* (EBERTH).
*37. *Eurystomatina stenolaimum* n. sp.
*38. *Symplocostomella mediterranea* n. sp.
39. *Enchelidium acuminatum* EBERTH.
*40. *Enchelidium longicolle* FILIPJEV.
41. *Enchilidium pauli* (MARION).
42. *Catalaimus eberthi* (DE MAN).
*43. *Symplocostoma paratenuicolle* SCHUURMANS STEKHOVEN.
*44. *Symplocostoma filicauda* n. sp.
*45. *Symplocostoma longicolle* BASTIAN.
*46. *Symplocostoma longiseta* n. sp.

Order CYATHOLAIMOIDEA.

Family **CYATHOLAIMIDÆ.**

*47. *Longicyatholaimus filicaudatus* n. sp.
*48. *Longicyatholaimus effilatus* n. sp.
*49. *Metachoniolaimus pustulosus* n. sp.

*50. *Metachoniolaimus cylindribucca* n. sp.
*51. *Paralongicyatholaimus mastigodes* n. sp.
*52. *Cyatholaimus paucispira* n. sp.
*53. *Cyatholaimus chitwoodi* n. sp.
*54. *Paraseuratiella breviseta* n. sp.
*55. *Praeacanthonchus micoletzkyi* n. sp.
*56. *Praeacanthonchus angulatus* n. sp.
*57. *Praeacanthonchus uniformis* n. sp.
*58. *Paracanthonchus filipjevi* MICOLETZKY.

Family **CHOANOLAIMIDÆ.**

*59. *Cobbionema cylindrolaimoides* n. sp.
*60. *Cheironchus macramphis* n. sp.
*61. *Trogolaimus micramphis* n. sp.
62. *Halichoanolaimus filicauda* FILIPJEV, Banyuls.

Family **DESMODORIDÆ.**

63. *Desmodora pontica* FILIPJEV.
*64. *Desmodora macramphis* n. sp.
*65. *Desmodora coniseta* n. sp.
*66. *Paradesmodora cephalata* n. sp.
67. *Heterodesmodora ditlevseni* MICOLETZKY.
68. *Acanthopharynx peramata* (MARION).
*69. *Acanthopharynx rigida* n. sp.
*70. *Acanthopharynx seticauda* n. sp.
*71. *Croconema longiseta* n. sp.
*72. *Spirina rouvillei* n. sp.
*73. *Chromaspirina paucispira* n. sp.
*74. *Metachromadora longilaima* n. sp.
*75. *Metachromadora papillata* n. sp.

Family **MONOPOSTHIIDÆ.**

*76. *Monoposthia mediterranea* n. sp.

Family **RICHTERSIIDÆ.**

*77. *Richtersia elongata* n. sp.

Family **CHROMADORIDÆ.**

78. *Spilophorella euxina* FILIPJEV.
79. *Spilophorella mediterranea* (MICOLETZKY).
*80. *Euchromadora africana* VON LINSTOW, further Teneriffe.
*81. *Euchromadora inflatispiculum* n. sp.
82. *Hypodontolaimus ponticus* FILIPJEV.
*83. *Dichromadora tenuicauda* n. sp.
*84. *Dichromadora punctata* n. sp.
*85. *Prochromadorella brachyura* n. sp.
*86. *Trichromadora ophiocephala* n. sp.

Family **COMESOMIDÆ.**

*87. *Dorylaimopsis punctatus* DITLEVSEN.
*88. *Paracomesoma coronata* n. sp.
*89. *Comesoma punctata* n. sp.
90. *Sabatieria hilarula* DE MAN.
*91. *Sabatieria longicaudata* FILIPJEV.
*92. *Sabatieria abyssalis* FILIPJEV.
*93. *Sabatieria clavicauda* FILIPJEV.
*94. *Sabatieria rugosa* n. sp.
*95. *Sabatieria effilata* n. sp.

Order ARÆOLAIMOIDEA.

Family **DIPLOPELTIDÆ.**

*96. *Diplopeltis cirrhatus* (EBERTH).

Family **AXONOLAIMIDÆ.**

97. *Aræolaimus bioculatus* (DE MAN).
*98. *Aræeolaimoides demani* n. sp.
*99. *Axonolaimus arcuatus* n. sp.
*100. *Axonolaimus ponticus* FILIPJEV.
101. *Axonolaimus* spec.
*102. *Odontophora quadristicha* n. sp.
*103. *Odontophora breviseta* n. sp.
*104. *Odontophora angustilaima* (FILIPJEV).

Family **HALAPHANOLAIMIDÆ.**

*105. *Southernia elongata* n. sp.

Family **TRIPYLOIDIDÆ.**

*106. *Rhabdocoma brevicauda* n. sp.
*107. *Rhabdocoma cylindricauda* n. sp.
*108. *Paratripyloides longicauda* n. sp.

Order MONHYSTEROIDEA.

Family **LINHOMOEIDÆ.**

*109. *Metalinhomœus breviseta* n. sp.
*110. *Metalinhomœus cylindricauda* n. sp.
*111. *Metalinhomœus attenuatus* n. sp.
112. *Metalinhomœus effilatus* SCHUURMANS STEKHOVEN.
*113. *Metalinhomœus obtusicaudatus* (DE MAN).
*114. *Metalinhomœus pilosus* n. sp.
*115. *Paralinhomœus elongatus* n. sp.
*116. *Paralinhomœus clavicaudatus* n. sp.
117. *Paralinhomœus ostreurum* FILIPJEV.
*118. *Paralinhomœus brevicaudatus* n. sp.
*119. *Paralinhomœus brevibucca* n. sp.
*120. *Perilinhomœus longisetosus* n. sp.
*121. *Parachromogasteriella conicauda* n. sp.
*122. *Terschellingia heteroseta* n. sp.
*123. *Terschellingia antonovi* FILIPJEV.
*124. *Eleutherolaimus duplicatus* n. sp.
*125. *Omicronema truncatum* n. sp.

Family **SPHAEROLAIMIDÆ.**

*126. *Sphærolaimus dispar* FILIPJEV.
*127. *Sphærolaimus macrocirculus* FILIPJEV.

Family **SIPHONOLAIMIDÆ.**

128. *Siphonolaimus weissmanni* (zur STRASSEN).

Family **MONHYSTERIDÆ.**

129. *Paramonhystera paranormandica* (MICOLETZKY).
*130. *Paramonhystera elliptica* FILIPJEV.
*131. *Paramonhystera micramphis* n. sp.
*132. *Theristus mæoticus* FILIPJEV.
*133. *Theristus tenuispiculum* DITLEVSEN.
134. *Theristus normandicus* (DE MAN), Banyuls.
*135. *Theristus longicaudatus* FILIPJEV.
*136. *Theristus calcaneus* n. sp.
*137. *Theristus angulatus* n. sp.
*138. *Theristus stichotricha* n. sp.
*139. *Theristus obtusicephalatus* n. sp.
*140. *Metadesmolaimus coronatus* n. sp.
*141. *Monhystera gracilicauda* n. sp.
*142. *Monhystera heterolaima* n. sp.
*143. *Monhystera tenuis* n. sp.
*144. *Linhomœlla tenuicauda* n. sp.

Of these 143 species 106 are new for the Mediterranean, so that the number of species, known from that Sea amounts to 297 species, indeed a very rich output compare further page 23.

The Mediterranean has delivered us some new data about species formerly found in the North Sea and Baltic only. The said species are the numbers 1, 3, 10, 14, 36, 45, 87, 90, 91, 134 from the list, beginning on page 9.

In total the Mediterranean has now 51 species in common with the North Sea and Baltic, that is on the 299 species known in 1935 from North Sea and Baltic, no more than 17,1 %. One should however not forget that the number of species known from North Sea and Baltic has increased considerably by the researches of ALLGÉN so that we may be rather sure that the percentage of forms the North Sea and Baltic have in common with the Mediterranean, lays not over 15 % of the species occurring in that region.

Like mentioned above the percentage the Black Sea has in common with the Mediterranean is considerably greater than that which the North Sea and Baltic have in common with the Mediterranean.

If I speak of percentages this percentage should be taken on the whole fauna of the Black Sea. Up to this moment we do know from the Black Sea, the Sea of Azov and the Sea of Marmara, which may be considered as a zoogeographical unit not less than 147 species. From these 147 species 23 occur in the Sea of Marmara, which as far as our knowledge reaches has only 2 species in common with the Black Sea : *Euchromadora striata* (EBERTH) and *Oncholaimus dujardini* DE MAN. From the Black Sea proper FILIPJEV (1918, 1921, 1922) has described 115 species, whereas he enumerates for the Sea of Azov 15 species, of which 4 are likewise found in the Black Sea. These 4 mean so much that the Sea of Azov has 26,6 % of its nemic fauna in common with the Black Sea.

If we take the 147 species of the Sea of Marmara, the Black Sea and the Sea of Azov together and compare this fauna with the nemic fauna of the Mediterranean we get the following data.

From the 23 species found to occur in the Sea of Marmara, this Sea has 15 species in common with the Mediterranean, i.e. not less than 65 %. If we take the Black Sea proper we find that from the 115 species found till so far

in the Black Sea proper 34 occur likewise in the Mediterranean or 29,5 % of the Black Sea nemic fauna. From the Sea of Azov with its 15 species we know that 5 or 33,3 % occur likewise in the Mediterranean.

Do we take the three Seas together than we get on a total of 147 species this region possesses 51 species or 34,7 % occuring likewise in the Mediterranean. It is clear I think that the Mediterranean shows greater affinities with the Black Sea, the Sea of Marmara and the Sea of Azov than with more northern European Seas. It forms a zoogeographical territory in itself, receiving species from neighbouring seas. On which way this occurs cannot be stated with certainty. I suppose that traffic plays an important role in the distribution of the concerned nematodes. Ships may transport together with many eponts, that generally are growing on their skin, nematodes too and so we may easily explain why the Mediterranean has so many forms in common with the mentioned seas. Floating algae may also serve the same purpose.

From the foregoing data may be concluded, that the Black Sea Fauna represents an empoverished Mediterranean Fauna. The explanation for this phenomenon lays at hand. It is found, that the Black Sea with its comparatively great depths has a rather high salinity in its deeper layers. On these layers of high salinities the effluents of the rivers, flowing in the Black Sea build sheets of lower salinity. The hydrological circumstances are in the Black Sea as a whole I think less favourable for the development of a rich fauna than elsewhere, certainly less favourable than in the Mediterranean. So it is no wonder that the nemic fauna too is poor in comparison with that of the Mediterranean. The Black Sea is a place of selection for those species, that can live in rather high salinities. I suppose the reverse takes place in that region of what we find for instance in the former Zuidersea with its low salinity. Here we likewise encounter an empoverished marine nemic fauna. Its components partly are recruted from the high Sea, being euryhaline forms, that can withstand a rather high dilution of the seawater, partly typical forms of brackish water and brackish soil. That habitat has likewise made a selection but on the other side of the scale. In both cases we have to do with an inland sea, in the case of the Zuidersea with an inland sea of low in the case of the Black Sea and the Sea of Azov with an inland sea with at least partly high salinities. Both circumstances result in the empoverishment of the inhabiting fauna.

To get a concise idea about the forms the Sea of Marmara, the Black Sea as well as the Sea of Azov have in common with the Mediterranean I will summarize the mentioned forms in the following Tables.

TABLE 1.

Species the Mediterranean has in common with the Sea of Marmara.
Number of species known from that Sea : 23.

1. *Anticoma acuminata* (EBERTH).
2. *Halalaimus gracilis* DE MAN.
3. *Enoplus hirtus* MARION.
4. *Oncholaimus dujardini* DE MAN.
5. *Metoncholaimus pristiurus* (zur STRASSEN).
6. *Symplocostoma ponticum* FILIPJEV.
7. *Cyatholaimus gracilis* (EBERTH).
8. *Acanthopharynx micans* (MARION).
9. *Euchromadora striata* (EBERTH).
10. *Chromadorina læta* (DE MAN).
11. *Dichromadora parapœcilosoma* (MICOLETZKY).
12. *Arœolaimus mediterraneus* (DE MAN).
13. *Metalinhomœus obtusicaudatus* (DE MAN).
14. *Paramonhystera paranormandica* (MICOLETZKY).
15. *Theristus normandicus* DE MAN.

TABLE 2.

Species the Black Sea has in common with the Mediterranean.
Total of species known from the Black Sea : 115.

1. *Leptosomatum bacillatum* (EBERTH).
2. *Enoplus littoralis* FILIPJEV.
3. *Enoploides amphioxi* FILIPJEV.
4. *Oxyonchus dubius* FILIPJEV.
5. *Oncholaimus brevicaudatus* FILIPJEV.
6. *Oncholaimus dujardini* DE MAN.
7. *Metoncholaimus demani* (zur STRASSEN).
8. *Bolbella hexabulba* (FILIPJEV).
9. *Enchelidium longicolle* FILIPJEV.
10. *Enchelidium pauli* (MARION).
11. *Symplocostoma longicolle* BASTIAN.
12. *Symplocostoma ponticum* FILIPJEV.
13. *Eurystomatina assimile* (DE MAN).
14. *Cyatholaimus demani* FILIPJEV.
15. *Paracanthonchus filipjevi* MICOLETZKY.
16. *Halichoanolaimus filicauda* FILIPJEV.
17. *Desmodora pontica* FILIPJEV.
18. *Chromadorina gracilis* FILIPJEV.
19. *Spilophorella euxina* FILIPJEV.
20. *Hypodontolaimus ponticus* FILIPJEV.
21. *Euchromadora striata* (EBERTH).
22. *Sabatieria longicaudata* FILIPJEV.
22. *Sabatieria abyssalis* (FILIPJEV).
24. *Sabatieria clavicauda* (FILIPJEV).
25. *Diploppeltis cirrhatus* (EBERTH).
26. *Axonolaimus ponticus* FILIPJEV.
27. *Odontophora angustilaima* (FILIPJEV).
28. *Pselionema annulatum* (FILIPJEV).
29. *Tripyloides demani* FILIPJEV.
30. *Paralinhomœus ostrearum* FILIPJEV.
31. *Paramonhystera elliptica* FILIPJEV.
32. *Theristus longicaudatus* FILIPJEV.
33. *Sphærolaimus dispar* FILIPJEV.
34. *Sphærolaimus macrocirculus* FILIPJEV.

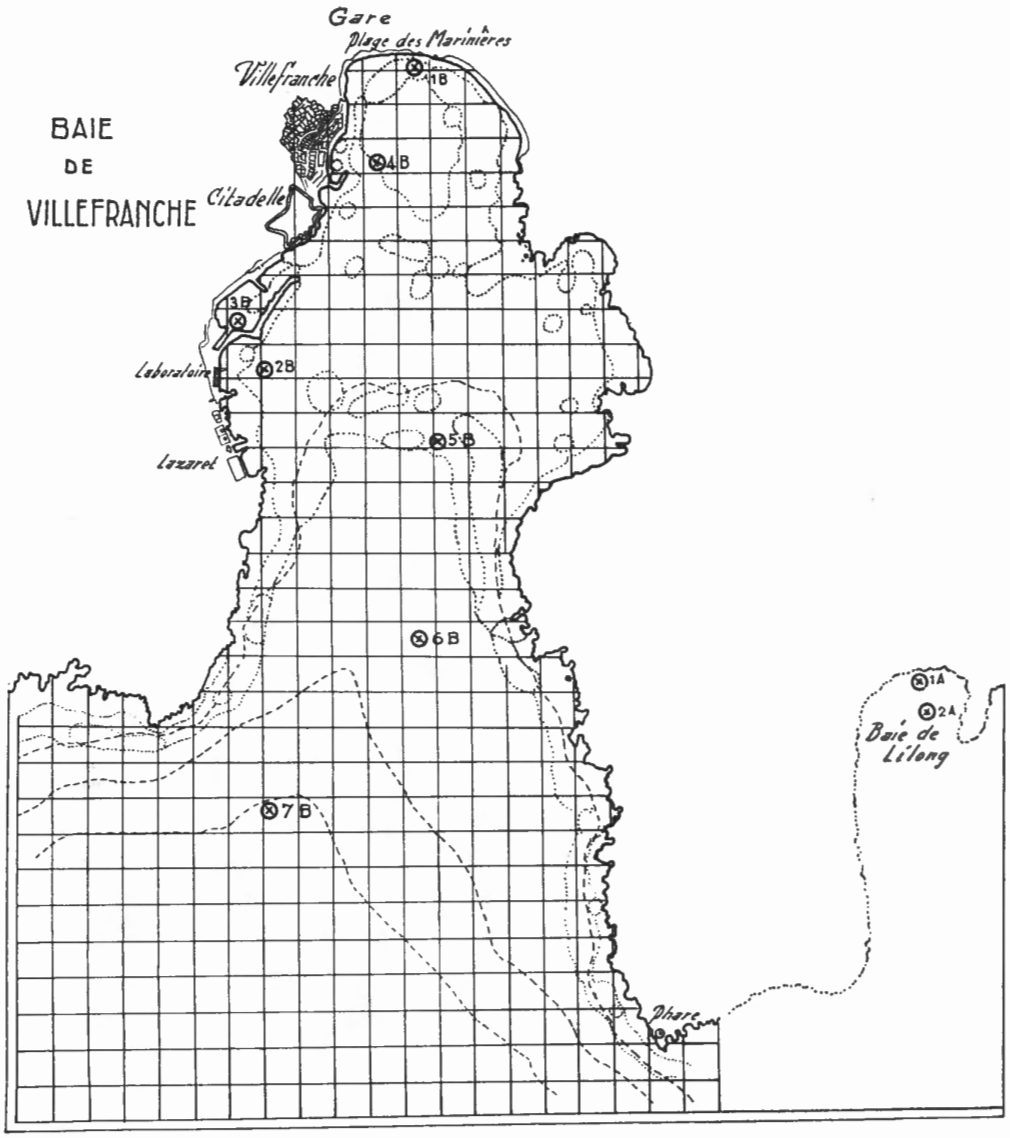
TABLE 3.

Species the Sea of Azov has in common with the Mediterranean.
Total of the species found in the Sea of Azov : 15.

1. *Enoplus littoralis* FILIPJEV.
2. *Viscosia glabra* (BASTIAN).
3. *Anoplostoma viviparum* (BASTIAN).
4 *Terschellingia antonovi* FILIPJEV.
5. *Theristus mæoticus* FILIPJEV.

Undoubtedly future researches will prove that the mentioned seas show an even greater similarity in their composition than the present study has brought to light. We stay so to say at the beginning of the exploration of the nemic fauna of the Mediterranean with its adjacent seas. The general trend of the results of these future researches will however remain the same.

Now I come to the composition of the nemic fauna at the various habitats near Villefranche and in the Bay of Lilong.



Map of the Bay of Villefranche (Stations 1 B-7 B) and the Bay of Lilong (Stations 1 A-2 A).

Sample 1 A. « Baie de Lilong », coarse sand, depth 3 m, quantity 94 cc, 82 nematodes, 10 species, nemic index 0,87.

SPECIES	♂	%	♀	%	Juv.	Total	% of total
1. *Metoncholaimus demani* (ZUR STRASSEN).	8	66	4	33	61	73	89
2. *Galeonema longicauda* n. sp.	—	—	—	—	1	1	1,22
3. *Oxyonchus dubius* FILIPJEV	—	—	1	—	—	1	1,22
4. *Dolicholaimus nudus* SCHUURMANS STEKHOVEN	—	—	1	—	—	1	1,22
5. *Oncholaimus dujardini* DE MAN	—	—	—	—	1	1	1,22
6. *Cyatholaimus paucispira* n. sp.	—	—	1	—	—	1	1,22
7. *Spirina rouvillei* n. sp.	—	—	1	—	—	1	1,22
8. *Paracomesoma coronata* n. sp.	—	—	—	—	1	1	1,22
9. *Hypodontolaimus ponticus* FILIPJEV	—	—	1	—	—	1	1,22
10. *Viscosia brachylaima* FILIPJEV	—	—	—	—	1	1	1,22

Metoncholaimus demani is by far the leading species. The nemic index in itself is low. Apparently this kind of habitat is no good breeding ground for nemas. In the Zuidersea media with coarse sand often did harbour a comparatively large number of species, but the number of each species was very low, a parallel to what we find here. *Metoncholaimus demani* is known to feed on Synascidia. We have no certainly if it feeds on other nematodes, but should this be the case, it would give an explanation for the predominance of the species, compare likewise sample 1 B.

Sample 2 A. « Baie de Lilong », coarse sand, with shells, depth 5 m, quantity of material 140 cc, 73 nematodes, 23 species, nemic index 0,52, therefore very low.

SPECIES	♂	%	♀	%	Juv.	Total	% of total
1. *Euchromadora africana* VON LINSTOW	4	36.3	7	63,7	3	14	19,1
2. *Anticoma acuminata* (EBERTH)	5	45,4	6	54,6	2	13	17,8
3. *Viscosia glabra* (BASTIAN)	—	—	7	—	4	11	15
4. *Paramonhystera paranormandica* (MIC.).	2	66	1	33	1	4	5,4
5. *Acanthopharynx micans* MARION	—	—	4	—	—	4	5,4
6. *Prooncholaimus mediterraneus* n. sp.	—	—	1	—	2	3	4,1
7. *Symplocostoma longicolle* BASTIAN	—	—	1	—	1	2	2,7
8. *Præacanthonchus uniformis* n. sp.	1	50	1	50	—	2	2,7
9. *Præacanthonchus fliflipjevi* MICOLETZKY.	—	—	1	—	1	2	2,7
10. *Spilophorella euxina* FILIPJEV	1	50	1	50	—	2	2,7
11. *Dichromadora tenuicaudata* n. sp.	1	—	1	50	—	2	2,7
12. *Draconema ponticum* FILIPJEV	—	—	1	—	1	2	2,7
13. *Hypodontolaimus ponticus* FILIPJEV	—	—	2	—	—	2	2,7
14. *Halalaimus gracilis* DE MAN	—	—	1	—	—	1	1,35
15. *Phanoderma elegans* n. sp.	—	—	1	—	—	1	1,35
16. *Eurystomatina stenolaimum* n. sp.	—	—	—	—	—	1	1,35
17. *Enchelidium longicolle* FILIPJEV	—	—	—	—	1	1	1,35
18. *Catalaimus eberthi* (DE MAN)	1	—	—	—	—	1	1,35
19. *Symplocostoma paratenuicolle* n. sp.	—	—	1	—	—	1	1,35
20. *Arœolaimoides demani* n. sp.	—	—	1	—	—	1	1,35
21. *Thoracostoma steineri* MICOLETZKY	—	—	—	—	1	1	1,35
22. *Desmodora pontica* FILIPJEV	—	—	1	—	—	1	1,35
23. *Theristus mæoticus* FILIPJEV	1	—	—	—	—	1	1,35
	Total number of specimens : 73						

When compared with sample 1 A it becomes at once clear that none of the 23 species occupies a dominating position. I have the impression that we have here to do with a phenomenon often observed in the Zuidersea, that on certain spots, where the bottom consists of coarse sand, and the medium does not afford optimal conditions for the development of a rich nemic fauna, where thirdly flood and ebb are felt, many species are swept together from their original breeding ground and now hide in the bottom, being sieved out by the fine openings the sand presents.

In such cases, like in the present case, the majority of the species is represented by single specimens, whereas there is a disproportion between adults and juveniles. In the same habitat I found Cumaceae, foraminifers, shells. Among the first three species, which together form the majority of the nemic biocoenosis *Anticoma* is an epont, frequently occurring an hydroids.

Sample 1 B. Villefranche « Plage des Marinières », under Vegetation of ***Posidonia***, depth 3 m, *Amphioxus* sand, coarse sand. Quantity of material 70 cc, 55 nematodes, 22 species, nemic index 0,78, therefore rather low.

SPECIES	♂	%	♀	%	Juv.	Total	% of total
1. *Oncholaimus dujardini* De Man	4	57,1	3	42,9	4	1	20
2. *Anticoma acuminata* (Eberth)	—	—	2	—	4	6	10,9
3. *Enoplus meridionalis* Steiner	2	40	3	60	1	6	10,9
4. *Metalinhomœus obtusicaudatus* (De Man).	1	33	2	66	2	5	9
5. *Leptosomatum bacillatum* (Eberth)	—	—	—	—	3	3	5,4
6. *Viscosia glabra* (Bastian)	—	—	3	—	—	3	5,4
7. *Thoracostoma steineri* Micoletzky	1	—	—	—	1	2	3,6
8. *Phanoderma ditlevseni* Filipjev	2	—	—	—	—	2	3,6
9. *Enchelidium acuminatum* (Eberth)	1	—	—	—	1	2	3,6
10. *Enchelidium longicolle* Filipjev	—	—	—	—	2	2	3,6
11. *Heterodesmodora ditlevseni* Micoletzky.	—	—	2	—	—	2	3,6
12. *Stenolaimus paralepturus* n. sp.	—	—	1	—	—	1	1,8
13. *Stenolaimus brevicaudatus* n. sp.	—	—	1	—	—	1	1,8
14. *Phanoderma nasutum* n. sp.	—	—	1	—	—	1	1,8
15. *Phanoderma laticolle* (Marion)	—	—	—	—	1	1	1,8
16. *Enchelidium pauli* (Marion)	—	—	1	—	—	1	1,8
17. *Præacanthonchus micoletzkyi* n. sp.	1	—	—	—	—	1	1,8
18. *Acanthopharynx rigida* n. sp.	1	—	—	—	—	1	1,8
19. *Diplopeltis cirrhatus* (Eberth)	1	—	—	—	—	1	1,8
20. *Axonolaimus* species	—	—	1	—	—	1	1,8
21. *Paralinhomœus clavicaudatus* n. sp.	—	—	1	—	—	1	1,8
22. *Euchromadora striata* (Eberth)	1	—	—	—	—	1	1,8
				Total number : 55			

In the same biocoenosis I found *Amphioxus*, annelids. anisopods, isopods. The composition of the nemic fauna greatly resembles that of sample 2 A. It shows clearly that the coarse *Amphioxus*sand, considered at the same time the low nemic index and the great number of forms, the majority of which is only represented by a single or a few specimens, not necessarily is a rich breeding place for Nematodes. *Enoplus* and *Anticoma* often are found as eponts in

colonies of Hydroids. They apparently likewise may live in the biocoenosis of *Posidonia*. From *Oncholaimus dujardini* we known that it feeds on colonies of *Zoobothryon* and eventually too on other Synascidia. Thus the main representants of the sample give an indication of the kind of biocoenosis they live in and upon.

Sample 2 B. Taken off the Station, coarse sand under vegetation of *Posidonia*, depth 15 m. Quantity of material 60 cc, 23 nematodes, 14 species, nemic index 0,38, very low.

SPECIES	♂	%	♀	%	Juv.	Total	% of total
1. *Desmodora macramphis* n. sp.	—	—	3	—	1	3	13
2. *Theristus mæoticus* FILIPJEV	1	50	1	50	—	3	13
3. *Euchromadora striata* (EBERTH)	2	66	1	33	—	3	13
4. *Enoplus meridionalis* STEINER	1	50	1	50	—	2	8,7
5. *Comesoma punctata* n. sp.	—	—	2	—	—	2	8,7
6. *Metadesmolaimus coronatus* n. sp.	1	50	1	50	—	2	8,7
7. *Cheironchus macramphis* n. sp.	1	—	1	—	—	1	4,3
8. *Paradesmodora cephalata* n. sp.	—	—	1	—	—	1	4,3
9. *Spirina rouvillei* n. sp.	—	—	1	—	—	1	4,3
10. *Monoposthia mediterranea* n. sp.	—	—	—	—	—	1	4,3
11. *Dichromadora punctata* n. sp.	1	—	—	—	—	1	4,3
12. *Sabatieria rugosa* n. sp.	1	—	—	—	—	1	4,3
13. *Metalinhomœus pilosus* n. sp.	—	—	1	—	—	1	4,3
14. *Paralinhomœus brevicaudatus* n. sp. ...	—	—	—	—	1	1	4,3

We have here before us a similar biocoenosis as that of sample 1 B, although its composition is different. There is no domination at all of one of the components and the great many species of which we find some few specimens only indicate that the habitat is no favourable breeding ground for nemas, Juveniles are almost totally absent. That speaks likewise against a thrifty life of the nematodes in question.

Sample 3 B. Black mud and organic detritus, further end of the « Port de la Darse »; depth 3 m, 33 nematodes, 26 species. Quantity of mud 160 cc, nemic index 2,06 the highest nemic index found at all near Villefranche.

SPECIES	♂	%	♀	%	Juv.	Total	% of total
1. *Comesoma coronata* n. sp.	26	51	25	49	78	129	39
2. *Terschellingia antonovi* FILIPJEV	17	29,8	40	71,2	23	80	24,2
3. *Sabatieria clavicauda* n. sp.	5	41,6	7	58,4	10	22	6,6
4. *Theristus normandicus* (DE MAN)	—	—	5	—	11	16	4,8
5. *Metalinhomœus breviseta* n. sp.	3	33	6	66	10	19	5,6
6. *Longicyatholaimus effilatus* n. sp.	2	22,2	7	77,8	1	10	2,9
7. *Sabatieria longicaudata* FILIPJEV	3	75	1	25	3	7	2,1
8. *Theristus angulatus* n. sp.	6	85,8	1	14,2	—	7	2,1
9. *Metoncholaimus pristiurus* ZUR STRASSEN.	1	50	1	50	4	6	1,8
10. *Anticoma insulæ-albæ* FILIPJEV	1	33,3	2	66,6	2	5	1,43
11. *Oncholaimellus mediterraneus* SCHUURMANS STEKHOVEN	1	50	1	50	2	5	1,43
12. *Viscosia glabra* (BASTIAN)	3	75	1	25	1	5	1,43
13. *Hypodontolaimus ponticus* FILIPJEV	1	25	3	75	—	4	1,2
14. *Mononcholaimus elegans* KREIS	—	—	—	—	3	3	0,9
15. *Metalinhomœus cylindricauda* n. sp.	2	—	—	—	1	3	0,9
16. *Monhystera gracilicauda* n. sp.	—	—	—	—	2	2	0,6
17. *Cheironchus macramphis* n. sp.	—	—	—	—	2	2	0,6
18. *Viscosia elongata* FILIPJEV	1	—	—	—	—	1	0,3
19. *Acanthopharynx seticauda* n. sp.	1	—	—	—	—	1	0,3
20. *Trichromadora ophiocephala* n. sp.	—	—	1	—	—	1	0,3
21. *Metalinhomœus effilatus* SCHUURMANS STEKHOVEN	—	—	1	—	—	1	0,3
22. *Paralinhomœs elongatus* n. sp.	—	—	—	—	1	1	0,3
23. *Theristus calcaneus* n. sp.	1	—	—	—	—	1	0,3
24. *Metalinhomœus obtusicaudatus* FILIPJEV.	—	—	—	—	1	1	0,3
25. *Halichoanolaimus filicauda* FILIPJEV	—	—	1	—	—	1	0,3
26. *Desmodora macramphis* n. sp.	—	—	—	—	1	1	0,3
					Total : 334 specimens		

The material is a mixture of mud and sand. Stones are intermixed with it. It presents ferrireduction. The black colour indicates that we have to do with ferrosulfurous mud, which is almost deprived of oxygen. Here we get quite another picture of the development of the nemic fauna. In the present case we are able to speak of a thrifty nemic fauna, rich in species as well as in individuals and characterized by a significant reproductive activity of the leading forms. The presence of a great quantity of organic detritus is responsible for that phenomenon, for we know, that many species of nematodes feed on particles, bacteria, as well as detritus, that is small enough to pass the oral aperture of the animals in question. COBB has shown at earlier occasion that the bulk of the nematodes lives in the upper 10 mm of the bottom mud. The density of the nematode population, which was over 2 per cc and was the highest found near Villefranche, remains however small and inconspicuous in comparison with the nemic population formerly found by the writer in the Zuidersea, where at some spots 400-600 nematodes per cc were collected. Compared with these localities even the richest nematode biocoenosis near Villefranche remains poor. The present sample proves once more that it is

not the *Amphioxus*ground for itself that is a rich breeding ground for nemas, but mudcontaining bottom with a rich content of organic detritus that has to be considered as such.

Sample 4 B. Black mud and organic detritus, off « Vieux Villefranche ». Quantity of mud 150 cc, 156 nematodes, 21 species, nemic index 1,04, depth 20 m.

SPECIES	♂	%	♀	%	Juv.	Total	% of total
1. *Croconema longiseta* n. sp.	16	47	18	53	12	46	28,8
2. *Sabatieria clavicauda* FILIPJEV	16	66	8	33	11	35	22,4
3. *Terschellingia antonovi* FILIPJEV	8	47	9	53	11	28	17,8
4. *Paracomesoma coronata* n. sp.	4	57,1	3	42,9	2	9	5,7
5. *Desmodora macramphis* n. sp.	3	75	1	25	3	7	4,4
6. *Metoncholaimus pristiurus* ZUR STRASSEN.	1	50	1	50	3	5	3,2
7. *Odontophora quadristicha* n. sp.	2	66	1	33	—	3	1,9
8. *Paramonhystera elliptica* FILIPJEV	—	—	2	—	1	3	1,9
9. *Monhystera heterolaima* n. sp.	—	—	3	—	—	3	1,9
10. *Viscosia glabra* (BASTIAN)	2	66,6	1	33,3	—	3	1,9
11. *Anticoma pellucida* BASTIAN	—	—	1	—	1	2	1,27
12. *Symplocostoma longicolle* BASTIAN	—	—	1	—	1	2	1,27
13. *Præacanthonchus angulatus* n. sp.	1	—	—	—	1	2	1,27
14. *Theristus longicaudatus* FILIPJEV	2	—	—	—	—	2	1,27
15. *Anticoma acuminata* (EBERTH)	—	—	—	—	1	1	0,63
16. *Eurystomatina ornatum* (EBERTH)	—	—	1	—	—	1	0,63
17. *Euchromadora inflatispiculum* n. sp. ...	1	—	—	—	—	1	0,63
18. *Southernia elongata* n. sp.	—	—	—	—	1	1	0,63
19. *Metalinhomœus breviseta* n. sp.	1	—	—	—	—	1	0,63
20. *Paralinhomœus ostrearum* FILIPJEV	—	—	—	—	1	1	0,63
21. *Paralinhomœus longisetosus* n. sp.	—	—	—	—	1	1	
				Total number : 156			

The composition of the sample 4 B shows great resemblance with that of sample 3 B and is of the same type. The nemic index is somewhat lower and this may depend on the greater depth of the sea at this spot. The smaller quantity of available oxygen may play probably an important role in the density of the population and the rate of reproduction. But for the rest we get here as there some species which produce offspring and are at home in the given habitat. In the material I found Cumaceae as well as fibres.

Sample 5 B. Villefranche, between the « Lazareth » and « Anse passable », depth 50 m. Quantity of mud 112 cc, 26 nematodes, 42 species, nemic index 0,67. Consistence of mud : very fine, mixed with sand.

