

BEAUFORTIA

BULLETIN ZOOLOGICAL MUSEUM

UNIVERSITY OF AMSTERDAM

Vol. 52, no. 3

August 15, 2002

CYLINDRARCTURUS LONGITELSON N. SP. FROM THE SOUTH SHETLAND ISLANDS, ANTARCTICA (ISOPODA, ANTARCTURIDAE)

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ABSTRACT

Cylindrarcturus longitelson n. sp., from north of King George Island, South Shetland Islands, is the second species of *Cylindrarcturus*, which is rediagnosed. The new species can be distinguished from *C. elongatus* Schultz, 1981 by its longer pleotelsonic spine, the smooth, unsculptured head and pereonites, and differences in antennula and maxilliped.

INTRODUCTION

Cylindrarcturus Schultz, 1981 was originally described as a member of Arcturidae Bate & Westwood, 1868, but the genus was recently placed by Poore (2001) into Antarcturidae. The type specimen of *Cylindrarcturus elongatus* was collected from Anvers Island (South Shetland Islands) from 64–89 meters. Further specimens of the genus were compared with this material and turned out to be different in some characters. Hence, a description of the new material is presented, and the genus *Cylindrarcturus* is rediagnosed.

MATERIALS AND METHODS

During the expedition ANT XV-3 with RV 'Polarstern', samples were taken by means of an Agassiz trawl (AGT) and other gear, the two specimens, however, were sampled with the Agassiz

trawl. The material was sorted on deck or later with a Wild M5 dissecting microscope from samples, fixed in formaldehyde (4%) and later transferred into ethanol (70%). The taxonomic drawings were prepared using a Leica MZ12 dissecting microscope equipped with a camera lucida.

Type material of *C. elongatus* Schultz, 1981 was borrowed for comparison from Dr B. Kensley, Smithsonian Institution. Measurements were made according to Hessler (1970) and Wilson & Hessler (1980). Spine-like setae equipped with a sensory seta are named 'sensory setae' according to Brandt (1988) in the description.

The specimens are deposited in the Zoological Museum of Hamburg (ZMH).

The following abbreviations are used in the text and figures: A1 = antennula, A2 = antenna, LA = labrum, lMd = left mandible, Mx1 = maxillula, Mx2 = maxilla, Mxp = maxilliped, P1-7 = pereopod 1-7, Plp 1-5 = pleopod 1-5, rMd = right mandible, Urp = uropod.

