

REDESCRIPTION OF *MAXILLIPHIMEDIA LONGIPES* (WALKER, 1906)
(CRUSTACEA: AMPHIPODA: IPHIMEDIIDAE) FROM THE ANTARCTIC PENINSULA

BY CHARLES OLIVER COLEMAN¹ AND J. L. BARNARD²

¹Fachbereich 7, Zoomorphologie, Universität Oldenburg, Postfach 2503, D-2900, Oldenburg, Germany
²NHB-163, Department of Invertebrate Zoology, Smithsonian Institution, Washington, DC, 20560, USA

Abstract

Coleman, C.O. and Barnard, J.L., 1991. Redescription of *Maxilliphimedia longipes* (Walker, 1906) (Crustacea: Amphipoda: Iphimediidae) from the Antarctic Peninsula. *Memoirs of the Museum of Victoria* 52: 291–298.

New figures and description of this species are presented. The genus is the most primitive in the Iphimediidae and the characters involved in this decision are listed.

Introduction

Only three previous records of *Maxilliphimedia longipes* have been published. We add here the fourth and redescribe and refigure the species in its entirety.

Maxilliphimedia K.H. Barnard

Maxilliphimedia K.H. Barnard, 1930: 355 (type species, *Iphimedia longipes* Walker, 1906, monotypy).—Watling and Holman, 1981: 202.

Diagnosis. Body with dorsal teeth. Antenna 1: peduncular article 2 shorter than 1. Bundle of mouthparts not projecting conically. Labrum bilobed; it and epistome very broad. Mandibular incisor broad, minutely serrate; raker row absent; molar absent. Lower lip: inner lobes absent. Maxilla 1: palp 2-articulate, article 2 enlarged. Maxilla 2: inner plate without facial row of setae. Maxillipeds: inner plate much shorter and narrower than outer plate, latter elongate; palp article 2 weakly produced apicomediaally, article 4 vestigial. Coxae ordinary: 1–3 extending subequally, coxa 4 slightly longer; coxa 4 bicuspidate. Gnathopods of linear form, minutely chelate. Telson deeply incised or distinctly cleft.

Remarks. This genus is characterized by the large article 2 of the palp on maxilla 1, and thereby differs from *Iphimedia* and *Iphimediella*.

Species. Monotypic. *M. longipes* (Walker, 1906, 1907) (K.H. Barnard, 1930) (Watling and Holman, 1981), marine, Antarctica, 183–769 m.

Maxilliphimedia longipes (Walker, 1906)

Figures 1–5

Iphimedia longipes Walker, 1906a: 151–152; 1907: 29–30, pl. 9 fig. 17.

Maxilliphimedia longipes.—K.H. Barnard, 1930: 355–356, fig. 28.—Watling and Holman, 1981a: 204, fig. 14.

Material examined. Antarctic Peninsula (60°49.9'S, 55°38.2'W), 392–384 m, RV Polarstern Cruise ANT VI/2, stn 12/087, fishery bottom trawl, USNM 253707 (male "a", 32 mm; female "b", 43 mm).

Description. Body (Fig. 1b, 2b): head longer than pereonite 1, rostrum strongly deflexed, lateral cephalic lobe produced, pointed, ocular lobe rounded, with ventral notch; eyes circular, pigmentary masses irregularly arranged.

Pereon slender in male, widened in female, coxal plates protruding somewhat laterally (seen from dorsal side); pereonite 2 shortest, pereonite 7 longest, posteromarginally with pair of strong, elongated teeth directed posteriorly; pleonites 1 and 2 with similar teeth; epimeron 1 rounded ventrally, ridged laterally, posterolateral margin acutely or subacutely produced; epimeron 2 ridged laterally, posteroventral corner pointed; pleonite 3 without dorsal armament, posterolateral margin drawn out as conspicuous cusp; no lateral ridge, posteroventral corner acute; urosomite 1 as long as urosomites 2 and 3 combined, anteriorly with hump, middorsally somewhat depressed; urosomite 3 excavate posteriorly, with weak medial depression.

