

New species and records of valviferan isopods (Crustacea: Isopoda: Valvifera) from the Indian Ocean

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Abstract.—Four new species of valviferans are described: *Arcturinooides angulata*, *Astacilla mccaini* and *Astacilla spinicutis* (family Arcturidae), and *Neoarcturus obesopleon* (family Holidoteidae). *Amesopous richardsonae* (Arcturidae) is redescribed and reported from widely separate localities throughout the Indian Ocean, tropical Australia and Japan.

The marine isopod fauna of the Indian Ocean is recorded in many scattered papers. The region has been unevenly sampled, some few areas being relatively well explored, but most of the region, both shallow and deep waters, is poorly known or uncollected. Few papers provide an overview of the isopod fauna of the entire region (Bruce 1997, Kensley 2001). This paper on the Valvifera continues a series by the late Brian Kensley and Marilyn Schotte documenting the marine isopod diversity of the Indian Ocean (see Kensley & Schotte 2000, 2002; Schotte & Kensley 2005).

Here, four new species of Valvifera in two families are described and the range of another considerably extended. About 56 species of valviferans have been recorded from the Indian Ocean (Kensley 2001). The material reported here comes from the western Indian Ocean (Zanzibar Island) and from the International Indian Ocean Expedition (mid-1960s), collected off the east African coast and Madagascar. It is supplemented by collections from the Persian Gulf, Japan and Aus-

tralia held in Museum Victoria. This paper does not repeat diagnoses of higher level taxa; revisionary works are referred to in the generic synonymies. Illustrations were drafted by BK and completed by MS; the higher taxonomy is the decision of GCBP. Species are diagnosed using a suite of characters that differentiate them from others in their respective genera; mouthparts and most limbs are figured but described in words in only some cases.

A key to *Arcturinooides* is offered. Indian Ocean species of *Astacilla* are listed with information on distribution.

Abbreviations.—IIOE - International Indian Ocean Expedition; NMV - Museum Victoria, Melbourne; SAM - South African Museum, Cape Town; USNM - National Museum of Natural History, Smithsonian Institution; ZMUC - Zoological Museum, University of Copenhagen. Scale bars on illustrations refer only to habitus drawings.

Systematics

Family Arcturidae Sars, 1897
Amesopous Stebbing, 1905

Amesopous Stebbing, 1905:44.

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Type species.—*Amesopous richardsonae* Stebbing, 1905 (by monotypy).

Remarks.—The monotypic genus *Amesopous* is unique among the Arcturidae in the combination of straight body form and absence of pereopods 3 and 4. The genus was placed in its own family, Amesopodidae, by Stebbing (1905) but included with Arcturidae by Poore (2001), Poore et al. (2002) and King (2003a).

Amesopous richardsonae Stebbing, 1905
Figs. 1, 2

Amesopous richardsonae Stebbing, 1905:
44, pl. 11A.—Poore, 2001:222–223.—
Poore et al., 2002:258.

Material examined by BK and MS.—USNM 221501, 2 males, 4.5 mm, 1 ovigerous female, 5.0 mm, 10°54'S, 133°02'E, New Year Island, Northern Territory, Australia, sand and coral, 14 m, coll. G. C. B. Poore, 14 Oct 1982; USNM 253343, 1 male, 4.8 mm, 3 ovigerous females, 6.2–6.3 mm, 2 juveniles, off Somalia, 11°24'N, 51°35'E, 150 m, 17 Dec 1964 (IIOE stn 463); USNM 253345, 2 ovigerous females, 2 juveniles, Bay of Bengal off Andaman Islands, 11°52'N, 92°49'E, 66 m, 27 Mar 1963 (IIOE stn 28A); USNM 253346, 2 ovigerous females, southern Mozambique, 19°09'S, 36°55'E, 88 m, 9 Oct 1964 (IIOE stn 403-E); USNM 253347, one ovigerous female, off Somalia, 11°37'N, 51°27'E, 18 Dec 1964 (IIOE stn 465).

Material examined by GCBP.—NMV J16488, 30 specimens; J48650, 4 specimens; J16491, 2 specimens; J16495, 19 specimens; J48651, 1 specimen; J16496, 2 specimens: Northern Territory, Australia, McCluer Island, 11°2'S, 132°58'E, 8 m, on coral *Acropora*, sand and yellow hydroid habitats, J. K. Lowry, G. C. B. Poore et al., 16–17 Oct 1982 (stns NT 33, 45, 52–54). NMV J16493, 18 specimens; J16497, 1 specimen; J16492, 3 specimens; J16494, 50 specimens: Northern Territo-

ry, Australia, New Year Island, N. side, patch reef, 10°54'S, 133°2'E, 6–14 m, sand and hydroids, J. K. Lowry, G. C. B. Poore et al., 13–14 Oct 1982 (stns NT 3, 17, 20, 22). NMV J16490, 1 specimen, Northern Territory, Australia, Oxley Island, W. end, reef, 11°0'S, 132°49'E, 5 m, coral sand and rubble, J. K. Lowry, 20 Oct 1982 (stn NT 75). NMV J16489, 10 specimens, Northern Territory, Australia, Fannie Bay, W of East Point, 11°24'S, 130°48'E, 8 m, hydroids etc., J. K. Lowry, 26 Oct 1982 (stn NT 90). NMV J16486, 4 specimens, Queensland, Australia, Lizard Island, Granite Head, 100 m offshore, sloping granite surface with some coral and sponge, 14°40'S, 145°27'E, 7 m, on hydroid *Lytocarpus philippinus*, G. C. B. Poore, 11 Dec 1987 (stn NQ 127). NMV J16487, 1 specimen, Queensland, Australia, Fantome Island, coral reef on N side, 18°40'S, 146°31'E, 5 m, black hydroid, G. C. B. Poore and H. M. Lew Ton 5 Dec 1982 (stn NQ 12). NMV J48652, 1 specimen, Western Australia, Northwest Shelf, between Dampier and Port Hedland, 19°29.7'S, 118°52.2'E, 39 m, WHOI epibenthic sled, CSIRO Division of Fisheries, 24 Oct 1983 (stn NWA 276). NMV J16498, 1 specimen, Japan, Tomioka, 3 m, on *Sargassum patens*, G. Edgar, 12 Apr 1988.

Abbreviated description.—Female: Body about 9 times longer than greatest width, widest at pereonite 3 in ovigerous female. Cephalon with anterior margin concave, line of fusion with pereonite 1 marked by shallow groove; eyes large, oval, well pigmented, lateral. Pleotelson with 2 fused segments marked by shallow grooves, plus tapering pleotelson. Antennule having flagellum of 2 articles, basal article very short; with 2 distal aesthetascs. Antenna half length of body; 3 distal peduncle articles elongate, cylindrical; flagellum of 3 articles, with terminal claw. Mandible molar broadly truncate, strong; lacinia mobilis bifid. Maxillipedal palp article 2 with 3 circumplumose setae on mesial