SPECIES	♂	%	♀	%	Juv.	Total	% of total
1. *Metachromadora longilaima* n. sp.	1	20	4	80	4	9	11,8
2. *Sabatieria hilarula* (BASTIAN)	2	50	2	50	1	5	6,5
3. *Stenolaimus paralepturus* n. sp.	1	50	1	50	2	4	5,2
4. *Paraseuratiella breviseta* n. sp.	1	35	2	66	—	3	3,8
5. *Halichoanolaimus filicauda* FILIPJEV ...	1	50	1	50	1	3	3,8
6. *Desmodora coniseta* n. sp.	1	—	—	—	2	3	3,8
7. *Dorylaimopsis punctatus* DITLEVSEN	2	—	—	—	1	3	3,8
8. *Terschellingia antonovi* FILIPJEV	—	—	3	—	—	3	3,8
9. *Sphærolaimus dispar* FILIPJEV	—	—	1	—	2	3	3,8
10. *Trefusia longispiculosa* BRESSLAU-S. S. ...	1	50	1	50	—	2	2,6
11. *Viscosia macrorhopalocera* KREIS	1	50	1	50	—	2	2,6
12. *Longicyatholaimus filicaudatus* n. sp. ...	—	—	2	—	—	2	2,6
13. *Desmodora macramphis* n. sp.	—	—	—	—	2	2	2,6
14. *Richtersia elongata* n. sp.	1	50	1	50	—	2	2,6
15. *Hypodontolaimus ponticus* FILIPJEV	1	50	1	50	—	2	2,6
16. *Siphonolaimus weissmanni* (Z. STRASSEN).	2	—	—	—	—	2	2,6
17. *Phanoderma parasiticum* DITLEVSEN	—	—	1	—	—	1	1,3
18. *Filipjevia mediterranea* n. sp.	—	—	—	—	1	1	1,3
19. *Bolbella hexabulba* (FILIPJEV)	—	—	1	—	—	1	1,3
20. *Symplocostomella mediterranea* n. sp. ...	—	—	1	—	—	1	1,3
21. *Symplocostoma filicauda* n. sp.	—	—	—	—	1	1	1,3
22. *Symplocostoma longiseta* n. sp.	—	—	—	—	1	1	1,3
23. *Metachoniolaimus pustulosus* n. sp.	—	—	1	—	—	1	1,3
24. *Chromaspirina paucispira* n. sp.	—	—	1	—	—	1	1,3
25. *Spilophorella mediterranea* (MICOLETZKY).	—	—	1	—	—	1	1,3
26. *Euchromadora inflatispiculum* n. sp. ...	—	—	1	—	—	1	1,3
27. *Prochromadorella brachyura* n. sp.	1	—	—	—	—	1	1,3
28. *Sabatieria clavicauda* FILIPJEV	—	—	1	—	—	1	1,3
29. *Sabatieria effilata* n. sp.	1	—	—	—	—	1	1,3
30. *Axonolaimus ponticus* FILIPJEV	—	—	—	—	1	1	1,3
31. *Odontophora breviseta* n. sp.	—	—	1	—	—	1	1,3
32. *Odontophora angustilaima* n. sp.	—	—	1	—	—	1	1,3
33. *Rhabdocoma brevicauda* n. sp.	1	—	—	—	—	1	1,3
34. *Paratripyloides longicauda* n. sp.	1	—	—	—	—	1	1,3
35. *Metalinhomœus attenuatus* n. sp.	—	—	1	—	—	1	1,3
36. *Eleutherolaimus duplicatus* n. sp.	—	—	—	—	1	1	1,3
37. *Theristus longicaudatus* FILIPJEV	—	—	1	—	—	1	1,3
38. *Theristus stichotricha* n. sp.	—	—	1	—	—	1	1,3
39. *Theristus obtusicephalus* n. sp.	—	—	1	—	—	1	1,3
40. *Monhystera tenuis* n. sp.	—	—	1	—	—	1	1,3
41. *Linhomœlla tenuicauda* n. sp.	—	—	1	—	—	1	1,3
42. *Cobbionema cylindrolaimoides* n. sp. ...	—	—	1	—	—	1	1,3

Although the habitat in question has given the largest output in species, we must consider the biocoenosis as a poor one. Let us put for instance the first three or 4 species together than they make out no more than at the utmost 27,3 % of the whole biocoenosis or no more than 23,5 % of the biocoenosis, if we take only the first 3 species together. One gets the impression, that the given habitat is no good breeding place. This fact becomes obvious if we compare sample 5 B with 4 B, where the first three species together make out 69 % of the biocoenosis and we therefore find, notwithstandig the fact, that the nemic index is comparitively low, an outstanding domination of some species, which may be considered as representative for the fauna at that locality.

In the present case it is hardly possible to speak of representative forms. Secondly the nemic index is low. This becomes easily explainable if we take in account the fact, that the consistence of the substrate is not very favourable for a thrifty biocoenosis. The quantity of mud is far in the minority in comparison with the sand, which is intermixed with the mud. That means that the quantity of food, which for the main part consists in fine organic detritus, is deficient.

Further I may point to the fact that *Sphærolaimus dispar* and *Halichoanolaimus dispar*, two nematodes of which we know that they prey on other nematodes together make out 7,6 % of the fauna, and although this as a whole is not dense, it may be a factor of some importance in checking the reproductivity of other forms.

Sample 6 B. Villefranche, off the « Pointe de la Gavinette », grey mud, depth 80 m. Quantity of material 116 cc, very fine mud, 128 nematodes, 35 species, nemic index 1,1.

SPECIES	♂	%	♀	%	Juv.	Total	% of total
1. *Dorylaimopsis punctatus* DITLEVSEN	5	35,6	9	64,4	12	26	20,3
2. *Sabatieria abyssalis* FILIPJEV	4	57,2	3	42,8	5	12	9,6
3. *Sabatieria hilarula* (BASTIAN)	7	63,7	4	36,3	—	11	8,5
4. *Hypodontolaimus ponticus* FILIPJEV	4	44,4	5	55,6	—	9	7
5. *Anticoma pellucida* (BASTIAN)	2	33,3	4	66,6	2	8	6,2
6. *Spilophorella euxina* FILIPJEV	4	57,2	3	42,8	—	7	5,4
7. *Sphærolaimus dispar* FILIPJEV	2	50	2	50	2	6	4,6
8. *Stenolaimus paralepturus* n. sp.	—	—	2	—	2	4	3,1
9. *Stenolaimus metagracilis* n. sp.	—	—	4	—	—	4	3,1
10. *Rhabdocoma cylindricauda* n. sp.	—	—	4	—	—	4	3,1
11. *Mesacanthion tricuspis* n. sp.	1	—	—	—	2	3	2,3
12. *Metachromadora longilaima* n. sp.	2	66,6	1	33,3	—	3	2,3
13. *Paramonhystera macramphis* n. sp. ...	—	—	2	—	1	3	2,3
14. *Pareurystomatina tenuicauda* n. sp.	1	50	1	50	—	2	1,5
15. *Paralongicyatholaimus mastigodes* n. sp.	—	—	2	—	—	2	1,5
16. *Cobbionema cylindrolaimoides* n. sp. ...	—	—	1	—	1	2	1,5
17. *Axonolaimus arcuatus* n. sp.	1	50	1	50	—	2	1,5
18. *Rhabdocoma brevicauda* n. sp.	1	50	1	50	—	2	1,5
19. *Theristus normandicus* (DE MAN)	—	—	1	—	1	2	1.5
20. *Enoploides amphioxi* FILIPJEV	—	—	1	—	—	1	0,7
21. *Anoncholaimus rhopalurus* n. sp.	—	—	1	—	—	1	0,7
22. *Viscosia brachylaima* FILIPJEV	1	—	—	—	—	1	0,7
23. *Cyatholaimus chitwoodi* n. sp.	—	—	1	—	—	1	0,7
24. *Trogolaimus macramphis* n. sp.	—	—	—	—	1	1	0,7
25. *Desmodora pontica* FILIPJEV	—	—	—	—	1	1	0,7
26. *Desmodora macramphis* n. sp.	—	—	—	—	1	1	0,7
27. *Metachromadora papillata* n. sp.	1	—	—	—	—	1	0,7
28. *Sabatieria clavicauda* FILIPJEV	—	—	1	—	—	1	0,7
29. *Paralinhomœus brevibucca* n. sp.	—	—	—	—	1	1	0,7
30. *Parachromogasteriella conicauda* n. sp.	—	—	1	—	—	1	0,7
31. *Terschellingia heteroseta* n. sp.	1	—	—	—	—	1	0,7
32. *Theristus tenuispiculum* DITLEVSEN	1	—	—	—	—	1	0,7
33. *Southernia elongata* n. sp.	—	—	—	—	1	1	0,7
34. *Halalaimus gracilis* DE MAN	—	—	1	—	—	1	0,7
35. *Siphonolaimus weissmanni* ZUR STRASSEN.	—	—	1	—	—	1	0,7
					Total number : 128		

It is a remarkable fact, that three Comesomidae occupy the three first places of the list. Now unfortunately the mode of feeding of these Comesomidae is not known. The only thing of importance is that *Dorylaimopsis punctatus* has protrusible teeth, so that we may suppose that these serve a carnivorous mode of feeding. This does not apply for *Sabatieria* however. For the rest the composition of the biocoenosis is similar to that of sample 4 B and 2 A, in which case we too have some species, that are present in a rather high percentage, forms, that do reproduce, without occupying a dominating place in the biocoenosis. Here again the biocoenosis is rich in forms without in itself being a rich breeding place, because the nemic population is not dense, confer the low nemic index.

Sample 7 B. Villefranche, entrance of the road, grey mud, depth 230 m, fine mud. Quantity 140 cc, 12 nematodes, nemic index 0,08.

SPECIES	♂	%	♀	%	Juv.	Total	% of total
1. *Sabatieria abyssalis* FILIPJEV	—	—	2	—	—	2	16,6
2. *Sabatieria clavicauda* FILIPJEV	—	—	2	—	—	2	16,6
3. *Theristus tenuispiculum* DITLEVSEN	1	—	—	—	1	2	16,6
4. *Mesacanthion tricuspis* n. sp.	—	—	—	—	1	1	8,3
5. *Metachoniolaimus cylindribucca* n. sp.	1	—	—	—	—	1	8,3
6. *Sabatieria hilarula* (BASTIAN)	—	—	1	—	—	1	8,3
7. *Sphærolaimus dispar* FILIPJEV	—	—	1	—	—	1	8,3
8. *Sphærolaimus macrocirculus* FILIPJEV ...	1	—	—	—	—	1	8,3
9. *Dorylaimopsis punctatus* DITLEVSEN	—	—	—	—	1	1	8,3
					Total : 12		

I further found Cumaceae at this spot.

There is no predominance in this biocoenosis. In its composition it is very alike the foregoing sample 6 B, only that it is much poorer in species and at the same time less dense. One gets the impression that with increasing depth the nemic index becomes lower and the nemic population less dense. The decomposition of fine organic detritus possibly has proceeded in higher water layers already so far, that only a comparatively small percentage of the original available quantity reaches the abyssal depths. So the greater depths like that of sample 7 B afford bad conditions for the production of a rich nematode population. This observation does not stay apart. I have made the same experience during the examination of the nematode material of the Snellius expedition (3). Here samples of mud from abyssal depths were

(3) This paper treating about 150, mostly new species will appear as a communication of the Leyden Museum of Natural History in Temminckia, to which it was presented in 1944.

available. Many of these were quite free from nematodes. In general the nemic index was small in the samples taken during that expedition. The majority of the nematodes captured during that expedition originated from low depths, almost without exception habitats from the littoral zones, in the coral shelves of the islands. In the same way we see in the neighbourhood of Villefranche that a more luxurious nemic fauna is found in the littoral zone. The nematodes found in greater depths like those found in sample 7 B are supposed to be transported to there from the littoral zone, therefore to a spot, which in itself is no good breeding place but where the nematodes in question are able to prolong their life for a certain span of time.

Resuming what the study of the concerned biocoenoses has learned us, we may say :

1. The *Amphioxus*-ground may be rich in species, but generally has a low nemic index, is no rich breeding ground.

2. Only in the case the biocoenosis contains a rather great quantity of organic material, we find a comparatively high nemic index.

3. With increasing depth the nemic index increases, which makes us conclude that because in abyssal depths the quantity of available organic material is low the nematodes are generally bound to the littoral zones.

4. The nematode faunas of Mediterranean, Sea of Marmara, Black Sea and Sea of Azov belong to the same zoogeographical area. Probably traffic plays a great part in the distribution of nematodes as also may floating algae. Many species are bound in their distribution to this zoogeographical unit.

ALLGÉN (1942) moreover mentions from Banyuls the following species further to not found in the Mediterranean (compare p. 10) :

298. *Leptosomatum sabangense* STEINER (?).
299. *Phanoderma parafilipjevi* ALLGÉN.
300. *Oncholaimus viridis* BASTIAN.
301. *Pelagonema obtusicauda* FILIPJEV.
302. *Pelagonema tenue* KREIS (*P. propinque* ALLGÉN).
303. *Syringolaimus striaticaudatus* DE MAN.
304. *Paracanthonchus cæcus* (BASTIAN), Cette, Banyuls.
305. *Parachanthonchus ophthalmophorus* STEINER.
306. *Cyatholaimus sunesoni* ALLGÉN.
307. *Hypodontolaimus zosteræ* ALLGÉN.
308. *Hypodontolaimus heymonsi* (STEINER).
309. *Spilophora gracilicauda dolichura* DE MAN.
310. *Spilophora kryptospiculum* ALLGÉN.
311. *Euchromadora mediterranea* ALLGÉN.
312. *Pareuchromadora fragilis* (ALLGÉN).
313. *Chromadorella filiformis* (BASTIAN).
314. *Allgeniella tenuis* (G. SCHNEIDER).
315. *Chromadora paramucrodonia* ALLGÉN.
316. *Microlaimoides weberi* ALLGÉN (*Linhomoeid*).
317. *Aræolaimus elegans* DE MAN.
318. *Aræolaimus cobbi* STEINER.
319. *Aræolaimoides microphthalmus* DE MAN, Banyuls, Sardinia, Capella, Balai.
320. *Odontophora paratenuicaudata* ALLGÉN.
321. *Camacolaimus tardus* DE MAN.
322. *Monhystera gracilis* DE MAN, Cette, Banyuls.
323. *Monhystera ambigua* DE MAN, Banyuls.
324. *Monhystera paratenuispiculum* ALLGÉN.
325. *Monhystera macqueriensis* ALLGÉN.
326. *Eleutherolaimus leptosoma* DE MAN.
327. *Paralinhomœus lepturus* DE MAN.
328. *Paralinhomœus longicaudatus* ALLGÉN.

I give this list without further criticism, although I do not in all respects agree with ALLGÉN's identification. Neither did I take account of the percen-

tages already calculated at an earlier date, which, due to the present investigations of ALLGÉN will undoubtedly undergo some change, although the general trend remains the same.

Finally DE CONINCK wrote some papers concerning Mediterranean Nematodes after the manuscript was sent to press, which contain some new species (1936, 1937, 1942 A and B) which species I will enumerate here :

329. *Metaræolamoides oxystoma* DE C., Sardinia.
330. *Xenella suecica* ALLGÉN, Sardinia, Oeresund.
331. *Euchromadora* spec., Castiglione, Alger.
332. *Metadasynemella macrophalla* DE C., Beaulieu, Monaco.
333. *Ceramonema chitwoodi* DE C., Cap Martin, Menton.
334. *Ceramonema filipjevi* DE C., Beaulieu, Monaco.
335. *Ceramonema undulatum* DE C., Cap Martin, Menton.
336. *Pselionema richardi* DE C., Beaulieu, Monaco, Menton.
337. *Pselionema simile* DE C., Cap Martin, Menton, Beaulieu, Monaco.
338. *Pselionema simplex* DE C., Beaulieu, Monaco, Cap Martin, Menton.

Utrecht, 15 November 1941.

THE

FREELIVING MARINE NEMAS

OF THE MEDITERRANEAN

I

THE BAY OF VILLEFRANCHE

SYSTEMATICAL PART

Order I : ENOPLOIDEA.

Family **LEPTOSOMATIDÆ.**

Genus LEPTOSOMATUM Bastian, 1865.

1. — **Leptosomatum bacillatum** (Eberth, 1863).
(Fig. 1, A, B.)

3 juvenile specimens from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

Unfortunately the original description of *Leptosomatum bacillatum* Eberth given by this author is very incomplete as are also his figures. We may however conclude from Eberth's figure 1, which depicts the anterior end of a female with two eyes, that the specimen was figured either from the dorsal or from the ventral side, otherwise one eyespot only should have been depicted. The socalled pores, which in reality are small setae with their afferent nerveducts are depicted in this figure on both lateral sides and not on the surface which is directed against the observer. Now all specimens of *Leptosomatum* as well as of *Leptosomatides* possess rows of cervical or subcephalic setae at the lateral sides. It is essential to know how the amphids of the type specimens are constructed and in this we remain in doubt.

I wish to emphasize that the tail end bears likewise a number of similar papillar setae, which is essential for our comparison with related species. FILIPJEV (1918-1921) gives in his monograph of the freeliving marine nemas of the Blach Sea a redescription of *Leptosomatum bacillatum* (EBERTH).

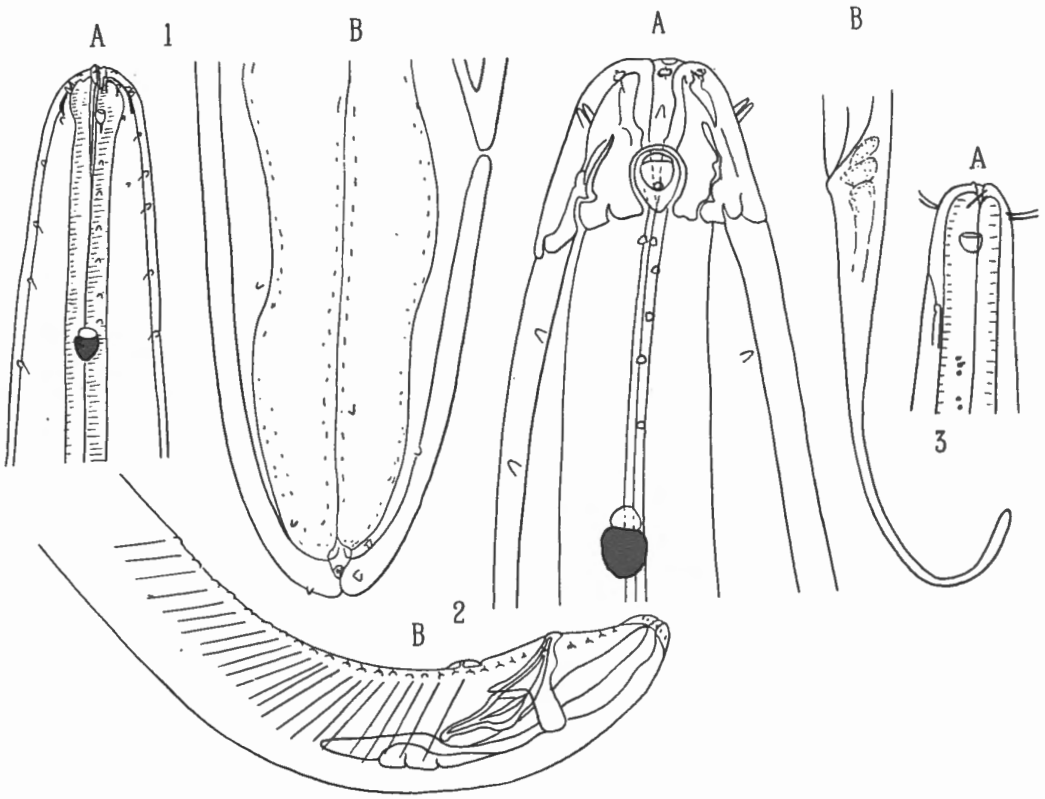


FIG. 1. — *Leptosomatum bacillatum* (EBERTH). A : Head of a juvenile. B : Tail of the same.

FIG. 2. — *Thoracostoma steineri* MICOLETZKY. A : Head of a male. B : Male tail.

FIG. 3. — *Anticoma pellucida* BASTIAN. A : Head. B : Tail of a female.

In his description and figures we have to do with a species with minute subcephalic papillae on the lateral sides of the anterior end, papillae of minor length than those of the specimens from Villefranche and apparently of minor length as well as compared with the specimens of the Black Sea. The amphids are of markedly larger size than those of the present specimens, and what may be of more importance even, the tail end of FILIPJEV's female did not present the rows of papillae, which EBERTH's female presented. So I doubt if EBERTH's species and that identified as such by FILIPJEV are in reality conspecific.

Neither am I quite convinced that the female identified by DE MAN (1885) as belonging to *Leptosomatum bacillatum* EBERTH did in reality belong to the said species. His figures are too poor to decide this question and as far as the description is concerned this may fit as well to that of *L. bacillatum* as to that of another species. There is however as to my opinion a rather great chance that DE MAN really had to do with the mentioned species.

I have thought for a while that the present specimens might belong to *Leptosomatides euxina* FILIPJEV, but the tail of this species is decidedly shorter than that of *Leptosomatum bacillatum*. So I have come at last to the conclusion that my specimens of Villefranche are in reality specimens of the type species *Leptosomatum bacillatum* (EBERTH) and that the specimens kept for representants of that species by FILIPJEV (1918-1921) do belong to another although closely allied species for which I propose the name *Leptosomatum filipjevi*.

Dimensions :

1 juv. L. 9,5 mm; $\alpha = 98{,}5$; $\beta = 6{,}85$; $\gamma = 98{,}5$.

0	360	1400	M	9400	9500 µ.
32	80	88	100	68	

The index β falls a little bit out of the range of variation of EBERTH's species. Body tapering rather much towards the anterior end, long and slender. Head end bluntly rounded anteriorly. Head not set off by a special constriction. Head capsule faintly indicated. Anterior crown of labial papillae composed of 6 elements. Follows a crown of 10 cephalic papillae in the usual distribution. Further the anterior body end presents 6 longitudinal rows of subcephalic or cervical papillae, 2 lateral rows, and 4 submedian rows, extending to about the neighbourhood of the eyespots. These are situated on a distance from the anterior end, equal to 3,5 times the width of the head at a level with the cephalic papillae. Amphids minute, pouch-shaped, their slit not larger than 7 % of the cephalic diameter. Buccal cavity shallow, leading into the oesophageal cavity. Anterior end of the oesophageal cylinder distinctly swollen. Nerving at 26 % of the total length of the oesophagus. Along the oesophagus we find large cells filled with granules. These cells might be cuticular glands but apparently do not belong to the system of lateral field glands.

Tail end cylindrical, almost quite 1,5 times as long as the anal diameter. Apparently the tail bears the same number of longitudinal rows of papillae as the anterior end of the body and here too they are arranged more or less in such longitudinal rows. Spinneret terminal, being the outlet of voluminous caudal glands.

GEOGRAPHICAL DISTRIBUTION : Nice, Villefranche, Banyuls (ALLGÉN, 1942), Naples, Black Sea. ALLGÉN (1940) mentions to have found it along the Norwe-

gian Coast near Stappen. The tail of his female was however comparatively shorter, when in comparison with its width; the head end is insufficiently depicted. His female from Banyuls misses, as far as it is not misfigured the rows of papilliform setae.

Genus THORACOSTOMA Marion, 1870.

2. — **Thoracostoma steineri** Micoletzky,

(Fig. 2, A, B.)

1 ♂, 1 juv. from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.
1 juv. from « Baie de Lilong », sand. Depth 5 m.

Like the foregoing species *Thoracostoma steineri* is apparently a form occurring in shallow water. Just as in the case of *Leptosomatum*, *Th. steineri* is insufficiently known from the descriptions of my predecessors. Then unfortunately Micoletzky, which has studied also the male, has given no figures of a male specimen, which would enable us an easy identification, since the differences in the males of different species are generally more pronounced than those in the females.

Dimensions :

♂ : 5,760 mm; $\alpha = 51{,}5$; $\beta = 4{,}64$; $\gamma = 57{,}6$.

0	40	100	460	1240	M	5240	5580	5760 µ.
24	40	68	92	100	112		112	

Head end rounded anteriorly. Head capsule very vigorous. Oral opening rather small. Labial papillae distinct, 6 in number. A crown of 10 distinct cephalic setae, 14,6 % of the corresponding cephalic diameter. Amphids pear-shaped with a narrow posterior end, 23,7 % of the corresponding diameter. Oesophageal end of body with distinct lateral rows of subcephalic minute papillae, the submedian papillae not quite arranged in rows. Eyespots at a distance from the anterior end equal to 2,93 times the length of the cephalic capsule, which is 40 micra long. Nerve ring at 37,2 % of the oesophageal length.

Tail with distinct caudal glands, the cell bodies of which have shifted to in front of the cloaca. Shape of tail bluntly conical, rounded posteriorly, quite as long as its anal diameter. The tail possesses a terminal row of 6 minute setae at each lateral side. Moreover we find 4 pairs of postcloacal elevations in 2 rows, each elevation crowned with a small seta, like this is the case in *Th. trichodes* (Leuckart, 1849). These rows do extend till far in front of the cloaca. Here we find in total 24 pairs of praeanal papillae, of which the 18 anterior ones bear no setae. I counted 30 bands of bursal muscles, which are closely adjacent in the present species and cover the same distance along the body as the praeanal warts. This distance équals 4,25 tail lengths.

Apart from the mentioned elevations we find a ventromedian wart, opposite to the proximal end of the spicula, separated from the cloaca by a distance only slightly shorter than the tail is long. The shape of the spicula is very peculiar. They are 1,34 times as long as the anal diameter. Their manubrium is rather narrow. Then the spicula widen greatly to the middle, whereas their distal end is again narrow and truncate. Gubernaculum vigorous with broad and blunt dorsal apophysis. Its distal end embraces the distal portion of the spicula for a great deal. As far as the genital armature is concerned the present species resembles rather much that of *Synonchus strasseni* TUERK.

GEOGRAPHICAL DISTRIBUTION : Naples, Villefranche. I have seen a female form Alexandria, Egypt. MICOLETZKY (1922) found it in Suez. ALLGÉN (1942) says to have found the same species at Banyuls. His figures however miss accuracy.

Genus ANTICOMA BASTIAN, 1865.

3. — **Anticoma pellucida** BASTIAN, 1865.

(Fig. 3. A, B.)

2 ♂♂, 4 ♀♀, 2 juv. from Villefranche, off the « Pointe de la Gavinette », grey mud. Depth 80 m.
1 ♀, 1 juv. from Villefranche, off « Vieux Villefranche », black mud and organic detritus. Depth 20 m.

In my treatment of the nemas of the Northsea and the Baltic I did synonymize *Anticoma acuminata* (EBERTH) after the description of COBB (1891) with *Anticoma limalis* BASTIAN. Now that I myself have seen specimens of the Mediterranean, which undoubtedly belong to the same species as COBB described, I feel compelled to revise my opinion and think now, that EBERTH's *A. acuminata* after the diagnose of COBB has to be synonymised with *A. pellucida* BASTIAN. The main reason why I have separated *A. pellucida* BASTIAN from *A. limalis* BASTIAN was the difference in situation of the excretory pore in relation to the amphids and the cervical setae.

Now it appears that in the specimens of Villefranche, the excretory pore is situated just halfways the amphids and the anterior seta of the cervical group. And as for the amphids they are situated just like in the specimens studied by COBB « half way between the cephalic setae and the pore ».

Remains the question if COBB's *A. acuminata* (EBERTH) is conspecific with the *A. acuminata* of EBERTH, a question that is somewhat difficult to decide, because EBERTH does not mention the pore. There is however another difference between COBB's and EBERTH's specimens which COBB solves by saying : « Seemingly by a misprint, the neck was stated to be one third as long as the body ».

Now I have found in Villefranche what I consider to be the true *Anticoma acuminata* (EBERTH). In one of the males of that species measured by me the oesophagus was nearly quite 1/3 as long as the body length.

In these males, as well as in the accompanying females, the excretory pore was found on a level with the foremost of the group of cervical setae. So I come to the conclusion — which was likewise the result of my studies for « the freeliving marine nemas of the North Sea and Baltic » — that *A. pellucida* Bastian and *A. acuminata* Eberth ought to be considered as distinct species. Daday's *A. acuminata* apparently belongs to the same species as the present female, confer the forward position of the vulva and the relative length of the oesophagus.

Dimensions :

♀ : 2,19 mm; $\alpha = 42{,}1$; $\beta = 5{,}1$; $\gamma = 7{,}8$; V. = 49,2 %.

Filipjev's formula :

0	196	428	1080	1902	2192 µ.
16	32	44	52	28	

Head bluntly rounded anteriorly. 6 minute labial papillae. 10 cephalic setae, nearly half as long as the corresponding body diameter. Opening of amphids 28,5 % of the corresponding body diameter, halfways between the cephalic setae and the excretory pore, which is separated from the anterior border of the head by not quite 1,5 times the cephalic diameter at the level of the cephalic setae. Cervical setae in one of the females arranged in 2 groups, composed of respectively 3 and 2 setae, separated from the foreborder of the head by a distance 2,5 times as long as the body diameter at the level of the cephalic setae. A similar distribution was observed by Micoletzky (1924) in the specimens this author identified as *A. acuminata* Eberth. Female tail slender, 8,4 times as long as the anal diameter, slightly swollen at the tip, devoid of setae.

4. — Anticoma insulæ-albæ Filipjev, 1925.

(Fig. 4, A, B.)

1 ♂, 2 ♀♀, 2 juv. from Villefranche, black mud and organic detritus farther end of the « Porte de la Darse ». Depth 3 m.

Dimensions of a ♂ :

Length 3,11 mm; $\alpha = 40{,}5$; $\beta = 5{,}5$; $\gamma = 18{,}2$.

Filipjev's formula :

0	176	244	524	M	2756	3116 µ.
20		56	68	72	56	

Filipjev's ♂ :

Length 4,56 mm; $\alpha = 35$; $\beta = 8$; $\gamma = 30$.

It is with some hesitation, that I bring the specimens from Villefranche to Filipjev's *A. insulæ-albæ*, although there are many points in common, the dimensions of the mediterranean specimens are considerably smaller, a feature not uncommonly observed when arctic specimens of a certain species are

compared with representants of the same species from more southern latitudes. Moreover there is a rather great difference in the index γ. At the other hand my specimens from Villefranche have so many points in common with FILIPJEV's

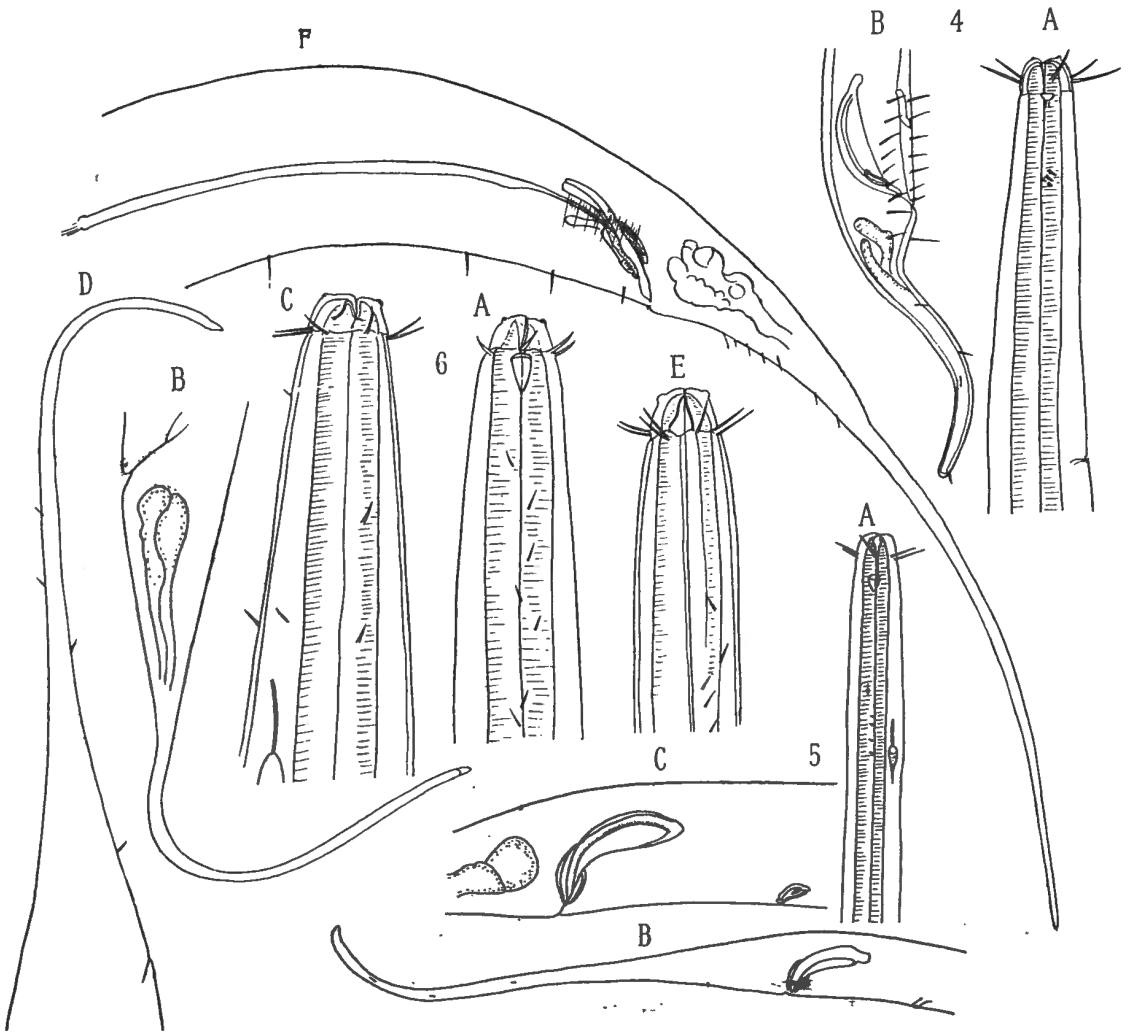


FIG. 4. — *Anticoma insulæ-albæ* FILIPJEV.
A : Male head.
B : Male tail.

FIG. 5. — *Anticoma acuminatum* (EBERTH).
A : Male head. B : Male tail.
C : Male genital armature.

FIG. 6. — *Stenolaimus paralepturus* n. sp.
A : Female head. B : Female tail. C : Female head end. D : Female tail. E : Male head.
F : Male tail.

specimens of *A. insulæ-albæ,* that I feel justified in bringing the present specimens to *A. insulæ-albæ* better than to create a new species for them. The specimens in question are characterized by the backward position of the

excretory pore, the irregular grouping of the cervical setae, just like in the type specimens, and by the fact, that shape and relative position of the spicula towards the praeanal tubulus, the shape of the tail as well as the distribution of caudal and praecaudal setae of the specimens of Villefranche are identical with those in the type specimens.

Anterior portion of the body tapering. Head rounded anteriorly, labial papillae distinct. 10 cephalic setae, the longer ones measure 75 % of the corresponding cephalic diameter. Cephalic portion distinctly set off against the remainder of the body, quite adjacent to the amphids, the opening of which measures 23,5 % of the corresponding body diameter. Cervical setae separated from the anterior border of the head by a distance equal to 2,1 % the body diameter at the level of the cephalic setae. Nerve ring at 46 % of the whole oesophageal length. Excretory pore not far from the nerve ring, at 71 % of the distance between the anterior end and the nerve ring or slightly posterior to the anterior limit of the last praeneural third of the oesophagus.

Spicula arcuate, their chord 1,5 times as long as the anal diameter. Gubernaculum small. Praeanal tubulus at a level with the proximal end of the spicula. There are 2 submedian rows of rather distinct praecaudal setae, which are composed of 6-7 praeanal and 1-2 postanal setae. Therefore each row is composed of 8 to 9 setae in total. Tail, 4 anal diameters long, basal fourth conical, followed by a cylindrical flagellum, beset with some irregularly scattered setae. Lower lip of cloaca prominent.

From *A. trichura* Cobb (1898) to which the present species shows some resemblance it differs i.a. by the more forward position of the excretory pore, the smaller size of the amphidial opening and the more backward position of the praeanal tubulus.

5. — **Anticoma acuminata** (Eberth, 1863).

(Fig. 5, A-C.)

1 juv. from Villefranche, off « Vieux Villefranche », black mud and organic detritus. Depth 20 m.
5 ♂♂, 6 ♀♀, 2 juv. from « Baie de Lilong », near Villefranche. Depth 5 m.
2 ♀♀, 4 juv. from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

Above I have asked attention for the fact, that according to me *A. acuminata* and *A. pellucida* are distinct species (confer p. 29).

Female and male presented the following dimensions :

♂ : 1,56 mm; $\alpha = 32,5$; $\beta = 3,23$; $\gamma = 7,1$.

Filipjev's formula :

$$\frac{0 \quad 52 \quad 232 \quad 484 \quad M \quad 1344}{8 \quad\quad 28 \quad 44 \quad 48 \quad 28} \quad 1564\ \mu.$$

♀ : 2,1 mm; $\alpha = 34,3$; $\beta = 4,1$; $\gamma = 7,3$; V. = 53,3 %.

FILIPJEV's formula :

0	240	500	1100	1780	2060 µ.
8	32	52	60	28	

Dimensions of EBERTH's :

♂ : 2 mm; $\alpha = 26$; $\beta = 3$.

♀ : 2,5 mm; $\alpha = 25$.

After the indications given by EBERTH it is not certain that in both male and female the oesophagus measured 1/3 of the total length of the body. There exists however a striking identity in the relative oesophageal length between my male and that of EBERTH, which brings I think the justification of EBERTH's observations and measurements and is in contradiction with the postulation of COBB (1891) where this author says : « seemingly by a misprint the neck was stated to be one-third as long as the body ».

A further difference between *A. acuminata* and *A. pellucida* is the situation of the excretory pore. The excretory pore is found at a level with the cervical hairs and far behind the amphids separated by a distance, slightly less than 1/4 of the whole oesophageal length from the anterior end of the body. The opening of the amphids is situated at 1/4 from the distance between the anterior border of the head and the foremost of the row of 4 cervical setae. Width of amphidial opening 28 % of the corresponding body diameter, and as far from the anterior head border. Foreborder of the head bluntly rounded. Buccal cavity narrow. 10 cephalic setae. The submedian setae are paired and unequal in size; the longer setae equal 71 % the corresponding body diameter. Nervering at 48 % of the oesophageal length.

Spicula curved, with fine velum and short manubrium. Spicular chord almost as long as the anal diameter. Gubernaculum short, of fine texture. Praeanal tube, 2 anal diameters in front of the cloaca.