Antenna 1 (Fig. 2c): peduncular article 1 stout, with long pointed terminal process, articles 2 and 3 slender; accessory flagellum uniarticulate (see detail in Fig. 2c); flagellar articles (37) stout, with long aesthetascs and group of short setae (as in detail of Fig. 2c). Antenna 2 (Fig. 2a): peduncular articles 1 and 2 with acute processes, gland cone produced, article 3 widened distally, ar-

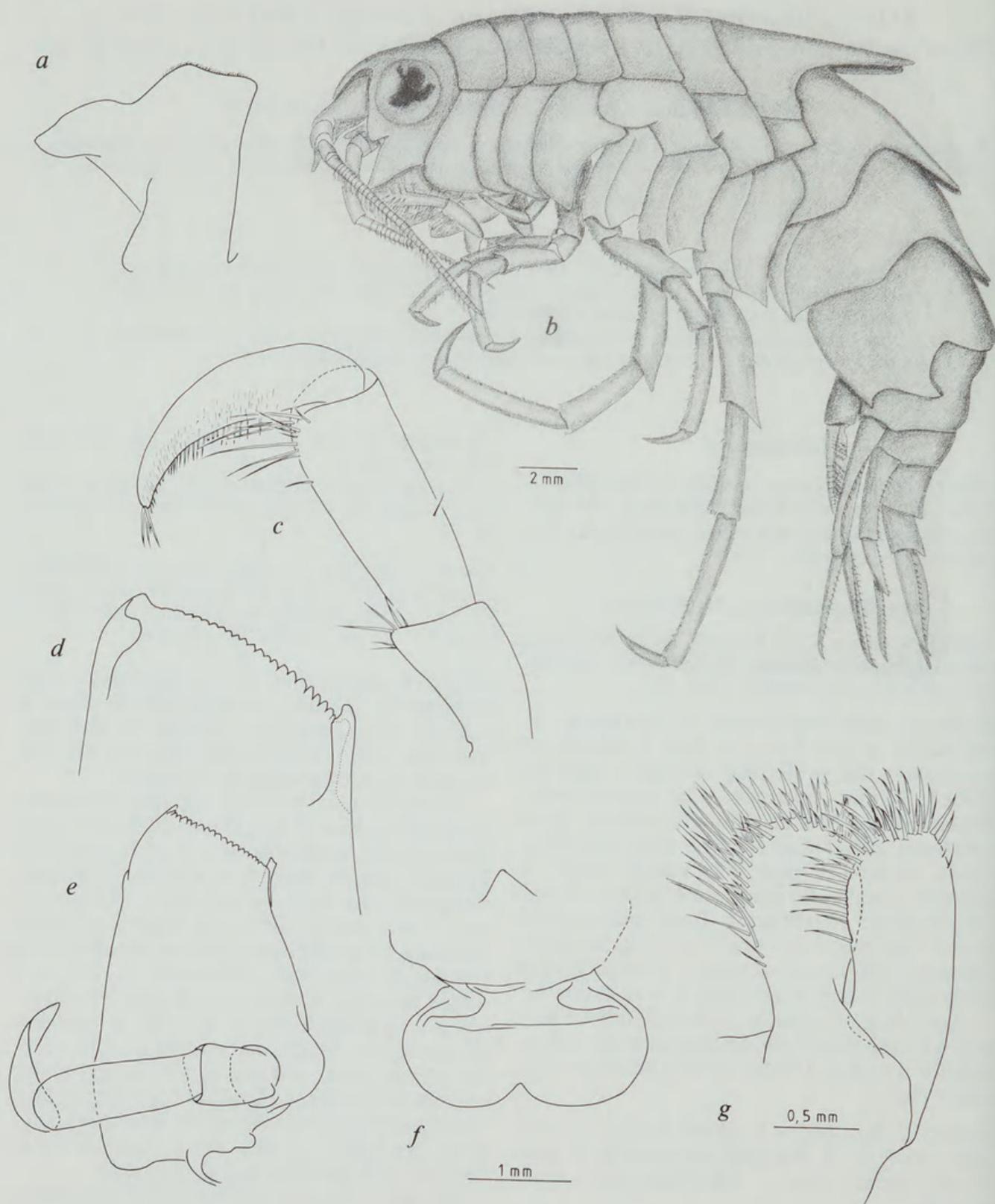


Figure 1. *Maxilliphimedia longipes*, male, 32 mm. a, lower lip; b, lateral view; c, mandibular palp; d, right incisor region; e, left mandible; f, labrum; g, maxilla 2.

