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NEMATHELMIA, KINORHYNCHA, AND CHAETOGNATHA.

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PLATES I–XII.

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INTRODUCTION.

IN the present paper several groups have been included for purposes of convenience, and not because of their intimate relationships. They have this in common, that not one of the groups was systematically collected for its own sake, but was obtained as a by-product of the search for other groups. Thus the land and fresh-water Nematodes were found whilst searching for Oligochaeta in soil, moss, water-weeds, &c.; the marine Nematodes and Kinorhyncha were picked out of the *débris* at the bottom of bottles containing Polychaeta. Under these circumstances the amount of material thus obtained was surprising. For various reasons the time at my disposal for the preparation of this paper was all too short, and only a small fraction of the marine Nematode material has been thoroughly examined. No attempt was made to collect the parasitic Nematoda. I was naturally attracted by specimens which seemed to be new or strange, and this is the explanation of the large proportion of new genera and species described below. Doubtless many other previously described species live in the Clare Island area. The greater part of the available time was devoted to the examination of the Nematoda from a certain Station in Clew Bay, where a single haul of the dredge was taken. The dredging was carried out from S.S. "Helga," and is entered in the Station List for 1909 as follows:—

"W. 84.25,V'14. 1·4 miles N.W. by N. ¼N. of Corwell, off Crump I. Naturalists' Dredge in 24 fms., on a bottom of sand and shells."

The dredge came up filled with gravel, sand, and broken shells. Some of this was washed, and the water poured off through fine silk. A few

ounces of flocculent material were thus obtained, and this material has furnished an apparently inexhaustible source of new and interesting species. They are forms belonging to the micro-fauna, among them being many Copepods (Farran, No. 45 of this series, pp. 1 and 2), Halacarid mites, Annelida (Polygordius 2 spp., Streptosyllis, Chrysopetalum, Praegeria, Grania, &c.), and Nematoda (Anguillulidae, Chaetosomatidae, Desmoscolecidae). The number of species of Nematodes seems to be infinite, and only a portion of them are here described. The great majority of the species have not previously been described, owing to the fact that this particular *habitat* has never yet been investigated properly. On account of the presence of vast numbers of the Archiannelid *Polygordius lacteus* Schneider, this type of sea-bottom should be known as "Polygordius ground." The same type of ground, sheltering the same association of species, has been found in Dingle Bay, and is doubtless widely distributed in sub-littoral waters. The following is a list of the species of Nematoda described from this station:—

Family ANGUILLULIDAE.

Nuada leptosoma *gen. et sp. nov.*
Halaphanolaimus pellucidus *gen. et sp. nov.*
Monohystera anechma *sp. nov.*
Dipeltis incisus *sp. nov.*
Oxystoma asetosa *sp. nov.*
Stenolaimus Marioni *sp. nov.*
Sabatieria celtica *sp. nov.*
Desmodora sanguinea *sp. nov.*
Platycoma cephalata *Cobb.*
Fiacra brevisetosa *gen. et sp. nov.*
Cylicolaimus magnus (*Villot*).
Eurystoma filiforme *de Man.*
Demania major *gen. et sp. nov.*
Oncholaimus macrolaimus *sp. nov.*
Enoplus communis *Bastian.*
E. labrostriatus *sp. nov.*
E. longicaudatus *sp. nov.*

Family CHAETOSOMATIDAE.

Chaetosoma hibernicum *sp. nov.*
C. spinosum *sp. nov.*

Family DESMOSCOLECIDAE.

Desmoscolex minutus *Claparède.*
D. nematoides *Greeff.*
D. longirostris *sp. nov.*
D. brevirostris *sp. nov.*
D. polydesmus *sp. nov.*

It was noted that specimens found under stones on the shore, in weeds either from the shore or dredged in 1–20 fathoms, or in Laminaria roots, usually belonged to species already well known. On the other hand, specimens living in sand or mud, or in the sand of Zostera beds, or those dredged on a bottom of sand, shells, or gravel, were usually either new or very rare. The

local distribution of a species is generally strictly limited by the environment, and only a very few species, such as *Anticoma pellucida* and *Thoracostoma figuratum*, are found under diverse conditions.

Owing to the method by which the material has been preserved—chiefly in formalin—the specimens are not in very good condition, and for this reason many new forms have not been described.

The following list includes all the species dealt with in this paper. Those which have not previously been recorded from the British Isles are marked with an asterisk.

Phylum NEMATHELMIA.

Order NEMATODA.

Family ANGUILLULIDAE.

A. *Land and fresh-water species.*

Tripyla filicaudata *de Man.**
Plectus granulosus *Bastian.*
Bunonema reticulatum *Richters.*
Rhabditis filiformis *Bütschli.**
Ironus ignavus *Bastian.*
I. longicaudatus *de Man.**
Diplogaster filicaudatus *Bütschli.**
Mononchus macrostoma *Bastian*
M. papillatus *Bastian.*
Chromadora bioculata *M. Schultze.**
C. Leuckarti *de Man.**
Tylenchus robustus *de Man.**
Dorylaimus obtusicaudatus *Bastian.*
D. intermedius *de Man.**
D. Carteri *Bastian.*
D. acuticauda *de Man.**
D. crassus *de Man.**
D. brigdammensis *de Man.*

B. *Marine species.*

Nuada leptosoma *gen. et sp. nov.*
Halaphanolaimus pellucidus *gen. et sp. nov.*
Monohystera acris *Bastian.*
M. normandica *de Man.**
M. anechma *sp. nov.*
Enchelidium tenuicolle *Eberth.**
Dipeltis typicus *Cobb*, var.
D. incisus *sp. nov.*
Oxystoma asetosa *sp. nov.*
Cricolaimus elongatus *gen. et sp. nov.*
Anticoma pellucida *Bastian.*
A. Eberthi *Bastian.*
Phanoderma gracile *de Man.**
Stenolaimus Marioni *sp. nov.*
Axonolaimus filiformis *de Man.*
Halichoanolaimus robustus (*Bastian*).
Sphaerolaimus hirsutus *Bastian.*
Sabatieria celtica *sp. nov.*
Thalassironus britannicus *de Man.*
Spira parasitifera *Bastian*
S. Schneideri *Villot.**
S. laevis *Bastian.*
Desmodora sanguinea *sp. nov.*
Spilophora gracilicauda *de Man*
Euchromadora vulgaris (*Bastian*).
Chromadora nudicapitata *Bastian.*
Cyatholaimus ocellatus *Bastian.*

C. dubiosus *Bütschli.**
Dagda bipapillata *gen. et sp. nov.*
Diodontolaimus sabulosus *gen. et sp. nov.*
Platycoma cephalata *Cobb.**
Fiacra longisetosa *gen. et sp. nov.*
F. brevisetosa *sp. nov.*
Thoracostoma figuratum (*Bastian*).
T. denticaudatum (*Schneider*).*
Cylicolaimus magnus (*Villot*).*
Symplocostoma longicolle *Bastian.*
Eurystoma filiforme *de Man.**
E. acuminatum *de Man.*
Demania major *gen. et sp. nov.*
D. minor *sp. nov.*
Oncholaimus macrolaimus *sp. nov.*
O. vulgaris *Bastian.*
O. similis *sp. nov.*
O. attenuatus *Dujardin.*
Enoplus communis *Bastian.*
E. Bütschli *sp. nov.*
E. labrostriatus *sp. nov.*
E. diplechma *sp. nov.*
E. longicaudatus *sp. nov.*

Family CHAETOSOMATIDAE.

Chaetosoma hibernicum *sp. nov.*
C. spinosum *sp. nov.*

Family DESMOSCOLECIDAE.

Desmoscolex minutus *Claparède.*
D. nematoides *Greeff.**
D. longirostris *sp. nov.*
D. brevirostris *sp. nov.*
D. polydesmus *sp. nov.*

Family OGMIDAE *fam. nov.*

Ogma Murrayi *gen. et sp. nov.*

Family MERMITHIDAE.

Mermis nigrescens *Dujardin.*

Order NEMATOMORPHA.

Family GORDIIDAE.

Parachordodes violaceus (Baird).

Phylum KINORHYNCHA (Echinoderida).

Order HOMALORHAGAE.

Family PYCNOPHYIDAE.

Pycnophyes dentatus (*Reinhard*).*
P. Calmani *Zelinka.**
P. Zelinkaei *sp. nov.*

Order CYCLORHAGAE.

Family ECHINODERIDAE.

Echinoderes Dujardinii *Claparède.**
E. Worthingi *Zelinka.**

Phylum CHAETOGNATHA.

Sagitta bipunctata *Q. & J.*
Spadella cephaloptera *(Busch.).*

This list includes one new family, eight new genera, twenty-eight new species, and twenty-six others which have not previously been recorded from the British Isles. The total number of species is 85, and all of these, with the exception of *Parachordodes violaceus*, and of the two Chaetognaths, *Sagitta bipunctata* and *Spadella cephaloptera*, are additions to the Irish fauna. The free-living Nematoda and the Kinorhyncha have received very little attention from British naturalists. Not a single species of the latter group has previously been recorded. The only paper of any importance dealing with the free-living Nematoda is the pioneer work of Bastian (1865), in which 100 new species of the Anguillulidae were described, from soil, fresh-water, and the sea-shore.

With regard to the tables of dimensions given for many of the species, it is necessary to make a few remarks. Where possible, several examples of both sexes have been measured. It was frequently noticed that there was great variation in the relative proportions of the total length, the oesophagus, and the tail, in individuals which were not at the same stage of growth. In the smaller or more immature specimens the oesophagus and tail were relatively longer than in the fully mature individuals. It thus appears that when approaching maturity growth occurs chiefly in the region between the posterior end of the oesophagus and the anus. This fact becomes of importance when comparing the relative proportions of an immature specimen with those of a mature one. For instance, on p. 39 the proportions of several mature specimens of *Cylicolaimus magnus* are compared with those of an immature individual measured by de Man. In the latter specimen the oesophagus and tail form a far larger proportion of the total length than in the three mature specimens whose measurements are given. It must also be pointed out that the specimens from which the tables of dimensions were compiled were mounted in glycerine, and that some of them had been in that condition for several years. Consequently some of them were very much flattened, whilst at the same time there was a shrinkage in length. This shrinkage is even greater if the specimens

are mounted in glycerine jelly. Thus the relative width of the specimens is often greatly exaggerated. The measurements given for the spicules usually indicate the distance from tip to tip in a straight line, except in a few cases where the spicules are very long and nearly straight. The points at which measurements were taken were usually the same in all cases, with the exception of the width of the head. No uniform point of measurement could be given for this, and the most suitable was usually chosen. All measurements are given in millimetres.

The proportions are briefly expressed in a formula originally used by de Man, in which α = the ratio of the total length to the width of the mid-body, β = the ratio of the total length to the length of the oesophagus, and γ = the ratio of the total length to the length of the tail.

SYSTEMATIC PART.

NEMATHELMIA.

Order NEMATODA.

Family ANGUILLULIDAE.

For purposes of convenience the Anguillulidae found in soil and fresh-water, &c., are considered separately from those found in the sea.

A. *Land and fresh-water Anguillulidae.*

Most of the specimens were found in soil from Clare Island. A few were collected on the mainland by Mr. G. O. Sherrard. Of the 18 species here recorded, 12 live in soil, 5 in fresh water, and 1 in moss.

Tripyla filicaudata de Man.

1884. *Tripyla filicaudata.* de Man, p. 47.

Habitat.—In soil from Clare I. Mature in May.

Distribution.—England; Holland; Germany.

Plectus granulosus Bastian.

1865. *Plectus granulosus.* Bastian, p. 120. 1884. *P. g.* de Man, p. 107.

Habitat.—In soil from Clare Island.

Distribution.—England; France; Switzerland; Germany; Denmark.

Bunonema reticulatum Richters.

1905. *Bunonema reticulatum.* Richters, Vorh. d. Deutsch. Zool. Gesell., p. 46. 1906. *B. r.* Murray, Ann. Scott. Nat. Hist., p. 164.

This species is included on the authority of Mr. James Murray, who informed me in a letter written in March, 1911, that he had found it in moss from Co. Mayo. He did not state whether it was from Clare I. or

from the mainland (vide p. 65). Mr. Murray was well acquainted with this species, having already recorded it from Scotland.

Habitat.—In moss from Co. Mayo.

Distribution.—Scotland; Germany (Schwartzwald).

Rhabditis filiformis Bütschli.

1884 *Rhabditis filiformis.* de Man, p. 123.

Mature females were found in May.

Habitat.—In soil from Clare I.

Distribution.—Holland; Germany.

Ironus ignavus Bastian.

1865. *Ironus ignavus.* Bastian, p. 104. 1884. *I. i.* de Man, p. 70.

Habitat.—In roots of water-weeds from Lough Moher, Co. Mayo.

Distribution.—England; Holland; Germany; Denmark; Sweden.

Ironus longicaudatus de Man.

1884. *Ironus longicaudatus.* de Man, p. 71.

Habitat.—In peaty soil on Croaghpatrick, Co. Mayo.

Distribution.—Holland; Denmark.

Diplogaster filicaudatus Bütschli.

1874. *Diplogaster filicaudatus.* Bütschli, p. 22.

This species is characterized by the long thread-like tail, which constitutes neary half the total length of the body. The longitudinal striations of the cuticle are very conspicuous. It is possible that the *D. filiformis* of Bastian (1865, p. 117) may be the same species.

Habitat.—In soil from Clare I.

Distribution.—Germany.

Mononchus macrostoma Bastian.

1865. *Mononchus macrostoma.* Bastian, p. 101. 1884. *M. m.* de Man, p. 63.

Habitat.—Taken in a tow-net which was dragged through the weeds in Lough Avullin, Clare Island.

Distribution.—England; France; Holland; Switzerland; Germany; Hungary; Denmark.

Mononchus papillatus Bastian.

1865. *Mononchus papillatus.* Bastian, p. 101. 1884. *M. p.* de Man, p. 64.

Habitat.—In soil from Clare I.

Distribution.—England; Holland; Germany; Denmark.

Chromadora bioculata M. Schultze.

1884. *Chromadora bioculata.* de Man, p. 60.

Mature specimens were found in August.

Habitat.—Roonagh Lough, Co. Mayo.

Distribution.—France; Holland; Germany; Hungary.

Chromadora Leuckarti de Man.

1884. *Chromadora Leuckarti.* de Man, p. 58.

Habitat.—Clare Island, in a rapid stream on Croaghmore. In a stream on Croaghpatrick, Co. Mayo.

Distribution.—Holland; Denmark.

Tylenchus robustus de Man.

1884. *Tylenchus robustus.* de Man, p. 144.

Habitat.—In soil from Clare I.

Distribution.—Holland; Germany; Denmark.

Dorylaimus obtusicaudatus Bastian.

1865. *Dorylaimus obtusicaudatus.* Bastian, p. 106. 1884. *D. o.* de Man, p. 167.

Habitat.—In soil from Clare I.

Distribution.—England; France; Holland; Germany; Austria; Hungary; Denmark; Russia.

Dorylaimus intermedius de Man.

1884. *Dorylaimus intermedius.* de Man, p. 170.

Habitat.—In soil from Clare I., mature in May.

Distribution.—France; Holland; Switzerland; Germany; Hungary; Denmark.

Dorylaimus Carteri Bastian.

1865. *Dorylaimus Carteri.* Bastian, p. 106. 1884. *D. C.* de Man, p. 177.

Mature specimens were found in May.

Habitat.—In soil from Clare I.

Distribution.—England; France; Holland; Germany; Hungary; Denmark.

Dorylaimus acuticauda de Man.

1884. *Dorylaimus acuticauda.* de Man, p. 179.

The males agree closely with the description and figures of de Man, except that the body attains a length of 3·3 mm. In the females the genital pore is nearer the middle of the body than de Man states.

Habitat.—In soil from Clare I. Mature in May.

Distribution.—Holland; Denmark.

Dorylaimus crassus de Man.

1884. *Dorylaimus crassus.* de Man, p. 186.

Habitat.—Lough Moher, Co. Mayo, in weeds.

Distribution.—Holland; Hungary.

Dorylaimus brigdammensis de Man.

1884. *Dorylaimus brigdammensis.* de Man, p. 188.

Habitat.—In soil from Clare I.

Distribution.—France; Holland; Germany; Denmark.

B. *Marine Anguillulidae.*

The marine Nematoda exist in vast numbers, and are almost ubiquitous. They may be obtained in large numbers by washing weeds, sand, Zostera roots, or material brought up by the dredge, and pouring the washings through fine silk. They were frequently taken also in a fine silk tow-net tied to the back of the dredge. The *débris* at the bottom of bottles which contained hastily sorted material in other groups usually contains numbers of Nematodes. Muddy deposits should be washed through fine silk. Considering the importance of the group, both in numbers of individuals and of species, very little attention has yet been devoted to the marine Anguillulidae, especially to those living in sand or mud, or those obtained in the dredge.

Nuada gen. nov.

Anguillulidae of medium length, with extremely slender body and thick cuticle. The head is thin-walled, rounded, without lips or papillae, with four sub-median hairs (?). A circular groove divides the head from the neck. No trace of lateral sense-organs could be seen. The mouth is very narrow, and there is no buccal cavity. The males have simple curved spicules and a median grooved accessory piece. No preanal hairs, papillae, or supplementary organs. Ovaries bi-lobed and symmetrical.

The species for which this genus is created is remarkable for the slenderness of the body and the thickness of the cuticle. The structure of the head distinguishes it from other marine genera such as Halalaimus and Thalassoalaimus, in which the buccal cavity completely fails. From Thalassoalaimus it is also distinguished by the absence of preanal papillae

in the male, and by the bi-lobed ovary in the female. The absence of lateral sense-organs distinguishes it from Halalaimus.

Nuada leptosoma sp. nov.

Pl. I, figs. 1A–D.

Dimensions:—

	♂	♀
Total length, . . .	5·66	5·6
Length of oesophagus, .	1·2	1·04
„ „ tail, . .	·34	·3
„ „ spicules, . .	·04	—
Head—♀ pore, . .	—	2·62
Width at head groove, .	·007	·006
„ „ base of oesophagus,	·025	·027
„ „ mid-body, . .	·026	·029
„ „ ♀ pore, . .	—	·03
„ „ anus, . .	·023	·02
a =	217·7	193·
β =	4·7	5·4
γ =	16·6	18·7

This is one of the most remarkable of the many new forms dredged in Clew Bay. The body is tinged with purple. The cuticle is smooth and very thick, and the body is so thin that it looks exactly like a hair. This resemblance is increased by the apparent lack of structure in the head and tail, due to the relative thinness of the body and thickness of the cuticle The body tapers very gradually towards the head, more rapidly behind the anus. The head (figs. 1A, 1B) is small, rounded, and thin-walled, and there is no trace of mouth or buccal cavity. It is divided from the neck by a circular groove, and behind this groove the thick cuticle begins. In one specimen the head seems to bear four short hairs, but in the second specimen the head is naked. There are no other hairs on the body. The oesophagus is very long and slender, constituting one-fifth of the total length. Neither excretory pore nor ventral gland nor nerve-ring could be seen. The lateral fields are broad, equal to rather more than one-third of the diameter of the body. The rectum is long and narrow (fig. 1C).

In the male the tail tapers rather more rapidly than in the female (fig. 1C), and is slightly expanded at the tip.

The spicules (fig. 1D) are slightly curved. The proximal end is separated from the wider middle portion by a constriction, and the distal end is pointed. The accessory piece consists of a grooved median plate, the outer lateral edges

of which are curved upwards, forming grooves in which the spicules slide. The female pore is just in front of the middle of the body.

The ovaries are short and symmetrical, and the mature eggs are very elongate.

Mature forms were found in May.

Habitat.—Clew Bay. Dredged in 24 fms., on a bottom of sand and shells.

Halaphanolaimus gen. nov.

Anguillulidae of small size, with coarsely striated cuticle. Head small, with posterior circular groove, and single ring of four submedian hairs. Lateral sense-organs are simple spirals. Buccal cavity absent, pharynx narrow. Oesophagus with posterior bulb. Lateral line linear, without structure. Spicules paired, with simple accessory pieces. A variable number of ventral tubular chitinous gland-ducts present in both sexes, some on the neck, others in front of the anus.

This generic diagnosis is provisional, and will doubtless require modification when other species of the genus are discovered. It seems to be most clearly related to the genus Aphanolaimus, which occurs in both fresh and salt water. It differs from it in the condition of the head, the shape of the lateral sense-organs, in the presence of an oesophageal bulb, and in the occurrence of chitinous gland-ducts in both sexes, on the neck as well as in front of the anus.

Halaphanolaimus pellucidus sp. nov.

Pl. I, figs. 2 A-F.

Dimensions—	♂	♂	♂	♂	♀
Total length,	1·5	1·52	1·5	1·55	1·46
Length of oesophagus,	·24	·23	·25	·26	·23
„ „ tail,	·14	·12	·12	·13	·137
„ „ spicules,	·052	—	·047	—	—
„ „ gland-ducts,	·02	—	—	—	—
Head—sense-organs,	·01	—	—	—	—
„ —nerve-ring,	·136	·15	·13	·13	·12
„ —♀ pore,	—	—	—	—	·7
Width at sense-organs,	·011	—	·0125	—	·013
„ „ nerve-ring,	—	—	·034	—	·032
„ „ base of oesophagus,	·042	—	·036	—	·036
„ „ mid-body,	·046	·04	·04	·046	·036
„ „ ♀ pore,	—	—	—	—	·039
„ „ anus,	·04	—	·036	—	·03
No. of ducts on neck,	2	3	3	3	2
„ „ „ before anus,	6	6	6	7	1
a =	32·6	38	37·5	33·7	40·6
β =	6·25	6·6	6	6	6·3
γ =	10·7	12·7	12·5	12	10·7

The body is colourless, and very transparent. It tapers considerably from the end of the oesophagus to the small head, and rather abruptly behind the anus. The cuticle bears wide transverse striae, about 440 in number, those at each extremity of the body being narrower than those in the middle. The head (figs. 2A, 2B) is very small, without lips or papillae, and is separated from the neck by a distinct groove, in front of which are four submedian setae. The lateral sense-organs are some distance behind this groove, and each consists of a simple spiral of one turn. They are rather more than one-third the width of the neck at that point. There is no buccal cavity. The pharynx is long, narrow, and straight, running some distance behind the sense-organs, and passing gradually into the oesophagus. The latter is very narrow for the greater part of its length, and expands behind into an oval bulb. The nerve-ring lies just behind the middle of the oesophagus.

The most remarkable feature of this species is the presence of a number of chitinous gland-ducts, which are present in both sexes. In the males there are normally three of these ducts opening on the ventral surface of the neck (fig. 2A). In one specimen the middle duct is missing, whilst another has four ducts on the neck. The only female specimen observed has two ducts on the neck. In the males (fig. 2C) there is a median ventral row of six or seven ducts in front of the anus. In the female (fig. 2D) there is a single duct just in front of the anus. These ducts (fig. 2F) are ·02 mm. long, slightly swollen proximally, and expanded and bifid distally. Where the duct penetrates the cuticle it is surrounded by a chitinous ring. A gland leads into each duct. The lateral lines (figs. 2A, 2C) are very narrow, closely resembling those of Aphanolaimus. They become evident at the back of the neck, and run on to the tail. There are a number of large circular cells in the lateral region throughout the body (figs. 2A, 2C). The tail is conical, and slender at the tip, and contains three caudal glands. The spicules (fig. 2E) are slender, linear, and curved, expanded proximally and pointed distally. The accessory pieces are also slender and small, lying transversely. There are several small hairs in front of the anus. The testes are very long, reaching nearly up to the oesophagus. The female pore is just behind the middle of the body, and is small and inconspicuous. The ovaries are long and symmetrical.

Habitat.—Dredged in Clew Bay, in 24 fms., on a bottom of sand and shells.

Monohystera acris Bastian.

1865. *Theristus acer.* Bastian, p. 156. 1889*a*. *Monohystera acris.* de Man, p. 182.

Many mature specimens were found in September.

Habitat.—BLACKSOD BAY—Under stones on the shore, amongst Spirorbis tubes.

Distribution.—England; France (north coast).

Monohystera normandica de Man.

1890. *Monohystera normandica.* de Man, p. 169.

Mature specimens were found in August.

Habitat.—Dredged in 2–4 fms., Inishlyre Harbour.

Distribution.—North coast of France.

Monohystera anechma sp. nov.

Pl. III, figs. 7 A–F.