Male tail gradually tapering to a rather long and filiform flagellum, the latter slightly swollen at its tip. The tail bears some minute setae in scattered position. Length of male tail nearly equal to 8 anal diameters. The female tail is 10 anal diameters long.

GEOGRAPHICAL DISTRIBUTION : Nice, Banyuls, Cette, Naples, Adria, Baleares, Mallorca, Ibiza.

Genus STENOLAIMUS MARION, 1860.

The present material brings 2 species of the mentioned genus a long-tailed form *Stenolaimus paralepturus* n. sp. and a form with distinctly shorter tail *Stenolaimus metagracilis* n. sp.

6. — **Stenolaimus paralepturus** n. sp.

(Fig. 6, A-F.)

1 ♀, from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.
1 ♂, 1 ♀, 2 juv. from Villefranche, between the « Lazareth » and « Anse Passable », grey mud. Depth 50 m.
2 ♀♀, 2 juv. off the « Pointe de la Gavinette », grey mud. Depth 80 m.

Filipjev has given in 1928 a good figure of the male *Stenolaimus gracilis* (von Linstow). Southern (1914) did depict both male and female of *Stenolaimus marioni* (Southern) after specimens from the Irish Sea. In 1931 Schuurmans Stekhoven and Adam found a juvenile specimen of the latter species in material from the Belgian Coast. Recently (1932) Allgén has given a compilation of the litterature on the Genus *Stenolaimus*, Allgén comes to the conclusion that the mysterious type species *St. lepturus*, collected near Marseille, should be kept in the genus *Stenolaimus*.

After having described three new species of *Stenolaimus*, I intend to come back on the interrelations between *Stenolaimus* and the *Phanodermatidæ*.

Dimensions :

♂ : 5,64 mm; $\alpha = 40{,}2$; $\beta = 3{,}06$; $\gamma = 13$.

0	800	1840	M	5240	5640 µ.
20		120	140	80	

♀ 1 : 4,82 mm; $\alpha = 34{,}4$; $\beta = 2{,}6$; $\gamma = 12{,}76$; V. = 64,3 %.

0	720	1840	3100	4420	4820 µ.
40		120	140	60	

♀ 2 : 5,8 mm; $\alpha = 41{,}4$; $\beta = 3{,}6$; $\gamma = 11{,}6$; V. = 64,1 %.

0	600	1600	3400	5210	5800 µ.
20	60	120	140	80	

The species of *Stenolaimus* undoubtedly are the most difficult to identify because the differences between the species are inconspicuous and especially because the head portion misses outstanding characteristic features.

The present species is most closely allied to *St. gracilis* (Linstow), differs from it i.a. in its size, which might be partly due to the fact that representants of a certain species collected in southern latitudes are generally smaller than those of northern latitudes. Moreover in my specimens the excretory pore is placed somewhat more forward. Apparently however *St. gracilis* misses the cervical setae, that are placed here more or less in rows. Similarly there is a difference in shape and size of the amphids between my species and *gracilis*. Neither are there in *gracilis* praecloacal setae, whereas also the shape of the gubernaculum is quite different.

A comparison with *St. marioni* Southern makes it clear that its gubernaculum differs with that of the mentioned species. Further differences are found

in the pilosity at the anterior body end, and in the position of the excretory pore.

St. lepturus MARION at its turn is much smaller and besides possesses cervical hairs placed in dense longitudinal rows. It possesses an excretory pore which is placed much more forward than in the present species and finally it possesses a tail which is distinctly more slender than in our species. So I feel obliged to create a new species for the specimens of Villefranche, for which I propose the name *paralepturus*.

Body strongly attenuated anteriorly, its width at the anterior end is hardly more than 16 % of the width at the posterior end of the oesophagus. Cuticle smooth, provided with longitudinal rows of widely spaced cervical setae at the lateral sides, whereas the male possesses some prae- and postcloacal medioventral setae.

Amphids pouch-shaped, situated immediately behind the cephalic suture, amphidial slit transverse, 29 % of the corresponding cephalic diameter.

Head with prominent, more or less fleshy lips, provided with prominent labial papillae, a narrow buccal slit, but no true buccal cavity, since the oesophagus is attached to the foreborder of the buccal funnel. 10 cephalic setae, of which the submedian ones are paired; the partners of each pair slightly unequal in size, the longer ones measure 58 % of the corresponding cephalic diameter. In one of the females a distinct « rinnenförmige Grube » was observed.

Excretory pore situated at 5 cephalic diameter from the anterior end of the body.

Spicules very long, their length equalling 7 anal diameters, slightly swollen at their proximal end, filiform, presenting an attenuation towards the distal end, after which they widen again and are pointed at the extreme apex. Gubernaculum of complex structure, showing proximal excresences of coarse texture; middle portion thickened. Length of gubernaculum equal to 1,4 anal diameters. Tail in both sexes long, conical at its base, quickly tapering in its basal third, apical 2/3 filiform, extreme apex pointed. The male tail shows, like mentioned above, à scarse pilosity, whereas the female tail is almost devoid of hairs.

7. — **Stenolaimus metagracilis** n. sp.

(Fig. 7, A-D.)

4 ♀♀, from Villefranche, off the « Pointe de la Gavinette », grey mud. Depth 80 m.

Dimensions :

♀ 1 : 6,26 mm; $\alpha = 52$; $\beta = 8{,}23$; $\gamma = 14{,}2$; V. = 53,3 %.

0	340	760	3360	5820	6260 µ.
20	80	120	120	80	

♀ 2 : 6,7 mm; $\alpha = 67$; $\beta = 8{,}3$; $\gamma = 13{,}4$; V.= 53,7 %.

0	340	800	3600	6200	6700 µ.
20	60	100	100	60	

The main differences between this and the foregoing species lie in the shorter relative length of the oesophagus, the smaller number of setae composing the rows of cervical setae, in the distinctly shorter flagellum of the tail, and the more forward position of the vulva.

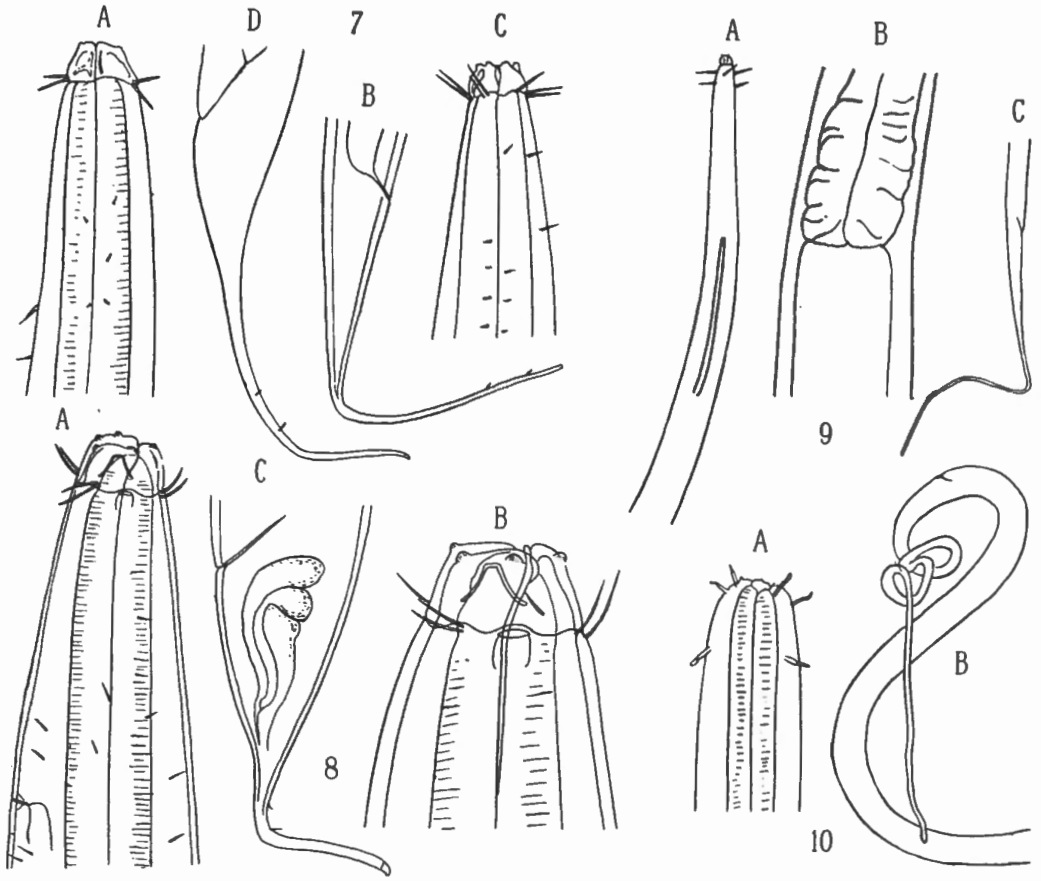


FIG. 7. — *Stenolaimus metagracilis* n. sp.
A C : Female head end.
B D : Female tails.

FIG. 8. — *Stenolaimus brevicaudatus* n. sp.
A : Female head. B : Same head enlarged.
C : Tail.

FIG. 9. — *Halalaimus gracilis* DE MAN.
A : Female head end. B : Base of œsophagus.
C : Female tail.

FIG. 10. — *Trefusia longispiculosa* BRESSLAU and SCHUURMANS STEKHOVEN.
A : Male head. B : Male tail

Head distinctly set off against the remainder of the body, with prominent labial papillae. Cephalic setae comparatively long, subequal as far as they are found in pairs, measuring 71 % of the cephalic diameter. Vulva distinctly more forward. Neither amphids nor excretory pore observed. Tail conical at base, rather quickly tapering to the comparatively short flagellum, which occupies 47,5-57 % of the whole tail length. Length of tail equal to 5,6-6,6 anal diameter. On the tail some few scattered setae.

8. — **Stenolaimus brevicaudatus** n. sp.

(Fig. 8, A-C.)

1 ♀, from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

The female in question shows great affinities to *St. paralepturus*. At the same time one is inclined to think at a representant of the genus *Klugea*, but this is difficult to decide after a female only, since the main difference between *Stenolaimus* and *Klugea* lies in the presence or absence of a praecloacal tubulus in the male sex. The present female differs from *St. lepturus* MARION in the comparatively shorter tail and especially in the shorter length of its flagellum. Like in other species of *Stenolaimus* we find a « rinnenförmige Grube ».

Dimensions :

♀ : 6,68 mm; $\alpha = 25$; $\beta = 3{,}9$; $\gamma = 15{,}7$; V. = 61 %.

$$\frac{0 \quad 640 \quad 1680 \quad 4080 \quad 6280}{40 \quad 100 \quad 180 \quad 260 \quad 120} \quad 6680\ \mu.$$

Head distinctly trilobed, each lip with 2 prominent labial papillae. Cephalic capsule absent. Cephalic suture sinuous, immediately followed by a crown of 10 cephalic setae, those situated in the lateral fields particularly small and not surpassing 20 % of the cephalic diameter, the longer parthers of the submedian pairs measure 55 % of the corresponding diameter, the shorter partners 44 % of that same diameter. Amphids just posterior to the sinuate suture line of the head, almost 15 % of the corresponding diameter. Tail conical at its basal 3/5, filiform at its apical 2/4 only. Excretory pore on 4,6 cephalic diameter from the anterior head end. Lateral fields 1/3 as wide as the corresponding diameter. Caudal glands contained in the interior of the tail only and not surpassing this limit. Some minute setae are scattered over the tail as well over the oesophageal portion of the body.

A comparison of the present form with FILIPJEV's *Klugea trilabia* brings about differences in the relative tail portions and in the data of the cephalic setae, which are comparatively longer than in our species.

DISCUSSION : The head of *Stenolaimus* resembles the head of *Phanoderma*, although it misses a true cephalic capsule. In details it has also many points in common with the head of *Anticoma*. At the other hand we have to bear in mind that neither *Micoletzkya* nor *Phanodermopsis*, according to SCHUURMANS STEKHOVEN (1935) both belonging to the *Phanodermatidæ* possess a cephalic cuirass. The male genital armature of *Micoletzkya* is quite similar to that of *Stenolaimus*. In the latter genus however the praeanal tube, which *Anticoma*, as well as *Micoletzkya* and *Phanoderma* have, is lacking. It must be stated that *Anticoma* and *Stenolaimus* occupy a more or less isolated position in the

family of *Leptosomatidæ*, whereas both have features in common with the *Phanodermatidæ*. If we should shift *Stenolaimus* to the *Phanodermatidæ*, the same thing ought to be done with *Anticoma*. The microscopical structure of both lastnamed genera is insufficiently known and so it would be premature to change at present the systematic position of *Anticoma* and *Stenolaimus*, although future researches at the hand of a large material may prove, that it will be necessary to regroup several *Leptosomatidæ* and *Phanodermatidæ*. For the present we will however leave *Stenolaimus* in the *Leptosomatidæ* family.

Genus HALALAIMUS De Man, 1888.

9. — **Halalaimus gracilis** De Man, 1888.

(Fig. 9, A-C.)

1 ♀ in rather bad condition from Villefranche « Baie de Lilong », sand. Depth 5 m.
1 ♀, Villefranche, off the « Porte de la Gavinette », grey mud. Depth 80 m.

The tip of the tail of the female of Baie de Lilong in question has been snapped. In its dimensions and in the distribution and relative size of the cephalic setae it fits quite into the scheme of the mentioned species. Foreborder of amphids 7 cephalic diameters from the anterior headend. The amphids themselves are however comparatively longer than for instance in the specimens depicted by De Man. In De Man's specimens the amphidial slits were 1,5 times as long as the distance from the anterior border of the body to the amphids.

In the female from Baie de Lilong this relation is 10,8 : 1, which relation however may fall in the range of variations a species presents.

Dimensions of the other :

♀ : 1,48 mm; $\beta = 3{,}5$; $\gamma = 5{,}45$; V. = 55 %.

0	240	420	808	1212	1480 µ.
4	20	24	32	16	

In dimensions this female falls quite in the range of variations of *Halalaimus gracilis*, like also the figure may show.

Geographical distribution : North Sea, Baltic, Öresund, Trondjhemsfjord, Stappen, Coast of Norway, Mediterranean, Sea of Marmara, Suez.

Genus TREFUSIA De Man, 1893.

10. — **Trefusia longispiculosa** Bresslau & Schuurmans Stekhoven, 1935

(Fig. 10, A, B.)

1 ♂, 1 ♀, from Villefranche, between the « Lazareth » and « Anse Passable », grey mud. Depth 50 m.

Dimensions :

♀ : 2,4 mm; $\alpha = 67$; $\beta = 9{,}15$; $\gamma = 2{,}26$; V. = 31,6 %.

$$\frac{0 \quad 156 \quad 264 \quad 764 \quad 1344}{16 \qquad 32 \quad 36 \quad 24} \quad 2404\ \mu.$$

The specimens were in rather bad condition, but so far as might be concluded from the available data, they belong to the species created by Bresslau and Schuurmans Stekhoven. The head presents the typical *Trefusia* type with the more or less fleshy lips, crowned with minute labial papillae. There are 6 digitate cephalic setae, each measuring 40 % of the corresponding cephalic diameter. Somewhat more backwards a cervical crown of similarly digitate setae is found. The length of these setae is 30,5 % of the corresponding body diameter.

Buccal cavity minute, more or less caliciform. The oesophagus is attached at the anterior border of the head. Oesophagus cylindrical. Nerve ring at 59 % of the oesophageal length. Tail very long and twisted with a long flagellum which ends blunt, with a rounded tip. Flagellum occupying 43,5 % of the tail length. Length of tail equal to 22,2 anal diameters.

Discussion : Cobb (1893) has found at Naples a species which he called *Rhabdocoma macrurum* Cobb. This species resembles our form. It has a similar head, similar position of cervical setae, but differs from *Trefusia longispiculosa* in the shape and size of the spicula. The spicula of *Tr. longicauda* however are similar in shape to those in both species of *Rhabdocoma*. The shape of the tail of both *Trefusia* and *Rhabdocoma* is again identical. Unfortunately I have not observed the amphids of the specimens of Villefranche. Those of *Trefusia* are cyathiform with a cryptospiral slit, whereas the amphids of *Rhabdocoma* are quite circular like in the Monhysteroidea. Till we know more about it I have left *Rhabdocoma* under the Monhysteroidea.

The dimensions of *Rh. macrurum* do not differ much from those of *Tr. longispiculosa*, neither do the indices.

Further material is urgently wanted to study the affinities of the mentioned species.

Geographical distribution : Helgoland, Mediterranean.

Family PHANODERMATIDÆ.

Genus PHANODERMA Bastian, 1865.

The genus *Phanoderma* comprises a number of species, most of which are comparatively insufficiently known. In 1924 Micoletzky has given a synoptic key for the mediterranean species, based on the males of the species, he had studied from that region. Unfortunately extensive descriptions of the new species the said author did create at that occasion never were published, so that we are confined to the scanty data given by Micoletzky.

This is very regrettable because the Mediterranean proves to be rich in species belonging to the mentioned genus. Most species of *Phanoderma* seem to be comparatively rare. Seldom more than a couple of specimens of such a species is found, which forms a hindrance to a thourough study. In a footnote Micoletzky utters his doubt if the specimen from Teneriffa which Steiner (1921) did identify with *Ph. tuberculatum* (Eberth) really belongs to that species, because Micoletzky says : « no males were available ». According to Micoletzky new studies are urgently wanted to state if we are able to discern the different species of *Phanoderma* after the females.

The material I have to my disposition from Villefranche as well as from Alexandria brings me to the conviction that the females too may serve to distinguish between the species of *Phanoderma*. Not only the shape of the tail, but also the relative position of eyespots and excretory pore, as well as the pilosity of head and body does enable us to identify a certain female.

Moreover I was fortunate enough to find the male partner to the Steiner's species of Teneriffa. Now it became evident that Steiner's *Ph. tuberculatum* in reality belongs to a distinct species, which like a survey of the literature taught me, is identical with the species described by Ditlevsen as *Phanoderma cocksi* Bastian and later on brought to *Phanoderma ditlevseni* Filipjev by Filipjev (1925).

11. — **Phanoderma ditlevseni** Filipjev, 1925.

(Fig. 11, A, B.)

2 ♂♂, 1 ♀, from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

Dimensions :

♂ 1 : 3,780 mm; $\alpha = 36{,}7$; $\beta = 3{,}7$; $\gamma = 33{,}7$.

Filipjev's formula :

$$\frac{0 \quad 48 \quad 348 \quad 1008 \quad M \quad 3668}{14 \quad\quad 80 \quad 100 \quad 104 \quad 60} \quad 3780\ \mu.$$

♂ 2 : 3,880 mm; $\alpha = 38{,}8$; $\beta = 3{,}6$; $\gamma = 23{,}3$.

Filipjev's formula :

$$\frac{0 \quad 50 \quad 360 \quad 1060 \quad M \quad 3580 \quad 3740}{40 \quad\quad\quad 100 \quad 100} \quad 3880\ \mu.$$

♀ : Length 3,144 mm; α = 41,3; β = 3,13; γ = 28,07; V. = 64,6 %.
FILIPJEV's formula :

$$\frac{0 \quad 36 \quad 256 \quad 1004 \quad 2032 \quad 3032}{20 \quad\quad 48 \quad\quad 64 \quad\quad 76 \quad\quad 44} \quad 3144\ \mu.$$

Head strongly attenuated anteriorly, truncate at its apex. Labial region crowned with 6 labial papillae. Cephalic capsule with long and slender posterior excrescences, that surpass the cephalic suture in caudal direction, over a little distance. Cephalic setae comparatively long and slender, 10 in number, the submedian ones paired, subequal, the longer partners measuring 43 % of the corresponding cephalic diameter, whereas the shorter partners and the lateral unpaired setae do not surpass 39 % of the corresponding diameter in length. Lateral setae slightly more forward than the submedian pairs. Amphids immediately posterior to the lateral setae, their openings comparatively large, especially in comparison with those of *Ph. tuberculatum* (EBERTH), 20 % of the corresponding body diameter. Eyes distinct, pigmentspots square. The anterior end of the pigmentspot is separated from the anterior head end by a distance equal to 1,57 times the cephalic diameter measured at a level with the setae. The excretory pore is separated from the head end by a distance equal to 2,07 times the distance head end-eye-spots. In the female from Teneriffa, studied by STEINER, this distance was 2,15 times the distance head end to eye-spots.

The number of setae is identical to that found in *Ph. tuberculatum* EBERTH as can be stated after EBERTH's figure, but *Ph. tuberculatum* EBERTH easily may be distinguished from the present species by the much longer setae in the oesophageal region. In the present species these setae are short and irregularly scattered, not arranged in rows, like was depicted in EBERTH's figure.

Buccal cavity bordered by 3 cuticularized plates of unequal strength en length. Oesophagus cylindrical. Nerve ring at about 34 % of the oesophageal length, that is slightly anterior in comparison with the specimens studied by EBERTH. In the female of Teneriffa the nerve ring was situated at 37,9 % of the oesophageal length.

At first sight the male genital armature of my specimens resembles that of the type species. But closer comparison reveals several essential differences. In its general shape the spicula are similar to those of the type species, but if we consult MICOLETZKY's synoptical key we are aware of the fact that the spicula in *Ph. tuberculatum* are not barbed or provided with a denticular ridge, like this is the case in the present species and further that *Ph. tuberculatum* has a very inconspicuous gubernaculum, whereas the same structure is very prominent in the present species.

These differences alone I think would suffice to separate the present species from *Ph. tuberculatum* EBERTH. The praeanal tubulus, separated from the cloacal aperture by a distance equal to 2,5 anal diameters in found in front of

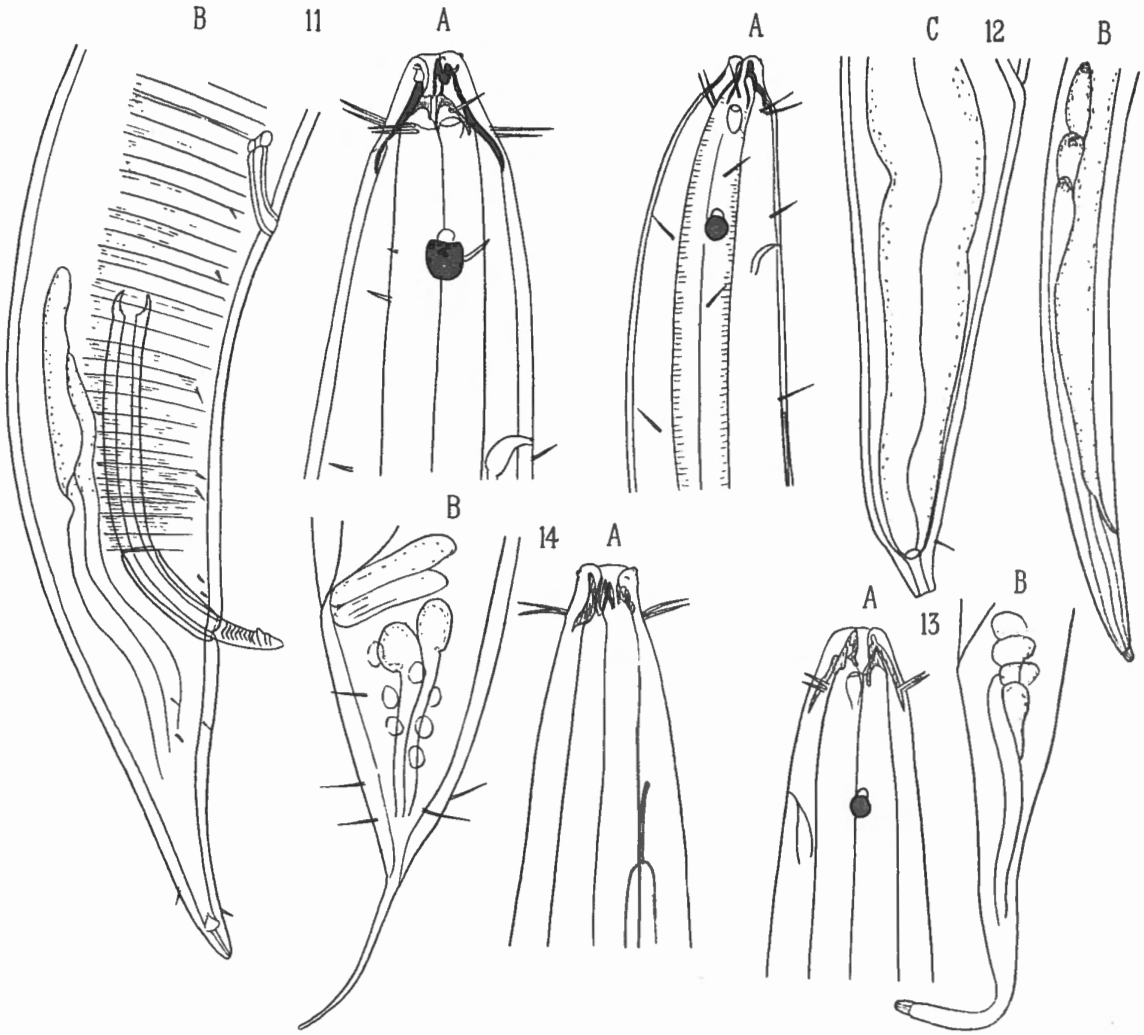


FIG. 11. — *Phanoderma ditlevseni* FILIPJEV.
A : Male head.
B : Male tail.

FIG. 12. — *Phanoderma nasutum* n. sp.
A : Female head. B : Female tail.
C : Female tail, greatly enlarged.

FIG. 13. — *Phanoderma laticolle* (MARION).
A : Head juvenile specimen.
B : Tail of the same.

FIG. 14. — *Phanoderma parasiticum* DITLEVSEN.
A : Female head.
B : Female tail.

the proximal end of the spicula. Spicula slightly curved, provided with a single barb near the distal end, where one finds similarly a denticular ridge. Distal end of spicula with a blunt point, proximal end of the same slightly swollen but not bulbar. Length of spicula equal to 2,5 anal diameters. Gubernaculum in the shape of a fine sheath. The praeanal tubulus and the

cloacal aperture are connected by means of 2 rows of subventral minute bristles, each row composed of 7-8 setae. 51-52 cuticular bands compose the bursal musculature. Cell bodies of spinneret glands shifted to the praecaudal part of the body but not further anterior than the proximal end of the spicula. Cell bodies twisted.

Tail elongate conical, 2,25 times as long as the anal diameter, provided with a terminal spinneret. Along the tail some short scattered setae.

Female resembling the male in most particulars. Amphids of the same relative diameter. Nerve ring at 25,5 % of the oesophageal length. Body of excretory cel, ending in front of the posterior end of the oesophagus.

Tail like in the male, elongate conical, gradually tapering towards the apex, 2,7 anal diameters long. In *Ph. tuberculatum* EBERTH the tail has a somewhat different shape. Here the tail possesses a more knobbed end and bears longer setae too.

The present specimens are almost quite in accordance with the description given by DITLEVSEN (1923) for his *Phanoderma cocksi* BASTIAN from the river Auray and from Glénans (Côtes de Bretagne et Rockall). In all essential features our specimens agree with those from the said species. Apparently the tail of DITLEVSEN's male of *Ph. cocksi* was comparatively shorter than that of my male but even more so than that of DITLEVSEN's female, which shows a tail of similar shape as that of the male in question. DITLEVSEN's male had a tail which measured 1,6 anal diameters, whereas the female partner had a tail of which is quite 2 anal diameters long. At the other hand the relative position of the eyespots and the excretory pore is such that the latter has been shifted nearer to the eyespots than was the case in my specimen from Villefranche. In the female studied by DITLEVSEN the excretory pore was separated from the anterior head end by a distance equal to 1,64 times the distance anterior head end-eyespots. The latter are situated on a distance equal to 1,4 cephalic diameters from the anterior head end which is almost quite as far as in my male. So I am convinced that not only my male but also STEINER's *Ph. tuberculatum* from Teneriffa are identical with the species DITLEVSEN did redescribe as *Ph. cocksi* BASTIAN. The species is closely related to *Phanoderma gracile* DE MAN, but has a distinctly shorter tail.

GEOGRAPHICAL DISTRIBUTION : Auray, Glénans, Villefranche, Teneriffa.

12. — **Phanoderma nasutum** n. sp.

(Fig. 12, A-C.)

1 ♀, from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

At first I was inclined to reckon this female, since it was found in the same sample as both males of the foregoing species to *Phanoderma ditlevseni* FILIPJEV, but closer observation learned me that such an identification was impossible, since 1) the anterior head end is even more sharply attenuated than in that species, 2) because the excretory pore, which is very inconspicuous, opens quite near the eyes and 3) because the three caudal cell glands are shifted far forward and are not twisted like in *Ph. ditlevseni* FILIPJEV but occupy a tandem position. The foremost glandcell is much more forward than in STEINER's male from *Ph. ditlevseni* from Teneriffa.

The female in question makes a much more slender impression, although it is in a state of high pregnancy, than the males of the former species.

Dimensions :

♀ : 3,144 mm; $\alpha = 41{,}3$; $\beta = 3{,}13$; $\gamma = 28{,}07$; V. = 64,6 %.

0	36	256	1004	2032	3032	3114 µ.
	28	48	64	76	44	

Head end pointed, rounded anteriorly. Labial papillae inconspicuous. Head capsule weak, not very pronounced, not prolonged backwards from the cephalic setae. The cephalic setae rather fine and slender, the submedian setae paired and half as long as the corresponding cephalic diameter, the lateral setae slightly more forward and somewhat shorter i.e. 40,9 % of the corresponding diameter. Amphids elongate, egg-shaped with a minute slit, not quite 14 % of the corresponding diameter. Some slender setae in the cervical portion of the head, placed more or less in longitudinal rows. Eyespots with oval pigmentspot, separated from the head end by a distance equal to twice the cephalic diameter at the level of the cephalic setae. Excretory pore minute at a level with the eyespots. Buccal cavity narrow, embraced by three cuticular plates. Oesophagus narrow in the cervical region, then very broad and almost quite filling up the whole lumen of the body, its borders crenulated. Uterus with 4 well developed eggs. Caudal glands in tandem position, the foremost one more than 11 anal diameters in front of the anal aperture. Tail elongate conical, with a terminal spinneret. The tail is 3 anal diameters long. There is only a single praeapical seta on the tail.

The head end of *Ph. nasutum* is very much slike that of *Ph. laticolle* (MARION). Both species may however be easily distinguished by their tails, which is elongate conical in *nasutum*, whereas the tail of *laticolle* possesses a filiform tip.

13. — Phanoderma laticolle (Marion, 1870).

(Fig. 13, A, B.)

1 juv. from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

Dimensions :

1 juv. 1,96 mm; $\alpha = 32,5$; $\beta = 3,26$; $\gamma = 12,2$.

$$\frac{0 \quad 40 \quad 300 \quad 600 \quad 1800}{20 \qquad\qquad 60 \quad 50} \quad 1960\ \mu.$$

If one looks after the figure Marion has given from his male, it becomes at once clear that the tail is several times longer than its anal diameter. Now Marion mentions in his list of dimensions, that the tail is 130 μ long and 80 μ wide at the anal aperture. If we suppose that the last date is correct than the tail is in reality 337,6 μ long after the figure Marion has given from his male. In consequence the index is not 42,3 like we should think after the dimensions, only 16,3. If this is taken into account then our dimensions are in good accordance with those of Marion. The general shape of the tail in both cases as well as the circumstance that the excretory pore opens quite near the eyespots brings me to the conviction that my specimen is conspecific with Marion's *Ph. laticolle*. Head rounded anteriorly, not distinctly set off against the neck, since the anterior attenuation is less distinct than in allied species. Cephalic capsule distinct, composed of cuticular plates, which extend rather far backwards. The plates that enclose the buccal capsule are fenestrate, when observed from the lateral side of the body.

Cephalic setae shorter and distinctly more rigid than in the foregoing species, 10 in number. Lateral setae slightly in front of the submedian pairs, immediately followed by the comparatively minute amphidial openings. Length of lateral setae equal to 37,5 % of the corresponding cephalic diameter, the submedian setae although slightly longer than the lateral ones measure only 37 % of the corresponding diameter, because they are placed somewhat more backward. Amphids small, amphidial opening 16,6 % of the corresponding body diameter.

Eyespots on a level with the excretory pore, separated from the anterior head border by a distance equal to 1,84 cephalic diameters at the level of the implantation of the submedian setae. Pigment spots of eyes roundish. Nerve ring at 50 % of the oesophageal length. Tail 4,6 anal diameters long, rather slender gradually tapering, more or less with a flagelliform posterior portion. Spinneret distinctly demarcated. Caudal glands ending just in front of the anal opening twisted.

Tip of tail slightly clavate.

Geographical distribution : Marseille (Marion), Villefranche, Alexandria.

14. — **Phanoderma parasiticum** Ditlevsen, 1926.

(Fig. 14, A, B.)

1 ♀, from Villefranche, between the « Lazareth » and « Anse Passable », grey mud. Depth 50 m.

Dimensions : 5,34 mm; $\alpha = 39,5$; $\beta = 5,93$; $\gamma = 24,2$; V. = 50,5 %.

Filipjev's formula :

Ditlevsen's female :

0	900	2700	5120	5340 µ.
20	140	140	140	

Length : 6,2 mm; $\alpha = 41$; $\beta = 5,2$; $\gamma = 20,5$; V. = 59 %.

Although my specimen present some slight differences with the type specimen discovered by Ditlevsen (1926) near Hanstholm I feel justified to bring the specimen in question to that species. At the same time I must point to an error in the numbering of the figures on page Vb 24 of my book on the *Nematoda errantia* in : Die Tierwelt der Nord- und Ostsee, where what is indicated as figure 96 *b*, is in reality figure 95 *b*, whereas the figures 95 *b* and 95 *c* should bear the numbers figure 96 *b* and 96 *c*.

This species is characterized by the fact that it misses the ocelli and has a tail, which conical at its proximal portion suddenly attenuates and presents a rather long filiform tip.

Head truncate, almost parallel-sided. Labial papillae prominent. Cephalic setae 10 in number, distributed as usually, 75 % of the corresponding cephalic diameter. Amphids not seen. Buccal cavity rather wide, its walls strengthened by strong cuticularisations, that are the folds of the cephalic capsule, the walls of which near each other so close, that there remains only a very minute slit between both lamina of each fold. Excretory pore at a distance equal to 3 cephalic diameters from the anterior end. Tail as described above, the filiform tip being somewhat longer than in the specimens of Ditlevsen, length of tail 2,6 anal diameters, that of the filiform portion just as long as the anal diameter. The conical portion of the tail bears some rather long, irregularly scattered setae.

Geographical distribution : Danmark (Hanstholm), Villefranche.

15. — **Phanoderma elegans** n. sp.

(Fig. 15, A, B.)

1 ♀, from Villefranche, « Baie de Lilong », sand. Depth 5 m.

This species is characterized by its slenderness, by its rather weak head capsule and the elongate filiform tail, which is even much more slender than in De Man's *gracile*.

Dimensions : ♀ : 3,104 mm; $\alpha = 51,7$; $\beta = 4$; $\gamma = 13,3$; V. = 44,2 %.

0	32	300	772	1372	2932	3104 µ.
12		44	56		24	

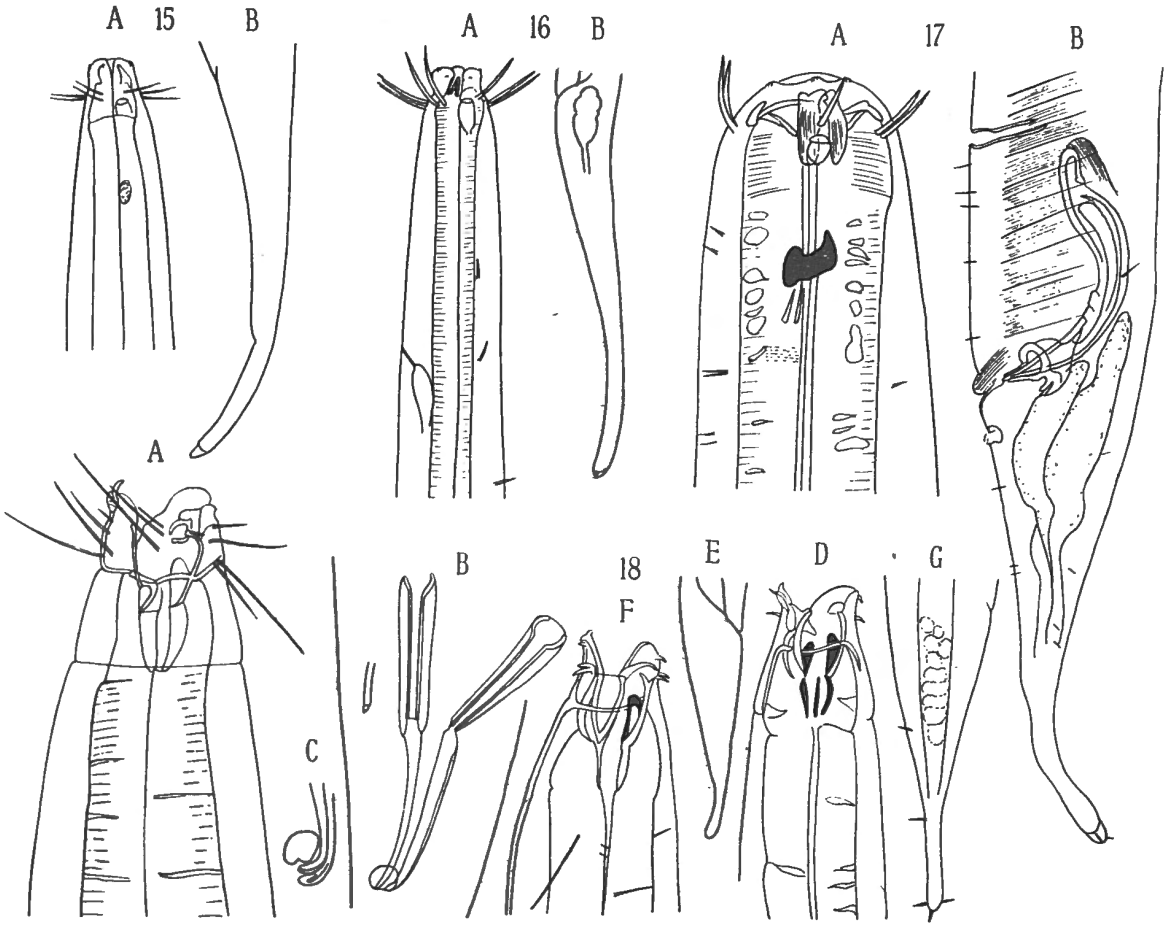


FIG. 15. — *Phanoderma elegans* n. sp.
A : Juvenile head. B ; Tail.

