BULLETIN
ZOOLOGISCH MUSEUM

UNIVERSITEIT VAN AMSTERDAM

Vol. 3 No. 4 10-IV-1973

NANNALLECTO FUSII N. GEN., N. SP. A COPEPOD PARASITIC ON THE PTEROPOD, *PNEUMODERMOPSIS*

Jan H. Stock

ABSTRACT

A new genus and species of copepod crustacean, *Nannallecto fusii*, is recorded parasitic on the pteropod, *Pneumodermopsis (Pneumodermopsis) paucidens* (Boas, 1886), from a surface tow off French Guiana. The parasite is obviously related to the only other adult copepod associate known from pteropods, the recently discovered *Micrallecto uncinata* Stock, 1971, and it appears to belong likewise to the family Splanchnotrophidae. The present new genus differs chiefly from *Micrallecto* in the presence of strong maxillipeds.

INTRODUCTION

During the study of plankton from the Caribbean area, Dr. S. van der Spoel and his team members (Institute of Taxonomic Zoology, University of Amsterdam) discovered a copepod parasitic on the pteropod *Pneumoderma*. This curious parasite was described by Stock (1971) as *Micrallecto uncinata*, and appeared to belong to the Splanchnotrophidae, a family of copepods known to be parasitic in nudibranchiate molluscs. To my surprise, Dr. van der Spoel recently found another copepod parasitic on a pteropod, viz. on a host related to the first one, *Pneumodermopsis (Pneumodermopsis) paucidens* (Boas, 1886), which belongs - like *Pneumoderma* - to the Gymnosomata. This second pteropod parasite is certainly related to the first one, especially in its general aspect, as well as in the morphology of its anterior and posterior antennae, and that of the first pair of legs. In other respects, it differs so markedly, however, that the creation of a new genus for these animals is necessary.

Nannallecto n. gen.

Diagnosis.- Female. Like *Micrallecto*, but with a pair of very strong, distally prehensile, maxillipeds, which are proximally fused in the mid - ventral line. Only one pair of legs present. Caudal rami reduced to two rugose patches near the animal's posterior end.

Type-species.- *N. fusii* n. sp., associated with gymnosome pteropods.

Etymology.- *Nannallecto*, gender feminine, from νανnος (= dwarf) and ἀλληκτω (one of the three furies, a nasty creature pestering her victims, amongst others with her long claws); *fusii*, a latinization of the name of the scientist who discovered the parasite, Dr. S. van der Spoel.

Nannallecto fusii n. sp.

Material examined.- 6 ♀ (including 1 ♀ holotype). CICAR 15 Delta (001), Station 99:07° 09'8 - 07° 11'5 N, 53° 37'2 - 53° 33'2 W, Plymouth net, depth of gear 1 m, depth of bottom 130-140 m, 23/24 Aug. 1970, time 22.00 - 00.35, surface temperature 28.8° C. The Material is deposited in the Zoölogisch Museum Amsterdam, cat. no. Co. 102.398.
Host.- *Pneumodermopsis (Pneumodermopsis) paucidens* (Boas, 1886).

Description.- Female. Body (figs. 1, 2) length 310-320 µ. The cephalosome is rather clearly demarcated from the unsegmented posterior part of the body.

The anterior antenna (fig. 3) consists of 2 segments. Segment 1 is unarmed. The distal part of segment 2 is constricted, but does not seem to be articulated with the wider basal part. Segment 2 bears 3 longer and about 7 smaller spines.

The posterior antenna (figs. 4, 5) is 2-segmented. Segment 1 is unarmed, segment 2 bears two terminal "crowns" of spines, 21 to 27 spines in each "crown".

The oral area (fig. 6) is strongly sclerotized, tripartite Its posterior edge (lower lip ?) bears 3 teeth on either side.

The mandibles (fig. 6) are implanted on the oral sclerotizations, and consist of a widened basal portion and 2 distal claws.

Anterior maxilla apparently lacking, as in all Splanchnotrophidae.

The posterior maxilla (figs. 7, 8) is a 3-dimensional structure, consisting of a large, fleshy basal part and a distal hook, which is provided with an auxiliary claw at its convex margin.

The posterior maxilla is implanted laterally to, and at some distance of, the oral area.

At the boundary of cephalosome and body, the heavy maxillipeds (fig. 9) are implanted. The basal segment of the left and right maxilliped are fused in the body axis, from the implantation to about 2/3 of their lengths. The terminal segment is free; it is rectangular in outline and forms distally a chelate structure, with a bicuspidate thump and a simple finger. The maxilliped is the largest appendage in this species.

