

Rectisura menziesi sp. nov. – a new deep-sea isopod
from the Weddell Sea, Southern Ocean
(Asellota: Munnopsididae: Storthingurinae)*

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ABSTRACT. – A new species *Rectisura menziesi* sp. nov. from the abyssal Weddell Sea is described. It differs from the most similar species *R. furcata* WOLFF, 1956 in broader terminal projection of pleotelson, longer dorsomedial spines on pereonites 1-4, wider distance between the pair of dorsal spines on pereonite 5. A species list of *Rectisura* with their distribution is presented.

KEYWORDS: Isopoda, Asellota, Munnopsididae, Storthingurinae, *Rectisura*, Southern Ocean, deep sea

Introduction

Five new species of munnopsidid isopods of the subfamily Storthingurinae KUSSAKIN, 2003 have already been described from the Southern Ocean deep sea from the ANDEEP I & II (FÜTTERER *et al.*, 2003) material: *Storthingura antarctica* MALYUTINA & BRANDT, 2004, *S. longispina* MALYUTINA & BRANDT, 2004, and one new species of *Storthingurella* and two of *Sursumura* (MALYUTINA & BRANDT in press). In the present paper a new species of the genus *Rectisura* MALYUTINA, 2003 is described from this material.

The genus *Rectisura* is characterised by a pleotelson which is not pointed terminally and a head without a pair of dorsal spines. Within the Storthingurinae only the genera *Microprotus* RICHARDSON, 1910 and *Storthingura* VANHÖFFEN, 1914 share these characters. The *Rectisura* species differ from species of *Storthingura* in having a stout, vaulted body of large size (10-45 mm length), a domed, vaulted head, article 1 of antenna 1 without medial spine, pereopods 3 and 4 significantly longer than pereopod 2, with an elongate carpus, bearing spine-like setae along ventral margin. Differences in shape of epipod of maxilliped and of male pleopods 1 and 2 help to distinguish these genera as well. Exact and detailed diagnoses and the descriptions of the genera are presented in MALYUTINA 2003 and MALYUTINA & BRANDT 2004. Characters of *Microprotus* which distinguish this genus easily from *Rectisura* and other genera of the Storthingurinae are: three dorsal spines on pereonites 2-7, absence of anterolateral projections on pereonite 4, a broad pleotelson without anterolateral corners (with smooth “shoulders”) and a deeply furcated terminal process of pleotelson (WILSON *et al.* 1989).

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For this Antarctic region three species of *Rectisura* were known before: *R. sepigia* (GEORGE & MENZIES, 1968), *R. richardsonae* MALYUTINA, 2003 and *R. furcata* (WOLFF, 1956). The last species was described from the Kermadec Trench and then recorded by GEORGE and MENZIES (1968) from the Weddell Sea. In the ANDEEP collection we studied specimens of *Rectisura* identical to the specimen illustrated by GEORGE and MENZIES (1968: 199, Fig. 14). Comparison to the holotype of *R. furcata* revealed that the Antarctic specimens differ from *R. furcata* and belong to a new species, *Rectisura menziesi* sp. nov. which description we present in this contribution.

The genus *Rectisura* currently consists of 11 species (Table 1) which are distributed in the north- and southwestern Pacific trenches, in the Gulf of Panama as well as in the deep sea of the South Atlantic and the Southern Ocean. *Rectisura menziesi* sp. nov. is the shallowest record of this deep-sea genus.

Tab. 1. Species list and distribution of *Rectisura* MALYUTINA, 2003.

species	locality	depth (m)
<i>brachycephala</i> (BIRSTEIN, 1957)	Japan, Kurile-Kamchatka Trenches 37°56' - 48°43,2'N 146°24' - 160°56'E	5461-5680
<i>distincta</i> (BIRSTEIN, 1970)	Kurile-Kamchatka Trench 45°28'N 153°46'E	6205-6215
<i>furcata</i> (WOLFF, 1956)	Kermadec Trench 32°10'-35°51'S 175°54'-178°31'W	5850-6770
<i>herculea</i> (BIRSTEIN, 1957)	Japan, Kurile-Kamchatka, Aleutian Trenches	6475-9345
<i>kurilica</i> (BIRSTEIN, 1957)	Kurile-Kamchatka Trench 49°29'N 158°41'E	7210-7230
<i>menziesi</i> sp. nov.	Weddell Sea 64°03.5' - 65°20'S, 49°15' - 53°23'W	2084-3380
<i>richardsonae</i> MALYUTINA, 2003	Scotia Sea 60°13.5'S 44°10.6'W	5465-5474
<i>sepigia</i> (GEORGE & MENZIES, 1968)	South Sandwich Trench 55°07'-10'S 25°55'-59'W	5431-5449
<i>serrata</i> (WOLFF, 1962)	Gulf of Panama 5°44'N 79°20'W	2950-3190
<i>tenuispinis</i> (BIRSTEIN, 1957)	Aleutian Trench 52°16'N 170°54'E	7246-7286
<i>vitjazi</i> (BIRSTEIN, 1957)	Japan Trench 30°34'N 142°41'E Kurile-Kamchatka Trench 43°59' - 46°31'S 149°39' - 154°22'	7305-7315 6435-8430