FIG. 16. — *Galeonema longicauda* n. sp.
A : Juvenile head. B : Tail.

FIG. 17. — *Enoplus meridionalis* STEINER.
A : Male head. B : Tail.

FIG. 18. — *Mesacanthion tricuspis* n. sp.
A : Male head. B : Male genital armature. C: Spicula and gubernaculum. D: Juvenile head. E : Tail of the same. F : Head of the other juvenile. G : Tail of the same.

Head truncate anteriorly. Labial papillae not very conspicuous. Head capsule not vigorous. Cephalic setae rather slender, the lateral setae 66 % of the corresponding diameter. Amphids cyathiform, 22 % of the corresponding diameter. Eyespots separated from the head by a distance equal to 2,1 cephalic diameters.

Tail elongate, more or less filiform, gradually tapering, length of tail equal to 4,7 anal diameters.

Genus GALEONEMA Filipjev, 1925.

16. — **Galeonema longicauda** n. sp.

(Fig. 16, A, B.)

1 juv. from Villefranche, « Baie de Lilong », sand. Depth 3 m.

Dimensions :

Length : 2,86 mm; $\alpha = 59{,}5$; $\beta = 3{,}08$; $\gamma = 14{,}3$.

Filipjev's formula :

$$\frac{0 \quad 320 \quad 780 \qquad\qquad 2660}{12 \quad 40 \quad 48 \quad 48 \quad 40} \quad 2860\ \mu.$$

This species, which is recorded here as new shows great affinities to Filipjev's *Galeonema caudata*. From the latter species it may however be distinguished at once by the much longer cephalic setae, the distinctly set off head and by the fact that the tail is not effilate but more gradually tapers to the rather narrow rounded apex. Head portion distinctly set off against the remainder of the body, more or less cylindrical, with prominent lips and prominent labial papillae. Cephalic setae long, equal in length to the corresponding cephalic diameter, lateral setae slightly in front of the submedian pairs, immediately followed by the amphids, which show a rather long amphidial pouch and a narrow amphidial slit, that measures 20 % of the corresponding cephalic diameter. Cephalic capsule reduced; like in all other species of the genus, we observe 3 pointed plates only round the buccal cavity. Ocelli absent. Some short setae are observed along the oesophageal portion of the body, placed more or less in rows. Excretory pore separated from the anterior border of the head by a distance equal to 4,5 cephalic diameters measured at the level of the cephalic setae. Nerve ring at 41 % of the oesophageal length. Tail 6 anal diameters long and slender, gradually tapering to the more cylindrical portion, which is slightly swollen at its extreme apex. Caudal glands restricted to the interior of the tail.

The species shows some affinities as to its head with *Chætonema* but undoubledly must be reckoned to the Phanodermatidae. For further data about its systematic position we have to wait for the detection of the respective male.

Family ENOPLIDÆ.

Genus ENOPLUS Dujardin, 1845.

17. — Enoplus meridionalis Steiner, 1921.

(Fig. 17, A, B.)

2 ♂♂, 3 ♀♀, 1 juv. from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.
1 ♂, 1 ♀, from Villefranche, off the Station, same kind of habitat. Depth 15 m.

The species in question answers best to Steiner's description of *Enoplus communis* var. *meridionalis*, which De Coninck and I (1933) have synonymized in 1933 with *E. striatus* Eberth, notwithstanding the existing differences. Unfortunatly Steiner has given meither a description nor figures of the anterior end of his specimen. If however the male tails of both species are compared the attentive observer will find several differences. Not only is the supplementary organ separated from the anal aperture by a greater distance in *striatus*, like this is illustrated by Eberth (1863), than in Steiner's *meridionalis*, but besides its shape is more tubular in *meridionalis*, more trumpet-shaped in *striatus*. At the other hand Eberth depicts subventral rows of rather long praeanal setae in his *striatus*, whereas the setae situated on the praeanal portion of the body between supplementary organ and cloaca are more irregularly scattered in *meridionalis*. It has to be asked in how far one must attribute specific importance to these differences, in how far they may be due to subjective observations of the different authors. At the moment De Coninck and I (1933) compared the literature, we had not yet specimens from the Mediterranean to our disposition. Now that I have some of these I find another difference of importance, i.e. the relative length of the jaws, that are distinctly longer in *E. striatus* Eberth than in the present specimens as well as in those of *E. communis* var. *meridionalis*. This brings me to the conviction, that Steiner's *E. communis* var. *meridionalis* which is neither a variety nor a synonym of *striatus*, but a valid species has to be named *E. meridionalis*.

Dimensions :

♂ : 2,672 mm; $\alpha = 29$; $\beta = 5$; $\gamma = 12{,}3$.

0	256	296	516	536		2464	2672 µ.
32				80	92	72	

Cuticle smooth, with minute setae irregularly distributed, especially over the oesophageal portion of the body. Head rounded anteriorly, not set off against the remainder of the body by a special constriction. Lips with 6 labial papillae. Cephalic setae 10 in number, the partners of the submedian groups almost equal in size (not equal in *communis*), 46,6 % of the corresponding cephalic diameter, lateral setae unpaired, 35,7 % of the cephalic diameter.

Amphids pouch shaped, their slit 11 % of the corresponding body diameter. Jaws three in number, with distinct median teeth; length of jaws 40 % of cephalic diameter measured at the level of the cephalic setae, blunt posteriorly, broadest in the middle, but only slightly attenuated towards the proximal end. In *striatus* the jaws measure 66 % of the corresponding cephalic diameter. Jaws attached to the body walls by means of a cuticularized ring. No true ocelli, only pigment spots distributed in the oesophageal tissue; the large socalled ocellar spot is immediately followed by a couple of large setae; the other setae of the same region are however minute. Male genital armature consisting of curved spicula, their cords being 1,5 times as long as the anal diameter; proximal end of the spicules attenuated, ventral surface with transverse indentations or incisions. Apex pointed. Gubernaculum short, embracing the proximal end of the spicules, in the shape of an irregular ring with some excrescences. Supplementary organ tubular, immediately in front of the proximal end of the spicula. Some short irregularly scattered setae in the space between the cloaca and the supplementary organ. Tail conical, gradually tapering, the last third more or less cylindrical. Length of tail 3 times as long as the anal diameter. Some irregularly scattered setae are found on the tail, especially on its subventral region. Apex slightly dilated, its width 1/7 the width of the anal diameter.

Length of Steiner's :

♂ : 2,531 mm; $\alpha = 26{,}1$; $\beta = 6{,}4$; $\gamma = 13\,5$.

Probably Micoletzky's specimen from Suez belongs also to the same species :

♀ : 2,6 mm; $\alpha = 23{,}5$; $\beta = 6{,}1$; $\gamma = 11$.

Geographical distribution : Teneriffa, Villefranche, Suez, Alexandria.

Genus MESACANTHION Filipjev, 1935.

18. — **Mesacanthion tricuspis** n. sp.

(Fig. 18, A-G.)

1 ♂, 2 juv. from Villefranche, off the « Pointe de la Gavinette », grey mud. Depth 80 m.
1 juv. from Villefranche, entrance of the road, grey mud. Depth 230 m.

The new species presents close affinities to *Mesacanthion klugei* Filipjev. With this species it has in common that the spicula are composed of two portions of divergent structure, opposite to what we find in other species of the same genus.

M. klugei and *M. tricuspis* may however easily be distinguished by differences in their pilosity as well as by the structure of their spicula. In *klugei* the pilosity of the head end is distinctly more dense, moreover longer than in *tricuspis*. As for the structure of the spicula, the proximal portion of the spicula is in *klugei* narrower than its distal portion, whereas the reverse is

true for *tricuspis*. The gubernaculum, although small-sized in both species is circular to heart-shaped in *tricuspis* and anvil-shaped in *klugei*. So it is justified to create a new species for this mediterranean form. Unfortunately the tip of the tail of my only male specimen was broken of. If one takes into account that the taillength in species of this type is hardly much longer in adult specimens than it is in larval forms, then we may estimate its length on 150 μ.

Length of a male :
2,862 mm; $\alpha = 28{,}6$; $\beta = 3{,}7$; $\gamma = 19$.

FILIPJEV'S *klugei* :
2,03-2,35 mm; $\alpha = 26\text{-}31\ (29)$; $\beta = 3{,}5\text{-}4\ (4{,}1)$; $\gamma = 17\text{-}18{,}5$.

Therefore in general dimensions FILIPJEV'S *klugei* and *tricuspis* are almost identical.

FILIPJEV'S formula :

0	360	760	M	(Anterior end of spicules) 2580	2712	
32		80	100	64		2862 μ.

Juveniles specimen 1 :
Length : 1,636 mm; $\alpha = 29{,}2$; $\beta = 3{,}49$; $\gamma = 12{,}7$,

0	468	1508	
10	56	32	1636 μ.

Specimen 2 :
Length : 2,040 mm; $\alpha = 34$; $\beta = 4$; $\gamma = 14{,}5$,

0	500		1900	
20	40	60	40	2040 μ.

In all three genera : *Enoplolaimus*, *Mesacanthion* and *Enoploides*, juveniles differ from adult specimens in that their cephalic pilosity is much less developed. Such fits likewise for our specimens.

The tail both in the male and in the juveniles is conical in its basal 2/3, posterior third cylindrical, slightly swollen at its extreme apex. The head end distinctly tapers, is longer than wide. Head with three lips, each lip with an apical flap, the latter crooked. Anterior crown of head sense organs composed of 6 setiform papillae. In juveniles there is a crown of apparently 10 cephalic setae of minor size, whereas the adult male presents a posterior crown of 10 setae of comparatively long size, the longer ones almost as long as the corresponding cephalic diameter and 71 % of the diameter at the suture.

Shorter partners of the submedian pairs measure only 53 % of the cephalic suture. An intermediate crown of setae likewise seems to be composed of 10 elements.

Buccal capsule conical, strengthened by the cuticularized walls. From the bottom of the cavity 3 teeth arise, one of which, the dorsal, slightly outreaches both subventral teeth. The last two reach just to the level of the cuticular rim. There is a cephalic organ opposite to the upper border of the dorsal jaw.

Spicula 2, 5 anal diameters long, composed of two portions, distal portion narrow, thinwalled, proximal portion in the shape of a gutter, which is narrowly open above, proximal end of the latter distinctly widened. Distal end of the spicules pointed. Gubernaculum small adhering to the spicules at their distal end. Supplementary organ tubular, opposite to the articulation of both portions of the spicula, just like in *klugei*.

In the juveniles there is only a single crown of minute setae just posterior to the fleshy flaps of the labia on the level of the cephalic organs. The other setae are lacking. Juvenile tail 2,8 times as long as the anal diameter, provided with some short setae along the dorsal surface and some setae near the tip. The difference our species shows with Filipjev's *klugei* in respect with its spicules partly depends on the angle, under which these are observed.

Genus ENOPLOIDES Ssaveljev, 1912.

19. — **Enoploides amphioxi** Filipjev, 1918-1921.

(Fig. 19, A-C.)

1 ♀, from Villefranche, off the « Pointe de la Gavinette », grey mud. Depth 80 m.

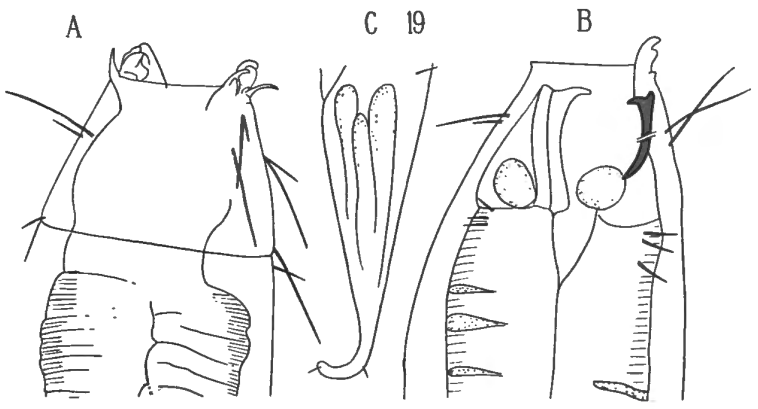


Fig. 19. — *Enoploides amphioxi* Filipjev.
A : Female head. B : Head, optical section.
C : Female tail.

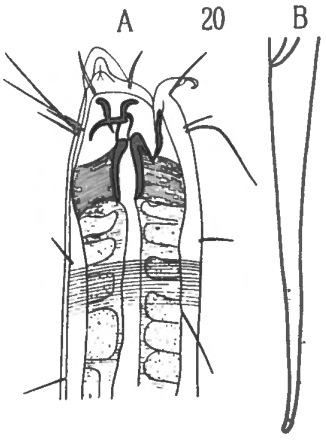


Fig. 20. — *Oxyonchus dubius* Filipjev.
A : Female head.
B : Female tail.

The female in question was in rather bad condition, but could be identified after the structure and pilosity of its head end as well as after its general shape and the shape of its tail.

Dimensions :

Length : 4,4 mm; $\alpha = 44$; $\beta = 3,86$; $\gamma = 24,4$; V. = 53,1 %.

Filipjev's formula :

$$\frac{0 \quad 240 \quad 1140 \quad 2340 \quad 4220}{60 \qquad 100 \quad 100 \quad 50} \quad 4400\ \mu.$$

Geographical distribution : Black Sea, Sebastopol, Cernov, Villefranche.

Genus OXYONCHUS FILIPJEV, 1925.

20. — Oxyonchus dubius FILIPJEV, 1925.

(Fig. 20, A, B.)

1 ♀, from Villefranche, « Baie de Lilong », sand. Depth 3 m.

Length : 2,5 mm; $\alpha = 39$; $\beta = 4{,}31$; $\gamma = 9{,}6$; V. = 52 %.

FILIPJEV's formula :

$$\frac{0 \quad 140 \quad 580 \quad 1300 \quad 2240}{32 \quad 52 \quad 56 \quad 64 \quad 36} \; 2500\ \mu.$$

FILIPJEV's female :

Length : 3,375 mm; $\alpha = 42$; $\beta = 4{,}5$; $\gamma = 8$; V. = 60 %.

Our specimen answers fairly well to FILIPJEV's description. In its body-shape, in the considerable length of its tail especially, as well as in the distribution of the setae the present female shows a striking resemblance te FILIPJEV's *O. dubius*. Body attenuated almost twice anteriorly, less so posteriorly. Cuticle devoid of setae except in the cephalic body region.

Head end conical with three fleshy, comparatively low lips, each crowned with 2 labial setae. These are slightly longer than the lips are high and measure 55 % of the corresponding cephalic diameter. There is a crown of at least 10 cephalic setae, the submedian ones of which are paired. Submedian setae unequal, the longer partner equals 88 % of the corresponding cephalic diameter, the shorter one does not surpass 41 % of that diameter. Subventral jaws very prominent, reaching till in front of the cuticular rim. Tail elongated, very slender, gradually tapering towards the apex, 9 times as long as the anal diameter. In FILIPJEV's female the tail was 10 times as long as the anal diameter.

GEOGRAPHICAL DISTRIBUTION : Black Sea, Sebastopol, *Amphioxus*-ground near the Georgian Monastery, 9 fathoms, Villefranche.

FAMILY DORYLAIMIDÆ.

Genus DOLICHOLAIMUS DE MAN, 1888.
Syn. *Trissonchulus* COBB, 1920.

Close observation of the present species and a comparison of the literature brings me to the conviction, that COBB's *Trissonchulus* has to be synonymized with *Dolicholaimus*. The present species is closely allied to *Dolicholaimus obtusus* BRESLAU and SCHUURMANS STEKHOVEN but differs from the latter in that it does not possess the body papillae which where observed in longitudinal rows on the anterior portion of the body of that species.

21. — **Dolicholaimus nudus** Schuurmans Stekhoven, 1943.

(Fig. 21, A, B.)

1 ♀, from Villefranche, « Baie de Lilong », sand. Depth 3 m.

Dimensions :

♀ : 5,7 mm; $\alpha = 52{,}7$; $\beta = 9{,}5$; $\gamma = 285$; V. = 42,1 %.

Filipjev's formula :

$$\frac{0 \quad 88 \quad 280 \quad 600 \quad 2400 \quad 5680}{52 \quad \quad 88 \quad 100 \quad 108 \quad 88} \quad 5700\ \mu.$$

Cuticle totally devoid of setae. Head distinctly set off against the remainder of the body by a suture line. There are 6 prominent labial papillae, and apparently 6 groups of cephalic papillae, of which 3 are depicted in figure 21. I am rather sure that the submedian papillae are in reality double, like this is the case in specimens of the same species, collected at Alexandria, but this characteristic was apparently overseen by me during the study of the female from Villefranche. Amphids wide and pouch-shaped, adjacent to the suture line of the head. Amphidial slit 33 % of the corresponding body diameter. Buccal cavity embedded in the oesophageal tissue. This buccal cavity contains 3 spears with biuncinate apex, like this is the case in other species of the same genus. These spears measure 14 % of the oesophageal length. Nerve ring slightly in front of the middle of the oesophagus (47 %). Spinneret opening at the ventral side of the tail. This measures only 1,1 anal diameters. The present female does not possess praeapical papillae on its tail.

Geographical distribution : Mediterranean, Villefranche, Alexandria.

Genus ANONCHOLAIMUS n. gen.

22. — **Anoncholaimus rhopalurus** n. sp.

(Fig. 22, A-C.)

6 ♀, from Villefranche, off the « Pointe de la Gavinette », grey mud. Depth 80 m.

The genus *Anoncholaimus* shows as for its general outlook and especially as far as the oral cavity and the head end is concerned traces of relationship with the Dorylaimidae, but from the known genera of that family it is at once distinguished by the broad oral cavity, which is quite devoid of teeth. One might also think at a representant of the genus *Pelagonema* Cobb and if further material would prove a close relationship with that genus then the genus in question would belong to the Oncholaimidae and in that case in the relationship of *Pelagonema*. With that family it has in common the circle of 6 labial papillae as well as the circle of 10 cephalic setae. Each of the lips is in the possession of a single labial papilla. Till we have to our disposition the corresponding male sex the systematic position of the genus remains uncertain. And further I am not sure about the true nature of the amphids. There is a

lateral cleft, immediately posterior to the lateral cephalic hair, which ressembles strongly an amphid, but more posteriorly opposite to the bottom of the buccal cavity one finds a circular figure, connected with a tube-like structure, which might also represent an amphid. If the latter would have the value of an amphid, like I am inclined to think it has, then the former would have the meaning of a cephalic organ like we find in some Enoplidae.

Length : 1,076 mm; $\alpha = 44{,}5$; $\beta = 10{,}7$; $\gamma = 26{,}9$; V. = 50,6 %.

FILIPJEV'S formula :

$$\frac{0 \quad 60 \quad 92 \quad 544 \quad 1036}{6 \quad\quad 20 \quad 24 \quad 12} \quad 1076\ \mu.$$

Head demarcated by a cephalic suture. 6 lips with as many conical papillae. Cephalic setae short, the components of the submedian pairs equally

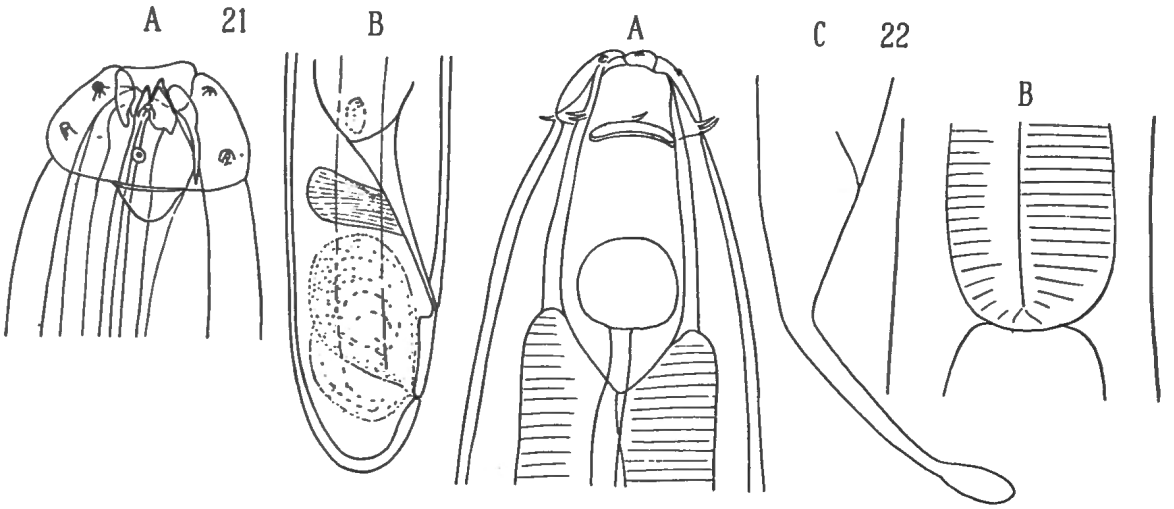


FIG. 21.
Dolicholaimus nudus SCHUURMANS STEKHOVEN.
A : Female head.
B : Female tail.

FIG. 22.
Anoncholaimus rhopalurus n. sp.
A : Female head. B : Base of œsophagus.
C : Female tail.

long, measuring 13,3 % of the corresponding cephalic diameter. Head cleft transverse at a level with the cephalic suture, its width equal to 54,2 % of the corresponding body diameter. Body tapering gradually to the anterior end, where it is 30 % as wide as at the posterior end of the oesophagus. Amphid (?) circular to oval, 39,8 % of the corresponding body diameter.

Buccal cavity conico-cylindrical, with strongly cuticularised walls the strength of which increases to the proximal end, being 3 times as long as its greatest width. Nervering at 65 % of the oesophagus length. Oesophagus without true bulbus, almost the same width throughout. Tail 4,2 times as long as the anal diameter, quickly tapering, conical at base, then filiform ending with a distinct knob. The filiform portion of the tail with its terminal swelling occupies 65 % of the whole taillength.

Family ONCHOLAIMIDÆ.

Genus ONCHOLAIMUS Dujardin, 1945.

23. — Oncholaimus dujardini De Man, 1878.

(Fig. 23, A-C.)

This species seems to be one of the most common species of the Mediterranean, as it frequently encountered by all authors who have made researches in this region.

1 juv. from Villefranche, « Baie de Lilong », sand. Depth 3 m.
3 ♂♂, 3 ♀♀, 4 juv. from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

Length of ♂ : 1,960 mm; $\alpha = 49$; $\beta = 5{,}1$; $\gamma = 49$.

Filipjev's formula :

$$\frac{0 \quad 24 \quad 80 \quad 200 \quad 380 \quad M \quad 1920}{20 \qquad\qquad\quad 40 \quad 40 \quad 24} \quad 1960\ \mu.$$

Length of ♀ : 2,184 mm; $\alpha = 45{,}5$; $\beta = 5{,}5$; $\gamma = 27{,}3$; V. = 66 %.

Filipjev's formula :

$$\frac{0 \quad 28 \quad 92 \quad 200 \quad 392 \quad 1464 \quad 2104}{24 \qquad\quad 44 \quad 48 \quad 48 \quad 24} \quad 1960\ \mu.$$

De Man's :

♂ : 2,588 mm; $\alpha = 50{,}7$; $\beta = 6{,}6$; $\gamma = 66$.

Micoletzky's :

♂ : 2,53 et 3,06 mm; $\alpha = 63{,}74$; $\beta = 7{,}8$; $\gamma = 66{,}69$, Suez.
♂ : 1,83 mm, Adria.

Filipjev's :

♀ : 2,85 mm; $\alpha = 45$; $\beta = 7\text{-}8$; $\gamma = 34\text{-}47$.

Micoletzky's :

♀ : 3,44, 3,76 mm; $\alpha = 57{,}68$; $\beta = 8{,}3\text{-}8{,}5$; $\gamma = 50{,}63$; V. = 77 %, Suez.
♀ : 2,2 mm; V. = 70 %, Adria.

According to my opinion Steiner's *O. dujardini* from Dar-es-Salam (1921) as well as from that Sumatra (1915) do not belong to the present species. As far as the specimens from Cette regards, who De Rouville (1904) have brought to this species we are not allowed to draw a certain conclusion after De Rouville's description. Fortunately I have to my disposition some copies of De Rouville's drawings made by De Man after the original drawings of De Rouville and consulting these we may be rather sure, that at least the females of the species De Rouville considered to be *O. dujardini* do belong to the same species, De Man has described as *O. dujardini*. In respect with the males of De Rouville I am not so certain, because De Rouville has not depicted the circumcloacal setae. *O. dujardini* is characterized i.a. by its rather broad buccal cavity, with one of its subventral teeth prominent and stout and reaching almost to the level of the cephalic setae. The cuticle presents along the oeso-

pharyngeal region a comparatively great number of short and stout setae, more or less arranged in longitudinal rows. Excretory pore separated in one of my females by a distance quite equal to 2,75 times the length of the buccal cavity. Tail in both sexes distinctly curved. Spicules sword-shaped. Cloacal region demarcated by a number of claw-like dorns, not depicted on DE ROUVILLE's figure. STEINER's *O. dujardini* of Sumatra (1915) may be separated from the present species by the more slender buccal cavity, by differences in the shape of the subventral teeth, by differences in the cephalic setae, by the more slender spiculum which is swollen at its proximal end as well as by the presence of a gubernaculum, not seen by me in the species studied from the Mediterranean. So I think we must consider STEINER's *O. dujardini* as a separate species for which I propose the name *O. steineri*.

Head with distinct lips, 6 labial papillae and 10 short cephalic setae. Submedian setae paired, subequal, the longer ones not surpassing 14 % of the cephalic diameter. Buccal cavity 2,25 times as long as its greatest width. Female tail curved ventrally, almost 3 times as long as the anal diameter. Male tail likewise 3 anal diameters long, its curvature embraces 90 degrees of the circumference of a circle.

Spicules sword-shaped, 1,75 times as long as the anal diameter. Cloacal region demarcated by a number of dorn-like short setae, the medioventral of which has the same shape as that in figure 4 *c* of DE MAN. Apart from these some other setae are distributed over the dorsal surface of the male tail.

GEOGRAPHICAL DISTRIBUTION : Mediterranean, Toulon, Banyuls-sur-Mer, Naples [DE MAN (1865), MICOLETZKY (1924)], Ischia, Rovigno, Ombla Bay, Bocce di Cattaro, Black Sea, Mallorca, Ibiza, Alexandria, Occurs in Bandirma, Sea of Marmara. ALLGÉN found it in Banyuls i.m. in great quantities.

Genus ONCHOLAIMELLUS DE MAN, 1890.

24. — Oncholaimellus mediterraneus SCHUURMANS STEKHOVEN, 1942.

(Fig. 24, A-D.)

1 ♂, 1 ♀, 2 juv. from Villefranche, farther end of the « Port de la Darse », black mud and organic detritus. Depth 3 m.

Dimensions :

♂ : 1,992 mm; $\alpha = 41,5$; $\beta = 5,2$; $\gamma = 27$.

FILIPJEV's formula :

Dimensions : $\frac{0 \quad 32 \quad 180 \quad 380 \quad M \quad 1920}{20 \qquad\qquad 40 \quad 48 \quad 24}$ 1992 µ.

♀ : 1,884 mm; $\alpha = 33,6$; $\beta = 4,8$; $\gamma = 17$; V. = 42 %.

FILIPJEV's formula :

$\frac{0 \quad 32 \quad 172 \quad 392 \quad 792 \quad 1732}{24 \qquad 40 \quad 48 \quad 64 \quad 24}$ 1884 µ.

As to their dimensions the specimens from Villefranche although they ressemble to *O. calvadosicus* are not quite identical to the specimens formerly described by De Coninck and me (1933) as such from the Belgian Coast. Moreover there exist some morphological differences, as well in respect with the male genital armature as with the cephalic setae, so that I feel obliged to bring them to a new species.

In the male the setae distributed over the cuticle of the anterior portion of the body are particularly scarce and apparently shorter than in the *O. calvadosicus* male from Belgium. Cephalic setae 10 in number, in the female the

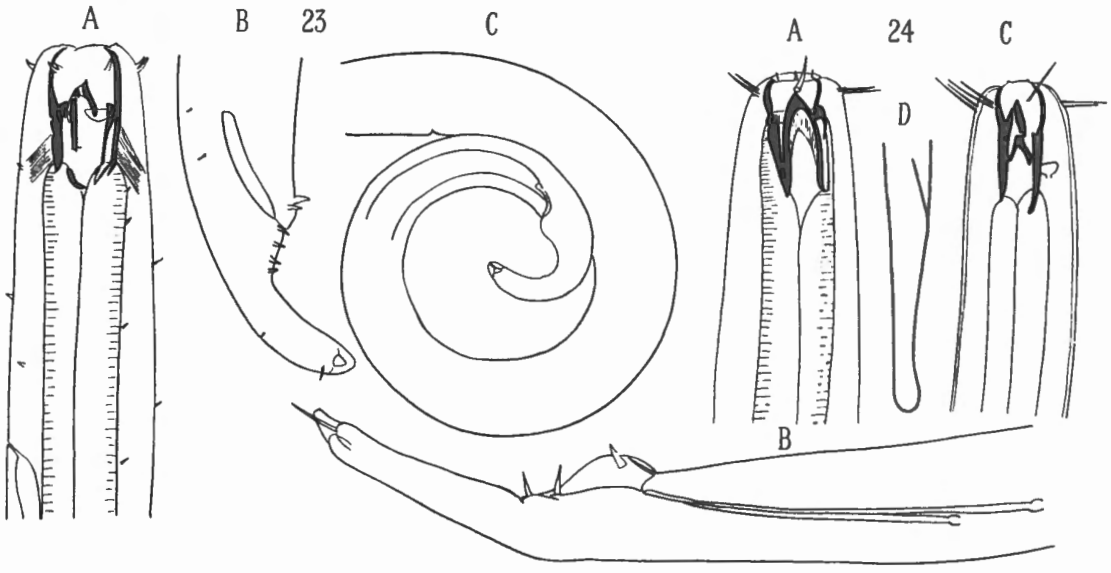


Fig. 23. — *Oncholaimus dujardini* De Man.
A : Male head. B : Male tail.
C : Female tail.

Fig. 24. — *Oncholaimellus mediterraneus* n. sp.
A : Male head. B : Male tail.
C : Female head. D : Female tail.

shorter ones measure 34,4 %, the longer ones 44,9 % of the corresponding body diameter (in *calvadosicus* from Belgium the relative length of these setae was respectively 41 and 51 % of the body diameter), in the male from Villefranche the relative length of the cephalic setae was 61,5 and 50 % (the same being 100 and 81 % in the *calvadosicus* male from Belgium) of the corresponding cephalic diameter. Buccal cavity 3,07 times as long as its greatest width. The large subventral tooth, the length of which measures 84,8 % of the length of the buccal cavity, reaches till the level of the constriction of this cavity; it is truncated distally. Dorsal tooth inconspicuous. Amphids small, situated opposite to the posterior portion of the buccal cavity, cup-shaped, their slit in the male sex not wider than 1/7 of the corresponding body diameter. Nerve ring in the male sex at 47 %, in the female sex at 44 % of the oesophageal length,

therefore more backwards than in *calvadosicus*, where it is found at 37-40 % of the oesophageal length. Spicules in the male unequally long, the longest 4,3 the shorter almost 3 times as long as the anal diameter, proximal end knobbed, therefore slightly longer than in *calvadosicus*. Bursa copulatrix distinctly developed, with dorn-shaped papillae and some strong setae. Of the

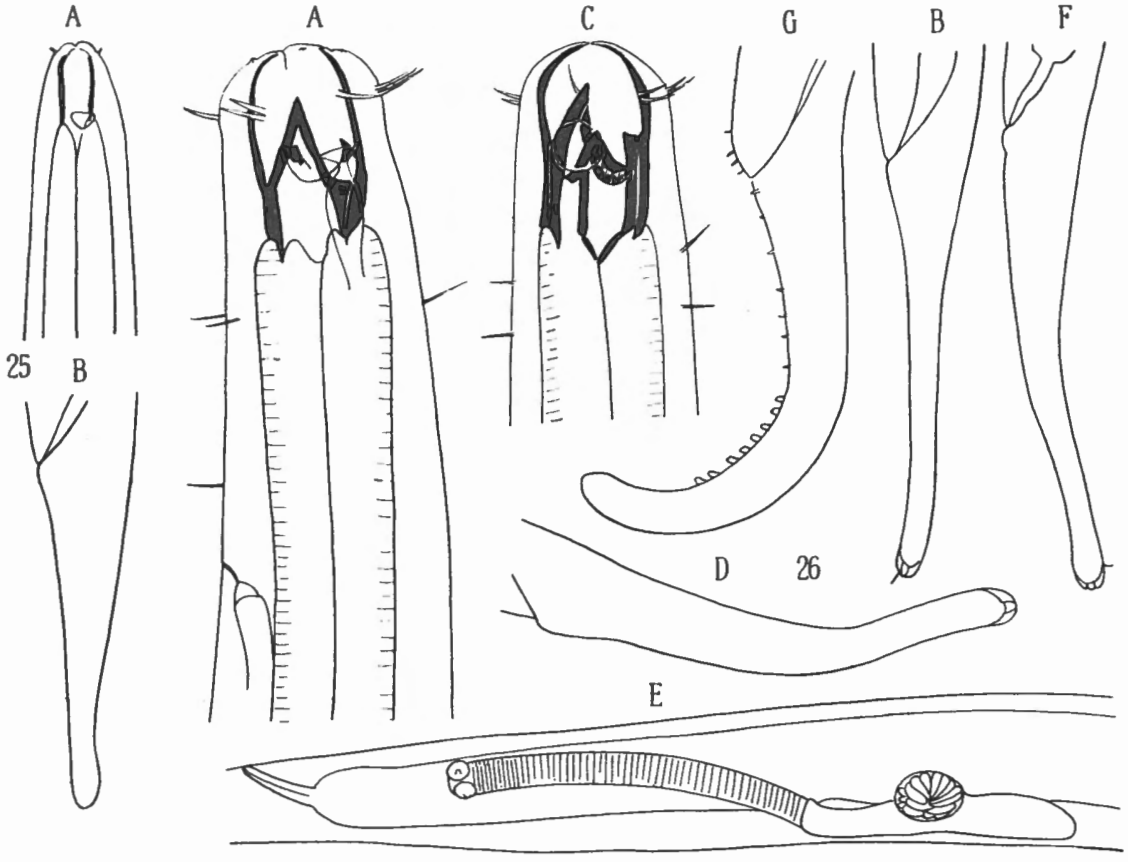


FIG. 25.
Filipjevia mediterranea n. sp.
A : Juvenile head.
B : Tail.

FIG. 26.
Metoncholaimus pristiurus (ZUR STRASSEN).
A : Female head end. B D F : Female tail.
C : Male head. E : Demanian system.
G : Male tail.

latter there are 3 pairs, but I miss the median pairs, present in *calvadosicus*. Male tail 3,92 times as long as the anal diameter measured at the base, and just in front of the bursa, provided with a rather strong praeapical seta. Female tail 5 times as long as the anal diameter, cylindrical, swollen at its apex.

GEOGRAPHICAL DISTRIBUTION : Mediterranean, Villefranche, Palma di Mallorca.

