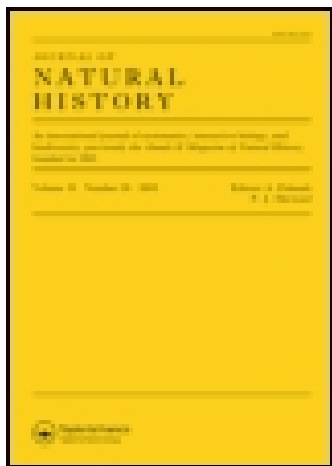


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XXXI.—*Some Nemertinea, Free-living Nematoda and Oligochæta from the Falklands.* By H. A. BAYLIS, B.A.

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THE material described in this paper was collected by Mr. Rupert Vallentin in the Falkland Islands during the years 1902, 1910, and 1911. Dr. J. H. Ashworth, of Edinburgh, to whom it was handed over, has kindly entrusted me with the determination of the collection and the description of such new forms as it contains. The species were all collected between tide-marks, and most of them are probably truly littoral forms. The nemertines, however, and some of the nematodes would probably be found to range into water of considerable depth. *Lineus corrugatus* and *Leptosomatum setosum*, for example, are forms both known to occur in deep water.

The following notes by Mr. Vallentin on the nature of the collecting-ground are of considerable interest:—

The worms are from the "N.W. corner of the West Falklands. Roy Cove, where most of the specimens were gathered, is the only protected estuary in that district. It is a mile and a half in length, and the depth of water varies from 8 fathoms to *nil*. The creek is filled with ice during winter, and during a S.E. gale a heavy sea runs up the creek. The seas round this part are terrific."

The collection comprises three species of Nemertinea, seven of Nematoda, and one of Oligochæta. They are the following:—

NEMERTINEA.

AMPHIPORUS, Ehrenberg.

1. *Amphiporus michaelsoni*, Bürger.

A single specimen, probably of this species, was taken at Whale Sound, "in sand near low-water mark, spring tide."

LINEUS, Sowerby.

2. *Lineus corrugatus*, M'Intosh.

Ten small examples of this widely-distributed form occur in the collection. I have previously (1915, p. 128) noted its occurrence at South Georgia, and pointed out that its known

range extends in almost a complete circle round the sub-antarctic region, between the latitudes of 50° and 77° S. The fact that it occurs also at the Falklands serves to render this circle still more complete.

There appears to be great variation in the size at which this species attains sexual maturity. In the 'Terra Nova' collection, where the material was dredged from considerable depths of water (45-250 fathoms), the sexually mature individuals were generally of large size (about 50 cm.). Among the present collection, on the other hand, an example not more than 65 mm. in length was found to contain well-advanced female gonads. The examples from South Georgia, to which reference has already been made, were also comparatively small (not more than 145 mm.), and some of these were sexually mature. The material both from South Georgia and from the Falklands was taken in shallow water. It seems not improbable that the depth at which the worms live has some effect upon their growth, so that those which live close to the shore never attain so large a size as those in deep water, but are, nevertheless, capable of becoming mature.

Loc. Roy Cove, etc., at low water; sometimes washed ashore among *Macrocystis* roots.

3. *Lineus* sp.

There is a single female specimen, belonging to a species very distinct from *L. corrugatus*, but taken with it at low water, spring tides, 1902. It is about 30 mm. long and a little less than 2 mm. in diameter. The skin is smooth. The head is rather narrow and provided with elongate cephalic slits. The mouth is indistinct, and is probably very small. The most striking feature is the large size of the ova, which occupy almost the entire space within the body-wall. They measure 0.5-0.6 mm., or even more than this, in diameter.

I do not feel justified in attaching a specific name to this single specimen.

NEMATODA.

STENOLAIMUS, Maion, 1870.

4. *Stenolaimus serialis*, sp. n.

The nematode most abundantly represented in the collection is an interesting form which may be provisionally referred to the genus *Stenolaimus*. Out of twenty-six examples only two are males.