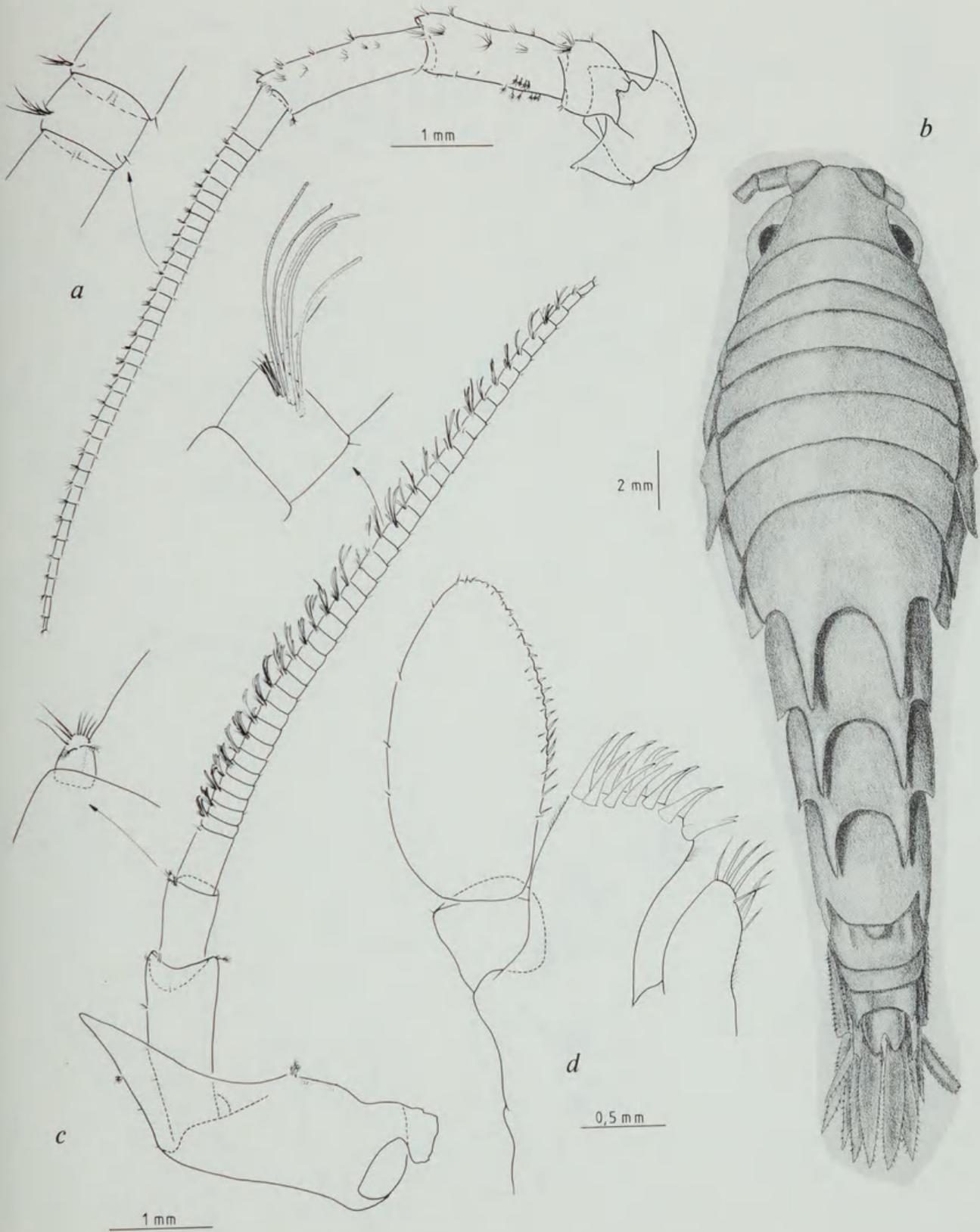


Figure 2. *Maxilliphimedia longipes*, male, 32 mm. a, antenna 2; b, dorsal view; c, antenna 1; d, maxilla 1.

