

ANTHURIDS FROM THE HOUTMAN ABROLHOS ISLANDS,  
WESTERN AUSTRALIA (CRUSTACEA:  
ISOPODA: ANTHURIDAE)

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*Abstract.*—Six species of anthurid isopods, three or probably four new, are recorded from coral and algal rubble at Rat Island in the Houtman Abrolhos Islands. *Apanthura zeewycae* n. sp., *Eisothistos bataviae* n. sp., and *Panathura haddae* n. sp. are first records of their respective genera from Western Australia. The range of *Mesanthura protei* Kensley is extended from the western Indian Ocean. *Panathura ardea* (Poore and Kensley), previously known from Queensland, is herein removed from *Coralanthura*. *Heptanthura* sp. is thought to be undescribed.

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Knowledge of the anthuridean isopods of Western Australia is confined to six species described by Thomson (1946, 1951). A small collection made for us by Dr. P. Hutchings at the Houtman Abrolhos Islands (28°43'S, 113°47'E) adds to what must be a considerably larger fauna. Affinities to the fauna of other parts of the Indian Ocean are suggested here (see Kensley 1980).

Collections were made at ten stations on the eastern side of Rat Island. Coral and algal rubble samples were taken from the bases of dense stands of live *Acropora* coral on the reef crest at 1 meter depth. Tufted red and green algae overgrew the rubble. Four samples were taken from a similar substrate on a sandy shoal east of Rat Island in 3-5 meters depth. The samples from the reef crest were combined, as were those from the sandy shoal. As well as the anthurids reported on here, other isopods belonging to the genera *Gnathia*, *Stenetrium*, *Carpias*, *Munna*, and *Limnoria* were recorded.

Material has been deposited in the Australian Museum, Sydney (AM), the National Museum of Victoria, Melbourne (NMV), and the United States National Museum of Natural History (USNM).

*Apanthura zeewycae*, new species

Figs. 1, 2

*Description.*—Integument thin, head with transverse pigment band between eyes; pereonites 1-3 with pigment patch at anterolateral corners, pereonites 4-7 with scattered pigmentation posteriorly; pleon with 5 pairs of dorsal pigment patches. Body proportions: C < 1 > 2 > 3 < 4 = 5 < 6 > 7. Head with triangular rostrum reaching beyond anterolateral corners. Dorsolateral eyes large, well pigmented. Pleon about 1.5× as long as pereonite 7; pleonites 1-5 fused, pleonite 6 free. Telson ovate, posteriorly sparsely setose, apically broadly rounded.

Basal antennular peduncle article subequal in length but broader than 2 distal articles; flagellum of 3 articles, second article longest, terminal article bearing 2 aesthetascs. Antennal peduncle article 2 grooved, article 5 longer than 4; flagellum of 4 articles, together shorter than peduncle article 5. Mandibular palp with basal

