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REDESCRIPTION OF *ECHINOMUNNA HORRIDA* VANHÖFFEN, 1914, A HIGHLY DERIVED AND RARE SPECIES FROM THE ANTARCTIC (CRUSTACEA, ISOPODA, MUNNIDAE)

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Key words: Crustacea, Isopoda, Munnidae, taxonomy, Weddell Sea, Antarctic.

ABSTRACT

During an expedition with RV *Polarstern* (1998) a male specimen of *Echinomunna horrida* was collected in the supranet of an epibenthic sledge in the Weddell Sea, Antarctica. Due to an incomplete and poor description by Vanhoeffen (1914) a redescription is necessary on the basis of the male from the Weddell Sea and the female syntypes from the East Antarctic.

INTRODUCTION:

Two species of the genus *Echinomunna* are known. Vanhoeffen collected the material he used for his description of *Echinomunna horrida* (1914) in the East Antarctic, at the Gauss station (Posadowsky Bay) at 385 m depth. Many years later Kensley (1976) described *E. uroventralis* from the Amsterdam Islands. Since Vanhoeffen's description of *Echinomunna horrida* in the beginning of this century no other reports of this species were published. This is probably due to its rarity, and fragility: the very long walking legs and antennae. In the supranet of an epibenthic sledge a male specimen of this species was found which was used for this redescription, needed, due to the incomplete illustrations by Vanhoeffen. He only illustrated the first pereopod and the maxilliped besides a poor dorsal and lateral view of a female specimen. A redescription of a male specimen is presented herewith.

METHODS

This redescription of *Echinomunna horrida* is based on a male specimen collected off Halley Bay, Weddell Sea in the austral summer 1998 during the expedition ANT XV-3 with RV *Polarstern* by means of an epibenthic sledge. The

animal was fixed in formalin (4%), and later transferred into ethanol (70%). The drawings were prepared with the help of a camera lucida. The specimen is deposited in the Zoological Museum of Hamburg.

The following abbreviations are used in the text and figures: A1 = antennula, A2 = antenna, Hy = hypopharynx (= paragnath), lMd = left mandible, Mx1 = maxillula, Mx2 = maxilla, Mxp = maxillipede, P1-7 = pereopod 1-7, Plp 1-5 = pleopod 1-5 rMd = right mandible, Urp = uropod, ZMB, Zoological Museum of Berlin, ZMH = Zoological Museum of Hamburg.

SYSTEMATICS

Munnidae Sars, 1899

Echinomunna Vanhoeffen, 1914

Echinomunna horrida Vanhoeffen, 1914 (Figs. 1-5)

Type material

Syntype female of 3.5 mm length; 1 juvenile syntype female of 2 mm length and 3 ovigerous syntype females of 3.0, 3.0, and 3.1 mm length (ZMB 17727).