Measurements (in mm.), taken from two males and three mature females:—

	♂.	♀.
Length	5.2-6	5.52-6
Thickness—at crown of hairs	0.033-0.037	0.037
" at base of œsophagus . . .	0.15-0.16	0.14-0.15
" at middle of body . . .	0.22-0.24	0.19-0.25
" at anus	0.09	0.09-0.1
Length of œsophagus	0.8-0.93	0.81-0.9
" tail	0.33-0.35	0.4-0.5
" spicules	0.12-0.15
Distance from head-end to excretory pore	0.065	0.0625-0.075
Distance from head-end to nerve-ring	0.40-0.44	0.39-0.42
Distance from head-end to vulva	1.41-1.65
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α	23.6-25	22.2-29
β	6.4-6.5	6.6-6.8
γ	15.7-17	11.1-13.8

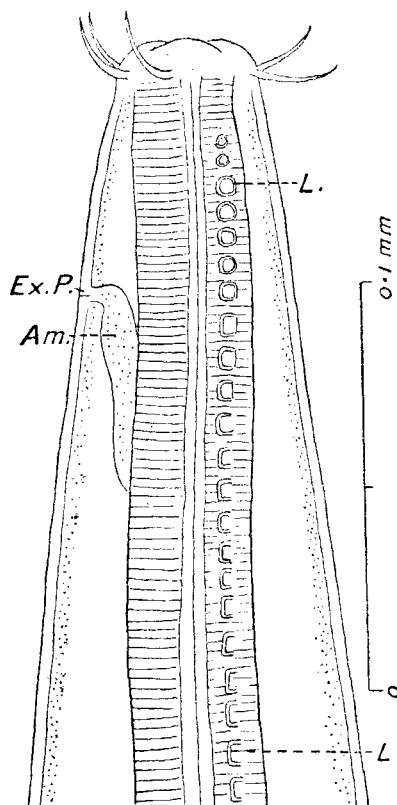
The body tapers considerably both anteriorly and posteriorly, the neck especially being very slender. Posteriorly the tapering begins a little in front of the anus. The cuticle is quite smooth, no transverse striations having been detected. In the *male* only there are a few slender hairs (fig. 2, p. 292) on the ventral surface in front of and behind the anus, and a few shorter and more scattered hairs on the tail. The lateral fields are of a coarsely cellular appearance, and measure 0.025 mm. in width.

The head (fig. 1) is very narrow. Near the extremity there is a crown of six stoutish bristles, which stand out at right angles to the long axis of the body, their tips curving forward. Two of the bristles are lateral, two subdorsal, and two subventral. The chief peculiarity of the species is the fact that instead of the pair of circular or spiral lateral organs near the anterior end, characteristic of the majority of free-living nematodes, there appears to be on either side a longitudinal row of thirty or more very small pits in the cuticle (fig. 1, *L.*), which may possibly be regarded as "lateral organs." They are situated just above the level of the lateral field on either side, and are, therefore, subdorsal in position. De Man (1884, pl. i. figs. 3, 3*a*, 3*d*) figures a row of organs in *Deontolaimus papillatus*, which would appear, from the figures, to be of a somewhat similar nature. According to his account of this species, however (1884, p. 32), they are "papillæ" rather than pits, and occur, in the *male only*, in a single median *ventral* row extending throughout the whole

œsophageal region of the body. In the species now under consideration the pits are present in both sexes, and extend in two rows from a little behind the anterior extremity to about the level of the nerve-ring.

The mouth is very small, and is not provided with distinct

Fig. 1.