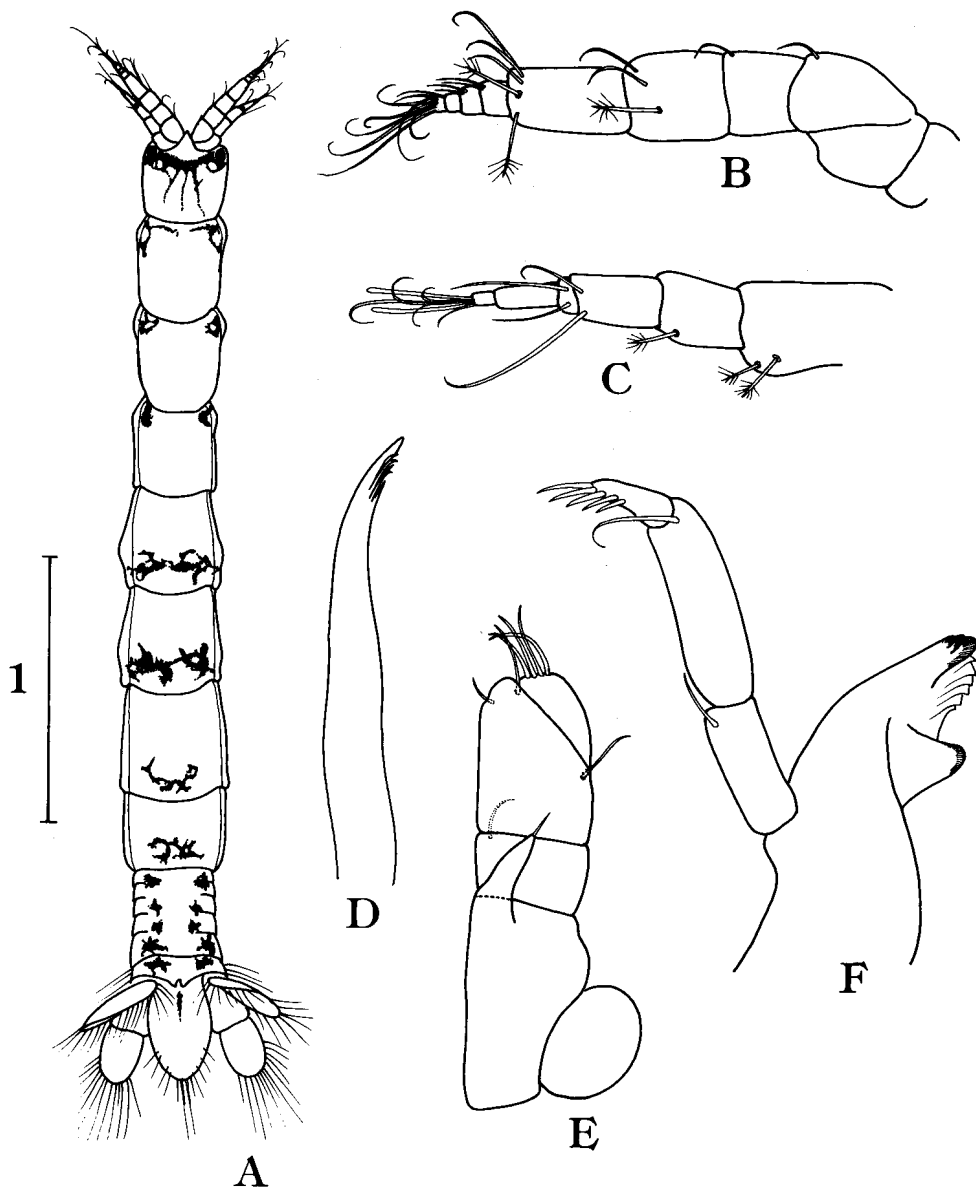


Fig. 1. *Apanthura zeewycae*: A, Non-ovigerous ♀, dorsal view; B, Antenna; C, Antennule; D, Maxilla; E, Maxilliped; F, Mandible.

article two-thirds length of article 2; terminal article one-third length of article 2, bearing 5 distal spines; incisor of 3 cusps; lamina dentata of 6 serrations; molar low, rounded. Maxilliped article 5 set obliquely on 4, with 4 distal setae; short tapering endite on inner surface reaching distal margin of article 4 tipped with single seta.

Pereopod 1 carpus with poorly developed broad tooth distally; propodus 1.5× as long as broad, palm with obscure tooth at midpoint, sparsely setose; unguis