Genus FILPJEVIA DITLEVSEN, 1928.

25. — **Filipjevia mediterranea** n. sp.

(Fig. 25, A, B.)

1 juv. from Villefranche, between the « Lazareth » and « Anse Passable », grey mud. Depth 50 m.

Dimensions :

Length : 0,884 mm; $\alpha = 31{,}5$; $\beta = 5{,}6$; $\gamma = 8{,}2$.

FILIPJEV's formula :

0	16	132	156	776	884
12			28	28	20

884 µ.

KREIS (1934) has postulated that in *Filipjevia* apparently neither lips nor papillae should be present. At the opposite the present larva leads me to the conclusion, that although less distinct than in other species true lips as well as 6 labial papillae are present. Cephalic setae opposite to the distal end of the buccal cavity, just 1/6 as long as the corresponding cephalic diameter. Buccal cavity almost 3 times as long as it is wide. Amphids opposite to the base of the buccal cavity 1/3 as wide as the corresponding body diameter. Tail conical, gradually tapering to the apex, which is slightly swollen. Length of tail equal to 3,7 anal diameters.

Genus METONCHOLAIMUS FILIPJEV, 1918.

26. — **Metoncholaimus pristiurus** (ZUR STRASSEN, 1894).

(Fig. 26, A-G.)

1 ♂, 1 ♀, 4 juv. from Villefranche, farther end of the « Port de la Darse », black mud and organic detritus. Depth 23 m.

1 ♂, 1 ♀, 3 juv. from off « Vieux Villefranche », black mud and organic detritus. Depth 20 m.

Dimensions :

♂ : 4,724 mm; $\alpha = 69{,}9$; $\beta = 9{,}6$; $\gamma = 27{,}4$.

FILIPJEV's formula :

0	40	252	492	M	4552
28		60	68	72	32

4724 µ.

♀ : 4,224 mm; $\alpha = 58{,}6$; $\beta = 7{,}27$; $\gamma = 19{,}2$; V. = 65,3 %.

FILIPJEV's formula :

0	36	100	300	580	2760	3680	3904	4004
32			56	68	72		40	36

4224 µ.

Specimens *M. denticaudatus* S. S. and ADAM (1931).

Dimensions :

♂ : 5 mm; $\alpha = 64$; $\beta = 8{,}33$ (not 18,8 like stated in that description) $\gamma = 26{,}6$.

♂ : 5,72 mm; $\alpha = 63{,}8$; $\beta = 9$; $\gamma = 25{,}6$ (not 31,9 like stated by S-S and ADAM) V. = 69,39 %

♀ : 6,9 mm; $\alpha = 62{,}8$; $\beta = 9{,}9$; $\gamma = 20{,}9$; V. = 65,8 %.

In De Rouville's *O. albidus* which is a synonym of *M. pristiurus* (Zur Strassen) the male measured 5,3 mm, which falls in the same range of variation of the present species.

Like easily may concluded from the foregoing not only the dimensions from the specimens from De Rouville (1904) but also those of S. S. and Adam (1931) of De Man (1878), as well as the present specimens fall into the range of variation of the species first described by Zur Strassen as *O. pristiurus* Zur Strassen. And similar conclusions are allowed in respect with Cobb's (1932) specimens from the Atlantic Coast of North America, where males and females likely attain a length from about 5,6 mm and for which Cobb did assume the synonymity with the specimens from the Mediterranean. Now I have been able to observe specimens from the Mediterranean, also from similar habitats as those studied by De Rouville (Cette) and Zur Strassen (Naples) I am still more convinced that the synonymizing from *M. denticaudatus* with *pristiurus* is justified by the facts and I do not agree with Kreis (1934), who is of the opinion that the structure of the male tail as well as the amphids speak in favour of the distinctness of *M. denticaudatus* S. S. and Adam.

Therefore in order to bring new evidence that my last conclusion was correct I may give a redescription of the female, illustrated by new figures from this interesting species. Head rounded anteriorly with distinct lips, provided with minute lapial papillae. Cephalic setae at a level with the apex of the longer subventral tooth, 10 in number, the longer ones 31 %, the shorter 26 % of the corresponding diameter (in the Belgian specimens these measurements were 30 and 27 % of the corresponding diameter respectively). Amphids cup-shaped to more circular, apparently dependent on the state of fixation, at a level with the shorter buccal teeth, which are connected with each other by means of a curved cuticular rim. Longer subventral tooth 77-82 % of the length of the buccal cavity, shorter teeth 64-74 % of that distance in the female sex. Between the base of the buccal cavity and the excretory pore which is separated in the female sex by a distance of 2,5 times the length of the buccal cavity from the anterior end (2,43 times in the Belgian specimens) we find some setae, apparently placed more or less in longitudinal rows. Female tail 5,8 times as long as the anal diameter. The osmosium is situated halfways the intestinal efferent of the De Maniansystem, i.e. in a similar situation as depicted by Cobb (1932) for his *M. pristiurus* (confer fig. 26 with Cobb's figure 1). The male tail was not so strongly curved as in Cobb's males, but this certainly depends on the mode of fixation, since we may observe also differences in this respect between specimens of the same habitat [confer Plate V, fig. 7 and 8, S. S. and Adam (1931)]. The tail of our specimens is provided with 8 sawteethlike prominences and 7 setae, whereas the present specimens present, just like those from Belgium, the ones studied by De Rouville (1904) and those depicted by Cobb (1932) 4 praeanal setae of which the foremost is separated from the other 3 by a larger

distance than do separate the latter 3 from each other. Spicules 11 times as long as the anal diameter (just as in the Belgian males) (in Cobb's males the spicules were 9 times as long as the anal diameter). Length of the male tail 5 anal diameters. Similar relations were observed in specimens from Belgium. So I am sure that my former conclusions remain correct.

Geographical distribution : Helgoland, Belgium, Mediterranean, Banyuls-sur-Mer, Villefranche, Cette, Naples, Atlantic Coast of the U.S.A. Woodshole. Allgén (1941) has found the species in question in Bandirma, Sea of Marmara.

27. — **Metoncholaimus demani** (Zur Strassen, 1894).

(Fig. 27, A-E.)

8 ♂♂, 4 ♀♀, 41 juv. from Villefranche, « Baie de Lilong », sand. Depth 3 m.

De Man (1878), Zur Strassen (1894) as well as Filipjev (1918-1921) have described this species, which is closely related to *M. pristiurus* (Zur Strassen) from which it may be distinguished easily in the female sex by the fact that the osmosium of the Demanian system is placed almost at the proximal end of the intestinal efferent duct, whereas it is situated in the middle of that efferent in *pristiurus*. The male of *M. demani* has a tail, provided with subventral setae, whereas *pristiurus* presents apart from the mentioned setae a number of ventromedian teeth.

Dimensions :

♂ : 5,44 mm; $\alpha = 68$; $\beta = 8,07$; $\gamma = 24,7$.

Filipjev's formula :

$$\frac{0 \quad 40 \quad 104 \quad 300 \quad 620 \quad M \quad 4780 \quad 5220}{36 \qquad\qquad 68 \quad 76 \quad 80 \qquad\quad 48} \quad 5440\ \mu.$$

Dimensions :

♀ : 5,68 mm; $\alpha = 57$; $\beta = 8,7$; $\gamma = 24,4$; V. = 68,1 %.

Filipjev's formula :

$$\frac{0 \quad 48 \quad 88 \quad 308 \quad 648 \quad 3868 \quad 4968 \quad 5328 \quad 5448}{36 \qquad\quad 72 \quad 80 \quad 100 \quad 76 \qquad\quad 48} \quad 5680\ \mu.$$

De Man's :

♂ : 5,55-5,60 mm; $\alpha = 66$-66,1; $\beta = 10,3$-9,3; $\gamma = 28,3$-30,4.

3 ♀♀ : 6,48, 6,59, 7,45 mm; $\alpha = 75,4$, 80,3, 77,6; $\beta = 10,6$, 10,8, 11,8; $\gamma = 28,5$, 30, 28; V. = 68,3, 67,4, 70,8 %.

Filipjev's :

♂ : 6,7 mm; $\alpha = 70$; $\beta = 11$; $\gamma = 35$.

♀ : 6,7 mm; $\alpha = 63$; $\beta = 11$; $\gamma = 48$; V. = 63,5.

A comparison of the foregoing data proves, that the dimensions of the specimens observed by De Man and me fall in the same range of variation. Those of Filipjev distinctly deviate from the general trend, especially in respect

with the comparative length of the tail which is distinctly shorter in the Black Sea females than in ours. Moreover we find a distinct praeanal wart in FILIPJEV's female and a rather obvious gubernaculum, that I miss in my specimens and is likewise not depicted by DE MAN in his, that makes me doubt if FILIPJEV's specimens are conspecific with mine and those of DE MAN.

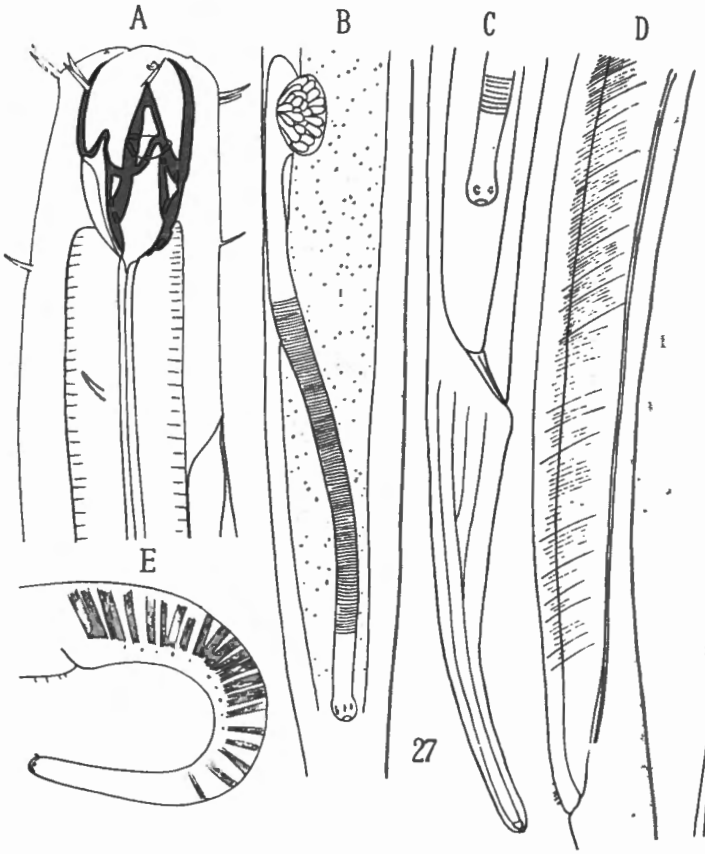


FIG. 27.
Metoncholaimus demani (ZUR STRASSEN).
A : Female head. B : Demanian system.
C : Female tail. D : Male genital armature.
E : Male tail.

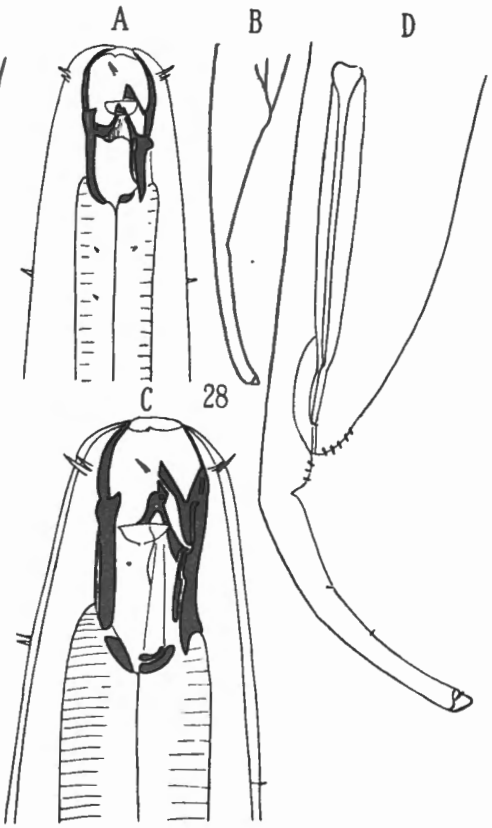


FIG. 28.
Prooncholaimus mediterraneus
SCHUURMANS STEKHOVEN.
A : Female head. B : Female tail.
C : Male head. D : Male tail.

Head rounded anteriorly, slightly set off from the remainder of the body. Lips with distinct although not very prominent labial papillae. Cephalic setae comparatively thick and stout; the longer submedian setae measure 26 %, the shorter 22 % of the corresponding cephalic diameter. The longer subventral tooth reaches till slightly in front of the cephalic setae or to 83,5 % of the buccal cavity, which is twice as long as its greatest width, the shorter teeth measure 61,5 % of the length of the buccal cavity. Some short and thick setae are found in the oesophageal region of the body. Amphids at the level of the shorter teeth,

cupshaped, 25 % of body diameter. Buccal cavity wide, like in *M. pristiurus*, the shorter teeth are connected by means of a strong cuticular rim. Excretory pore at 1,76 times the length of the buccal cavity from the anterior end of the body, in Filipjev's male at 2,75 times this distance. Nerve ring in the male almost halfways the oesophageal length, in the female in question at 47,4 % oesophageal length from the anterior border. Spicula long, outstretched, not knobbed at the proximal end, 8 times as long as the anal diameter. There are 5 praeanal setae along the medioventral surface of the body, whereas the curved tail presents 11 pairs of minute postanal setulae and a small seta near its apex. Female tail gradually tapering with its distal 3/7 more or less cylindrical; length of tail 5,6 times the anal diameter. Osmosium of the intestinal efferent situated almost at the apex of the efferent. Length of male tail 6 times as long as the anal diameter.

In the present species the pores of the Demanian system are separated from the anal opening by a distinctly greater distance, i.e. more than twice the anal diameter, than in *albidus* Bastian, where this distance is not yet quite one anal diameter. In this respect the present species is in accordance with the data of Filipjev (1918-1921). A revision of the Black Sea material in respect with the mentioned differences is necessary, because I am not quite convinced that Filipjev's *demani* is conspecific with mine. My specimens however undoubtedly belong to the same species as was found in the Bay of Naples both by De Man (1878) and by Zur Strassen (1894).

Geographical distribution : Mediterranean, Naples, Villefranche.

After what may be concluded from the rather incomplete figures made by De Rouville (1904) and found in the bequest of the late De Man I come to the conclusion that one of the males observed by De Rouville at Cette likewise did belong to *M. demani* Zur Strassen. Its occurence in the Black Sea remains doubtful.

Genus PROONCHOLAIMUS Micoletzky, 1924.

28. — **Prooncholaimus mediterraneus** Schuurmans Stekhoven, 1943.

Syn. *Pr. megastoma* Micoletzky nec Eberth.

(Fig. 28, A-D.)

1 ♂, from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

1 ♀, 2 juv. from Villefranche, « Baie de Lilong », sand. Depth 5 m.

Dimensions :

♂ : 3,796 mm; $\alpha = 31,6$; $\beta = 6,4$; $\gamma = 29,6$.

Filipjev's formula :

$$\frac{0 \quad 48 \quad 88 \quad 308 \quad 568 \quad M \quad 3668}{32 \qquad\qquad 100 \qquad\qquad 120 \quad 40} \quad 3796\ \mu.$$

Dimensions :

♀ : 3,676 mm; $\alpha = 27{,}8$; $\beta = 6{,}9$; $\gamma = 17{,}6$; V. = 73,1 %.

FILIPJEV's formula : $\frac{0 \quad 48 \quad 300 \quad 528 \quad 2688 \quad 3468}{36 \qquad\qquad 120 \quad 132 \quad 44}$ 3676 µ.

Juv. FILIPJEV's formula : $\frac{0 \quad 32 \quad 232 \quad 432 \quad 2172}{42 \qquad 52 \quad 6472 \quad 40}$ 2332 µ.

Dimensions :

Length juv. : 2,332 mm; $\alpha = 32{,}4$; $\beta = 5{,}4$; $\gamma = 14{,}2$.

megastoma MICOLETZKY, Naples :

♂ : 3,6 mm; $\alpha = 40$; $\beta = 5{,}7\text{-}7{,}3$; $\gamma = 19\text{-}21$ (doubtful if belongingto the same species as that of Villefranche (Confer relative dimensions).

♂ : 2,9 mm; $\alpha = 25$; $\beta = 6{,}5$; $\gamma = 20{,}6$ (α and β not differing very much, apparantly the same species as that of Villefranche).

♀ : 3,3 mm; $\alpha = 27$; $\beta = 6{,}9$; $\gamma = 19$; V. = 75 %, same species as that of Villefranche.

Unfortunately MICOLETZKY (1923) has given neither figures nor extensive data about his specimens. Therefore it is not possible to be absolutely certain about the identity of his specimens. It would interest me particularly to know the relative dimensions of the buccal cavity of his specimens and how this is divided into two portions by the cuticular band from which the smaller teeth originate. I am however of the opinion, that apart from his variety *neapolitana*, of which only very incomplete data are known, MICOLETZKY apparently has met with the true *megastoma* and with the same species, which I have studied after the Villefranche material, which I might name *Pr. mediterraneus*.

Head rounded anteriorly with 6 lips and indistinct papillae. Cephalic setae 10 in number, the longer ones measuring 16 % of corresponding cephalic diameter, the shorter ones no longer than 12 % of the same diameter, in the male whereas the same setae measure 17 % and 10 % of the corresponding diameter respectively in the female.

Amphidial opening 27,1 % of the corresponding body diameter in the male, 30 % of the same in the female, cupshaped and in this respect differing from that of *eberthi*, which is almost circular (due to differences in fixation) [confer my paper on freeliving nematodes from Alexandria (1943)].

Buccal cavity large in the male, 2,5 times as long as its greatest width (L. = 3 × width in male from Nice, L. = 2,37 × width in *Prooncholaimus eberthi*). The buccal cavity is subdivided into 2 separate cavities, the relative length of which is in the male sex = 1 : 2, in the female sex = 2 : 3, whereas in the *megastoma* type the relation of both portions = 1 : 1 (male) and in the female of *eberthi* = 1 : 1,1, so that there exists a distinct difference between *megastoma* type and our species. The dimensions of the teeth, of which the large

subventral tooth reaches to the level of the cephalic setae in our species as well as in the species *eberthi* are as follows compared with the female of *eberthi* :

Species	Left subventral tooth	Right subventral tooth	Dorsal tooth
eberthi ♀	37	25	25
mediterraneus ♀	36	30	30
♂	38	32	32

Longer subventral tooth 84 %, lower subventral tooth and dorsal tooth 68 % of the length of the buccal cavity in the male of our species.

The oesophageal portion of the body further bears some short setae. The excretory pore is found in our male at 1,83 times the length of the buccal cavity from the anterior end.

Nerve ring like in *eberthi*, not like in *megastoma* Eberth, i.e. in the male of Villefranche at 53,1 %, in the female of the same habitat at 49,2 % of the oesophageal length, in Eberth's specimen at 43,1 % of the oesophageal length and in the species *eberthi* on 49,2 % of the oesophageal length.

Vulva at almost the same spot in all 3 species.

Female tail not swollen at its apex, gradually narrowing, its distal half almost cylindrical, 5,2 times as long as the anal diameter, width at the apex 0,26 × anal diameter.

Spicula long, straight, swollen at the proximal end and provided with a distal prolongation, just as in the spicula of *eberthi*, as long as the tail, which measures 6,6 anal diameters. The spicules are just as in that species, surrounded by the protractores spiculi. Gubernaculum 15 % of the length of the spicula. In Eberth's male the spicules measured 75 % of the tail length, i.e. 3,7 anal diameters whereas the tail itself is 5,28 anal diameters long; width at the tip 0,28 anal diameter.

In the Villefranche male the tail length equals 6,6 the anal diameters, width at the apex 0,41 anal diameter.

Male of *eberthi*, tail 4,3 times as long as anal diameter, width at apex 0,33 anal diameter. The male tail therefore is neither in accordance with that of *megastoma* nor with that of *eberthi*.

Female tail in *megastoma* 4,55 anal diameters; width at apex, which is distinctly swollen, 0,22 anal diameter.

Female tail in *eberthi* 3,5 anal diameters; width at apex 0,2 anal diameter.

Female tail in the Villefranche female 4,3 anal diameters; width at apex 0,24 anal diameter.

The female tail resembles therefore more that of the female *megastoma* than the male does in respect with the male *megastoma*, as likewise the division of the buccal cavity of the female is more in accordance with that of *megastoma* than that of the male.

The attenuation of the body to the anterior is 3,6 in the Villefranche male and 2,55 in the male of *eberthi*, and similarly 3,66 in the female of Villefranche, whereas it is 2,72 only in the *eberthi* female.

In the male we find round the cloaca a series of cloacal setae 5 in front of the anus and 4 posterior to the anal cleft, futher there are 2 widely separated subventral hairs and a subventral apical seta. This pilosity is not quite the same, although very similar to that indicated in the key of MICOLETZKY (1924) for *megastoma* (EBERTH). So I come to the conclusion that probably, what MICOLETZKY thought to be the typical *megastoma* is at least in part identical with the species of Villefranche.

Now *Prooncholaimus mediterraneus* may be distinguished from *eberthi* by the structure and division of the oral cavity and the length of the tail in the attenuation of the oesophageal portion of the body, whereas the species in question differs from *megastoma* proper by the structure and division of the buccal cavity, the position of the nerve ring, the longer spicula as well as by the longer tail, which is less attenuated in the male sex of our species than in the male sex of *megastoma*.

GEOGRAPHICAL DISTRIBUTION : Villefranche, Naples, Suez, Alexandria.

Genus VISCOSIA DE MAN, 1890.

29. — Viscosia glabra (BASTIAN, 1865).

(Fig. 29, A, B.)

7 ♀♀, 4 juv. from Villefranche, « Baie de Lilong », sand. Depth 5 m.

7 ♀♀, 4 juv. from Villefranche off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

3 ♂♂, 1 ♀, 1 juv. from Villefranche, farther end of the « Port de la Darse », black mud and organic detritus. Depth 3 m.

This is one of the most frequently observed species in the Mediterranean. It was likewise observed by MICOLETZKY (1923) in many localities, in the Adria, near Naples and in Suez. It occurs also in Alexandria.

The dimensions of my specimens are quite in accordance with those of MICOLETZKY for the same habitat. It is superfluous to give a redescription of this wellknown species and I will only give a figure of the female head and tail end.

GEOGRAPHICAL DISTRIBUTION : From the Baltic to the Black Sea. Recently also in the Öresund, further Tarva, Banyuls-sur-Mer, Camargue.

30. — Viscosia elongata Filipjev, 1922.

(Fig. 30, A-C.)

1 ♂, from Villefranche, farther end of the « Port de la Darse », black mud and organic detritus. Depth 3 m.

This species was first described by Filipjev after a female from the Black Sea, Anatolia, so that the male is new to science. This male is closely related to *V. cobbi* Filipjev (1918) when its genital armature is compared with the genital armature of that species.

Dimensions :

♂ : 2,72 mm; $\alpha = 85$; $\beta = 5,6$; $\gamma = 19,4$.

Filipjev's formula :

$$\frac{0 \quad 16 \quad 200 \quad 480 \quad M \quad 2520}{20 \qquad\qquad 32 \quad 28 \quad 28} \quad 2720\ \mu.$$

Filipjev's female :

2,45 mm: $\alpha = 100$; $\beta = 6,5$; $\gamma = 18$.

Head distinctly set off from the rest of the body by a constriction of the body wall. Papillae labiales not seen, probably because there is a slight invagination of the anterior portion of the lips (confer the forward position of the cephalic setae, such due to fixation). Cephalic setae short 12,5 % of the corresponding body diameter, also distinctly shorter than in the female, observed by Filipjev, where they measure about 25 % of the corresponding diameter. Amphids rather large, cup-shaped, their opening 48 % of the corresponding diameter, therefore much larger than in the female, where the amphid is minute. This is in so far not remarkable since there exists in the closely related *Viscosia cobbi* a remarkable difference in the size of the amphids between both sexes, those in the male being extraordinary large, which brings a new argument for the fact that the species are closely related. Buccal cavity strengthened by rather thick walls, the large subventral tooth reaching almost to the level of the cephalic setae, 12,5 μ long, smaller teeth reaching to the attachment of the larger tooth to the subventral wall, 7 μ long (in the female the large tooth measures 16 μ, the smaller teeth 9 μ). Here however the interrelations are similar to that in our male, in which the buccal cavity is 2,4 times as long as wide. The buccal cavity of Filipjev's female is 1,9 times as long as wide.

Nerve ring in front of the middle just as in the female. Spicule sword-shaped 1,4 anal diameter long, although less slender than in *cobbi*. Just as in *cobbi* there are some subventral pairs of cloacal setae, 1 praeanal, 3 postanal, whereas in *cobbi* 3 pairs are praecloacal and 1 postcloacal. Tail gradually tapering, then more or less cylindrical, slightly swollen at the extreme apex.

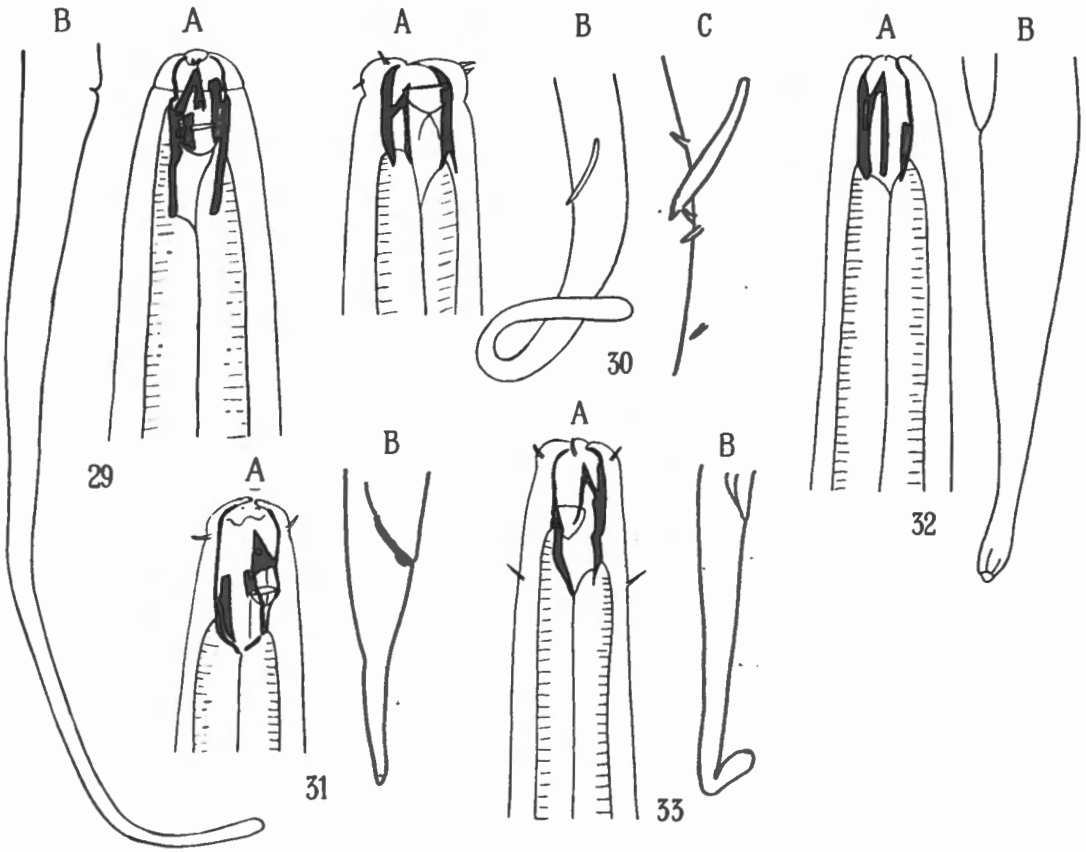


FIG. 29. — *Viscosia glabra* (BASTIAN).
A : Male head.
B : Tail.

FIG. 30. — *Viscosia elongata* FILIPJEV.
A : Male head. B : Male tail.
C : Male genital armature.

FIG. 31. — *Viscosia brachylaima* FILIPJEV.
A : Male head. B : Male tail.

FIG. 32. — *Viscosia macrorhopalocera* KREIS.
A : Female head. B : Female tail.

FIG. 33. — *Mononcholaimus elegans* KREIS.
A : Juvenile head. B : Tail.

Tail almost 7 anal diameters long, width at apex 0,41 anal diameter. In the female, studied by FILIPJEV, the length of the tail was 9 anal diameters, width at extreme apex 0,7 anal diameter.

GEOGRAPHICAL DISTRIBUTION : Black Sea, Mediterranean, Villefranche.

From *Viscosia cobbi* FILIPJES the male in question may be distinguished by its much smaller size and by the different arrangement of the cloacal setae.

31. — **Viscosia brachylaima** Filipjev, 1925.

(Fig. 31, A, B.)

1 juv. from Villefranche, « Baie de Lilong », sand. Depth 3 m.
1 ♂, from Villefranche, off the « Pointe de la Gavinette », grey mud. Depth 80 m.

Dimensions :

♂ : 1,7 mm; $\alpha = 42,5$; $\beta = 5,1$; $\gamma = 17$.

Filipjev's formula :

$$\frac{0 \quad 24 \quad 188 \quad 328 \quad M \quad 1600}{16 \quad\quad 32 \quad 40 \quad 40 \quad 20} \quad 1700\ \mu.$$

Juv. Length : 1,516 mm; $\alpha = 54,1$; $\beta = 4,67$; $\gamma = 12,6$.

Filipjev's formula :

$$\frac{0 \quad 16 \quad 176 \quad 316 \quad M \quad 1396}{16 \quad\quad 28 \quad 28 \quad 28 \quad 20} \quad 1516\ \mu.$$

Filipjev's females :

2,25-2,57 mm; $\alpha = 33-47$; $\beta = 5,5-6$; $\gamma = 13,5-25$. Tail 4-4,5 anal diameters, width at apex 0,44-0,47.

Until now the female only was known by Filipjev from the Murman Coast from a depth of 15-16 m.

Head elongate, rounded anteriorly, with 6 lips, with as many papillae, cephalic setae 25 % of the corresponding body diameter. Amphids comparatively small, 30 % of the corresponding diameter, situated slightly posteriorly to the apices of the smaller teeth. Buccal cavity elongated, 2,9 times as long as it is wide. Large subventral tooth reaches to the level of the cephalic setae, 16 μ long, smaller teeth 12,8 μ. Nerve ring 57,1 % of the oesophageal length. Spicula almost 1 anal diameter long. Gubernaculum short, membranaceous. Tail 5 times as long as its width at the base.

Geographical distribution : Murman Coast, Mediterranean.

32. — **Viscosia macrorhopalocera** Kreis, 1932.

(Fig. 32, A, B.)

1 ♀, from Villefranche, grey mud (between the « Lazareth » and « Anse Passable). Depth 50 m.

Dimensions :

♀ : 1,140 mm; $\alpha = 31,6$; $\beta = 4,9$; $\gamma = 14,2$; V. = 51 %.

Filipjev's formula :

$$\frac{0 \quad 20 \quad 140 \quad 232 \quad 580 \quad 1060}{16 \quad\quad\quad 28 \quad 36 \quad 20} \quad 1140\ \mu.$$

Juvenile after Kreis :

0,982 mm; $\alpha = 37,8$; $\beta = 5,1$; $\gamma = 14$; V. = 61,5 %.

The female in question, new to science, is characterised by the presence of minute cephalic setae, situated at the anterior border of the lips, which are not sharply set off from the rest of the body. Amphid not seen, nor by me, neither by KREIS. Buccal cavity elongate, more or less cylindrical, almost thrice as long as it is wide, provided with a long, sharply pointed ventral tooth, however not quite reaching to the level of the setae. Dorsal tooth reaching halfways the length of the buccal cavity. Nerve ring at 60,3 % of the oesophageal length. Ovaria double. Tail elongate conical, swollen at the apex, 4,4 times as long as its anal diameter. Length of apical club not quite 1/5 of the tail length. Width at apex 0,31 of anal diameter.

GEOGRAPHICAL DISTRIBUTION : Javasea, Villefranche.

The species in question closely resembles *V. minor* and *V. palmæ* S. S. but differs from the latter by the shorter cephalic setae and the minor length of the dorsal tooth.

Genus MONOCHOLAIMUS KREIS, 1924.

33. — **Mononcholaimus elegans** KREIS, 1924.

(Fig. 33, A, B.)

3 juv. from Villefranche, farther end of the « Port de la Darse », black mud and organic detritus. Depth 20 m.

Length juv. :

2,06 mm; $\alpha = 64,4$; $\beta = 6,4$; $\gamma = 14,7$. Tail 7,5 A.D. apex 0,5 A.D.

FILIPJEV'S formula :

$$\frac{0 \quad 20 \quad 180 \quad 320 \quad \quad 1920}{16 \quad \quad 32 \quad 32 \quad 32 \quad 20} \quad 2060\ \mu.$$

The juveniles of this species resemble most *M. elegans* KREIS to which I think it will be correct to bring the specimens in question. Head rounded anteriorly, provided with 6 setae measuring 26 % of the corresponding body diameter; besides some other setae next to the basal end of the buccal cavity, which is 3,5 times as long as its width. Large subventral tooth reaching to the level of the cephalic setae. Amphids pouch-shaped, distinct, opening of the same 1/3 of the corresponding cephalic diameter, opposite to the base of the dorsal tooth. Tail elongate, gradually tapering, with extreme apex slightly swollen. 7,5 times as long as its anal diameter. Apex half as wide as the anal diameter.

GEOGRAPHICAL DISTRIBUTION : Bretagne, Trébeurden, Malayan archipelago, Villefranche, Camargue.

Family ENCHELIDIIDÆ.

Genus BOLBELLA Cobb, 1920.

34. — Bolbella hexabulba Filipjev, 1918-1921.

(Fig. 34, A, B.)

1 ♀, from Villefranche, between the « Lazareth » and « Anse Passable », grey mud. Depth 50 m.

Length : 3,49 mm; $\alpha = 62,2$; $\beta = 4,77$; $\gamma = 21,8$; V. = 55,2 %.

Cobb's formula :

$$\frac{0 \quad 20 \quad 80 \quad 352 \quad 772 \quad 1932 \quad 3332}{8 \qquad\quad 44 \quad 48 \quad 56 \quad 40} \quad 3492\ \mu.$$

The specimen in question is apparently a juvenile female, the vulva of which was not very pronounced. It could be identified with some difficulty only.

Head bluntly truncated anteriorly. Cephalic setae, 6 in number, 31,4 % of the corresponding cephalic diameter, attached to the body wall opposite to the apex of the dorsal tooth. Amphids not seen. Oral cavity rather wide. A narrow vestibulum connects the cavity with the exterior. The oral cavity str. s. is subdivided into 3 distinct portions, part 1 and 2 enclosing a more or less oval space, part 3 being sack-like. The walls of the oral cavity are strongly cuticularized, especially those of the first two subdivisions. One of the two subventral teeth is very prominent, measuring 73 % of the total length of the oral cavity. Dorsal tooth inconspicuous. Posterior to the oral cavity, the usual birefringent corspuscle, embedded in the oesophageal tissue, is observed. No true ocelli visible, but a distinct pigmentspot, occupying almost the whole width of the oesophageal cylinder at a distance equal to twice the length of the oral cavity from the anterior end of the body. Oesophagus with 5 bulbi.

Excretory pore at a distance equal to 2,45 times the length of the oral cavity from the anterior body end. Nerve ring at 48,1 % of the total oesophageal length. Cuticle smooth, almost devoid of setae, except a few near the anterior body end. Tail gradually tapering to the more or less fingershaped posterior portion, which occupies 33,4 % of the total length of the tail which is 3,7 the anal diameters long. Anus prominent. Posterior attenuation of the tail 7,5.

Bolbella hexabulba differs from *Bolbella cobbi* Micoletzky from the Mediterranean by the more anterior position of the excretory pore. Its position is even more forward than in the allied *B. tenuidens* Cobb, where the excretory pore is situated at a distance from the anterior end, equal to 3 times the body diameter at a level of the pore. Here this distance is twice as long as the

corresponding body diameter. Moreover the number of oesophageal bulbi is 8 in *tenuidens*, whereas there are 6 bulbi of equal size in *B. cobbi*. Like in *B. cobbi* the posterior body end bears no setae.

GEOGRAPHICAL DISTRIBUTION : Black Sea, Sebastopol, Mediterranean, Villefranche.

Genus PAREURYSTOMATINA MICOLETZYK and KREIS, 1922.

35. — **Pareurystomatina tenuicauda** n. sp.

(Fig. 35, A-E.)

1 ♀, 1 ♀, from Villefranche, off the « Pointe de la Gavinette », grey mud. Depth 80 m.
Length, ♂ : 3,192 mm; $\alpha = 44$; $\beta = 4,5$; $\gamma = 11,4$.