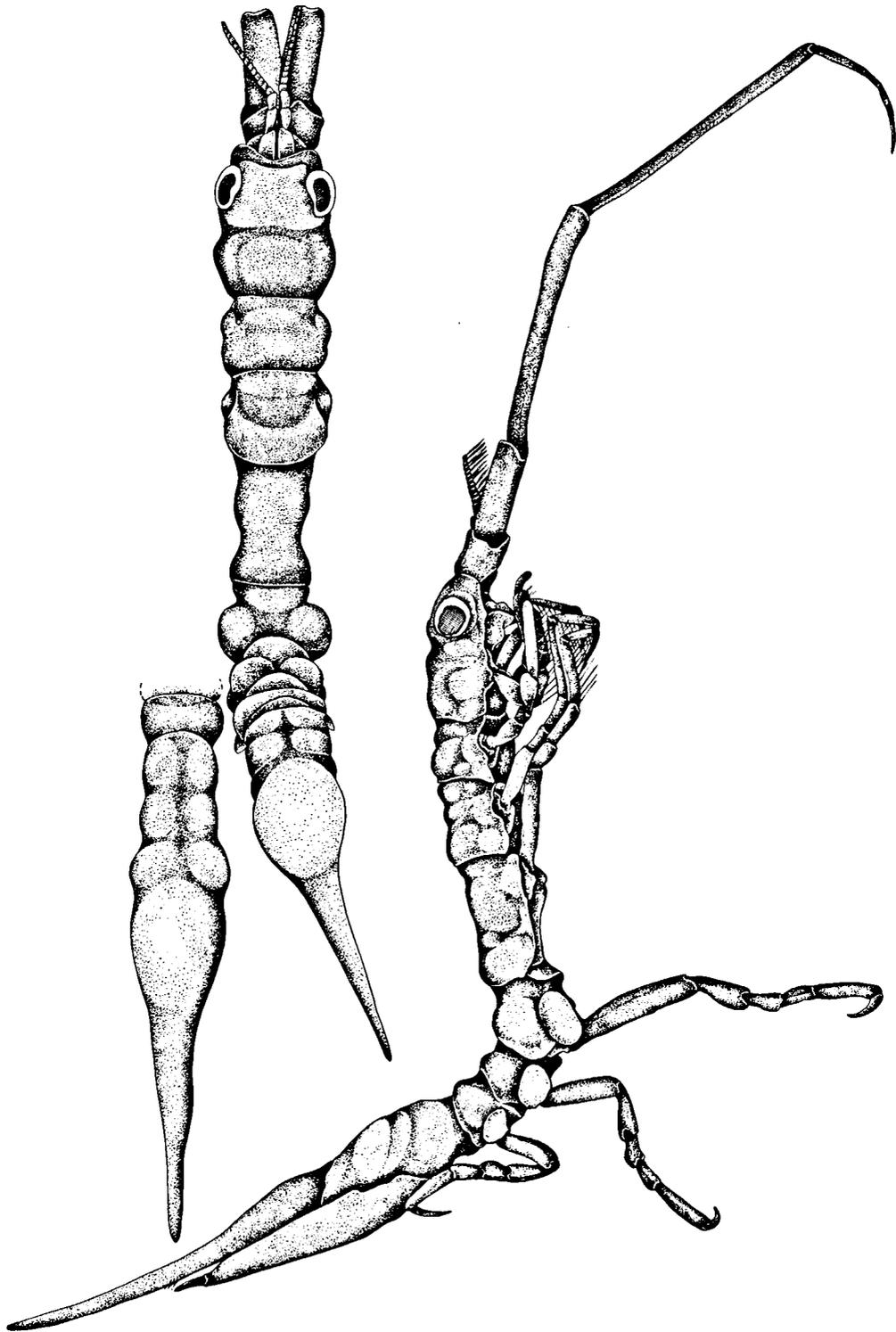


Fig. 1. *Cylindrarcturus longitelson* n. sp., holotype male of 23 mm length in dorsal and lateral view. The animal is bent at an almost 90° angle (see Fig. 2), therefore two perspectives of the pleotelson are presented in dorsal view. Left illustration of the pleotelson is the dorsal view in the exact plain, right pleotelson illustrates proportions differently, due to the angle of the bent body.

SYSTEMATICS

Suborder Valvivera Sars, 1882

Family Antarcturidae Poore, 2001

Cylindrarcturus Schultz, 1981

DIAGNOSIS (APOMORPHIC CHARACTERS PRINTED IN *ITALICS*). - Ventral coxal plates 1-7 present, extending to midpoint, tergite obsolete. Penes flattened, with common base on membrane on pleonite 1. Pleotelson underside vaulted. Coxal keys present. Large lateral eyes, convex, not much protruding. Body smooth, elongate, without dorsal, coxal or supracoxal spines. Cephalothorax fused with pereonite 1. *Pereonite 4 slightly longer than other pereonite segments. All pleonites fused, caudal part tapering into a long, terminal spine-like process.* Antenna two lengths shorter than length of body, five flagellar articles. Dactylus of pereopod 1 not swollen, though not very slender. *Dactylus of pereopods 2-4 without filter setae, distal claws elongate, almost as long as dactylus.* Uropods articulated lateral to margin of pleotelson. Uropod peduncle, size with extremely enlarged peduncle and small rami, exopod one-tenth of sympod length, endopod reduced.

REMARKS. - Schultz (1981) has only presented a very short and incomplete diagnosis of *Cylindrarcturus*. Wägele (1991) also referred to *Cylindrarcturus*, but without indication of affinities with other genera. Therefore the genus *Cylindrarcturus* is rediagnosed herewith. The genus can easily be distinguished from the other genera of the Antarcturidae (Poore, 2001) by the smooth body surface, the very long, acuminating spine-like pleotelson and the dactyli of pereopods 2-4 which do not bear filter setae, but have elongate distal claws, almost as long as dactylus. The only other genus of the Antarcturidae which also has an acute pleotelson tip (although much shorter) is *Acantharcturus* Schultz, 1981. Contrary to *Cylindrarcturus*, the body of *Acantharcturus* possesses long and slender spines dorsally on the body and can therefore not be misidentified.

***Cylindrarcturus longitelson* n. sp.**

Figs. 1-6

MATERIAL. - Holotype male, 19.5 mm length, ZMH

39948, AGT, station 338, date 20.III.1998, 417 m depth, 61° 33.9'S 58°12.2'W. Paratype female (ovigerous), >15 mm length (tip of pleotelson broken off), ZMH 39949, from type locality.

TYPE LOCALITY. - Antarctica, north of King George Island, South Shetland Islands, 417 m depth, 61° 33.9'S 58°12.2'W.

DESCRIPTION OF HOLOTYPE MALE. - Body (Fig. 1 in dorsal and lateral view) eight times as long as wide, dorsally smooth, without spines, only with some elevations on pereonites. Coxal plates small lobes, without setae. Eyes black in fixed condition, slightly protruding laterally. Head slightly narrower than first pereonite, fused with this pereonite to cephalothorax; frontodorsally smooth, with one medial rounded elevation in caudal half. All pereonites smooth, without spines. Pereonite 2 slightly shorter than and about as wide as pereonite 3, pereonite 4 narrowest and longest, 1.7 times as long as pereonite 3, like preceding pereonites with a caudal smooth elevation. Pereonites 5-7 slightly decreasing in length, pereonite 5 broadest of the posterior pereonites. All pleonites fused to pleotelson and slightly increasing in width. Pleotelson very long, 0.9 times as long as length measured from head to pereonite 7. Pleotelson with acute caudal spine, acuminating to caudal end. Uropod with very long sympodite and small exopodite, covering breathing chamber, 0.6 times as long as pleotelson.