Methods

Specimens were collected during the expeditions ANT XIX-4, ANDEEP II (ANTarctic benthic DEEP-sea biodiversity: colonisation history and recent community patterns) in March 2002 on board the RV *Polarstern* in the Southern Ocean deep sea, northwestern Weddell Sea, by means of an epibenthic sledge (BRANDT & BARTHEL 1995). The material was fixed in precooled 80%

ethanol. In the laboratory, the material was sorted and determined using a Wild M5 dissecting microscope and illustrated using a Leitz Dialux microscope, equipped with a camera lucida. Terminology and measurements were made following MALYUTINA (2003). Total body length was measured medially from anterior edge of the head to the posterior tip of the pleotelson. Length of segments was measured medially or laterally from the anterior margin without spine to posterior margin. Spines were measured from the tip to the basis along the anterolateral margin. If an animal could be completely straightened, we used the dorsal view for the measuring, like for measuring any width. However, when body was curled, the lengths of its segments and dorsal spines were measured in lateral view.

The types of the new species are deposited in the Zoological Museum, Hamburg.

The following abbreviations are used in the text and figures: **A1** = antenna 1, **A2** = antenna 2, **lMd** = left mandible, **rMd** = right mandible, **Mx1** = maxilla 1, **Mx2** = maxilla 2, **Mxp** = maxilliped, **P1-7** = pereopods 1-7, **bP4** = basis of pereopod 4, **P1p 1-5** = pleopods 1-5, **Urp** = uropod.

Munnopsididae LILLJEBORG, 1864

Storthingurinae KUSSAKIN, 2003

Rectisura MALYUTINA, 2003

Rectisura MALYUTINA, 2003: 251, 252.

Rectisura menziesi sp. nov.

Figs 1-4

Storthingura furcata GEORGE & MENZIES, 1968: 299, Fig. 14 (non *Storthingura furcata* WOLFF, 1956).

H o l o t y p e. – Male, length 12.9 mm; ZMH Reg. No. K-40692; 5 March 2003; A. BRANDT. leg.

T y p e l o c a l i t y. – Antarctica, Weddell Sea, 65°19.2'S - 65°19.9'S, 51°32.5'W - 51°31.4'W, depth 3053-3055 m; RV *Polarstern*, cruise 61 (ANT XIX-4, ANDEEP II), St. 131-3; gear: epibenthic sledge, epinet.

P a r a t y p e s. – Male on IV stage, length 7.5 mm, 4 immature females, length 3.5 - 5 mm; ZMH Reg. No. K-40693. Data locality as for holotype. – Two males without a head, length: about 20 and 17 mm; ZMH Reg. No. K-40694; A. Brandt leg. Locality: Antarctica, Weddell Sea, 65°18.43' - 65°17.52'S, 53°22.76' - 53°22.87'W, depth 2084-2085 m; RV *Polarstern*, cruise 61 (ANT XIX-4, ANDEEP II), St. 132-2; gear: epibenthic sledge, epinet.

E t y m o l o g y. – The species is named after American oceanologist and isopodologist, Dr. Robert James Menzies, one of the authors, who had the first specimen of this species at hands, but by mistake identified it as *R. furcata*.

D i a g n o s i s. – General shape similar to *R. furcata* (WOLFF, 1956), but with broader posterior process of pleotelson, longer dorsomedial spines on pereonites 1-4, and a wider distance between the pair of dorsal spines on pereonite 5.