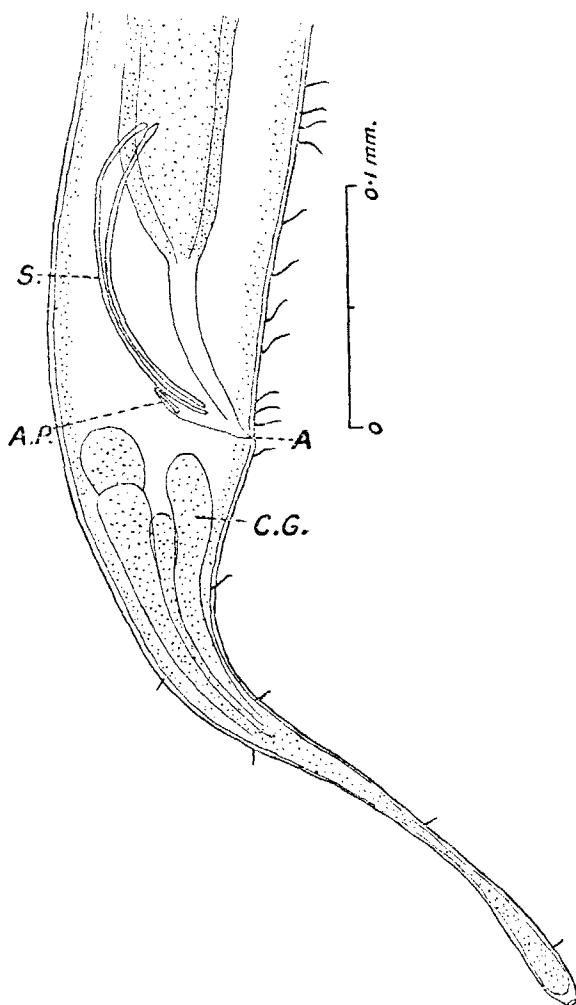
Stenolaimus serialis. Anterior end of female, lateral view.

Am., ampulla of excretory gland; *Ex.P.*, excretory pore;
L., "lateral organs" (?).

lips or papillæ. There is no buccal cavity, the mouth leading directly into the œsophagus. The latter is long and slender; it increases gradually in thickness towards its posterior end, but there is no distinct bulb. The nerve-ring

crosses the œsophagus at about the middle. The cells of the chyle-intestine are small, tessellated, and filled with brownish granules.

Fig. 2.



Stenolaimus serialis. Posterior end of male, lateral view.

A., anus; A.P., accessory piece; C.G., caudal glands; S., spicules.

The tail (fig. 2), in both sexes, tapers rapidly at first from the anus for about $\frac{2}{3}$ of its length, becoming more cylindrical

posteriorly. There is a slight bulbous expansion of the cuticle just before the tip. At the extreme tip there is a distinct pore, from which there may sometimes be seen issuing a coagulated stream of the secretion from the caudal glands, which are well developed.

The minute pore of the excretory gland (fig. 1, *Ex.P.*) is situated close behind the head, the duct expanding into a slight ampulla (*Am.*) just before the opening.

The spicules of the male (fig. 2, *S.*) are very slender curved rods; there is apparently a slender accessory piece (*A.P.*) near their distal ends. In the male the posterior end of the body is well provided with diagonal muscle-bands, probably serving to bring about the ventral coiling of the tail.

In the female the genital organs are characteristic. The vulva is anteriorly placed, and the two branches of the uterus are very unequal, the posterior branch being $4\frac{1}{2}$ times as long as the anterior. Both ovaries are doubly reflexed, *i. e.*, bent back upon the uterus and bent back again upon themselves near their blind ends.

This species appears to be common between tide-marks, occurring under stones &c. at Roy Cove. It agrees with *Stenolaimus marioni*, Southern (1914), and differs from the type-species, *S. lepturus*, de Man, in the absence of any hairs on the neck besides the cephalic crown of bristles. It may be remarked that no lateral organs are mentioned in the descriptions of either of these species; it is therefore doubtful whether the rows of pits described above for *S. serialis* are of generic or only of specific importance. It is possible that the species should be regarded as belonging to a new genus, with close relationships to *Stenolaimus* and *Anticoma*.

DOLICHO LAIMUS, de Man.

5. *Dolicholaimus vallentini*, sp. n.

The collection includes three examples of a species which is undoubtedly to be referred to *Dolicholaimus*. Of these specimens, one is a male, one a female with ovaries developed, but containing no fully-formed eggs, and the third an immature form of doubtful sex.