A1 (Fig. 2) with three flagellar articles. First peduncular article broadest, with two small feather-like and one simple seta. Second peduncular article slightly shorter than first and less than half as wide, with five lateral feather-like setae. Third peduncular article shortest and narrowest, without setae. First flagellar article small, ring-like, bearing three feather-like setae, second article longest, as broad as third peduncular article, with 12 groups of two aesthetascs each and two simple setae. Following flagellar article small, knob-like, with two simple setae, one feather-like seta, and two long aesthetascs.

A2 (Fig. 2) with six peduncular and five flagellar articles. First peduncular article smallest, ring-like (not shown in illustration). Second peduncular article as short as first, without setae. Third peduncular article about as long as first and sec-

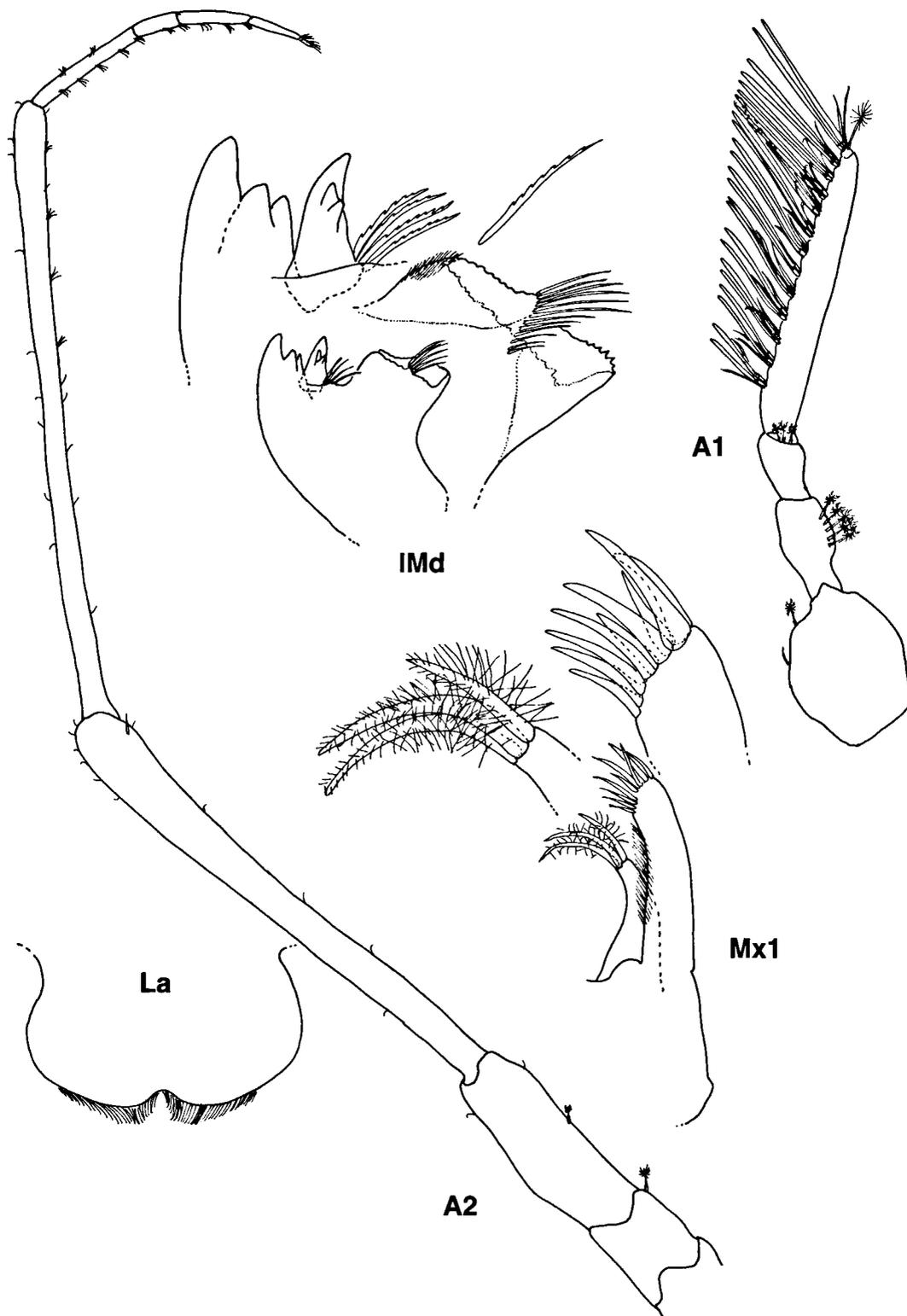


Fig. 2. *Cylindrarcturus longitelson* n. sp., holotype male, antennula, antenna, labrum, left mandible, maxillula.