D e s c r i p t i o n. – Holotype: body (Fig. 1) 3.4 times as long as wide (widest pereonite 5, measured without lateral spines), dorsal surface smooth, without setae, lateral margins of pereonites and pleotelson with small denticles, without setae. Head from point between antennae to posterior margin 0.4 times as long as wide, interantennular distance 0.3 times as wide as antenna 1; frons depressed, sloping, 0.25 as long as head totally, lateral bulges diverging under angle of about 80°; clypeus narrow in frontal view, 1.6 times as wide as labrum.

Pereonites 1-4 subequal in medial length; pereonite 1 as wide as head, pereonites 2-4 slightly widening; pereonites 1-3 dorsomedial anterior spine almost twice as long as pereonite medially, the spine in pereonite 4 almost as long as pereonite; anterolateral acute projections of pereonite 4 minute, much shorter than coxal spines. Coxae of pereopods 1-4 with slender spine-like anterior projection longer than pereonite laterally.

Natasome (pereonites 5-7 + pleotelson) 1.6 times as long as anterior body part. Pereonites 5-7 with a pair of slender dorsal spines: on pereonite 5 the spines distinctly longer than those on pereonites 1-4, spines on pereonites 6 and 7 shorter and situated nearer to each other than those on pereonite 5; anterolateral spine-like projections of pereonites 5-7 slightly longer than corresponding pereonite. Pleonite fused with pereonite 7, without dorsal spine, half as long as following convex anterior part of pleotelson. Pleotelson 0.8 times as long as wide (1.2 times as long as wide without lateral spines); anterolateral spines directed slightly forwards, posterolateral spines subequal to anterolateral ones in size and shape, directed perpendicular to body axis; terminal projection measured from base of posterolateral spines 0.25 times as long and 0.3 times as wide as pleotelson, its posterior margin concave, posterolateral acute angles elongate, bent up; dorsal surface with anteromedial spine and a pair of acute tubercles in midlength, anteromedial spine as long as that on pereonite 7; preanal ventral process rather long, rounded.

Antenna 1 (Fig. 2) article 1 1.6 times as long as wide proximally, distal lobe not distinctly separated, with distal plumose seta, a stout dorsal seta near insertion of article 2, and a set of 4-5 plumose setae dorsolaterally midlength; article 2 inserted after 0.8 of article 1 length from basis, slightly longer than distal lobe of article 1, with conspicuous distomedial process; articles 3 and 4 0.6, and 0.35 times as long as article 2 respectively, flagellum article 1 slightly longer than peduncular article 3, following articles numerous, very short, distal part of flagellum broken off.

Antenna 2 (Fig. 1) broken off, only 4 basal articles present, article 3 dorsally almost twice as long as article 2, distolateral and distomedial spines subequal, rather short.

Mandibles (Fig. 2) incisor process with 1 distinct distal tooth and small proximodorsal tooth in left and the two teeth in right mandibles; lacinia mobilis of left mandible rosette-form, 0.6 times as long as incisor process, with five teeth; spine row with 12 and 13 spines in left and right mandibles respectively; molar process as long as condyle, obliquely truncate distally, with teeth and setae distoventrally; proximolateral projection distinctly separated from body; palp 1.1 as long as body, article 2 slightly curved, 2.8 as long as article 1, bearing a row of 16 distolateral stout setae with rounded tip, similar to marginal setae of article 3.

Maxilla 1 (Fig. 2) mesial endite rounded distally, 0.6 as wide as lateral endite.

Maxilla 2 (Fig. 2) mesial endite shortest, with numerous simple and 9-10 serrated stout setae distally, lateral and middle endites with four spine-like distal setae, middle endite with additional short distomedial finger-like seta.

Maxilliped (Fig. 2) endite with 11 coupling hooks, distal margin almost straight, with seven fan-setae and numerous strong and slender simple setae; palp article 2 as wide as basis and 1.3 times as wide as endite, article 3 0.85 times as wide as article 2, 0.15 times as long as article 2 laterally, medial margin almost straight, as long as article 2, with rat-