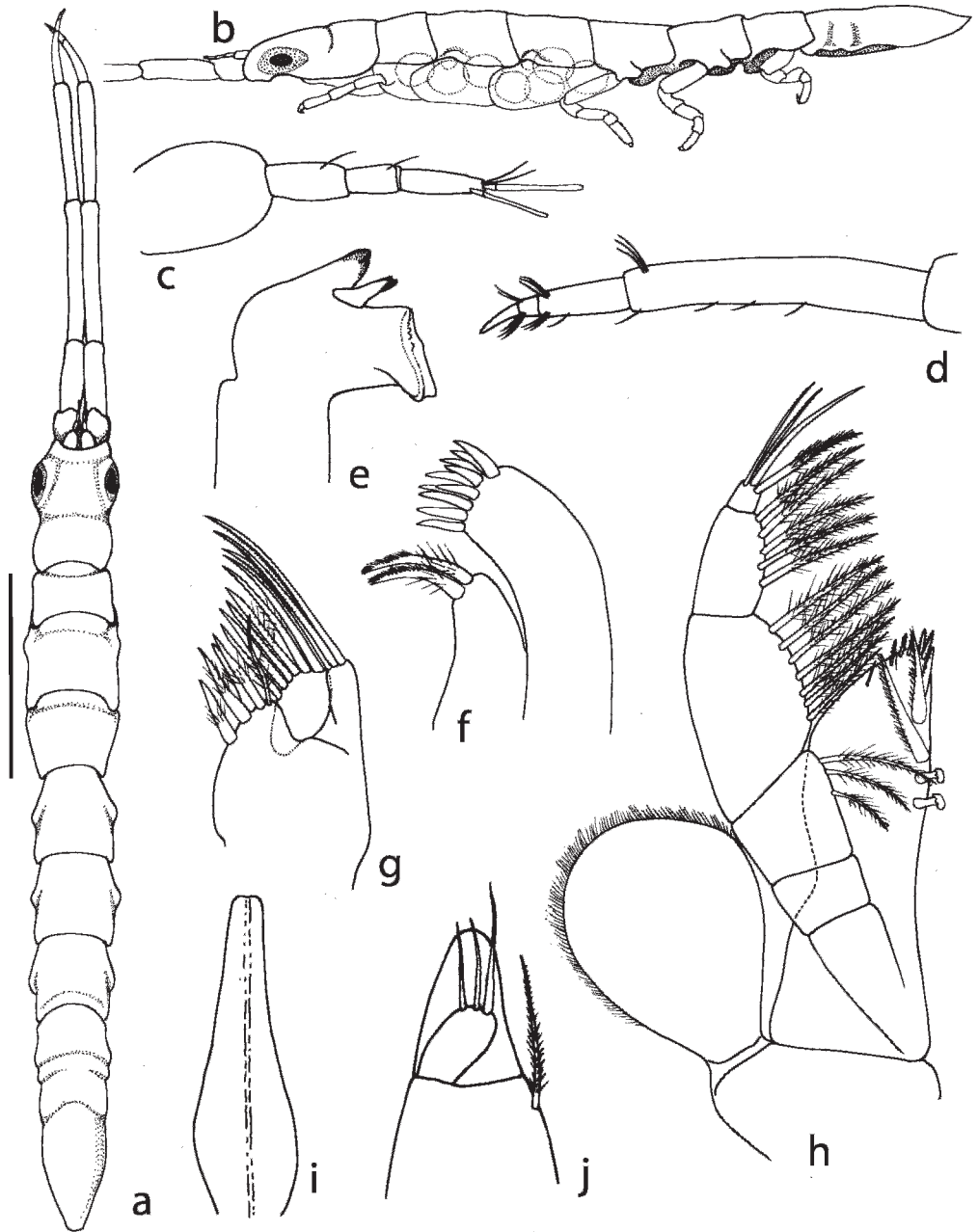


Fig. 1. *Amesopous richardsonae* Stebbing. a, b, ovigerous female in dorsal and lateral views, scale = 2.0 mm; c, antennule; d, antennal flagellum; e, mandible; f, g, maxillae 1, 2; h, maxilliped; i, penial plate; j, uropodal rami.

margin; article 3 with 7 setae, article 4 with 5 setae; terminal article with single circumplumose setae and 3 simple setae; endite bearing 2 coupling hooks, 3 stout fringed setae mesiodistally. Pereopod 1 with car-

pus and propodus bearing row of strong tridentate setae on mesial margin; dactylus short, as long as wide, bearing 3 distal simple setae; basis almost as long as carpus, merus, and ischium together.

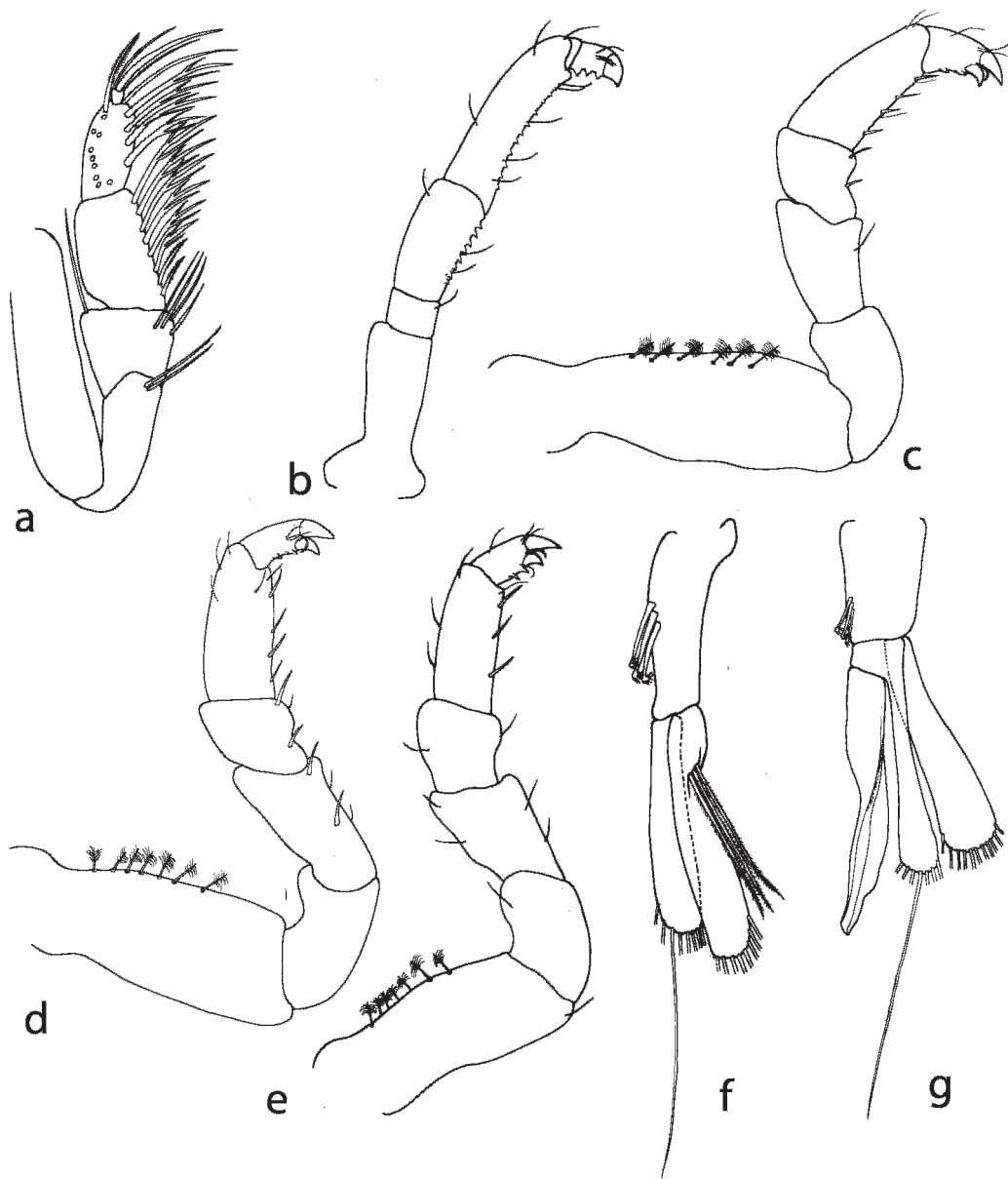


Fig. 2. *Amesopus richardsonae* Stebbing. a-e, pereopods 1, 2, 5-7; f, g, male pleopods 1, 2.