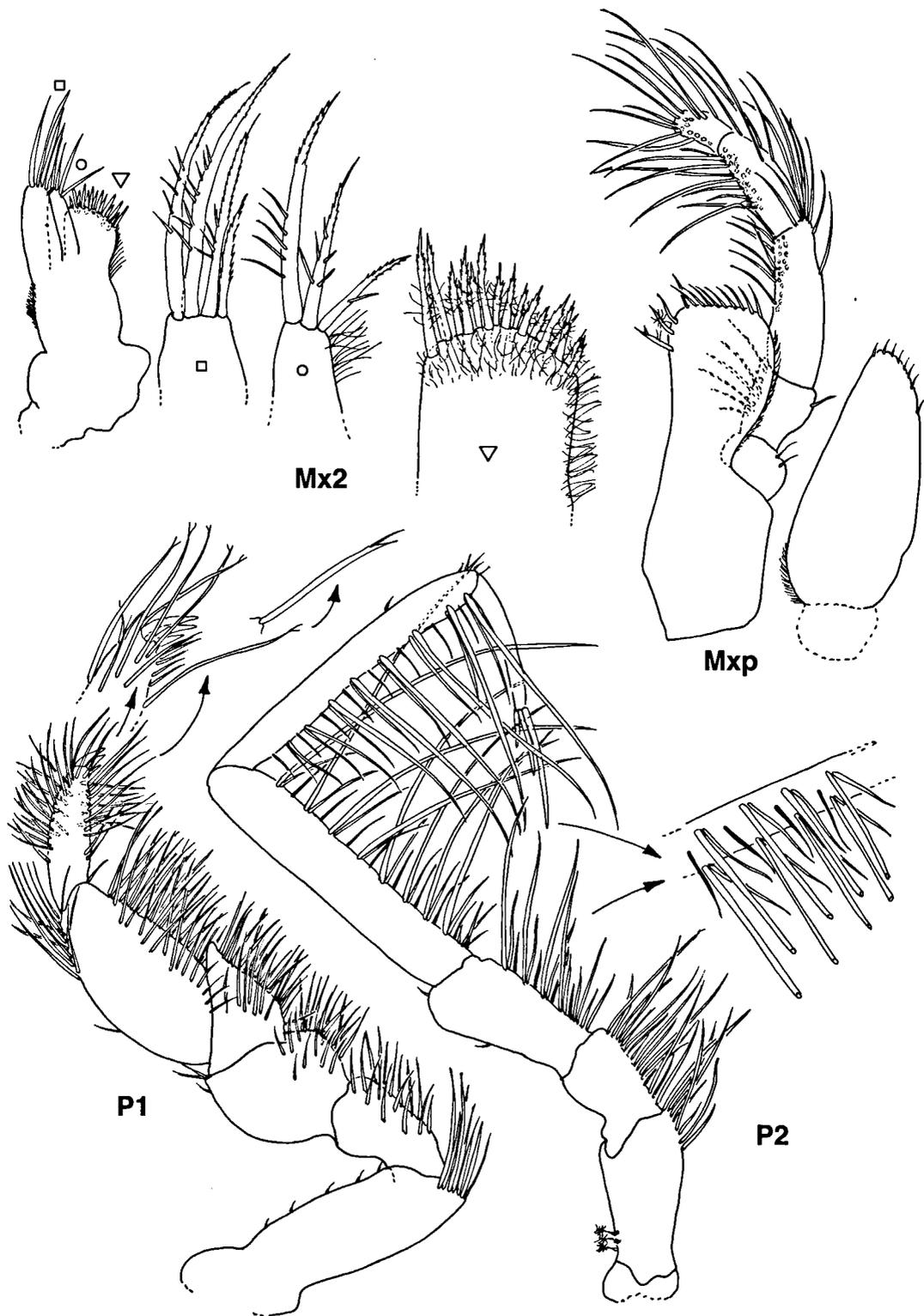


Fig. 3. *Cylindrarcturus longitelson* n. sp., holotype male, maxilla, maxilliped, pereopods 1, 2.

