ON SOME ARCTIC FREELIVING MOSS-NEMATODES,

COLLECTED BY
THE SWEDISH GREENLAND-EXPEDITION 1899

By C. A. Allgén

Contrary to the arctic marine Nematode-Fauna our knowledge of the freshwater- and terrestrial arctic Nematode-Fauna hitherto is very phragmentaric.

The first to describe arctic freeliving not marine Nematodes is AURIVILLIUS (1883), who has mentioned the *Aphelenchus nivalis* from the snowfauna of Spitzbergen.

Later on G. STEINER in 2 small papers from the same year (1916) has in the Zool. Anz. published several finds of arctic terrestrial Nematodes.

In his first paper (1916, 1) he has described from Tromsö 3 species and from Jan Mayen 6 other species.

In his second paper (1916, 2) the same author has described from Nowaja-Semlja 27 species, of which the following 6 have been refound in the present collections, namely:

Plectus rhizophilus DE MAN
Mononchus papillatus BASTIAN
Dorylaimus carteri BASTIAN
— *acuticauda* DE MAN
— *agilis* DE MAN
— *filiformis* BASTIAN.

MENZEL, R. (1920) has mentioned from Spitzbergen (King-Ludwig-Island and shore of the Walfish-Bay, at the East Coast of Spitzbergen, at Storefjord) 4 species (*Plectus cirratus*, *Pl. communis*, *Dorylaimus* sp. and *Cephalobus* BÜTSCHLII). In the same paper MENZEL has made known the *Dorylaimus agilis* DE MAN from Iceland and from the West Coast of Greenland until the species not determined "Vertreter der genera *Dorylaimus*, *Plectus*, *Trilobus* and *Ironus*."

DITLEVSEN (1927) has described 22 species of land- and freshwater Nematodes from Greenland and DE CONINCK (1940, 1944) 9 species from Iceland, collected by Prof. P. van Oye during his "Studienreis" to that island.

The first terrestrial Nematodes hitherto known from Jan Mayen are the ones, which STEINER has published in his first paper (1916, 1, p. 346—347). They are the following:

Plectus auriculatus BÜTSCHLI
— spec (*Pl. cirratus*? BAST.)
— *rhizophilus* DE MAN
Cephalobus bütschlii DE MAN
Aphelenchus modestus DE MAN
— *goeldii* STEINER

which last named species seems to be synonymous with *A. parietinus* BASTIAN.

Later on the present author (1953) has described 40 species, belonging to 12 genera, from the large collection of terrestrial Nematoda made by Mr. A. MACFADYEN on Jan Mayen in 1947.

Of these species 6 were refound in the present collection, namely: *Plectus cirratus* var *rhizophilus* (DE MAN), *Dorylaimus obtusicaudatus* BASTIAN, *Dorylaimus triciti* BASTIAN, *Dorylaimus cart.* typ. BASTIAN, *Dorylaimus* CART. *agilis* (DE MAN) and *Dorylaimus carteri acuticauda* (DE MAN).

From the East Coast of Greenland are, however, as far as I know, no freshwater- or terrestrial Nematodes known.

Besides numerous freeliving marine Nematodes from East Greenland and Jan Mayen there also were found in the collections of the swedish Greenland-Expedition 1899 some Moss-Nematodes, which, sent me for determination, will be described in this paper.

Only a single specimen, a female of *Dorylaimus obtusicaudatus*, BAST. was found in moss from Jan Mayen; all other Nematodes are originating from different parts of East Greenland.

Localities.

1. East Greenland. N. 20. The Lille Pendulum isl. Lat. N. 74°35′, Long. V. 18°23′. in moss. 7.7.1899.

2. Jan Mayen., in the moss *Racomitrum canescens*, 20.6.1899. A single specimen.

Species, found:

Plectus communis BÜTSCHLI
— *cirr.* BAST. var. *rhizophilus* (DE MAN)
Dorylaimus obtusicaudatus BASTIAN
— *tritici* BASTIAN
— *carteri* BAST. v. *brevicaudatus*, f. typ. MICOLETZKY
— *carteri* BAST. v. *brevicaud.*, f. typ. sf. acuticauda (de Man)
— *carteri* BAST. var. *agilis* (DE MAN)
— *filiformis* BASTIAN
Mononchus papillatus BASTIAN

Fam. **Plectidae.**

Plectus Bastian.

Plectus communis Bütschli

Bütschli 1873, p. 91—92.
de Man 1884, p. 115—116, pl. XVIII, fig. 75.