Pereopod 2 ambulatory, with distinct basis; ischium-merus weakly defined, bearing row of triangular teeth on posterior margin; carpus-propodus fused, with posterior denticles; dactylus bearing 3 teeth on posterior surface. Pereopods 5-7 robust, ambulatory/prehensile, similar, but with basis becoming shorter posteriorly; dacty-

lus biunguiculate. Uropodal apex with reduced endopod bearing 3 distal setae.

Male: Body similar to female. Penes fused as a single structure, basally broad, tapering distally. Pleopod 1 peduncle subequal in length to endopod, with 3 coupling hooks; endopod bearing 8 elongate plumose setae on distal margin;

exopod with proximal notch on lateral margin bearing 3 elongate setae, distal margin bearing 8 elongate plumose setae. Pleopod 2 with peduncle broader than in pleopod 1; exopod bearing robust appendix masculina, basally broader than exopod, longer than exopod, tapering to oblique-truncate apex, with groove running entire length on anterior face; endopod bearing 7 elongate distal plumose setae; exopod with 11 or 12 elongate distal plumose setae.

Remarks.—*Amesopous richardsonae* is a more abundant species than its single previous collection mentioned in the literature would suggest. It may be restricted to hydroids but has been taken in dredged samples as well as in coral reef environments. The species was described initially from pearl oyster beds in the Gulf of Manaar, Sri Lanka, but new records from the African coast of the northern Indian Ocean, Andaman Islands, tropical Australia, and Japan considerably expand the species' range.

Arcturinoidea Kensley, 1977

Arcturinoidea Kensley, 1977:241–242.

Type species.—*Arcturinoidea sexpes* Kensley, 1977 (by original designation).

Remarks.—A fourth species of this distinctive, vaulted rather than cylindrical, arcturid genus is reported together with new records of the two Indian Ocean species previously described. Species of *Arcturinoidea* have pereopods 2 and 3 without numerous setae and without dactyli, lack pereopod 4, and have a broad maxillipedal palp article 3.

Key to species of *Arcturinoidea*

1. Lateral margins of pereonites 3 and 4 in mature female almost parallel-sided in dorsal view, with obtuse angles in front and behind; lateral margins of pereonites 5–7 in mature male angled, pereonite 5 the widest *A. angulata*, sp. nov.
- Lateral margins of pereonites 3 and 4 in mature female rounded in dorsal view; lateral margins of pereonites 5–7 in mature male rounded or straight or only pereonite 5 strongly angled 2
2. Pereonite 4 in mature female about 1.5 times as wide as pereonite 5; lateral margins of all pereonites of male rounded to slightly angled *A. sexpes* Kensley, 1977
- Pereonite 4 in mature female twice as wide as pereonite 5; lateral margins of male pereonite 5 angled 3
3. Pereonite 4 of mature female with high hemispherical boss; pereonites 2 and 5 of male prominently angled *A. gibbosus* Müller, 1989
- Pereonite 4 of mature female with low ridge divided into longer anterior and shorter posterior sections; only pereonite 5 of male prominently angled *A. dakhla* Menioui & Poore, 2008

Arcturinoidea angulata, sp. nov.

Figs. 3, 4

Type material.—HOLOTYPE. USNM 253327, male, 4.0 mm, Persian Gulf, Kuwait Bay, 29°28'N, 47°55'E, gray clay with shells, Mar 1982 (stn 553). PARATYPES. USNM 253328, 4 ovigerous females, 4.0–4.5 mm, 2 males, one juvenile, same data as holotype; USNM 253329, 5 males, 8 ovigerous females, 2 females, Mar 1982 (stn 353).

Other material examined by BK and MS.—USNM 253330, 22 males, 26 ovigerous females, six females, 17 juveniles, from 32 stations in Persian Gulf, 1.3–2.3 m, 1981–1982.

Other material examined by GCBP.—NMV J55377, 2 males, 5 females, United Arab Emirates, Umm Al Quwain, Khor Al Beidah, 25°33.70'S, 55°37.48'E, F. Kennedy, 2007.

Diagnosis.—Lateral margins of pereonites 3 and 4 in mature female almost parallel-sided in dorsal view, with obtuse angles in front and behind; pereonite 4 in mature female 1.2 times as wide as pereonite 5, with low middorsal carina.