Dimensions:—

	♂	♂	♀	♀
Total length, ...	2·4	2·1	2·32	2·35
Length of oesophagus, . .	·377	·328	·33	·314
„ „ tail, . . .	·2	·166	·18	·2
„ „ spicules, . . .	·047	—	—	—
„ „ sense-organ, . .	·04	—	·03	—
Head—nerve-ring, . . .	·177	—	·158	·164
„ —♀ pore, . . .	—	—	2·	1·956
♀ pore—anus, . . .	—	—	·132	·194
Width at crown of hairs, .	·02	—	·02	—
„ „ nerve-ring, . .	·04	—	·043	—
„ „ base of oesophagus, .	·041	—	·047	—
„ „ mid-body, . .	·043	·04	·062	·045
„ „ ♀ pore, . . .	—	—	·06	—
„ „ anus, . . .	·04	—	·05	—
a =	55·8	52·5	37·4	52·2
β =	6·4	6·4	7·	7·5
γ =	12·	12·6	13.	11·75

This species is referred with some hesitation to the genus Monohystera, for reasons given below.

The body is colourless and transparent, very uniform in width, tapering gradually towards the head, more rapidly towards the tip of the tail. The cuticle is transversely ringed, the rings commencing at the posterior border of the lateral sense-organs. The mouth is surrounded by three large bulbous lips. Just behind these, there is a crown of ten long slender setae, arranged in the usual way. In some specimens a second ring of setae occurs behind the sense-organs.

The lateral sense-organs are the most characteristic features of this species (figs. 7A, 7B, 7C). They are very large, occupying almost the whole

width of the neck. In the females (fig. 7B) they are roughly rounded, or egg-shaped, with the narrower end in front. In the males (fig. 7C), they are more elongate, larger, and with squarer ends. Just inside the posterior margin is a small triangular chitinous tooth, representing probably the opening of a gland. There is apparently no buccal cavity, and the oesophagus begins immediately behind the mouth. It gradually expands towards the posterior end, and is about one-seventh of the body-length. The nerve-ring seems to vary in position, and in some specimens it is in front of, in others behind, the middle of the oesophagus.

The tail (figs. 7D, 7F), tapers gradually to a slender slightly dilated tip. The spicules (fig. 7E), are bent almost at right angles in the middle. The proximal end is expanded, and the distal end is hooked. The distal portion of each spicule is thicker and stronger than the proximal portion. There are apparently no accessory pieces and no preanal papillae or setae.

The female pore (fig. 7F) opens some little distance in front of the anus. The ovary is asymmetrical. This species has no very definite characters which would at present justify the creation of a new genus, though it differs in many respects from typical members of the somewhat heterogeneous collection of species included in the genus Monohystera. It is noteworthy for the following characters:—(1) the large sense-organs; (2) the absence of a buccal cavity; (3) the annulation of the skin; (4) the absence of accessory pieces to the spicules.

Habitat.—Dredged in Clew Bay, in 24 fathoms, on a bottom of sand and shells, in May.

Enchelidium tenuicolle Eberth.

1863. *Enchelidium tenuicolle.* Eberth, p. 23. 1870*a*. *Lasiomitus tenuicollis.* Marion, p. 5.

This species is easily recognized from the description and figures given by Eberth, who found his specimens at Nice. The species does not seem to have been recorded since. Marion considered that this species should be included in his genus Lasiomitus, which differs from Enchelidium through the presence of certain chitinous structures in the mouth. These structures are not figured by Eberth, nor could I see any trace of them in the Irish specimens, so that the species must be included in the genus Enchelidium. It apparently differs from other species of the genus in the remarkable attenuation of the anterior end of the body. Mature specimens were found in March.

Habitat.—Blacksod Bay—In sand from the shore.—Ballynakill Harbour—Dredged in 7 fms.

Distribution.—Nice.

Genus **Dipeltis.**

1863. *Enoplus* (part). Eberth, p. 34. 1875. *Discophora.* Villot, p. 463. 1891. *Dipeltis.* Cobb, p. 155. 1893. *Araeolaimus* (*Araeolaimoides*). de Man, p. 86.

The first species of this genus was described very imperfectly in 1863 as *Enoplus cirrhatus* by Eberth, who found it at Nice. In 1875 Villot found the same species on the coast of north-west France, and created the new genus Discophora to contain it. In 1891 Cobb, who was apparently ignorant of the work of Villot, described a new genus Dipeltis, for the *Enoplus cirrhatus* of Eberth, and for two other species, *D. minor* from Ceylon, and *D. typicus* from the Bay of Naples. In 1893 de Man described a species from Falmouth which he called *Araeolaimus* (*Araeolaimoides*) *microphthalmus.* He was doubtful as to its position in the genus Araeolaimus, and accordingly created a new sub-genus for it. There seems little doubt that it belongs to the genus Dipeltis, with which it agrees in the following characters:—(1) absence of buccal cavity; (2) the possession of two amber-coloured, dumbbell-shaped eyes; (3) the remarkable form of the lateral sense-organs; (4) the narrow oesophagus. The male genital armature and the tail also resemble in structure those of Dipeltis. Unfortunately the name Discophora, given to the genus by Villot in 1875, had already been used for a genus of Lepidoptera,[1] and consequently the correct name for the genus is Dipeltis.

Dipeltis typicus Cobb, var.

Pl. II, figs. 4 A–F.

? 1863. *Enoplus cirrhatus.* Eberth, p. 34. ? 1875. *Discophora cirrhata.* Villot, p. 463. ? 1891. *Dipeltis cirrhatus* + *D. typicus.* Cobb, p. 156.

Dimensions:—	♂	♀
Total length,	2·43	3·27
Length of oesophagus,	·224	·23
„ „ tail,	·094	·12
„ „ spicules,	·048	—
Head—nerve-ring,	·146	·15
„ — ♀ pore,	—	1·75
Width at middle of sense-organ,	·02	·022
„ „ nerve-ring,	·057	·053
„ „ base of oesophagus,	·067	·059
„ „ mid-body,	·09	·096
„ „ ♀ pore,	—	·1
„ „ anus,	·058	·051
a =	27·	34·
β =	10·8	14·2
γ =	26·	27·2

[1] Boisduval, Suit. Buffon, I (Tab. 8, B). 1836.

With some hesitation I refer two specimens from Blacksod Bay to the species described in 1891 by Cobb, who found his material at a depth of 35 metres on a coral bank in the Bay of Naples. The differences between the two forms will be considered below, after a short description of the Irish specimens.

These are two in number, a male and a female. The female is much the larger of the two, and the male has been flattened on the slide, so that such dimensions given above as represent the width are greatly exaggerated.

Very high magnification failed to show the fine transverse striae on the cuticle mentioned by Cobb. The body tapers gradually towards each end, rapidly at the extremities. The head (figs. 4 A, 4 B) is conical, rounded at the tip, without lips or papillae. There are four submedian rows of hairs between the mouth and the nerve-ring, with 10–12 hairs in each row. The lateral sense-organs are near the tip of the head. They are large and oval in shape (fig. 4 C). The basal plate has a double border, which is incomplete behind. The inner part consists of an open loop. Some distance behind the lateral organs are two amber-coloured dumbbell-shaped eyes. There is no obvious buccal cavity. The oesophagus is very narrow throughout its length, not exceeding one-quarter of the width of the neck at its posterior extremity. The nerve-ring is placed at the end of the second third of the oesophagus. The intestine is very wide, except where it is compressed by the large ventral gland, the duct of which runs along the neck and expands to an ampulla in front of the eyes. It opens through a slender duct at the level of the lateral organs In the male specimen, the tail (fig. 4 D) is short and conical, with a funnel-shaped terminal tube. The spicules (fig. 4 E) are slender and boldly curved, proximally expanded a little, distally pointed. The accessory piece consists of a ventral plate lying under the tip of the spicules, and sending a lobe forward between them. There is a stout backwardly projecting apophysis.

The female pore is situated some distance behind the middle of the body, and is small and inconspicuous. The ovaries are long and symmetrical. Each branch of the uterus contains 6–8 large circular eggs. The tail of the female (fig. 4 F) is longer than that of the male, and contains three large caudal glands.

This form closely resembles *Dipeltis typicus* described by Cobb, in general form and proportions, in the shape of the head and the arrangement of the lateral organs, hairs, eyes, ventral gland, nerve-ring, and spicules. There is some difference in the structure of the lateral organs. The tail of the Naples specimens is proportionally nearly twice as long as in the Irish forms, and the body as a whole is much smaller. The accessory pieces differ in shape. However, these distinctions are small, may be due to errors of observation,

and are based only on the examination altogether of two males and two females.

It seems probable that the *Enoplus cirrhatus* of Eberth and the *Discophora cirrhata* of Villot may belong to this species. The descriptions and figures of the two forms are, however, too short and vague for diagnostic purposes. There is undoubtedly great resemblance in the general shape and structure of the head and tail of all these forms.

Habitat.—Two specimens on the shore in Blacksod Bay, one in sand, the other amongst tubes of Spirorbis under a stone, in September.

Distribution.—Bay of Naples.

Dipeltis incisus sp. nov.

Pl. II, figs. 5A–E.

Dimensions:—

	♂	♂	♀
Total length,	2·1	2·24	2·02
Length of oesophagus,	·25	·27	·27
„ „ tail,	·124	·136	·124
„ „ spicules,	·066	—	—
Head—nerve-ring,	·111	·115	—
„ —♀ pore,	—	—	1·23
Width at middle of sense-organ,	·038	—	·035
„ „ nerve-ring,	·046	—	—
„ „ base of oesophagus,	·047	—	·041
„ „ mid-body,	·053	·058	·055
„ „ ♀ pore,	—	—	·062
„ „ anus,	·05	—	·045
	a = 39·6	38·6	36·7
	β = 8·4	8·3	7·5
	γ = 17	16·5	16·3

In this species the body is cylindrical, tapering gradually towards each rounded extremity. The cuticle seems to be quite smooth. The head (figs. 5A, 5B) is rounded, and has a transparent cap, possibly owing to the contraction of the muscles away from the cuticle, though this appearance is shown in all the specimens. There is a ring of four slender submedian hairs near the front of the head. No other hairs occur on the body. The lateral sense-organs are of characteristic shape, and lie near the front of the head. The thickened basal plate is shield-shaped, and the front and lateral walls are notched. The two arms of the central loop are in close contact throughout their length, and the anterior bend is outside of and in front of the anterior margin of the basal plate.

The lateral lines are inconspicuous, occupying about one quarter of the diameter of the body.

The buccal cavity (fig. 5C) is small and cylindrical, and is quite without teeth. The œsophagus is cylindrical, and expands slightly behind. It is shorter than that of *D. typica*. The nerve-ring lies in front of the middle part of the œsophagus. The tail (fig. 5D) is cylindrical, and rounded at the tip, and contains three large caudal glands. The spicules (fig. 5E) are stout and curved, pointed distally. The accessory piece consists of a flattened median portion, wedge-shaped in side view, with two stout backwardly projecting apophyses. The testis extends forwards nearly to the œsophagus.

The female pore is some distance behind the middle of the body. It is small and inconspicuous. The ovaries are symmetrical, and the uterus contains one mature egg in each division.

This species is readily characterized by the shape of the lateral sense-organs. It is easily distinguished from other European species of the genus, and its nearest ally seems to be the *D. minor* found by Cobb (1891, p. 156) in sand on the coast of Ceylon.

Habitat.—Dredged in 24 fathoms in Clew Bay, on a bottom of sand and shells, in May.

Oxystoma asetosa sp. nov.

Pl. I, figs. 3 A–D.

Dimensions—

	Oxystoma asetosa.		Oxystoma sp.	
	♂	♀	♂	♀
Total length,	3·42	4·	4·3	4·
Length of œsophagus,	·51	·69	·73	·67
„ „ tail,	·11	·12	·1	·092
„ „ spicules,	·042	—	—	—
„ „ lateral sense-organs.	·015	·015	·019	·0065
Head—sense-organ,	·043	·0465	·051	·07
„ —nerve-ring,	·17	—	—	—
„ —excretory pore,	·16	·162	—	·21
, —♀ pore,	—	1·2	—	1·
Width at front margin of sense-organ,	·015	·016	—	·013
„ „ nerve-ring,	·022	—	—	·028
„ „ base of œsophagus,	·032	·041	—	·03
„ „ mid-body,	·034	·042	·027	·034
„ „ ♀ pore,	—	·047	—	·035
„ „ anus,	·03	·031	—	·023
a =	100·	95·2	160·	118·
β =	6·7	5·8	6·	6·
γ =	31·	33·3	43·	43·5

These worms are extremely slender, and the body tapers rapidly at each extremity. Just behind the front end, in a position corresponding to the second crown of setae in *O. elongatum* Bütschli (de Man, 1907, Pl. II, fig. 6), it is only $\frac{1}{4}$th–$\frac{1}{5}$th as wide as it is at the posterior end of the oesophagus. The cuticle is smooth, *and quite free from hairs.* The two circles of hairs on the head and two setae in front of the anus in the male in *O. elongatum* as figured by de Man (tom. cit.) are not found in the present species.

The head (fig. 3A) is very slender, and rounded at the tip, without lips, papillae, or hairs. The distance from the head to the front end of the lateral organs is rather more than one quarter of the distance from the head to the excretory pore. The lateral sense-organs are oval, with the sides projecting beyond the posterior margin (fig. 3B). A large gland-duct leads into the posterior part of the sense-organ. In the females the sense-organs are as large as in the males, whereas in *O. elongatum* they are much smaller. At the end of the first quarter of the oesophagus is the excretory pore, the duct of which is chitinized at the tip. The buccal cavity seems to be absent. The oesophagus is narrow in front and gradually expands behind. The position of the nerve-ring is difficult to ascertain, as the oesophagus is partially covered by large cells. In several specimens it seems to be just behind the excretory pore (fig. 3A), but in one specimen it is just in front of it. The body is much slenderer than that of *O. elongatum*, the greatest width being only $\frac{1}{100}$th of the length. Behind the anus the tail (fig. 3D) tapers at first gradually, then rapidly, and expands slightly again near the tip. It contains a number of caudal glands. The lateral fields form rather more than one-third of the diameter of the body, and are full of large, clear glands.

The spicules (fig. 3C) are curved, and pointed distally. The proximal end is square, and separated from the rest by a constriction. The accessory plate consists of a median plate beneath the tips of the spicules, from which pass forwards two large rounded lobes, which lie on the outside of the spicules. There are no preanal setae, but just in front of the anus is a small indistinct median papilla from which a secretion flows (fig. 3C). The female pore is in the anterior part of the body, at the beginning of the second quarter. The ovary is simple, and in the only female specimen it is short and undeveloped. The uterus sends forward a branch in front of the genital pore, which is full of sperm.

This species is very closely related to the *O. elongatum* Bütschli, as described by de Man (1907, p. 43). It differs in the following respects:—(1) It is much longer and thinner, and the oesophagus and tail are relatively shorter. There are other differences in the proportions of the body, such as the positions of the lateral organs, excretory pore, and female pore;

(2) there are no hairs on the head nor in front of the male pore; (3) the lateral organs are as large in the females as in the males; (4) the spicules have a constricted proximal end, and the accessory piece is quite different in shape.

Two other specimens of Oxystoma, a male and a female, were found at the same station as the above species, and their dimensions are given on p. 18. They show even closer resemblances to *O. elongatum*. They have two rows of setae on the head, two unequal setae in front of the male pore, the spicules and accessory pieces resemble those of *O. elongatum*, and the lateral organ in the male is much larger than that of the female. On the other hand, their proportions differ more from those of *O. elongatum* than do those of *O. asetosa*. They are even longer and slenderer, and the tail is relatively shorter. The anterior crown is formed of six hairs in *O. pellucida* Cobb, whilst de Man states that there are only four in *O. elongatum*. For the present these two specimens will be unnamed till more material is available.

Habitat.—Dredged in 24 fathoms in Clew Bay, on a bottom of sand and shells.

Cricolaimus gen. nov.

Anguillulidae of medium size, the body being transparent, elongate, and uniform in width. The cuticle bears fine transverse striations. Head rounded, with single row of four long sub-median hairs. Lateral sense-organs are thick spirals. Buccal cavity small and narrow, and at its junction with the oesophagus it is surrounded by a stout chitinous ring. Oesophagus with posterior bulb. Ventral gland present, with chitinised duct. Spicules simple, curved. Accessory piece consisting of a flattened plate, with stout backwardly projecting apophysis. There is a median ventral preanal row of supplementary organs, formed from the chitinised ducts of large unicellular glands.

This remarkable genus is unfortunately based on the examination of a single mature male specimen, and the above diagnosis is only provisional. It is impossible at present to indicate the affinities of the genus, though it resembles Halaphanolaimus in many respects.

Cricolaimus elongatus sp. nov.

Pl. II, figs. 6A–G.

Dimensions.—

	♂
Total length,	3·7
Length of oesophagus,	·194
„ „ tail,	·146
„ „ spicules,	·03
„ „ supplementary organs,	·016
Head—sense-organ,	·033
„ —nerve-ring,	·095
„ —opening of ventral gland,	·124
Width at crown of setae,	·018
„ „ sense-organs,	·031
„ „ nerve-ring,	·031
„ „ base of oesophagus,	·036
„ „ mid-body,	·037
„ „ anus,	·034

$a = 100\cdot$
$\beta = 19\cdot1$
$\gamma = 25\cdot3$

Only a single mature male specimen of this species was found, living in sand on the shore of Blacksod Bay. It was in rather a bad state of preservation.

The body is transparent, elongate, and very uniform in width, varying very little from the level of the lateral organs to the anus. The cuticle is covered with very narrow and rather faint transverse striations. No lateral lines were observed, possibly owing to the bad state of preservation of the specimen.

The head (figs. 6A, 6B) is rounded, and wedge-shaped at the tip, where the walls are very delicate and transparent. There is a single row of four long, slender, sub-median hairs. At a distance of ·033 mm. from the tip of the head are the lateral sense-organs. They are large spirals, consisting of a single turn. The buccal cavity is small, and at its junction with the oesophagus it is surrounded by a stout ring of chitin (figs. 6B, 6C), which has a long anterior dorsal prolongation, and a similar but much shorter ventral one. The oesophagus is narrow and straight, widening at its posterior end to a spherical bulb. The intestine is slender. The nerve-ring lies on the middle of the oesophagus. Just behind it the ventral gland opens

through a chitinised duct. The tail (figs. 6D, 6F) tapers very gradually at first, but rapidly towards the tip. It contains several caudal glands. The testis is long, reaching to the anterior third of the body. The spicules (fig. 6G) are expanded proximally, sharply pointed distally. At the tip an anterior spur passes forwards at an acute angle. The accessory piece consists of a median flat plate, which loops round the tip of the spicule to the front, and carries behind a backwardly projecting apophysis with thickened edges. There is a median ventral preanal row of fourteen supplementary organs (figs. 6D, 6E) consisting of tubular chitinous ducts, into which open large unicellular glands. They are in two groups of seven each, the gap between the seventh and eighth being 4-6 times as great as that between any other adjacent pair.

Habitat.—A single mature male specimen found living in sand on the shore of Blacksod Bay, in September.

Anticoma pellucida Bastian.

1865. *Anticoma pellucida.* Bastian, p. 142. 1886. *A. p.* de Man, p. 53.

This species is very abundant, both on the shore and in the dredgings. It is common in clean sand and in the sand of Zostera beds. It was also found in sponges and amongst Spirorbis tubes. Mature specimens were found from May to September.

Habitat.—Blacksod Bay—Found 5 times on the shore. Clew Bay—On the shores of Clare I. and Annagh I. Bofin Harbour.

Distribution.—England; Holland.

Anticoma Eberthi Bastian.

1865. *Anticoma Eberthi.* Bastian, p. 141. 1889*a*. *A. E.* de Man, p. 186.

Mature specimens were found in May.

Habitat.—Shores of Clare I.

Distribution.—England; France (Saint-Vaast).

Phanoderma gracile de Man.

1876. *Phanoderma gracile.* de Man, p. 14.

Mature specimens were found in August.

Habitat.—Dredged in Clew Bay, in 18 fms.

Distribution.—Gulf of Naples.

Stenolaimus Marioni sp. nov.

Pl. IV, figs. 12 A–E.

Dimensions :—

	♂	♂
Total length, . . .	5·1	4·74
Length of oesophagus, .	1·6	1·4
„ „ tail, . . .	·384	·36
„ „ spicules, . .	·244	—
Head—excretory pore, .	·029	—
„ —nerve-ring, . .	·6	·59
Width at ring of hairs, .	·017	—
„ „ nerve-ring, . .	·07	—
„ „ base of oesophagus,	·1	—
„ „ mid-body, . .	·12	·112
„ „ anus, . . .	·07	—
	α = 42·5	42·3
	β = 3·2	3·4
	γ = 13·3	13·2

Only two specimens of this species were found, both mature males. The body tapers considerably from the base of the oesophagus to the head, and from the anus to the tail, which is filiform. The cuticle is smooth, with only a very few short hairs. The lateral line is narrow, about $\frac{1}{6}$th of the width of the body. The head (figs. 12A, 12B) is very narrow, being only $\frac{1}{7}$th of the width of the mid-body. Just behind the tip is a single crown of six slender setae. The lips guarding the mouth are low and inconspicuous. The buccal cavity is very small, with slightly thickened walls. The oesophagus gradually expands towards the posterior end, but there is no bulb. It is composed of large irregularly arranged cells with pear-shaped granular cavities, which give a crenate appearance to the posterior end of the oesophagus. The nerve-ring is large and conspicuous, placed in front of the middle of the oesophagus. The ventral gland is large and flat, lying near the posterior end of the oesophagus. The duct is long, opening by an ampulla with a narrow duct just behind the head. The intestine is composed of large cells with yellow granular contents. The tail (fig. 12C) tapers rapidly behind the anus, and terminates in a filiform tip (fig. 12D). It contains a number of caudal glands. The spicules are long, slender, and gently curved at the distal end (fig. 12C). Proximally they are funnel-shaped. Just before the distal end (fig. 12E) each spicule tapers suddenly to a slender tip. The accessory pieces lie behind and alongside the tips of the spicules.

In front of the anus the muscles are arranged transversely, but there are no preanal papillae.

No female specimens were found. The mature males were taken in May. The genus Stenolaimus was created by Marion (1870, p. 16), for the two species *S. lepturus* and *S. macrosoma*. These two species are very different in appearance, and probably belong to different genera. The present species closely resembles *S. lepturus*, but differs in the shape of the head and tail, in the absence of the longitudinal rows of hairs on the neck, in the shape of the spicules, &c. de Man (1876, p. 12) refers *S. lepturus* to the genus Anticoma, but it differs from the latter in the absence of the supplementary organ.

Habitat.—CLEW BAY. Dredged in 24 fms., on a bottom of sand and shells.

Axonolaimus filiformis de Man.

1889. *Axonolaimus filiformis.* de Man, p. 3.

The Irish specimens agree with *A. filiformis* in all characters except as regards the size of the body, and in this respect they are intermediate between *A. filiformis* and *A. spinosus* (Bütschli). Mature specimens were found in May and August.

Habitat.—Clare I., found twice on the shore, in weeds.

Distribution.—England (Penzance).

Halichoanolaimus robustus (Bastian).

1865. *Spilophora robusta.* Bastian, p. 166. 1888. *Halichoanolaimus robustus.* de Man, p. 38.

Habitat.—BLACKSOD BAY—Under stones on the shore, amongst Spirorbis tubes. CLARE I.—In weeds from the shore.

Distribution.—England; Holland; Germany (Kiel).

Sphaerolaimus hirsutus Bastian.

1865. *Sphaerolaimus hirsutus.* Bastian, p. 157. 1907. *S. h.* de Man, p. 55.

This species is rare in the district, and was only found on a single occasion.

Habitat.—Mature specimens dredged in 7 fms., in mud in Killary Harbour, in May.

Distribution.—England; Holland.

Sabatieria celtica sp. nov.

Pl. III, figs. 8 A–D.

Dimensions:—

	♂	♀
Total length, ...	2·8	3·12
Length of oesophagus, . .	·25	·3
„ „ tail, ...	·156	·16
„ „ spicules, . . .	·062	—
Head—nerve-ring, . . .	·125	·15
„ —♀ pore	—	1·8
Width at crown of setae, . .	·016	017
„ „ nerve-ring, . .	·038	·043
„ „ base of oesophagus, .	·041	·044
„ „ mid-body, . . .	·046	·06
„ „ ♀ pore, . . .	—	·067
„ „ anus, ...	·045	·04
	a = 61·	52·
	β = 11 2	10·4
	γ = 18·	19·4

The body is narrow, tapering behind to a slender tail. It is very uniform in width, but tapers rapidly in front of the nerve-ring, and the width at the level of the crown of hairs is only $\frac{1}{3}$rd–$\frac{1}{4}$th of the diameter of the middle of the body. The cuticle is covered with small dots, closely but not very regularly arranged. The lateral lines are $\frac{2}{5}$ths–$\frac{1}{2}$ of the width of the body. The head (figs. 8A, 8B) is rounded, without lips. It bears an anterior row of 6 very small spines, and a posterior row of 4 long slender sub-median hairs. There are a few other short hairs scattered over the body. On the level of the second crown of hairs the head is distinctly constricted. The lateral sense-organs are very large, occupying $\frac{2}{3}$rds of the width of the neck at that point. Each consists of a spiral of two complete loops. The buccal cavity is small and cup-shaped, with thickened chitinous walls. The oesophagus gradually expands towards the posterior end. Just behind it is the conspicuous ventral gland. The nerve-ring is slender, and lies exactly on the middle of the oesophagus. The intestine is composed of large cells with granular contents. The tail (fig. 8C) tapers to a slender tip. In the males the genital armature is characteristic. The spicules (figs. 8C, 8D) are boldly curved, and the proximal end is rounded and divided. The distal end is enlarged and wedge-shaped. On the outer side of each

spicule, some distance from the tip, is a tooth-shaped structure. The accessory piece consists of a median grooved plate having two slender backwardly directed apophyses. Between the two spicules is a very delicate vertical plate.