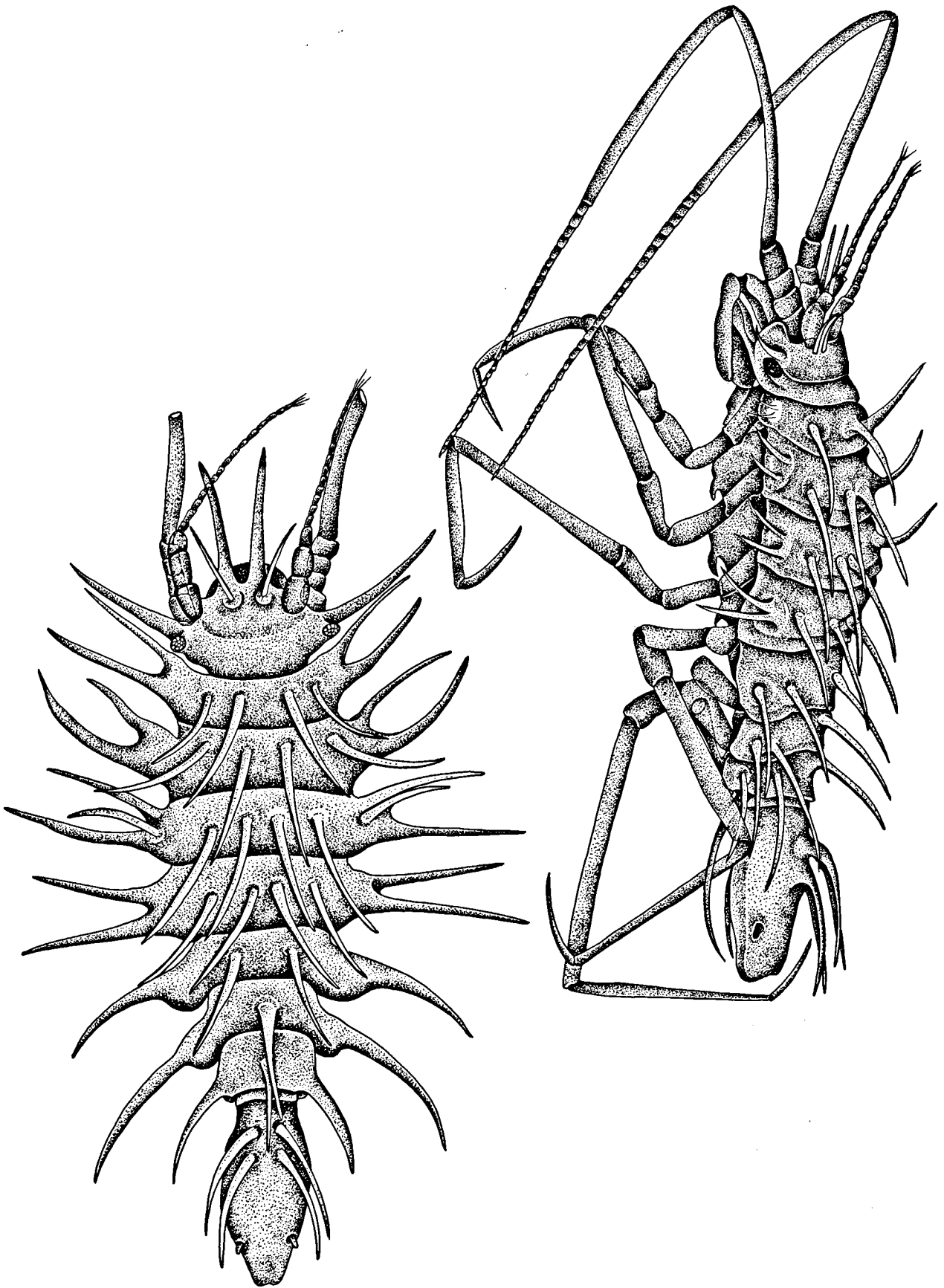


Fig. 1: *Echinomunna horrida* Vanhöffen, 1914 male of 2.8 mm length in dorsal and lateral view.

Additional material

Male of 2.8 mm length, north of Halley Bay, Weddell Sea West Antarctic, 74° 38.04'S 27° 10.97'W, 1054 m depth to 74° 37.96'S 27° 10.40'W, 1061 m depth; 10.2.1998 (ZMH 39210); supranet of EBS sampler, coarse sand in epibenthic net and a high amount of sponge spicules, dominant taxa of that haul were holothurians, polychaetes and peracarid crustaceans.

Type locality

Posadowsky Bay, Gauss Station, East Antarctic, 66° 2.9'S 89° 38.5'E, 385 m depth.