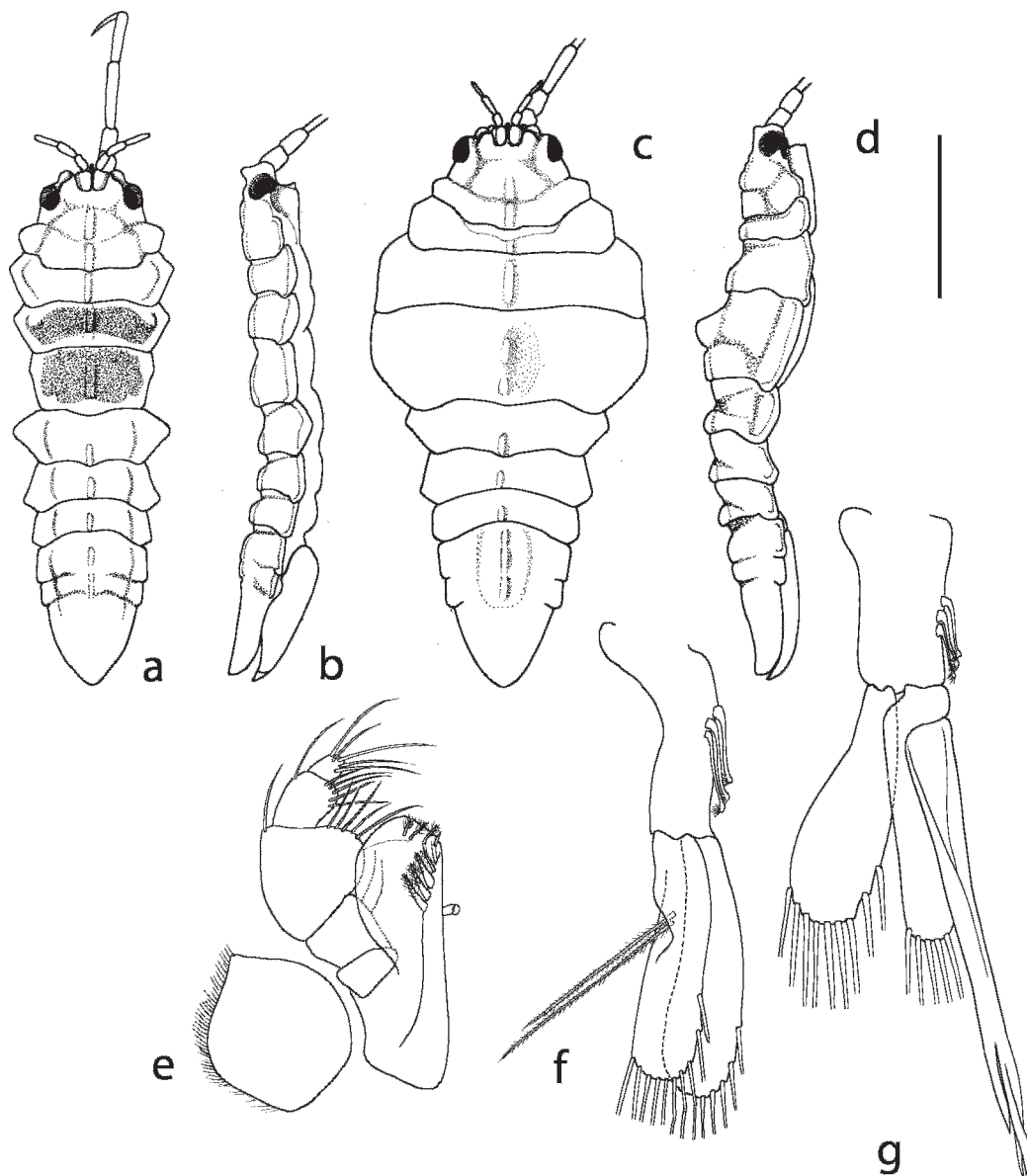


Fig. 3. *Arcturinoidea angulata*. a, b, holotype male in dorsal and lateral views (USNM 253327); c, d, ovigerous female in dorsal and lateral views, scale = 1.0 mm (USNM 253328); e, maxilliped; f, g, male pleopods 1, 2 (USNM 253327).

Lateral margins of pereonites 5–7 in mature male angled, pereonite 5 the widest.

Abbreviated description.—Female: Body length 2.3 times width at pereonite 4. All pereonites laterally obtusely angulate; pereonites 3 and 4 widest and parallel sided. All pereonites (except pereonite 4)

with low rounded middorsal carina; pereonite 4 with rounded crest-like middorsal carina in anterior half, low rounded carinae in posterior half. Oostegite 1 membranous, small, rectangular, hidden by others; oostegite 2 membranous, narrow, supported by visible, transversely-directed spike-like coxal plate; oostegite 3

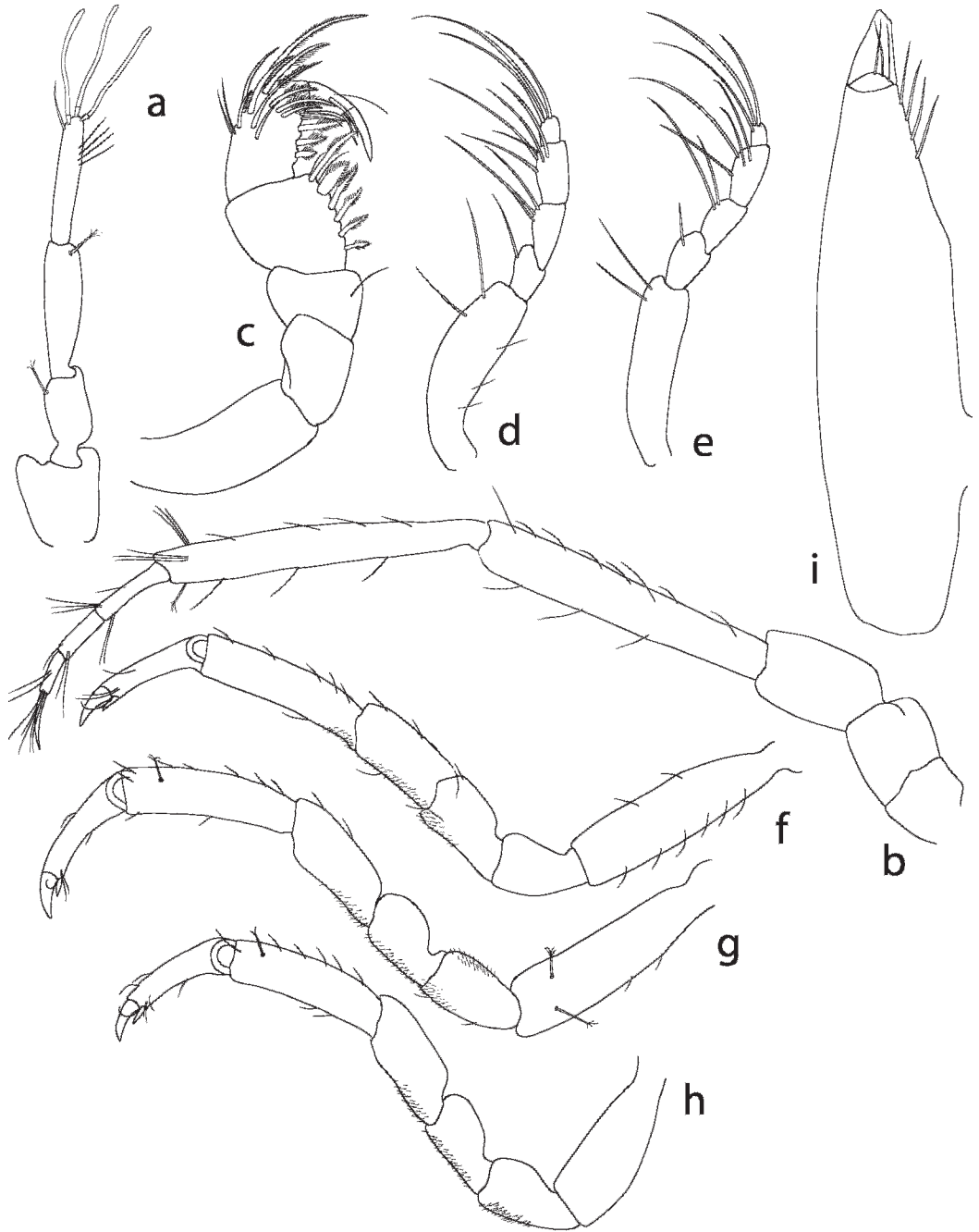


Fig. 4. *Arcturinoidea angulata*. a, antennule; b, antenna; c-h, pereopods 1-4, 6, 7; i, uropod (USNM 253327).

membranous, half area of oostegite 4, distinct from coxa 4; oostegite 4 chitinised, extending to midline and covering coxa 3.

Male: Body 3.3 times longer than width of expanded pereonite 5. Cephalon with low rounded middorsal carina in posterior half. Pereonites 1-3 subequal in width,

laterally angulate, each with low rounded middorsal carina; pereonite 4 narrowest, laterally barely angulate; pereonite 5 widest, laterally triangular; pereonites 6 and 7 laterally angulate. Pleotelson with two 'shoulders' on each side indicating pleonites 1 and 2, apex narrowly rounded, with low rounded middorsal tripartite carina. Pereonites 3 and 4 usually with broad red-brown pigmented areas dorsally.