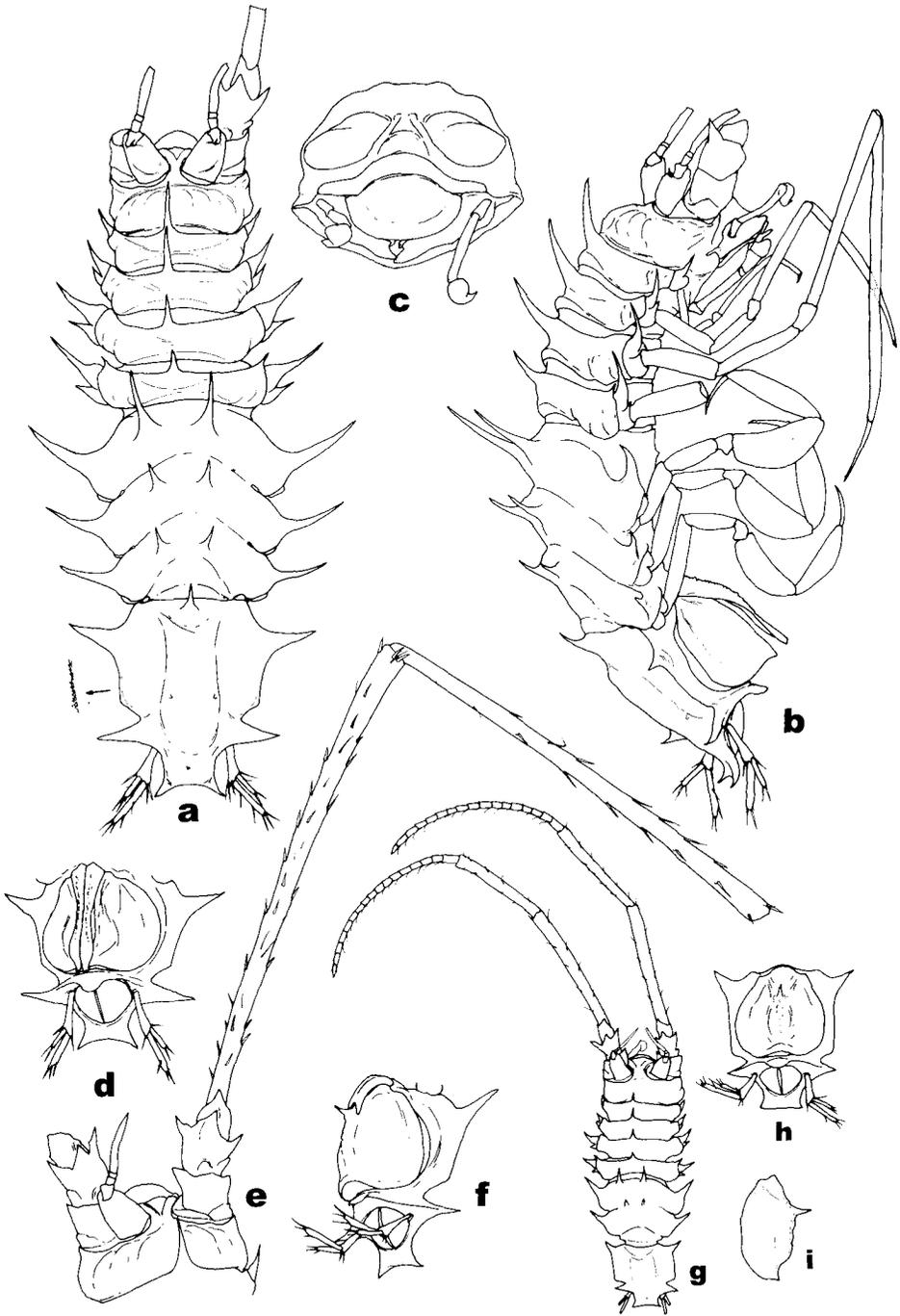


Fig. 1. *Rectisura menziesi* sp. nov., male, holotype: **a**, dorsal and **b**, lateral total body views; **c**, head, frontal view; **d**, pleotelson, ventral view; male on IV stage, paratype: **e**, head, dorsal view; **f**, pleotelson, ventral oblique view; juvenile female, paratype: **g**, dorsal view; **h**, pleotelson, ventral view; **i**, pleopod 2, lateral view.