Description of the male

Length 2.8 mm; head with one long, pronounced frontally directed pair of acute spines and another shorter slightly frontolaterally directed pair of spines (Fig. 1). Behind antennae another long and strong laterally (and bent frontally) directed pair of spines, caudal third of head slightly vaulted (Fig. 1). Eyes situated behind lateral spines, small rounded protrusion, of yellow-brownish color in fixed condition, consisting of many ocellae. Pereonite 1 shorter, slightly broader than head, equipped with 2 frontolateral and 2 caudolateral acute spines on coxal plates and 4 strong acute ones on dorsum. Pereonites 2 and 3 about subequal in length, also with two lateral pairs of spines and 4 dorsal ones (pereonite 3 with 3 lateral pairs of spines). Pereonite 4 longest and broadest, with 2 lateral pairs of spines and 4 dorsal ones. Pereonites 5-7 with 2 lateral caudally directed spines, 5 with two dorsal spines, 6 and 7 each with only 1 dorsal spine. One free pleonite, following pleonites fused with pleotelson. Pleotelson of elongated ovoid shape, with two pairs of caudolaterally directed long and acute spines. Uropods uniramous, inserted posteriorly in last fourth of pleotelson.

A1 (Fig. 2) with 3 peduncular and 7 flagellar articles. First peduncular article broadest, with a distolateral simple seta. Second article 1.3 times as long as first, with 1 very long and 3 shorter feather-like and 3 simple setae, third article short and narrow, with only 1 simple seta. First flagellar article slightly longer than last peduncular one, with 2 distal feather-like setae. Second flagellar article five times as long as first, with only 1 simple distal seta. Following flagellar articles much shorter than second, decreasing in length and equipped with 1 long aesthetasc. Articles 3-5 with 2 additional simple setae, flagellar article 6 with only one aesthetasc, and last article with an aesthetasc and one long simple seta only.

A2 (Fig. 2) with 6 peduncular and 16 flagellar articles. First peduncular article short, ring-like, with only one simple short seta. Second article even shorter, but with lateral strong frontolaterally directed spine, third and fourth articles only slightly longer than first, with 2 and 3 simple setae, respectively. Fifth article about 13 times as long as first, with 3 simple setae and 6 lateral sensory setae. Sixth peduncular article longest, slightly longer than fifth, with many simple and 3 distal feather-like setae. First flagellar article longest, without setation, second flagellar article one third of length of first, with 3 simple setae, following articles narrowing and shortening, with groups of 1-3 api-

cal simple setae, last article with 6 simple setae.

Mandibles (Fig. 2) asymmetrical, palp consisting of three articles. Pars incisiva of right mandible narrower than of left with four strong, blunt teeth, on left mandible also with four teeth. Lacinia mobilis of left mandible with 4 strong teeth, spine row of 5-6 laterally serrated setae. Pars molaris stout, with 2 (right) -3 (left) long simple setae, broad grinding surface and indented lower margin. First article of palp shortest, without setation. Second article of palp longest, with 2 strong simple spine-like setae and some comb-like scales, third article of both mandibles with 5 setae, three simple long distal ones and 2 setulated lateral shorter ones.

Hy (Fig. 2) consisting of 2 smaller inner lobes and 2 larger outer lobes, both lobes with short simple apical setae.

Mx1 (Fig. 2) of 2 endites, both slightly narrowing distally, lateral one with 11 strong spines. Medial endite shorter, with 4 strong, curved subsetulate spines of varying lengths.

Mx2 (Fig. 2) consisting of three endites, inner one shortest and broadest, equipped medially with some long simple setules, and 9 setulated apical setae of varying lengths. Medial and outer endite with 4 setulated setae.

Mxp (Fig. 3) with long oval epipod, strong, distally acuminate endite and a five segmented palp. Endite on distal margin with 1 distodorsal row of 5 setulated setae. Two coupling hooks medially on endite. First article of palp as short as last and quadrangular in shape, with 1 simple seta. Second article longest and broadest, distally with 4 medial and 1 distolateral simple seta. Third article 0.7 times as long as second, with 5 medial and 1 distolateral simple seta. Last two articles about as long as first, with 2 (fourth) and 5 (last) simple setae.