Antennule peduncle article 3 almost as long as first two together, flagellum of 1 article as long as peduncle article 3, bearing 3 distal aesthetascs. Antenna peduncle articles 1–3 short, articles 4 and 5 elongate, cylindrical, each as long as articles 1–3 together; flagellum of 3 articles plus terminal claw. Pereopod 1 carpus bearing 6 stout bifringed setae on posterior margin, propodus with 3 bifringed setae on posterior margin plus several more elongate setae on mesial surface. Pereopods 2 and 3 lacking dactylus, remaining articles bearing few elongate fringed setae. Pereopods 5–7 with few short setae. Pleopod 1 endopod having emargination at about midlength of mesial margin bearing 2 elongate fringed setae. Pleopod 2, appendix masculina robust, articulating near base of endopod, extending beyond rami by half its length, apically trifid. Uropodal endopod shorter than wide, lens-shaped, bearing 3 setae.

Remarks.—The differences among the four similar species of *Arcturinoidea* are summarized in the key to species above. The description of the oostegites given above is probably true of all species.

Etymology.—The specific name refers to the angled lateral margins of the pereonites in both males and females.

Arcturinoidea gibbosus Müller, 1989

Arcturinoidea gibbosus Müller, 1989:196–199, figs. 1–22.

Material examined.—ZMUC CRU-1891, 1 ovigerous female, Murogo Reef,

Zanzibar, 6°12'S, 39°06'E, Mozambique, 16 m, coral, N. L. Bruce, 20 Sept 1995.

Diagnosis.—Lateral margins of pereonites 3 and 4 in mature female rounded in dorsal view; pereonite 4 in mature female twice as wide as pereonite 5, with high hemispherical boss. Lateral margins of pereonites 2 and 5 of male prominently angled.

Remarks.—Previously recorded from the Gulf of Aden at 76 m depth, the species' range is now extended south, to Mozambique, and into shallower water (16 m depth).

Arcturinoidea seipes Kensley, 1977

Arcturinoidea seipes Kensley, 1977:242, figs. 3–5.—Kensley, 1978a:22, fig. 9A–C.

Material examined.—USNM 253324, 2 non-ovigerous females, off Mozambique, 24°49'S, 35°13'E, 73 m, Aug 1964 (IIOE cruise 7, stn 371-G); USNM 253325, 1 ovigerous female, off Mozambique, 24°48'S, 34°59'E, 92 m, 19 Aug 1964 (IIOE cruise 7, stn 372-B); USNM 253326, 2 ovigerous females, N of Beira, Mozambique, 19°09'S, 36°55'E, 88 m, Oct 1964 (IIOE cruise 8, stn 403-E).

Diagnosis.—Lateral margins of pereonites 3 and 4 in mature female rounded in dorsal view; pereonite 4 in mature female 1.5 times as wide as pereonite 5, with prominent middorsal saddle. Lateral margins of all pereonites of male rounded to slightly angled, none especially produced.

Remarks.—Originally recorded at 26–60 m from off Natal, South Africa, the species is now recorded further north in Mozambique.

Astacilla Cordiner, 1793

Astacilla.—Sars, 1897:87.—King, 2003b: 361.

Arcturella Sars, 1897:92.

Remarks.—The genera *Astacilla* and *Arcturella* have always been difficult to

distinguish. Sars (1897) differentiated *Arcturella* from *Astacilla* on the broader body and “less elongated” pereopods 2–4, but a review of the 46 species assigned to the two genera (Schotte et al. 2005 onwards) finds all intermediate forms from extremely narrow to compact forms and diverse pereopod shapes. King (2001), in a phylogenetic analysis, could not find characters that would reliably differentiate the genera. She reported two synapomorphies for *Astacilla* sensu lato: loss of dactyls and flexion between the carpus and the propodus on pereopods 2–4 and used these characters to assign *A. lewtonae* to this genus (King 2003b). The two genera are treated as synonymous here, an initiative introduced to this paper by the third author. Species of *Astacilla* are variously cylindrical or more or less flattened, have all pereopods present, pereopod 1 with a claw, pereopods 2–4 without dactyls, pereonite 4 elongate, and the appendix masculina elongate and straight. Kensley (1978a) treated all six southern African species as *Arcturella*.

Species of *Astacilla* from the Indian Ocean are:

A. amblyura Stebbing, 1905 (9.0 mm. Gulf of Manaar, Sri Lanka)

A. brevipes (Barnard, 1920) (9.0 mm. False Bay to Port Elizabeth, South Africa)

A. corniger Stebbing, 1873 (12.0 mm. Saldanha Bay to Port Elizabeth, South Africa)

A. eminentia Kensley, 1984 (6.7 mm. Zululand coast of South Africa)

A. gibbossa Pillai, 1954 (length not given. Travancore, India)

A. lewtonae King, 2003b (7.3 mm. NW Western Australia)

A. lineata Stebbing, 1873 (11.0 mm. Luderitz, Namibia to East London, South Africa (Kensley & Schotte 1984))

A. lobulata (Barnard, 1925) (10.5 mm. False Bay to Natal, South Africa)

A. longipes (Barnard, 1920) (10.0 mm. Table Bay to Port Elizabeth, South Africa)

A. longispina (Kensley, 1978b) (10.5 mm. Off Natal, South Africa; Mozambique (Kensley 2001))

A. mccaini, sp. nov. (7.0 mm. Persian Gulf, Saudi Arabia)

A. pustulata (Barnard, 1920) (10.0 mm. Off Natal, South Africa)

A. spinicutis, sp. nov. (8.9–9.6 mm. Off south-east coast of South Africa)

A. tranquilla (Kensley, 1975) (6.3 mm. Still Bay, South Africa)

Astacilla mccaini, sp. nov.

Figs. 5, 6

Type material.—HOLOTYPE. USNM 253336, male, 7.0 mm, eastern Manifa Bay, 27°30'N, 48°54'E, Persian Gulf, Saudi Arabia, seagrass and sand bottom, 1.3 m, Mar 1982 (stn 5G1). PARATYPES. USNM 253337, 7 males, 6.2–6.5 mm, 9 ovigerous females 7.0–8.5 mm, 6 females, 7 juveniles, same data as holotype; USNM 253338, 2 males, 4 ovigerous females, 2 juveniles, middle Manifa Bay, Persian Gulf, Saudi Arabia, seagrass and sand bottom, 1.3 m, 20 Nov 1981 (stn 4G1).

Other material examined.—USNM 253339, 55 males, 43 ovigerous females, 12 females, 86 juveniles, from 60 stations in Kuwait Bay, Persian Gulf, 1–3 m, collected 1981–1982.

Diagnosis.—Male: Body cylindrical, lacking ornamentation. Pereonite 4 tubular, 4.2 times longer than deep. Pleotelson longer than 3 preceding pereonites, apically narrowly rounded, with two rounded ‘shoulders’ on each side. Antennule with flagellum only slightly shorter than 3 peduncle articles together, bearing about 16 aesthetascs. Antennal flagellum of 2 articles plus apical claw, posterior surface of both articles bearing double row of acute triangular scales. Penial plate narrowly rectangular. Pleopod 2, appendix masculina articulating near base of endopod, reaching beyond ramus by 0.6 its length, tapering distally, consisting of 2 apically rounded slender structures