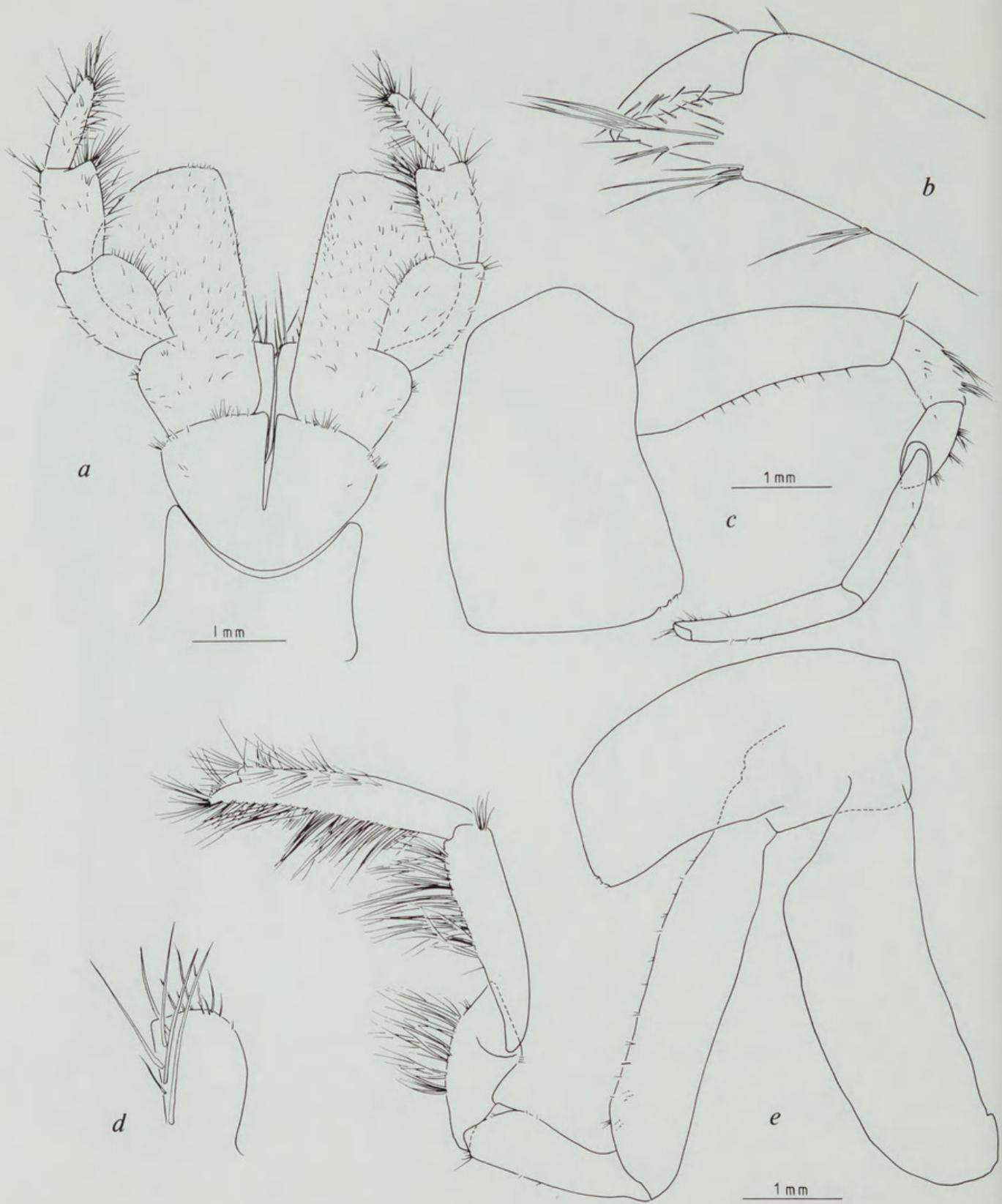


Figure 3. *Maxilliphimedia longipes*, male, 32 mm. a, maxilliped, ventral side; b, chela of gnathopod 1; c, gnathopod 1; d, inner plate of maxilliped, dorsal view; e, gnathopod 2.