FILIPJEV'S formula :

0	12	320	700	M	2580	2712	2912	3192 µ.
		60	76	72			48	

The species is characterized by the long tail with a filiform portion, that occupies 58 % of the whole tail length and is provided with some short setae. Tail 5,92 anal diameters long. Spicula long, curved, bluntly pointed at their distal end, slightly narrowed at their proximal end. Nerve ring at 45,5 % of the oesophageal length. Spicular chord 1,78 anal diameters long. Gubernaculum embracing the distal end of the spicula, provided with a dorsal prolongation, which is 0,64 times as long as the anal diameter. First praeanal sucker 4,3 anal diameters from the anal opening, the second praeanal sucker 3 anal diameters in front of the first. The relation between both distances = 1 : 1,44.

Posterior attenuation 14.

The corresponding female measures :

Length, ♀ : 2,036 mm; $\alpha = 3,4$; $\beta = 3,3$; $\gamma = 11,8$.

FILIPJEV'S formula :

0	12	284	604	1104	1864	2036 µ.
8		40	52	60	32	

Head rounded anteriorly, separated from the neck by a distinct constriction. Cephalic setae rather long, as long as the corresponding cephalic diameter. Buccal cavity not very deep, 2,35 times as long as its greatest diameter. Cervical setae not longer than 33 % of the corresponding body diameter. Excretory pore not seen.

Nerve ring at 47 % of the oesophageal length. Tail almost as in the male, but slightly less effilated than in the latter, 7,5 anal diameters long. Attenuation 15.

From *Pareurystomatina typicum* MICOLETZKY the species at once may be distinguished by its more effilate, flagelliform tail.

Genus EURYSTOMATINA Filipjev, 1918.

36. — **Eurystomatina ornatum** (Eberth, 1863).

(Fig. 36, A, B.)

1 ♀, from Villefranche, off the « Vieux Villefranche », black mud and organic detritus. Depth 20 m.

Eurystomatina ornatum is said to occur in the Mediterranean at several localities. After Micoletzky (1923) it should occur in the Adria as well as in the neighbourhood of Suez. De Rouville (1904) states to have found it at Cette. Now we have to bear in mind that Micoletzky did synonymize with *E. ornatum* : *E. tenue* Marion, *E. assimile* De Man and *E. filiforme* De Man.

Filipjev (1918-1921) however did not go so far. He separated *E. ornatum* Eberth which is after him synonymous with *E. tenue* Marion from *E. assimile* De Man with which *E. filiforme* De Man should be conspecific.

Among a collection of Nematodes from Alexandria I found some males, which I consider to be conspecific with *E. assimile* De Man. During the study of these males I came to the conclusion that Micoletzky did likewise meet with this species at Suez and further that *E. ornatum* and *E. assimile* are distinct.

At the present moment the genus *Eurystomatina* is still in great confusion. This is partly due to the fact that specimens of *Eurystomatina* are comparatively rare. During the preparation of his monograph of the freeliving marine nemas of North Sea and Baltic Schuurmans Stekhoven came to the conclusion that *E. filiforme* should be synonymous with *E. assimile* De Man after Filipjev from the Black Sea but not with *E. assimile* De Man from Naples.

Having now to my disposition a more extensive material I have changed my opinion and think that Filipjev's *assimile* might be conspecific with De Man's type.

A thorough comparison of the present female with the figure Eberth has given from his type of *E. ornatum* and an accurate reading of Eberth's description convinced me that the present female has to be reckoned to *E. ornatum*. The same fits for Daday's specimens from Fiume.

About the buccal cavity of his species Eberth says literally :

« Pharynx — that is the buccal cavity — ein kurzer mit fester Chitinwand versehener Cylinder, vom schmalen Oesophagus durch seine unten bauchige Partie stärker abgesetzt, sein vorderer Rand leicht gezähnt. Seine Wand bildet nach innen zuerst eine ringförmige Leiste und hinter dieser zwei punktförmige Vorsprünge. An einer Seite erhebt sich ein spitzer Zahn. »

The figure Eberth has given from the anterior portion of the oesophagus clearly indicates that there are 3 crossbands in the oesophagus, which is in accordance with what the present female shows. Moreover the distribution

of the oesophageal pigment is in accordance with my findings on this female of Villefranche, and as for the pilosity this is similar to that in EBERTH's specimen.

The specimen from Villefranche measured :

5,8 mm; $\alpha = 69$; $\beta = 5{,}25$; $\gamma = 48{,}5$; V. = 62 %.

COBB's formula :

$$\frac{0 \quad 20 \quad 40 \quad 360 \quad 1100 \quad 3640 \quad 5680}{20 \qquad\quad 76 \quad 84 \quad 48} \quad 5800\ \mu.$$

Body of the present female tapering in front, anterior attenuation 3,8. Cuticle with some scattered setae, especially at the anterior end. Head bluntly rounded anteriorly, where the lips are crowned with one papilla each, 6 papillae in total. Cephalic setae, 10 in number, inserted just posterior to the labial suture, 75 % of the corresponding cephalic diameter. The smaller setae of each pair 47 % of the longer ones and 27,5 % of the same cephalic diameter. Buccal cavity rather deep and broad, 1,62 times as long as its widest part, subdivided into two inequal portions, of which the posterior is distinctly larger than the anterior portion. Proportions I : II = 13 : 20 = 1 : 1,52. Buccal cavity provided with three rows of bacillary corpuscles.

Eyes with distinct ocelli, provided with cuticular lenses, situated on a distance from the anterior border equal to 1,6 times the length of the buccal cavity. Nerve ring at 34 % of the total oesophageal length. Tail conical, 2,94 times as long as the anal diameter ending with a blunt conical tip. Caudal glands distinct, the cell bodies of these are located anterior to the anal opening.

Since STEINER (1915) gives no figures of his female from Teneriffa it is impossible to state if his specimen was conspecific with the present species. One must however bear in mind that the eyes in STEINER's specimen were shifted distinctly more posteriorad, at 1,92 times the length of the buccal cavity from the anterior end, which feature may point to specific differences. It is however impossible to bring STEINER's specimen with certainty to one of the known species. As for MARION's *E. tenue* this measured 5 mm; $\alpha = 79{,}5$; $\beta = ?$; $\gamma = 38{,}4$. Tail 2,45 anal diameters long. Buccal cavity 1,63 times as long as its greatest width. Eyes at 2,88 times the length of the buccal cavity from the anterior end. Length of cephalic setae 87,5 % of the corresponding diameter. Proportions of the buccal cavity as for its divisions I : II = 1 : 2,7. Length of the male tail 4 anal diameters. Again we must be in doubt just as with STEINER's *filiforme* of Teneriffa, if MARION's male belongs to the same species as EBERTH's *ornatum*. If MARION's figures have been figured to scale than there must be sincere doubt, due to the location of the eyes, the length of the cephalic setae and the proportions of the tail, although we are quite unconsious as to possible sexual differences in this respect. So far however I think it wise not to include *E. tenue* MARION in the synonymy of *E. ornatum*. In

DADAY's male (1901, p. 443) the vulva is situated at about 75 % of the body length therefore in a more backward position than in the present female. Since DADAY's female was not longer than ± 1 mm the identity with our species remains questionable.

MICOLETZKY (1924) at least must have intermingled some species, although there were among these almost undoubtedly some specimens belonging to the present species. Of this we cannot however be quite sure, since this author does not give any figures.

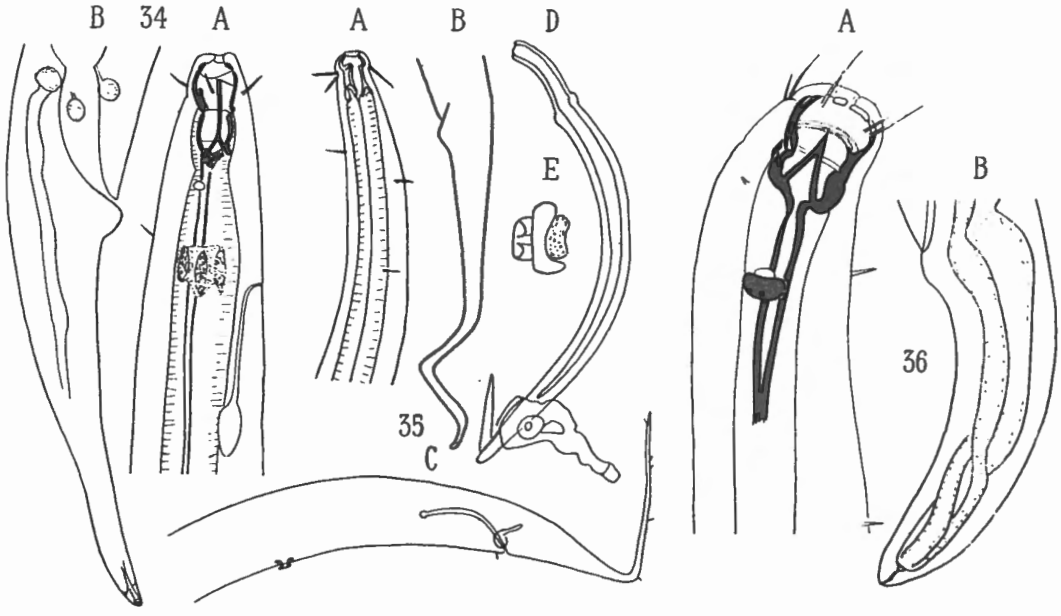


FIG. 34. — *Bolbella hexabulba* FILIPJEV.
A : Female head. B : Tail.

FIG. 35. — *Pareurystomatina tenuicauda* n. sp.
A : Female head. B : Female tail.
C : Male tail. D : Male genital armature.
E : Praeanal papilla.

FIG. 36. — *Eurystomatina ornatum* (EBERTH).
A : Female head. B : Tail.

FILIPJEV's species from the Black Sea differs from the present species i.a. by the shorter cephalic setae, the proportions of the buccal cavity, the situation of the eyes, etc., so that I come to the conclusion that we may state with some certainty that the present species has been found only near Nice, near Villefranche, Banyuls-sur-Mer (ALLGÉN, 1942) and Fiume. ALLGÉN (1940) says to have found it along the Norwegian Coast, Hasvik, Vega, Rognsog. I am not sure that ALLGÉN's specimens from the Sea of Marmara really did belong to the said species.

37. — **Eurystomatina stenolaima** n. sp.

(Fig. 37.)

1 spec. from Villefranche, « Baie de Lilong », sand. Depth 5 m.

The specimen is broken, is closely allied to *E. ornatum* EBERTH but may be easily be distinguished from the latter by the narrower buccal capsule, which is particularly attenuated in its proximal half, as well as by the distribution and structure of the buccal teeth and the absence of eyes or pigment-spots. Length of buccal cavity 20 μ. Nerve ring at 60 μ from the anterior head end, length of oesophagus 500 μ. Bodywidth at the head end 16 μ, at the posterior end of the oesophagus 52 μ.

Body tapering in front, width at anterior end 30,75 % of the width at the posterior end of the oesophagus. Lips distinct, each with a setiform papilla. Cephalic setae rather long and distinct, 10 in number, the longer ones 48 % of the corresponding diameter, the shorter ones 45 % of the same diameter.

Amphids opposite to the posterior portion of the buccal cavity, circular, large, their diameter measuring 23 % of the corresponding body diameter. Cuticle at the anterior portion of the body with some setae, arranged more or less in longitudinal rows. Buccal cavity deep, 2,83 times as deep at its greatest width. Ventral tooth reaching to the upper row of bar-shaped structures, whereas the dorsal tooth is implanted at the level of the second row of bar-like structures. Relation between the lower and upper portion of the buccal cavity = 1 : 2. Excretory pore at a distance equal to 2 times the length of the buccal cavity, with a rather long excretory duct and a distinct ampulla.

Nerve ring at 48 % of the oesophageal length. Length of buccal cavity 4 % of the whole oesophageal length.

In the present specimen no eyes were seen.

From *Eurystoma tenue* MARION the present specimens differs in the size of its ventral tooth which is distinctly longer than in that species and in EBERTH's *E. ornatum*. The same fits for DE MAN's *E. assimile* and for *E. filiforme* DE MAN, which and in this I agree with MICOLETZKY (1923) are synonymous inter se, but neither with *E. ornatum* nor with *E. stenolaimus*. The differences between my specimen and EBERTH's *ornatum* are indicated above. The species in question resembles to *Eurystomatina longicauda* (ALLGÉN), which this author has brought to the genus *Symplocostoma*, differs from it in the less attenuate anterior head end and the shorter cephalic setae.

Genus SYMPLOCOSTOMELLA Micoletzky and Kreis, 1922.

38. — **Symplocostomella mediterranea** n. sp.

(Fig. 38, A, B.)

1 ♀, from Villefranche, between the « Lazareth » and « Anse Passable », grey mud. Depth 50 m.

Length, ♀ : 4,8 mm; $\alpha = 48$; $\beta = 4,86$; $\gamma = 18,7$; V. = 58 %.

Cobb's formula :

0	36	64	384	984	2784	4544	
20			76	92	100	88	4800 µ.

Micoletzky and Kreis (1930) have created a new genus for *Symplocostomella javaensis* with as characteristical features the absence of ocelli and lenses and the presence of a row of small rodlets at the border of anterior and posterior portion of the buccal cavity. These characteristics were likewise observed in the present species.

Head bluntly conical, truncated at its anterior border, the oral opening surrounded by a cuticularised ring. Slightly more posterior 3 of the 6 labial papillae are observed. Cephalic setae opposite to the apex of the dorsal tooth, 10 in number, the paired submedian setae almost equal in length, 31,2 % of the corresponding cephalic diameter. Amphids small, their diameter 13,18 % of the corresponding body diameter, opposite to the posterior fourth of the buccal cavity.

Buccal cavity subdivided into two main portions separated by the described circle of cuticularized rods. Proportion of Part I : II = 1 : 2,8, the space just posterior to this circle of rods being the widest portion of the buccal cavity. Length of the same 2,55 times as long as its widest part. The anterior portion is again subdivided into three subdivisions by means of cuticularized rings, the posterior of which presents two heigher-shaped cuticularizations. The longer of both subventral teeth reaches almost to the level of the crown of rodlets. It is bluntly pointed, whereas the apices of the other teeth are broad-cut. At the base of the buccal cavity the usual birefringent cuticularizations are observed. Neither lenses, nor pigment spots are present. The anterior portion of the body presents irregular rows of rather small and short setae, whereas a group of 3 setae is found near the base of the buccal cavity. Excretory pore on a distance from the anterior end equal to 1,62 times the length of the buccal cavity.

Nerve ring at 39 % of the oesophageal length. Length of the oral cavity 3,65 % of the total oesophageal length. Tail conical tapering to the filiform apex, which occupies 58 % of the total tail length, which equals 3,76 anal diameters. Anus proeminent. From *S. javaensis* Micoletzky-Kreis the present species differs by the more posterior position of the excretory pore, the more truncate head and by the shape of the tail.

Genus ENCHELIDIUM EHRENBERG, 1836.

39. — Enchelidium acuminatum EBERTH, 1863.

(Fig. 39, A, B.)

1 ♂, 1 juv. from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

It is not without some doubt that I bring both specimens, originating from the same habitat to this species. It is a well known fact, to which MICOLETZKY and KREIS (1930) have paid special attention, that in many Enchelidiidae males and females present strong sex dimorphism. This is true for instance for *Catalaimus* and *Enchelidium*, the female of which was long since indicated with the generic name : *Symplocostoma*.

MICOLETZKY and KREIS (1930) think that *E. acuminatum* EBERTH should be considered to be the male of *S. pauli* MARION. If this would prove to be true than *S. pauli* would fall into the synonymy of *Enchelidium acuminatum*. If however MICOLETZKY's observations about *S. pauli* MARION are correct (1923) and if he has not fused, as I suppose he has done, the species *S. marioni* and *pauli* which as to my opinion are distinct, then it is quite sure that our species is not conspecific with *S. pauli*, because the opening of the excretory pore is situated distinctly more forward in MICOLETZKY's species than in the present form. So I am inclined to bring both specimens which I think are conspecific although they show some differences, the value of which cannot be determined with sufficient certainty, to EBERTH's *Enchelidium acuminatum*, because I am convinced that the male in question is conspecific with that of EBERTH's species.

Length of the male in question : 1,276 mm; $\alpha = 79{,}5$; $\beta = 4{,}64$; $\gamma = 31{,}5$.

EBERTH's male : 3 mm; $\alpha = 30$: $\beta = 5$.

COBB's formula of male :

$$\frac{0 \quad 12 \quad 76 \quad 276 \quad 376 \quad 1236}{8 \qquad\quad 16 \quad 14 \quad 8} \quad 1276\ \mu.$$

Juv. lenght : 1,848 mm; $\alpha = 46{,}2$; $\beta = 3{,}32$; $\gamma = 12{,}4$.

COBB's formula :

$$\frac{0 \quad 12 \quad 56 \quad 236 \quad 556 \quad 1708}{6 \qquad 20 \quad 36 \quad 40 \quad 28} \quad 1848\ \mu.$$

Like in all species of *Enchelidium* the male does not possess a buccal cavity. Anterior body end bluntly rounded, the last part more or less cylindrical, followed by a shallow constriction. Head provided with 6 labial papillae and as much rather long cephalic setae, of which the lateral ones measure 67 % of the corresponding cephalic diameter and the submedian ones 60 % of the same diameter. Amphids transverse with a wide slit; diameter of the latter half the width of the corresponding cephalic diameter. Eyes distinct, their pigmentspot at a distance equal to 1,72 times the cephalic diameter at the level

of the cephalic setae posterior to the anterior head end. Anterior portion of the body with some small setae, placed more or less in rows.

Excretory apparatus opening by means of a short excretory duct just posterior to the eyes, at a distance equal to 2,5 times the cephalic diameter at the level of the cephalic setae. End of excretory cell 1,29 times the length of the oesophagus behind the anterior end. In Eberth's male the same value was

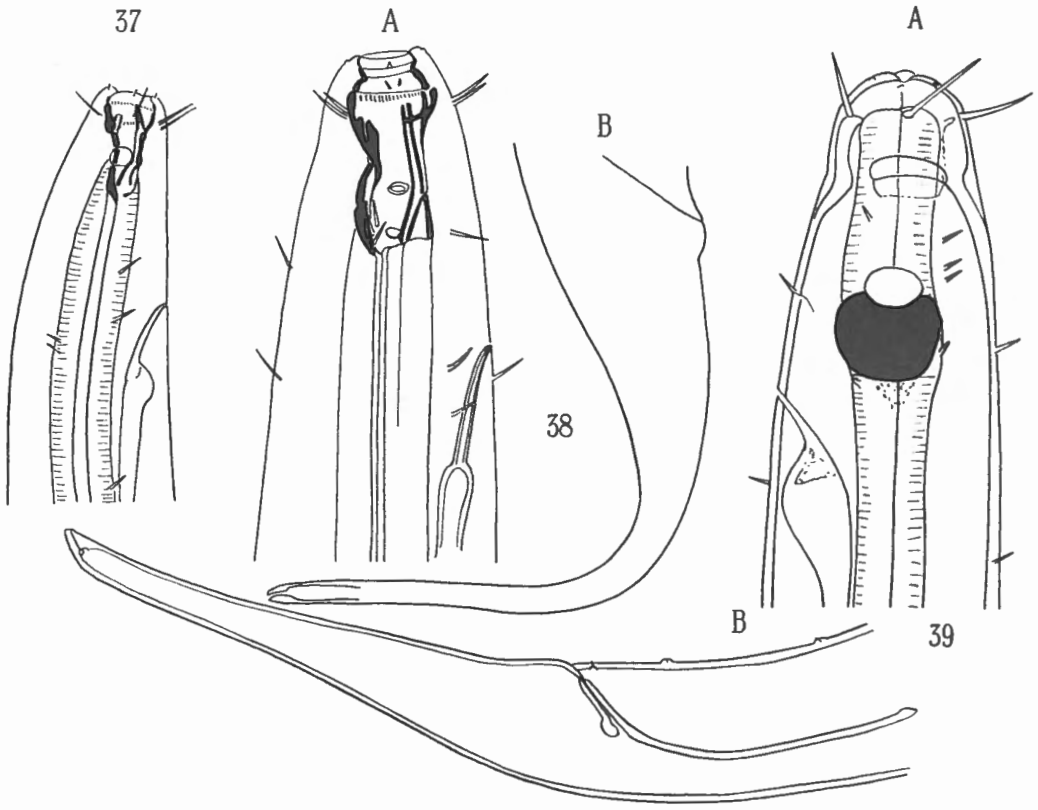


Fig. 37. — *Eurystomatina stenolaima* n. sp. Head end.

Fig. 38. — *Symplocostomatella mediterranea* n. sp. A : Female head end. B : Tail.

Fig. 39. — *Enchelidium acuminatum* Eberth. A : Male head end. B : Tail.

1,32 times the length of the oesophagus. Nerve ring at 27,5 % of the oesophageal length. Tail gradually tapering to a more or less cylindrical portion, which was however less slender than in the figure Eberth has given from the tail of the same species, 4,3 times as long as the anal diameter and ending with a conical tip. Spicula rather slender, curved, 0,64 times as long as the tail, 2,72 times anal diameters long. Gubernaculum small, 0,36 times the anal diameter, provided with a small manubrium at its proximal end. There are seven rather inconspicuous praeanal papillae.

The juvenile specimen differs from the male in that it possesses a distinct buccal cavity, with a long subventral tooth, which distinctly projects into the anterior portion of the buccal cavity and is bluntly truncate.

Apparently there is a small basal tooth at the dorsal side, just as in *S. marioni* after FILIPJEV (1918-1921).

MICOLETZKY (1924) mentions to have found the female of *Enchelidium acuminatum* EBERTH near Suez. This female measured 2,6 mm in length, $\alpha = 45{,}5$; $\beta = 4{,}85$; $\gamma = 19$. End of the excretory cell at 152 % of the oesophageal length, therefore much more caudad than in EBERH's and my male. MICOLETZKY mentions for *E. acuminatum* the presence of 10 cephalic setae, whereas EBERTH distinctly figures 6 cephalic setae only, the same number as my specimen did show. Unfortunately MICOLETZKY (1924) has given no figures so that it is impossible to state the correctness of his observations and if his specimens from the Mediterranean were actually conspecific with those of Suez. I doubt however that *Enchelidium subrotundum* (EBERTH) and *Enchelidium acuminatum* EBERTH are really conspecific like FILIPJEV (1918-1921) and MICOLETZKY believe. So the head of *E. subrotundum* is distinctly swollen anteriorly, the body pilosity seems to be more conspicuous than in *E. acuminatum*, since the body setae are figured by EBERTH as to attain the same length as the cephalic setae, which feature cannot be pure fantasy, since one may be rather certain that EBERTH has composed his figures with great care. And thirdly the gubernaculum of this species although mentioned in the text was certainly less distinct and less strong than in *acuminatum*. So opposite to FILIPJEV and MICOLETZKY I think that both *E. subrotundum* and *E. acuminatum* are good species. *Enchelidium pauli* (MARION) var. *denticulatum* is not conspecific with *E. acuminatum* EBERTH and better should be considered as a separate species, the name of which should be *E. denticulatum*.

GEOGRAPHICAL DISTRIBUTION : Nice, Villefranche, Naples ?, Suez ?.

40. — Enchelidium longicolle FILIPJEV, 1918-1921.

(Fig. 40, A-D.)

1 juv. spec. from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.
1 juv. from Villefranche « Baie de Lilong ». Depth 5 m.

Length of juv. 1 : 1,48 mm; $\alpha = 46{,}2$; $\beta = 3{,}32$; $\gamma = 12{,}4$.

FILIPJEV's formula :

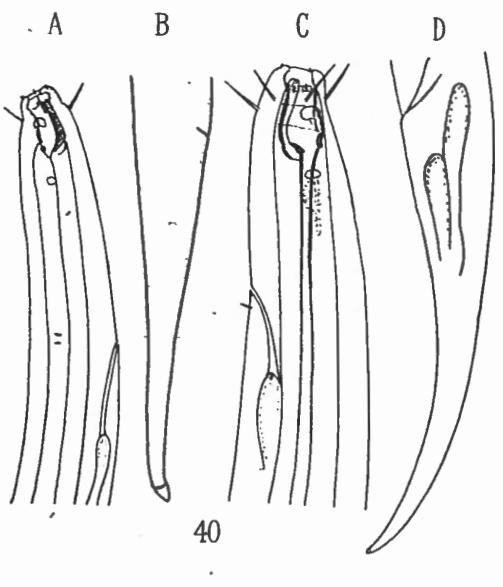
$$\frac{0 \quad 12 \quad 56 \quad 536 \quad 556 \quad 1708}{6 \quad\quad 20 \quad 36 \quad 40 \quad 28} \quad 1848\ \mu.$$

Length of juv. 2 : 2,644 mm; $\alpha = 44$; $\beta = 4{,}4$; $\gamma = 12{,}9$.

FILIPJEV's formula :

$$\frac{0 \quad 16 \quad 52 \quad 280 \quad 600 \quad 2440}{12 \quad\quad\quad 52 \quad 60 \quad 36} \quad 2644\ \mu.$$

Enchelidium longicolle Filipjev was created by Filipjev (1918-1921) as a new species. Now Micoletzky and Kreis (1930) think and in this they are certainly correct, that the females of *Enchelidium* species are shaped as forms belonging to the genus *Symplocostoma*. We do however possess already the species *Symplocostoma longicolle* Bastian of which female as well as male are known. So it is rather certain that the present species has to change its name in the future, as soon as females of this species will be known. Then the present could get for instance the name *Symplocostoma filipjevi*.



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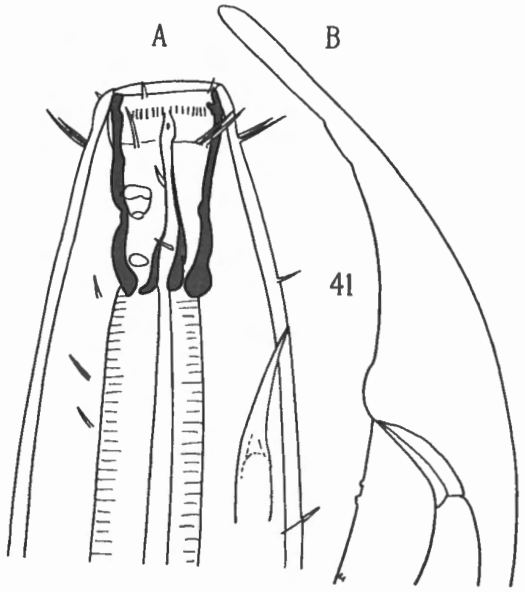

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Fig. 40. — *Enchelidium longicolle* Filipjev.
A : Juvenile head end. B : Tail. C : Juvenile head. D : Tail.

Fig. 41. — *Enchelidium pauli* (Marion).
A : Female head end. B : Tail.

Micoletzky (1923) synonymizes *Symplocostoma tenuicolle* Eberth and *S. longicolle* Bastian after Filipjev. He does not mention however *E. longicolle* Filipjev, the tail of which distinctly differs from the tail of Filipjev's *S. longicolle* in the male as well as in the female sex. I have already pointed to the fact, that as to my opinion Eberth's *Enchelidium tenuicolle* is not identical with *Enoplus* (*Symplocostoma*) *tenuicollis* Eberth, for which I have proposed the name *S. paratenuicolle*, see below. The present specimens should be considered after my opinion as juvenile specimens of Filipjev's *Enchelidium longicolle*.

Head end bluntly truncate, provided with 6 minute labial papillae. Cephalic setae, 6 in number, measuring 58 % of the corresponding diameter in the specimen from Villefranche, even 68 % of the same diameter in the specimen

from Baie de Lilong. Head separated from the body by a distinct constriction. Amphids transverse, elliptical situated in between the first and second portion of the buccal cavity, their width equal to 21,5 % respectively 26,4 % of the corresponding diameter.

The buccal cavity into which a short vestibulum leads and which is thrice as long as its greatest width is divided into 2 unequal parts by a cuticularized ring, which presents at the same time series of longitudinal bars. This ring subdivides the buccal cavity into 2 portions which stay in relation to each other as 1 : 2,85 in both specimens. Just posterior to the buccal cavity there are distinct birefringent bodies in one of the specimens, whereas in the other these birefringent bodies are followed by longitudinal pigmentspots, indicating an ocellus. Some minute setae are to be found at the anterior portion of the oesophagus. Excretory pore at a distance equal to 3,88 times the length of the buccal cavity (Villefranche specimen) or (in the Lilong specimen) equal to 2,95 the same distance from the anterior end, followed by a long duct and a distinct ampulla. Nerve ring at 42,2 % (Villefranche specimen) or 47 % (Lilong specimen) from of the oesophageal length. Tail elongate conical, 5 times as long as its anal diameter.

GEOGRAPHICAL DISTRIBUTION : Black Sea, Mediterranean, Villefranche.

41. — **Enchelidium pauli** (MARION, 1870).

(Fig. 41, A, B.)

1 ♀, from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*. Depth 3 m.

Dimensions :

Length : 5,716 mm; $\alpha = 47,6$; $\beta = 5,35$; $\gamma = 27,5$; V. = 56,3 %.

FILIPJEV'S formula :

$$\frac{0 \quad 40 \quad 48 \quad 348 \quad 1068 \quad 3228 \quad 5508}{24 \qquad\qquad\quad 100 \quad 120 \quad 68} \quad 5716\ \mu.$$

MARION'S :

♂, Length : 5 mm; $\alpha = 41$; $\beta = ?$; $\gamma = 33,5$.

FILIPJEV'S :

♀ (S. marioni), 5,33 mm; $\alpha = 43$; $\beta = 6$; $\gamma = 34$; V. = 54 %.

MICOLETZKY and KREIS (1930) have brought *S. pauli* to the genus *Enchelidium*, since they found the male of their *S. pauli* var. *denticulatum* which although according to me distinct from *S. pauli*, is a closely related species. In 1924 MICOLETZKY had synonymized *S. pauli* and *S. marioni* (FILIPJEV). In this I do not agree with my predecessors.

MICOLETZKY's females from the Adria measured on the average 3,24 (1,7-4,8) mm; $\alpha = 36$; $\beta = 4,5$; $\gamma = 17,3$ (9-24); V. = 54,4 %.

My female tapers distinctly to the anterior end, where it is only 25 % as wide as at the posterior end of the oesophagus. Head end bluntly truncate. Labial papillae setiform, 6 in number. Cephalic setae : 10 (2 fused crowns), the submedian setae paired, the longer ones 38 % of the corresponding diameter, the shorter setae 26,2 % of the same diameter. Amphids distinct, although rather small, width of their orifice 16 % of the corresponding diameter opposite to the middle of the buccal cavity. Buccal cavity elongate, distinctly narrowed to the posterior end. Greatest width 41,5 % of the length, which is 40 micra.

Excretory pore almost immediately behind the posterior end of the buccal cavity, at 48 micra from the anterior end, followed by a long pore and a distinct ampulla. Birefringent bodies opposite to the lower end of the buccal cavity.

Anterior end with some short setae, placed more or less in longitudinal rows. I was unable to find the three short setae, mentioned by Micoletzky as present in this species and reminding at a similar row of hairs in the genus *Anticoma*. Nerve ring at 32,5 % of the whole oesophageal length.

Tail conical, soon tapering to a filiform portion, which is slightly swollen at its posterior end. Length of tail equal to 3,87 times the anal diameter. Filiform portion occupying almost half the length of the tail.

Micoletzky mentions in respect with his specimens of the Mediterranean that the excretory pore is nearer to the anterior end as 2 times the length of the buccal cavity. In my specimens the distance is almost equal to that in *Enchelidium denticulatum*. The species in question is closely allied to *Symplocostoma marioni* Filipjev, like I could study it from Alexandria. The structure of the buccal cavity of that species differs in that it does not possess the row of longitudinal rods found at the brink of the second portion of the buccal cavity, in the structure of the buccal teeth, whereas the amphids have a more forward position in *S. marioni* in comparison with *E. pauli*.

Geographical distribution : Marseille, Nice, Black Sea, Sebastopol, Neapel and Ischia, Adria, near Rovigno and Melada and Bocche di Catarro, Suez.

Genus CATALAIMUS Cobb, 1920.

42. — Catalaimus eberthi (De Man, 1878).

(Fig. 42, A-D.)

1 ♂, from Villefranche, « Baie de Lilong », sand. Depth 5 m.

The male mentioned under the heading undoubtedly belongs to the species described by De Man as *Enchelidium eberthi*. As for the female I am less certain, although the pilosity at the anterior end, the structure of the buccal cavity as well as the spot, where the excretory pore opens to the exterior, points in the same direction.

At the other hand there are some differences, so for instance the fact, that in the female no more than 6 cephalic setae could be discovered, whereas the female of a *Catalaimus* species normally possesses 10 cephalic setae; moreover the tail of the present female is less effilate than that of the male. I am however inclined to suppose that the aforementioned male and female belong to one and the same species, in which case this species would belong

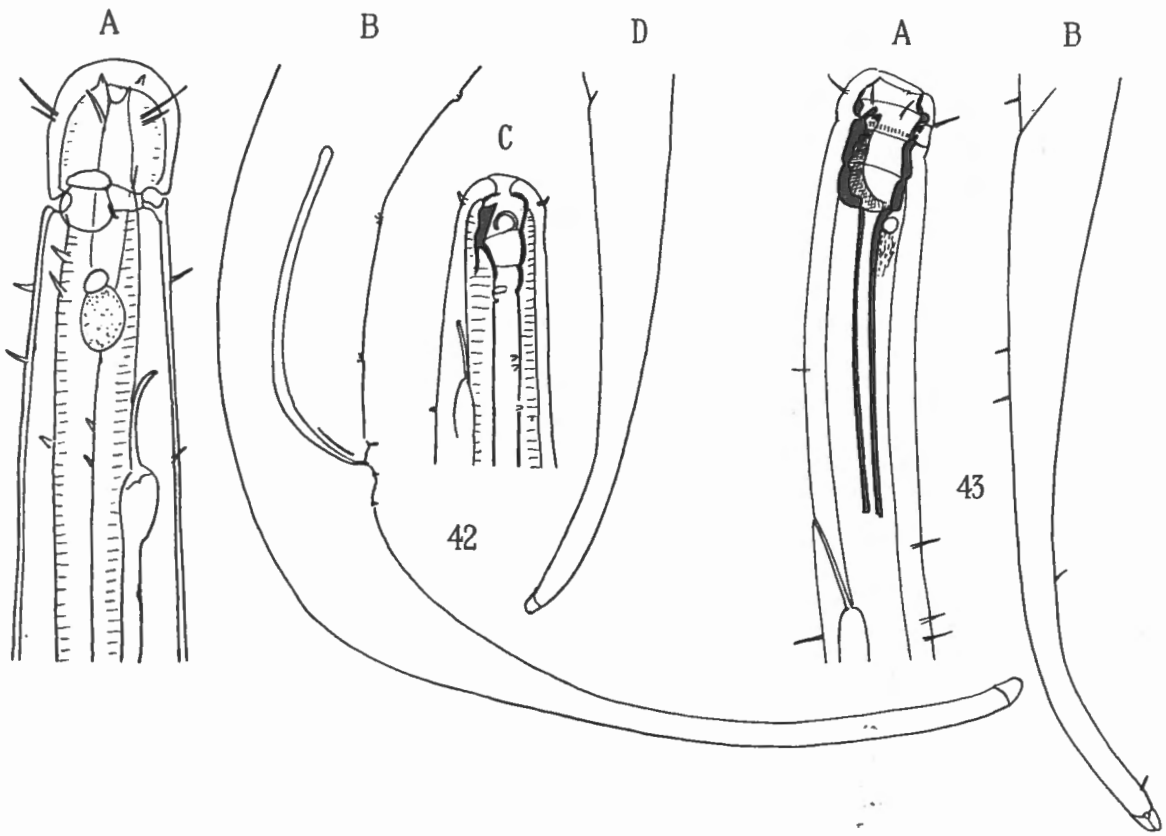

FIG. 42. — *Catalaimus eberthi* (DE MAN).
A : Male head. B : Male tail. C : Female head. D : Female tail.

FIG. 43. — *Symplocostoma paratenuicolle* n. nov.
A : Female head end. B : Female tail.

to the genus *Catalaimus* and not to the genus *Enchelidium*. At the other hand MICOLETZKY and KREIS (1930) have brought, and I think with good reason *Symplocostoma sabulicola* FILIPJEV to the genus *Catalaimus* and in this species the female at least — the male is not known — is in the possession of 6 cephalic setae. The female in question is indeed closely related to, if not identical with FILIPJEV's *S. sabulicola*.

If further researches would prove the correctness of my supposition that the forenamend male and female belong to one and the same species, then *S. sabulicola* might be a synonym of *Catalaimus eberthi*.

