

TWO NEW SPECIES OF *PSEUDONCHUS* COBB
(NEMATODA, CHOANOLAIMIDAE)
FROM THE BRITISH COAST

by

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Résumé

Description de *Pseudonchus deconincki* sp. nov. et *P. northumbriensis* sp. nov. Clé des espèces de *Pseudonchus*. Une nouvelle dénomination, *P. gerlachi* est proposée pour *P. rotundicephalus* Gerlach, 1952. *Cheilopseudonchus* Murphy, 1964, est cité comme synonyme de *Pseudonchus*.

Species of the genus *Pseudonchus* have been reported from various parts of the world, but never in large numbers. Both the species described below are represented by single specimens only. Fortunately both are adult males so that valid descriptions can be made.

PSEUDONCHUS DECONINCKI sp. nov.
(Fig. 1)

Material studied.

One male (holotype). British Museum (Natural History), Reg. No. 1968, 276.

Habitat.

Interstitial in littoral coarse sand at M.L.W.N.T., Shelly Bank, Exmouth, South Devon, England. Collected September, 1967.

Ratios.

a	b	c
69.76	15.59	26.16

Measurements (in mm).

Body length: 2.93. Body breadth: 0.042. Oesophagus length: 0.188. Head diameter: 0.025. Length of longer cephalic setae: 0.0075. Length of shorter cephalic setae: 0.002. Length of buccal cavity: 0.035. Breadth of buccal cavity: 0.017. Amphid diameter: 0.016. Body diameter at level of amphids: 0.030. Length of posterior oesophageal bulb: 0.055. Breadth of posterior oesophageal bulb: 0.033. Tail length: 0.112. Cloacal diameter: 0.034. Spicule length: 0.049. Gubernaculum length: 0.020. Distance of nerve ring from anterior: 0.112. Distance of excretory pore from anterior: 0.085.

General form and cuticle.

The body is relatively long and thin. The cuticle is marked by close set transverse striations which in places are resolvable into rows of very fine punctations. This marking commences at the posterior border of the amphids and extends to within a short distance of the tip of the tail. There is no lateral differentiation.

Head and oesophagus.

The mouth is bounded by six minute rounded labial papilli. The cephalic sense organs comprise an anterior ring of six short setae and a slightly more posterior ring of four longer setae (Fig. 1, A and B). Short setae are scattered sporadically over the remainder of the body. The buccal cavity is of the usual bilaterally symmetrical structure characteristic of this genus. It is bordered anteriorly by two lateral rows of four roughly triangular muscle blocks. The buccal cavity proper is divided into an anterior prostomal and a posterior metastomal section, the walls of both being heavily cuticularised. The anterior margin of the prostoma is provided with two rows of incurving teeth or "odontia" which are about 20 in number. With only one specimen available an en face preparation could not be made, so that this number could not be determined precisely. The whole dorsal sector of the buccal cavity is very thin walled, as described for *P. symmetricus* by De Coninck (1945), so that the rows of odontia do not meet dorsally. This gives the appearance of two opposed mandibles when the head is viewed from the dorsal aspect. At the junction of the prostoma and metastoma there are six ventral and three dorsal teeth which are in fact born on a short mesostomal projection of the metastoma extending upwards inside the prostoma. The amphids describe a single open loop, and are about half the corresponding body width in diameter. The oesophagus has a pronounced anterior swelling round the buccal cavity and a pyriform posterior bulb.

Male.