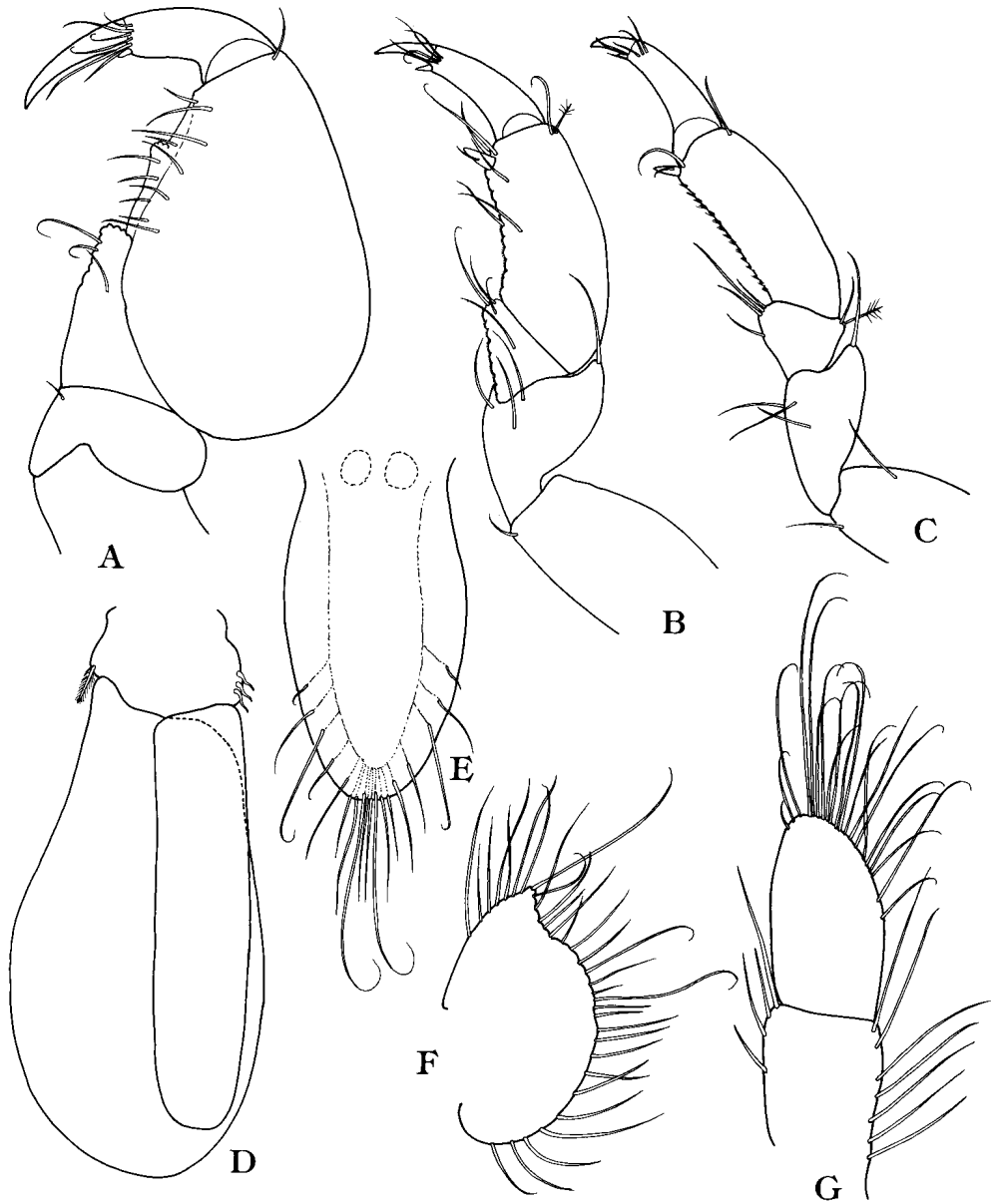


Fig. 2. *Apanthura zeewykeae*: A, Pereopod 1; B, Pereopod 2; C, Pereopod 7; D, Pleopod 1; E, Telson; F, Uropodal exopod; G, Uropodal endopod and protopod.

half length of dactylus, with small accessory spine. Pereopod 2, carpus bearing fringed scales on free posterior margin; propodus gently curved, with strong posterodistal sensory spine, posterior margin bearing fringed scales; unguis less than half length of dactylus. Pereopods 4-7, merus with strong anterior lobe but no posterior lobe; carpus slightly lobed posteriorly; propodus 3× as long as broad, linear; unguis one-third length of dactylus, accessory spine one-fourth length of

unguis. Pleopod 1 operculiform, endopod slightly less than half width and five-sixths length of exopod. Uropodal exopod  $1.6\times$  as long as broad, distally acute, outer margin distally sinuate, setose, reaching almost to midlength of endopod; latter longer than wide, distally rounded, setose, reaching beyond telsonic apex.

*Material*.—Holotype, AM-P32392, non-ovig. ♀, TL 3.7 mm. Paratypes, AM-P32393, 5 juveniles; NMV-J1707, non-ovig. ♀, TL 3.5 mm, 5 juveniles; USNM 189062, non-ovig. ♀, TL 3.3 mm, 5 juveniles; Rat Island, reef crest coral rubble, 1.3 m, 24 August 1981.

*Remarks*.—As noted in the past (e.g. Kensley 1979:817), the species of *Apanthura* tend to be separated on subtle morphological features. Shape of the uropodal rami, telson, degree of fusion of the pleonites, and maxillipedal proportions seem to be the most useful characters in species separation. The present species is similar to *A. mana* Kensley from Fiji, especially in pereopodal structure and proportions, and in fusion of pleonites 1–5. The most distinctive feature of *A. zeewyke* is the relatively strong rostrum, not seen in any previously described species. Further support for the formation of a new species lies in the shape of the uropodal rami, which are less elongate than in *A. mana*, and in the proportions of the segments of the maxilliped and mandibular palp.

*Etymology*.—This species is named for the Dutch wooden gunship "Zeewyk," wrecked on the Houtman Abrolhos Islands in 1727.

*Eisothistos bataviae*, new species

Figs. 3, 4

*Description*.—Integument posteriorly indurate. Dorsolateral eyes consisting of 8–9 ommatidia. Pleonites 1–5 short, similar; pleonite 6 twice length of 5. Telson widening and broadly rounded posteriorly, with broad hyaline margin, lacking dorsal spination, anterior half of lateral margin with row of short spines, posterior margin becoming strongly serrate.

Antennule of 6 undifferentiated articles, terminal article bearing 2 aesthetascs. Antenna with (?)6-articulated flagellum, not well demarked from peduncle. Mandible lacking palp, consisting of broadly rounded incisor of 3 faintly indicated sclerotized cusps; proximal ridge present near base of appendage. Maxilla with 2 broad and 5 narrow terminal spines. Maxilliped slender-elongate, with 6 setae on short terminal segment, proximal segmentation obscure.

Pereopod 1 with basis, ischium, and merus each bearing 3 very elongate setae; carpus triangular; propodus not expanded, length about twice width; unguis one-third length of rest of dactylus, slightly hooked. Pereopod 2, basis with 4 very long setae; ischium with single elongate seta; carpus triangular, sparsely setose; propodus bearing 6 short spines on posterior margin; unguis distally bearing minute spinules, about one-fourth length of dactylus. Pereopods 4–7, basis and ischium bearing very elongate setae; carpus with anterior margin somewhat shorter than posterior, latter with posterodistal spine and fringed scales; propodus elongate-rectangular, with strong posterodistal sensory spine, posterior margin bearing fringed scales; unguis about one-third length of dactylus. Rami of pleopod 1 fused, with short slit in distal margin, bearing 5 plumose setae on mesial margin, 12 plumose setae on distal margin. Uropodal exopod with anterior margin rounded, setose; strong elongate lobe at midlength of outer margin, armed with 4 short