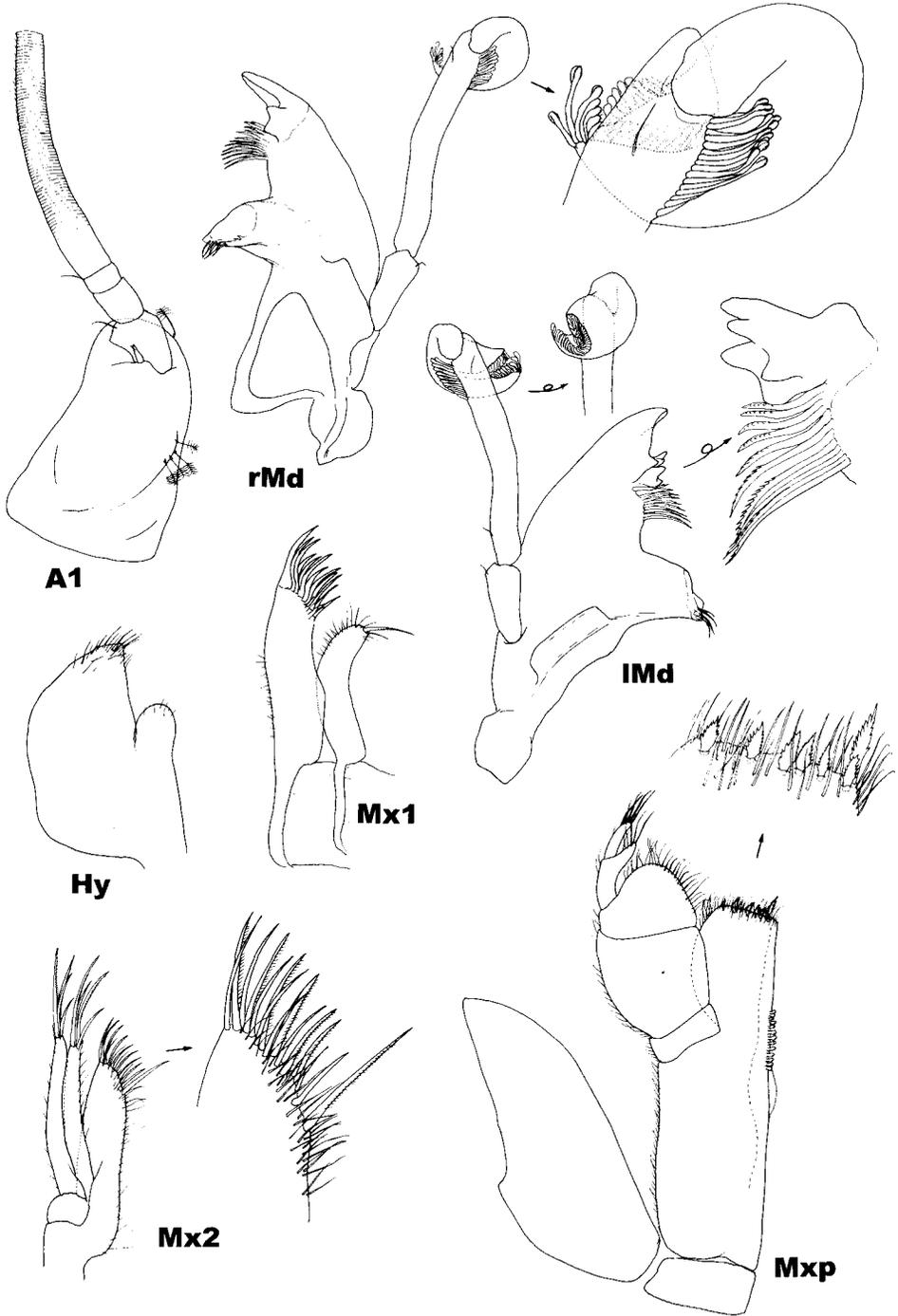


Fig. 2. *Rectisura menziesi* sp. nov., male, holotype: antenna 1 and mouthparts.

her long setae; articles 4 and 5 elongate, article 5 longer than distomedial lobe of article 4. Epipod slightly shorter than basis, acute distally, 2.5 times as long as wide, with angular midlength lateral projection.

Bases of pereopods 1-4 subequal in length, broadening from 1 to 4, bases of pereopods 5-7 increasing and narrowing to longest one of pereopod 7.

Pereopod 1 (Fig. 3) 0.3 times as long as body, length ratios of ischium-dactylus to basis: 0.45, 0.2, 1.1, 0.5, 0.15, all articles with sparse small setae, carpus and propodus slender, almost straight; dactylar dorsal claw stout.

Pereopod 2 (Fig. 3) length ratios of ischium-dactylus to basis: 0.6, 0.2, 1.4, 1.4, 0.8; carpus with 15 small and propodus with 17 larger unequal bifid setae ventrally.

Pereopod 3 (Fig. 3) length ratios of ischium-dactylus to basis: 1.0, 0.33, 2.4, 3.5, 1.1; carpus with six unequal bifid setae on proximal half of ventral margin and two dorsal setae; propodus half as wide as carpus, with sparse marginal setae and a set of distal setae (details in Fig. 3).