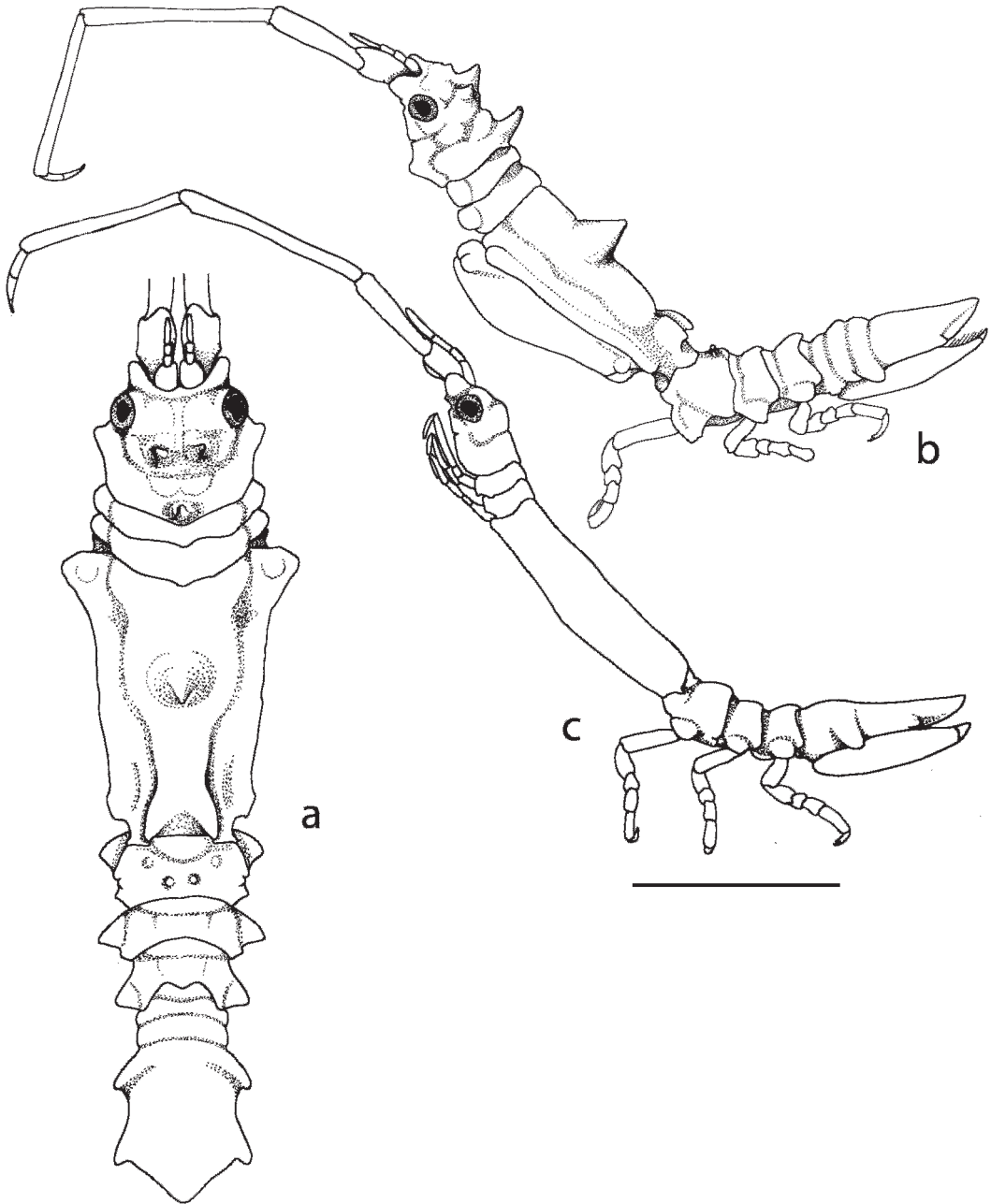


Fig. 5. *Astacilla mccaini*. a, b, ovigerous female in dorsal and lateral views, scale = 2.0 mm (USNM 253337); c, holotype male in lateral view (USNM 253336).

sheathed basally. Uropodal endopod about half length and width of exopod, bearing 2 distal setae.

Female: Cephalon with pair of submedian conical tubercles posterior to eyes. Median conical tubercle near poste-

rior margin of pereonite 1. Body widest at anterior of pereonite 4; latter with longitudinal raised mesial area dorsally, bearing strong conical tubercle at midlength, and having submedian pair of low tubercles posteriorly. Pereonite 5 having 2

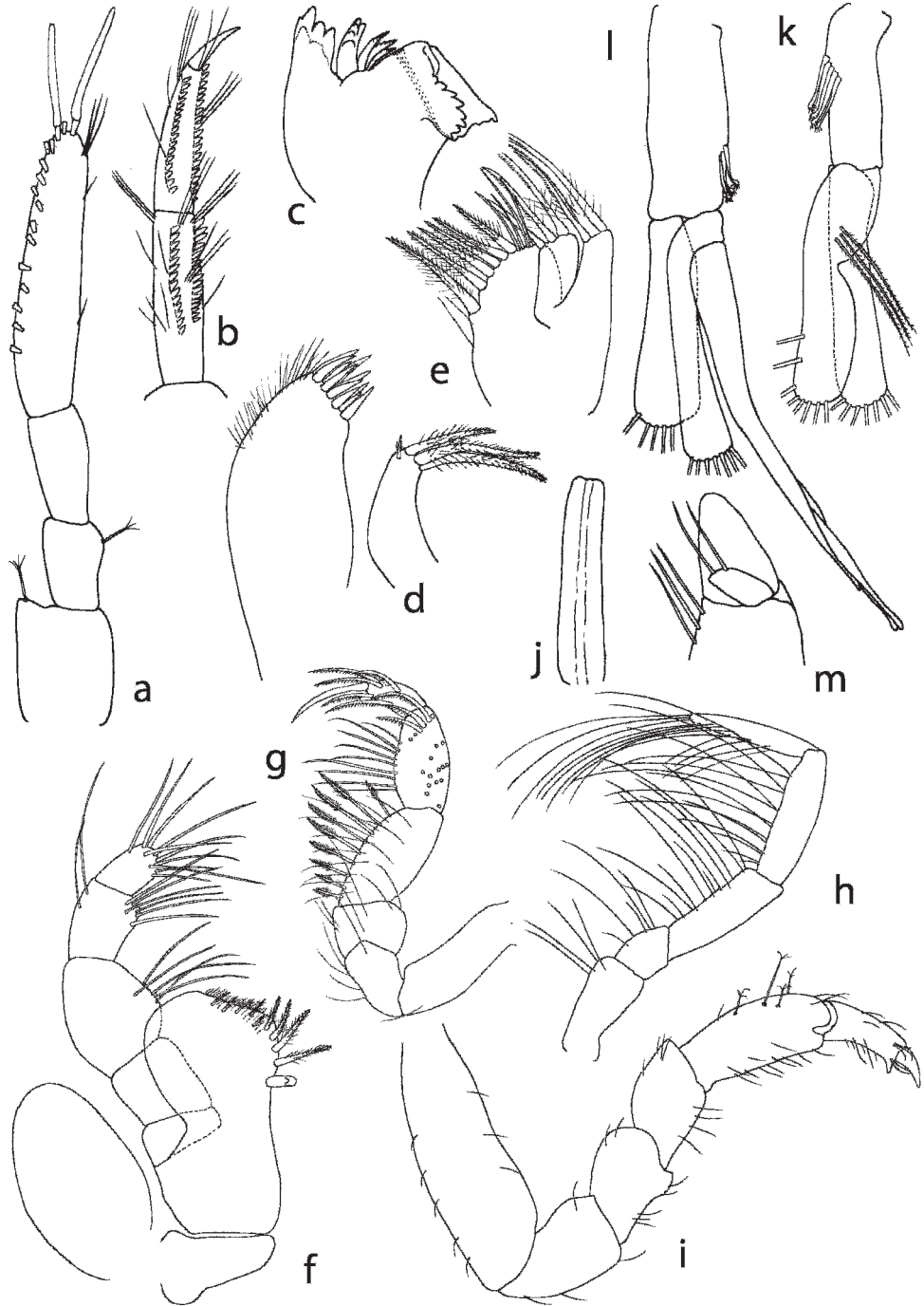


Fig. 6. *Astacilla mccaini*. a, antennule; b, ventral view of antennal flagellum; c, mandible; d, e, maxillae 1, 2; f, maxilliped; g-i, pereopods 1, 2, 7; j, penial plate; k, l, male pleopods 1, 2; m, uropodal rami (USNM 253336).

small submedian tubercles near posterior margin. Pleotelson having grooves anteriorly, marking lines of fusion of pleonites; with 2 rounded 'shoulders' on each side; apex a rounded right-angle.