The tail is roughly cylindrical for its proximal three quarters, with a conical tip (Fig. 1, C). The spicules are paired, equal and arcuate, pointed distally and roundly cephalated proximally. The gubernaculum is small and rod shaped (Fig. 1, D). There is a small

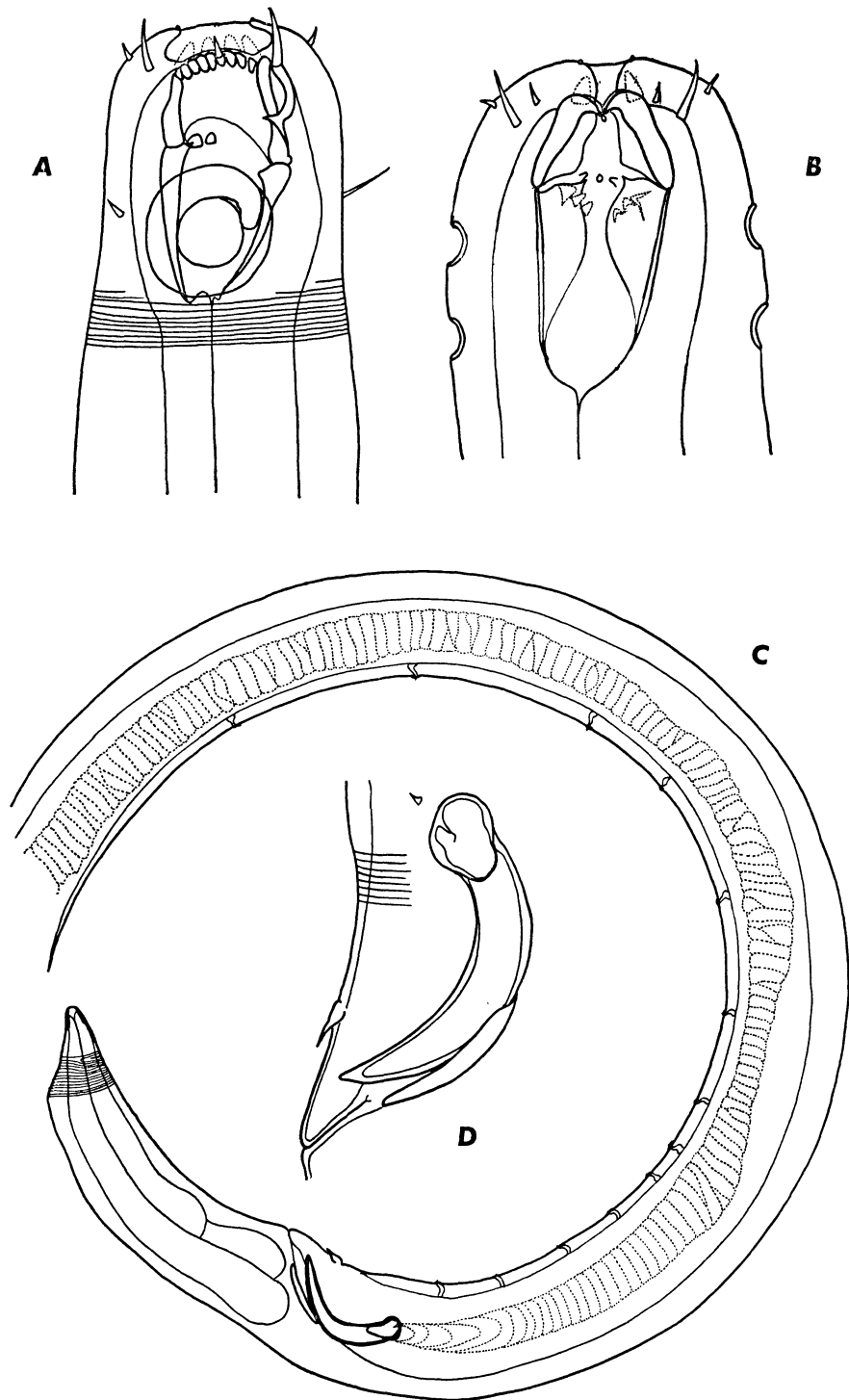


FIG. 1

Pseudonchus deconincki sp. nov.

A: Lateral view of male head; B: Dorsal view of male head (ventral teeth dotted); C: Posterior end of male; D: Lateral view of spicules and gubernaculum.

median papilla with a swollen base just in front of the cloacal opening. There are 13 pre-cloacal supplements arranged as in Figure 1, C. Each consists of a fine S-shaped tube penetrating the cuticle, the latter being markedly thickened ventrally in the region of the supplements. Details of the structure of the gonads are not clear.