The female pore is situated behind the middle of the body. The ovaries are short and symmetrical.

The species is closely related to the *S. praedatrix* of de Man (1907, p. 63). It is thinner, and the tail is rather shorter. The hairs on the head are rather longer, and the spiral organs are larger. There are fewer hairs on the body. The spicules of the two species agree in being modified at the tip, but in different ways. Finally, the female pore is in the middle of the body in *S. praedatrix*, and some distance behind the middle in *S. celtica*.

Specimens were mature in May.

Habitat.—Dredged in Clew Bay in 24 fms., on a bottom of sand and shells.

Thalassironus britannicus de Man.

1889. *Thalassironus britannicus.* de Man, p. 4.

Immature specimens agree with Ironus and Dolicholaimus in having three 'milk' teeth behind the permanent teeth.

Mature specimens were found in March.

Habitat.—BLACKSOD BAY—Found on 3 occasions in clean sand, or in the sand of Zostera beds.

Distribution.—England (Penzance).

Spira parasitifera Bastian.

1865. *Spira parasitifera.* Bastian, p. 159. 1890. *S. p.* de Man, p. 175.

Mature specimens were found in March and September.

Habitat.—BLACKSOD BAY—Found twice on the shore, once in the sand of a Zostera bed.

Distribution.—England; France.

Spira Schneideri Villot.

1875. *Spira Schneideri.* Villot, p. 464.

So far as one can tell from the brief description and imperfect figures given by Villot, a number of specimens found in the sand of a Zostera bed agree with this species. It is characterized by the short abruptly rounded tail, terminating in a blunt point. The specimens are yellow in colour.

Habitat.—BLACKSOD BAY—Found twice in the sand of a Zostera bed.

Distribution.—France (Roscoff).

Spira laevis Bastian.

1865. *Spira laevis.* Bastian, p. 160.

Mature specimens were found in March and May.

Habitat.—Blacksod Bay—Found once on the shore. Clare I.—On the shore.

Distribution.—England.

Desmodora sanguinea sp. nov.

Pl. III, figs. 9 A–E.

Dimensions—

	♂	♂	♀
Total length,	2·4	2·5	2·6
Length of oesophagus,	·3	·23	·27
„ „ tail,	·134	·112	·132
„ „ spicules,	·182	·224	—
Head—nerve-ring,	·175	—	—
„ —♀ pore,	—	—	1·42
Width at base of buccal cavity,	·056	·058	—
„ „ nerve-ring,	·054	—	—
„ „ base of oesophagus,	·054	·059	—
„ „ mid-body,	·06	·057	·054
„ „ ♀ pore,	—	—	·075
„ „ anus,	·062	·06	—
α =	40·	44·	48·1
β =	8·	10·9	9·6
γ =	17·9	22·3	20·

The body of this species is of rather an unusual shape. The head is swollen and rounded, the neck narrower, and the body expands from the middle towards the anus, and then tapers to a conical tail. The colour is bright crimson, and is retained even when the specimens have been preserved in glycerine for some years. The cuticle is very thick. On the head it is smooth (figs. 9A, 9B), but on the trunk and tail it is coarsely ringed, each annulus forming a conspicuous ridge. The rings are broadest on the neck, but there is not such a marked difference in the thickness of the rings as there is in such species as *D. serpentulus* de Man and *D. scaldensis* de Man. The head is rounded, and widest near the back. The mouth is surrounded by a thickened chitinous cap, which is densely pigmented. Numerous hairs are scattered over this cap, and the mouth is surrounded by a number of conical lips which are sometimes withdrawn into the mouth. The lateral

organs are large and consist of a single thick spiral loop. The cuticle of the body and tail has ten longitudinal rows of papillae, each tipped by a short hair (fig. 9C). The tail (fig. 9D) is short and conical, and the rings grow narrower towards the tip, which is smooth and thick-walled. The buccal cavity is narrow and conical. It contains a single dorsal tooth. The oesophagus expands behind to form an oval bulb. The nerve-ring surrounds it behind the mid-line. The male genital armature consists of two long slender spicules (fig. 9D), the proximal ends being funnel-shaped, the distal ends curved and pointed. The accessory pieces (fig. 9E) are two linear grooved rods, in which the spicules slide. No preanal papillae occur. The female pore is a short distance behind the middle of the body, and is small and inconspicuous.

This species is placed with considerable hesitation in the genus Desmodora. It differs from the other species of the genus in many notable characters, such as (1) the chitinous cap round the mouth; (2) the shape of the lateral organs; (3) the presence of 10 longitudinal rows of papillae and setae; (4) the long spicules. It resembles the other species in the following characters:—(1) the presence of a dorsal tooth in the buccal cavity; (2) the presence of an oesophageal bulb; (3) the conspicuous annulation of the cuticle, whilst the head and tip of the tail are smooth; (4) the simple linear accessory pieces.

Many mature and immature specimens were taken in May.

Habitat.—CLEW BAY. Dredged in 24 fms., on a bottom of sand and shells.

Spilophora gracilicauda de Man.

1893. *Spilophora gracilicauda.* de Man, p. 91.

Mature specimens were found in large numbers in September.

Habitat.—BLACKSOD BAY—Under stones on the shore, amongst Spirorbis tubes.

Distribution.—England (Falmouth).

Euchromadora vulgaris (Bastian).

1865. *Chromadora vulgaris.* Bastian, p. 167. 1886. *Euchromadora v.* de Man, p. 69.

Mature specimens were found in August and September.

Habitat.—BLACKSOD BAY—Found 3 times on the shore, once in sand. CLEW BAY—Shores of Clare I. and Annagh I.

Distribution.—England; Holland.

Chromadora nudicapitata Bastian.

1865. *Chromadora nudicapitata.* Bastian, p. 168. 1888. *C. n.* de Man, p. 47.

Mature specimens were found in September.

Habitat.—Shores of Blacksod Bay.

Distribution.—England; Holland (Walcheren).

Cyatholaimus ocellatus Bastian.

1865. *Cyatholaimus ocellatus.* Bastian, p. 163. 1889. *C. o.* de Man, p. 201.

In the preserved specimens no trace of eye pigment could be seen. Mature specimens were found in September.

Habitat.—Blacksod Bay—Found once on the shore, and once in 4–6 fms. Bofin Harbour—In a sponge.

Distribution.—England; Holland; ? Naples.

Cyatholaimus dubiosus Bütschli.

1874. *Cyatholaimus dubiosus.* Bütschli, p. 48. ?1889. *C. caecus* Bastian. de Man, p. 204.

The specimens referred to this species differ very slightly from those described as *C. caecus* Bastian, by de Man (tom. cit.). The main difference is that the tail is a little longer, and slenderer at the tip. The spicules, accessory piece, and preanal organs are exactly as de Man describes them. *C. caecus*, as figured by Bastian, has a shorter, more conical tail.

Mature specimens were found in March and September.

Habitat.—Blacksod Bay—Found twice in the sand of a Zostera bed, and once under stones amongst Spirorbis tubes. Clew Bay—Dredged in 18 fms.

Distribution.—Baltic (Kiel, Finland); ? Holland; ? France; ? England.

Dagda gen. nov.

Anguillulidae of medium size, with finely striated cuticle. Head divided from the neck by a delicate suture, with four prominent rounded lips, two of which bear spherical papillae. There is a single ring of four long slender hairs. Lateral sense-organs are simple spirals. Buccal cavity conical, of medium size, armed with three teeth. Oesophagus without a true bulb. Neither ventral gland nor lateral lines were observed. Spicules paired, accessory piece with backwardly projecting apophyses. The male has a preanal row of tubular supplementary organs.

This genus seems to be most closely related to Diodontolaimus (p. 31). It differs strikingly from the latter in the structure of the buccal cavity.

Dagda bipapillata sp. nov.

Pl. IV, figs. 10A–G.

Dimensions:—

	♂
Total length, ...	3·5
Length of oesophagus, . .	·43
„ „ tail, . . .	·114
„ „ spicules, . . .	·043
„ „ supplementary organs,	·023
Head—nerve-ring, . . .	·114
Width at base of buccal cavity,	·014
„ „ nerve-ring, . .	·032
„ „ base of oesophagus, .	·044
„ „ mid-body, . . .	·05
„ „ anus, ...	·038

a = 70·
β = 8·1
γ = 31·

Only a single mature male specimen of this species is available. t was found in sand from the shore of Blacksod Bay, in March. The body is so much twisted that there is great difficulty in making accurate measurements.

The body is cylindrical and uniform, hardly tapering at all except in front of the nerve-ring and behind the anus. It is quite colourless. The cuticle is covered with very narrow transverse striae, which commence behind crown of hairs.

The head (figs. 10A, 10B) has four rounded inflated lips, of which two are naked, and two bear small globular papillae. Between the lips is a funnel-shaped depression leading into the mouth. Behind the lips is a delicate suture running round the head, and just behind this are four long, slender, submedian hairs. No other hairs occur on the body. The flattened spiral sense-organs are on the same level as the hairs. The buccal cavity (fig. 10C) is small and conical, and contains three teeth, one dorsal and two sub-ventral.

The oesophagus is narrow on the whole, expanding gradually towards the posterior end. It is thickly covered for the greater part of its length by large loosely arranged cells. The nerve-ring is near the end of the anterior third of the oesophagus. Neither a ventral gland nor lateral lines were observed. The tail (fig. 10D) is rather short, and tapers gradually to a funnel-

shaped tip (fig. 10E). It contains a number of caudal glands. In the ventral median line are two crater-like papillae, and a similar papilla occurs in front of the anus. The spicules (fig. 10F) are slender and curved. The proximal end is constricted, and the distal end bears a flattened expansion. The accessory piece has a flattened median portion, with grooves in which the spicules slide. Between the tips of the spicules is a median vertical plate and behind are two rounded apophyses.

In front of the anus is a median series of eleven supplementary organs. These are chitinous tubes (fig. 10G) with the internal end bent and slightly expanded. The cuticle forms a thickened ring round the tip of each tube. The testis is long, stretching through three-quarters of the whole body.

Habitat.—A single mature male specimen found in sand on the shore of Blacksod Bay in March.

Diodontolaimus gen. nov.

Anguillulidae of small size, with coarsely striated cuticle. Head with four low rounded lips, and a single ring of four submedian hairs, and spiral lateral sense-organs. Buccal cavity cylindrical, with thickened chitinous walls, armed with two subventral teeth at the anterior end. Oesophagus without a true bulb. Ventral gland present. Spicules paired, accessory piece with backwardly projecting apophyses. The male has a preanal median row of tubular supplementary organs.

This genus is characterized chiefly by the structure of the cylindrical buccal cavity, which is armed at its anterior end with *two* subventral teeth. In many respects it resembles the genus Dagda.

Diodontolaimus sabulosus sp. nov.

Pl. IV, figs. 11A–F.

Dimensions:—

	♂
Total length, ...	1·7
Length of oesophagus, . .	·22
„ „ tail, ...	·1
„ „ spicules, . . .	·04
„ „ supplementary organs,	·025
Head—nerve-ring, . . .	·1
Width at base of buccal cavity, .	·016
„ „ nerve-ring, . . .	·037
„ „ base of oesophagus, .	·041
„ „ mid-body, . . .	·046
„ „ anus, . . .	·036
a =	37
β =	7·7
γ =	17

Three specimens of this species were found, living in clean sand and in the sand of a Zostera bed on the shore of Blacksod Bay. One specimen is a perfect mature male, another is a male with partially cast skin, and the third is immature.

The body is colourless and transparent, tapering slightly towards each end. The cuticle is coarsely annulated, having about 420 rings. No hairs are present except on the head, and no lateral line was observed.

The head (figs. 11A, 11B) is surmounted by four low rounded lips, each tipped with a small papilla. On the second ring of the head are four slender submedian hairs. The lateral sense-organs are very near the front of the head, and each consists of a single spiral turn. The buccal cavity (fig. 11C) cylindrical in shape, ·01 mm. deep, slightly wider at the top than at the bottom, with distinctly chitinized walls. Near the anterior border, on the ventral side, it is armed with *two* submedian teeth. There is no tooth on the dorsal side of the buccal cavity.

The anterior part of the oesophagus has thin walls and strongly marked duct. It gradually expands towards the posterior end, but a bulb is absent. It is thickly covered with large irregular cells. Just in front of the middle of the oesophagus is the nerve-ring, and just behind the latter is the opening of the ventral gland. The gland itself lies a short distance behind the beginning of the intestine. The duct terminates in a large thin-walled ampulla. The tail (fig. 11D) is short and conical, and contains several caudal glands. The tip has very thick smooth walls (fig. 11E).

The testis is long, extending through three-fifths of the body. The spicules (fig. 11F) are strongly curved. Proximally they are expanded and curved; distally they are sharply pointed. The accessory piece consists of a backwardly projecting lobe, and a flat median part which sends forwards a slender lobe between the spicules, and forms grooved channels in which the spicules slide. Just in front of the anus is a large median papilla, tipped by something which may be either a stout hair or part of the excrement of the gland.

There is a median preanal series of nine supplementary organs, consisting of chitinous tubular gland ducts (figs. 11D, 11F), situated at slightly increasing intervals from the anus forwards. Each consists of a tube with the internal end bent like the bowl of a tobacco pipe. The opening in the cuticle through which each tube passes has a chitinous ring.

Habitat.—Three specimens found in clean sand, and in the sand of a Zostera bed on the shore of Blacksod Bay, in March.

Platycoma cephalata Cobb.

Pl. VII, figs, 22A–C.

1894. *Platycoma cephalata.* Cobb, p. 399.

Dimensions—

	♂	♀	♂ Cobb's specimen.
Total length, . . .	8·8	10·7	9·7
Length of oesophagus, . .	1·6	1·82	1·45
„ „ tail, . . .	·232	·25	·233
„ „ spicules, . .	·088	—	—
Head—nerve-ring, . .	·41	·42	·388
„ —♀ pore, . . .	—	6·85	—
Width at sense-organs, .	·045	·044	·039
„ „ nerve-ring, . .	·075	·092	·058
„ „ oesophagus, . .	·086	·1	·058
„ „ mid-body, . .	·09	·12	·058
„ „ ♀ pore, . .	—	·09	—
„ „ anus, . . .	·084	·09	·068
a =	98·	89·	167·
β =	5·5	5·9	6·7
γ =	38·	42·3	41·6

P. cephalata was described by Cobb (tom. cit.) from a single mature male specimen found in marine sand in the Bay of Naples. A number of specimens dredged in 24 fathoms on a bottom of sand and shells in Clew Bay appear to belong to this species. Most of the differences noted are trivial in character, and may be due to the original description having been founded on a single specimen.

The body is long, and uniform in width, and the cuticle is quite smooth The head (fig. 22A) is distinctly and abruptly narrower than the neck. It terminates in three conical structures which Cobb considers to be papillae but which appear to me to be chitinous teeth, guarding the entrance to a small conical buccal cavity. There is a crown of ten equal hairs, arranged in the usual manner. The sense-organs lie opposite the constriction of the neck, and consist of oval structures into which open the ducts of the oesophageal glands. In the structure of the sense-organs there is an important sexual difference. In the males, on the inner anterior margin, there is a pair of flat, unequal hairs, directed forwards, the dorsal hair being the longer of the two. They are usually not so unequal in size as Cobb figures them. In the females these hairs are quite absent. On the neck

there are four sub-median rows of long hairs. The two ventral sub-median rows each commence with a pair of hairs, the dorsal rows with single hairs. Just behind these setae there is also a group of stout hairs on each lateral line. The oesophagus is long, and gradually expands towards the posterior end. The nerve-ring, which is very conspicuous in this species, is situated at the beginning of the second quarter of the oesophagus. No ventral gland was observed. The lateral lines are $\frac{1}{3}$rd–$\frac{1}{4}$th of the width of the body, and contain at intervals large oval granular cells. The tail of the males is conical, and pointed at the tip (fig. 22B). Behind the anus are two rounded sub-median papillae, each armed with a short stout hair. Sub-median hairs occur just behind and in front of the anus. The tail of the female is similar in shape, but these various papillae are absent.

The spicules (fig. 22C) are short and stout, pointed distally, and funnel-shaped proximally, where there is a slight constriction. The accessory piece consists of a median plate which encloses the tips of the spicules, and sends forward a grooved plate between them, and two posterior apophyses with bifid rounded ends. The testes reach nearly to the middle of the body.

The female pore is far behind the middle of the body, nearly at the beginning of the posterior third. The ovaries are short and symmetrical.

The chief differences between these Irish specimens and the description given by Cobb is in the structure of the tail. He states that there are no post-anal papillae, whilst in the Irish specimens there are two sub-median papillae, each tipped by a stout hair. The Naples specimen is much thinner, and there are other slight differences in the proportions of the body, but these may be due to different methods of preservation. The Irish specimens are rather flattened, and so would appear stouter than they really are. For the present, and until other Mediterranean specimens are examined, it is advisable to consider the two forms as belonging to the same species.

Mature specimens were found in May.

Habitat.—Clew Bay—Dredged in 24 fms., on a bottom of sand and shells.

Distribution.—Naples.

Fiacra gen. nov.

Anguillulidae of large size. The cuticle is smooth, or with very faint transverse striae. The head bears a single ring of ten stout setae, and is separated from the neck by a sinuous suture. The lateral organs are cup-shaped, resembling those of Enoplus. A triangular furrow lies in front of the lateral organs. The buccal cavity is small, and the number and arrangement of the teeth vary in the two species described below. In the type species, F. longisetosa, *there are two large teeth in the ventral side, and two small slender teeth on the dorsal side of the*

buccal cavity. In F. brevisetosa *the buccal cavity has one or two large teeth and two small ones. The oesophagus has no bulb. The tail is conical, and bluntly pointed. The males have curved spicules, with sheath-like accessory pieces. There is a large median papilla in front of the anus, and a double row of sub-ventral setae or papillae. In the females the ovaries are symmetrical and reflexed.*

This genus is closely related to the group containing the genera Thoracostoma, Enoplus, and Triodontolaimus. It resembles Enoplus in the structure of the lateral sense-organs and the anterior furrows, and in the general form of the spicules and accessory pieces. It differs in the structure of the buccal cavity, and in the absence of the supplementary organ, and the relations of the cephalic suture to the sense-organs and cephalic setae.

It shows great resemblance to Thoracostoma in the spicules, preanal papillae, and hairs and sense-organs, but lacks the characteristic markings on the head, and differs also in the structure of the buccal cavity and the shape of the tail. It differs from Triodontolaimus in the structure of the buccal cavity, and in the presence of the preanal papillae.

The precise numbers and arrangement of the teeth in the buccal cavity of the two species of this genus were not ascertained with precision. There seems to be considerable variation in different individuals, and further observations are necessary on this point. It is possible that further investigation will show that the two following species belong to distinct genera.

Fiacra longisetosa sp. nov.

Pl. V, figs. 13A–E.

Dimensions:—

	♂
Total length, ...	17·1
Length of oesophagus, . .	1·7
„ „ tail, . . .	·2
„ „ spicules, . . .	·15
Head—nerve-ring, . . .	·56
Width at crown of setae, . .	·09
„ „ nerve ring, . .	·114
„ „ base of oesophagus, .	·124
„ „ mid-body, . .	·14
„ anus, . . .	·13

$\alpha = 122\cdot$
$\beta = 10\cdot$
$\gamma = 85\cdot5$

The body is long, tapering only very slightly towards each end. Behind the anus it rapidly narrows to the pointed tip. The cuticle is smooth, and the body of a pale buff colour.

The head (figs. 13A, 13B) is rounded, without marked lips, and is slightly constricted behind the crown of hairs. There is a single row of ten stout, fairly long hairs, arranged in the usual manner. A curved suture loops forward over these hairs, and backward between them. Behind the lateral hairs are the cup-shaped sense-organs. The duct of the gland leading into the sense-organs is thickly chitinized (*a*). Above the sense-organs and in front of the lateral setae is a triangular cuticular groove, with rounded corners. This seems to correspond to a structure figured in *Enoplus communis* Bastian, by de Man (1886, Taf. 1, fig. 5, *g*), which he calls "die rinnenförmige Grube," of unknown function. Behind the head the cuticle bears numerous hairs arranged in six rows, as far back as the nerve-ring. Behind the latter the hairs are few. The buccal cavity is small and indistinct. It contains two large rounded teeth, sub-ventral in position. On the dorsal side (fig. 13C) is a transparent membrane, supported at each outer angle by a slender, pointed tooth. Behind this lip is a conspicuous bar having a sharp bend in the mid-dorsal line. The large ventral teeth are supported round their bases by various chitinous pieces, the relation of which to each other is not very clear. Fig. 13B shows these structures in lateral view, figs. 13A, 13C from the dorsal side. The lateral line is conspicuous, and is about $\frac{1}{4}$th-$\frac{1}{3}$th of the diameter of the body. The oesophagus expands very gradually towards the hinder end. It is $\frac{1}{10}$th as long as the body. The nerve-ring is at the end of the anterior third of the oesophagus.

The tail (fig. 13D) is short, tapering rapidly to a point. It contains three large caudal glands. Near the tip of the tail are three short stout hairs. A few other longer hairs are scattered over the back of the tail. On each side of the anus there is a row of slender hairs. Those behind the anus—about five in each row—are nearer the median line than those in front, of which there are about 10-12 in each row. The anterior hairs are seated on low papillae.

There are two sub-ventral preanal rows of papillae, fourteen in each row, those at each end being the most indistinct. Only two or three papillae at the posterior end of each row bear hairs. In front of the anus there is a large median papilla into which two large glands open. The spicules (fig. 13E) are stout and curved, and are sheathed at the distal end by the accessory piece. The latter consists of a median piece, which sends a wing round each spicule. The testis is about three-sevenths of the length of the body.

No female specimens were found.

Habitat.—Dredged in 27 fathoms in Clew Bay, on a bottom of sand.

Fiacra brevisetosa, sp. nov.

Pl. V, figs. 14A–E.

Dimensions:—

	♂	♀
Total length,	13·4	16·
Length of oesophagus.	2·23	2·4
„ „ tail,	·37	·43
„ „ spicules,	·168	—
Head to nerve-ring,	·6	·64
„ „ ♀ pore,	—	9·5
Width at crown of setae,	·066	—
„ „ nerve-ring,	·18	·18
„ „ base of oesophagus,	·26	·24
„ „ mid-body,	·29	·28
„ „ ♀ pore,	—	·29
„ „ anus,	·17	·16
a =	46·2	57·
β =	6·	6·6
γ =	36·2	37·2

The body is elongate, uniform in width, and of a pale buff colour. The cuticle is smooth, with very faint transverse striae.

The head (figs. 14A, 14B) is rounded, and the mouth is surrounded with very low lips. There is hardly any trace of constriction behind the crown of setae. There is a single crown of ten short stout hairs on the head, very much shorter than the corresponding hairs of *F. longisetosa*, as are also the hairs on the neck, which are in six rows. A curved suture runs round the head, looping over the hairs. The sense-organs (figs. 14B, 14C) are cup-shaped, and much smaller than those of *F. longisetosa*, and the opening of the gland is not so strongly chitinized. Above the sense-organ is the triangular groove noted in *F. longisetosa*. The buccal cavity is somewhat larger than in the previous species. The relations of the chitinous teeth have not been made out with exactitude, on account of the opacity of the head, but there seem to be a large dorsal tooth, and two very small sub-ventral teeth at a lower level. In another female specimen, however, there seem to be two fairly large sub-ventral teeth.

The oesophagus expands slightly towards the posterior end. The distance between the head and the nerve-ring is rather more than one-quarter of the length of the oesophagus.