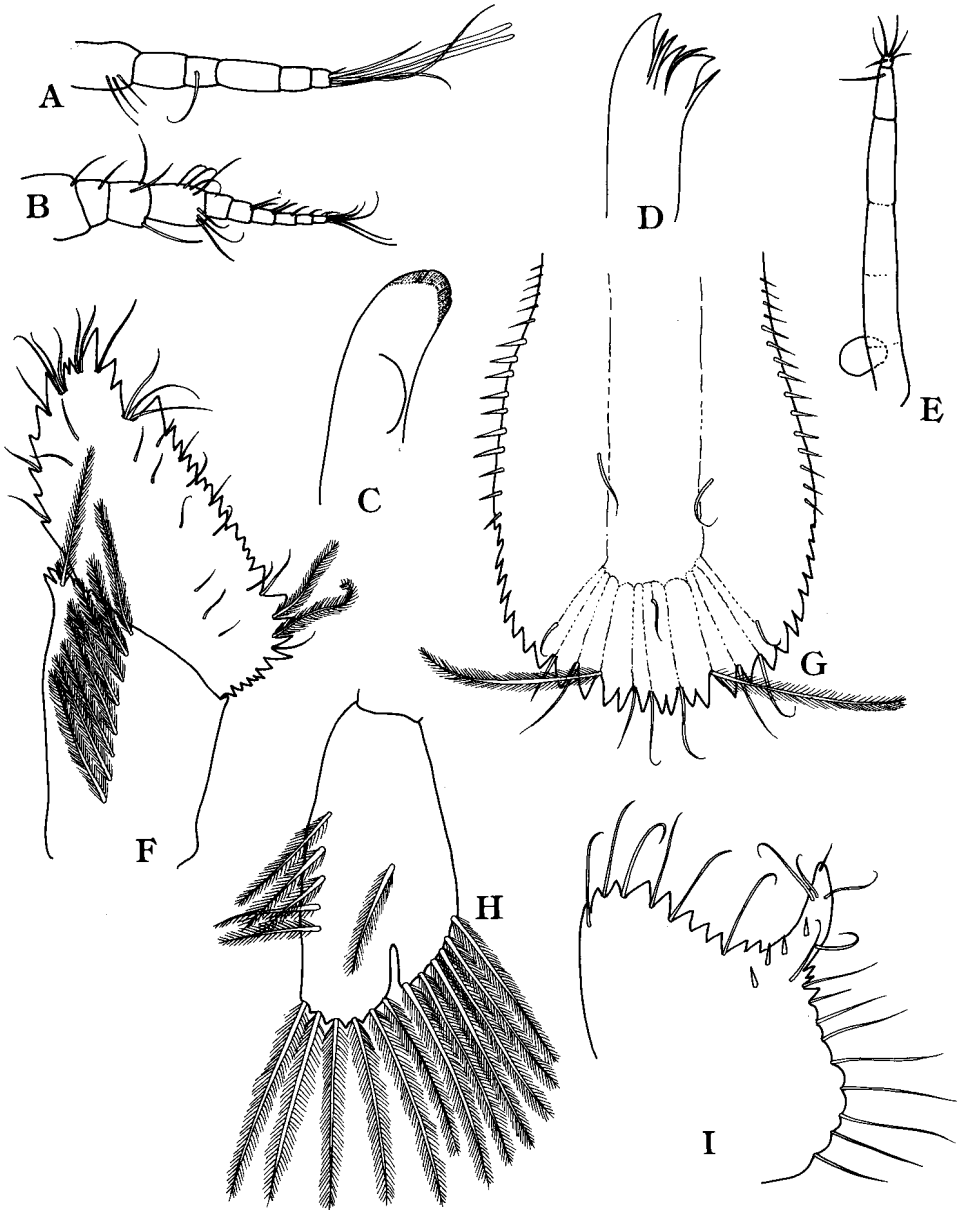


Fig. 3. *Eisothisτος bataviae*: A, Antennule; B, Antenna; C, Mandible; D, Maxilla; E, Maxilliped; F, Uropodal endopod and protopod; G, Telson; H, Pleopod 1; I, Uropodal exopod.

spines on dorsal surface; posterior half of outer margin strongly toothed; uropodal endopod wider than long, margins very strongly toothed; protopod with 8 elongate plumose setae on dorsal surface, outer distal angle serrate.

*Material*.—Holotype, AM-P32395, non-ovig. ♀, TL 3.0 mm; Paratypes, AM-P32396, non-ovig. ♀, TL 2.0 mm; NMV-J1718, 2 non-ovig. ♀, TL 2.0, 2.3 mm;