Remarks.

This species is characterised by the presence of a series of tubular pre-cloacal supplements, by the size and form of the amphids, the relative lengths of the cephalic setae and the structure of the spicules.

PSEUDONCHUS NORTHUMBRIENSIS sp. nov. (Fig. 2)

Material studied.

One male (holotype) in possession of the author.

Habitat.

Muddy sand at a depth of 57 metres, 7 1/2 miles east of the mouth of the River Wansbeck, Northumberland, England.

Collected January, 1969.

Ratios.

a	b	c
51.30	13.11	23.36

Measurements (in mm).

Body length: 2.36. Body breadth: 0.046. Oesophagus length: 0.180. Head diameter: 0.023. Length of longer cephalic setae: 0.004. Length of shorter cephalic setae: 0.0015. Length of buccal cavity: 0.043. Breadth of buccal cavity: 0.014. Amphid diameter: 0.011. Body diameter at level of amphids: 0.032. Tail length: 0.101. Cloacal diameter: 0.043. Spicule length: 0.061. Gubernaculum length: 0.032.

General form and cuticle.

This again is a long slender species with a transversely striated cuticle. The striations are not resolvable into rows of dots.

Head and oesophagus.

No labial papilli can be detected, but the cephalic setae are arranged in the same manner as the foregoing species (Fig. 2, A and B). There are a few short setae scattered over the anterior oesophageal region. The buccal cavity is very similar to that of *P. deco-*

nincki in structure, except that only about 14 odontia are present anteriorly. The subventral region of the mesostoma bears 8 ridged structures which do not appear to have the same form as the teeth