The lateral line is $\frac{1}{6}$th–$\frac{1}{8}$th of the diameter of the body. The tail (fig. 14D) tapers rather more gradually than that of *F. longisetosa*, and the pointed tip is longer. It bears a few short hairs, and contains three large caudal glands. In front of the anus in the males there is a large median papilla, and on each side of the mid-ventral line there is a row of hairs. Between the anus and the papilla there are fourteen pairs of hairs, and in front of the papilla twenty-eight pairs. Of these last, thirteen pairs are similar to those behind the papilla. The anterior fifteen pairs are shorter, much thicker, and are seated on rounded papillae. The distance between the two rows of hairs increases towards the front, and the anterior pairs are sub-lateral in position. The rows of hairs are continued behind the anus for a short distance. The spicules (fig. 14E) are slender and curved, somewhat narrower than those of the preceding species. The proximal ends are swollen, and the distal ends pointed. The accessory piece forms a compact sheath in which the spicules slide.

The testes are much shorter than those of *F. longisetosa*.

The females closely resemble the males in shape. The body is longer, and the oesophagus rather shorter in proportion. The ovaries are short, symmetrical, and reflexed, and there is one large egg in each branch of the uterus. The female pore is some distance behind the middle of the body.

The resemblance between this species and the *Thoracostoma acuticaudatum* of Jägerskiöld (1901, p. 33) is very striking. The two species agree closely in size and proportions, in the shape of the rounded head, with its ten short hairs, sense-organs, and undulating ring, in the structure of the lateral line, shape of the tail, the median preanal gland, and double row of preanal papillae and hairs. The chief differences lie in the structure of the buccal cavity, which in *T. acuticaudatum* is devoid of teeth. There are also differences in the shape of the spicules and accessory pieces, and in the number and arrangement of the preanal papillae. Probably further investigation will show that the two species belong to the same genus.

Habitat.—Dredged on two occasions, in 24–27 fathoms, in Clew Bay, on a bottom of sand and shells.

Thoracostoma figuratum (Bastian).

1865. *Leptosomatum figuratum*. Bastian, p. 146. 1893. *Thoracostoma figuratum*. de Man, p. 108.

This is one of the commonest species in the district. It is found on the shore, under stones and amongst weeds, and occurs in almost every dredging. Mature specimens were found in May, August, and September.

Habitat.—Blacksod Bay.—Taken on 7 occasions, 6 times on the shore, and once in 4–6 fms. Clew Bay—Shores of Clare I., and Annagh I. Dredged on 8 occasions, in 7–26 fms. Ballynakill Harbour. Bofin Harbour.

Distribution.—England; Helgoland; France.

Thoracostoma denticaudatum (Schneider).

1888. *Thoracostoma denticaudatum.* de Man, p. 22.

Mature specimens were found in September.

Habitat.—Blacksod Bay.—Under stones amongst tubes of Spirorbis.

Distribution.—Germany (Helgoland); Holland (Flushing).

Cylicolaimus magnus (Villot).

Pls. VI, VII, figs. 19A–F.

1875. *Leptosomatum magnum.* Villot, p. 458. 1889. *Cylicolaimus magnus.* de Man, p. 2. 1901. *C.m.* Jägerskiöld, p. 5.

Dimensions:—

	♂ Clew Bay sp.	♂ Blacksod Bay sp.	♂ Jägerskiöld.	de Man. Immature sp.
Total length,	23·7	23·8	25–34	11
Length of oesophagus,	3·4	3·42	3·6–4·54	—
„ „ tail,	·33	·31	·26–·3	—
„ „ spicules,	·226	—	—	—
Head—nerve-ring	·62	·64	·64–·8	—
Width at base of buccal cavity,	·07	—	—	—
„ „ nerve-ring,	·144	—	—	—
„ „ base of oesophagus,	·186	—	—	—
„ „ mid-body,	·192	·22	·18	—
„ „ anus,	·19	—	—	—
	α = 123·4	108·2	139–189	80·
	β = 7·	7·	7·	5·
	γ = 72·	77·	100·	46·

Numerous specimens of this species were dredged in May, in 24 fms., in Clew Bay. Only one specimen, a male, was mature. A mature male specimen was also found on the shore of Blacksod Bay.

The species has been described by Villot, de Man, and at great length by Jägerskiöld. The following notes may be regarded as supplementing the published descriptions of this interesting species.

The head (figs. 19D, 19E) is surrounded by a chitinous band with undulating margins. In front are a number of oval grooves of unknown function. Behind the lateral setae are the sense-organs, which resemble those of Enoplus in shape. The anterior opening is transversely oval. This leads into a cup-shaped cavity into the bottom of which opens the duct of a gland.

The mouth is guarded by three lips, each bearing two small papillae. On the inner side of these lips is a girdle of small teeth, and beneath these there are three larger teeth attached to the roof of the buccal cavity. On the lateral sides of the inner walls of the buccal cavity are two triangular plates with the upper corners sharply pointed (fig. 19E). These structures resemble teeth, but appear to lie flat against the wall of the buccal cavity. One of them is shown in side view in fig. 19F, *b*. At the bottom of the buccal cavity are three small chitinous lobes through which open the oesophageal glands. The thickened walls of the buccal cavity are continued directly into those of the oesophagus.

Hairs on the neck are numerous, and are arranged in six rows. The oesophagus is one-seventh of the total length, and the nerve-ring is near its anterior end.

The tail (fig. 19A) is short, curved, and tapers rapidly to a rounded point. The spicules are shown in fig. 19B, and closely resemble those figured by Jägerskiöld. The median preanal papilla is not so conspicuous in the Irish specimens as Jägerskiöld indicates.

The preanal hairs are arranged in four rows, and each is based on a small papilla. The outer row on each side consists of 10-11 stout hairs, of which one is behind the anus. The inner rows each comprise about 30 hairs, those nearer the anus being the largest. These inner rows are continued backwards on to the tail.

The lateral lines are very conspicuous. They contain many large globular cells (fig 19C) which open to the surface through fine pores. The central part of the cell is a cavity filled with a clear liquid secreted by the granular portion of the cell.

Habitat.—Blacksod Bay—A single specimen under a stone on the shore. Clew Bay—Numerous specimens dredged in 24 fms., on a bottom of sand and shells.

Distribution.—England (Falmouth, Penzance); France (Côtes de Bretagne); Sweden (Kristineberg, 10-20 metres); Norway (Bergen, 150 metres, and Trondhjemsfiord, 100 metres).

Symplocostoma longicolle Bastian.

1865. *Symplocostoma longicolle.* Bastian, p. 133. 1888. *S. l.* de Man, p. 30.

This species is very common in the dredgings and in weeds from the shore. Mature specimens were found in September.

Habitat.—Blacksod Bay—Found twice on the shore. Dredged on 3 occasions in 1-6 fms. Clew Bay—Shore of Clare I. Ballynakill Harbour—Dredged on 2 occasions, in 6-8 fms.

Distribution.—England; Holland.

Eurystoma filiforme de Man.

Pl. VI, fig. 18.

1888. *Eurystoma filiforme.* de Man, p. 26.

Two specimens of this species were found, both mature males. The tip of the spicules has several teeth on the posterior edge (fig. 18). The specimen dredged in Clew Bay is 4·3 mm. long; the Blacksod Bay specimen is 4·8 mm. long, and has the following formula:—$a = 100$, $\beta = 6{\cdot}5$, $\gamma = 40$.

Habitat.—Blacksod Bay—Found under a stone, amongst tubes of Spirorbis, in September. Clew Bay—Dredged in 24 fms., on a bottom of sand and shells, in May.

Distribution.—Holland.

Eurystoma acuminatum de Man.

1889. *Eurystoma acuminatum.* de Man, p. 6.

A single immature specimen was found in the sand of a Zostera bed in Blacksod Bay. It agrees closely with the description given by de Man, which is unfortunately without figures. The most striking character is the shape of the tail, which tapers rapidly behind the anus to a long slender whip-like tip. The whole body is only five times as long as the tail, whereas in de Man's specimen it was twenty-four times as long. However, de Man's specimen was a mature male, very much longer than the Irish specimen, and such a slender tail might easily be damaged or broken.

Habitat.—In the sand of a Zostera bed in Blacksod Bay.

Distribution.—England (Penzance).

Demania gen. nov.

Anguillulidae of moderate size, with smooth cuticle. Tail rounded, with three caudal glands. Ten hairs on the head, in one or two rows. Buccal cavity large and deep, the lower part having three longitudinal chitinous rods with a

ooth at the upper end of each rod. One tooth is dorsal in position, the other two ub-ventral. On the inner wall of the buccal cavity, near the mouth, are three riangular papillae, alternating in position with the teeth. No ventral gland vas observed. The male genital armature consists of a pair of slightly curved picules, expanded proximally. The accessory piece is flat and grooved. No reanal papillae or ducts. The ovaries are symmetrical and reflexed.

The structure of the head and buccal cavity indicate a distant affinity ith the genus Oncholaimus.

Demania major sp. nov.

Pl. VII, figs. 20A–C.

imensions—

	♂	♂	♀	♀
Total length, ...	8·05	7·57	7·66	7·54
Length of the oesophagus, . .	·9	·875	·9	·875
„ „ tail, . . .	·216	·22	·19	·18
„ „ spicules, . .	·072	—	—	—
Head—nerve-ring, . . .	·38	·35	·382	·342
„ —♀ pore, . . .	—	—	4·62	4·65
Width at 2nd crown of hairs, .	·036	—	·036	—
„ „ nerve-ring, . .	·086	—	·078	—
„ „ base of oesophagus, .	·094	—	·086	—
„ „ mid-body, . . .	·106	·098	·099	·098
„ „ ♀ pore, . . .	—	—	·093	—
„ „ anus, . . .	·084	—	·084	·084
a =	76·	77·	77·	77·
β =	9·	8·7	8·5	8·6
γ =	37·3	34·4	40·3	42·

The body is long and cylindrical, tapering only slightly towards each remity. The cuticle is thick and smooth, with a few hairs on the neck l tail. The lateral line is very indistinct, and is about $\frac{1}{4}$th–$\frac{1}{5}$th the width he body.

The head (fig. 20A) tapers rapidly to the tip, which is slightly expanded formed by a transparent circular membrane. The hairs on the head are nged in two rings. The anterior ring consists of four sub-median hairs. t behind them is the second ring of six long slender hairs, two lateral and sub-median. There are a few other short hairs on the neck. In front of lateral hairs is a faint undulating groove from which longitudinal grooves backwards. These grooves may represent the lateral organs. The th is wide, and is surrounded by a transparent membrane, on the inner

side of which are three papillae, one ventral and two latero-dorsal in position alternating with the teeth. The buccal cavity is large, deep, and cup-shaped The widest part is near the front. The walls are lined with a thick layer o chitin. The lower half of the cavity is strengthened by three longitudina rods, one of which is dorsal, the other two latero-ventral. They are eac provided at the anterior end with a stout conical tooth. The oesophagus i expanded a little in front; then it contracts till it is about ⅔ths as wide as th neck, and then gradually expands towards the posterior end, where it i about ⅔rds as wide as the neck. No ventral gland was observed.

The tail (fig. 20B) tapers to a rounded tip, and is slightly longer in the male than in the females. It contains three large caudal glands, the contents o which are long slender interwoven filaments, presenting a characteristi appearance. The testes reach to the middle of the body. The spicule (fig. 20C) are about ⅓rd the length of the tail. They are slightly curve pointed distally, and swollen in the middle. Proximally they contract t form a neck, and then expand into a funnel-shaped mouth. The accessor piece closely embraces the tips of the spicules, and the inner end is produce into two transversely lying apophyses. Just in front of the anus there a two sub-ventral hairs.

The female pore lies near the end of the middle third of the body. Th ovaries are symmetrical, elongate, and reflexed.

Habitat.—Dredged in 24 fms., Clew Bay, on a bottom of sand and shell The same species was also found in 20 fms., in Dingle Bay.

Demania minor sp. nov.

Pl. VII, figs. 21A–C.

Dimensions:—	♂	♀
Total length, . . .	3·5	3·6
Length of oesophagus, .	·5	·53
„ „ tail, .	·192	·16
„ „ spicules, . .	·052	—
Head—nerve-ring, . .	·222	224
„ —♀ pore, . .	—	2·1
Width at crown of hairs,	·017	·017
„ „ nerve-ring, .	·049	·061
„ base of oesophagus,	·057	·082
„ „ mid-body, .	·066	·1
„ „ ♀ pore, . .	—	·092
„ anus, . .	·055	·06
α =	53·	36·
β =	7·	6·8
γ =	18·2	22·5

This species was not taken in the same hauls as *D. major* in Clew Bay; but in Dingle Bay the two species were found living on the same ground.

D. minor is very like *D. major* in appearance and structure, so that it is only necessary to point out the distinguishing characters. The body is much shorter and stouter, and the oesophagus and tail are proportionately longer, especially the tail. The latter organ resembles that of *D. major* in shape, and contains three similar caudal glands. The head (fig. 21A) differs in the arrangement of the hairs. Instead of having two rows consisting of 4 short and 6 long hairs, there is only a single row consisting of 6 long and 4 sub-median short hairs. In other words, the 4 short sub-median hairs in *D. major* form a separate ring in front of the 6 long hairs, whilst in *D. minor* the long and short hairs are side by side. The structure of the buccal cavity in the two species is very similar (compare fig. 20A and fig. 21A). The spicules in the two species are very similar, but in *D. minor* the expanded proximal end (figs. 21B, 21C) is much smaller than it is in *D. major*, and the distal end is blunt. The accessory pieces also differ slightly. The female organs are similar in structure and position.

Habitat.—CLEW BAY—Dredged on 2 occasions in 14–17 fms.

This species was also dredged in 20 fms. in Dingle Bay, and in 21–26 fms. off Mine Head, Co. Waterford.

Oncholaimus macrolaimus sp. nov.

Pl. VI, figs. 16A–D.

Dimensions—	♂	♀	♀
Total length,	9·42	8·94	12·63
Length of oesophagus,	1·425	1·45	1·75
„ „ tail,	·208	·206	·226
„ „ spicules,	·1	—	—
Head—bottom of buccal cavity,	·126	·12	·144
„ —excretory pore,	·154	·14	—
„ —nerve-ring,	·51	·514	·65
„ — ♀ pore,	—	5·16	6·84
Anus—anterior papilla,	·124	—	—
Width at base of buccal cavity,	·126	·1	—
„ „ crown of setae,	·078	·066	—
„ „ nerve-ring,	·14	·128	—
„ „ base of oesophagus,	·14	·14	—
„ „ mid-body,	·154	·164	·186
„ „ ♀ pore,	—	·178	—
„ „ anus,	·112	·09	·1
α =	61·2	54·5	67·9
β =	6·6	6·2	7·2
γ =	45·3	43·4	56·

The body is of fairly uniform width, tapering to a sub-conical tail. The head is rather abruptly narrower than the neck. The cuticle is moderately thick, and is without markings. The lateral lines are $\frac{2}{7}$ths of the width of the body.

The head (fig. 16B) becomes distinctly narrower at the level of the middle part of the buccal cavity. It is rounded at the tip, with several low flat lips. Round the front margin of the head runs an undulating line. There is a single crown of hairs, 10 in number, arranged in the usual manner. In front of these there is a row of 6 short stout papillae. The lateral organs are large and bee-hive-shaped, with very wide canals running into them. On the neck short hairs are arranged in 6 rows, beginning opposite the posterior end of the buccal cavity. Hairs occur sparsely throughout the body. The buccal cavity is large and very deep. It is widest above the dorsal tooth, and slightly narrower at each end. In the posterior wall of the cavity is a small depression. The sub-ventral teeth are long and slender ; the dorsal tooth, which is much further behind, is short and thick. The oesophagus gradually expands towards its posterior end, and the nerve-ring is near the beginning of the second third. The ventral gland lies near the commencement of the intestine (fig. 16A), and the duct opens to the exterior just behind the posterior margin of the buccal cavity. The intestinal cells are full of yellowish-brown pigment. The tail is of the same shape in both sexes. It is bluntly conical and slightly curved. It contains the terminal portions of three long caudal glands. There are six rows of short hairs on the tail.

The spicules (fig. 16D) are bent almost at right angles in the middle, and sharply pointed distally. The accessory piece consists of a single flat plate lying transversely. The inner edge is curved forwards. The distal part is thickened and grooved for the spicules, and carries two indented lobes which lie on the outer side of the tips of the spicules. The lower lip of the anus of the male is armed with numerous small spines. The upper lip has a papilla, and a second small papilla is situated in the median ventral line some distance in front of the anus (fig. 16C). The testes extend through $\frac{3}{5}$ths of the length of the body. The two mature females show considerable variation in length and proportions. The inconspicuous female pore is a short distance behind the middle of the body. The ovaries are short and reflexed, with one or two ripe eggs in each branch of the uterus. Mature specimens were found in May.

Habitat.—Clew Bay—Dredged in 24 fms., on a bottom of sand and shells.

Oncholaimus vulgaris Bastian.

Pl. V, figs. 15A–C.

1865. *Oncholaimus vulgaris.* Bastian, p. 135. 1874. *O. v.* Bütschli, p. 38.

Dimensions—

	♂	♂	♀
Total length,	11·8	13·7	15·6
Length of oesophagus,	1·41	1·5	1·5
„ „ tail,	·154	·155	·164
„ „ spicules,	·12	·13	—
Head—bottom of buccal cavity,	·08	—	·086
„ —excretory pore,	·333	·35	·386
„ —nerve-ring,	·49	·57	·582
„ — ♀ pore,	—	—	8·3
Anus—anterior papilla,	·226	·24	—
Width at crown of hairs,	·068	—	·066
„ „ base of buccal cavity,	·092	—	·086
„ „ nerve-ring,	·125	—	·14
„ „ base of oesophagus,	·144	—	·17
„ „ mid-body,	·168	·23	·2
„ „ ♀ pore,	—	—	·2
„ „ anus,	·106	—	·102
a =	70·2	59·6	78·
β =	8·4	9·1	10·4
γ =	77·	88·4	95·1

This species is very abundant under stones on the shore. As it has not yet been adequately described, the following notes and figures are given, and they serve for comparison with the next species, *O. similis*, sp. nov.

Bastian states that the ventral gland opens close to the nerve-ring. In all the specimens I have examined the opening is well in front of the nerve-ring, as in *O. similis* (fig. 17A). There is considerable variation in the length and proportions of the various parts of the body. The diagnostic characters are found in the male organs. The spicules (figs. 15B, 15C) are very slender, pointed distally, and expanded in the middle and at the proximal end. The accessory piece is bent, and the distal end is simply rounded. The tail is a little longer than the spicules (fig. 15B), and the anterior papilla is well in front of the anterior end of the spicules. This species is often found in tangled masses under stones on the shore at the breeding season. It is

almost invariably accompanied by another species, *O. similis*, which resembles it closely, and is only distinguished from it by the structure of the male genital organs. It is almost impossible to distinguish the females of the two forms, except that the tail of *O. vulgaris* is a little longer than that of *O. similis*. A comparison of figs. 15B and 17D will show the chief differences. The spicules of *O. similis* are much longer and thicker than those of *O. vulgaris*, and exceed the tail in length. The accessory piece is stouter, and its distal end is provided with a distinct posterior tooth. Moreover, the distance from the anterior papilla to the anus is only equal to the length of the spicules, whereas in *O. vulgaris* it is twice as great.

Mature specimens were found in March, May, and September.

Habitat.—BLACKSOD BAY—Found on the shore on 10 occasions.
CLARE I.—Found once on the shore.

Distribution.—England; France (Roscoff); Germany (Kiel).

Oncholaimus similis sp. nov.

Pl. VI, figs. 17A–D.

Dimensions:—

	♂	♀
Total length,	11·3	18·
Length of oesophagus,	1·4	1·63
„ „ tail,	·106	·135
„ „ spicules,	·184	—
Head—bottom of buccal cavity,	·086	·092
„ —excretory pore,	·38	·37
„ —nerve-ring,	·504	·546
„ —♀ pore,	—	9·9
Anus—anterior papilla,	·18	—
Width at crown of setae,	·068	·068
„ „ base of buccal cavity,	·096	·094
„ „ nerve-ring,	·14	·16
„ „ base of oesophagus,	·17	·204
„ „ mid-body,	·214	·28
„ „ ♀ pore,	—	·26
„ „ anus,	·12	·12
a =	52·8	64·3
β =	8·1	11·
γ =	106·6	132·4

This species usually occurred with, and greatly resembled, *O. vulgaris*. Mature specimens vary from 10–20 mm. in length, the females being larger than the males. The body is fairly uniform in width, tapering at each end. The cuticle is smooth. The head has a crown of 10 short stout hairs, in front of which is a ring of very minute papillae. The head (fig. 17B) is narrower than the neck. The mouth is surrounded by three low lips. The lateral sense-organs are very small, as in *O. vulgaris*, situated just behind the lateral hairs. There are six rows of short hairs on the neck. The buccal cavity is not so deep as in *O. macrolaimus*, and closely resembles that of *O. vulgaris*. The dorsal tooth is only slightly behind the sub-ventral teeth. The nerve-ring (fig. 17A) is at the beginning of the middle third of the oesophagus. The excretory pore is well in front of the nerve-ring.

The tail (fig. 17C) is short and rounded, and slightly curved. It contains the ducts of three long caudal glands, and bears a number of short hairs. In the males there are two preanal papillae, one just before the anus, and the other as far in front of the anus as the length of the spicules. The latter (figs. 17C, 17D) are large and stout. The proximal end is bevelled, and constricted behind the tip; the distal end is pointed. The accessory piece is long and stout, with its inner end curved, and its outer edge turned back to form a conspicuous tooth. The female pore is just behind the middle of the body. Each branch of the uterus contains 9–22 eggs, the posterior branch always having the larger number.

Habitat.—Blacksod Bay—Found on the shore on 8 occasions. Ballynakill Harbour—Found once on the shore.

Oncholaimus attenuatus Dujardin.

1865. *Oncholaimus attenuatus.* Bastian, p. 137.

Mature specimens were found in May.

Habitat.—Shores of Clare I.

Distribution.—England; France (Lorient).

Genus **Enoplus.**

In the following pages a number of species of Enoplus are described, which necessitate a revision of the diagnostic characters of the genus. The distinctive character, according to de Man (1886, p. 11), is the presence in the buccal cavity of three symmetrical movable jaws, each with two inwardly directed pointed teeth at the anterior end. In 1893 (p. 118) de Man described a new genus Enoplolaimus, for the new species *E. vulgaris*, closely related to Enoplus, but differing in the structure of the jaws, each of which consists of a median tooth attached to the lip by "un appareil de pièces

chitineuses." Other distinctive characters are the simplicity of the male genital armature and supplementary organ, and the absence of a ventral gland.

The distinctive value of these characters will be greatly diminished by a study of the new species described in the following pages. They all agree in having three large lips, armed with teeth. With the exception of *Enoplus longicaudatus*, they have all long spicules. In the structure of the teeth they form a regular series, starting from the typical condition of *E. communis* through *E. Bütschlii*, *E. labrostriatus*, *E. diplechma*, *Enoplolaimus vulgaris*, to *E. longicaudatus*. In this series, the jaws gradually grow thinner, the anterior teeth more slender, and the median tooth relatively more prominent. de Man does not mention the anterior teeth in *E. vulgaris*, but a study of his figures (1893, Pl. VII, figs. 13A, 13B) shows that they are present. As for the simple structure of the male genital armature in *E. vulgaris*, *E. diplechma*, which has jaws typical of Enoplolaimus, has very complicated accessory pieces. On the other hand, *E. longicaudatus*, which most nearly resembles *E. vulgaris*, has very short spicules and simple accessory pieces, and the supplementary organ is reduced to a minute tube. The disappearance of this organ and the further reduction of the jaws would lead to the condition of things seen in the genus Oncholaimus. On the other hand, a total disappearance of the jaws, and the retention of the long spicules and supplementary organs, brings us near to such genera as Anticoma and Phanoderma.

I have not noted ventral glands in any of the new species. This organ is, however, sometimes difficult to see in preserved specimens. A character distinguishing the Enoplolaimus form from typical species of Enoplus is the presence of the crown of six short setae on the anterior part of the head. Their homologues are present, however, as small papillae on the lips.

The chitinous girdle, surrounding the mouth and lying behind the teeth, is common to Enoplus and Enoplolaimus. Moreover the median tooth, supposed to be characteristic of Enoplolaimus, is shown to occur in a rudimentary condition in *E. communis*, by de Man (1886, taf. I, figs. 5, 8c).

No species of Enoplus with long spicules has previously been described. The *E. labiatus* of Bütschli (1874, p. 41), inadequately described and known only from a single female specimen, belongs to this group. It has the characteristic three large lips, each bearing two setae.

None of these forms has been found between tide-marks, except *E. vulgaris*. de Man has since described a second species of Enoplolaimus, *E. australis* (1904, p. 17), from Patagonia.

In view of the above circumstances, I find it difficult to maintain the

genus Enoplolaimus. The new species described below undoubtedly are closely related and belong to the same genus, yet *E. Bütschlii* and *E. labrostriatus* are closely allied to Enoplus, and *E. diplechma* and *E. longicaudatus* to Enoplolaimus. It seems preferable to widen our definition of the genus Enoplus, and to reduce Enoplolaimus to sub-generic rank.

