

DOROPYGUS MIRABILIS, A NEW SPECIES OF NOTODELPHYID
(COPEPODA CYCLOPOIDA) FROM BASS STRAIT

By A. DAVID MCKINNON

Department of Zoology, University of Melbourne, Parkville, Victoria, 3052

Abstract

The female of *Doropygus mirabilis*, new species (Copepoda: Notodelphyidae) taken in benthic samples from Bass Strait, Australia, is described.

The genus *Doropygus* comprises some 27 valid species, with a large number of additional indeterminable species. The generic description was emended by Illg (1958), and 15 species reviewed, of which 3 were described by Schellenberg (1922) from New Zealand. Half of the additional 12 species described since 1958 come from Australasia (Gotto, 1975, Jones, 1974, 1979). So far, all *Doropygus* species have been found associated with Tunicata.

During analysis of benthic samples collected by epibenthic sled in the Museum of Victoria's Bass Strait Survey a remarkable new form of *Doropygus* was discovered. Unfortunately, due to the collecting techniques employed, no host for the animal is known. The few specimens recovered were loose and retained by the finest sieves used (pore size 1.0 mm) only because of their large size.

Specimens were measured and dissected in glycerol, and mounted on microslides in polyvinyl lactophenol with a trace of chlorazol black E. Drawings were prepared using Wild M5 and Wild M20 phase contrast microscope and camera lucida. Further examination was made with Zeiss and Olympus Nomarski microscopes. Unless otherwise stated, all figures are of the holotype.

Family NOTODELPHYIDAE Dana, 1853

Genus *Doropygus* Thorell, 1859

Doropygus mirabilis, sp. nov.

Figures 1-3

Material examined: 5 ovigerous females collected by epibenthic sled in 74 m, Bass Strait 39°45.9' S, 145°33.5' E, Victorian Institute of Marine Sciences Cruise 81-T-1, New Zealand

Oceanographic Institute RV Tangaroa, 13.11.81 (Bass Strait Survey Station 156).

Type Material: Holotype female (Reg. No. J3147) and 4 paratype females (J3148-J3149) deposited in Museum of Victoria. Holotype and one paratype (J3148) mounted on slides, with prosome, broodsack and urosome (holotype only) separate in vials.

Description—Female: Body large and globose (Fig. 1a-c), the holotype measuring $1.82 \times 1.36 \times 1.36$ mm. The prosome has 5 somites, comprising the head, 3 thoracic somites and the much enlarged broodsack. The head has no apparent rostrum. The first thoracic somite is reduced (Fig. 1d); the head and thoracic somites measure 1.18 mm long \times 1.12 mm wide. These somites reflex fully upon the broodsack, their margins fitting closely around a lip produced from the surface of the broodsack. The urosome is contained in a furrow on the broodsack (Fig. 1d) and is 6-segmented (Fig. 2h, i), the first being very closely associated with the broodsack. The urosome is robust and curved to follow the curvature of the broodsack. The furcal rami are 3.5 times as long as wide and bear 4 reduced terminal setae, 1 dorsal seta and 1 lateral seta.

Antennule (Fig. 2a) with 9 segments, bearing respectively 3, 16, 5, 3, 5, 4, 2, 3, 8 setae. Some setae on segments 1 to 7 are plumose.

Antenna (Fig. 2b, c) 3-segmented. Segments 1 and 2 each bear a small seta on the outer margin. Segment 3 bears a strong terminal claw, and proximal to it a group of 3 strong spiniform setae. A single plumose seta arises from the inner margin adjacent to the claw, and 2 setae arise just proximal to the base of it. A further 2 small setae are borne adjacent to the distal outer margin of the segment.