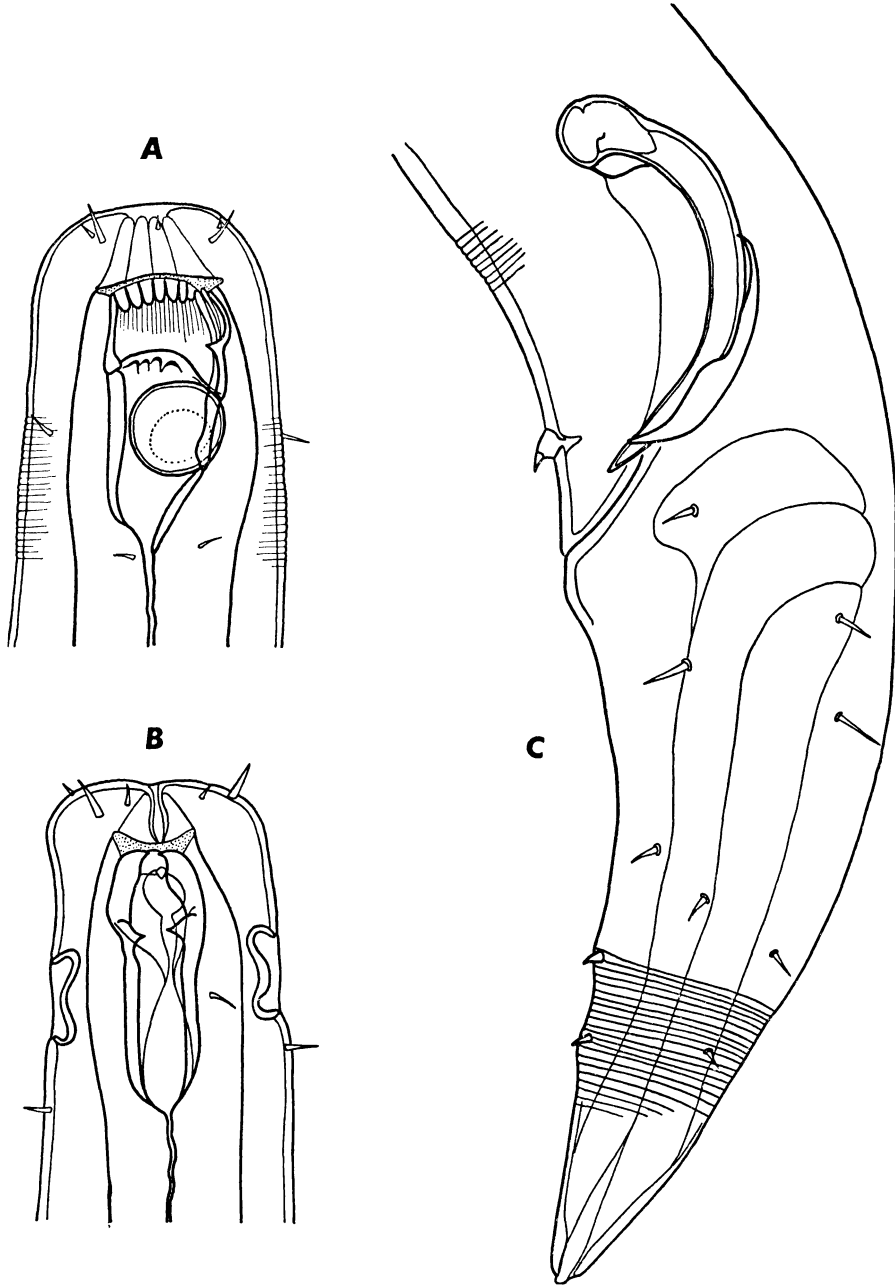


FIG. 2

Pseudonchus northumbriensis sp. nov.

A: Lateral view of male head; B: Dorsal view of male head; C: Lateral view of posterior end of male.

present in the foregoing species. The amphids are also different in form, not consisting of a single loop but being circular with a small break dorsally and with a raised central area. The oesophagus has a rather indistinct pyriform posterior bulb.

Male.

The tail is short and conical and bears numerous setae (Fig. 2, C). The spicules are paired, equal and arcuate, cephalated proximally and pointed distally. They bear thin ventral alae. The gubernaculum is crescentic in shape. There are no true pre-cloacal supplements present, but there is a large double jointed papilla positioned ventrally just in front of the cloaca. The tail bears two ventral swellings each with a pair of stout conical subventral setae, and these probably have a copulatory function. The testes are indistinct.

Remarks.

This species is characterised by the stout paired spines on the tail, the form and size of the amphids, the relative lengths of the cephalic setae and the structure of the spicules.

DISCUSSION

Currently six species of marine nematodes have been referred to the genus *Pseudonchus*, namely *P. rotundicephalus* Cobb, 1920 (type species), *P. norwegicus* Allgén, 1933, *P. symmetricus* De Coninck, 1942, *P. donsi* Allgén, 1948, *P. longus* Allgén, 1949 and *P. kosswigi* Murphy, 1964. Gerlach (1952) describes a species from the Mediterranean as *P. rotundicephalus* but this is clearly not conspecific with the type. Gerlach's specimens have looped amphids as found in *P. deconincki*, whereas *P. rotundicephalus* has rounded amphids as in *P. northumbriensis*, although Cobb shows in his figure that a faint multispiral is present in the central region of these structures. Further, Gerlach's specimens have distinct mesostomal teeth as in *P. deconincki* whereas the type has a series of ridges as in *P. northumbriensis*. Finally, the spicules of the Mediterranean species are strongly cephalate proximally, whereas Cobb states that they are "rather uniform" in the type. It is therefore proposed that Gerlach's species be renamed *P. gerlachi* nom. nov.