Length of the male from Villefranche :

♀ : 2.252mm; $\alpha = 40{,}2$; $\beta = 4$; $\gamma = 11{,}3$.

Cobb's formula :

0	40	300	580	M	2052	
20		40	48	56	39	2252 µ.

♂ after De Man : Length 2,085 mm; $\alpha = 41$; $\beta = 5{,}08$; $\gamma = 12{,}3$.

The slightly swollen head is bluntly rounded at the anterior end and demarcated against the remainder of the body by a constriction. A shallow pit leads into the rudimentary alimentary canal. I counted 6 labial papillae and 10 cephalic setae, the paired submedian setae being unequal in length, the longer ones measuring 53,2 % of the corresponding cephalic diameter, the shorter ones 26,75 % of the same diameter, being only half as long as the first.

On the oesophageal portion of the body the rather numerous short setae are more or less arranged in irregular rows. Amphidial openings, transverse slits, 38,4 % of the corresponding diameter, situated halfways between the anterior border and the eyes. The pigment spots are elongated oval, provided with roundish lenses. Excretory apparatus with a small ampulla and a long excretory duct. The latter opens just posterior to the eyes at a distance from the anterior border equal to 2,45 times the widest cephalic diameter. Nerve ring at 51,8 % of the oesophageal length.

Tail rather broad at base, quickly tapering to the long filiform apex, 6,8 anal diameters long. The filiform portion occupies 63,2 % of the whole tail. Spicula, slightly swollen at their proximal part, its chord 2,55 times as long as the anal diameter or 37,75 % of the whole tail length. Gubernaculum small, inconspicuous. Round the anal aperture one finds a number of minute setae, situated on papilla-like elevations, one in front of the anus, two on the postanal elevation of the body, whereas further forward a number of praeanal papillae are observed, of which the figure depicts 5 in all. De Man has found in his specimens from Naples only 6 cephalic setae, he says not to have seen the gubernaculum, which indeed may have escaped easily his observation. The number of praeanal papillae was seven in his specimen, which is one more than in ours, if the setiform papilla, situated just in front of the anal cleft, is considered as a praeanal papilla, with which it is certainly homologous.

Length : ♀, 1,824 mm; $\alpha = 45{,}6$; $\beta = 3{,}86$; $\gamma = 12$; V. = 58,8 %.

Filipjev's formula :

0	16	244	472	1072	1672	
12		36	40	40	32	1824 µ.

Head rounded anteriorly, without distinct papillae. A single crown of 6 cephalic setae only, measuring 14,7 % of the corresponding body diameter. Further some minute setae along the anterior end, more or less distributed in

longitudinal rows. Amphids transversely oval, 26,4 % of the corresponding diameter, opposite to the upper third of the ventral tooth. Birefringent corpuscles at the posterior end of the buccal cavity. Excretory pore just posterior to the buccal cavity. Excretory duct long, ampulla obvious. Buccal cavity with a rather broad vestibulum. Buccal cavity 2,12 times as long as it is wide. Ventral tooth obliquely cut at its distal end, which reaches to the implantation of the cephalic setae. Nerve ring at 51,5 % of the oesophageal length. Tail elongate conical with a fingershaped prolongation, 6,2 times as long as its anal diameter. Apical attenuation 4,75, the tail at apex being 21 % as broad as at the anal diameter.

GEOGRAPHICAL DISTRIBUTION : Mediterranean, Naples, Villefranche.

Genus SYMPLOCOSTOMA BASTIAN, 1865.

43. — **Symplocostoma paratenuicolle** nom. nov.

(Fig. 43, A, B.)

1 ♀. from « Baie de Lilong », sand. Depth 5 m.
Length : 3,804 mm; $\alpha = 57{,}2$; $\beta = 3{,}48$; $\gamma = 14$; V. = 55 %.

COBB's formula of the female I have brought under the same heading :

$$\frac{0 \quad 24 \quad 72 \quad 424 \quad 1064 \quad 2092 \quad 2732}{6 \qquad\quad 54 \quad 70 \quad 80 \quad 32} \quad 3804 \quad V = 55\%$$

I first have brought this female to the same species as the foregoing male belongs to, because it has a similar tail, secondly because we know that the females of the genus *Enchelidium* have an oral cavity distinctly divided into 4 portions by cuticularized rings and by the presence of distinct subventral teeth. As distinct differences with the male in question I may point to the presence of 6 cephalic setae instead of 10 and the more posterior position of the excretory pore.

Head truncated at the anterior end, with rather wide oral opening. Six rather inconspicuous labial papillae and 6 cephalic setae, 30 % of the corresponding cephalic diameter. Amphids opposite to the second portion of the buccal cavity. Just posterior to the latter the head is slightly constricted.

Buccal cavity strongly cuticularized, the long subventral tooth truncate at its tip. At a level with the tip of the tooth we find a row of small cuticularized rods. Just posterior to the buccal cavity the oesophageal cylinder contains the birefringent corpuscle followed immediately by an oval pigment-spot, thus giving the impression of an ocellus. Oesophagus with distinct cuticular lining. Some body setae irregularly scattered over the anterior portion of the body. Outlet of the ventral gland opening at a distance from the anterior border equal to 3 times the length of the buccal cavity. Nerve ring at 25 % of the oesophageal length. Vulva with distinct vulvar glands. Tail long and

slender, 8,25 anal diameters long, gradually tapering to the long filiform end, which occupies about 63 % of the whole tail length. Some short setae are observed mainly along the ventral surface of the same.

Geographical distribution : Mediterranean, Naples, Villefranche.

Discussion : I come to the conclusion that the concerned female might be identical with De Man's *Symplocostoma longicolle* Bastian.

Length of the female of De Man :

3,820 mm; $\alpha = 60,8$; $\beta = 4,45$; $\gamma = 16$; V. = 55 %.

Length of buccal cavity 1/57 of Oesophagus, 1/44 in my specimen.

Excretory pore at a distance from the anterior border equal to 5,3 times as long as the buccal cavity, therefore more posterior to that in my specimen.

Length of cephalic setae 90 % of the corresponding cephalic diameter.

Length of the tail 8,7 times the anal diameter.

If both specimens that of De Man (1878) and mine are conspecific and at the same time identical with the forementioned male than the species in question should be called *E. tenuicolle* Eberth and *E. eberthi* (=*Catalaimus eberthi*) would fall in the synonymy of that species.

Geographical distribution : Nizza, Villefranche.

44. — **Symplocostoma ponticum** Filipjev, 1918-1921.

(Fig. 44, A, B.)

1 juv. spec. from Villefranche « Baie de Lilong », sand. Depth 5 m.

Length : 3 mm; $\alpha = 57,5$; $\beta = 3,95$; $\gamma = 16,85$.

Cobb's formula :

$$\frac{0 \quad 12 \quad 380 \quad 760 \quad 920 \quad 2820}{12 \quad\quad 44 \quad 52 \quad 44 \quad 36} \quad 3000\ \mu.$$

Filipjev's :

♀, 7,250 mm; $\alpha = 50$; $\beta = 4,5$; $\gamma = 27$.

Body elongate, cuticle smooth, devoid of setae, bluntly rounded at the anterior end. No labial papillae observed. Cephalic setae 6 in number, 46 % of the corresponding cephalic diameter. Buccal cavity deep and narrow, 4 times as long as its greatest width and at the utmost 1/64 or 15,6 % of the whole oesophageal length. The buccal cavity is distinctly subdivided into 4 loculi of which the first 2. just posterior to the vestibulum are small, much broader than deep, whereas the third and fourth are almost twice as deep and inter se almost equally voluminous, as the first two. The subventral teeth reach to the second division of the buccal cavity. Oesophagus with birefringent body and an inconspicuous pigment spot. Oesophagus narrow. Nerve

ring at 50 % of the oesophageal length. Excretory cell 1,2 times as long as the oesophagus. Excretory pore at a distance from the anterior end, equal to 5,6 times the length of the buccal cavity or on 32,5 % of the whole body length. Tail gradually tapering to the apex, elongate conical, 5,82 times as long as the anal diameter. Posterior attenuation 0,34.

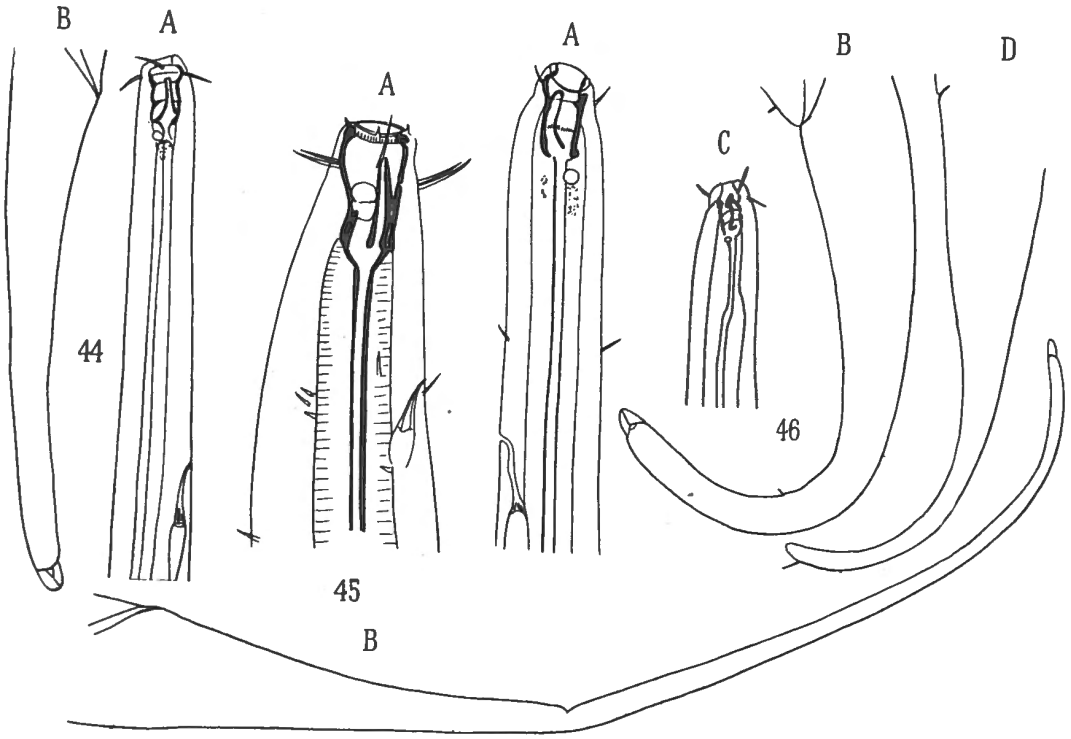

FIG. 44. — *Symplocostoma ponticum* FILIPJEV.
A : Juvenile head. B : Tail.

FIG. 45. — *Symplocostoma filicauda* n. sp.
A : Head end. B : Tail.

FIG. 46. — *Symplocostoma longicolle* BASTIAN.
A : Female head end. B : Female tail. C : Juvenile head end. D : Tail of the same.

GEOGRAPHICAL DISTRIBUTION : Black Sea, Mediterranean, Villefranche, Alexandria.

45. — **Symplocostoma filicauda** n. sp.

(Fig. 45, A, B.)

1 juv. spec. from Villefranche, between the « Lazareth » and « Anse Passable », grey mud. Depth 50 m.

FILIPJEV's formula :

$$\frac{0 \quad 140 \quad M \quad 660}{4 \quad 12 \quad 12 \quad 10} \quad 736\ \mu.$$

Length : 0,736 mm; $\alpha = 61{,}3$; $\beta = 5{,}4$; $\gamma = 9{,}65$.

Body slender, tail filiform. Cuticle with a few setae at the anterior end. Anterior end strongly attenuated too. Head bluntly truncated, lips with a crown of 6 minute setiform papillae. Cephalic papillae 10 in number, rather long, the lateral ones 60 % of the corresponding body diameter, the longer setae of the submedian pairs 60 %, the shorter setae of the same pairs 48 % of the corresponding cephalic diameter. Amphids more or less circular opposite to the middle of the buccal cavity, 26 % of the corresponding body diameter. Buccal cavity long and wide, 2,55 times as long as its widest part. Relations of both portions of the buccal cavity as 1,33 : 1, the proximal part being the undeepest one. Ventral tooth long and rather acute, reaching to in front of the anterior cephalic setae, or measuring 76 % of the whole buccal cavity, dorsal tooth at the border between the upper and the lower portion of the buccal cavity. No eyes, no birefringent bodies. Excretory pore at 1,75 times the length of the buccal cavity from the anterior end, followed by a short excretory duct and the usual ampulla.

At the same level as the excretory pore one finds in the lateral longitudinal field a group of 3 setae, apart from some short setae which do not occur in groups together. Tail effilate, quickly tapering to the long filiform portion, which occupies 70 % of the whole tail length, which is 9,1 times as long as the anal diameter. Attenuation 11, the tail at apex 9,05 % of the anal diameter.

The species in question is at once distinguishable at its long filiform tail and the wide slender buccal cavity together with the anterior position of the excretory pore, shaped as in *Symplocostomella mediterranea* n. sp. (confer p. 78).

46. — **Symplocostoma longicolle** BASTIAN, 1865.

(Fig. 46, A-D.)

1 ♀, 1 juv. from Villefranche, off the « Vieux Villefranche », black mud and organic detritus. Depth 20 m.
1 juv. from Villefranche « Baie de Lilong », sand. Depth 5 m.

Length : ♀, 4,52 mm; $\alpha = 45{,}2$; $\beta = 4{,}75$; $\gamma = 17{,}4$; V. = 61 %.

FILIPJEV'S formula :

0	400	1060	2760	4260	
12		80	100	40	4520 µ.

Juv. length : 2,484; $\alpha = 47{,}8$; $\beta = 3{,}22$; $\gamma = 16{,}3$.

FILIPJEV'S formula :

0	12	392	772		2332	
12		36	48	52	28	2484 µ.

Juv. length : 1,544 mm; $\alpha = 38{,}6$; $\beta = 2{,}86$; $\gamma = 9{,}41$.

Head rounded anteriorly, crowned with 6 cephalic setae, as long as 35 % of the corresponding cephalic diameter. Buccal cavity rather deep, with a circular opening, 2,78 times as long as its widest diameter. Length of anterior part

of the buccal cavity 38,5 % of the total length of the latter. Ventral tooth long and strong, 69,5 % of the total length of the buccal cavity. Just posterior to the buccal cavity there is a distinct ocellus. Oesophageal portion of the body with some scattered setae. Excretory pore at a distance from the anterior end equal to 4 times the length of the buccal cavity. Excretory apparatus with a long pore and a distinct ampulla. Nerve ring at 26,5 % of the oesophageal length. Tail elongate conical with a rather long fingershaped portion. Length of the tail 5,8 times the anal diameter. It is provided with a few short setae.

This species has a very wide distribution and is found near Gran Canaria Suez to the Black Sea, occurs likewise in North Sea, Baltic, Trondjhemsfjord, Oslofjord, etc.

47. — **Symplocostoma longiseta** n. sp.

(Fig. 47, A, B.)

1 juv. from Villefranche, between the « Lazareth » and « Anse Passable », grey mud. Depth 50 m.

Length : 1,292 mm; $\alpha = 32{,}3$; $\beta = 3{,}4$; $\gamma = 11{,}5$.

FILIPJEV'S formula :

$$\frac{0 \quad 8 \quad 200 \quad 380 \quad 1180}{8 \quad\quad 28 \quad 40 \quad 20} \quad 1192\ \mu.$$

It is with some doubt that I bring the species in question to the said genus. There is an indication of a formation of 4 bulbi at the posterior end of the oesophagus, so that one has to think at the genus *Bolbella* or *Polygastrophora*, but this indication is not very conspicuous.

If the species in question is compared with the other species of *Symplocostoma* it is obvious that here the cervical setae are distinctly longer than in most of the known species of that genus. There is a long subventral tooth. Head more or less rounded anteriorly, with a crown of rather distinct labial papillae. Cephalic setae, 6 in total comparatively long, 89 % of the corresponding cephalic diameter. Buccal cavity twice as long as its widest diameter. Anterior portion 20,75 % of the whole buccal cavity. The long tooth reaches till in front of the cephalic setae. The cervical setae which are inserted just behind the buccal cavity are almost as long as the corresponding diameter. Nerve ring at 52,6 % of the oesophageal length.

Tail rather long, at first cylindrical at its base, than gradually tapering to a rather filiform terminal portion. Length 5,18 times the anal diameter. Attenuation 10,4. Length of filiform portion 1/3 of while tail.

Order II : CHROMEDOROIDEA.

Family CYATHOLAIMIDÆ.

Genus LONGICYATHOLAIMUS Micoletzky, 1924.

48. — **Longicyatholaimus filicaudatus** n. sp.

(Fig. 48, A, B.)

1 ♀, from Villefranche, between the « Lazareth » and « Anse Passable », grey mud.
Length : 2,232 mm; $\alpha = 50,6$; $\beta = 11,6$; $\gamma = 4,3$; V. = 44,6 %.

Filipjev's formula :

$$\frac{0 \quad 192 \quad 992 \quad 1712}{24 \quad 32 \quad 44 \quad 24} \quad 2232\ \mu.$$

Body elongated with a long filiform tail. Cuticle with distinct lateral fields demarcated by 4 rows of larger dots, width of these fields 1/3 of the body diameter. Submedially each ring bears 3 transverse rows of smaller dots. Body only slightly tapering anteriorly. Here the width of the body is 54,5 % of the greatest body width.

Head rounded anteriorly, inconspicuously demarcated against the remainder of the body. Lips with a crown of 6 labial papillae and a second crown of 10 cephalic setae. The latter presents 4 pairs of submedian setae and 2 lateral setae in total. The longer partners of the submedian couples measure 36,8 % of the corresponding cephalic diameter. Buccal cavity with the usual diadem and a pointed dorsal tooth. Oesophagus hardly broadened posteriorly. Amphids with 6 ½ windings, their diameter 47 % of the corresponding body diameter.

Position of amphids just posterior to the insertion of the dorsal tooth. Tail conical at base, quickly tapering to the long filiform portion which occupies 4/5 of the whole tail. Attenuation 8. Length of tail equal to 25 anal diameters. Tail hardly swollen at apex. *L. longicaudatus* has amphids with 1 ½ winding only whereas the amphids of the present species possess 6 ½ windings.

The species in question is closely related to *L. longicaudatus* (De Man) created by De Man (1878) and redescribed by Kreis (1929). De Man had to his disposition a male only, long 2 mm, in which the β was 6,8, whereas Kreis saw females as well as males. In the latter the γ ranged between 5,5 and 7,3 in the former between 6,6 and 7,1. Therefore in comparison the oesophagus of my female is much shorter, whereas the reverse is the case with the tail of the same specimen, which is decidedly longer than in De Man's and Kreis specimens.

From *L. tenuicaudatus* the present species may be distinguished by the more regular punctation and by the greater number of amphidial windings.

From *L. heterurus* Cobb and *L. trichiurus* Cobb it may be distinguished by the number of the amphidial windings met the cuticular pattern.

49. — **Longicyatholaimus effilatus** n. sp.

(Fig. 49, A-G.)

2 ♂♂, 7 ♀♀, 1 juv. from Villefranche, farther end of the « Port de la Darse », black mud and organic detritus. Depth 3 m.

Length of a ♂ : 2,464 mm; $\alpha = 47{,}2$; $\beta = 15{,}3$; $\gamma = 8{,}55$.

Filipjev's formula :

$$\frac{0 \quad 160 \quad 340 \quad M \quad 2168}{28 \quad 52 \quad 52 \qquad 52} \quad 2464\ \mu.$$

No female measured.

Head end blunt. Six distinct lips, each crowned with a setiform papilla. The cuticle is transversely striated and marked with rows of dots and points, of which those on the lateral fields are particularly large and distinctly differentiated from those on the submedian fields, where the rows are more dense and the individual dots more close than on the lateral fields. Lateral fields with irregular rows of pores, opening to the cuticular glands. Further some scattered setae. Cephalic crown of setae composed of 10 elements in the usual distribution. Setae rather long, the longer submedian setae in the male 40 % of the corresponding diameter; shorter submedian setae 30 % of the same diameter, lateral setae 32 % of that diameter. Amphids consisting of 4 windings, 36,7 % of the corresponding body diameter. Buccal cavity shallow with a rather long dorsal tooth. From the posterior end of the oesophagus till the anal opening the width of the body remains the same.

There are 3 minute praeanal papillae. Spicula rather long and slender. slightly knobbed at their proximal end, pointed at their distal end and provided with a longitudinal crest along the sides. Length of spicula equal to 1,5 times the anal diameter. Gubernaculum angular with a long and slender prolongation. Distal end truncate, with fine dentition along the exterior rim. Length of the gubernaculum 1,34 times the anal diameter. Male tail conical on its basal 42,5 %, than filiform, slightly swollen at its apex. Medioventral one finds a row of 8 rather long setae.

Female in general as the male. Cephalic setae longer than in the male the longer submedian setae 72 % of the corresponding cephalic diameter, the shorter submedian setae 46,5 % of the same diameter. Body setae in the oesophageal region longer than in the male.

Female tail in general shaped as in the male. The conical portion half as long as the tail.

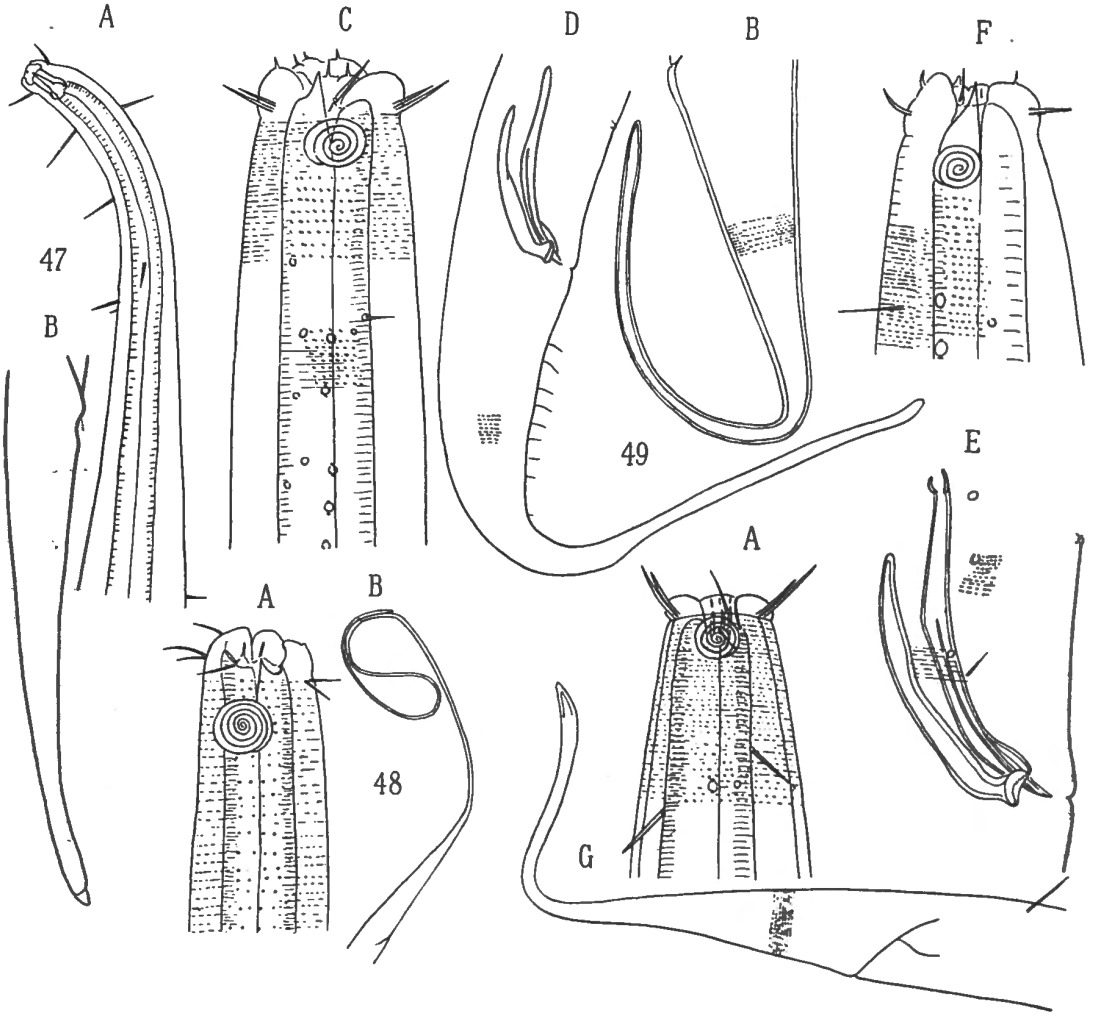

FIG. 47. — *Symplocostoma longiseta* n. sp.
A : Head end. B : Tail.

FIG. 48. — *Longicyatholaimus filicaudatus* n. sp.
A : Female head end. B : Tail.

FIG. 49. — *Longicyatholaimus effilatus* n. sp.
A : Female head end. B : Female tail. C : Male head. D : Male tail.
E : Male genital armature. F : Female head. G : Tail.

Genus METACHONIOLAIMUS n. gen.

This genus is closely related to *Choniolaimus* DITLEVSEN, differs from the latter in that it presents a distinctly differentiated dotting on the lateral fields. The buccal cavity is shallow, without distinct teeth. Disposition of the cephalic setae as in *Cyatholaimus*. Oesophagus with a posterior bulbar swelling, which is however not very vigorous. Spicula curved. Gubernaculum plate-like, shaped as in *Choniolaimus*. Tail effilate.

50. — **Metachoniolaimus pustulosus** n. sp.

(Fig. 50, A-C.)

1 ♀. from Villefranche, between the « Lazareth » and « Anse passable », grey mud. Depth 50 m.

Dimensions : $\frac{0 \quad 132 \quad 464 \quad 1064}{16 \quad 40 \quad 40 \quad 24}$ 1208 µ

Length : ♀, 1,208 mm; $\alpha = 30{,}8$; $\beta = 9{,}1$; $\gamma = 8{,}8$; V. = 38 %.

Head end truncate anteriorly to faintly rounded. Lips surrounded by minute labial papillae, further at least 6 very short cephalic setae. The large transverse spiral amphids show 4 ½ windings, their diameter is 57 % of the corresponding body diameter. Lateral sides ornated with two median rows of large dots, widely spaced and separated from two other longitudinal rows of slightly finer texture, by a distance half that of the distance over which the two rows of larger dots are separated. Dorsally and ventrally the dots are finer and more regularly spaced. Buccal cavity shallow, ornate with a diadem, which can however not be analysed further, because the cavity seems to be filled with dirt. Oesophagus ending in a faint, inconspicuous posterior bulb. Tail elongate, conical with a filiform portion occupying almost half the tail-length. Spinneret long, resembling that in *Spilophorella mediterranea*. Some scanty hairs are scattered over the cuticle. Length of tail equal to almost 6 anal diameters.

51. — **Metachoniolaimus cylindribucca** n. sp.

(Fig. 51, A-C.)

1 ♂, from Villefranche, entrance of the road, grey mud. Depth 230 m.

Dimensions : $\frac{0 \quad 116 \quad M \quad cl.}{12 \quad 28 \quad 32 \quad 24}$ 924 µ.

Length : ♂, 0,924 mm; $\alpha = 29$; $\beta = 8$; $\gamma = ?$.

Head capshaped, rounded anteriorly with 6 minute labial papillae and 10 cephalic setae at a level with the upper end of the diadem. Amphids circular, composed of 4 ½ windings, their diameter 45 % of the corresponding body diameter. On the lateral sides we find 4 longitudinal rows of dotted

points, alternating with cuticular pores and finer dots, separated by narrower spaces to the dorsal and ventral sides. The mentioned 4 rows are widely spaced. On the cuticle some scanty hairs. Buccal cavity cylindrical with distinct diadem, but without a dorsal tooth. Oesophagus ending with a distinct posterior bulbus, far more distinct than in *Metachoniolaimus pustulosus*.

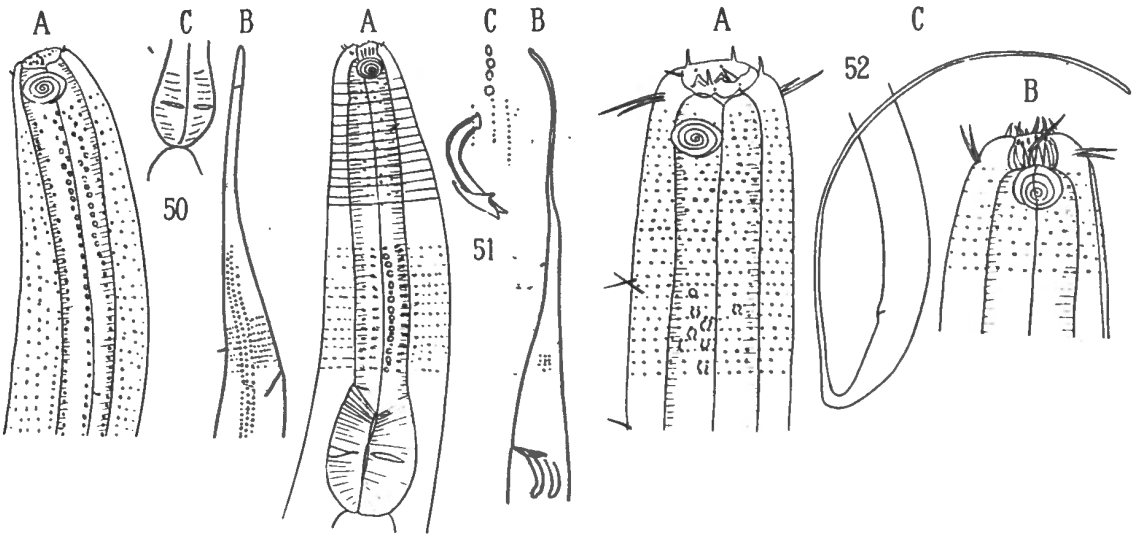

FIG. 50. — *Metachoniolaimus pustulosus* n. sp.
A : Female head end. B : Female tail. C : Base of œsophagus.
FIG. 51. — *Metachoniolaimus cylindribucca* n. sp.
A : Male head end. B : Male tail. C : Male genital armature.
FIG. 52. — *Paralongicyatholaimus mastigodes* n. sp.
A B : Female head ends. C : Tail.

Bulbus occupying 28 % of the oesophageal length. Spicula curved, broadly truncate at the proximal end, sharply pointed at the distal end, almost 1 anal diameter long. Gubernaculum platelike with distal tooth. Tail at first elongate conical than filiform, the filiform portion occupying almost 2/3 of the whole taillength. Tail 8 anal diameters long.

The present species may be easily distinguished from the former by the more circular amphids, the cylindrical buccal cavity, the more pronounced oesophageal bulb and the longer filiform tail.

Genus PARALONGICYATHOLAIMUS n. gen.

This new genus can be distinguished from the genus *Longicyatholaimus* by the absence of a dorsal tooth in the buccal cavity and by the fact, that the cuticle does not show specially differentiated lateral fields, since the punctation on the transverse rows is uniform. Amphids with 5 ½ windings. Tail distinctly effilated like in the genus *Longicyatholaimus*.

52. — **Paralongicyatholaimus mastigodes** n. sp.

(Fig. 52, A-C.)

2 ♀♀, from Villefranche, off the « Pointe de la Gavinette ». Depth 80 m.

Length : 2,668 mm; $\alpha = ?$; $\beta = 6.67$; $\gamma = 3,92$; V. = 45 %.

FILIPJEV'S formula :

$$\frac{0 \quad 400 \quad 1200 \quad 1988}{} \quad 2668\ \mu.$$

Head end demarcated against the remainder of the body by a slight constriction. Cuticle uniformly punctate, dotted with transverse rows of points. On the lateral fields oval pores are scattered between the transverse rows of points and connect these. Oesophageal portion of the body with some setae.

Six labia with as many setiform labial papillae. The crown of cephalic setae embraces 10 components, all setae subequal, 45,5 % of the corresponding cephalic diameter. Amphids circular with 5 ½ windings, 32,5 % of the corresponding body diameter, opposite to the lower border of the buccal cavity. Buccal cavity with strengthened walls and a diadem consisting of about 12 longitudinal ribs. Tail much like that of *Longicyatholaimus filicaudatus*, quickly tapering to the long filiform portion, which occupies 86 % of the whole tail length. Terminus of the tail not swollen. Attenuation 13. Length of tail 17 times the anal diameter.

The present species is nearly related to *Spilophora giardi* DE ROUVILLE found near Cette, which species apparently belongs to the same genus although it is almost impossible to reconstruct it after the very incomplete description DE ROUVILLE (1904) has given from this species. Similarly it is almost impossible to get a correct idea of the structure of this species after the figure I have seen in the bequest of the late Dr. DE MAN, which figure answers to DE ROUVILLE's description but is very incomplete.

Genus CYATHOLAIMUS BASTIAN, 1865.

53. — **Cyatholaimus paucispira** n. sp.

(Fig. 53, A-C.)

1 ♀, from Villefranche, baie de Lilong, sand. Depth 3 m.

Length : 3,6 mm; $\alpha = 45$; $\beta = 11{,}2$; $\gamma = 9$; V. = 55 %.

FILIPJEV'S formula :

$$\frac{0 \quad 160 \quad 320 \quad 1580 \quad 3200}{40 \qquad 76 \quad 80 \quad 52} \quad 3600\ \mu.$$

Body tapering anteriorly, at the utmost : half as wide anteriorly as its maximal width. Head rounded anteriorly, not sharply set off from the remainder of the body. Cephalic papillae setiform, 6 in number. Ten cephalic setae, the submedian pairs of setae unequal in length, the longer hairs measuring 38,3 % of the corresponding cephalic diameter. Amphids large, circular, consisting of 2 ½ loose windings, their diameter 35,5 % of the corresponding body diameter. Cuticula with transverse rows of dots, the dots demarcating the borders of the rings distinctly finer than those which occupy a transmedian position on the cuticular rings.

Nerve ring halfways the oesophageal length. Vulva placed posteriorly with distinct vulvar glands; the vulva itself is strengthened by longitudinal cuticularized ribs. Tail elongate, at first cylindrical, then more finger-shaped, the latter portion occupying 41,5 % of the whole tail, which is 8 anal diameters long. Posterior attenuation 6.

54. — **Cyatholaimus chitwoodi** n. sp.

(Fig. 54, A-C.)

1 ♀, from Villefranche, off the « Pointe de la Gavinette », grey mud. Depth 80 m.

Length : 1,608 mm; $\alpha = 22{,}3$; $\beta = 5$; $\gamma = 11{,}42$; V. = 48,5 %.

FILIPJEV'S formula :

$$\frac{0 \quad 132 \quad 320 \quad 780 \quad 1468}{20 \qquad 60 \quad 72 \quad 40} \quad 1608\ \mu.$$

The present species shows much resemblance with *Præacanthonchus punctatus* BASTIAN and might eventually be reckoned to that genus, were not the labial papillae of the species belonging to that genus minute, but prominent like in the present species, where we find setiform papillae.

Further we do not know how the male is structured, so that there is reason to keep the present species in the genus *Cyatholaimus* till we have more material to our disposition.

Head rounded anteriorly, demarcated posteriorly by a faint suture line. Cuticle striated transversely by means of points. Here and there, but especially along the lateral fields, placed more or less in rows, one may observe the pores of the unicellular skin glands.

Six setiform labial papillae surround the oral opening. There are 10 cephalic setae, of which the submedian groups are paired. Length of the longer submedian hairs 31,5 % of the corresponding cephalic diameter, the shorter ones 22,7 % of the same diameter. Amphids circular in outline, but

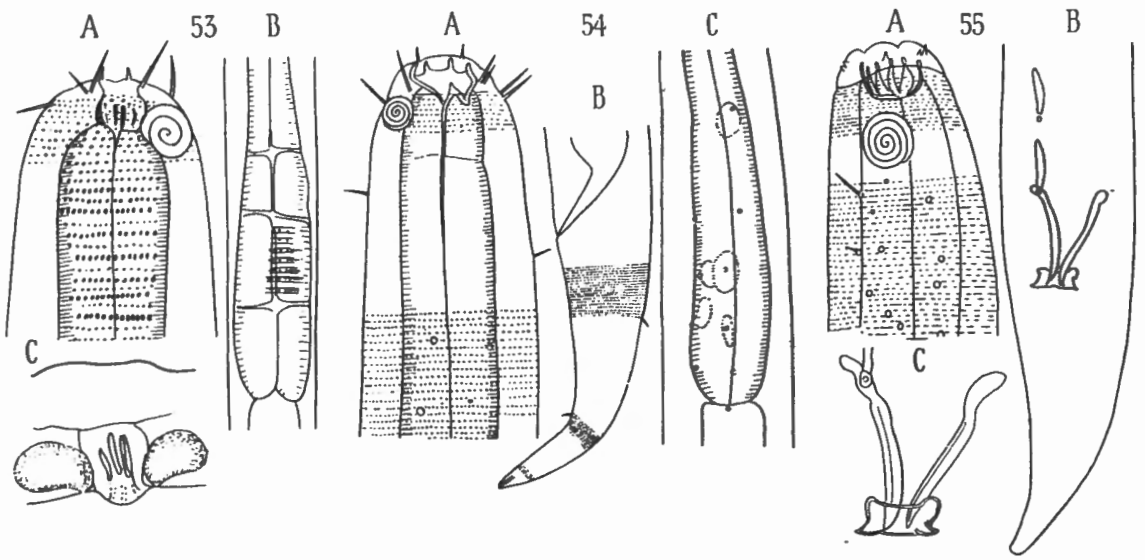

FIG. 53. — *Cyatholaimus paucispira* n. sp.
A : Female head. B : Tail. C : Vulva.