The sack-like, unsegmented remaining part of the body is filled with 3 to 7 eggs. This section bears, slightly behind the middle, a pair of legs (fig. 10), consisting of an indistinctly subdivided, unarmed, basal portion, and a slender distal portion, bearing an oval, proximal lobe, and a similar, but slightly larger, distal lobe. Each lobe (endopod and exopod ?) is indistinctly rugose at the tip.

No trace of a second pair of legs has been found.

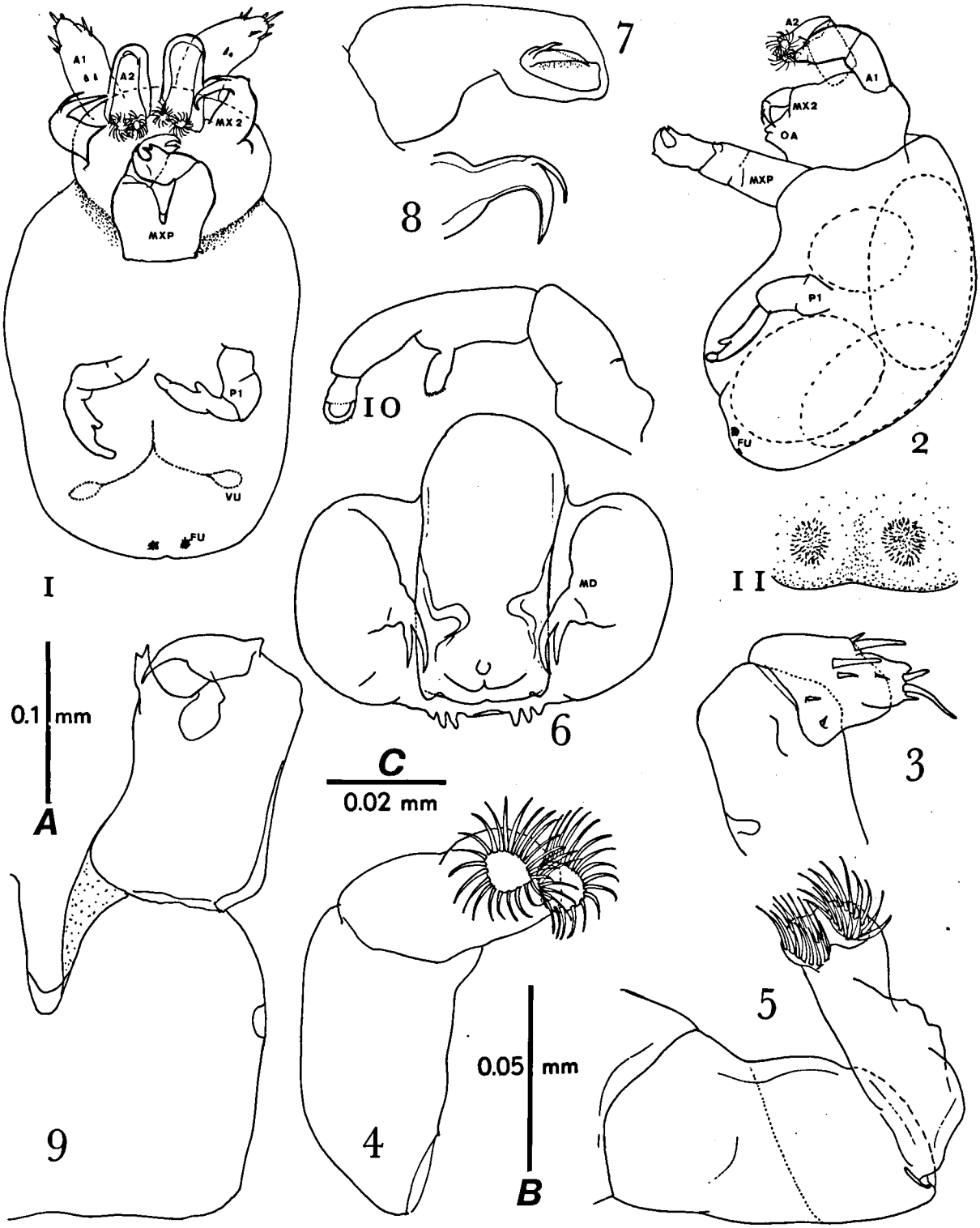
The vulval area (VU in fig. 1) is faintly indicated.

At the posterior end of the body, two circular rugose patches represent presumably the rudiments of the caudal rami (fig. 11).