Remarks.—Two species of *Astacilla* from the northern Indian Ocean most closely resemble the present species. *Astacilla amblyura* Stebbing, 1905 from the Gulf of Manaar, has a similar pereonite 4 in the female, with a middorsal conical tubercle. The pleotelson, while similar, however, is more slender in *A. amblyura*, which also possesses a basal tooth on the proximal fourth antennal peduncle article. This latter feature is absent in *A. mccaini*. *Astacilla gibbosus* Pillai, 1954, was not illustrated when described, but Pillai (1954:18) noted that it closely resembled *A. sheardi* Hale, 1946, from South Australia, in the structure of the antenna and sculpturing of the body. The female of the Australian species is a narrow, almost cylindrical animal, quite different from *A. mccaini*, which has a broad pereonite 4. *Astacilla gibbosus* presumably would differ from the present material in the same way.

Etymology.—The species is named for Dr. J. C. McCain, who collected a great deal of material in the Persian Gulf.

Astacilla spinicutis, sp. nov.

Fig. 7

Type material.—HOLOTYPE. SAM-43182, ovigerous female 9.6 mm, off south-east coast of South Africa, 33°30.3'S, 27°22.1'E, 80 m, 29 May 1978 (R/V *Meiring Naude* stn SM-179). PARATYPES. SAM-43183, 2 ovigerous females (one damaged) 8.9 mm, same data as holotype.

Diagnosis.—Female: Body about 2.4 times longer than wide, widest at anterior pereonite 4. Entire integument bearing tiny triangular spinules and short setules. Cephalon with most of dorsal area moderately convex. Pereonites 1–3 laterally rounded; pereonite 4 widest anterior-

ly, tapering posteriorly, dorsally evenly rounded, lacking ridges or ornamentation. Pereonites 5–7 decreasing in width, with low rounded lateral ridges. Pleotelson with single lateral 'shoulder', then tapering to narrowly rounded posterior apex.

Antennular flagellum bearing 4 aesthetascs distally. Antennal flagellum of terminal claw plus 3 articles bearing row of triangular scales.

Male: Unknown.

Remarks.—In the lateral expansion of the female pereonite 4, *Astacilla spinicutis* resembles none of the wide species previously assigned to *Arcturella* recorded from the east coast of South Africa (Kensley 1978a). Further, the distinctive integumental structure of spinules and setules differs from that of any of these species.

Etymology.—The specific name is a combination of the Latin '*spina*', a spine, and '*cutis*', skin, and refers to the finely spinulose integument of the exoskeleton.

Holidoteidae Wägele, 1989

Neoarcturus Barnard, 1914

Neoarcturus Barnard, 1914:213.—Poore, 1991:1.—Poore, 2003:1818–1819.

Remarks.—Poore (2003) assigned nine species of southern African Arcturidae to Holidoteidae and to the genus *Neoarcturus*. The family is endemic to the southern African region. Most species had previously been treated as belonging to the *nomen nudum* '*Microarcturus*', as for example in Kensley (1978a). The new species extends the range of the family and genus a little north along the eastern coast of Africa.

Neoarcturus obesopleon, sp. nov.

Fig. 8

Type material.—HOLOTYPE. USNM 253341, male, 7.9 mm, off southern Mozambique, 24°04'S, 36°15'E, 1610 m, 17

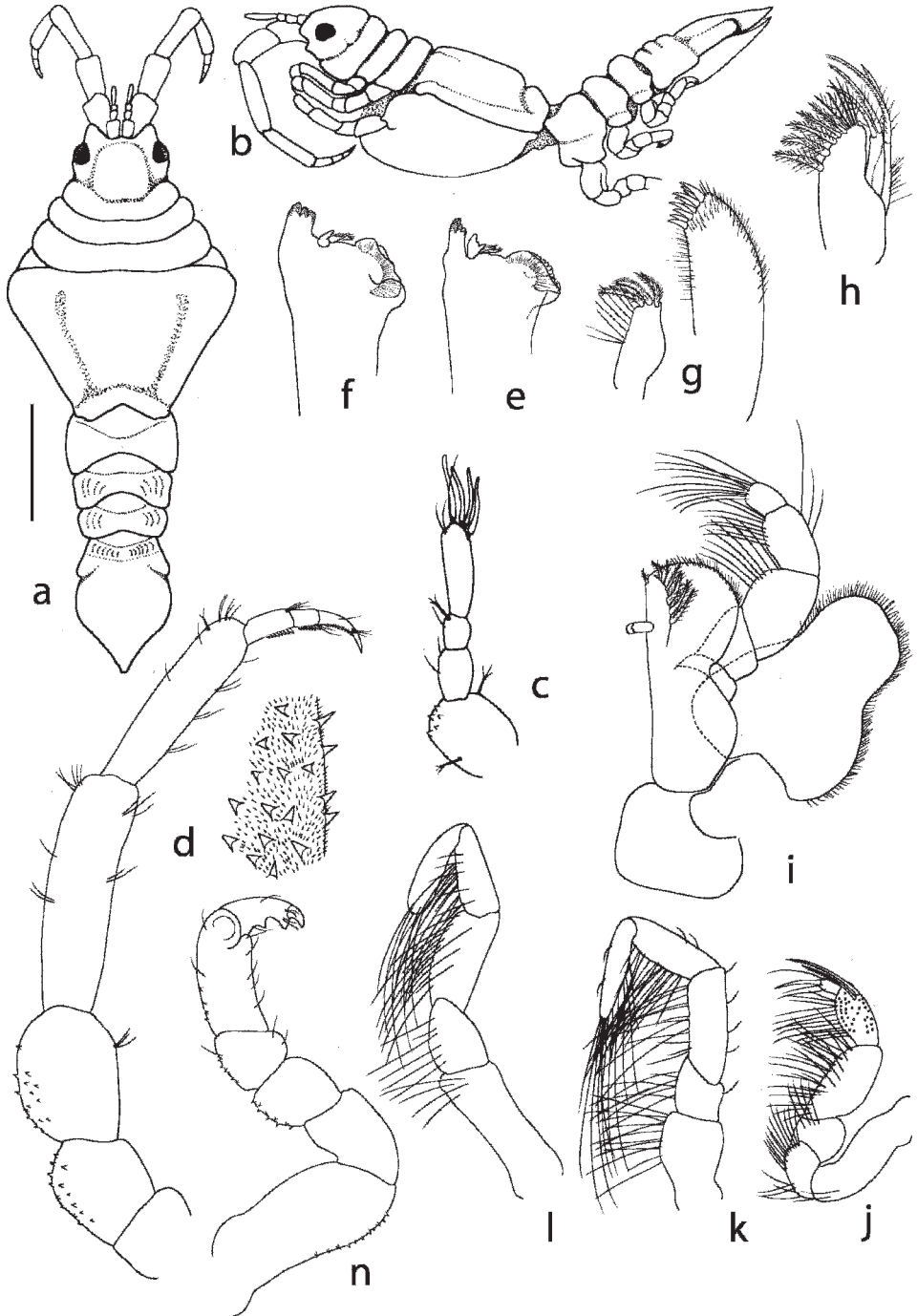


Fig. 7. *Astacilla spinicutis*. a, b, holotype ovigerous female in dorsal and lateral views, scale = 2.0 mm; c, antennule; d, antenna (with detail of ornamentation); e, f, left and right mandibles; g, h, maxillae 1, 2; i, maxilliped; j-l, pereopods 1-3 (SAM-43182).