FIG. 54. — *Cyatholaimus chitwoodi* n. sp.
A : Female head. B : Tail. C : Base of œsophagus.

FIG. 55. — *Paraseuratiella brevisata* n. sp.
A : Head. B : Male tail. C : Male genital armature.

spiral in structure, situated opposite to the lower border of the buccal cavity, measuring 27,7 % of the corresponding body diameter. Buccal cavity shallow with a diadem, composed of 6 longitudinal ribs. Oesophagus cylindrical, slightly widened to the posterior end. No oesophageal bulb present. Nerve ring at 41,3 % of the whole oesophageal length. The skin bears some scattered hairs as well in the oesophageal region as on the tail part of the body.

Tail elongate conical, 2,65 times as long as the anal diameter. Spinneret distinct but short.

I have dedicated the present species to B. G. and M. CHITWOOD, the well known nematologists.

Cyatholaimus chitwoodi resembles likewise *C. sunesoni* ALLGÉN, recently (1942, p. 39) described by this author from Banyuls-sur-Mer. ALLGÉN's figure 9.

(p. 39) is rather incomplete with respect to the pilosity of the head end of his species. The amphids of his species show a smaller number of revolutions. ALLGÉN states to have found a female but fails to give measurements of the latter. The tail of his male tapers more adruptly than is the case with our female. So that we remain till so far more or less in doubt about the question of *chitwoodi* is conspecific with *sunesoni* or not. Should latter investigations prove this to be the case, than the present species has to change its name into *sunesoni*.

Genus PARASEURATIELLA n. gen.

The genus in question is intermediate between *Cyatholaimus* and *Seuratiella*. Like in *Seuratiella* the male is in the possession of 4 equal praeanal tubuli. The gubernaculum however, that, in *Cyatholaimus*, accompanies the spicula over almost their whole length, presents no longitudinal apophyses, but is shaped like a somewhat irregular rectangular plate with distal tooth-like excrescences. Further the most anterior tubulus is not larger than the three following ones, like in the case in *Seuratia*. Buccal capsule without the dorsal tooth, structured like in *Cyatholaimus*. Punctation uniform, no lateral differentiations. Ocelli present.

55. — **Paraseuratiella breviseta** n. sp.

(Fig. 55, A-C.)

1 ♂, 1 ♀, from Villefranche, between the « Lazareth » and « Anse passable », grey mud. Depth 50 m.

Length : ♂, 1,092 mm; $\alpha = 17$; $\beta = 5{,}7$; $\gamma = 10{,}9$.

FILIPJEV'S formula :

$$\frac{0 \quad 192 \quad M \quad 992}{28 \quad 60 \quad 64 \quad 52} \quad 1092\ \mu.$$

Length : ♀, 1,072 mm; $\alpha = 22$; $\beta = 7{,}08$; $\gamma = 8{,}92$.

FILIPJEV'S formula :

$$\frac{0 \quad 80 \quad 162 \quad 952}{12 \quad 40 \quad 48 \quad 24} \quad 1072\ \mu.$$

Head distinctly demarcated, in the possession of 6 lips. Labial papillae inconspicuous. Cephalic setae short, the partners of the submedian groups slightly unequal, 10,4 % of the corresponding cephalic diameter. Amphids rather large, with 5 ½ windings, circular, slightly posterior to the buccal cavity, 38 % of the corresponding body diameter. Cuticle with transverse rows of rather fine points, whereas the lateral fields are indicated by the numerous, irregularly scattered pores of the lateral glands. Ocelli present. Opening of the ventral gland not seen. In the oesophageal region one finds some short setae. Buccal cavity shallow and wide, with a diadem of 12 ribs. Eyes present.

Nerve ring in the female at 53 % of the oesophageal length. In the male 4 similar equidistant praeanal tubuli, the foremost on 3 anal diameters from the cloaca. Spicula slightly curved, knobbed at their proximal end, pointed at their apex, 85 % of the anal diameter long. Gubernaculum with upper edges rounded, lower angles pointed. Tail conical, 2,17 times as long as the anal diameter.

Genus PRÆACANTHONCHUS MICOLETZKY, 1924.

56. — **Præacanthonchus micoletzkyi** n. sp.

(Fig. 56, A-C.)

1 ♂, from Villefranche, off the « Plage des Marinières », coarse sand under vegetation of *Posidonia*.

The species is closely allied to *P. punctatus* (BASTIAN), which was falsely brought by me to the genus *Cyatholaimus* in my treatise on the Nemas from the North Sea and the Baltic. It may be distinguished from it by the different shape of the proximal end of the gubernaculum, which is undoubtedly more slender in the present species than in *punctatus*. In *punctatus* there are 6-7 praeanal papillae, whereas the present species does not possess more than 4 prominent papillae with tubular outlets of the concerned glands and a fifth papilla just anterior to the cloaca, which apparently is a slightly reduced tubulus.

The shape of the gubernaculum and spicula, as well as the number and structure of the praeanal papillae strongly resembles the figure KREIS has given from his species *Paracanthonchus arcuatus* from the Mediterranean, but the present species misses the characteristical dorsal buccal tooth, which all species of *Paracanthonchus* possess.

Yet I will not exclude the possibility that the present species is identical with the species MICOLETZKY has named *Præacanthonchus mediterraneus* in 1924, which species he characterized by saying that it differs from *P. punctatus* BASTIAN in that the proximal part of the gubernaculum is paired, whereas it is unpaired in *punctatus*. But since MICOLETZKY has given no further particulars of this species, which he promised to describe at a later date, *P. mediterraneus* must remain a nomen nudum. So I may dedicate the present species to the well known helminthologist MICOLETZKY by naming it *P. micoletzkyi*, although there will always remain some probability that the present species is conspecific with the named *P. mediterraneus*.

Length of the male : 1,132 mm; $\alpha = 28{,}5$; $\beta = 6{,}6$; $\gamma = 9{,}45$.

FILIPJEV's formula :

$$\frac{0 \quad 92 \quad 172 \quad 1012}{20 \qquad 36 \quad 40} \quad 1132\ \mu.$$

Head distinctly demarcated by a suture line. Six lips with inconspicuous labial papillae. Cephalic setae rather slender, 33 % of the corresponding

cephalic diameter. Amphids consisting of 4 ½ windings, circular, posterior to the buccal cavity, 41 % of the corresponding body diameter. Lateral fields demarcated by rows of larger, more widely distanced dots and rows of pores belonging to the corresponding skin glands; width of the lateral fields 60 % of the body diameter. Excretory pore on 2,64 times the width of the head at the level of the cephalic setae from the anterior end. Buccal cavity rather deep with a diadem of longitudinal ribs.

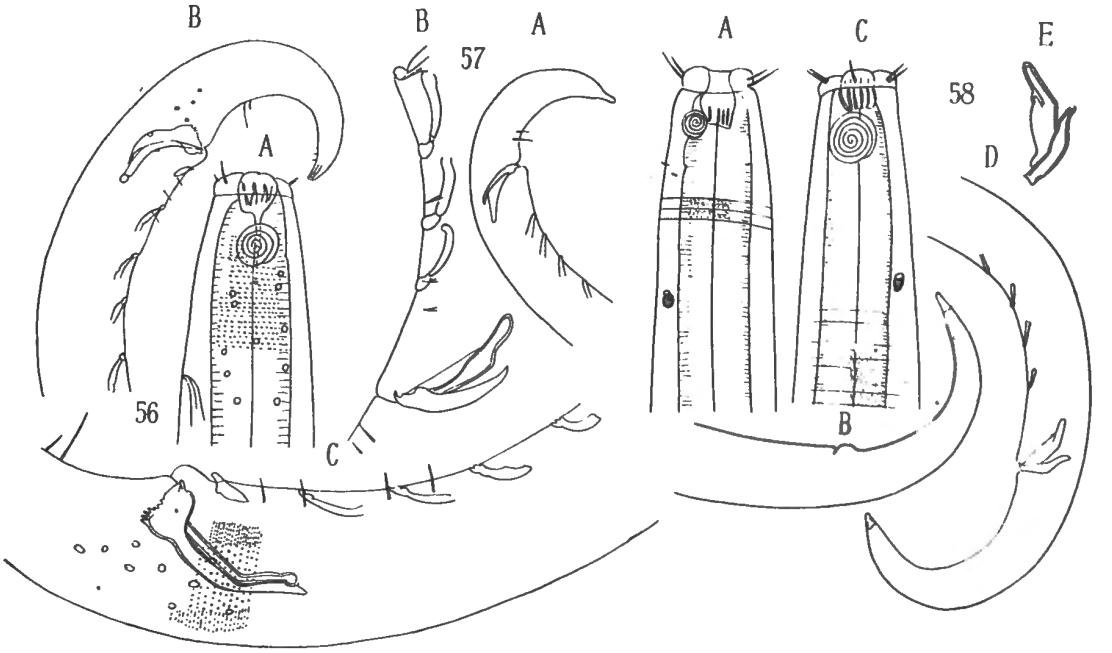

FIG. 56. — *Præacanthonchus micoletzkyi* n. sp.
A : Male head. B : Male tail.
C : Male genital armature.

FIG. 57. — *Præacanthonchus angulatus* n. sp.
A : Male tail.
B : Male genital armature.

FIG. 58. — *Præacanthonchus uniformis* n. sp.
A : Female head end. B : Female tail. C : Male head end. D : Male tail.
E : Male genital armature.

There are 4 distinct praeanal tubuli, separated from each other by almost equal distances, a fifth is found at the base of the anal promontory. Apart from these tubuli one finds in the ventral body sector some praeanal setae, as well as some longer setae on the ventromedian tail surface. On the tail end one may distinguish much clearer the difference in punctation between the lateral fields and the submedian body sectors, on which the rows of points are more closely placed, whereas the points are here much smaller and finer. Gubernaculum with paired lateral prolongations which are curved towards the head end and an unpaired broadened distal portion that bears some teeth at the

anal end, whereas more to the dorsal side of the same small denticulations are visible. Length of gubernaculum 91 % of the anal diameter. Spiculum curved, knobbed at the proximal end, pointed distally. Length of the spicular chord 1,12 times as long as the anal diameter. Tail curved ventrally with a distinct spinneret, 2,5 anal diameters long.

MICOLETZKY (1934, p. 135) supposes that *Cyatholaimus quarneriensis* VON DADAY might be a synonym of *Præacanthonchus mediterraneus* MICOLETZKY. In view of the fact that *P. mediterraneus* is a nomen nudum, I can neither confirm nor deny this supposition. If my figures are compared with those of VON DADAY (Pl. XXI, fig. 4-8) it is rather certain that both species are not identical, confer the dissimilarity of the praeanal papillae in the present species, the peculiar setosety of the tail, etc. So *C. quarneriensis* VON DADAY althoug probably belonging to *Præacanthonchus* must remain a questionable species.

57. — **Præacanthonchus angulatus** n. sp.

(Fig. 57, A, B.)

1 ♂, 1 juv. from Villefranche, off the « Vieux Villefranche », black mud. Depth 20 m.

Closely allied to the foregoing species but differing from it in the structure of the gubernaculum, which is angular, with hooked distal end. Gubernaculum almost 2/3 as long as the spiculum embracing the latter at its distal end. Gubernaculum as long as the anal diameter. Spiculum with a bend, its manubrium rather narrow and hardly headed, followed by a broader piece, which again attenuates towards the tip, 1,1 anal diameters long. There are only 4 praeanal tubuli, accompanied by short setulae, the anterior one separated from the anal opening by a distance equal to 2,64 anal diameters. The fifth reduced tubulus that was observed in *Præacanthonchus micoletzki* SCHUURMANS STEKHOVEN was not present in this species. Tail angular, curved ventrally, with distinct spinneret. There are here the same two unequal setae on the medioventral side, like I found in *micoletzkyi*. Tail 4 anal diameters long. Head end like in *micoletzkyi*.

Dimensions :

Length : ♂, 0,852 mm; $\alpha = 19{,}4$; $\beta = ?$; $\gamma = 10{,}65$.

$$\frac{0 \quad 700 \quad M \quad 772}{16 \qquad 44 \quad 32} \quad 852\ \mu.$$

58. — **Præacanthonchus uniformis** n. sp.

(Fig. 58, A-E.)

1 ♀, from Villefranche « Baie de Lilong », sand. Depth 5 m.

Length : ♀, 1,272 mm; $\alpha = 35\ 2$; $\beta = 7{,}4$; $\gamma = 9{,}1$.

Filipjev's formula :

$$\frac{0 \quad 172 \quad M \quad 1132}{20 \quad 32 \quad 36 \quad 28} \quad 1272\ \mu.$$

Length : ♀, 1,2 mm; $\alpha = 30$; $\beta = 6{,}65$; $\gamma = 10$; V. = 51,5 %.

Filipjev's formula :

$$\frac{0 \quad 180 \quad 620 \quad 1080}{20 \quad 36 \quad 40 \quad 24} \quad 1200\ \mu.$$

The present species fits best in the genus *Præacanthonchus* in the relationship of *Præacanthonchus angulatus* from which it may be distinguished by its larger size, by the more coarse and truncate tip of the gubernaculum, the broader spiculum. Tail comparatively longer. Dotting hardly more distinct on the lateral sides.

Head portion distinctly demarcated by a constriction from the remainder of the body. Six lips. A crown of 10 slender cephalic setae, of almost equal size measuring 40 % of the cephalic diameter long. Lips swollen. Amphids spiral, their outline circular, with 5 ½ windings in the male sex, female amphids with 4 ½ windings only. In the male the diameter of the amphids equals 57,5 % of the body diameter, in the female it measures only 30 % of the same diameter. Both amphids are situated at the lower border of the oral cavity. The latter is rather deep, 1,9 times as deep as its greatest width. It is divided into two equal portions : a vestibulum without strongly cuticularized walls and a proximal portion with the diadem consisting of 12 longitudinal ribs. Oesophagus cylindrical. Cuticle distinctly ringed, each ring with 4 transverse rows of fine points. Behind the amphids some fine setae. Ocelli small, on a distance equal to 4 times the length of the buccal cavity from the anterior border in the female sex, and to 5 times this length in the male sex. Female tail elongate conical with a distinct spinneret. Caudal lip of the anal opening swollen. Length of the tail 5 anal diameters long, male tail 4,7 anal diameters long. Genital armature consisting of a rather slender gubernaculum with bluntly truncate distal end and a bluntly pointed dorsal prolongation. Length of the same 0,75 anal diameter. Spicula angular, with a straight proximal portion and a velate distal end. Length 1 anal diameter. Four praeanal papillae, the fore most at 3 anal diameters from the anal opening.

Genus PARACANTHONCHUS MICOLETZKY, 1924.

59. — **Paracanthonchus filipjevi** MICOLETZKY, 1924.

(Fig. 59, A, B.)

1 ♂, 1 ♀, from Villefranche « Baie de Lilong », sand. Depth 5 m.

Length : 1,456 mm; $\alpha = 20{,}1$; $\beta = 7{,}28$; $\gamma = 8{,}85$; V. = 60,5 %.

FILIPJEV's formula :

0	80	200	880	1292	1456 µ.
32		52	72	36	

FILIPJEV's ♀ measured : 1,3 mm; $\alpha = 22$; $\beta = 5$; $\gamma = 11$; V. = 51 %.

The head is distinctly set off from the rest of the body. Cuticle with prominent rings, each with, especially at the lateral borders, 4 rows of small points. Lateral fields indicated by the pores of the skin glands and the short setae. Labial papillae setose Crown of cephalic setae composed of 10 components, the paired submedian setae subequal in length, the longer ones 27,6 % of the corresponding cephalic diameter, whereas the shorter ones measure 22,8 % of the same diameter. Lateral setae equal in length to the shorter submedian setae. Buccal cavity deep, with at least 10 longitudinal ribs of the diadem. Just like FILIPJEV (1922) remarks the buccal cavity becomes cone-shaped posterior to the buccal tooth. Dorsal tooth pointed opposite to the amphids. The amphids, circular in outline, do present 5 ½ windings. Diameter of amphids 26,3 % of the corresponding body diameter. Nerve ring at 40 % of the oesophageal length. Tail elongate conical, sharply pointed to the tip, with three caudal glands in tandem position. Length of tail equal to 3,32 anal diameters. In FILIPJEV's female the tail measured 3,1 anal diameters.

GEOGRAPHICAL DISTRIBUTION : Black Sea among *Cystosira*, Villefranche.

FAMILY CHOANOLAIMIDÆ.

Genus COBBIONEMA FILIPJEV, 1922.

60. — **Cobbionema cylindrilaimoides** n. sp.

(Fig. 60, A-C.)

1 ♀, from Villefranche, off the « Pointe de la Gavinette », grey mud.

FILIPJEV's formula :

0	40	92	212	652	1292	1456 µ.
32			80	88	60	

Length : 1,456 mm; $\alpha = 16{,}5$; $\beta = 6{,}85$; $\gamma = ?$.

Since the anal cleft could not be located with certainty the γ could not be determined with accuracy. I doubt however if FILIPJEV has correctly placed

the anal opening of his species quite near the beginning of the narrowing of the tail. The present species and *Cobbionema acrocera* Filipjev differ especially in the structure of the second portion of the buccal cavity which is here in the possession of particularly thick walls, which apparently may be drawn outwardly at the articulation point, by means of the musculature of the anterior bulb, thus affording a vigorous chewing mechanism for animal preys (other nemas ?).

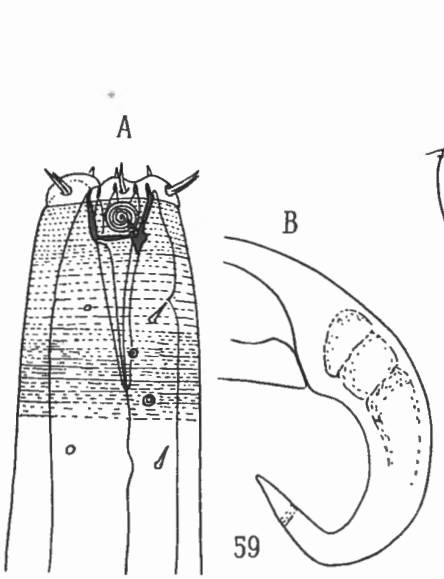

Fig. 59. — *Paracanthonchus filipjevi* Micoletzky.
A : Female head end.
B : Tail.

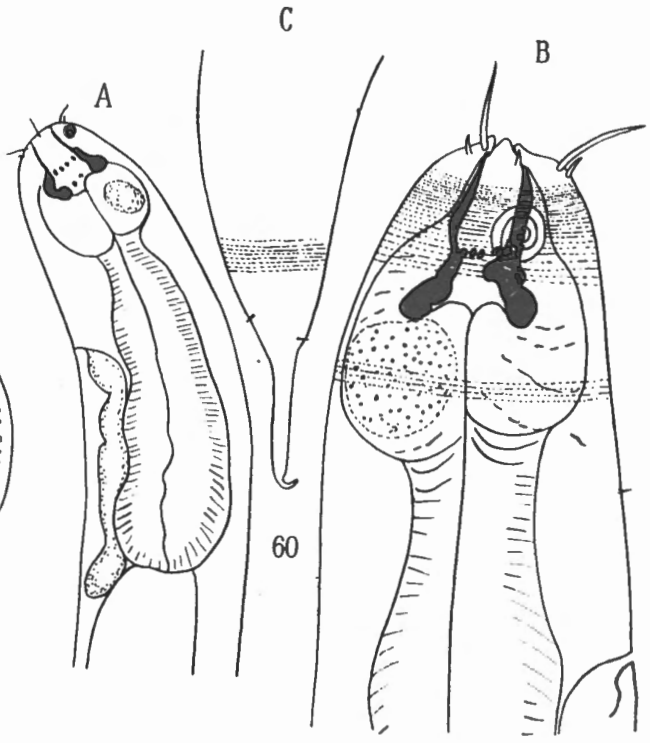

Fig. 60. — *Cobbionema cylindrolaimoides* n. sp.
A : Head end with œsophagus.
B : Anterior head end. C : Tail.

Head portion narrowing to the fore border, bluntly conical, rounded at its anterior end. Cuticle regularly dotted with transverse rows of points. Amphids almost circular in outline, spiral in structure, with 4 ½ windings, opposite to the anterior portion of the buccal cavity, their diameter measuring 26,9 % of the corresponding body diameter. Crown of cephalic setae anterior in position. There are 10 setae in total, the shorter submedian hairs and the lateral setae are very short and of the same size, whereas the longer submedian hairs surpass the shorter ones by far in length. Longer submedian setae measuring 68 % of the corresponding cephalic diameter, whereas the shorter submedian and lateral setae measure only 19,4 % of the same diameter.

Buccal cavity long and complicate, just like in other representants of the same family. The anterior portion which occupies 66 % of the whole cavity is cylindrical, bordered by thick cuticularized walls. These walls are prolongated backwards into broad, sinuous, thick cuticular bars, which serve the attachment of the pharyngeal musculature, which fills up the swollen pharyngeal bulb or corpus pharyngis, which is sharply set off against the isthmus. Posterior portion of the buccal cavity more or less triangular. On the brink between anterior and posterior portion of the same we find a row of denticular corpuscles, like *Halichoanolaimus* also possesses. Lips in the shape of protuberances. The oesophagus begins to swell again almost immediately behind the short isthmal attenuation, till it attains its greatest width at the junction with the intestine. Ventral gland short and broad, opening halfways the oesophagus by means of an excretory pore. Tail conical with a long pointed prolongation, that ends with a curved spinneret. Some minute setae are found at the beginning of the terminal point.

Typical for the genus is that the longer submedian setae apparently belong to a more anterior crown of sensory organs than the shorter setae, which build up a posterior crown, composed of exactly six components. The labial papillae, which probably were not seen because of their small size form the third crown. Here the crown of 4 cephalic setae is situated between the crown of labial sensory organs and the crown of six cephalic short setae, opposite to what we find in the genus *Dignathonema*, where the crown of 4 longer elements is situated posterior to that of the six shorter setae, which proves again that there exists a shifting of the sensory organs along the head, and that the crown of 10 elements in the *Cyatholaimidæ* is due to fusion of the two last crowns of 6 and 4 elements each.

GEOGRAPHICAL DISTRIBUTION : Mediterranean and Black Sea.

Genus CHEIRONCHUS COBB, 1917.

Syn. genus DIGNATHONEMA FILIPJEV, 1922.

61. — **Cheironchus macramphis** n. sp.

(Fig. 61, A-F.)

1 ♂, 1 juv. from Villefranche, off the Station, coarse sand under vegetation of *Posidonia*. Depth 15 m.

Length : ♂, 2,560 mm; $\alpha = 30,5$; $\beta = 12,8$; $\gamma = 32$.

FILIPJEV's formula : $\frac{0 \quad 200 \quad M \quad 2040 \quad 2480}{48 \quad 72 \quad 84 \quad 64}$ 2560 µ.

Length of the ♀ of FILIPJEV's *Dignathonema bulbosum* : 4,340 mm;
$\alpha = 40$; $\beta = 19$; $\gamma = 56$.

FILIPJEV has only seen a female of his species, so that the male brings a wellcome addition to our knowledge of the genus.

Head bluntly truncate to slightly pointed at its anterior end. Lips with minute labial papillae. Further two crowns of cephalic setae, an anterior crown consisting of 6 short conical, papilliform cephalic setae that measure 16,6 % of the corresponding cephalic diameter and a crown of 4 rather long cephalic hairs, which are 42 % of the corresponding diameter long. In total we have

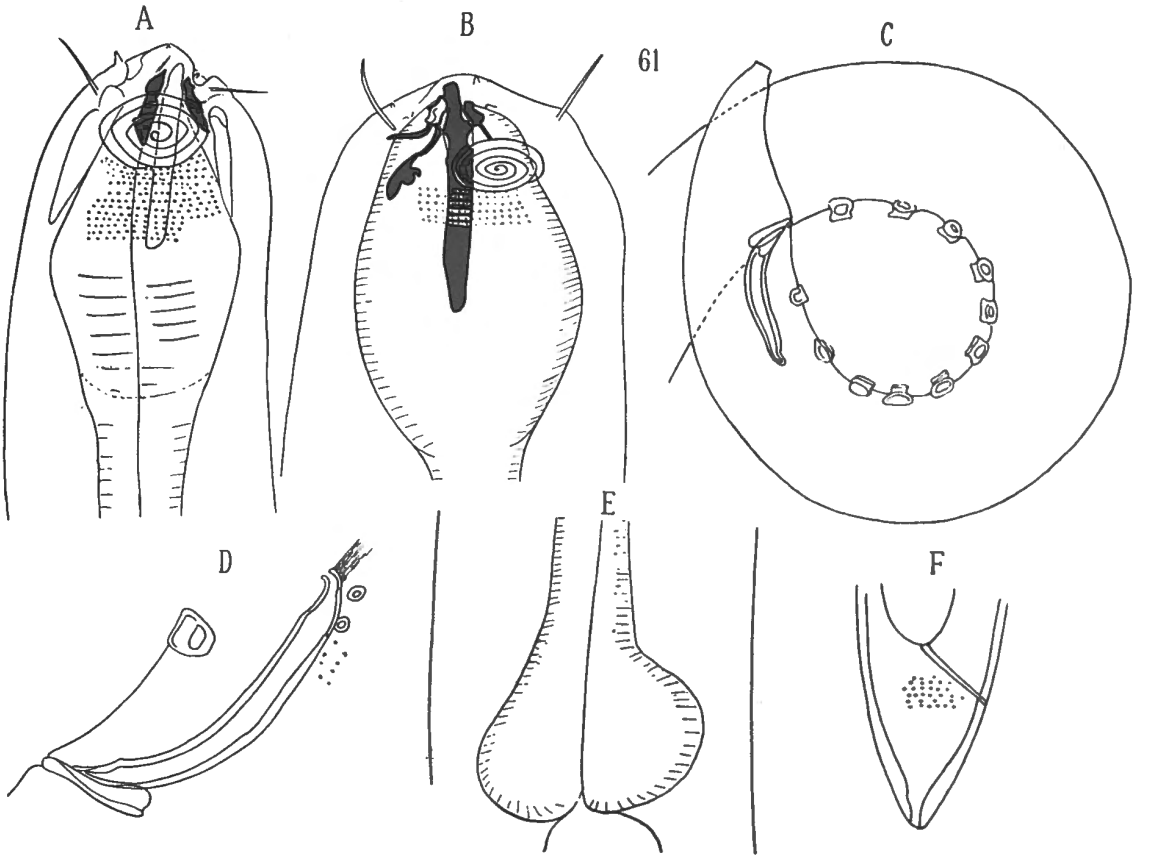

FIG. 61. — *Cheironchus macramphis* n. sp.
A B : Head end. C : Male tail. E : Male genital armature. E : Base of œsophagus.
F : Tail of larva.

therefore 3 crowns of cephalic sense organs. Cuticle dotted with small points, placed in transverse rows. Body setae almost totally absent. Amphids very broad, distinctly elliptical, with 4 ½ windings, their diameter 54 % of the corresponding body diameter. Buccal cavity apparently not very deep, since the cavity is partly filled up with the buccal armature, consisting of two large jaws, placed in the lateral plane. These jaws are supported at each side by small prongs, or secondary jaws, which bear at their distal ends irregular club-shaped thickenings. At each side apparently two such prongs are to be found.

Pharyngeal portion of the oesophagus elliptical, swollen, strongly muscular. Isthmus long and narrow. Posterior end of oesophagus sudden becoming bulbar again. Tail short, conical, 1,285 times the anal diameter, truncate at the spinneret. Spicula angular, curved, with a small proximal knob, 1,31 times the anal diameter long. Gubernaculum small, triangular. There are 12 praeanal papillae, the most anterior of which is situated at 5,85 anal diameters from the cloaca.

The present species differs from the nearly related *Dignathonema bulbosum* FILIPJEV [*Cheironchus bulbosus* (FILIPJEV)] in that the longer submedian cephalic setae are distinctly longer in *macramphis* than in *bulbosus* (FILIPJEV). Further the amphids are much larger and elliptical, whereas the general outline of the same structures in *bulbosus* is almost circular, like is also the case in *Dignathonema norvegicum* ALLGÉN [*Cheironchus norvegicus* (ALLGÉN)], which was depicted by ALLGÉN (1940) after a female with invaginated head end. This species was insufficiently depicted and described. If the shape of the tail is taken into consideration it should be remarked, that this shows far greater resemblance with that of our *Cobbionema cylindrolaimoides* than with that of a *Cheironchus* species, where the tail is short and blunt. As far as the buccal cavity is regarded, ALLGÉN's figure lets us quite in doubt, how it was structured in reality. Did ALLGÉN really see the peculiar jaws, typical for that genus, or was the buccal cavity more cylindrical ? This we urgently want to now before it is possible to make a final conclusion.

Genus TROGOLAIMUS COBB, 1920.

The genus *Trogolaimus* is more or less intermediate between *Halichoanolaimus* and *Cobbionema*. The buccal cavity consists of two spaces, the first of which is cylindrical like in *Cobbionema* (in COBB's *Trogolaimus uniformis* it was cyathiform, but this may be due at least mainly to the fact, that in this specimen the buccal cavity was disclosed), whereas the walls of the second space are strengthened by a number of rodlike longitudinal cuticularized ribs, like we find these in *Halichoanolaimus*. I counted 6 of these. COBB has found no more than 3. The bars are, like COBB remarks, crowned with curved cusps. A cuticularized transverse band holds the longitudinal bars together at the junction between first and second portion of the buccal cavity and serves at the same time the attachment of the muscles. There is a distinct pharyngeal bulblike swelling. Tail conical at base, ending in a filiform portion just as in *Halichoanolaimus*. In *Trogolaimus uniformis* COBB describes the tail as cylindrical tapering towards the rounded or conoid terminus. In his specimen the tail was therefore differently shaped from that in the present form. Further differences are found in the papillashaped structure of the cephalic setae in COBB's form, whereas the same setae are distinctly hairshaped in ours and in

the absence of body setae in our form, whereas Cobb's species presents distinct cervical setae placed backwards from the spiriform amphids. These differences are however not great enough to separate the present form from the genus *Trogolaimus* and to bring it to a new genus.

62. — **Trogolaimus micramphis** n. sp.

(Fig. 62, A, B.)

1 juv. spec. from Villefranche, off the « Pointe de la Gavinette », grey mud. Depth 80 m.

Length : 1,712 mm; $\alpha = 33$; $\beta = 6,3$; $\gamma = 8,55$.

Filipjev's formula :

0	40	100	272		1512	
32			52	52	36	1712 µ.

Head bluntly conical at its anterior end. No prominent lips. The lips are closed in the specimen depicted in figure 59 *a*. Labial papillae short, conical. A crown of 6 bluntly conical more or less papilliform setae surround the head. These setae measure 15,2 % of the corresponding diameter. Cuticle with transverse rows of dots, quite like in *Halichoanolaimus*. Buccal cavity with an anterior cylindrical portion, bordered by uniformly cuticularized walls. Its length is 27,7 % of the whole length of the buccal cavity. The walls of this portion are structured as in *Cobbionema*. Follows a row of toothlike corpuscles, these being 6 cusps, which form the prolongations of the longitudinal cuticularized bars, that strengthen the second buccal space. These 6 in number apparently function with their cusps as a chewing apparatus. The whole is enveloped by a pharyngeal bulb. Amphids circular, rather small, composed of 2 ½ windings and measuring 22,5 % of the corresponding body diameter. They are situated opposite to the beginning of the posterior buccal cavity. Sideways, i.e. to the dorsal and ventral side this anterior portion of the buccal cavity is anchored into the pharyngeal bulb by cuticular prongs. Tail conical at its basal 42 %, then filiform, rounded at apex, 5,7 anal diameters long.

Genus HALICHOANOLAIMUS De Man, 1886.

63. — **Halichoanolaimus filicauda** Filipjev, 1918.

(Fig. 63, A-C.)

1 ♂, 1 ♀, 1 juv. from Villefranche, between the « Lazareth » and « Anse passable », grey mud. Depth 50 m.

Length : ♂, 2,420 mm; $\alpha = 33,2$; $\beta = 8,1$; $\gamma = 7,1$.

Filipjev's formula :

0	280	M	1940	1980	
40	68	68	60	60	2420 µ.

Filipjev's : ♂, length : 3,1 mm; $\alpha = 38$; $\beta = 10$; $\gamma = 9$.

Length : ♀, 2,28 mm; $\alpha = 28,5$; $\beta = 8,1$; $\gamma = 9,5$.

FILIPJEV's formula :

$$\frac{0 \quad 280 \quad 1080 \quad 2040}{40 \quad 70 \quad 80 \quad 40} \quad 2280\ \mu \quad V. = 48{,}5\ \%$$

FILIPJEV's : ♀, length : 3,1 mm; $\alpha = 25$; $\beta = 8$; $\gamma = 7$; V. = 45,5 %.

In the dimensions there is a clear conformity between FILIPJEV's data and mine. As for the details our specimens answer rather well to the figures and description FILIPJEV has given.

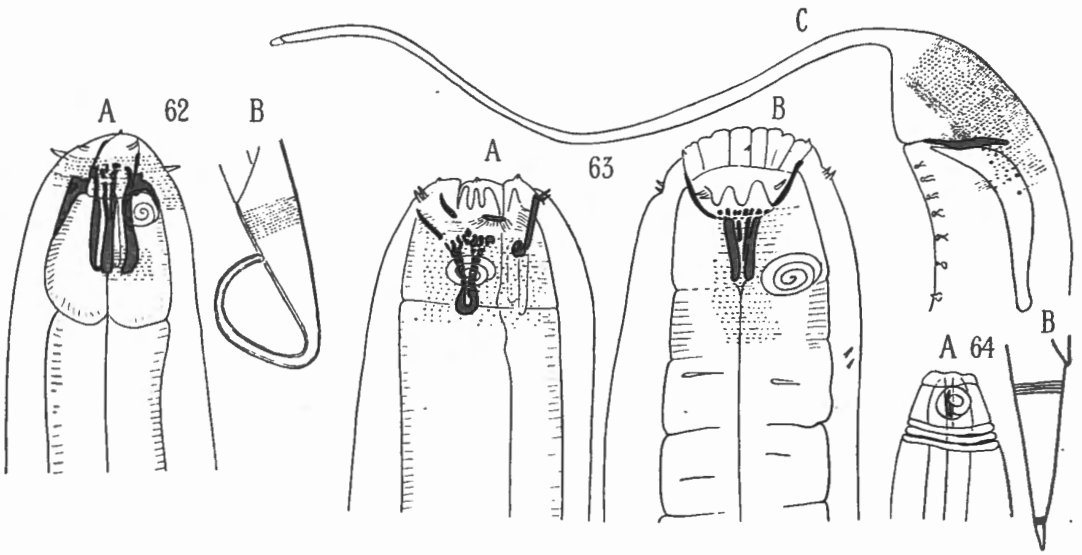

FIG. 62. — *Trogolaimus micramphis* n. sp.
A : Head end.
B : Tail.

FIG. 63. — *Halichoanolaimus filicauda* FILIPJEV.
A : Juvenile head end. B : Female head.
C : Male genitale armature and tail.

FIG. 64. — *Desmodora pontica* FILIPJEV.
A : Juvenile head end. B : Tail.

The amphids are in the present species however more elliptical than in FILIPJEV's specimens. Head rounded anteriorly with six lips, which bear a short papilla each. Crown of cephalic setae transformed into a crown of ten papillae. Amphids with 3 ½ windings, situated opposite to the caudal portion of the buccal cavity; their width 24,2 % of the corresponding cephalic diameter. Buccal cavity wide, caliciform, its vestibulum with vigorously cuticularized walls is followed by a row of toothlike corpuscles and a bundle of caudal rods near the bottom of the buccal cavity. Male genital armature consisting of a curved spiculum, slightly attenuated but not knobbed towards the proximal end, pointed distally. Chord of the same 1,38 anal diameters. Gubernaculum short, plate-like 0,69 times the anal diameter. At least 7 praeanal papillae. Basal tail portion 12,5 % of the whole tail length. Filiform portion 87,5 % of the same. Length of tail equal to 6,22 times the anal diameter.