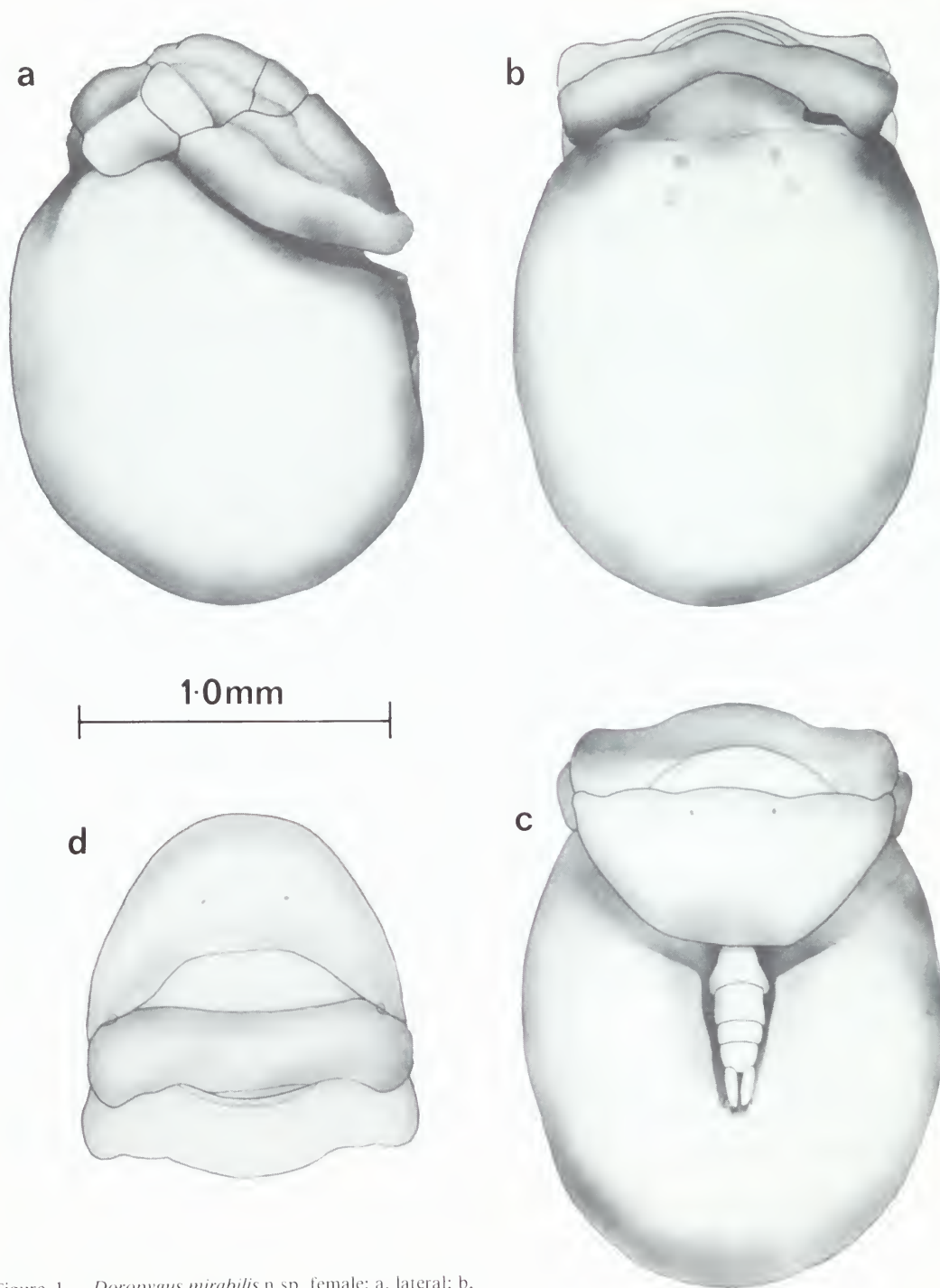


Figure 1. *Doropygus mirabilis* n.sp. female: a, lateral; b, dorsal; c, ventral; d, dorsal aspect of detached head and anterior 3 segments of prosome.

Mandible (Fig. 2d) consisting of a masticatory blade and a biramous palp. The blade bears a single fine tooth on the end most proximal to the palp, then four strong triangular teeth, a weaker tooth, a row of denticles, and 2 setiform elements. The palp has a large basipod armed with one marginal seta. The endopod is bimerous, the basal segment bearing 4, the distal segment bearing 9 setae. The distal segment has numerous small denticles on the outer face. The exopod is unimerous and bears 5 setae, the 5th reduced. All setae on the palp are plumose.

The maxillule (Fig. 2e) has 9 masticatory setae along the medial margin of the proximal endite. A second minor endite bears a single plumose seta. The reduced epipodite bears 2 plumose setae, the more distal of which is much reduced. The apical region of the basipodite bears 3 plumose setae. The exopod is unimerous and bears 4 plumose setae, the endopod unimerous with 3 plumose setae.