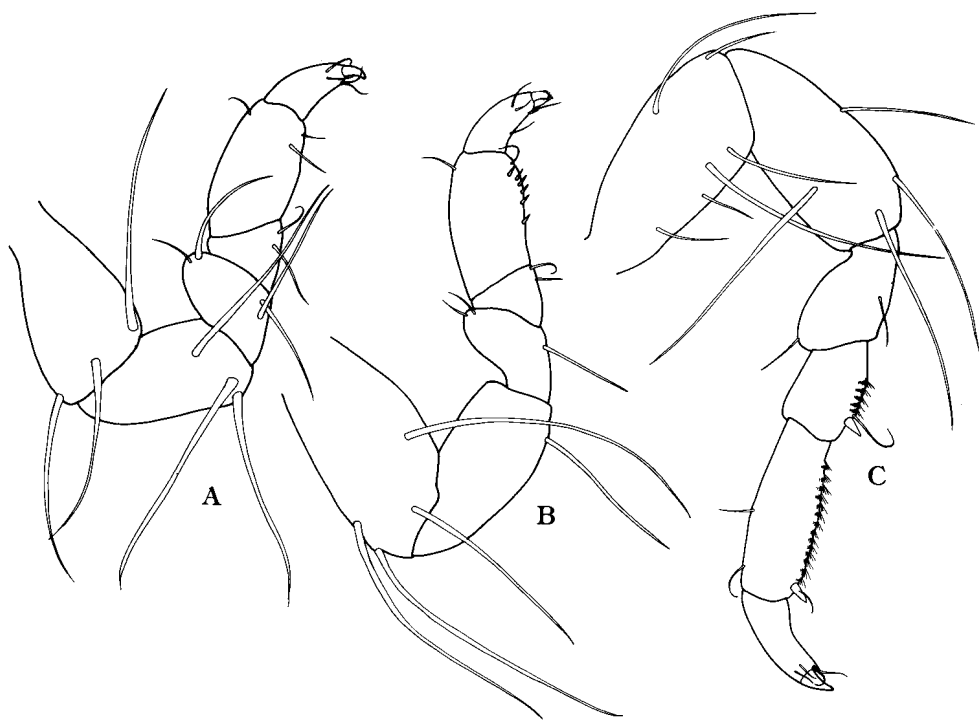


Fig. 4. *Eisothisios bataviae*: A, Pereopod 1; B, Pereopod 2; C, Pereopod 5.

USNM 189063, 2 non-ovig. ♀, TL 2.5, 2.7 mm; Rat Island, reef crest coral rubble, 1.3 m, 24 August 1981.

**Remarks.**—*Eisothisios bataviae* shares with other species in the genus serrate margins on the uropod and telson, and the well-developed spine on the uropodal exopod. In these characters the genus is similar to *Stellanthura* Wägele, but differs in having fused rami on pleopod 1.

*Eisothisios bataviae* is most similar to *E. anomala* (Kensley) (originally placed in *Heteranthura*), but differs in the number of setae on pleopod 1, the number of articles on antennae, and spination of the propodi. *Eisothisios bataviae* differs from *E. crateris* Kensley, *E. macrurus* Wägele, and *E. pumilis* Wägele, in absence of a middorsal spine row on the telson, and in possessing a serrate mesial margin on the uropodal endopod. A dorsally smooth telson is found in *E. maledivensis* Wägele, and in the only other Australian species, *E. vermiformis* Haswell. The present species differs from these in possessing a more setose pleopod 1. It differs from all other species known in possessing long setae on articles 2 and 3 of the pereopods.

There were numerous small serpulid worms in the samples from which the *Eisothisios* specimens were taken. Wägele (1981) records these worms as the prey of *Eisothisios*.

**Etymology.**—The specific epithet is derived from the name of a wooden vessel of the Dutch East India Company, “*Batavia*,” wrecked on the Houtman Abrolhos Islands in 1629.

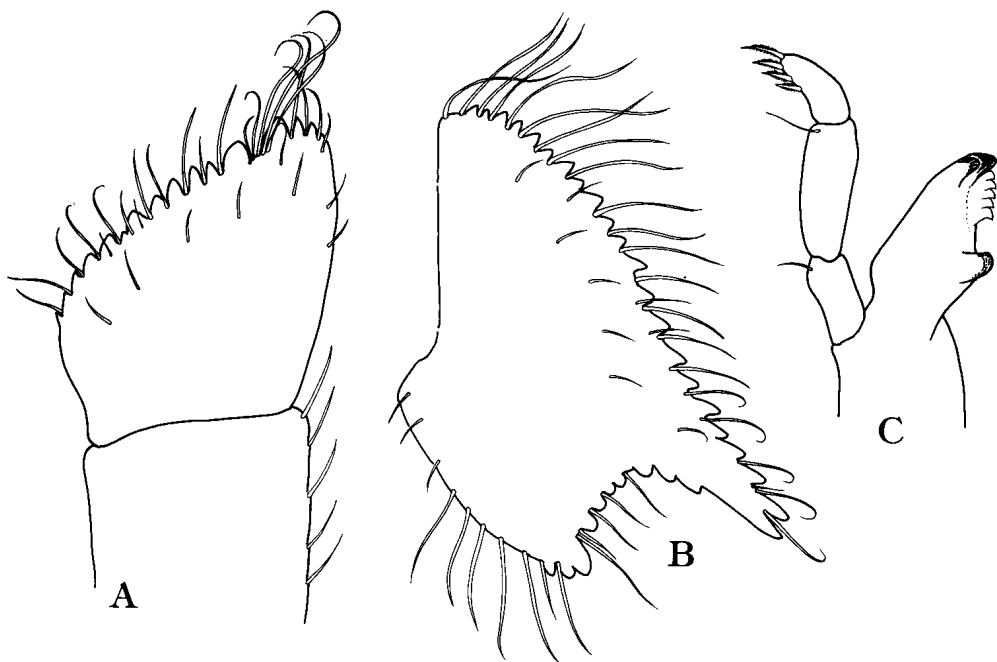


Fig. 5. *Heptanthura* sp.: A, Uropodal endopod; B, Uropodal exopod; C, Mandible.

*Heptanthura* sp.

Fig. 5

*Material*.—1 non-ovig. ♀, TL 3.9 mm, AM-P32397; Rat Island, coral rubble from reef crest, 1.3 m, 24 August 1981.