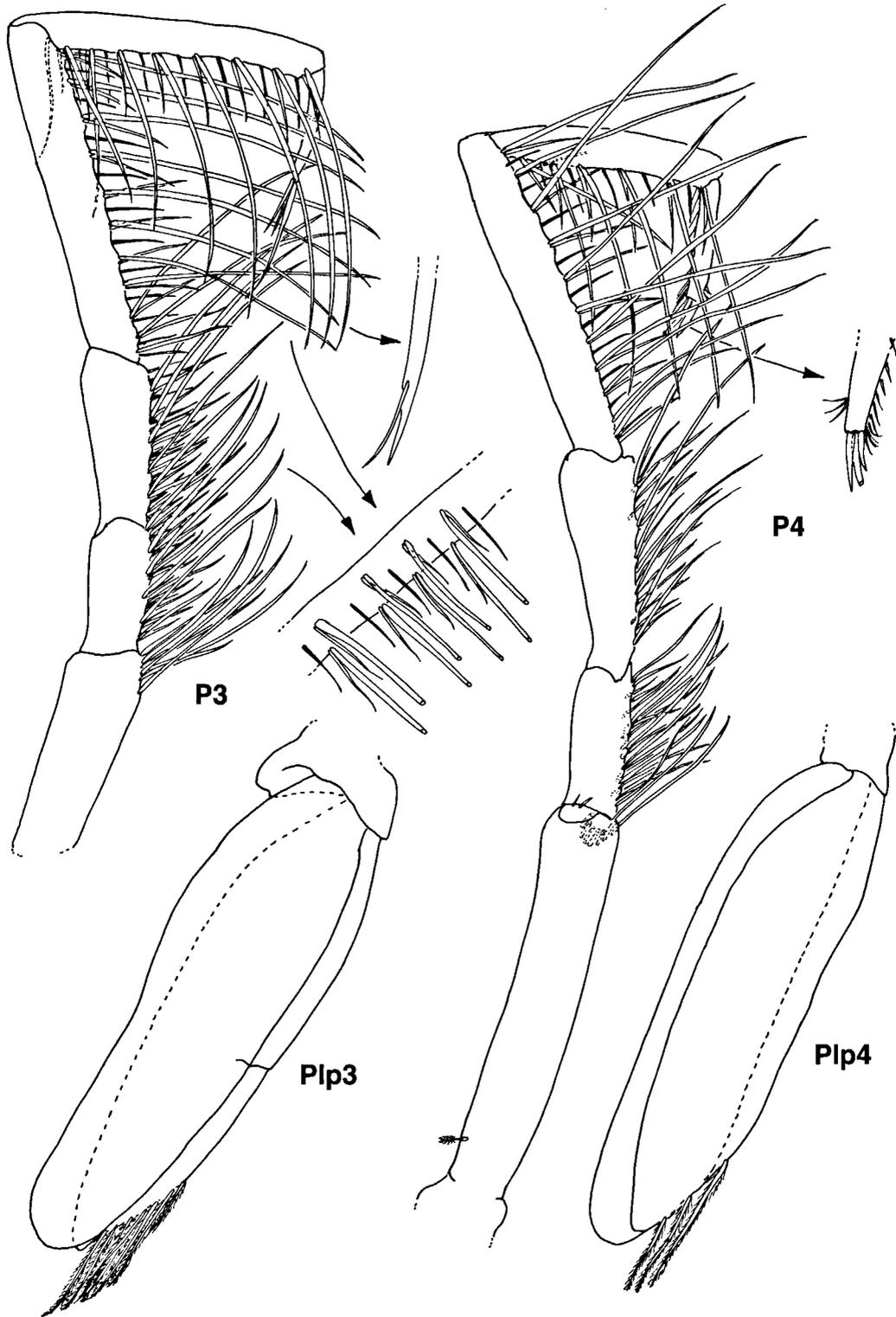


Fig. 4. *Cylindrarcturus longitelson* n. sp., holotype male, pereopods 3, 4, pleopods 3, 4.