Enoplus communis Bastian.

1865. *Enoplus communis.* Bastian, p. 148. 1886. *E. c.* de Man, p. 14.

Mature specimens were found in March, May, August, and September.

Habitat.—Blacksod Bay—Found on the shore on 5 occasions. Clew Bay—Shores of Clare I. Dredged in 24 fms.

Distribution.—England; Holland; Germany (Kiel, Helgoland); France; Denmark.

Enoplus Bütschlii sp. nov.

Pl. VIII, figs. 23A–F.

Dimensions—

	♂	♀	♀
Total length,	4·4	4·	4·1
Length of oesophagus,	1·	1·	1·
„ „ tail,	·2	·2	·19
„ „ spicules,	·48	—	—
Head—nerve-ring,	·2	·2	·23
„ —♀ pore,	—	2·	2·
Anus—supplementary organ,	·17	—	—
Width at base of buccal cavity,	·09	—	·094
„ „ nerve-ring,	·1	·1	·14
„ „ base of oesophagus,	·125	—	·166
„ „ mid-body,	·13	·15	·18
„ „ ♀ pore,	—	·15	·18
„ „ anus,	·05	—	·055
a =	34·	26·6	22·8
β =	4·4	4·	4·1
γ =	22·	20·	21·6

The body is stout, and tapers in front only very slightly, except near the head. In the posterior region it tapers more gradually, and the tail is

conical, with a slender tip. The oesophagus and intestine are coloured brown, owing to the presence of gland-cells containing granular pigment. The deeper layers of the cuticle show very fine transverse striae.

The head (fig. 23A) terminates in three large rounded lips with thin walls. These lips are delicately ridged along the margin, showing affinities with *E. labrostriatus*, and they are strengthened with curved skeletal rods.

The lateral sense-organs were not observed.

In front there is a girdle of six short, stout, striated hairs, two on each lip. Behind these there is a second girdle of ten slender hairs, six long and four shorter, arranged in the usual manner. Further behind is another ring of long, slender setae. Just behind the latter ring is a delicate undulating suture. On the neck there are numerous slender hairs in six rows. The hairs behind the second girdle are stronger and more numerous in the males than in the females.

The buccal cavity is very deep. The anterior region contains three large teeth. They are massive structures (fig. 23B) with two curved cusps on the inner anterior end. Each tooth bears on the middle of its inner surface a sharp tooth pointing inwards. Both anterior cusps are surmounted by rounded papillae. The teeth of this species are characterized by their stout form and by the large lacuna in the middle of each plate. From the posterior margin of each side a chitinous rod runs to the base of the buccal cavity. Round the buccal cavity and on the outside of the teeth lies a slender chitinous cephalic girdle, which forms a curved bar behind each tooth, and a backward loop in each interlabial area. Behind the posterior angle of this backward curve is a chitinous thickening, from which a slender bar passes down to the base of the buccal cavity. A similar chitinous ring is found in the other species described below.

The anterior part of the oesophagus, surrounding the lower part of the buccal cavity, contains three large gland-cells with granular contents. The oesophagus contains numerous pear-shaped glands, with the pointed end inwards.

The length of the oesophagus is one-fourth of that of the whole body. The nerve-ring is slender and indistinct, and lies at the back of the first quarter of the oesophagus.

The lateral lines are one-quarter as wide as the diameter of the body.

The tail (fig. 23C) tapers rather quickly to a slender tip, slightly swollen at the end, and contains several slender caudal glands. It carries a number of long slender hairs on the tip, and a few others on the thin terminal portion. In the males there is a pair of short, stout, submedian spines just behind the anus, and in front of each spine is a short, slender hair. There

are a few sub-ventral hairs in front of the anus. The female also has the long, slender terminal hairs, and a few other short hairs on the tail, but does not possess the stout spines.

The spicules (fig. 23C) are very long, slender, and coarsely striated, especially at the distal end, which is pointed. They are two-and-a-half times as long as the tail. The proximal end is funnel-shaped. The accessory pieces (fig. 23D) are simple rods, with the distal end slightly expanded and pointed. The supplementary organ (fig. 23E) is a small tubular structure, ·032 mm. long, as far in front of the anus as the tail is long.

The female pore lies very near the middle of the body (fig. 23F). The vagina is distinct and cylindrical, and each oviduct usually contains one or two large eggs. The ovaries are short and symmetrical.

Mature specimens were found in May and August.

This species is closely related to *E. labrostriatus.* The chief differences are in the structure of the lips and buccal cavity, the hairs on the neck and tail, the shape of the spicules and accessory pieces, and in the general proportions of the body.

Of all the species of Enoplus which I have examined, the present form is the one which comes nearest to the *E. labiatus* described by Bütschli (1874, p. 41). His description and figures, based on a single female specimen, are so incomplete that it is practically impossible to recognize the species. There is no doubt, however, that *E. labiatus* belongs to the same group of the genus as *E. labrostriatus* and *E. Bütschlii.* The lips agree in shape with those of the present species, and the chitinous girdle surrounding the buccal cavity outside the teeth is also present. The statements of Bütschli that the second crown of hairs consists of two on each lip, and that the teeth resemble those of *E. communis,* are probably erroneous. The length of *E. labiatus* is 5·5 mm. and the oesophagus is one-fifth of the total length. The female pore is one-third of the total length from the tail. Owing to these differences, and to the incompleteness of the description, it is advisable not to refer the present species to *E. labiatus,* which must be regarded for the present as insufficiently described.

Habitat.—CLEW BAY—Dredged on 2 occasions, in 14–17 fms., on a sandy bottom.

This species has also been found in Dingle Bay.

Enoplus labrostriatus sp. nov.

Pl. VIII, figs. 24A–F.

Dimensions—

	♂	♀	♀ Immature sp.
Total length,	5·55	7·4	5·52
Length of oesophagus,	·81	1·1	1·35
„ „ tail,	·28	·36	·39
„ „ spicules,	·49	—	—
Head—nerve-ring,	·23	—	·32
„ —♀ pore,	—	3·8	3·2
Anus—supplementary organ,	·15	—	—
Width at base of buccal cavity,	·108	—	·092
„ „ nerve-ring,	·12	—	·108
„ „ base of oesophagus,	·124	—	·132
„ „ mid-body,	·132	·132	·152
„ „ ♀ pore,	—	—	·148
„ „ anus,	·06	—	·067
a =	42·	56·	36·3
β =	6·85	6·7	4·1
γ =	20·	20·6	14·1

The body is stout and cylindrical, tapering only slightly towards the head, more gradually towards the tail, where it terminates in a slender tip. The cuticle bears delicate transverse striae, and beneath these can be seen the longitudinal striations of the muscular body wall.

The lateral lines occupy $\frac{1}{4}$th–$\frac{1}{5}$th of the diameter of the body. The head (figs. 24A, 24B) does not show any suture such as is found in some other species of the genus. The mouth is surrounded by three large lips, each composed of a delicate membrane which is distinctly striated. This is one of the most characteristic features of this species, though a similar striation is shown in a slight degree in *E. Bütschlii*. Towards the tip of the lip the striations are fewer in number, and stronger. Each lip bears on its outer side two stout hairs, longitudinally striated, arising just about the level of the teeth. Further behind is a second crown of ten teeth, of which six are long and four short. The lips are recurved and seem to be strengthened by delicate skeletal rods. On the neck and body there are only a few scattered hairs.

The buccal cavity is armed with three teeth of complex structure. In fig. 24A the dorsal tooth is seen from the outside. It consists of an anterior portion having two teeth in front, and dividing behind into two lateral processes. The posterior portion consists of two roughly triangular plates from the lower corner of which two chitinous rods run to the base of the buccal cavity. On its inner face the anterior part carries a sharp tooth, which is clearly seen in side view (fig. 24C).

A thickened chitinous cephalic girdle of six curved loops runs round the head, lying in the walls of the buccal cavity at the level of the middle part of the teeth and outside them. It is shown in figs. 24A, 24B and isolated in fig. 24D. The three interlabial loops are thicker and longer than the others, and behind the middle of each lies a small V-shaped bar. Each of the latter bars is connected with the body-wall by a strand of muscle fibres. The lower part of the buccal cavity is surrounded by the swollen anterior end of the oesophagus, which contains three large granular gland-cells.

The oesophagus is cylindrical, and expands very slightly behind. It is provided with numerous pear-shaped gland-cells. In length it varies from one-fourth to one-seventh of the total length, according to the size of the specimen, the smaller and younger specimens having a proportionately longer oesophagus. The nerve-ring is near the front, its distance behind the anterior end being about one-fourth of the length of the oesophagus. The tail (fig. 24E) tapers gradually to a slender tip, which bears several long slender hairs. Just behind the anus in the male is a short, thick median hair, and behind this again are two slender submedian hairs.

The spicules are very long and smooth. The proximal end is funnel-shaped, and the distal end is slightly expanded and pointed. The accessory pieces (fig. 24F) are tubular, with wide funnel-shaped proximal ends. The distal part is curved, and has a groove in which the spicule runs.

The supplementary organ is small and tubular, ·05 mm. in length, its distance in front of the anus being about half the length of the tail.

In the female the genital pore is a variable distance behind the middle of the body. The ovaries are symmetrical. Mature specimens were found in May.

The two female specimens found are not quite mature, and they show considerable differences in their relative proportions. The longer of the two agrees much more closely with the males than does the shorter.

Habitat.—Clew Bay.—Dredged in 24 fms., on a bottom of sand and shells.

Enoplus diplechma sp. nov.

Pl. VIII, IX, figs. 25A–J.

Dimensions—

	♂	♂	♀	♀
Total length,	3·7	3·33	3·47	3·52
Length of oesophagus,	·63	·62	·7	·68
„ „ tail,	·25	·264	·26	·25
„ „ spicules,	·51	·5	—	—
Head—nerve-ring,	·22	·21	·22	—
„ —♀ pore,	—	—	1·79	1·8
Anus—supplementary organ,	·08	·08	—	—
Width at base of buccal cavity,	·04	·035	·047	—
„ „ nerve-ring,	·063	·056	·067	—
„ „ base of oesophagus,	·08	·07	·12	—
„ „ mid-body,	·086	·076	·128	·12
„ „ ♀ pore,	—	—	·125	—
„ „ anus,	·054	·06	·054	—
a =	43·	43·8	27·1	29·3
β =	5·9	5·4	5·	5·2
γ =	14·8	12·6	13·3	14·

The body is rather slender, tapering gradually towards the head, and even more gradually towards the anus. The tail is conical. The cuticle has extremely delicate transverse striae. The head (figs. 25A, 25B, 25C) is rounded, with three delicate lips supported by slender curved skeletal rods. Each lip has near the tip, on its outer side, two short thick striated hairs. Behind these is the second crown of ten long setae, of which four are shorter than the others. Further behind, the head is marked off from the neck by a delicate suture. In the males there are two girdles of long hairs on the neck, arranged in six rows. In the anterior girdle there are two hairs in each row; in the posterior girdle there are four hairs in each row. Other shorter hairs are scattered over the neck, in six rows. In the females these girdles of stout hairs are absent, only short slender hairs occurring sparsely in six rows. The lateral lines are $\frac{1}{5}$th–$\frac{1}{6}$th as wide as the diameter of the body.

The buccal cavity is deep, and contains three slender teeth, each with two anterior curved cusps, and a large median rounded tooth projecting inwards. One of the teeth is shown from behind in fig. 25C, and one from

the side in fig. 25D. Seen from behind each tooth is very broad, but in side view it is slender. These teeth are intermediate between those of *E. Bütschlii* or *E. labrostriatus* and those of *E. longicaudatus* or *E. vulgaris* de Man.

Encircling the buccal cavity behind the teeth is the looped chitinous cephalic girdle noted in other species of the genus. The lower part of the buccal cavity is strengthened by chitinous rods running from the lower ends of the teeth.

The oesophagus is $\frac{1}{5}$th–$\frac{1}{6}$th of the total body length, and the nerve-ring is at the end of the anterior third of the oesophagus.

The tail (fig. 25E) forms an elongate cone. It bears a number of long slender hairs. Just before the tip of the tail in the male there is a small ventral papilla, with a short stout hair on each side of it. Just in front of the anus there are two long sub-median hairs, and another pair lie in front of the supplementary organ.

The spicules are long and slender, and are transversely striated. Proximally they are funnel-shaped; distally they are pointed. The accessory pieces are very characteristic of this species (fig. 25F). They are two in number. There is a median piece, with two backwardly projecting apophyses. The median plate forms a grooved platform in which the second accessory piece slides. The second piece is longer, and slightly curved. It has a large ventral tooth or flange (*a*), which puts a limit to the distance which it can slide in the lower piece. The spicules slide in grooves in this upper piece. At its tip it has three teeth (fig. 25G). The relations of these two accessory pieces to each other and to the spicules can be seen by examining a number of specimens. Some show the flange *a* in contact with the inner wall of the lower piece; others show it retracted as in fig. 25F.

The supplementary organ is small and tubular (fig. 25H), ·033 mm. long.

The female pore is just behind the middle of the body (fig. 25J).

The vagina has thick walls, and several small unicellular glands open into it. The uterus on each side contains one large egg. The ovaries are short, symmetrical, and reflexed.

Mature specimens were found in May and August.

Habitat.—Clew Bay—Dredged on two occasions, in 14–17 fms., on a sandy bottom.

Enoplus longicaudatus sp. nov.

Pl. IX, figs. 26A–D.

Dimensions:—

	♂	♂	♀	♀	♀
Total length,	3·1	2·9	3·6	3·	3·25
Length of oesophagus,	·62	·53	·67	·55	·6
„ „ tail,	·36	·36	·36	·35	·32
„ „ spicules,	·051	·054	—	—	—
Head—nerve-ring,	·2	·17	·2	·15	—
„ —♀ pore,	—	—	2·15	1·7	2·
Anus—supplementary organ,	·029	0·26	—	—	—
Width at base of buccal cavity,	·036	·04	—	·031	—
„ „ nerve-ring,	—	·059	—	·044	—
„ „ base of oesophagus,	—	·065	·058	·066	—
„ „ mid-body,	·05	·064	·069	·076	—
„ „ ♀ pore,	—	—	·066	·072	—
„ „ anus,	·04	·045	·04	·048	—
a =	62·	45·3	52·	40·	—
β =	5·	5·5	5·4	5·4	5·4
γ =	8·6	8·1	10·	8·6	11·5

This is a slenderer worm than any of the other species here described. The body tapers very slightly towards the head and anus. The tail is remarkably long for the genus Enoplus, and tapers to a slender tip. The cuticle has delicate transverse striae. The head (fig. 26A) terminates in three high lips, with delicate walls and curved skeletal rods. On the outer side of each lip near the tip are two short stout hairs. Further behind is a second crown of ten long stout hairs, of which four are shorter than the other six. Between these two rows of hairs a suture runs round the head, and there is a similar suture behind the second row of hairs. In the males there is a third row of six long stout hairs a little distance behind the second row. These are represented in the females by short slender hairs, and similar hairs occur on the body and tail.

The upper part of the buccal cavity is globular, and is armed with three slender teeth, which are provided in front each with two sharp cusps. Seen from behind (fig. 26A) each tooth has a square outline, with thickenings at the anterior corners corresponding to the anterior cusps, and the median elliptical cusp in the middle. In fig. 26B the tooth is shown in side view. From the base of each tooth a chitinous bar runs to the bottom of the buccal

cavity. The usual chitinous cephalic girdle surrounds the buccal cavity, running behind the teeth, and looping backwards in each interlabial zone (fig. 26B).

The oesophagus gradually expands towards the posterior end, and forms $\frac{1}{5}$th–$\frac{1}{6}$th of the total body length. The nerve-ring is about one-third of its length from the head.

The tail (fig. 26C) is very long, and its posterior half is filiform, with a slight terminal expansion. It bears a few scattered hairs, but none were noted on the tip. The genital armature of the male is very simple in structure (fig. 26D). The spicules are short and curved. The distal end is pointed the proximal end is funnel-shaped, with a marked constriction behind the tip. The accessory pieces are simple rods. This species is noteworthy for the rudimentary condition of the supplementary organ, which consists of a minute tube, only ·006 mm. long, on a level with the upper end of the spicules.

The female pore is small and inconspicuous, lying behind the middle of the body. The uterus contains only one mature egg at a time, but it is very large, ·23 mm. long, ·056 mm. wide. The ovaries are short.

The lateral lines are $\frac{1}{3}$rd–$\frac{1}{4}$th as wide as the body.

Mature specimens were found in May.

Of all the species described in the present paper, this is the one which most nearly resembles the *Enoplolaimus vulgaris* of de Man (1893, p. 119). There is a remarkably close agreement in the structure of the head and of the male genital armature. The chief differences are in the shape and length of the tail, and in the position and small size of the supplementary organ. de Man does not mention the presence of the anterior cusps of the teeth in his description of *E. vulgaris*, but an examination of his figures (tom. cit. Pl. VIII, figs. 13A, 13B) seems to indicate their presence. The two species undoubtedly belong to the same genus.

Habitat.—Clew Bay—Dredged in 24 fms., on a bottom of sand and shells.

Family Chaetosomatidae.

Two species of this family were found in Clew Bay, both of which appear to be undescribed. They were dredged in 24 fms., in the same haul in which all the species of Desmoscolex and a large number of other new and interesting forms were obtained.

These two species differ from all previously described species in having the pre-anal setae arranged in four rows. Three species are known with the setae in two rows, and three species with the setae in three rows. In all probability these three types will eventually be placed in three distinct

genera, viz., Chaetosoma, Tristichochaeta, and a new genus for the two species described below.

Six species of this family have been described up to the present. Schepotieff has published (1908 *a*) a short review of the group, with descriptions and figures of five of the species.

Chaetosoma hibernicum sp. nov.

Pl. X, figs. 27A–H.

Dimensions:—

	♂	♀
Total length, ...	1·2	1·33
Length of oesophagus, . .	·11	·12
„ „ tail, ...	·13	·12
„ „ spicules, . . .	·075	—
„ „ longest preanal hair,	—	·042
„ „ shortest „ „ .	—	·021
Head— ♀ pore, . . .	—	·7
Width of head, . . .	·064	—
„ „ neck, . . .	·025	·028
„ of body at ♀ pore, .	—	·09
„ „ „ „ mid-body, .	·04	—

A number of specimens of this species were found, both males and females.

Description of the ♂.

The body is 1·2 mm. long. It attains its greatest width at the middle, and tapers gradually towards the head and tail. The neck is rather broad, and the head is wider than the body. The cuticle bears inconspicuous and very narrow transverse striations. These striations are most conspicuous just behind the smooth rostrum, or tip of the head, and on the tail.

The head (fig. 27B) is oval in shape, passing gradually into the neck. The mouth is guarded by a number of small triangular lips. Just behind the tip of the head on the dorsal side are 8–10 stout hairs closely arranged in three rows. The lateral sense-organs are simple spirals, varying a little in shape. The two extreme forms are shown in fig. 27C. The part of the head called the rostrum is the smooth tip, bearing the dorsal hairs and the sense-organs. Just behind it is a conspicuous band of transverse striae. The head bears numerous long slender hairs irregularly arranged. Similar hairs occur all over the body and tail, and are arranged in six longitudinal rows. The tail (fig. 27D) is slender, and the tip is thick-walled and smooth. It contains a large caudal gland.

In front of the anus the stout ventral setae are arranged in four rows. The outer rows consist each of 15 setae of two kinds. The majority are stout, with compound tips. Alternating irregularly with these is a number of slender, pointed, unmodified hairs. In one specimen there are 8 compound and 7 simple hairs. In another there are 9 compound and 6 simple hairs. The inner rows consist each of 14-15 compound setae, agreeing with the outer compound hairs in structure, but only half as long. The compound tips (fig. 27F) are cup-shaped, with an oblique distal margin.

The spicules (figs. 27D, 27G) are long, slender, and curved, and the proximal end is bent. The accessory pieces in side view are slender, slightly bent in the middle.

The oesophagus is divided by a constriction into a smaller anterior and a larger posterior portion. At the junction of the oesophagus with the intestine are two small glands. The nerve-ring surrounds the front part of the posterior bulb.

Description of the ♀.

The chief points distinguishing the female from the male are as follows:— The preanal hairs are in four rows (fig. 27E), the outer rows each containing 10–11 compound setae, the inner rows each 13–15. There are no simple hairs in the outer rows, as in the males. The setae increase slightly in size towards the front. In fig. 27H the arrangement of the preanal setae is shown, from the ventral side. There is a single simple median hair in front of the anus. The tail is slightly shorter than in the male. The female pore is rosette-shaped, slightly protruding (fig. 27A), and lies a little behind the middle of the body. The ovaries are short, symmetrical, and reflexed.

Habitat.—CLEW BAY—Dredged in 24 fms., on a bottom of sand and shells.

Chaetosoma spinosum sp. nov.

Pl. X, figs. 28A–D.

Dimensions:—

	♀
Total length,	1·04–1·1
Length of oesophagus,	·16
„ „ tail,	·12
„ „ longest preanal hairs,	·046
„ „ shortest „ „	·024
Head—♀ pore,	·58
Width of head,	·064
„ „ neck,	·016
„ „ body at ♀ pore,	·08

Only two specimens of this species were found, both mature females. In general structure they agree with *C. hibernicum*, and it will only be necessary to point out the observed differences. The body is similar in shape. The striae on the cuticle are broader and much more conspicuous. The hairs on the head and body are shorter and fewer in number. They are scattered irregularly over the head, but on the body they are arranged in six rows.

The head (fig. 28A) is oval, and the neck is much narrower than that of *C. hibernicum*. The rostrum is conical (fig. 28B). The mouth is surrounded by several small lips. The sense-organs (fig. 28C) are wider than those of *C. hibernicum*, and rather different in shape, forming almost a complete circle. The stout dorsal hairs form a single row at the back of the smooth rostrum. A distinguishing character of this species is the presence of a number of stout conical spines on the rostrum (fig. 28B). They are irregularly arranged, the smaller ones being in front, and are mostly on the ventral side of the rostrum.

The tail (fig. 28D) resembles that of *C. hibernicum* in shape, but the smooth tip is rather longer, and the striae more obvious. The preanal hairs are in four rows. The outer rows consist each of 13 long compound hairs, the inner rows each of 25 hairs. They are thus much more numerous than in *C. hibernicum*. The hairs increase in size from behind forwards, and the hairs in the outer rows are longer than those in the inner rows. The compound tips resemble those of *C. hibernicum* (fig. 27F). No differences can be noted in the shape of the oesophagus or intestine.

The female pore is near the middle of the body. The ovaries are short and symmetrical.

This species is most nearly related to *C. hibernicum*. It is distinguished from it by the narrower neck, the more conspicuous transverse striae, the shape of the sense-organs, the spines on the rostrum, and by the larger number of compound preanal hairs.

Habitat.—Clew Bay—Dredged in 24 fms., on a bottom of sand and shells.

Family Desmoscolecidae.

Only a single species of this family has hitherto been recorded from British waters. This is the *Desmoscolex minutus* Claparède, recorded by James Murray,[1] with some hesitation, in 1906, from Scotland.

Five species were found in Clew Bay, of which three have not previously been described. They were all taken in the same haul of the dredge in 24 fms., in May, this being the station from which such a large number of new and interesting species have been obtained.

[1] Ann. Scott. Nat. Hist., 1906, p. 164.

The three new species belong to the group characterized by the absence of caudal setae.

The retention of all the species of this family in a single genus is not warranted. At least two genera will be necessary, the one containing those forms with caudal setae, the other those forms without caudal setae.

The group has recently been reviewed by Schepotieff (1908). He describes and figures 15 species.

? Desmoscolex minutus Claparède.

1908. *Desmoscolex minutus.* Schepotieff, p. 187.

A single specimen, only ·31 mm. long, was found in Clew Bay. It agrees with *D. minutus* in having 17 body rings, 2 caudal setae, in the shape of the head, anal segment, and compound setae. It differs only in the absence of the long copulatory setae on the eighth segment. The specimen is somewhat damaged, and it is possible that these setae were originally present. The peculiar nature of the fauna of the Station where this specimen was taken indicates that it probably differs from the common littoral species *D. minutus.* Nevertheless, in the absence of other specimens, it is inadvisable to make a new species.

Mr. James Murray told me that he found a species of Demoscolex at Achill. It was the same species as he had previously recorded (tom. cit.) from Scotland as *D. minutus* Claparède.

Habitat.—CLEW BAY—Dredged in 24 fms., on a bottom of sand and shells. ACHILL (fide J. Murray).

Distribution.—? Scotland; France (St. Vaast); Bergen; Helgoland; Mediterranean (Naples, Brindisi); Black Sea (Odessa).

Desmoscolex nematoides Greeff.