P1 (Fig. 3) shortest and broadest pereopod. Basis about as long as propodus, with 5 simple setae. Ischium shorter than basis, also with 4 simple setae. Merus as long as ischium, with 1 distodorsal simple short seta, and 2 simple distoventral setae. Carpus half as long as merus, of quadrangular shape, with 4 ventral strong and long spine-like setae of varying lengths. Propodus long-oval, with 3 simple dorsal setae and a row of 3 ventral sensory setae (shorter than those of carpus) and 9 simple ventral setae as well as two rows of comb-like scales. Dactylus two thirds of length of propodus, with 3 distodorsal simple setae, one dorsal longer and 1 shorter distal claw and a seta inbetween.

P2-7 (Figs. 3-4) similar in shape and setation, longer and less stout than P1. Bases with few simple and up to 1 feather-like seta. Ischium of P2-6 slightly shorter than basis, with dorsomedial acute bent spine and also equipped with 1-few simple setae. Merus of P2-P7 shorter than ischium, with few simple setae, especially distally and 3 sensory seta distodorsally. Carpus and propodus about subequal in length, longest articles, with ventral and dorsal rows of simple and (more frequent) sensory setae. Both carpus and propodus distodorsally with a feather-like seta. Propodus only slightly longer than carpus in P3-6, carpus