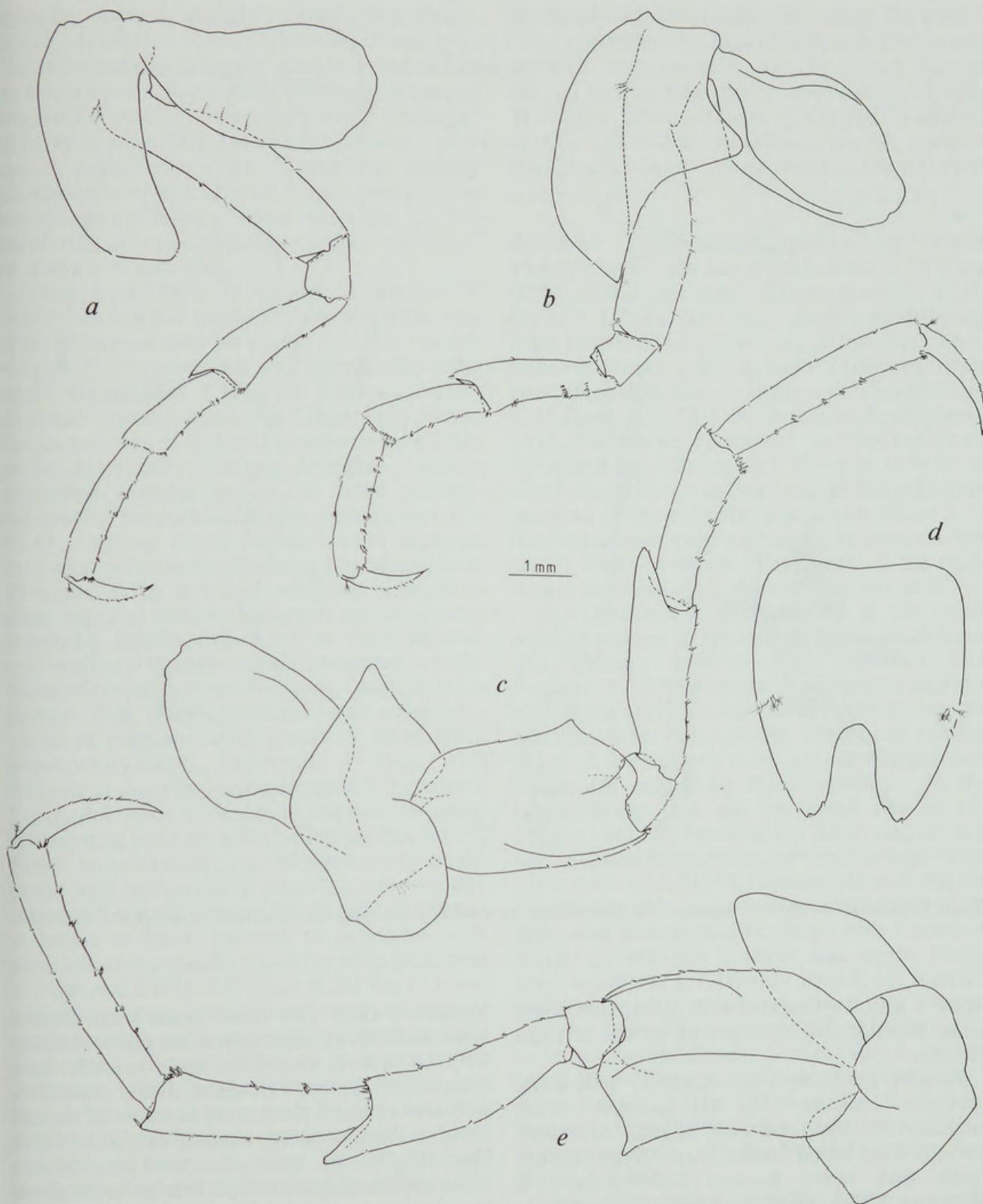


Figure 4. *Maxilliphimedia longipes*, male, 32 mm. a, pereopod 3; b, pereopod 4; c, pereopod 5; d, telson; e, pereopod 6.