Pereopod 4 broken off after basis (Fig. 3).

Pereopods 5-7 (Fig. 3) slightly shorter than pereopod 2, of similar shape and length, but pereopod 5 having shortest and broadest basis and largest carpus and propodus, pereopod 7 having opposite proportions. Carpi 5-7 length / width ratios: 2.2, 2.5, 2.5 respectively, propodi length / width ratios: 4.3, 4.0, 3.4; ventral margin of both articles straight, dorsal margin convex, rounded, marginal plumose setae shorter than articles width; dactyli 5-7 slender, dorsal claw with inner projection, ventral claw slender, two setae in-between longer than claws.

Pereopod 5 length ratios of ischium-dactylus to basis: 0.95, 0.3, 1.2, 1.45, 0.6.

Pereopod 6 length ratios of ischium-dactylus to basis: 0.75, 0.3, 1.0, 1.15, 0.5.

Pereopod 7 length ratios of ischium-dactylus to basis: 0.5, 0.15, 0.7, 0.8, 0.4.

Pleopod 1 (Fig. 4) 3.5 times as long as wide proximally, bent ventrally, with longitudinal serrated keels; narrowing part (waist) elongate, 0.5 times as wide as proximal part, distal third expanded laterally, 1.5 times as wide as waist, with dense row of small ventral setae, distal margin of inner lobes rounded, with row of setae, outer lobes projected, narrow, bent ventrally; dorsal keels invisible ventrally.

Pleopod 2 (Fig. 4) protopod 1.6 times as long as wide, pointed distomedially, lateral margin rounded, distal margin with row of short plumose setae; endopod inserted after 0.8 of protopod length from basis, stylet 0.5 times as long as protopod, with short tapering tip; exopod short, thick, with tuft of fine simple setae on outer margin of hook; extrinsic musculature occupying small distomedial part of protopod.

Pleopod 3 (Fig. 4) 0.8 times as long as pleopod 2, endopod rounded, 1.5 times as long as wide, with 11 distal plumose setae; exopod 1.2 times as long and 0.2 as wide as endopod, with nine distal plumose setae and row of hair-like lateral setae, distal article 0.4 times as long as proximal article, distally tapering.

Pleopod 4 (Fig. 4) endopod 1.15 times as long as wide, exopod 0.35 times as wide and 0.9 as long as endopod, with one distal plumose seta.

Pleopod 5 (Fig. 4) endopod only, 1.3 times as long as wide.