*Remarks*.—A few differences between the present specimen and *H. novae-zealandiae* Kensley, 1978, could be detected. The mandibular palp proportions differ slightly, the second article being longer in the New Zealand material, while the terminal article carries more spines in the present specimen. The propodi of the three posterior pereopods carry a few more spines distally, and the uropodal endopod is proximally broader in the Abrolhos specimen. Of the body segments, only pereonite 5 is slightly longer than 4 in the present specimen. The paucity of material does not allow thorough comparison of this specimen with the type-species of the genus, but given the geographical and ecological differences, it seems unlikely that the two are conspecific.

*Mesanthura protei* Kensley

Fig. 6

*Mesanthura protei* Kensley, 1980:30, figs. 22, 23.

*Material*.—2 non-ovig. ♀, TL 7.0 mm, 1 ♂, TL 4.0 mm, AM-P32398; Rat Island, coral rubble from reef crest, 1.3 m, 24 August 1981.

*Previous records*.—Inhambane, Mozambique, 37 m; Nosi Bé, Madagascar, intertidal to 1.5 m.

*Remarks*.—The appendages of both the male and female of the present material

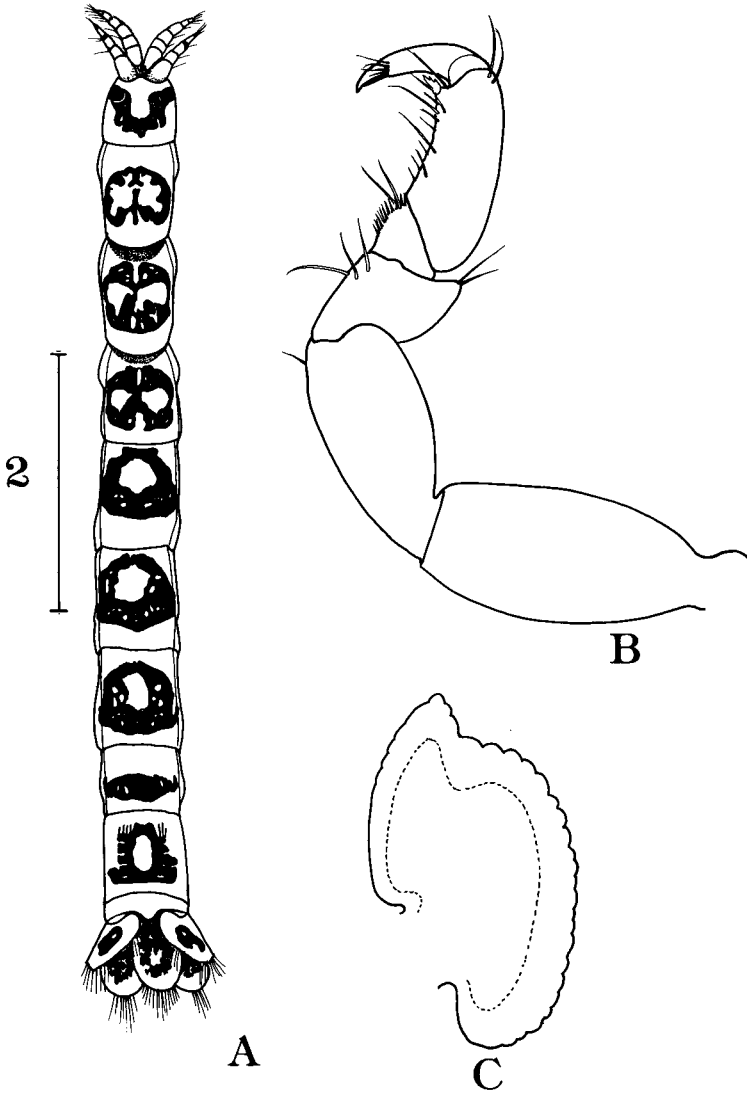


Fig. 6. *Mesanthura protei*: A, Non-ovigerous ♀, dorsal view; B, Pereopod 2; C, Uropodal exopod.

agree completely with the original description. The dorsal pigment pattern of the female, with its more or less complete rings on pereonites 1–6 and on the pleon, and the solid bar across the posterior half of pereonite 7, is closest to that figured by Kensley (1980) in his Fig. 22b.

*Mesanthura protei* differs from *M. albinotata* Thomson and *M. bipunctata* Thomson from Rottneest Island in its pigment pattern and the shape of the uropods.

This record extends the range of the species across the width of the Indian Ocean, an unusually broad distribution for any shallow water anthurid.

The second pereopod and the uropodal exopod are figured here, as they were not shown in the original description.