1908. *Desmoscolex nematoides.* Schepotieff, p. 189.

Numerous specimens of this species were found. They are thickly covered with a flocculent substance, probably attached to the body by mucus. They are somewhat larger than usual, measuring ·65 in length.

Habitat.—CLEW BAY—Dredged in 24 fms., on a bottom of sand and shells.

Distribution.—Helgoland; Bergen; Naples.

Desmoscolex longirostris sp. nov.

Pl. XI, figs. 29A–D.

Two specimens of this species were found, both mature males. The body is elongate, uniform in width, tapering very little in front, but distinctly

towards the tail. The body consists of 70 rings, each fairly distinct, covered with a slight granular accretion.

The head (29A, 29B) is wedge-shaped, wide at the base, and the length is equal to the breadth. It has thick chitinous walls, and has two lateral thickenings on which are seated the cephalic setae, two on each side. The cephalic setae are stout, and taper to a fine point. The hairs on the body are similar in shape, and are arranged irregularly. The spicules (fig. 29D) are curved, pointed distally, and expanded proximally. The ♂ pore lies between the 60th and 61st rings. The excretory glands are conspicuous, in the 17th ring in one specimen, in the 15th ring in the other.

The body tapers gradually towards the caudal segment (fig. 29C), which is elongate, and spoon-shaped at the tip, not pointed.

This species agrees closely in the number of rings composing the body with *D. adelphus* Greeff. It differs in the shape of the body, the head, and the tail, and in having four cephalic setae instead of the two found in *D. adelphus*.

Dimensions:—

Total length,	·65
Length of head,	·031
Width of head,	·032
Width of body,	·039
Length of tail,	·038–·04

Habitat.—CLEW BAY—Dredged in 24 fms., on a bottom of sand and shells.

Desmoscolex brevirostris sp. nov.

Pl. XI, figs. 30A–D.

A single mature male specimen of this species was found. It closely resembles *G. longirostris* in appearance. It is rather shorter, but the number of rings composing the body—78—is rather larger. The rings are more distinct, and the cuticle is roughened.

The body is very uniform in width (fig. 30A), only tapering near the tail. The head (fig. 30B) is wide behind, narrow in front, with thick chitinous walls, incurved at the base. The breadth considerably exceeds the length. Delicate transparent walls surround the chitinous skeleton of the head. There are four long tapering hairs seated in pairs on the lateral thickenings of the cephalic skeleton. There are numerous hairs, about as long as the width of the segments, scattered irregularly over the body.

The tail (fig. 30C) is rather shorter than that of *D. longirostris.* The anterior half is thick-walled, the posterior half has delicate walls, and is rounded at the tip, not pointed.

The spicules (fig. 30D) are curved, pointed at the tip, opening between the 68th and 69th rings, that is to say 10 rings in front of the end of the body. The accessory pieces are short, funnel-shaped, with a backwardly projecting shoulder at the proximal end. The excretory glands are small, and lie in the 16th ring.

The chief points distinguishing this species from *D. longirostris* are the larger number of rings composing the body, and the different shape of the head.

Dimensions:—

Total length, ...	·56
Length of head, ...	·2
Width of head, ...	·0325
Width of mid-body, ...	·036
Length of tail, ...	·03

Habitat.—CLEW BAY—Dredged in 24 fathoms, on a bottom of sand and shells.

Desmoscolex polydesmus sp. nov.

Pl. XI, figs. 31A–C.

A single mature male specimen of this species was found in Clew Bay. It is distinguished from all other species of the genus by the large number of rings composing the body, viz. 91. The body is longer and more uniform in width, and the margins are more regular than in either of the species just described.

The head (fig. 31A) resembles that of *D. brevirostris* in shape, but it is even broader in proportion, being twice as broad as long. The cephalic hairs, four in number, are seated in pairs on lateral thickenings of the cephalic skeleton. The hairs seem to be flattened proximally, and taper to a fine point. The transparent membrane which covers the head extends backwards over the first body ring. The hairs on the body are slender. The segments (fig. 31B) are very closely arranged, and the posterior border of each ring projects over the anterior margin of the following ring, thus giving an imbricate appearance to the segments. This is particularly obvious in the lateral margins of the posterior part of the body. The rings are two or three times as wide as the spaces between them. The tail (fig. 31C) is conical and the adjacent segments are more indistinct than those in front.

This species is characterized by the large number of rings composing the body, and by their imbricate arrangement.

Dimensions :—

Total length, ...	·7
Length of the head, ...	·021
Width of the head, ...	·041
„ „ body, ...	·037
Length of the tail, ...	·035

Habitat.—CLEW BAY—Dredged in 24 fms., on a bottom of sand and shells.

Family OGMIDAE fam. nov.

Free-living Nematoda of small size. The body is composed of numerous segments, each bearing a number of recurved spines regularly arranged in rows. The head is composed of several narrow rings without spines. The oesophagus terminates in a rounded bulb, and is armed with a chitinous spear nearly as long as the oesophagus. The intestine is a simple tube, and the anus is ventral, the ring containing the anal aperture being modified.

It is not possible at present to give a more complete diagnosis of this new family, owing to lack of time, and to the absence of sexually mature specimens.

The species about to be described was first brought to my notice by Mr. James Murray. He informed me that he had found two species of the genus living in moss in many parts of the world, including South America, Australia, and Scotland, and that one of the species occurred in Ireland. He promised to send me his drawings and specimens, but apparently he forgot to do so. When I commenced the preparation of this paper, I wrote to remind him of his promise. He replied from the Navy Yard, Esquimalt, British Columbia, where he was engaged in assisting to equip the Stefánsson Canadian Expedition to the Arctic Seas. He was only able to send me some washings from moss obtained in Belclare, Co. Mayo. In this tube I found numerous specimens of the new form, but only in an immature condition. Mr. Murray accompanied the unfortunate expedition as naturalist. The party met with disaster, and the survivors have recently been rescued. Mr. Murray is not amongst them (*vide* "Nature," November 19th, 1914, p. 321).

A form closely related to the present species was very imperfectly figured and described by Certes (1889, p. 48) under the name *Eubostrichus Guernei*.

The genus Eubostrichus was described by Greeff (1869, p. 117), to include two species of marine Nematodes, widely different from the fresh-water form found by Certes, whose specimens came from Patagonia. They are undoubtedly very closely related to the Irish specimens, but there are a number of differences which will be discussed later. The genus or genera to which the two forms belong cannot be referred to any of the existing families of the Nematoda. They are characterized by the structure of the head and cuticle, and by the presence of the long spear, which occupies almost the whole length of the oesophagus. Nothing is known of the reproductive organs, the nervous system, the sense-organs (if any are present), the musculature, or the excretory system. Unfortunately lack of time has prevented me from devoting as much care to the examination of this remarkable form as it deserves, but the present description will serve to call the attention of other naturalists to the existence of this interesting and probably widely spread species.

I have no information as to the kind of moss in which it was found. Mr. Murray has noticed it repeatedly when searching for Tardigrada and Bdelloid Rotifera.

Ogma Murrayi gen. et sp. nov.

Pl. XI, figs. 32A–E.

Dimensions:—

Total length, ...	·46 –·5
Length of oesophagus, ...	·1
„ „ spear, ...	·095
„ „ tail, ...	·066–·076
Width of head, ...	·016–·018
Width of mid-body, without spines, .	·05 –·052
„ „ „ „ including spines, .	·06 –·064

Numerous specimens were available, but unfortunately they are all immature. The largest specimen is ·05 mm. long, and the length is about ten times the width. The body is colourless, and tapers slightly towards the head, rapidly towards the pointed tail. The body is almost circular in section, with a slight lateral flattening, so that the specimens generally lie on one side, with a gentle ventral curvature. The cuticle forms a thick hard exoskeleton. It is composed of numerous rings, 68–71 in number. Each ring bears eight recurved spines placed at equal distances round the body so as to form eight longitudinal rows.

The head (figs. 32A, 32B) is much narrower than the neck. It is composed of three narrow rings with crenulate anterior margins. There is no trace of lateral sense-organs and no hairs either on the head or the body. The succeeding segments are all similar, with the exception of the anal segment. In fig. 32C two segments from the middle of the body are shown. Each segment bears eight spines in a ring at equal distances apart. One row of spines is dorsal, one ventral, two lateral, and four intermediate. The eight spines are all similar, and no distinction is evident between the dorsal, ventral, and lateral areas. The spines are stout, with pointed or slightly rounded tips, and are curved backwards. A faint curved line runs round each segment, lying in front of the base of each spine. In addition to the normal number a few spines may be found in some specimens arranged in short rows near the middle of the body.

In the anal segment (fig. 32D, *a*) the ventral spine is missing, or at any rate is modified, and its position is occupied by a large opening through which the rectum opens to the exterior. This is shown from the ventral aspect in fig. 32E.

The tail (fig. 32D) is conical, and the segments become smaller and smaller, till the terminal segment consists only of a minute pear-shaped knob. The tail is composed of fourteen rings.

The oesophagus (fig. 32B) is about one-fifth of the length of the body. It swells behind into a rounded bulb. The oesophagus is traversed throughout almost its whole length by a slender spear. The latter swells behind to a trumpet-shaped tip, which rests in the middle of the oesophageal bulb. The spear can be protruded through the mouth. The mouth is small and inconspicuous, and there is no buccal cavity. The intestine is wide and runs directly to the anus.

The *Eubostrichus Guernei* of Certes (tom. cit.) agrees with this species in general appearance and size. The body is composed of rings bearing spines, and the oesophagus is armed with a long spear. The chief difference is that *E. Guernei* has only six longitudinal rows of spines. It is probable that a new genus will be required for *E. Guernei*; but as so little is known of its structure, it may for the present be retained in the genus Ogma, of which *O. Murrayi* is the type species.

According to Murray, the distribution of the genus is almost world-wide, agreeing in this respect with some of the Rotifera which occupy the same habitat.

Habitat.—In moss from Belclare, Co. Mayo.

Family MERMITHIDAE.

Mermis nigrescens Dujardin.

1899. *Mermis nigrescens.* von Linstow, Archiv. für Mikrosk. Anatomie, Bd. LIII, p. 152.

The sexual form of this species lives in soil, and is sometimes noticed in large numbers crawling up the stems of plants. Part of the body is coiled round the stem, and the rest waves about wildly in the air. The larval form has been found in many species of insects, most of which belong to the order Orthoptera.

Habitat.—In soil from Belclare, Co. Mayo.

Distribution.—Europe.

Order NEMATOMORPHA.

Family GORDIIDAE.

Parachordodes violaceus (Baird).

1897. *Parachordodes violaceus.* Camerano, Mem. della R. Accad. d. Sc. di Torino, ser. II, vol. xlvii, p. 392.

This appears to be the commonest species of Gordius in Ireland. It has already been recorded from the following counties:—Dublin (Lambay,[1] Swords), Galway, Meath, Donegal, Sligo, and Clare.[2]

Habitat.—Belclare, Co. Mayo.

Distribution.—Europe.

KINORHYNCHA.

(Echinoderida.)

No representatives of this marine group have yet been recorded from the British Isles. The individuals are small, and not easily found unless specially sought, and they have attracted little attention from zoologists. Some twenty-one species have been described, and a number of these probably refer to the larval stages of other known species. Of these twenty-one species, two were described by Claparède, four by Greeff, four by Panceri, one by Pagenstecher, and ten by Reinhard. Schepotieff (1907, p. 291) has given a review of our knowledge of the group, with figures of seven species, and an account of the anatomy. Zelinka, in a number of short papers, has given some account of the organization of the group, and has proposed a new and extensive classification of the species (1907, p. 130), all of which were formerly included in the genus Echinoderes.

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[1] Southern, in "Irish Naturalist," 1907, p. 84.

[2] *Vide* Camerano, "Gordii d'Irlanda," Boll. Mus. Torino, N. 578, vol. xxiii, 1908.

In the course of the present Survey, five species belonging to this group were found in Clew Bay and Blacksod Bay. Two of the species were already described, viz., *Echinoderes Dujardinii* Claparède, and *E. dentatus* Reinhard, and the other three species appeared to be new. However, as I knew that Zelinka had been preparing a monograph of the group for many years, I thought it advisable to consult him, in order to prevent unnecessary duplication of names. Zelinka consented to examine the Irish specimens, and he then informed me that two of the three undescribed forms were well known to him, and would be described in his forthcoming monograph. The third species was unknown to him, and is described below. For the two as yet undescribed species I have considered it advisable to record them under the names which Zelinka has given to them (in MS.), without attempting to forestall his description. The names will remain *nomina nuda* till the appearance of the long-expected monograph—an event which the present unfortunate state of Europe has probably indefinitely postponed. Zelinka was good enough to send me proof-copies of some of the plates which will illustrate his monograph, and they have been of great use to me in drawing up the description of *P. Zelinkaei.*

In the enumeration of the segments I have adopted the nomenclature of Zelinka. The proboscis forms the two anterior segments of the body, which is composed altogether of thirteen segments. A number of larval forms were found in Clew Bay. According to Zelinka, who calls them "Hyalophyes" larvae, they are the larval forms of species of Pycnophyes.

Order HOMALORHAGAE.

Family PYCNOPHYIDAE.

Pycnophyes dentatus (Reinhard).

1887. *Echinoderes dentatus.* Reinhard, p. 438. 1914. *Pycnophyes dentatus.* Zelinka in MS.

Habitat.—Clew Bay—Dredged in 14 fms. Dredged in Inishlyre Harbour in 2-4 fms.

Distribution.—Black Sea (Odessa).

Pycnophyes Calmani Zelinka.

1914. *Pycnophyes Calmani.* Zelinka in MS., Taf. 13, figs. 8, 9. Taf. 15, figs. 6, 7.

This is one of the species to be described in Zelinka's forthcoming monograph. It is characterized by the smooth dorsal anterior border of

the third segment, the adhesive organs on the fourth segment of the males, the structure of the anal segment, and the markings on the cuticle.

Habitat.—Clew Bay—Dredged in 14 fms.

Distribution.—?

Pycnophyes Zelinkaei sp. nov.

Pl. XII, figs. 33A–G.

Numerous specimens of this species were obtained. It has not previously been described, nor has Zelinka found it.

Description of the ♂.

Contracted specimens are ·8 mm. long and ·18 mm. wide. The anterior borders of segments 4–12 have a bright yellow transverse band of pigment, a character found in nearly all the species of this genus. The whole cuticle is covered with fine dots. The fully expanded proboscis (fig. 33E) has eight short spines guarding the mouth. Just behind the tip there are two rings of slender spines, eight in each ring. The spines in the anterior row point backwards, those in the posterior row forwards. This part of the proboscis constitutes the first segment of the body, according to the nomenclature used by Zelinka. The second segment is much stouter, conical in shape, and bears four rings of spines, the anterior spines being the longest, the posterior the shortest. All the spines are jointed at the base. The basal joint of the spines in the first row bears a slender basal spine (fig. 33F). The spines of the second and third rows resemble those of the first, but they are shorter, and the basal spine on the second row is small, and seems to be absent on the third row. The spines of the fourth row (fig. 33G) are quite different in appearance. They are without basal spines, and on their outer surfaces are two rows of ridges, each ridge giving rise to a fine hair. These hairs grow smaller towards the tip of the spine, which thus has a feathered appearance.

The third segment, which constitutes the first in the contracted specimens, is composed of a curved dorsal plate and three ventral plates (figs. 33A, 33B). The anterior edge of the dorsal plate is distinctly serrated. The cuticular markings are shown in figs. 33A, 33B. The posterior margin of each segment is serrated, and just in front of the serrations is a row of small fine hairs. On the ventral side of the fourth segment are the two cylindrical adhesive tubes ("klebröhre"). A short distance in front of the posterior margin of segments 4–12 there is a transverse row of small papillae, each tipped with a slender hair. On the dorsal side there are 4–8, on the ventral side 2–4. Their distribution is indicated in figs. 33A, 33B. On segments 4, 6, 8, 10 there is a pair of lateral hairs, and on segment 12 there are two pairs.

The thirteenth, or posterior segment, bears a pair of stout cirri, ·1 mm in length. On the ventral surface (fig. 33D) at the base of each of these cirri there is a fringed plate bearing three stout hairs and a number of fine ones. These structures constitute the penis of the male. The posterior margin of the segment has very small fine hairs and two small papillae.

Description of the ♀.

The female differs from the male chiefly in the absence of the adhesive tubes on the fourth segment, and the penial plates on the thirteenth segment. The serrations on the posterior margin of each segment are not so distinct, and there are fewer papillate hairs in a row.

Mature specimens were found in August.

This species is very closely related to the *P. robustus* of Zelinka, the description of which has not yet been published. Zelinka has compared the two forms, and considers them specifically distinct. In *P. robustus* the anterior dorsal border of the third segment is also serrated, and the adhesive organs and penial plates closely resemble those of *P. Zelinkaei*. The posterior margins of the segments are not serrate, and the cuticular markings and the arrangement of the hairs differ from those of *P. Zelinkaei*.

Habitat.—CLEW BAY—Dredged on two occasions, in 14–17 fms., on a sandy bottom.

Order CYCLORHAGAE.

Family ECHINODERIDAE.

Echinoderes Dujardinii Claparède.

1907. *Echinoderes Dujardinii.* Schepotieff, p. 297.

Habitat. — BLACKSOD BAY — In weeds from the shore. INISHLYRE HARBOUR, Clew Bay—Dredged in 2–4 fms.

Distribution.—Bergen; Helgoland; Belgium; France; Mediterranean (Naples, Salerno, Ischia, Brindisi, Rovigno); Black Sea (Odessa).

Echinoderes Worthingi Zelinka.

1914. *Echinoderes Worthingi.* Zelinka in MS., Taf. 20, figs. 8, 9.

This species, the description of which has not yet been published by Zelinka, is very closely related to *E. setigera* Greeff. The most noteworthy difference lies in the distribution of the stout dorsal setae. In *E. setigera* these setae occur on the sixth, seventh, and ninth segments (according to the nomenclature of Zelinka), that on the sixth being the shortest, that on the

ninth the longest. In *E. Worthingi* the setae are on the sixth to tenth segments. Those on the sixth to ninth segments are equal in size, whilst that on the tenth segment is more than twice as long as the others.

Habitat.—Blacksod Bay—Dredged in 2 fms., amongst weeds.

Distribution.— ?

CHAETOGNATHA.

This group of pelagic animals is usually represented in inshore waters by two species.

Sagitta bipunctata Q. and G.[1]

This species is frequently taken in the tow-net in Clew Bay and the adjacent open waters throughout the year. Specimens were also taken in enclosed areas like Ballynakill Harbour, where they were probably swept by tidal and wind currents.

Spadella cephaloptera (W. Busch).

This species was frequently found in tow-nettings taken through weeds or near the shore. It was found in Ballynakill Harbour, Bofin Harbour, Clew Bay, and Blacksod Bay.

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[1] For further particulars of these two species see "Chaetognatha from the Coasts of Ireland," by R. von Ritter-Záhony, in Fisheries, Ireland, Sci. Invest., 1910, iv. [1910], or "Das Tierreich, Lief. 29, Chaetognathi," by the same author.

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DESCRIPTION OF PLATES.

PLATE I.

Fig.

1. *Nuada leptosoma* gen. et sp. nov.
1A. Anterior end of ♂. ×150.
1B. Head of a ♀. ×860.
1C. Tail of a ♀. ×330.
1D. Region of the ♂ pore. ×860.

2. *Halaphanolaimus pellucidus* gen. et sp. nov.
2A. Anterior end of ♂. ×330. *l* = lateral line; *t* = testis.
2B. Head of ♂. ×1060.
2C. Posterior end of ♂. ×230. *l* = lateral line.
2D. Tail of ♀. ×330.
2E. Spicules. ×530.
2F. Chitinous gland-ducts (supplementary organs). ×1060. *a* = second on the neck; *b* = the one in front of the anus.

3. *Oxystoma asetosa* sp. nov.
3A. Anterior end of ♂. ×530.
3B. Lateral sense-organ of ♂. ×860.
3C. Spicules. ×860.
3D. Tail of ♀. ×330.

PLATE II.

4. *Dipeltis typicus* Cobb.
4A. Anterior end of ♀. ×150.
4B. Head of ♂. ×530.
4C. Lateral sense-organ of ♂. ×1060.
4D. Tail of ♂. ×330.
4E. Spicules. ×530.
4F. Tail of ♀. ×330.

5. *Dipeltis incisus* sp. nov.
5A. Anterior end. ×230.
5B. Head. ×530.
5C. Tip of head. ×530.
5D. Tail of ♂. ×330.
5E. Spicules. ×530.

Fig.

6. *Cricolaimus elongatus* gen. et sp. nov.
6A. Anterior end of ♂, sub-ventral aspect. ×330.
6B. Head. ×860.
6C. Chitinous ring in buccal cavity, ventral aspect. ×1720.
6D. Posterior end of ♂. ×230.
6E. One of the supplementary organs with its gland-cell. ×230.
6F. Tip of tail. ×860.
6G. Spicules. ×860.

PLATE III.

7. *Monohystera anechma* sp. nov.
7A. Anterior end of ♀. ×230.
7B. Head of ♀, lateral view. ×1060.
7C. „ „ ♂, „ „. ×530.
7D. Tail of ♂. ×330.
7E. Spicules. ×530.
7F. Posterior end of ♀, showing genital pore. ×230.

8. *Sabatieria celtica* sp. nov.
8A. Anterior end. ×230.
8B. Head. ×1060.
8C. Tail of ♂. ×330.
8D. Spicules. ×530.

9. *Desmodora sanguinea* sp. nov.
9A. Anterior end. ×230.
9B. Head. ×530.
9C. Skin from mid-body. ×330.
9D. Tail of ♂. ×230.
9E. Anus of ♂, showing accessory piece and tip of spicule. ×530.

PLATE IV.

10. *Dagda bipapillata* gen. et sp. nov.
10A. Anterior end. ×230.
10B. Head. ×860.
10C. Buccal cavity and teeth. ×1870.
10D. Tail of ♂. ×330.
10E. Tip of tail. ×860.
10F. Spicules. ×860.
10G. One of the supplementary organs. ×860

Fig.

11. *Diodontolaimus sabulosus* gen. et sp. nov.

11A. Anterior end. ×330. *a* = pore of ventral gland; *b* = ventral gland

11B. Head. ×860.

11C. Buccal cavity and teeth. ×2000.

11D. Posterior end of ♂. ×330.

11E. Tip of tail. ×530.

11F. Spicules and posterior supplementary organs. ×860.

12. *Stenolaimus Marioni* sp. nov.

12A. Anterior end. ×86.

12B. Head. ×530.

12C. Posterior end of ♂. ×150.

12D. Tip of tail. ×530.

12E. Genital aperture of ♂. ×530.

PLATE V.

13. *Fiacra longisetosa* gen. et sp. nov.

13A. Head, dorsal view. ×530. *a* = chitinous aperture of gland-duct leading into lateral sense-organ.

13B. Head, lateral view. ×530. *a* = as before.

13C. Dorsal view of buccal cavity and teeth. ×1330.

13D. Posterior end of ♂. ×86.

13E. Spicules. ×330.

14. *Fiacra brevisetosa* sp. nov.

14A. Head, in optical section, lateral view. ×330.

14B. Head, showing surface characters, lateral view. ×330.

14C. Lateral sense-organ, greatly enlarged.

14D. Posterior end of ♂. ×86.

14E. Spicules. ×330.

15. *Oncholaimus vulgaris* Bastian.

15A. Head, lateral view. ×330.

15B. Posterior end of ♂. ×150.

15C. Spicules. ×330.

PLATE VI.

16. *Oncholaimus macrolaimus* sp. nov.

16A. Anterior end. ×86.

Fig.
16B. Head. × 330.
16C. Tail of ♂. × 150.
16D. Spicules. × 330.

17. *Oncholaimus similis* sp. nov.
17A. Anterior end. × 86.
17B. Head. × 330.
17C. Tail of ♂. × 150.
17D. Spicules. × 330.

18. *Eurystoma filiforme* de Man. Tip of spicule. × 530.

19. *Cylicolaimus magnus* (Villot).
19A. Posterior end of ♂. × 86.
19B. Spicules. × 230.
19C. Gland in the lateral line × 330.

PLATE VII.

19. *Cylicolaimus magnus* (Villot), continued.
19D. Lateral view of head, showing external features. × 330.
19E. Head in optical section, lateral view. × 530.
19F. Part of the head, dorsal view. × 530. *a* = lateral sense-organ; *b* = lateral plate in buccal cavity; *c* = terminus of one of the oesophageal glands.
20. *Demania major* gen. et sp. nov.
20A. Head of ♂, sub-lateral view. × 1060.
20B. Tail of ♂. × 230.
20C. Spicules. × 530.

21. *Demania minor* sp. nov.
21A. Anterior end. × 860.
21B. Spicules, lateral view. × 860.
21C. Spicules, ventral view. × 530.