DISCUSSION

There can be little doubt that the present parasite is related to *Micrallecto*. The overall resemblance in body shape, as well as in the morphology of both the antennae and of leg 1, is very striking. On the other hand, this parasite differs at the first sight from *Micrallecto* in the presence of a pair of large maxillipeds, not present in any other member of the Splanchnotrophidae, to which *Micrallecto* tentatively is assigned (Stock, 1971). Further differences, of less importance, with *Micrallecto* are the absence of a rudimentary second leg, the somewhat different mandibular armature, the weaker development of the auxiliary claw on the second maxilla, and the transformation of the furca into rugose patches.

The present animals, though adult judging from the presence of eggs in the ovaries, are less than half the size of *Micrallecto*. The proposed



Figs. 1-11. *Nannallecto fusii* n. gen., n. sp., ♀. 1, entire body, ventral (scale A); 2, entire body, from the left (A); 3, first antenna (B); 4, 5, second antenna, under different angles (C); 6, oral area, ventral (C); 7, second maxilla, in perspective view (C); 8, claw of second maxilla, flattened under cover glass (C); 9, maxilliped (C); 10, first leg (B); 11, furcal area (C). (Abbreviations: A1= first antenna; A2= second antenna; FU= furcal rudiments; MD= mandible; MXP= maxilliped; MX2= second maxilla; OA= oral area; P1 = first leg; VU= vulval area).

generic name, *Nannallecto*, alludes to this small size. The sclerotization of the animal and of its appendages (with the exception of the oral area) is particular weak. This, in combination with the minuteness of the various parts, made dissection, handling, and observation of them a matter of some difficulty. The present observations, made after dissected specimens mounted in Reyne's modification of Faure's medium, as well as in lactophenol, and supplemented by observations in toto by the "hanging drop method" (Humes & Gooding, 1964), in all cases under oil-immersion and interferrence contrast, are published here, notwithstanding the limitations mentioned.

Apart from *Micrallecto* and *Nannallecto*, no copepod associates of gymnosome pteropods are known to me. Thecosome pteropods are reported, however, as intermediate hosts for developmental stages of certain lernaeid copepods (Franc, 1949: 226; Rose & Hamon, 1952: 219-230; Rampal, 1966: 379-380). Neither the final stage, nor the final host of these lernaeid larvae are known, but the final host may safely be assumed to be a fish. The published records are all from the western Mediterranean (Algeria, southern France), and a variety of thecosome pteropods are reported as intermediate hosts (*Creseis acicula* Rang, *C. virgula* Rang, *C.* spec., *Styliola subula* Quoy & Gaimard, *Clio* spec., *Cavolina* spec.). The close resemblance of these copepods to the developmental stages of *Lernaeocera* (cf. Sproston, 1942), and much less to those of *Caligus*, makes me think that a lernaeid copepod is concerned, and not a caligoid (as Rampal, admittedly rather lightly, suggested). Rose & Hamon, 1952, were likewise struck by the resemblance to *Lernaeocera*, but also discussed at some length the possibility that corycaeid copepod developmental stages could be concerned. The latter supposition, however, seems excluded, since the stages described by Rose & Hamon have a buccal complex of the siphonostome type (as in the Lernaeidae) and not of the gnathostome or poecilostome type (as in the Corycaeidae).

REFERENCES

FRANC, A., 1949. Hétéropodes et autres Gastropodes planctoniques de Méditerranée occidentale. Journ. de Conchyl., 89 (4): 209-230.
HUMES, A.G. & R.U. GOODING, 1964. A method for studying the external anatomy of copepods. Crustaceana, 6 (3): 238-240.
RAMPAL, J., 1966. Pêches planctoniques, superficielles et profondes, en Méditerranée occidentale, 6. Ptéropodes. Rev. Trav. Inst. Pêches marit., 30 (4): 375-383.
ROSE, M. & M. HAMON, 1952. Sur un Copépode parasite de certains Mollusques Ptéropodes Thécosomes. Ann. Sci. nat., (11) 14 (Zool.): 219-230.
SPROSTON, N.G., 1942. The developmental stages of Lernaeocera branchialis (Linn.). J. mar. biol. Ass. U.K., 25 (3): 441-466.
STOCK, J.H., 1971. Micrallecto uncinata n. gen., n. sp., a parasitic copepod from a remarkable host, the pteropod Pneumoderma. Bull. zool. Mus. Univ. Amsterdam, 2 (9): 77-81.

Dr. J.H. STOCK
Professor in Systematic and Geographic Zoology
Institute of Taxonomic Zoology, University of Amsterdam
Plantage Middenlaan 53
Amsterdam-C. - The Netherlands

Received: 2 February 1973.