The maxilla (Fig. 2f) is pentamerous. The basal segment has 4 medial lobes, with 3, 1, 2 and 2 setae respectively, plus 1 reduced spiniform seta on the 4th lobe. Segment 2 bears 2 setae and a reduced spiniform seta, segments 3 and 4 each bear 1 seta, and the terminal segment bears 4 setae.

The maxilliped (Fig. 2g) is bimerous, the large basal segment bearing 9 robust setae along the medial margin. A small terminal segment bears 2 long plumose setae. Both segments bear a row of setules proximally.

Leg 1 (Fig. 3a) with both endopod and exopod trimerous, legs 2-4 (Fig. 3b, c, d) with the endopod bimerous. Formula for armature as follows (outer margin first; Roman numerals spines, Arabic numerals setae):

Leg 1	coxa 1-1	basis 0-1	exopod 1-1; 1-1; III-1-4 endopod 0-1; 0-1; 1-2-3
Leg 2	coxa 0-1	basis 1-0	exopod 1-1; 1-1; 3-2-4 endopod 0-1; 1-3-4
Leg 3	coxa 0-1	basis 1-0	exopod 1-1; 1-1; 3-1-4 endopod 0-1; 1-3-4
Leg 4	coxa 0-0	basis 1-0	exopod 1-1; 1-1; 3-1-4 endopod 0-1; 1-3-3

The outer marginal coxopod seta of leg 1 is of peculiar form, with a bladder-like basal portion and a short finely tapering distal portion.

Legs 2-4 have a comb of spinules on the coxa. Only leg 1 has outer marginal spines on the exopod; these are replaced by robust naked setae in legs 2-4. Similarly, leg 1 has all setae plumose, whereas in legs 2-4 only the innermost setae of each ramus are plumose.

Leg 5 (Fig. 3e) is bimerous, the basal segment fused to the urosome and bearing a naked outer seta. The terminal segment is 5.5 times as long as wide and bears 2 terminal setae, the outermost of which is 2.6 times as long as the innermost. The inner margin bears a row of spinules and terminally there is a cluster of spinules on the front surface.

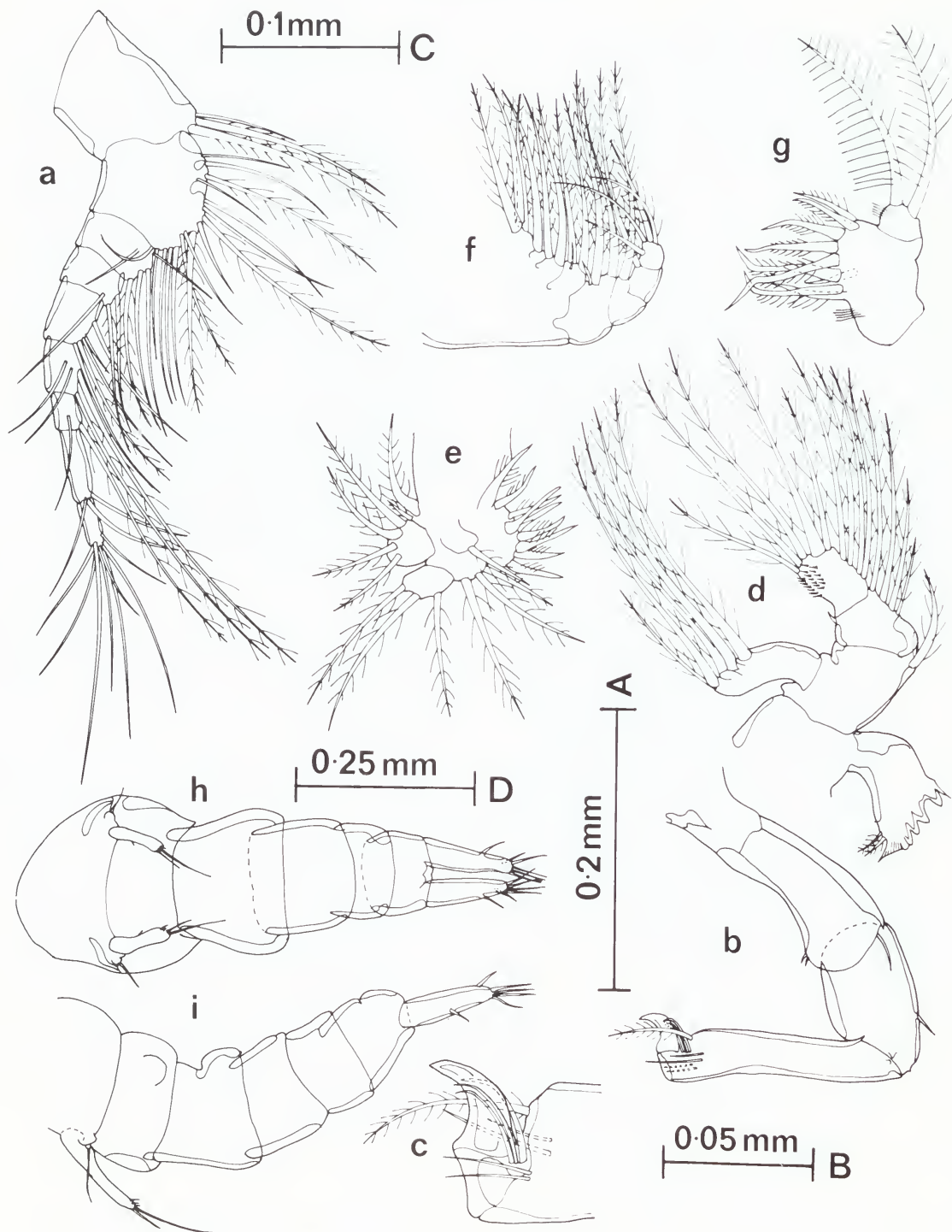
Male: Unknown.