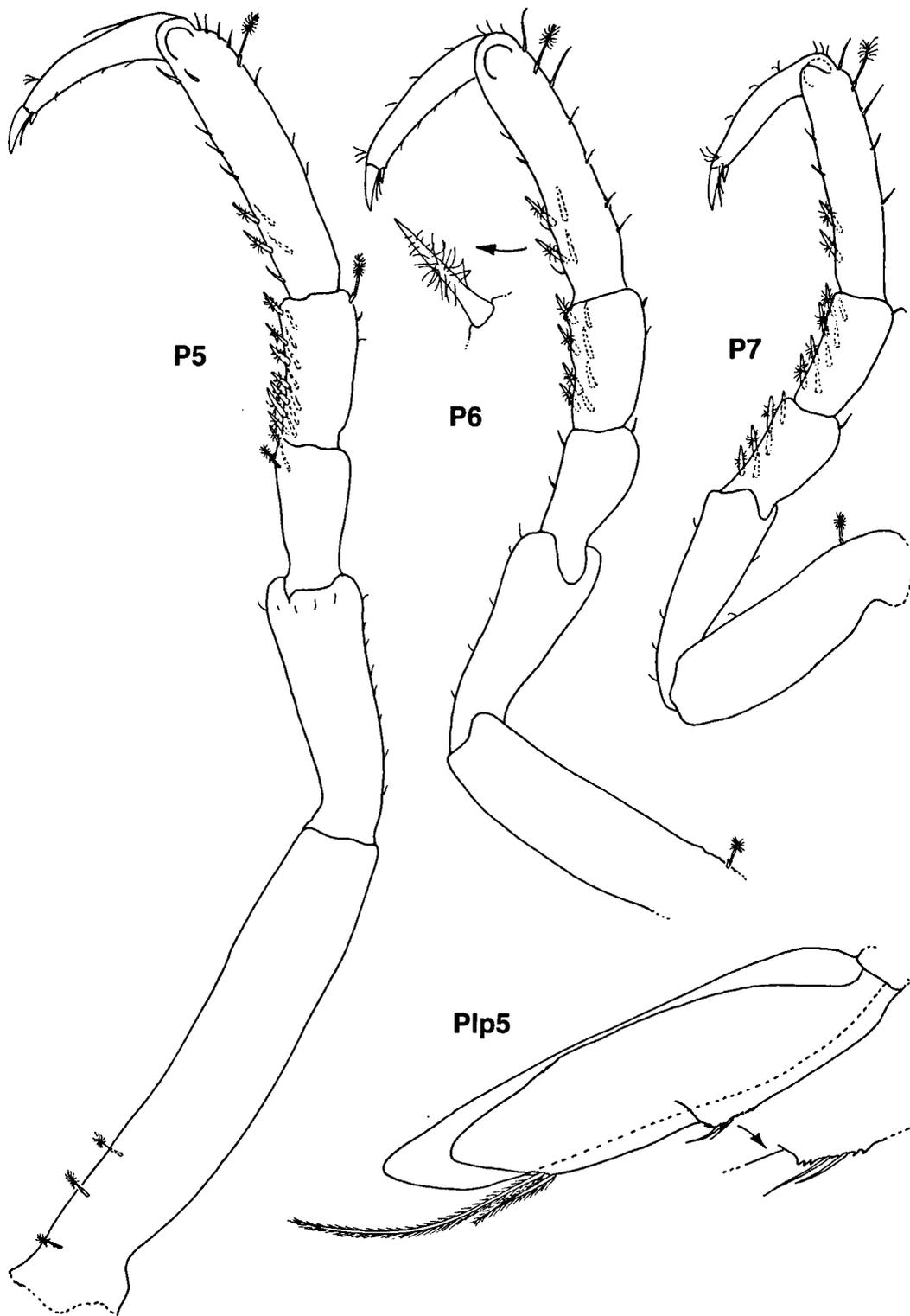


Fig. 5. *Cylindrarcturus longitelson* n. sp., holotype male, pereopods 5-7, pleopod 5.