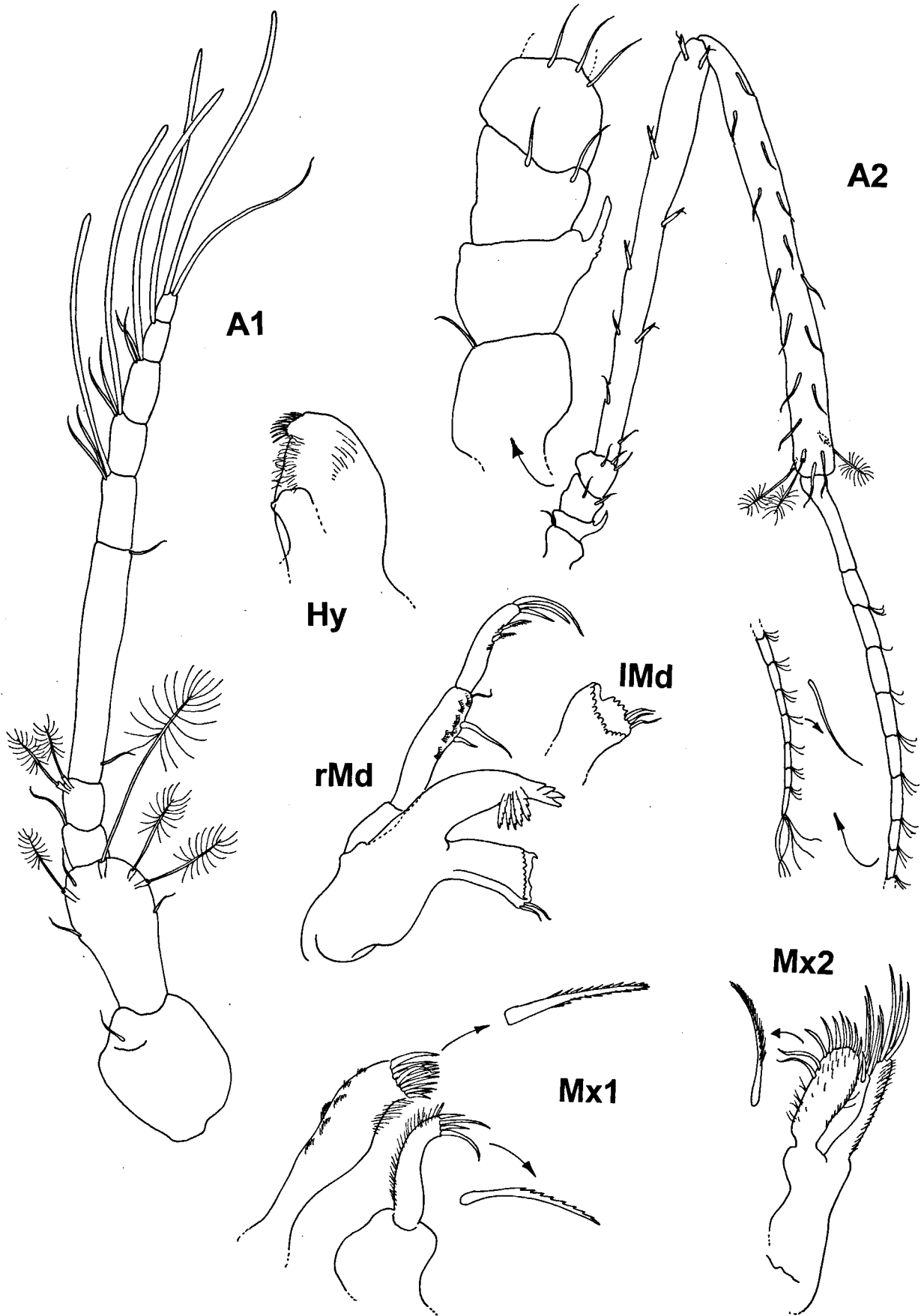


Fig. 2: *Echinomunna horrida* Vanhöffen, 1914, male, antennula, antenna, right mandible and molar of left mandible, maxillula, maxilla, hypopharynx.