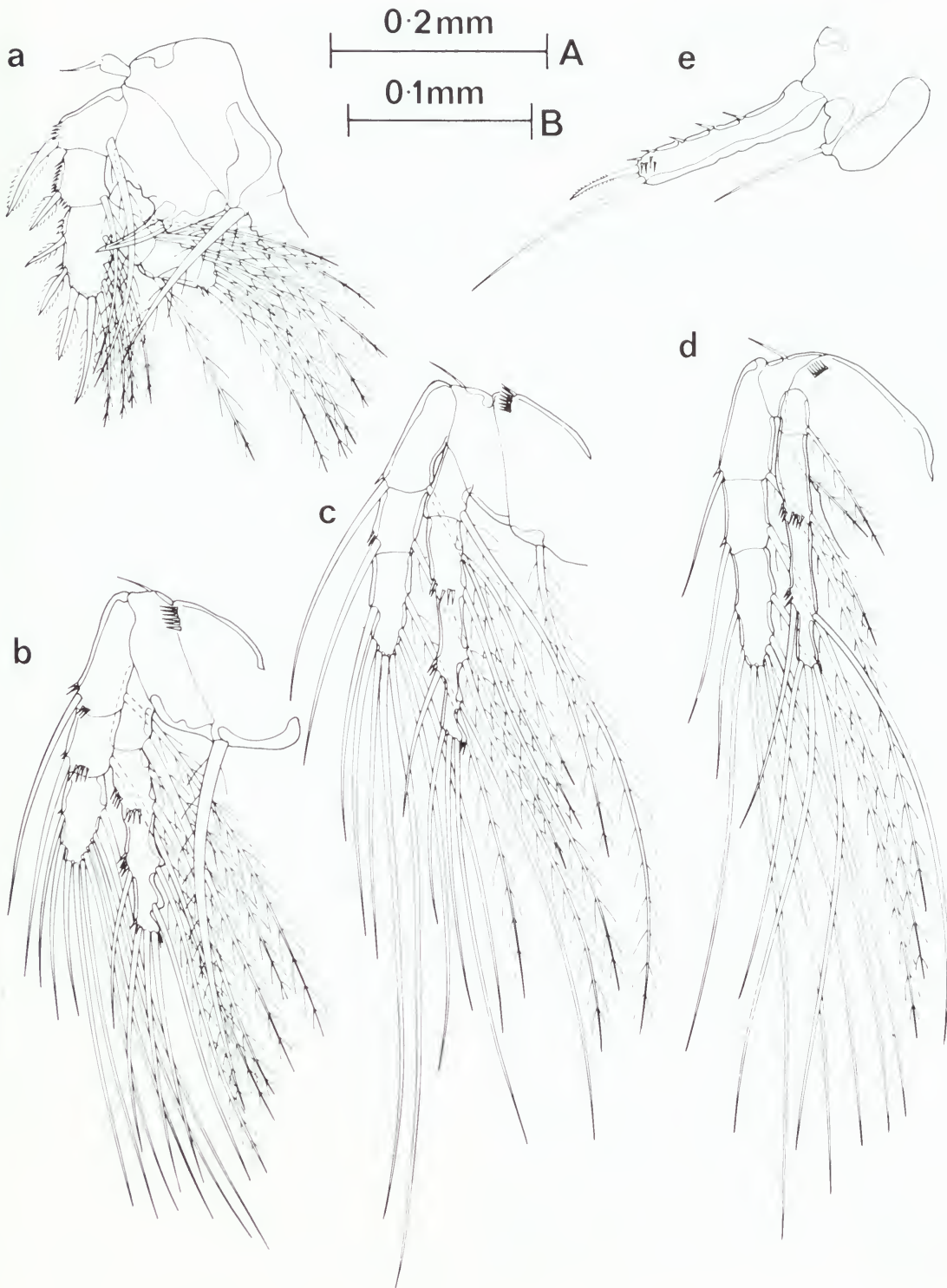
Remarks: *Doropygus mirabilis* does not closely resemble any other species of the genus; its habitus and lack of a rostrum make it unique. It is however allied to *D. rigidus* Ooishi, 1962 and *D. platythorax* Jones, 1974 because it has no hook on the second segment of the maxilla, 4 setae on the exopod and 3 on the endopod of the maxillule and 9 setae on the mandibular endopodite.