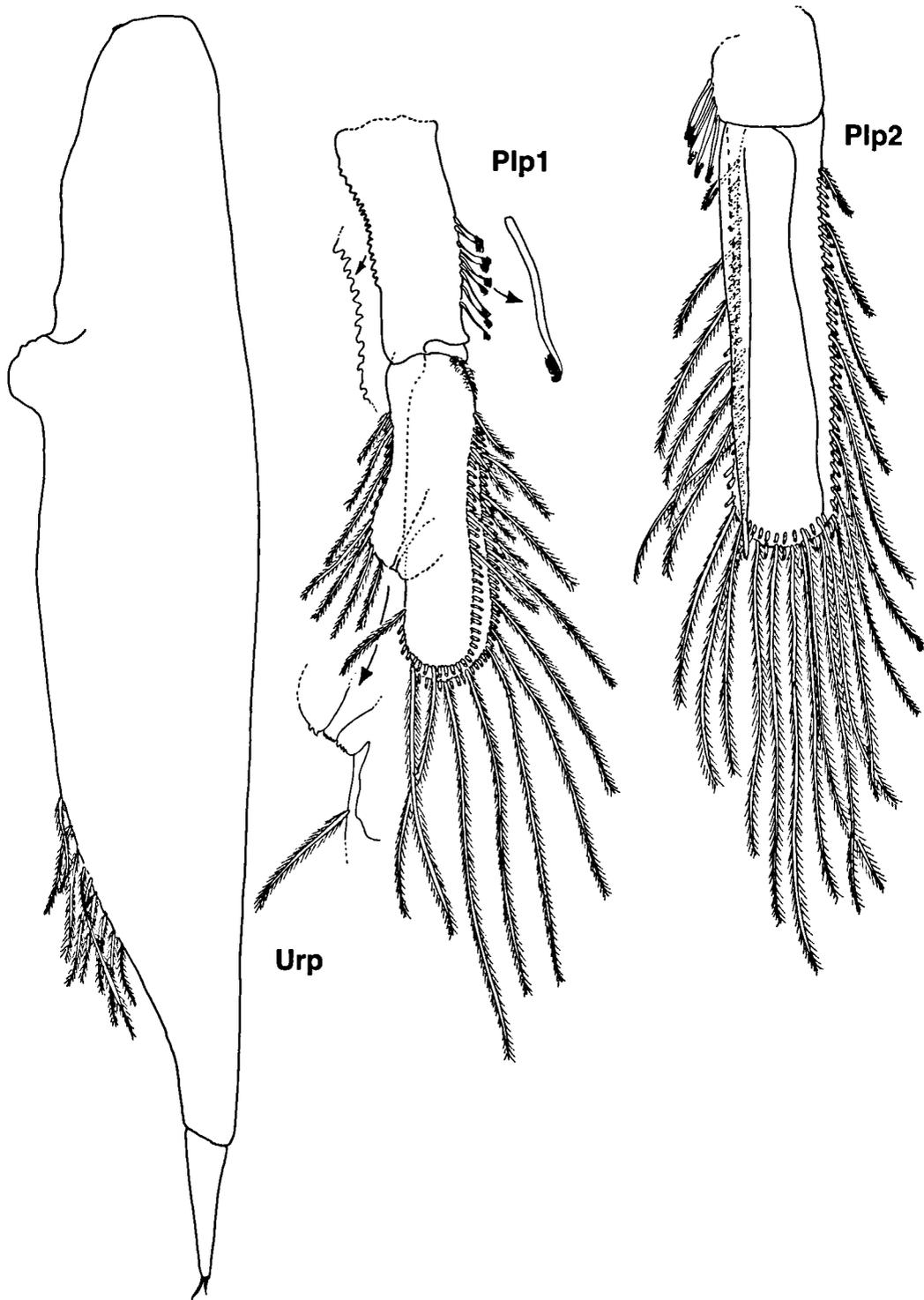


Fig. 6. *Cylindrarcturus longitelson* n. sp., holotype male, pleopods 1, 2, uropod.

ond together, with one distolateral feather-like seta. Fourth peduncular article as long as 1-3 together, with one lateral feather-like seta and few hair-like structures. Fifth peduncular article longer than articles 1-4 together, but narrower, only with small, fine hair-like structures. Sixth peduncular article even narrower than fifth, with few short simple setae, distolaterally arranged in groups of three. Following flagellar articles narrower, also bearing short simple setae arranged in groups of three, second flagellar article shortest, last one narrowest, bearing four simple short distal setae and three distolateral ones.

Left Md (Fig. 2) incisor with three teeth, lacinia mobilis shorter than incisor, bearing three teeth, spine row of four setulated setae, pars molaris broad, stout, with quadrangular triturative, grinding surface and a row of at least 12 simple setae. Mandibular palp absent. Right mandible was damaged in this specimen.

Mx1 (Fig. 2) inner endite width 0.8 outer endite width. Outer endite with nine strong spine-like serrated setae, inner endite with three long setose setae.

Mx2 (Fig. 3) consisting of three endites, innermost endite shortest and broadest, with two rows of distally serrate and medially setulate setae and long, simple, thin hair-like setae, medial endite with three and outer endite with four serrated setae of different lengths.

Mxp (Fig. 3) epipod reaching to one-third of palpal article 3 length, distally slightly rounded, roughly of oval shape. First palp article shortest, ring-like, with two simple setae; second palp article about as broad as first, and almost twice as long as first, with many simple medial setae and one lateral one; third article slightly narrower than second, with many distomedial simple setae, two simple lateral ones and five distolateral ones; fourth article slightly shorter than third, with medial and distolateral simple long setae, fifth article only slightly longer than first, with many long simple medial, distal and lateral setae. Palp almost 10 times as long as wide, 3.1 palp width. Epipod twice as long as wide. No coupling hooks present, endite with two setulate and several simple setae.

Pereopods 1-7 (Figs. 3-5) dissimilar. Pereopod 1 (Fig. 3) smaller than the other pereopods (2-7), all articles densely setose, ventrally and especially

distoventrally with long sensory setae. Basis about as long as propodus, ischium narrower and shorter than basis. Basis with dorsal short simple setae and a distoventral semicircular row of long sensory setae. Merus much broader than ischium, of about the same length, also with ventral long sensory setae. Carpus of trapezoid shape, carpus, merus, and propodus with medial row of long sensory setae besides ventral brush of simple setae. Propodus distally also with tuft of many densely inserted simple setae. Dactylus about as long as merus and carpus, with three distal claws and a dense brush of long sensory setae all around the article, but only in the upper three-fourth of it, ventral fourth bare.

Pereopods 2-4 (Figs. 3, 4) long and slender, rather similar in shape, increasing in length from 2-4. Dorsal margins without spines, only rarely with short fine simple setae. Basis of pereopod 2 shortest, of pereopod 4 longest, of second with three proximodorsal feather-like setae, of fourth with one feather-like seta. Basis distoventrally with long sensory setae, and ischium equipped with these setae on total length of article ventrally. Merus longer than ischium, with two rows of groups of a long and a short seta and a shorter medial simple seta between. Merus about half as long as carpus, carpus about as long as propodus, equipped with the same arrangement of setae. Dactylus three-fourth of length of propodus, of pereopod 2 with three claws of different lengths, anterior claw as long as dactylar article, medial claw about half size of outer claw, posterior claw shortest, in pereopod 3 medial and posterior claw about the same size, outer claw as long as in pereopod 2, in pereopod 4 anterior claw much shorter inner one broken, ventral one small.

Pereopods 5-7 (Fig. 5) decreasing in length from 5 to 7. Basis of pereopod 5 longest, of pereopod 7 shortest, about as long as propodus in pereopods 6 and 7, in 5 longer, proximodistally with one to three feather-like setae, ischium about two thirds of length of basis, only with fine hair-like setae, merus slightly more than half as long as ischium, with ventral sensory and setulated setae in two rows. These two rows of setae are also present on carpus, which is about as long as merus; on carpus these ventral two rows of sensory, setulate setae are most dense, varying in number between four (P6 and 7) and seven (P5) in each

row. Propodus about as long as merus and carpus together, with two of these sensory, setulate setae proximoventrally, distoventrally with short simple setae. Dactylus slightly more than half as long as propodus, only with simple short setae and a dorsal and shorter ventral claw bearing two setae of different length in between, distodorsally with a group of three simple setae.