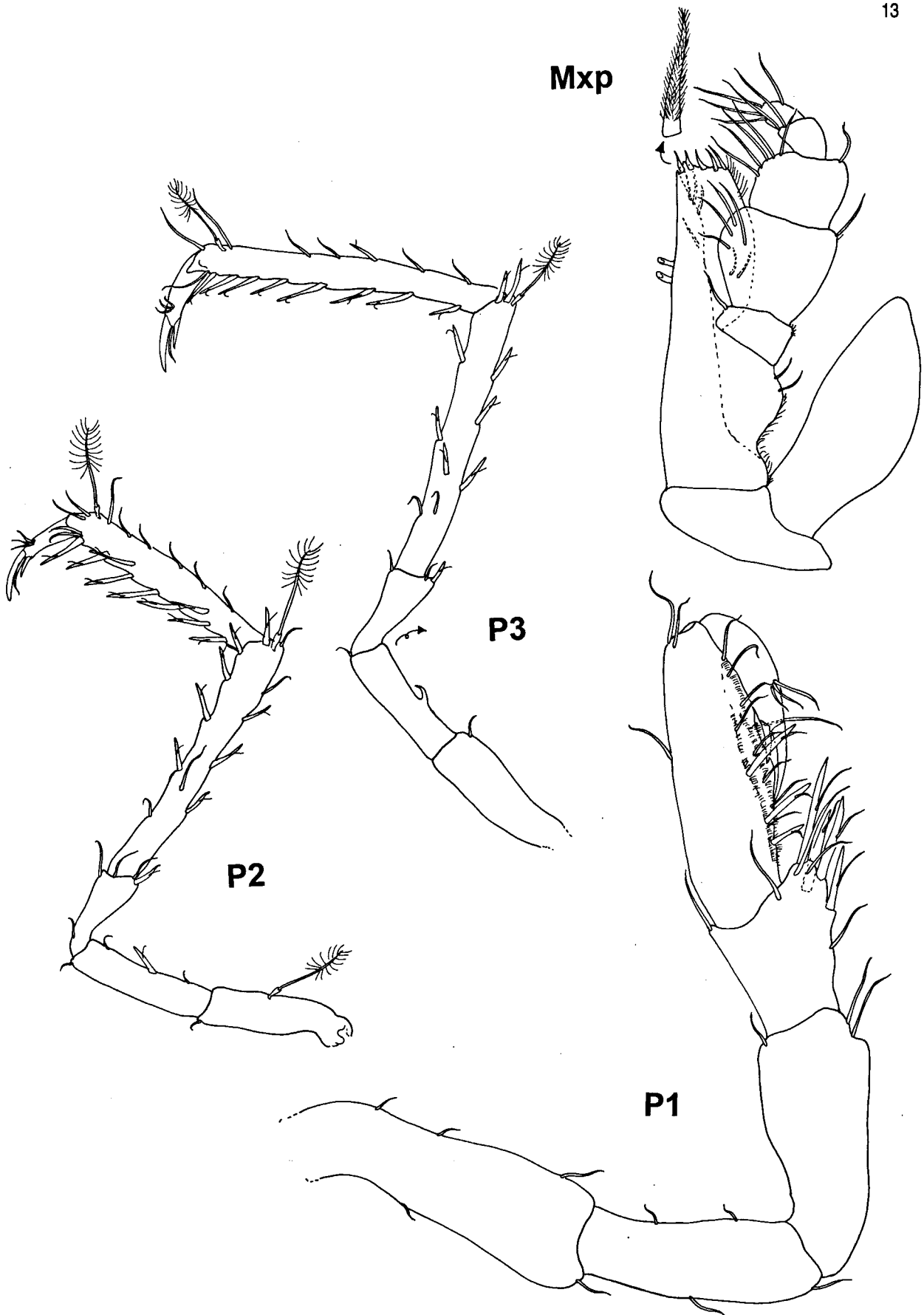


Fig. 3: *Echinomunna horrida* Vanhöffen, 1914, male, maxilliped, pereopods 1-3.