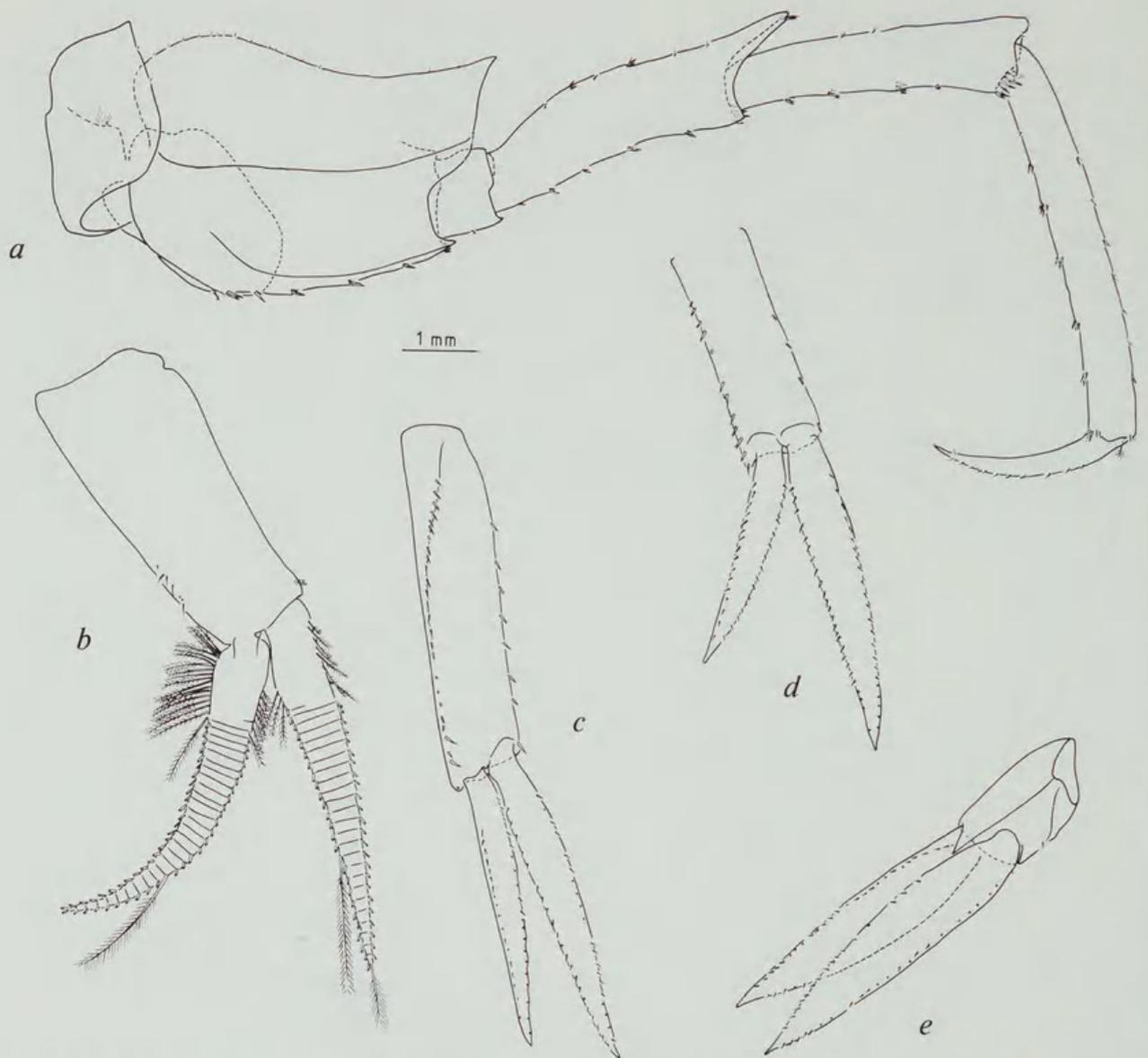


Figure 5. *Maxilliphimedia longipes*, male, 32 mm. a, pereopod 7; b, pleopod 1; c, uropod 1; d, uropod 2; e, uropod 3.

ticles 4 and 5 elongate, with groups of short setae; flagellar (33) articles with groups of setae distally.

Mouthparts bulky, not conically projecting ventrally. Labrum (Fig. 1f) broadly lobate, medially notched; epistome slightly produced dorsally from labral border, acute dorsal margin fused with acute process between second antennae. Mandible (Fig. 1c-d) broad, medially excavate; incisor minutely serrate, right incisor overlapping left; slender laciniae mobilis present on both mandibles; palp 3-articulate, article 2 longest, with group of setae distally, article 3 curved laterally, with ventral row of setae and some longer terminal setae. Lower lip (Fig 1a) truncate apically, mandibular process subacute.

Maxilla 1 (Fig. 2d): inner plate with smooth setae medially and apically; outer plate truncate, with 14 smooth spiniform setae apically; palp biarticulate, article 2 elongate, ovably expanded, with row of short stout setae and row of slender setae extending along medial margin. Maxilliped (Fig. 3a, d): inner plate with long smooth setae mediomarginally and shorter setae distomarginally; outer plate broadened, ventral face and margins covered with short setae; palp 4-articulate, article 1 expanded, article 2 with slightly produced distomedial corner, article 3 slender, article 4 vestigial.

Only coxa 4 (of coxae 1-4) weakly acuminate; coxa 1 broadened distally, truncate apically; coxa 2 slightly tapering distally, truncate

apically; coxa 3 slightly curved posteriorly, distally truncate; coxa 4 rounded anteriorly, pointed ventrally, posterior margin drawn out as subacute cusp; coxa 5 wider than long, rounded anteriorly, pointed posteriorly; coxa 6 shorter than wide, rounded anteriorly, subacute processed posteriorly; coxa 7 smallest, acutely pointed posteriorly. Gill: of coxa 2 not reaching beyond apex of basis; of coxa 3 sack-like, shorter than basis; of coxa 4 sack-like, shorter than basis; of coxae 5–6 sack-like.