Pleopod 1 (Fig. 6) sympod of pereopod 1 three times longer than of pereopod 2, laterally with small, teeth-like protrusions, medially with nine coupling setae with hooked, setulated brush-like tips, exopod only slightly longer than endopod, exopod laterally and apically with long plumose swimming setae, on endopod also on medial margin besides apical and lateral margins. Endopod proximally broader than exopod, endopod with after two thirds of length medially widening basal lobe and a groove running from this edge to the distolateral margin. Sympod of pleopod 2 (Fig. 5) medially with five coupling setae, medial margin smooth. Exopod margin with long plumose swimming setae, on endopod only apically and medially, stiletto-like appendix masculina, only slightly surpassing endo- and exopod in length, apex acute.

Rami of pleopods 3-5 (Figs. 4, 5) very similar, with very short sympod and few plumose setae only on exopods, seven plumose setae on pleopod 3, three on pleopod 4, and only two on pleopod 5, inner one more than twice as long as outer one.

Uropod (Fig. 6) uniramous, sympod surface smooth, sympod with nine plumose setae on distolateral margin. Exopod one tenth as long as sympod, triangular, with two short simple apical setae, endopod absent.

DESCRIPTION OF SEXUAL DIMORPHISMS OF OVIGEROUS PARATYPE FEMALE. - Very similar to male, but few characters differ. Fourth pereonite of female slightly shorter than of male, only slightly longer than third pereonite and broader than third pereonite. Antennula also with lateral row of five feather-like setae in lateral margin of second peduncular article, and first flagellar article with three feather-like setae, however, flagellum with less aesthetascs, only nine in total, one on last knob-like article and four pairs of two aesthetascs on last but one article.

Fourth pereopod of female with three dactylar

claws as well, outer claw as long as dactylus, medial claw half as long as outer claw, inner claw a third as long as medial claw, and fewer ventral simple setae (four), these were broken off in the male, therefore the length of the males claws could not be measured. Pleopods 1 and 2 of female normal, not sexually dimorphic, also with a fringe of long plumose setae. Other differences could not be discerned, tips of uropods were broken off on both sides.

REMARKS

The most similar specimens to *C. longitelson* n. sp. bear an acute spinuous pleotelson. These belong to the type species, *Cylindrarcturus elongatus* Schultz, 1981, material of which was examined (USNM 181258, holotype), from the South Shetland Islands, off Anvers Island, 62°19.18'S 59°11.48'W, 64-89 m depth. Additional material of *Cylindrarcturus elongatus* Schultz, 1981 studied was an ovigerous female of 20 mm length (ZMH 39940), from northwest of Elephant Island (station ANT XIX-3, PS61/064-1), 03.02.02, 60°49.42'S 55°39.56'W - 60°49.87'S 55°37.26'W, 453-456 m, bottom trawl.

The new species was similar in the shape of its body, it also possessed a very long terminal spine on the pleotelson. *Cylindrarcturus elongatus* Schultz, 1981, however, has a comparatively shorter pleotelson with a spine, which is 0.4 as long as the body length, whereas it is 0.5 as long as the body length in *C. longitelson* n. sp. The long acute spine in *C. longitelson* n. sp. is more than half as long as proximal bulbous part of telson (without fused pleonites), whereas this is less than half as long in *C. elongatus*. The head of *C. longitelson* n. sp. is smooth, unsculptured, that of *C. elongatus* bears two pairs of mediolateral rounded flat elevations, which are clearly visible between the eyes. The eyes of *C. longitelson* n. sp. are a third larger than those of *Cylindrarcturus elongatus*. Pereonites 1-4 of *C. longitelson* n. sp. are smooth and do not bear frontolateral elevations as in *C. elongatus*; the fourth pereonite of the male of *C. longitelson* n. sp. is 1.5 as long as that of *C. elongatus*. The first peduncular article of the antennula of *C. longitelson* n. sp. is broad, almost rounded, whereas this is quadrangular and narrower in *C. elongatus*, and the last flagellar article of *C. longitelson* n. sp. bears

more than twice as many aesthetascs (13 pairs) than that of *C. elongatus*. The maxillipedal palp of *C. longitelson* n. sp. is more slender (less than half as broad as endite) than that of *C. elongatus* (more than half as broad as endite).

ACKNOWLEDGEMENTS

The author is very grateful to the crew of the RV 'Polarstern' for logistic help during the expedition ANT XV-3. Ms Monika Hänel kindly inked the dorsal and lateral views of the animals. Dr Brian Kensley, Smithsonian Institution, kindly provided the type material of *C. elongatus* for comparison.

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Received: November 16, 2001