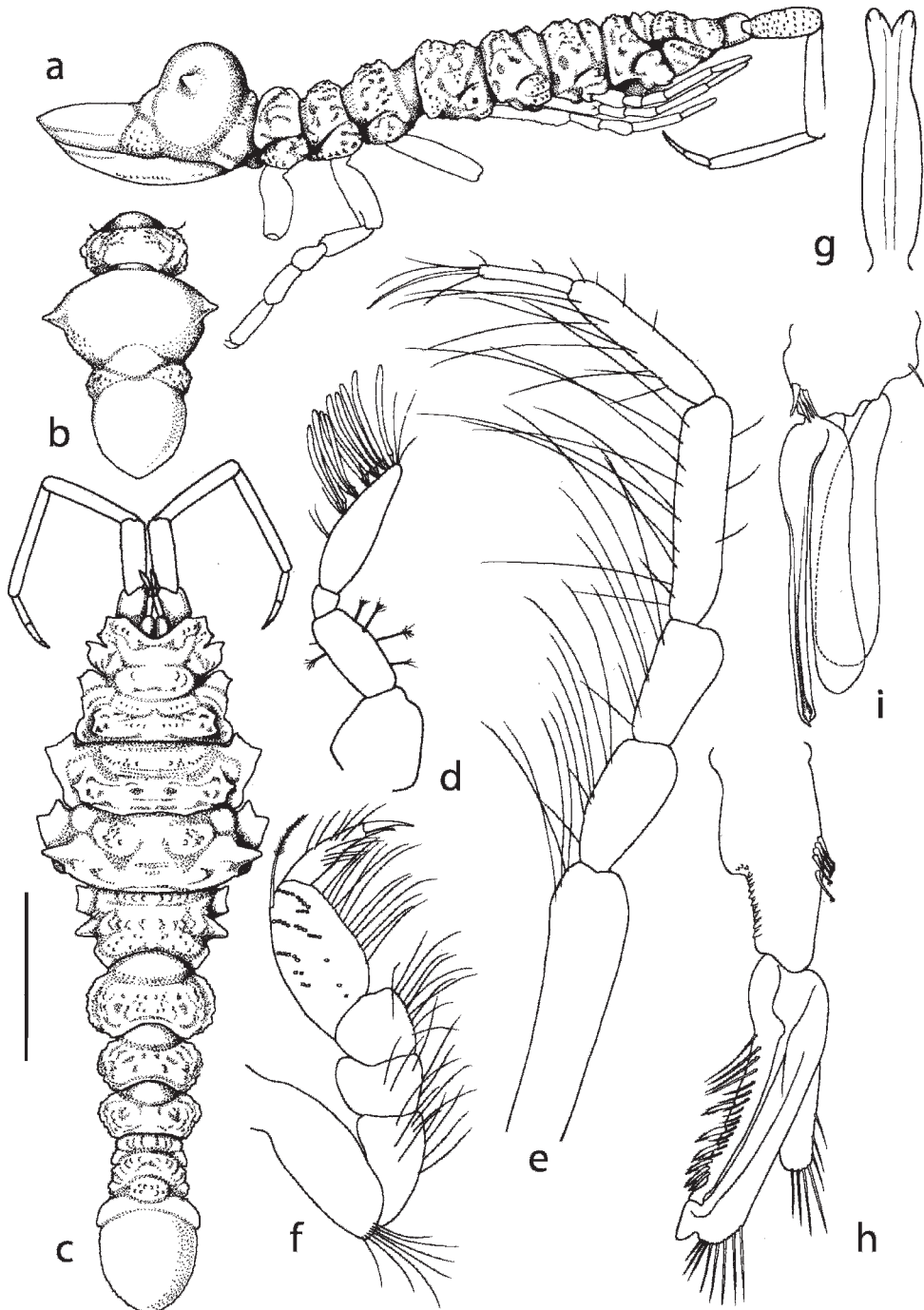


Fig. 8. *Neoarcturus obesopleon*. a, holotype male in lateral view, scale = 2.0 mm; b, male pleon in dorsal view (USNM 253341); c, ovigerous female in dorsal view (USNM 253342); d, antennule; e, antenna; f, pereopod 1; g, penial plate; h, i, male pleopods 1, 2 (USNM 253341).

Aug 1964 (IIOE stn 369-F). PARATYPE. USNM 253342, ovigerous female, 7.8 mm, same data as holotype.

Diagnosis.—Male: Dorsal cephalon and pereonites rugose, with scattered tiny rounded tubercles. Eyes lacking. Pereonites 2 and 3 subequal in length; pereonite 4 slightly longer; pereonites 5–7 subequal. Pleon consisting of strongly inflated, globose anterior half with lateral conical spine on each side; posterior half narrower than anterior, dorsally rounded, apically rounded. Antennular flagellum bearing 11 aesthetascs. Penial plate with tips separate and diverging, subequal in length to peduncle of pleopod 1. Pleopod 1 bearing row of triangular tubercles on lateral margin of peduncle, 5 coupling hooks on mesial margin; endopod shorter than exopod, with 7 plumose marginal setae; exopod bearing strong oblique groove on posterior face, with row of simple setae near lateral margin plus 6 robust fringed setae distally; apex rounded beyond end of groove, bearing 8 plumose marginal setae. Pleopod 2, appendix masculina articulating basally on endopod, tapering distally, with setule-lined groove.

Female: Dorsum of cephalon, pereonites, and anterior pleon rugose/tuberculate. Cephalon with deep lateral notch, line of fusion with pereonite 1 marked by lateral notch and dorsal groove. Pereonite 1 weakly anterolaterally expanded. Pereonites 2 and 3 subequal in length, anterolaterally expanded as rectangular plate where body is widest. Dorsolateral margins of cephalon and pereonites 1–4 with acute paired processes. Pereonites 5–7 subsimilar but decreasing in length and width posteriorly. Pleon not inflated anteriorly, posterior half dorsally rounded; apex rounded.

Remarks.—Of the nine southern African species of *Neoarcturus* figured and keyed by Poore (2003), *N. obesopleon* most resembles *N. kensleyi* Poore, 2003, the only species where a swollen anterior pleotelson is known. But in that species

the swelling is nowhere near as prominent. Males of several species have paired dorsolateral spines variously developed along the pereonites but they are present only in the female of the new species.

Etymology.—The specific name, from the Latin '*obesus*', fat or corpulent, plus *pleon*, refers to the strongly inflated anterior pleon of the male.

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