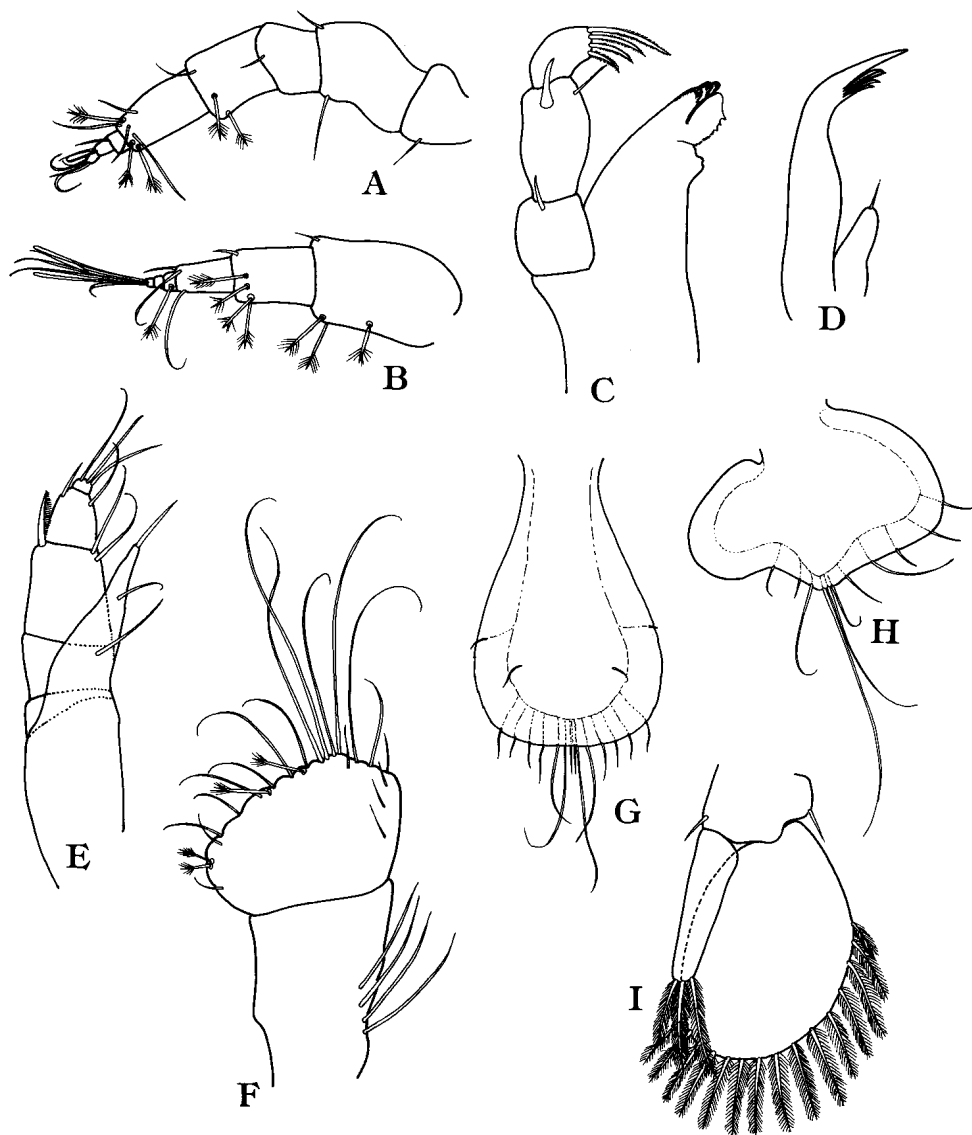


Fig. 7. *Panathura haddae*: A, Antenna; B, Antennule; C, Mandible; D, Maxilla; E, Maxilliped; F, Uropodal endopod and protopod; G, Telson; H, Uropodal exopod; I, Pleopod 1.

*Panathura ardea* (Poore and Kensley)

*Coralanthura ardea* Poore and Kensley, 1981:507, figs. 3, 4.

*Material*.—1 ovig. ♀, TL 3.2 mm, 2 non-ovig. ♀, TL 3.6, 3.2 mm, AM-P32394; west side of sandy shoal, Rat Island, from coral rubble and algal washings, 3–5 m, 25 August 1981.

*Previous records*.—Heron Island, southern Great Barrier Reef, Queensland, Australia, intertidal.

*Remarks*.—This species was originally placed by us in a new genus of which

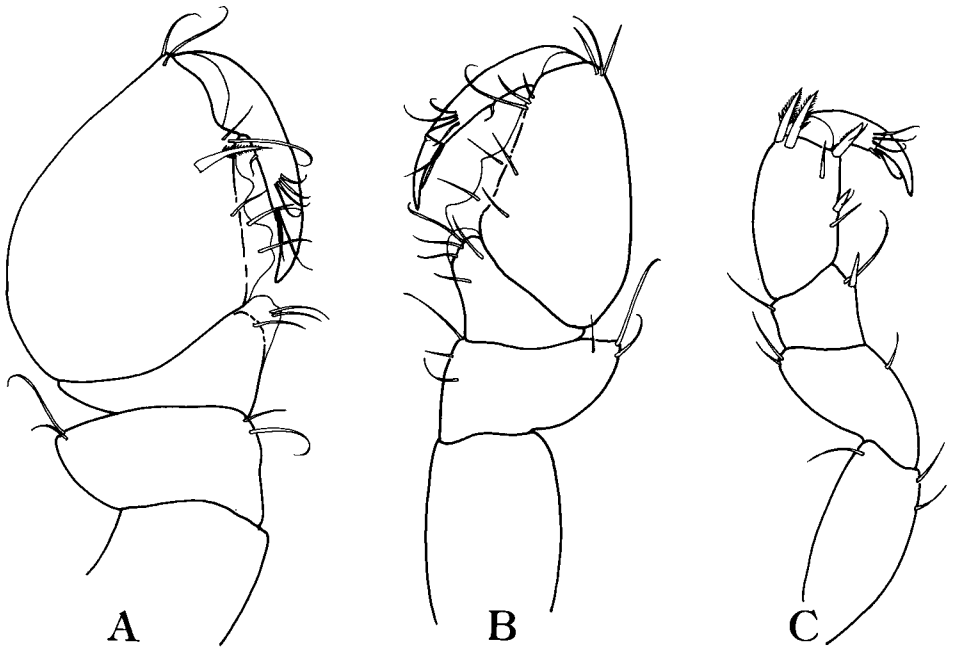


Fig. 8. *Panathura haddae*: A, Pereopod 1; B, Pereopod 2; C, Pereopod 7.