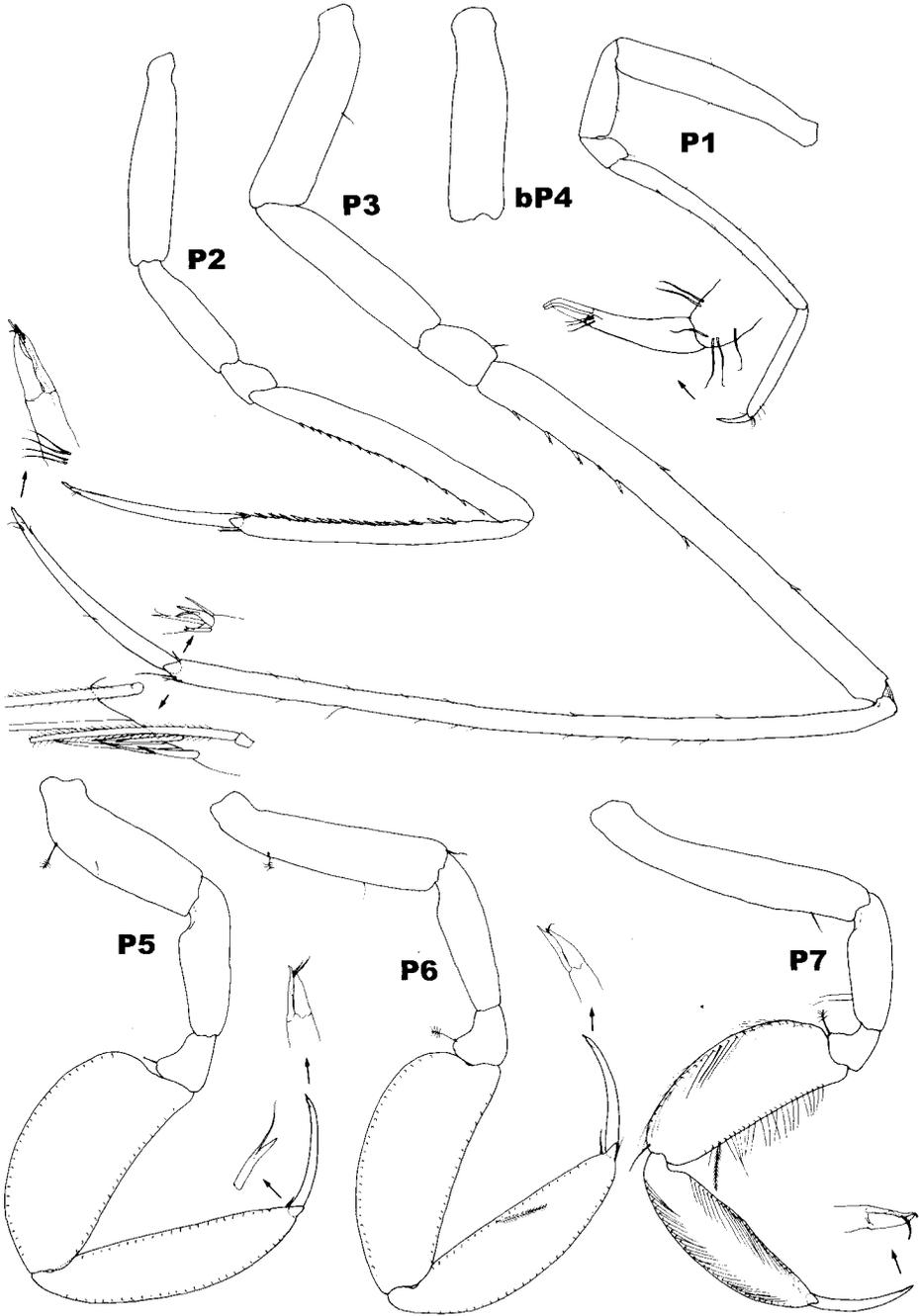


Fig. 3. *Rectisura menziesi* sp. nov., male, holotype: pereopods.