The following are the measurements (in mm.) of the two mature individuals:—

	♂.	♀.
Length	3.47	3.40
Thickness—at crown of hairs	0.0275	0.03
<i>Ann. & Mag. N. Hist. Ser. 8. Vol. xvii.</i>	20	

	♂.	♀.
Thickness—at end of œsophagus	0·09	0·09
" at middle of body	0·10	0·11
" at anus	0·08	0·07
Length of œsophagus (including buccal cavity).	0·53	0·60
" tail	0·19	0·22
" spicules	0·07
Distance, head to end of buccal cavity	0·125	0·125
" " nerve-ring	0·26	0·31
" " vulva	1·9
<hr/>		
α	34·7	30·9
β	6·54	5·78
γ	18·26	15·77

This form agrees well in essential points with the type-species, *D. marioni*, de Man (1888). It is, however, slightly larger, and differs in certain other respects. The body is of very even thickness throughout the greater part of its length. Towards the head it tapers rather rapidly, and the posterior end begins to diminish in diameter from a little distance in front of the anus. The tail (fig. 4, p. 296), in both sexes, tapers rapidly for about the first half of its length; more posteriorly it becomes cylindrical, and, finally, near the tip there is a slight swelling. The tip of the tail is bluntly rounded, and the aperture of the caudal glands is not conspicuous. These glands, however, are well developed (fig. 4, *C.G.*).

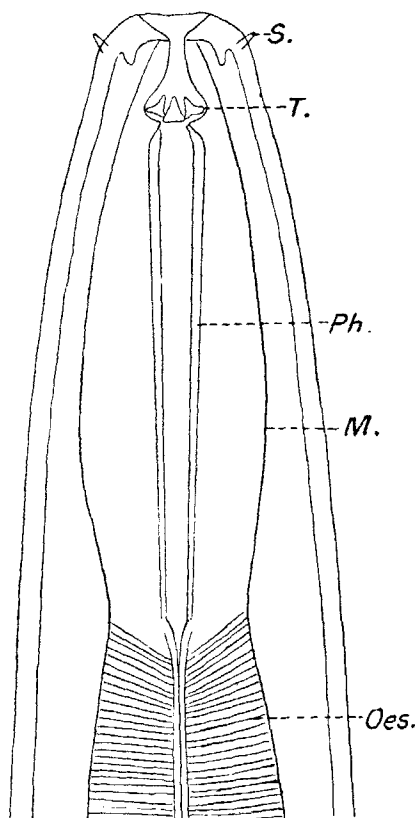
The cuticle is quite smooth, as in the type-species, no transverse striations being visible. No hairs occur on the body, with the exception of four short, stout, submedian bristles situated close to the anterior end (fig. 3, *S.*). The lateral fields have a width of 0·025 mm. No lateral organs have been made out. In the type-species of this genus they are said to be present in the form of grooves ("*sillons*"), but nothing of this kind has been detected in the present form.

The mouth (fig. 3) is a small funnel-shaped depression and is not provided with distinct lips. It leads into a small "vestibule," as in *D. marioni*, at the base of which there are three teeth (fig. 3, *T.*) arranged in a triangle, and each shaped somewhat like a boot-tree. This vestibule is followed by the buccal cavity proper (fig. 3, *Ph.*), consisting of a greatly elongate, rigid, chitinous tube. This decreases gradually in diameter from before backwards, its walls, comparatively thick in front, becoming also gradually thinner towards the posterior end. The distance from the mouth to the posterior end of this tubular buccal cavity is about a quarter of that from the mouth to the hinder end of the œsophagus. The

chitinous tube is surrounded by a spindle-shaped muscular sheath (fig. 3, *M.*), continuous with the œsophagus behind.

The œsophagus exhibits a slight spindle-shaped thickening near its junction with the buccal cavity. In its middle

Fig. 3.