Although the complete body of *Doropygus mirabilis* is globose, the prosome excluding the broodsack is dorsoventrally depressed, with the margin of the somites downturned to form a rim. In this respect, *D. mirabilis* carries further the tendency shown in *D. platythorax*, the rim fitting closely over a lip produced from the broodsack. *D. mirabilis* represents an extreme case in the evolution of the genus *Doropygus* in which the prosome reflexes fully upon the broodsack, which in turn has enveloped the urosome.

Figure 2. *Doropygus mirabilis* n.sp. female: a, antennule (scale A); b, left antenna (A); c, terminal region of right antenna (B); d, mandible (A); e, maxillule (C); f, maxilla (C); g, maxilliped (C); h, urosome, ventral (D); i, urosome, lateral (D).

Figure 3. *Doropygus mirabilis* n.sp. female: a, leg 1 (A); b, leg 2 (A); c, leg 3 (A); d, leg 4 (A); e, leg 5 (B), paratype female J3148.





Acknowledgements

I thank Dr Gary Poore for his help and encouragement at all stages of this study and Dr J. B. Jones and Dr R. Hamond for constructive criticism of the manuscript.

Literature Cited

- GOTTO, R. V., 1975. Some new notodelphyoid copepods from Australia. *Bull. zool. Mus. Univ. Amsterdam* 4(19): 165-177.
- ILLG, P. L., 1958. North American copepods of the family Notodelphyidae. *Proc. U.S. Natn. Mus.* 107: 463-649, 19 figs.
- JONES, J. B., 1974. New Notodelphyidae (Copepoda: Cyclopoida) from solitary ascidians. *N.Z. J. Mar. & Freshwat. Res.* 8(2): 255-273.
- JONES, J. B., 1980. New Notodelphyidae (Copepoda: Cyclopoida) from New Zealand solitary ascidians. *N.Z. J. Mar. & Freshwat. Res.* 13(4): 533-544.
- OISHI, S., 1962. Four species of notodelphyoid copepods newly found in Japan. *Rep. Fac. Fish. Univ. Mie* 4(2): 7-25, 8 figs.
- SCELLENBERG, A., 1922. Neue Notodelphyden des Berliner und Hamburger Museums mit einer Übersicht der ascidienbewohnenden Gattungen und Arten. *Mitt. zool. Mus. Berlin* 10: 219-274.