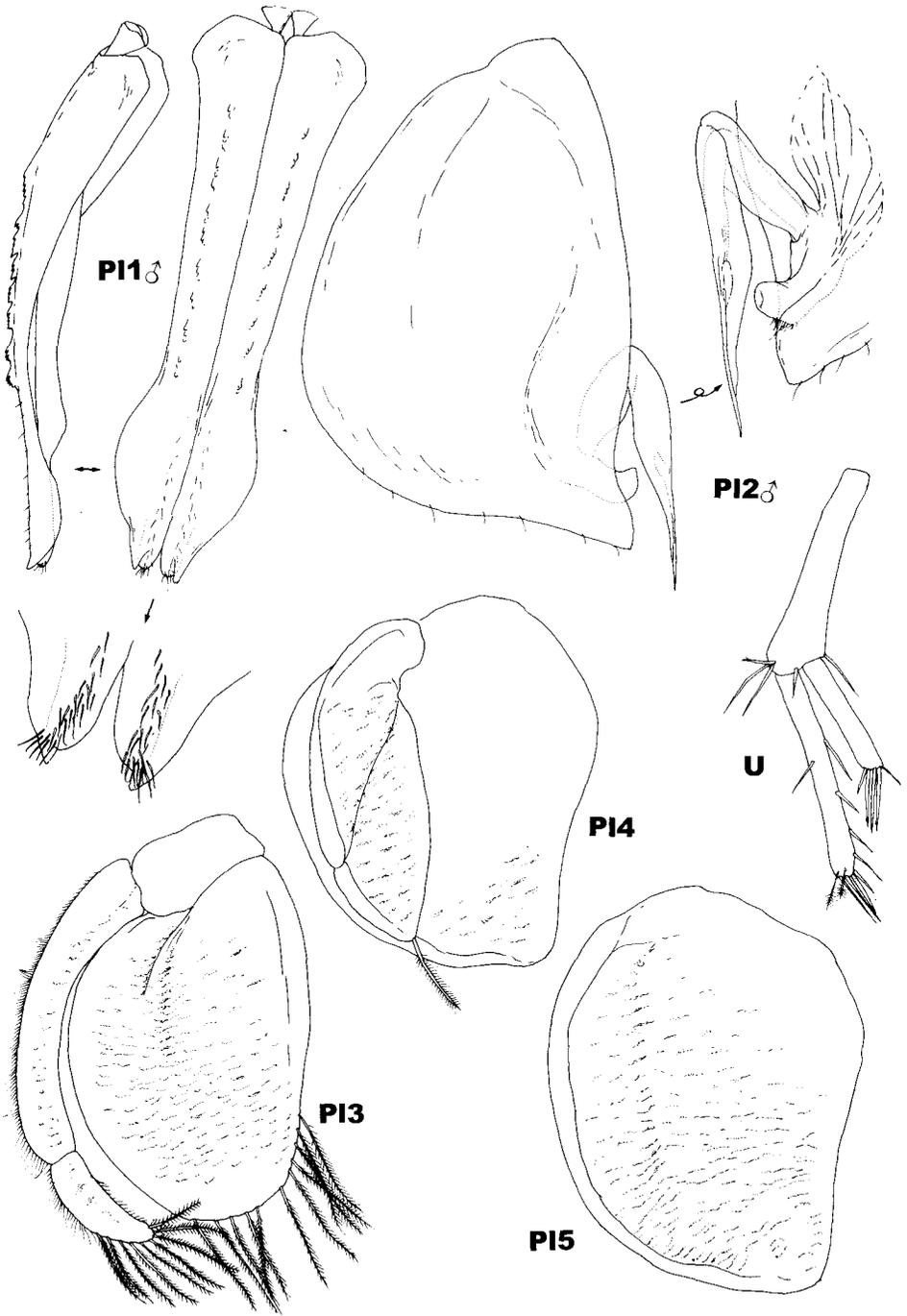


Fig. 4. *Rectisura menziesi* sp. nov., male, holotype: pleopods and uropod.

Uropod (Fig. 4) 0.5 times as long as pleotelson; protopod slightly broadening distally, with five distal setae, 3.3 times as long as wide distally and 6.6 times - proximally; endopod about half as wide and as long as protopod, with four strong unequal bifid lateral and 5-6 simple distal setae; exopod slightly narrower and 0.6 times as long as endopod, with five bifid distal setae.

Paratypes: juvenile male, stage IV (Fig. 1 e, f) is similar to mature males in body shape, except for the developing pleopods 1. All females in the type material are manca, with undeveloped pereonite 7 and pereopods 7. They have - in comparison with the mature male - shorter dorsal spines on pereonites and more quadrate pleotelson with shorter lateral projections. Other characters are very similar to those in the male, holotype, except for the pleopods 2.

Antenna 2 of juvenile male (Fig. 1 e) broken off after article 6, article 5 3.9 times as long as four basal articles, which are like in the holotype, article 6 0.9 times as long as article 5, both long articles with numerous robust setae along,

Antenna 2 of manca female (Fig. 1 g) 1.8 times as long as body, peduncle is similar to that of the juvenile male, flagellum with 17 articles, bearing small distal setae.

Pleopod 2 of female (Fig. 1 h, i) almost as long as wide, with elongate spine in the end of proximal third.

R e m a r k s. – *Rectisura menziesi* sp. nov. is most similar to *R. furcata* (WOLFF, 1956), but the new species can be distinguished by the broader posterior process of the pleotelson, the longer dorsomedial spines on the pereonites 1-4, and a wider distance between the pair of dorsal spines on the pereonite 5. Other differences are: flagellar articles of antenna 1 much shorter in *R. menziesi* than in *R. furcata*, male pleopods 1 in *R. furcata* has no serrated keel, like in *R. menziesi*. A stout bifid seta on article 1 of antenna 1 near insertion of article 2 is also indicated by WOLFF (WOLFF, 1962, p.139) for a damaged mature female of *R. furcata*. MENZIES & GEORGE (1968) described and illustrated a specimen very similar to our new species and incorrectly identified it as *R. furcata*. Their material had also been found very close to the type locality of *R. menziesi*. Therefore we have no doubt that MENZIES and GEORGE had the same species at hands, which we now described as *R. menziesi*.

The nearest locality to *R. menziesi* sp. nov. (South-Sandwich Trench) was recorded for *R. sepiagia* (GEORGE & MENZIES, 1968) and *R. richardsonae* MALYUTINA, 2003, but these species are less similar to *R. menziesi* than *R. furcata* from the Kermadec Trench. Besides these three species, only *R. serrata* (WOLFF, 1962) from the Gulf of Panama shares with *R. menziesi* the similar row of finger-like distal setae on article 2 of the mandibular palp.

D i s t r i b u t i o n. – Southern Ocean: northeastern Weddell Sea, between 2084-3380 m.

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