22. *Platycoma cephalata* Cobb.
22A. Anterior end, lateral view. × 670.
22B. Tail of ♂. × 230.
22C. Spicules. × 530.

Plate VIII.

Fig.

23. *Enoplus Bütschlii* sp. nov.
23A. Head of ♂ × 530.
23B. One of the teeth seen from the outer side. × 1330.
23C. Posterior end of ♂. × 150.
23D. Accessory pieces and tips of spicules, ventral view. × 530.
23E. Supplementary organ. × 530.
23F. Female genital pore. × 150.

24. *Enoplus labrostriatus* sp. nov.
24A. Head, dorsal view. × 530.
24B. Head, ventral view. × 330.
24C. One of the teeth, side view. × 530.
24D. The cephalic girdle isolated, dorsal view. × 530.
24E. Posterior end of ♂. × 150. *a* = tip of tail enlarged.
24F. Ventral view of accessory pieces and tips of spicules. × 330.

25. *Enoplus diplechma* sp. nov.
25J. Female genital pore. × 330.

Plate IX.

25. *Enoplus diplechma* (continued).
25A. Anterior end of ♂. × 150.
25B. do. × 530.
25C. Head of ♀. × 1060.
25D. Lateral tooth. × 1330.
25E. Posterior end of ♂. × 230.
25F. Accessory pieces. × 530. *a* = flange on upper acc. piece.
25G. Tip of upper accessory piece. × 530.
25H. Supplementary organ. × 330.

26. *Enoplus longicaudatus* sp. nov.
26A. Head of ♂. × 860.
26B. Lateral tooth. × 1060.
26C. Tail of ♂. × 330.
26D. Spicules. × 530.

Plate X.

Fig.

27. *Chaetosoma hibernicum* sp. nov.
27A. Entire animal, ♀. ×86.
27B. Head of ♀, lateral view. ×330.
27C. Two extreme varieties of the lateral sense-organ. ×1650.
27D. Posterior end of ♂. ×330.
27E. Posterior end of ♀. ×330.
27F. Tips of the compound preanal hairs.
27G. Spicules. ×530.
27H. Posterior end of ♀, ventral view. ×330.

28. *Chaetosoma spinosum* sp. nov.
28A. Head of ♀, ventral view. ×230.
28B. Front part of the head, ventro-lateral view. ×530.
28C. Lateral sense-organ. ×2000.
28D. Posterior end of ♀. ×330.

Plate XI.

29. *Desmoscolex longirostris* sp. nov.
29A. Anterior end. ×330.
29B. Head, dorsal view. ×530.
29C. Tail. ×530.
29D. Spicules. ×530.

30. *Desmoscolex brevirostris* sp. nov.
30A. Entire animal, ♂. ×230.
30B. Head, dorsal view. ×530.
30C. Tail. ×530.
30D. Male pore and spicules. ×530.

31. *Desmoscolex polydesmus* sp. nov.
31A. Anterior end, dorsal view. ×530.
31B. Segments from mid-body. ×530.
31C. Tail. ×530.

32. *Oyma Murrayi* gen. et sp. nov.
32A. Anterior end, lateral view. ×330.
32B. Head and oesophagus, with spear. ×660.
32C. Two segments from the mid-body, lateral view. ×660.
32D. Posterior end, lateral view. ×530. *a* = anus.
32E. Ventral view of anal and adjacent segments. ×530. *a* = anus.

PLATE XII.

Fig.

33. *Pycnophyes Zelinkaei* sp. nov.

33A. Ventral view of entire ♂ sp. × 150.

33B. Dorsal „ „ „ „ × 150.

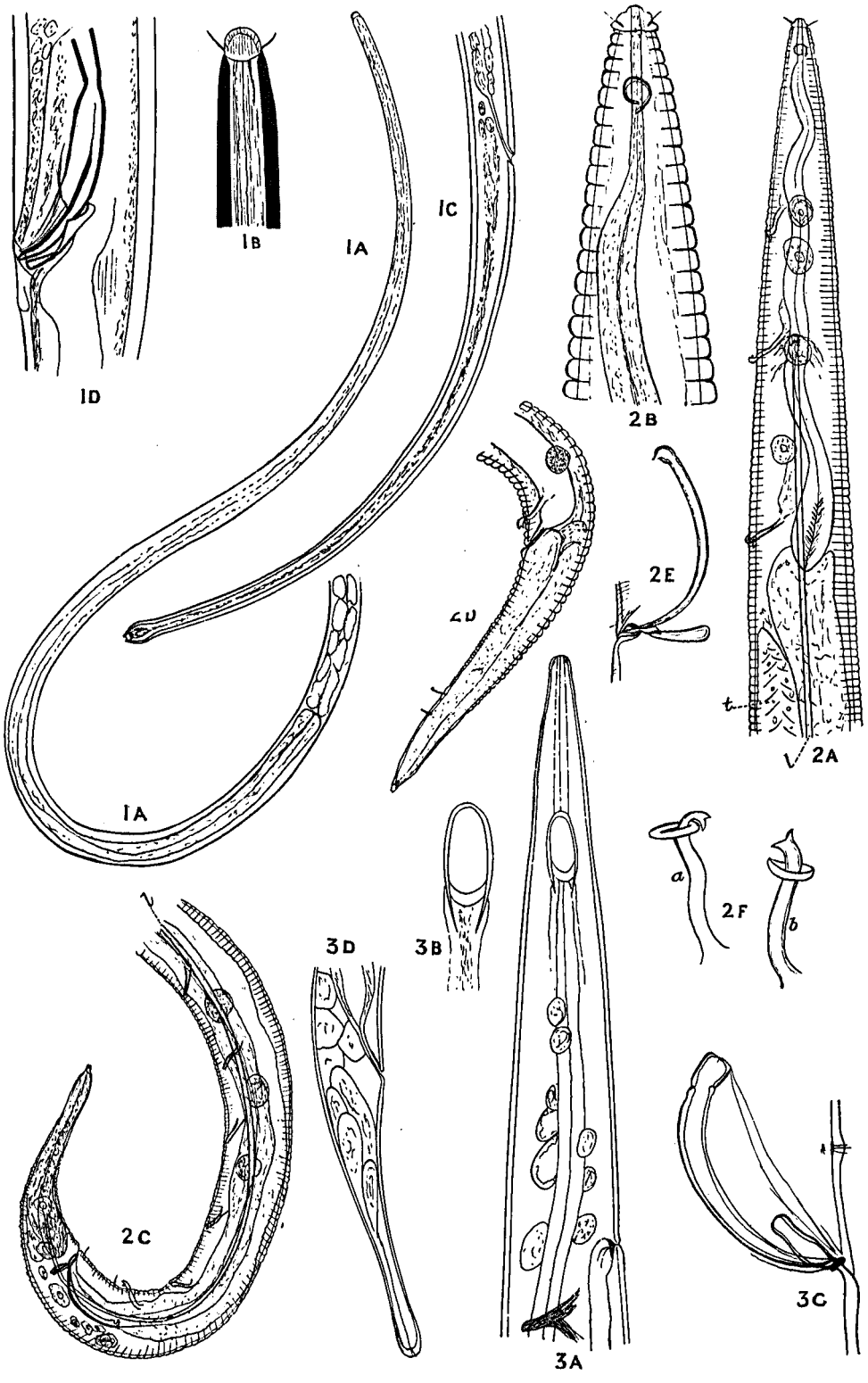
33C. Posterior end of ♂, dorsal view. × 330.

33D. „ „ „ ventral „ × 330.

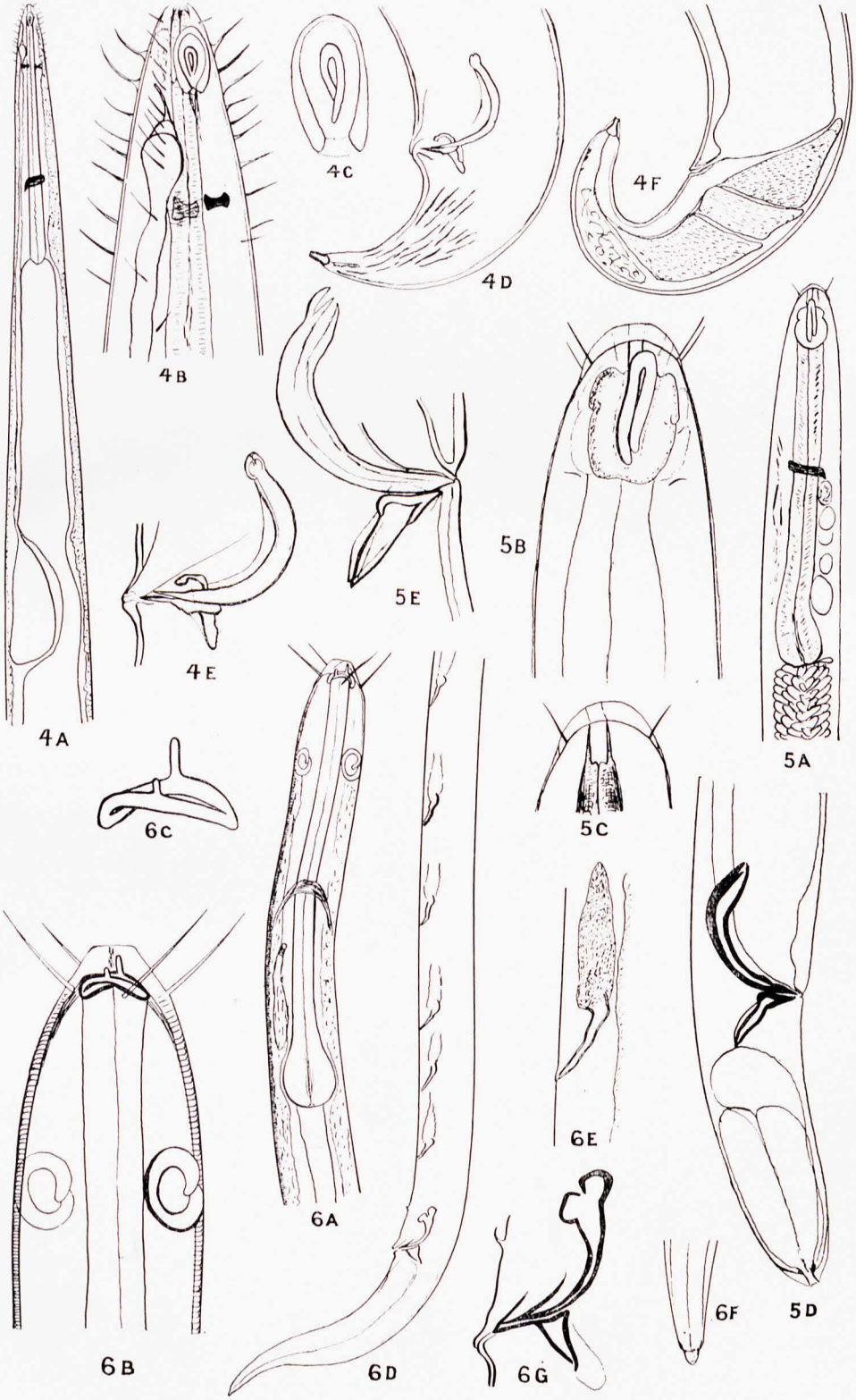
33E. Expanded proboscis. × 230.

33F. Spines from the three anterior rows on the second segment of the proboscis. × 530.

33G. Feathered spine from the posterior row of the second segment of the proboscis. × 530.



CLARE ISLAND SURVEY.—SOUTHERN: NEMATHELMIA, &C.



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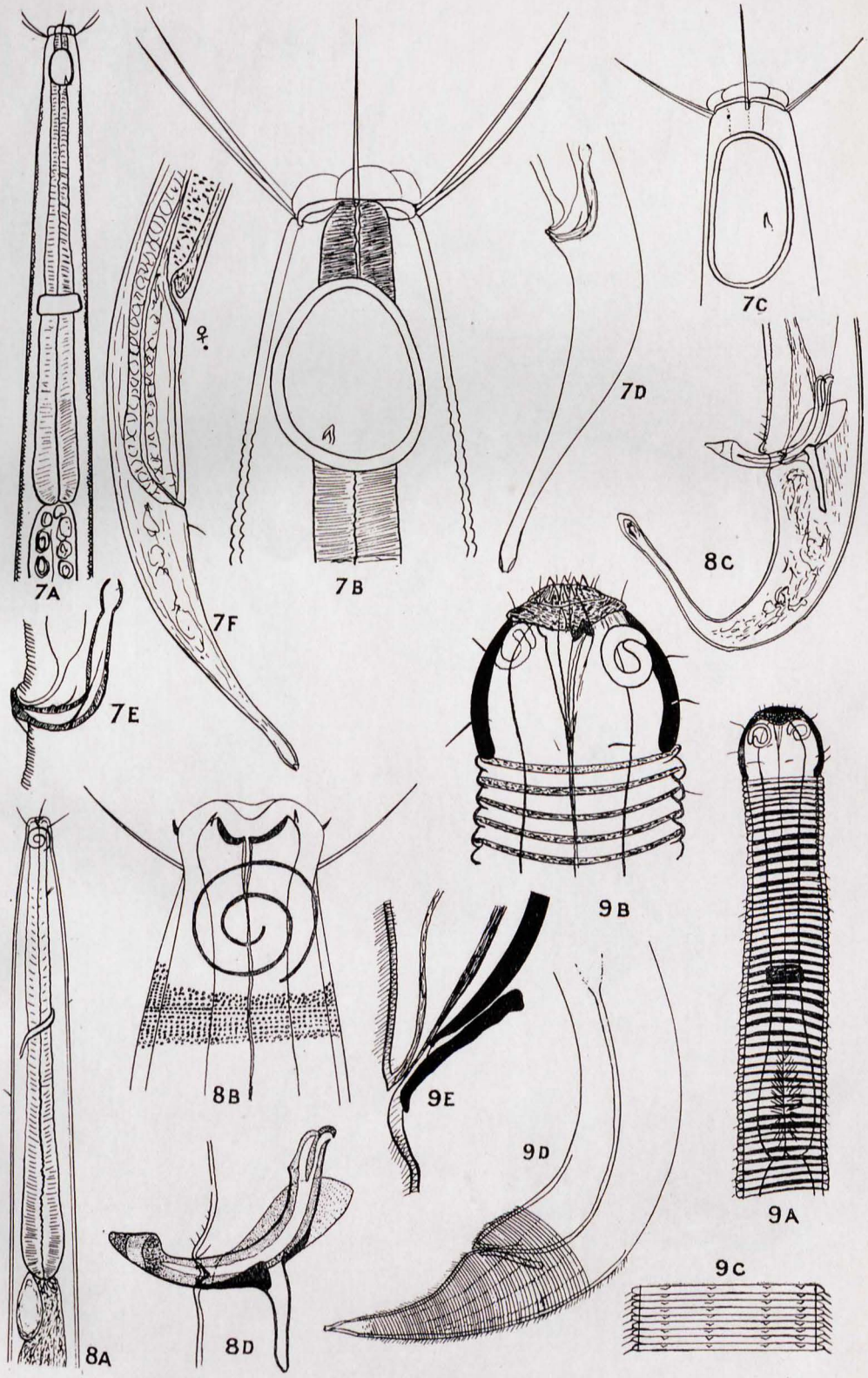

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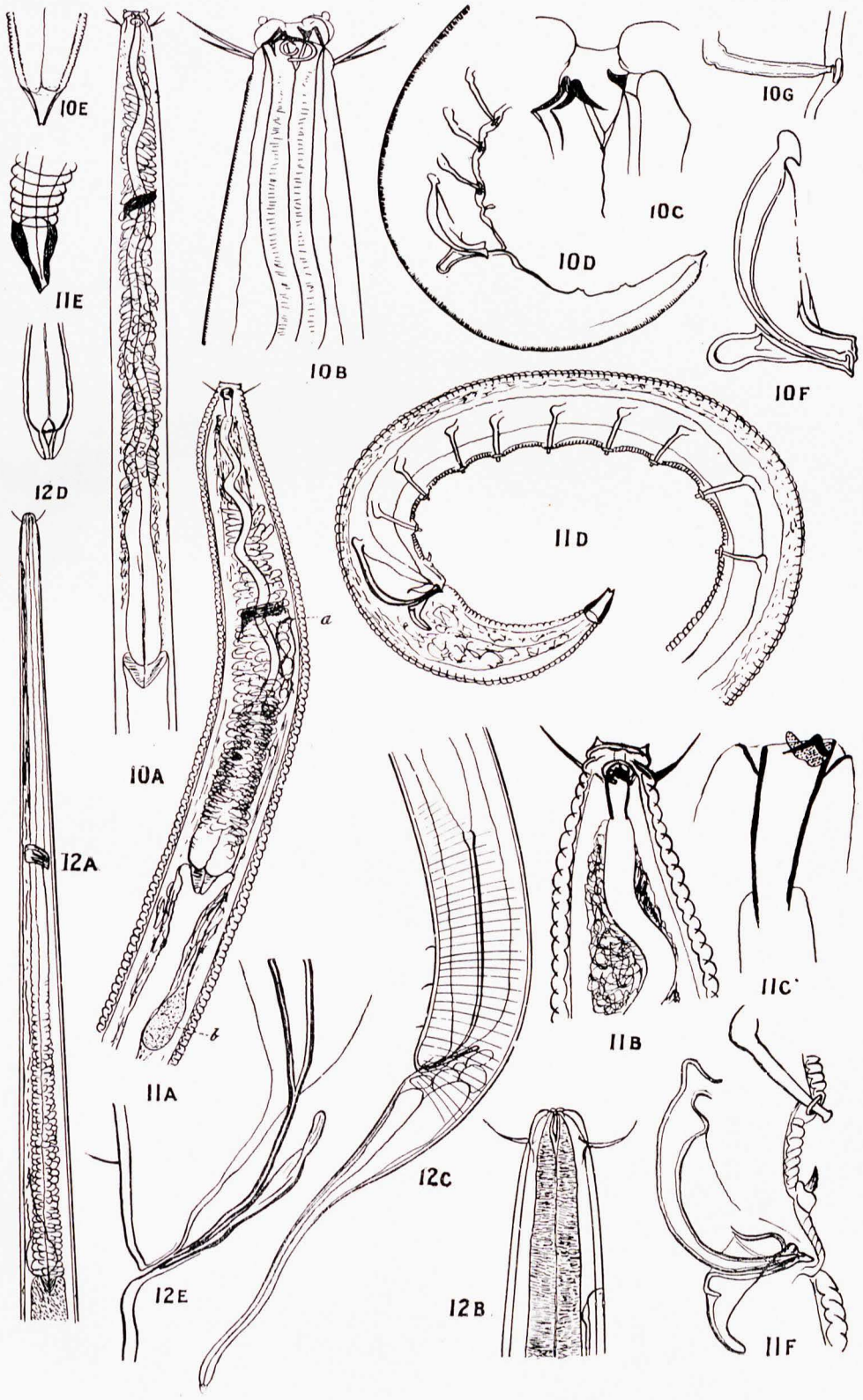

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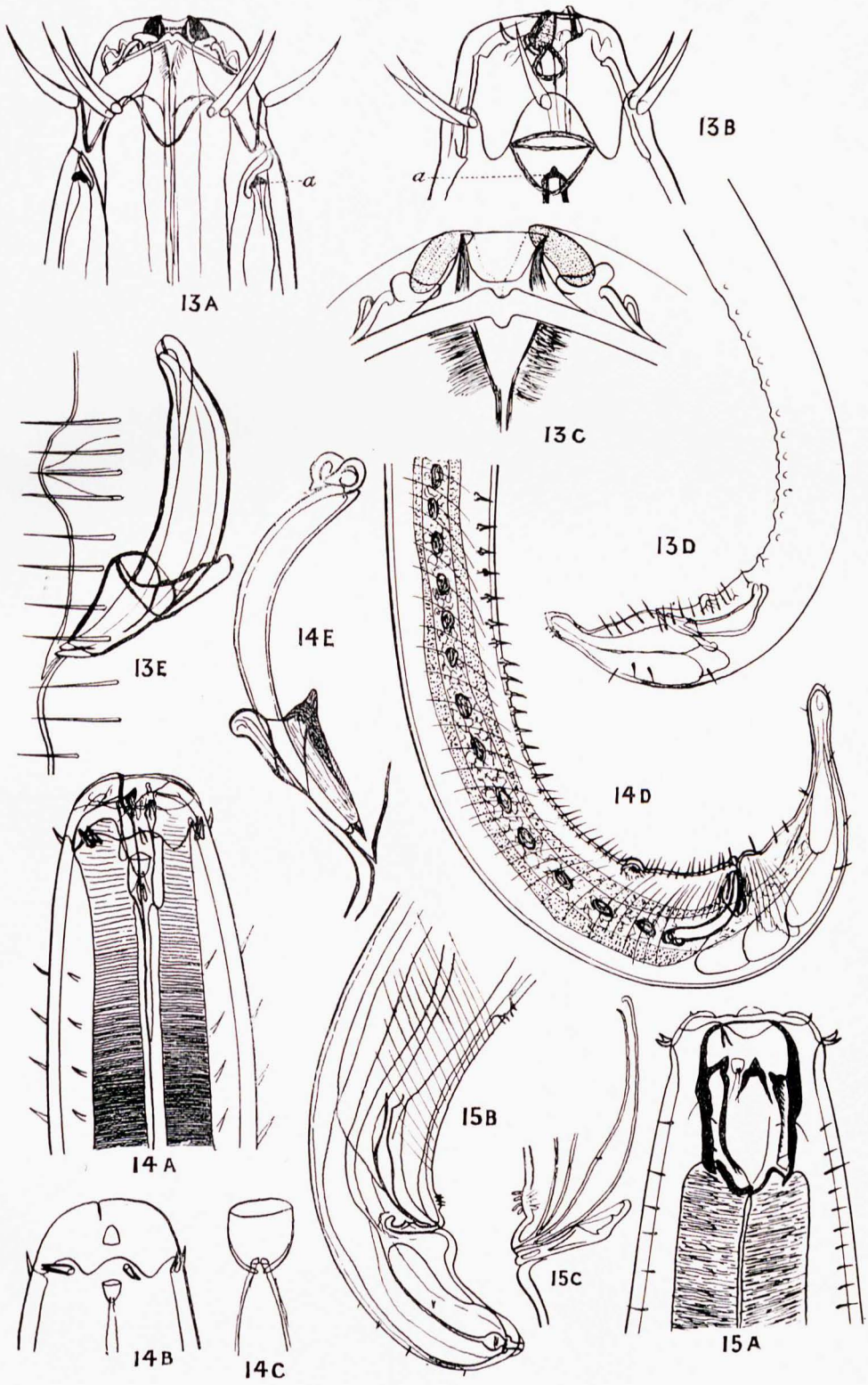