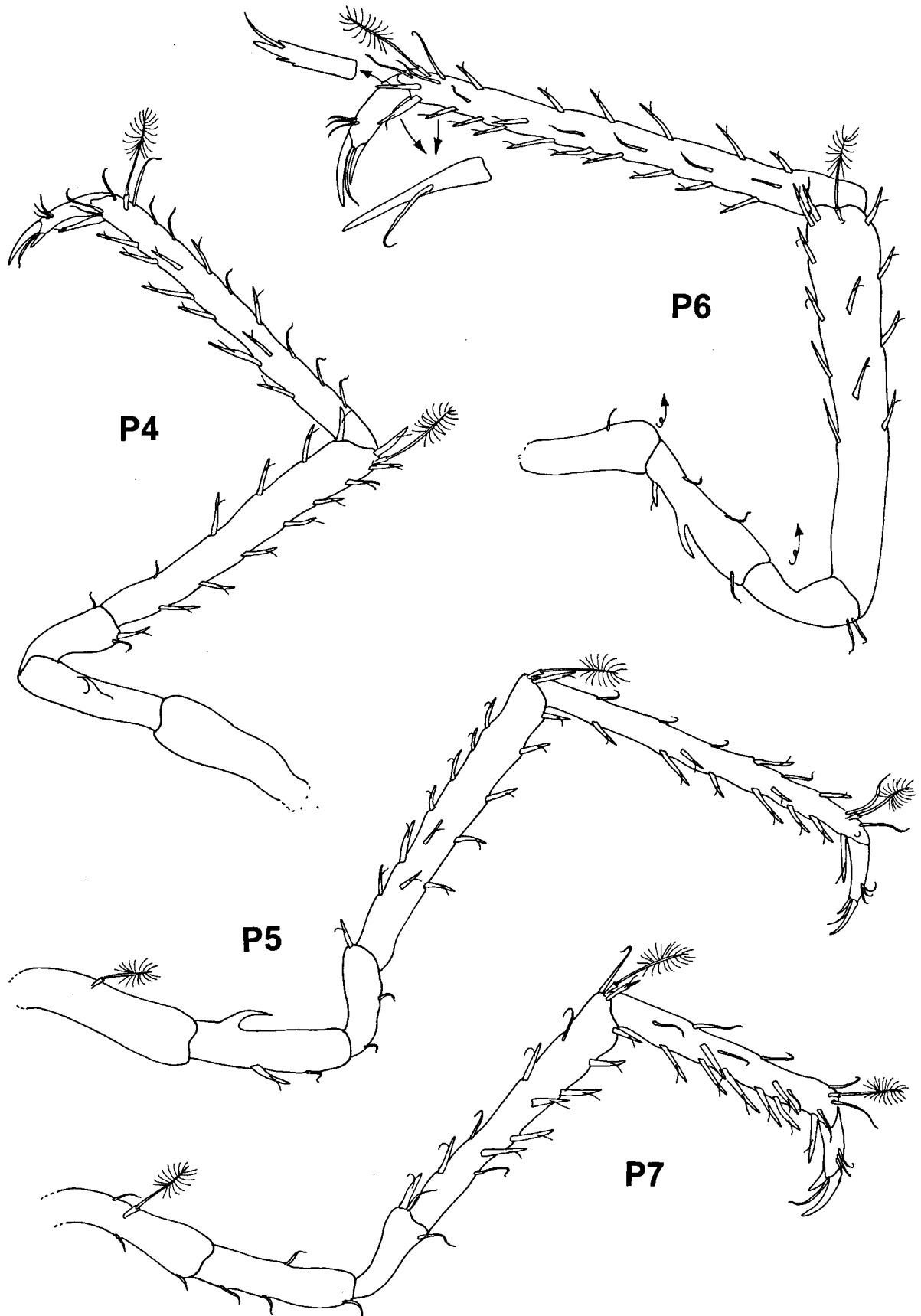


Fig. 4: *Echinomunna horrida* Vanhöffen, 1914, male, pereopods 4-7, pereopod 6 twisted at merus.