East Greenland, the Lille Pendulum isl.: 1 ♀

L = 0,473 mm	α = 18,19[1])
Th. = 0,0255 mm	β = 3,35
Oes = 0,140 mm	γ = 13,91
T = 0.034 mm	

As the single young female of this *Plectid* in its whole shape seems to agree rather well with *Plectus communis*, described by Bütschli, I should like to refer it to that species.

The cylindroconical tail measures a length of 34 μ. i. e. 2 × the anal body diameter. It seems to be relatively shorter than in the type-specimens de Man's and therefore also γ is higher (= 13,91), in the above named specimens only 8—10. The other measurements agree, however, well with the descriptions of the authors.

Further arctic locality:

Spitzbergen (Menzel 1920).

Plectus cirr. Bast. var. *rhizophilus* (de Man).

de Man 1884, p. 113—114, pl. XVII, fig. 72.

East Greenland, The Lille Pendulum isl.: 5 ♀♀

L = 0,870 mm	α = 14,5
Th = 0,060 mm	β = 4.35
Oes = 0,200 mm	γ = 6.40
T = 0,136 mm	V = 45,98 %
V = 0,400 mm	
L = 0,800 mm	α = 15,69
Th = 0,051 mm	β = 4,28
Oes = 0,187 mm	γ = 6,15
T = 0,130 mm	V = 44,625 %
V = 0,357 mm	

[1]) L = Total body-length, Th = max. body-thickness, Oes = length of oesophagus and T = length of tail. α, β and γ are the well known relative figures, introduced in the literature by J. G. de Man. α = body-length: max. thickness, β = body-length: length of oesophagus and γ = body-length: length of tail. V = the distance of the female sex-opening (Vulva) from the frontend in % of the total body-length.

L = 0,730 mm	α = 13,03
Th = 0,056 mm	β = 4,56
Oes = 0,160 mm	γ = 5,37
T = 0,136 mm	V = 45,21 %
V = 0,330 mm	
L = 0,712 mm	α = 14,83
Th = 0,048 mm	β = 4,45
Oes = 0,160 mm	γ = 5,93
T = 0,120 mm	V = 43,82 %
V = 0,313 mm	
L = 0,708 mm	α = 18,93
Th = 0,037 mm	β = 4,63
Oes = 0,153 mm	γ = 5,95
T = 0,119 mm	V = 44,63 %
V = 0,316 mm	

The shape of the thin, about evenly thick tail indicates evidently, that the few specimens—all females—are in every respect typical representatives of *P. rhizophilus*, a species, which later on MICOLETZKY in his comparative studies in the genus *Plectus* has regarded as a variety of the main-species *P. cirratus* BASTIAN.

Further arctic localities:

Jan Mayen (STEINER 1916, 1), Nowaja-Semlja (STEINER 1916, 2), Jan Mayen (ALLGÉN 1953), Greenland. Main-species. *P. cirratus* (DITLEVSEN 1927).

Fam. **Dorylaimidae.**

Dorylaimus DUJARDIN.

Dorylaimus obtusicaudatus BASTIAN

D. obtusicaud. BASTIAN 1865, p. 106—107, pl. IX, fig. 41—42.
D. papillatus BÜTSCHLI 1873, p. 27—28, pl. I, fig. 1 a—b.
D. obtusicaud. DE MAN 1884, p. 167—168, pl. XXVI, fig. 109.

Jan Mayen, in the moss *Racomitrum canescens*. 20. VI, 1899. 1 ♀. East Greenland. The Lille Pendulum isl. 2 ♀♀, 1 juv.

♀ L = 2,450 mm	α = 32,03
Th = 0,077 mm	β = 3,77
Oes = 0,650 mm	γ = 54,44
T = 0,046 mm	V = 55,56 %
V = 1,250 mm	
♀ L = 2,450 mm	α = 26,06
Th = 0,094 mm	β = 3,27
Oes = 0,750 mm	γ = 72,06
T = 0,034 mm	V = 51,02 %
V = 1,475 mm	

Juv. L = 2,280 mm	α = 22,80
Th = 0,100 mm	β = 3,51
Oes = 0,680 mm	γ = 60,96
T = 0,037 mm	

The evidently rounded head, the 6 strongly developed lips with 2 circlets of papillae and the also strongly developed mouth-thorn, surrounded far anteriorly by the ductring, indicate evidently, that the few specimens represent this old species, of which, however, 2 concerning the conical shape of the tail are belonging to the species, studied by BÜTSCHLI and by MICOLETZKY regarded as a new forma *bütschlii* of the typical species, described by BASTIAN.