the type is *Coralanthura endeavourae* Poore and Kensley. In this we were clearly in error. Although the two genera are similar, *Panathura* contrasts with *Coralanthura* in possession of more articles on antennae 1 and 2, a shorter mandibular palp, a much narrower maxillipedal palp of which the terminal article is not minute, absence of an anterior spine on the merus of pereopods and an almost operculiform pleopod 1 with shortened tapering endopod. Most species of *Panathura*, though not the type-species *P. serricauda* Barnard, have a toothed palm on pereopod 1 such as is seen in *P. ardea*. The only difference detected between the present material and the original description lies in the mandible. The lamina dentata has a finely serrulate part not seen in the Heron Island specimens, while the terminal palp article bears one more spine. The flagellum of antenna 1 (both in this and in the Queensland material) has four articles, not three as in the original description. Each, except the first, bears a single aesthetasc.

*Panathura haddae*, new species

Figs. 7, 8

*Description*.—Integument relatively indurate in posterior half of body. Body proportions:  $C = 1 > 2 = 3 < 4 = 5 > 6 > 7$ . Head with triangular rostrum barely overreaching anterolateral lobes; dorsolateral eyes small. Pereonite 7 laterally overlapping pleon. Pleonites free, 1–4 short, 5 twice length of 4, 6 subequal to anterior pleonites together, with posterior margin middorsally broadly triangular. Telson posteriorly broadly rounded, bearing several setae.

Antennule with basal peduncular article equal in length but wider than 2 distal articles; flagellum of 3 articles. Antenna with second peduncular article subequal

in length to articles 3 and 4 together; article 5 longer than 4; flagellum of 3 articles. Mandibular palp with article 2 longer than 1 or 3, with strong distal spine, terminal article bearing 4 serrate spines; incisor of 3 cusps, lamina dentata consisting of distal coarsely serrate and proximal finely serrate parts; molar reduced, low, rounded. Maxilliped with narrowly triangular endite reaching penultimate palp article, bearing 3 setae; antepenultimate article with strong distal serrate spine.

Pereopod 1 subchelate; carpus with posterodistal angle rounded, bearing transparent flange; propodus expanded, palm with delicate transparent flange consisting of 3 rounded lobes; unguis about half length of rest of dactylus. Pereopods 2 and 3 subchelate; carpus with posterodistal rounded flange; propodus not as expanded as in pereopod 1, with transparent palmar flange having 2 low triangular teeth; unguis half length of rest of dactylus. Pereopods 4–7, carpus with anterior margin slightly shorter than posterior margin, latter with single spine and seta; propodus with sensory spine at midlength and distal angle of posterior margin, and 2 serrate spines at anterodistal angle; unguis only slightly less than dactylar length. Pleopod 1 exopod operculiform, broadly ovate, with about 5 plumose setae on distal margin; endopod just reaching distal half of, and about one-fourth width of exopod. Uropodal exopod roughly ovate, with hyaline margin, anteriorly and posteriorly rounded, with low setose lobe on outer margin; endopod broader than long, with several elongate setae distally; protopod with 4 elongate plumose setae on outer margin.

*Material*.—Holotype, AM-P32399, ovig. ♀, TL 2.4 mm; Paratypes, AM-P32400, 3 juveniles; NMV-J1719, non-ovig. ♀, TL 2.1 mm, 1 juvenile; USNM 189064, non-ovig. ♀, TL 2.8 mm, 1 juvenile; Rat Island, reef crest rubble, 1.3 mm, 24 August 1981.

*Remarks*.—*Panathura haddae* may be distinguished from the four species recorded from the Indo-Pacific region by the following features: the telson is more broadly rounded posteriorly and is not serrate as in *P. amstelodami* Kensley, while the uropodal exopod and endopod are broader; the exopod of pleopod 1 is longer and narrower, and the endopod relatively longer in *P. macronesia* Kensley, recorded from Mauritius and Madagascar; the western Indian Ocean species also has one article less in the antennular and antennal flagella. *Panathura serri-cauda* Barnard possesses a serrate telson, while the uropodal endopod is longer than wide. *Panathura collaris* Kensley, from the Cook and Fiji islands, has a more elongate endopod of pleopod 1, the uropodal exopod is longer than wide, the palm of pereopod 2 has more serrations, and the antennular and antennal flagella possess fewer articles. The species may be separated from *P. ardea* (Poore and Kensley) with which it co-occurs by the much broader uropodal rami and telson.

*Etymology*.—The species is named for the German barque “*Hadda*” which was lost on the Houtman Abrolhas Islands in 1877.

#### Acknowledgments

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