The males of only four species have been described prior to this paper and these four, *P. rotundicephalus*, *P. symmetricus*, *P. kosswigi* and *P. gerlachi* are considered valid species. *P. donsi* and *P. longus* are described from females only, and the illustrations and descriptions given by Allgén, as Murphy (1964) points out, are so poor that it will be impossible to identify them if found again. I therefore propose that they both be treated as species dubiae. *P. norwegicus* is described by Allgén (1933 and 1946) from juveniles only, and although a female has been recorded from Kiel Bay by Gerlach (1958) and is described by Murphy (1964) as *Pseudonchus* sp., it certainly cannot be

ascribed to *P. norwegicus*. I therefore similarly propose to treat *P. norwegicus* as a species dubia. The *Pseudonchus* sp. of Murphy (loc. cit.), described from the unpublished data of Gerlach, is most similar to *P. deconincki*, but differs from it in that the mesostomal structures are fused into a single ventral ridge.

Murphy suggests that the best character for delimiting species is the number of odontia at the anterior end of the buccal cavity. However, this number can only be determined accurately in en face views of the head, and since specimens of *Pseudonchus* are of such rare occurrence it is usually inadvisable to destroy type material for such preparations. The characters most useful are therefore the form and size of the amphids, and the copulatory apparatus of the male. A key to the valid species based on these characters is given below:

1. a. Amphids form a single open loop 2
 - b. Amphids circular or multispiral 5
2. a. Amphids 1/4 of the corresponding head diameter wide or less 3
 - b. Amphids (in male) 1/3 of head diameter wide or more 4
3. a. Male with prominent swollen pre-cloacal supplements and genital setae
Pseudonchus symmetricus
 De Coninck, 1942.
 - b. Male with no supplements or genital setae
P. kosswigi Murphy, 1964.
4. a. Male with tubular pre-cloacal supplements, spicules with rounded cephalisations proximally
P. deconincki sp. nov.
 - b. Male with no supplements, spicules with squared proximal ends
P. gerlachi nom. nov.
 = *P. rotundicephalus*
 Gerlach, 1952, nec. Cobb, 1920.
5. a. First circle of cephalic sense organs papillose, spicules uniform, no copulatory setae on tail
P. rotundicephalus
 Cobb, 1920.
 - b. First circle of cephalic sense organs setose, spicules cephalate proximally, paired copulatory setae on tail
P. northumbriensis, sp. nov.

Murphy (1964) has erected the genus *Cheilopseudonchus* to accommodate *Pseudonchus symmetricus* because of supposed differences in buccal cavity structure from *Pseudonchus*, and the presence of pre-cloacal supplements in the male. The finding of pre-cloacal supplements in *P. deconincki* sp. nov. invalidates this latter distinction, and further it should be stated that there is no basic difference in head structure between these nominal genera. In a lateral view of the head both the species described above are very similar in buccal cavity

structure to *P. gerlachi* and to the *Pseudonchus* sp. of Murphy (1964). From the dorsal aspect, however, the prostoma takes on the appearance of two powerful opposing mandibles considered by Murphy to characterise *Cheilopseudonchus*. The cheilorhabdions described by De Coninck for *P. symmetricus* may in fact be the muscle blocks noted in the two species described above, but even if they are cuticular in origin their presence does not warrant generic separation. *Cheilopseudonchus* is therefore proposed as a synonym of *Pseudonchus*.

Acknowledgements

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Summary

Description of *Pseudonchus deconincki* sp. nov. and *northumbriensis* sp. nov. Key to the species of *Pseudonchus*. A new name, *P. gerlachi*, is proposed for *P. rotundicephalus* Gerlach, 1952. *Cheilopseudonchus* Murphy, 1964, is shown to be a synonym of *Pseudonchus*.

Zusammenfassung

Die Beschreibung von *Pseudonchus deconincki* sp. nov. und *P. northumbriensis* sp. nov. ist gegeben. Ein Schlüssel für die Arten von *Pseudonchus* ist ausgearbeitet. Eine neuer Name, *P. gerlachi* ist für *P. rotundicephalus* Gerlach, 1952, vorgeschlagen worden. *Cheilopseudonchus* Murphy, 1964, ist synonym mit *Pseudonchus*.

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