Gnathopod 1 (Fig. 3b, c): basis dilated proximally; ischium and merus with groups setae posteriorly; carpus and propodus elongate, length ratio = 31:37, propodus and dactylus forming chela. Gnathopod 2 (Fig. e): ischium slightly expanded distally, somewhat longer than merus; merus broadened distally; groups of long setae posteromarginally; carpus elongate, weakly expanded distally, groups of setae posteromarginally; propodus elongate, ratio to carpus = 51:46, forming chela together with dactylus; long setae posteromarginally and on lateral face. Pereopod 3 (Fig. 4a): basis subequal in length to coxa, slender; ischium smallest; merus slightly expanded distally, drawn out as acute process; carpus shorter than merus and propodus, weakly widened distally; propodus quite long; dactylus slender, with short spiniform setae anteriorly; merus to propodus with groups of short setae posteromarginally. Pereopod 4 (Fig. 4b): ischium to dactylus as in pereopod 3. Pereopod 5 (Fig. 4c): basis widened, with posterior cusp, overlapping coxa proximally; lateral face with 2 ridges; ischium short, partially hidden by basis; merus with posterodistal process; carpus weakly expanded distally; propodus slender, subequal in length to basis; ischium to propodus with setae anteromarginally; dactylus as in pereopod 2. Pereopod 6 (Fig. 4e): basis wider than in preceding pereopod, overlapping coxa posteroproximally, acutely produced posterodistally, lateral faces with 2 ridges; ischium to propodus as for pereopod 5, but longer. Pereopod 7 (Fig. 5a): basis larger than in pereopods 5 and 6, broadest proximally, with acute posterodistal process directed ventrally, 2 ridges on lateral face; ischium to dactylus as described for pereopod 5, but somewhat longer.

Pleopods (Fig. 5b) normal. Uropod 1 (Fig. 5c): peduncle longer (107%) than inner ramus, outer ramus shorter than inner (82%); margins of peduncle and rami bordered with short spine-like setae. Uropod 2 (Fig. 5d): peduncle shorter (70%) than inner ramus; outer ramus shorter than inner (70%); margins of peduncle and rami

bordered with short spine-like setae. Uropod 3 (Fig. 5e): peduncle short, lateral margin turned upwards and pointed distally; outer ramus slightly shorter than inner; rami bordered with spiniform setae. Telson (Fig. 4d) notched slightly more than one-third, lateral margins turned dorsalwards, 3 plumose setae on each side.

Remarks. The material redescribed herein matches well with the descriptions of Walker (1906, 1907) and the additions given by K.H. Barnard (1930). The only characters differing from former descriptions are: (a) the upper lip is notched rather symmetrically (different from conditions described in the generic diagnosis by K.H. Barnard (1930)); (b) the basis of gnathopod 1 is less setose compared to the specimen described by Watling and Holman (1981). A slight variability was observed in the posterior margins of the epimeral plates and coxae 5–7; they are acutely pointed in some specimens, but rather blunt in others. The depth of the mid-dorsal depression on pleonite 1 is variable.

Maxilliphimedia undoubtedly is the most primitive genus in the Iphimediidae (as defined and strongly restricted by Coleman and Barnard, 1991, but see the phylogenetic analysis of Watling and Thurston, 1989). Apart from the plesiomorphic state of the transverse cutting plane of the incisors there are some characters which are unique to *Maxilliphimedia* in the Iphimediidae, but can be found also in the Stilipedidae: (1) mouthparts not arranged in a conical bundle, but bulky, covered by large outer plate of the maxilliped; (2) outer plate of maxilla 1 with smooth spiniform setae apically; palp expanded distally and bordered with 2 rows of setae; (3) maxilla 2 inner and outer plates rounded distally, relatively broad; (4) maxillipedal outer plate with reduced setation marginally, but ventral face covered with short setae; (5) coxa 1 expanded distally (versus tapering coxa 1 in all other Iphimediidae); (6) pereopods 5 to 7 increasing in length; (7) pereopod 7 reaching beyond uropods (compare with the stilipidid *Bathypanoploea schellenbergi* Holman and Watling, 1983).

Two other synapomorphic features clearly designate *Maxilliphimedia longipes* as an iphimediid: (1) gnathopods both chelate, with the typical pattern of length, shape and setation; (2) paired teeth present on pereonite 7 and pleonites 1–2. It cannot yet be decided if the characters shared by the primitive Stilipedidae and the more advanced *Maxilliphimedia* are convergent

formations due to a similar mode of life or a result of phylogenetic vicinity.

Distribution. Coulman Island, 180 m (type locality); McMurdo Sound, 379 m; Bransfield Strait, 265–769 m; Antarctic Peninsula, 384–392 m.

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