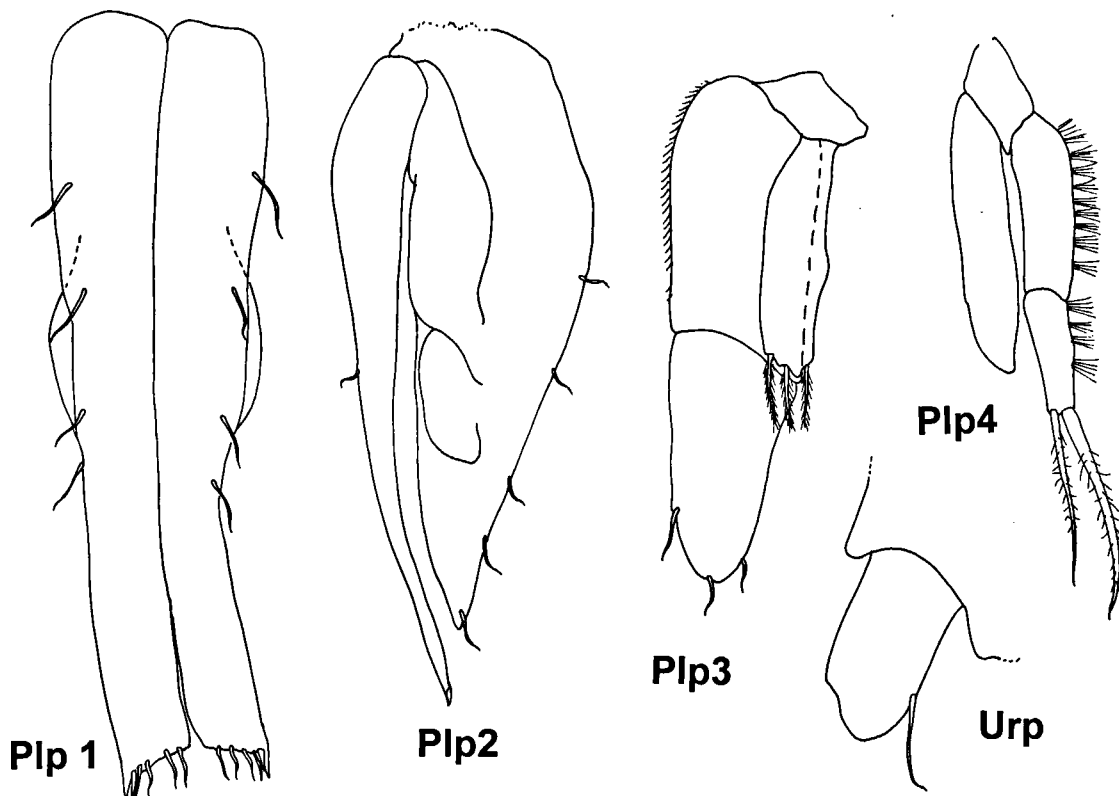


Fig. 5: *Echinomunna horrida* Vanhöffen, 1914, male, pleopods 1-4, and uropod.

slightly longer than propodus in P2 and P7. Dactylus one third to one fourth of propodus lengths, as in P1.

Plp1 (Fig. 5) very long and slender, distally only very slightly narrower than proximally. 4 pairs of setae mediolaterally.

Plp2 (Fig. 5) with large, distally acuminate sympod of triangular shape, tip almost pointed, 5 lateromedial to distolateral simple setae. Endopod 2-articulate, terminal article long and slender, pointed, slightly surpassing tip of sympod. Ovate exopod minute.

Plp3 (Fig. 5) with short, almost quadrangular sympod. Endopod short, with 3 distal plumose setae. Exopod long-oval, much broader than endopod and about 2 times as long, with distinct suture line at half of ramus length, bearing 3 distal plumose setae.

Plp 4 (Fig. 5) with thin endo- and exopod, endopod of Plp 4 without setae, exopod also with suture line in apical part of ramus, with 2 long setulated distal setae and groups of lateral simple setae.

Urp (Fig. 5) with only one short ramus, bearing 1 lateral simple seta.

REMARKS

Echinomunna horrida Vanhöffen, 1914 probably is a rare Southern Ocean species, as it was not resampled since Vanhöffen's description in 1914.

Only few species of the Munnidae were described recently in the Southern Ocean or its vicinity. Winkler

(1992) described two species of the Munnidae from the Magellan area, however, both without any spine armature on their dorsal cuticle. The best and most extensive review of Antarctic Munnidae was presented by Teodorczyk and Wägele (1994). None of these species is characterized by such a strong and pronounced spine armature like the two known species of *Echinomunna*. *Munna spicata* (Teodorczyk and Wägele, 1994) also bears some spines, but these are much shorter and uncomparable to those of *Echinomunna*. The only other species of this genus ever described is *Echinomunna uroventralis* Kensley, 1976 from the Amsterdam Islands, southern Indian Ocean. Until now this genus is only reported from the Southern Ocean, it might be that these spiny species are derived relatives of species of the Munnidae, which settled in the Antarctic or even evolved in the Southern Ocean themselves. *E. horrida* can easily be distinguished from *E. uroventralis* by the spine pattern on the head, the latter one bearing two pairs of spines, whereas *E. uroventralis* only bears a single medial spine behind the two frontally directed anterior spines (which are shorter than in Vanhöffen's species). Moreover, the pleotelson of both species and its spine pattern differ very much. *E. horrida* has a pleotelson, with a shape similar to that of the Munnidae, but just longer. The pleotelson of *E. uroventralis* is caudally cleft, bearing two lateral caudally directed spines. *E. horrida* has two pairs of dorsal, caudally directed spines. The uropods of *E. uroventralis* are inserted ventrally, as the name of the

species implies, whereas those of *E. horrida* are inserted dorsolaterally. Moreover, the appendages of *E. uroventralis* possess much fewer setae and spines (Kensley, 1976: 314, 316) compared to those of *E. horrida* (see present redescription).

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