According to DE MAN (compar also JÄGERSKIÖLD (1909, p. 38) "liegt der allmählich vor sich gehende Übergang zwischen dem vorderen schmäleren und dem hinteren dickeren Teil des Oesophagus ungefähr an der Mitte des Organs"; in the arctic specimens the oesophagus begins to increase a little more anteriorly and even at the end of the second fifth of its length, and the passage to the posterior, uniformly more strongly thickened part is not taking place gradually but rather suddenly.

Further arctic localities:

Jan Mayen (ALLGÉN 1953), Greenland: Disko, main-species very common on numerous localities (DITLEVSEN 1927).

Dorylaimus tritici BASTIAN

D. tritici BASTIAN 1865, p. 107, pl. X, fig. 45—47.
D. intermedius DE MAN 1884, p. 170—171, pl. XXVII, fig. 113.

East Greenland. The Lille Pendulum isl.: 2 ♀♀

L = 1,650 mm	α = 20,625
Th = 0,080 mm	β = 5,5
Oes = 0,300 mm	γ = 48,53
T = 0,034 mm	V = 51,52 %
V = 0,850 mm	
L = 1,500 mm	α = 19,23
Th = 0,078 mm	β = 4,29
Oes = 0,350 mm	γ = 35,29
T = 0,043 mm	V = 46,67 %
V = 0,700 mm	

The head, weakly demarcated from the body by a constriction, the weakly developed lips with 2 circlets of papillae, the rather thin mouth-thorn and the plump, posteriorly rounded tail are very characteristic of this species, of which only 2 typical females were found in the arctic moss.

Further arctic locality:

Jan Mayen (ALLGÉN 1953).

Dorylaimus carteri BASTIAN var. *brevicaudatus* f. typ. MICOLETZKY

BASTIAN 1865, p. 106, pl. IX, fig. 30—40.
DE MAN 1884, p. 177—178, pl. XXIX, fig. 122.
MICOLETZKY 1922, p. 477—496, fig. 29.

East Greenland, The Lille Pendulum isl.: 1 ♀

L = 2,700 mm	a = 31,76
Th = 0,085 mm	β = 4,5
Oes = 0,600 mm	γ = 52,94
T = 0,051 mm	V = 48,15 %
V = 1,300 mm	

In his extensive and comparative studies in *Dorylaimus carteri* BASTIAN and related forms, mostly described by DE MAN, MICOLETZKY already in 1914 and later on (1922, 1. c.) has regarded a large number of the last named forms (species DE MAN's), described by the hollandian author as sure species, as varieties or forms of the main-species *Dorylaimus carteri* BAST.

Of these the above named *D. carteri* v. *brevicaud.* f. typ., in the shape of the tail being nearest similar to MICOLETZKY's Fig. 29a, only was found in a single ♀ in the moss from East Greenland.

The Prärectum is short and measures a length of 0,131 mm. By an indentation of the dorsal side it is partly separated in 2 parts, the anterior of which makes 68 μ, the posterior 63 μ. The posterior part has the greatest thickness: 37,4 μ.

The female organs are paired-symmetrical, with moderately extended gonads and dorsally reflexed ovaries.

Further arctic localities:

Nowaja-Semlja (STEINER 1916, 2). Jan Mayen (ALLGÉN 1953), Greenland. Main-species very common (DITLEVSEN 1927).

Another species from the moss in East Greenland is

Dorylaimus carteri BAST. v. *brevicaudatus* f. typ. sf. *acuticauda* (DE MAN).

Dorylaimus acuticauda DE MAN 1884, p. 179—180, pl XXX, fig. 124
Dorylaimus carteri BASTIAN subf. *acuticauda* (DE MAN) MIC. 1922, p. 478, 482.

East Greenland. The Lille Pendulum Isl.: 2 adult. specimens.

Juv. L = 2,0 mm	a = 25,0
Th = 0,080 mm	β = 4,0
Oes = 0,500 mm	γ = 33,33
T = 0,060 mm	
Juv. L = 1,750 mm	a = 21,875
Th = 0,080 mm	β = 3,18
Oes = 0,550 mm	γ = 25,74
T = 0,068 mm	

Only 2 adult specimens were recorded, the tail of which being similar to MICOLETZKY's Fig. 29b, p. 489. It is provided with an uniformly thin endpart, measuring exactly half the total length of the tail.

Further arctic localities:

Nowaja-Semlja (STEINER 1916, 2). Jan Mayen (ALLGÉN 1953), Greenland: "Disko, ca. 100 m above the level of the Sea" (DITLEVSEN 1927).