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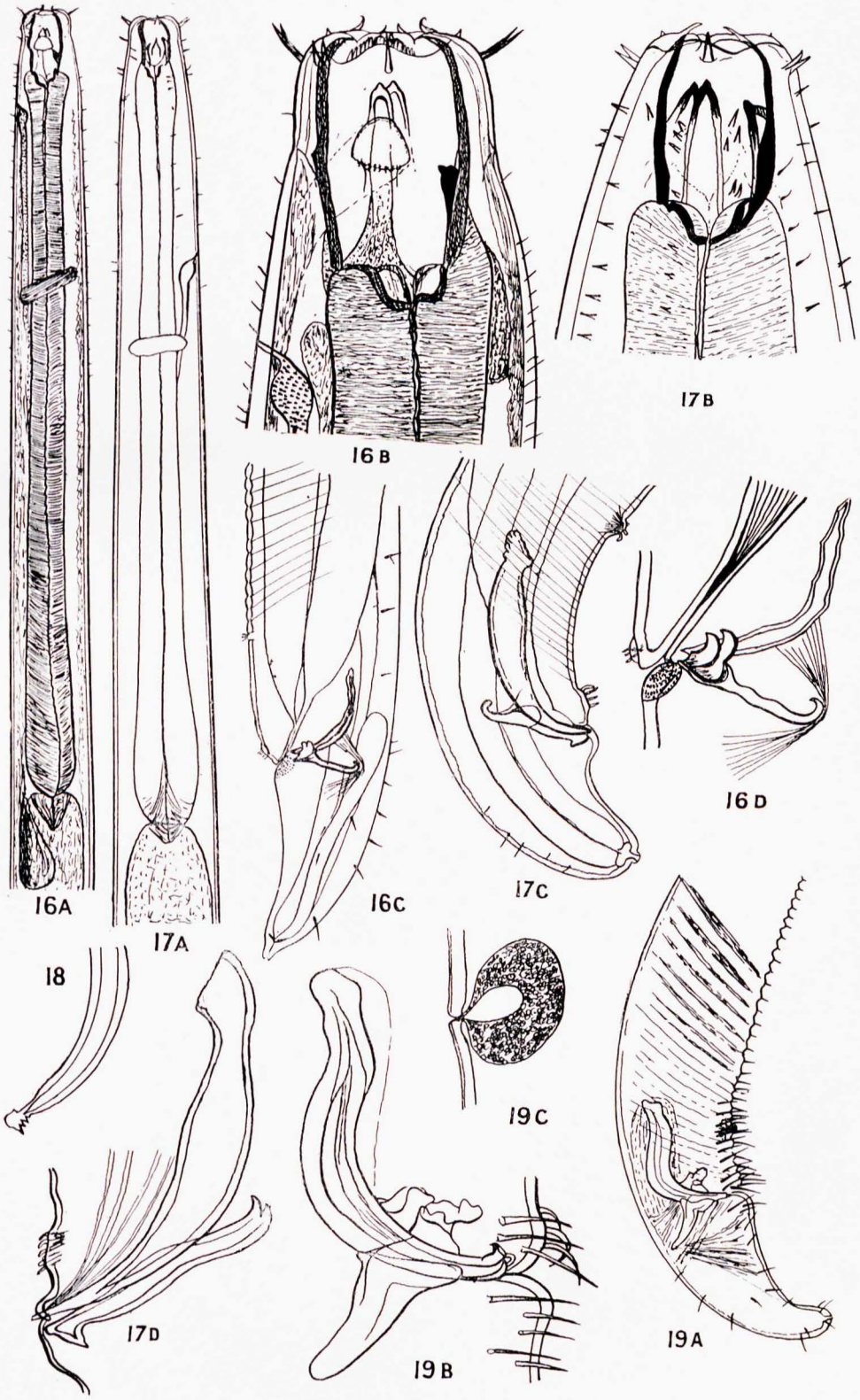
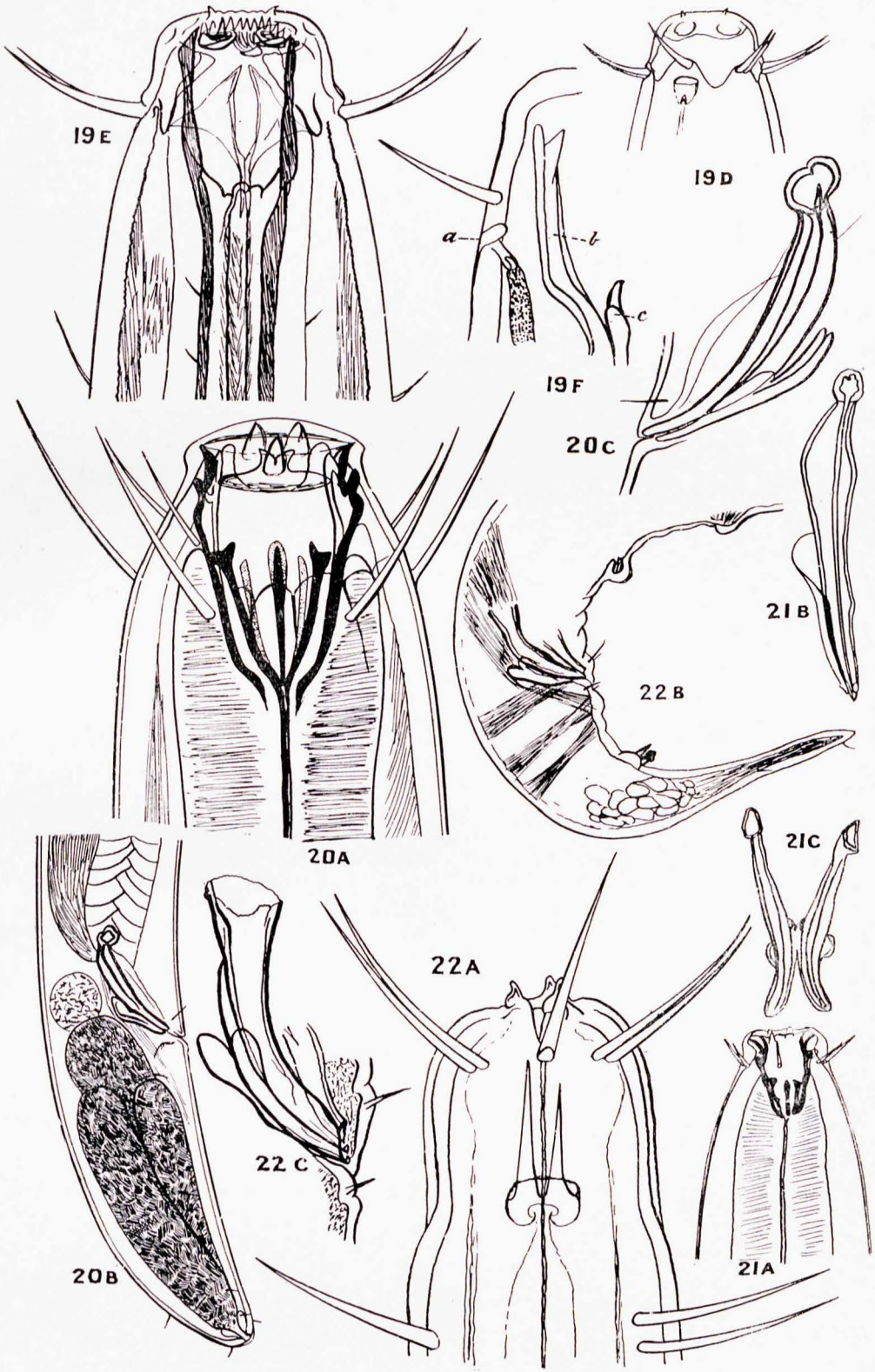
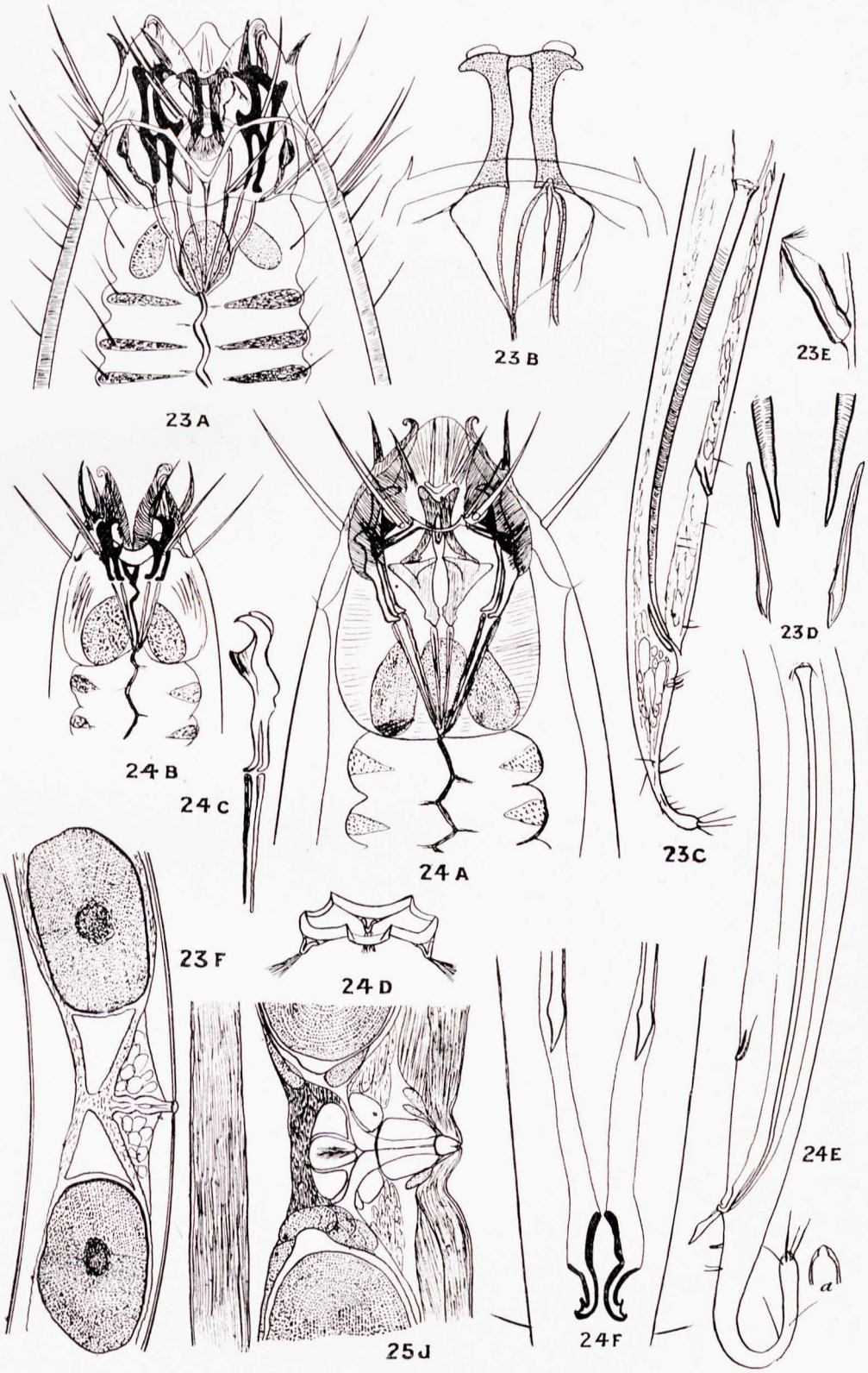


Clare Island Survey.—Southern: Nemathelmia, &c.



CLARE ISLAND SURVEY.—SOUTHERN: NEMATHELMIA, &C.



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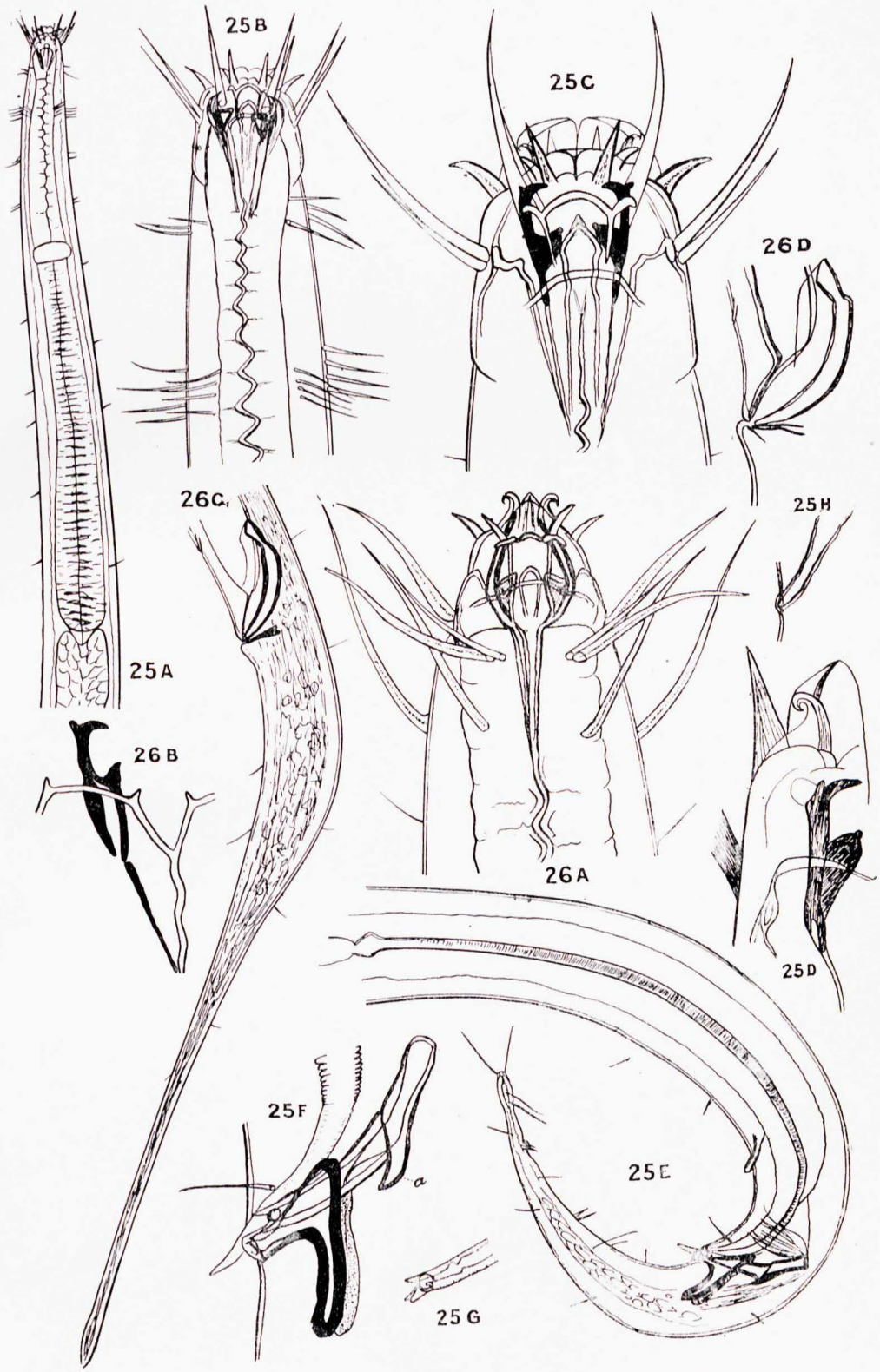

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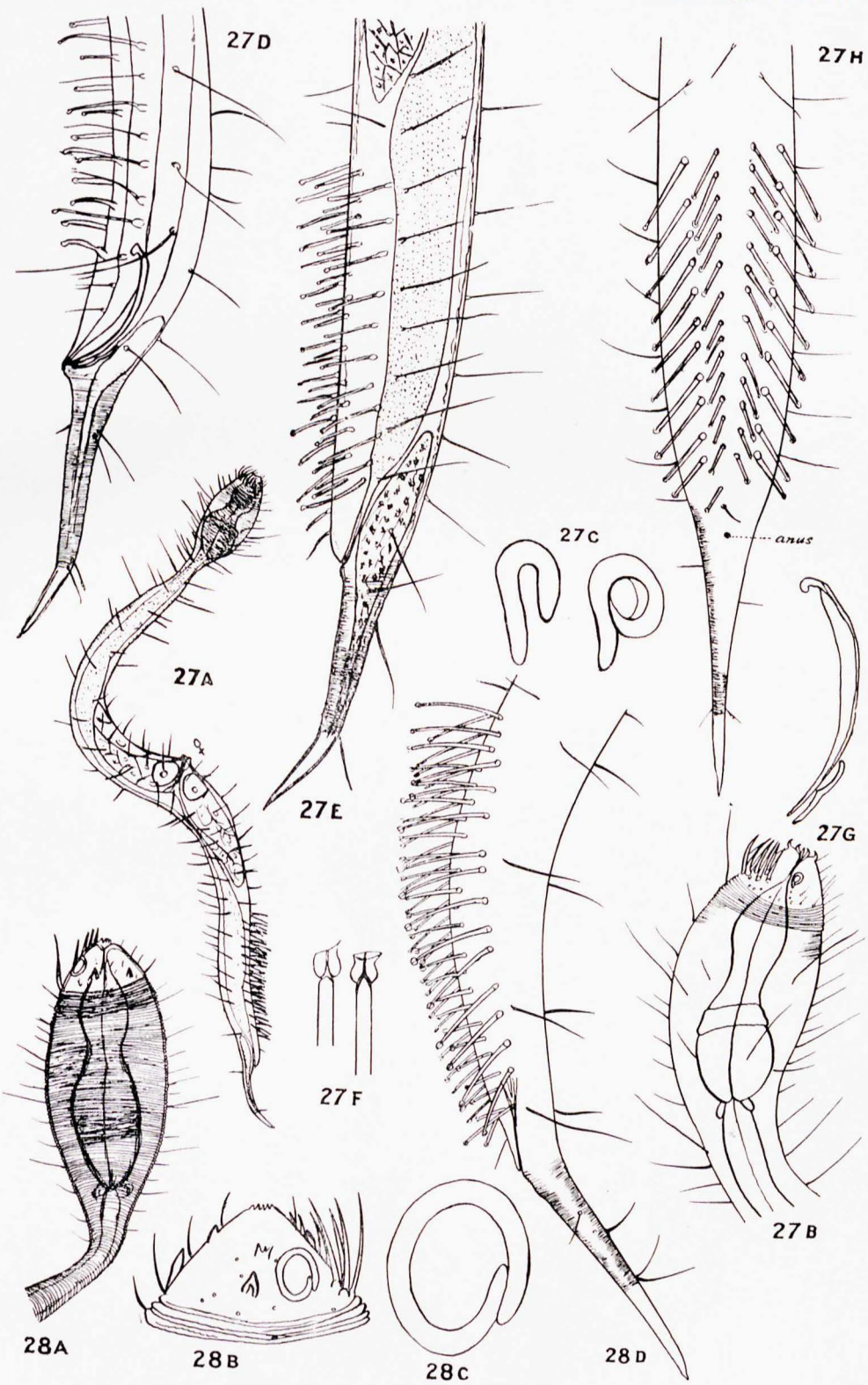

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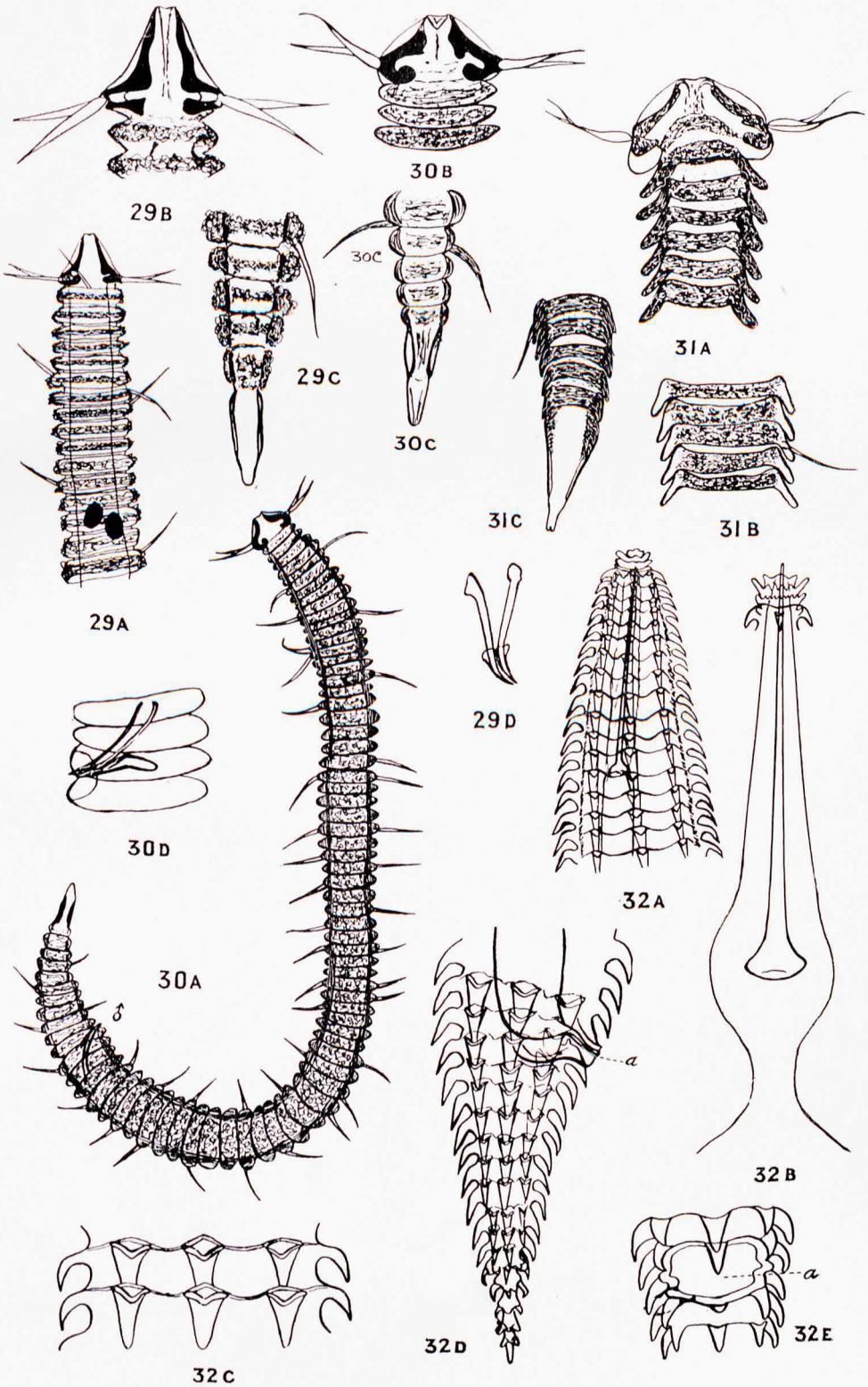

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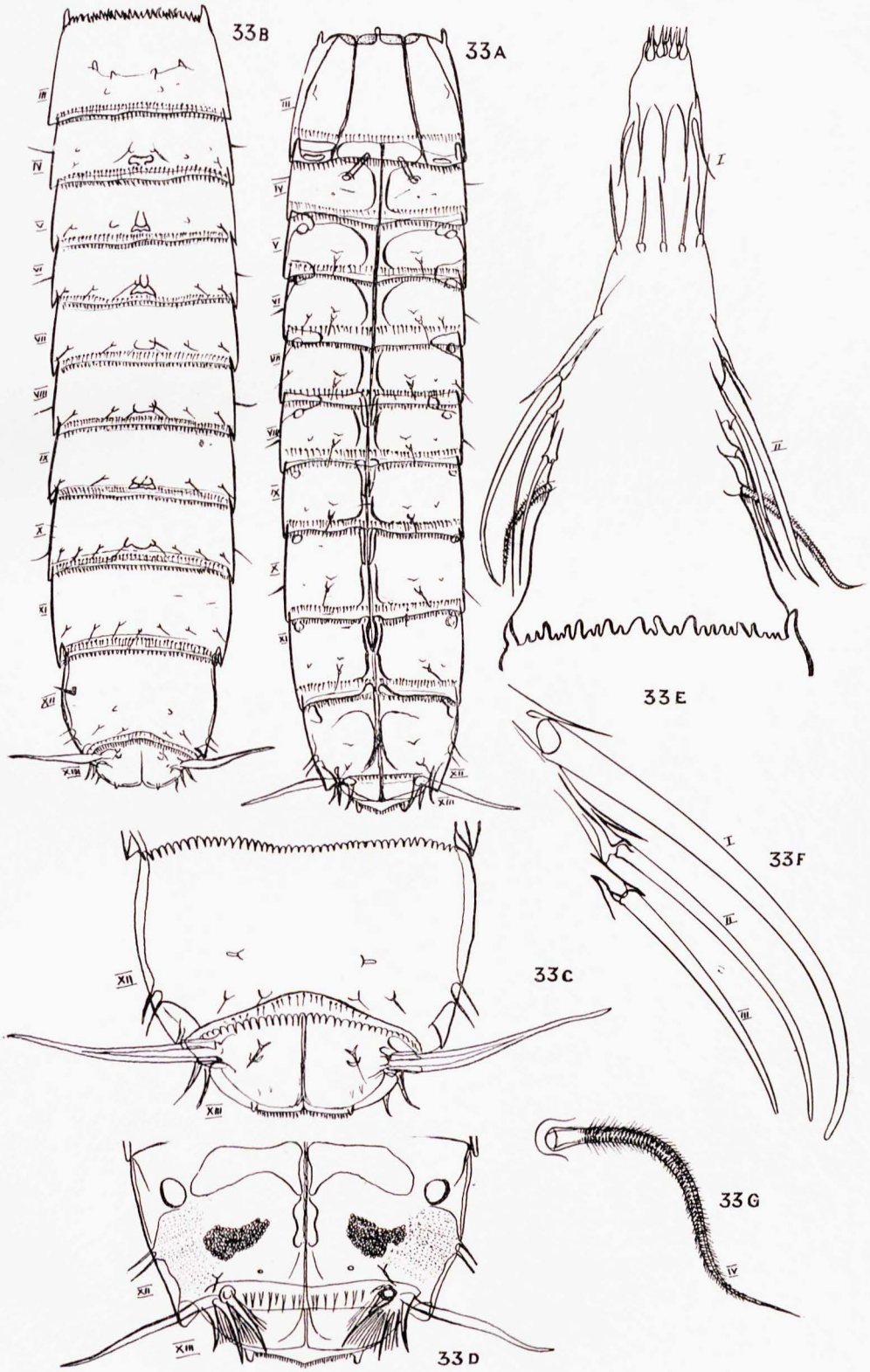

CLARE ISLAND SURVEY.—SOUTHERN: NEMATHELMIA, KINORHYNCHA, &C.