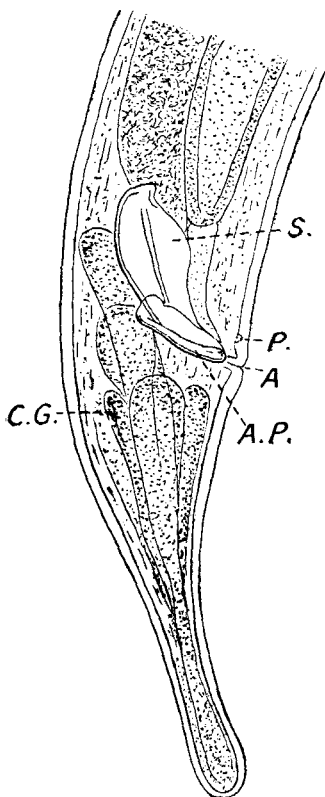


Dolicholaimus vallentini. Anterior end of female, highly magnified.
M., muscular sheath of buccal cavity; *Oes.*, œsophagus; *Ph.*, "pharynx" or tubular portion of buccal cavity; *S.*, cephalic setae; *T.*, teeth.

portion it becomes narrow again, but posteriorly it is greatly thickened. There is, however, no true œsophageal bulb. The nerve-ring crosses the œsophagus at about the middle of the distance from the mouth to its base. No trace of a

ventral excretory gland has been discovered. In this connection it is noteworthy that, according to de Man, this organ does not exist in the type-species of the genus.

Fig. 4.



Dolicholaimus valletini. Posterior end of male, lateral view, highly magnified.

A., anus; *A.P.*, accessory piece; *C.G.*, caudal glands; *P.*, preanal papilla of right side; *S.*, spicule of right side.

The posterior end of the male is abundantly provided with diagonal muscles. The spicules (fig. 4, *S.*) are lamellar, their posterior edges having a rib-like thickening. There is also

a fold or thickening running down the middle of the spicule, like a mid-rib. The two spicules slide in a single accessory piece (fig. 4, *A.P.*), situated near their distal ends in the position of repose. This accessory piece is apparently bent so as to form a deep slot in which the posterior ribs of the spicules are lodged. It is nearly half as long as the spicules themselves. There is a single pair of minute papillæ (fig. 4, *P.*) situated just in front of the anal aperture.

In the female the vulva is situated slightly behind the middle of the body. The two ovaries are about equal in length, and are reflexed. No fully-formed eggs were observed in the uterus.

The specimens were taken under stones at Roy Cove, June 20, 1910.

ENOPLUS, Dujardin.

6. *Enoplus michaelsoni*, v. Linst.

Enoplus michaelsoni, v. Linstow, 1896, p. 10; figs. 14-16; de Man, 1904, p. 19; pls. iv.-vi., fig. 7.

Of this species two examples occur in the collection, both females. They were taken under stones at Roy Cove, June 20, 1910.

7. *Enoplus* sp.

There is a single example of a second form which is possibly to be referred to this genus. It is a female, measuring about 2 mm. in length, and occurred among other small nematodes and oligochætes, in association with *Marphysa corallina*, July 22, 1910.

It does not seem desirable to found a species upon this unique specimen.

ONCHOLAIMUS, Dujardin.

8. *Oncholaimus* sp.

A single female specimen, apparently belonging to this genus, occurred with various other forms among *Marphysa corallina*, July 22, 1910. It measures a little over 5 mm. in length, and is the largest of the nematodes met with, with the exception of *Leptosomatum setosum*.

LEPTOSOMATUM, Bastian.

9. *Leptosomatum setosum*, v. Linst.

Leptosomatum setosum, v. Linstow, 1896, p. 5; figs. 4-7.

Thoracostoma setosum, de Man, 1904, p. 25; pls. vi.-x., fig. 8.

Leptosomatum setosum, Leiper & Atkinson, 1915, p. 23; pl. i., figs. 3, 6, 9.

Two female examples of this form were taken at low water during spring tides, Feb. 21, 1902, together with nemertines.

This species appears to occur in any depth of water from low-water mark down to 250 fathoms or more, and is widely distributed in the subantarctic region.

THORACOSTOMA, Marion, 1870.

10. *Thoracostoma* sp.

A single female example occurred among the various other species in association with *Marphysa corallina*, July 22, 1910.

OLIGOCHÆTA.

MARIONINA, Michaelsen.

11. *Marionina georgiana* (Mchlsn.).

Eighteen examples of a small Enchytræid worm, which I refer to this species, were collected at Roy Cove or elsewhere at low water. The collector's labels indicate that they were taken in June and July, 1910, some being found under stones, others, with various nematodes, in association with *Marphysa*.

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