The last species of *Dorylaimids*, changed by MICOLETZKY, is a form, rather similar to *Dorylaimus agilis* DE MAN and probably representing a transition form between *D. carteri* BAST. v. *brevicaud.* f. typ. MIC. and *D. agilis* DE MAN.

Dorylaimus carteri BAST. var. *agilis* (DE MAN)

Dorylaimus agilis DE MAN 1884, p. 183—184, pl. XXXI, fig. 129.
Dorylaimus carteri BAST, var. *agilis* (DE MAN) MICOLETZKY, fig. 29 d, p. 490.

East Greenland. The Lille Pendulum isl.: 1 ♀, 1 juv.

♀	L = 1,224 mm	α =	24,48
	Th = 0,050 mm	β =	4,22
	Oes = 0,290 mm	γ =	14,4
	T = 0,085 mm		
Juv.	L = 0,748 mm	α =	17,8
	Th = 0,042 mm	β =	2,67
	Oes = 0,280 mm	γ =	11,0
	T = 0,068 mm		

Although the mouth-thorn of the 2 specimens seems to be relatively small, the well developed lips with 2 circlets of papillae show evidently, that the named specimens are belonging to *D. carteri* BAST., representing, however, by the shape of the tail, being similar, as named above, to MICOLETZKY's Fig. 29d, p. 490, a limit-form between *D. carteri* typ. and *D. agilis* DE MAN.

α, β and γ are for the 2 specimens rather different, all higher in the female than in the adult specimen, indicating, that the body is slender and the oesophagus and the tail shorter in the female than in the adult specimen, a rather well known fact in freeliving Nematodes.

Further arctic localities:

Nowaja-Semlja (STEINER 1916, 2), Iceland (MENZEL 1920). Jan Mayen (ALLGÉN 1953).

Dorylaimus filiformis BASTIAN

BASTIAN 1865, p. 107—108, pl. X, figs. 48—49.
DE MAN 1884, p. 187—188, pl. XXXII, fig. 134.

East Greenland. The Lille Pendulum isl.: 2 ♀♀, 1 adult ♀

L = 1,660 mm	α = 24,41
Th = 0,068 mm	β = 3,61
Oes = 0,460 mm	γ = 8,14
T = 0,204 mm	V = 51,81 %
V = 0,860 mm	
L = 1,572 mm	α = 23,12
Th = 0,068 mm	β = 3,70
Oes = 0,425 mm	γ = 6,605
T = 0,238 mm	V = 54,4 %
V = 0,808 mm	
L = 1,0 mm	α = 23,81
Th = 0,043 mm	β = 3,68
Oes = 0,272 mm	γ = 5,35
T = 0,187 mm	

The few specimens found in the collections are in every respect rather typical representatives of this old species, recognized by the weakly developed lips, the slender mouth-thorn and the elongated, slender tail.

Further arctic locality.

Nowaja-Semlja (STEINER 1916, 2).

Fam. **Prismatolaimidae.**

Mononchus BASTIAN.

Mononchus papillatus BASTIAN

BASTIAN 1865, p. 108, pl. X, figs. 52—53.
BÜTSCHLI 1873, p. 76, pl. III, fig. 19a—b.
DE MAN 1884, p. 64—65, pl. IX, fig. 35.

East Greenland, The Lille Pendulum Isl.: 1 juv.

L = 1,0 mm	α = 20,83
Th = 0,048 mm	β = 3,33
Oes = 0.300 mm	γ = 10,64
T = 0,0935 mm	

The body is in its whole length of about even thickness. The buccal cavity is situated rather far posteriorly, 10,2 μ behind the frontend, and the thin vestibulum therefore has the corresponding length. The length of the buccal cavity itself is 25,5 μ and its widh 11,9 μ.

The conical, acute dorsal tooth is placed in a distance of 3,4 μ behind the anterior end of the buccal cavity. The ventral wall is smooth, not toothed as in the related species *Mononchus muscorum* DUJ.

The tail is conical, in the hindmost part, measuring a length of 10,2 μ, curved ventrally, at the end rounded.

Further arctic localities:

Nowaja-Semlja (STEINER 1916, 2). Jan Mayen (ALLGÉN 1953), Greenland, near "Sukkertoppen", by a brook, under *Salis herbacea* (DITLEVSEN 1927).

It should be mentioned that contrary to the young female, described by the author (1953, p. 681, fig. 8a) the ventral wall of the buccal cavity is not toothed. Also among greenlandian specimens without denticulation other specimens "with more or less developed denticles seem to be equally common" (DITLEVSEN, p. 172, fig. 6). But in the named specimens this denticulation ever is more weakly developed than in the related species *Mononchus muscorum* DUJARDIN.

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