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A SECOND GENUS IN THE MARINE ISOPOD
FAMILY BATHYNATALIIDAE

By

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A SECOND GENUS IN THE MARINE ISOPOD FAMILY
BATHYNATALIIDAE

By

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(With 3 figures)

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ABSTRACT

Naudea louwae, the second genus and species in the south-western Indian Ocean family Bathynataliidae is described, and compared with *Bathynatalia gilchristi*. The single specimen of *Naudea louwae* was collected at 850 m off southern Natal.

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INTRODUCTION

The isopod family Bathynataliidae (Kensley 1978) was described when several specimens of *Bathynatalia gilchristi* Barnard (previously known from a single specimen) became available. These specimens were collected by the South African Museum's Department of Marine Biology working from the R.V. *Meiring Naude* off the east coast of South Africa. A single specimen of an unusual isopod has now been found in sorting a later batch of sediments from the same station which yielded the *Bathynatalia*. Unfortunately this specimen was seen only after the publication of the new family. Its addition to the earlier paper would have been desirable as it slightly modifies the diagnosis of the family.

SYSTEMATIC DISCUSSION

Suborder FLABELLIFERA

Family *Bathynataliidae*

Diagnosis

Body dorsoventrally flattened. Cephalon anterolaterally expanded, fused with pereonite 1 medially, separated by deep slits laterally. Pereonites 2-7 distinct, articulating coxae present at least on pereonites 2-6. Pleon of five pleonites plus large pleotelson. At least two pleonites with free lateral extensions;

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pleonites 1 and 5 lacking free lateral margins. Antennule with four, antenna with five peduncular segments, both flagella multiarticulate. Molar process reduced to spiniform process in both mandibles. Lacinia present on one mandible only. Maxilla 1 curved, armed apically with cluster of spines. Maxilla 2 with inner ramus uni- or bilobed. Maxilliped with 3-segmented palp, broad endite, broadly oval or triangular exopod. Pereopod 1 robust and subchelate in both sexes; remaining pereopods ambulatory. Pleopod 1 indurate, exopod and endopod lying parallel, operculate over branchial chamber. Pleopods 2-5 biramous, membranous. Uropod subterminal, consisting of single segment, obscurely trilobed apically.

Naudea gen. nov.

Diagnosis

Maxilla 2 with inner ramus bilobed. Pereonite 7 lacking coxa or free lateral margins. Pleonites 2 and 3 with broad lateral extensions; pleonite 4 with narrow elongate lateral extension. Pereopod 7 absent. Uropod of single segment with distal rudimentary ramus.

Gender

Feminine.

Type-species

Naudea louwae.

Etymology

The generic name is derived from the C.S.I.R. Research Vessel *Meiring Naude*.

Remarks

In describing the family Bathynataliidae, the diagnosis for the genus *Bathynatalia* was considered the same as for the family. Now that a second genus is described, the familial diagnosis has been slightly revised.

The main differences between the two genera are summarized below:

	<i>Bathynatalia</i> Barnard, 1957	<i>Naudea</i> gen. nov.
Antennular flagellum	12 articles	5 articles
Antennal flagellum	11 articles	8 articles
Maxilla 2, inner ramus	unilobed	bilobed
Dorsal integument	sculptured	unsculptured
Pereonite 7	with free coxa	lacking free lateral margins
Pereopod 7	present	absent
Pleonite 4	lacking lateral extension	with lateral extension

The close affinity of the two genera within the same family is illustrated by the many similarities, especially in pereopodal, pleopodal, and mouthpart structure, as well as in the unusual uropodal structure.

The superficial resemblance of *Naudea* to the serolids is even more marked than in *Bathynatalia*. Because of the similarity in structure between the serolids and bathynataliids in the maxilliped, maxillae, mandibular palp, and pereopod 1, it is thought that these two families are more closely related to each other than to any other family within the Flabellifera.

The strongly depressed body, as in the serolids, is probably an adaptation to allow detrital feeding in the upper few millimetres, without the body sinking too deeply into the fine-sediment substrate.

Naudea louwae sp. nov.

Figs 1-3

Description

Female

Integument moderately indurate, brittle, lacking sculpture. Body broadest at pereonite 4; strongly dorsoventrally depressed. Cephalon lacking eyes; anterior margin hollowed to receive antequous antennal bases; tiny rostral point present; anterolateral corners quadrate/rounded; two circular convexities dorsally marking insertion of mandibular musculature. Cephalon and pereonite 1 fused medially, separated laterally by deep sinuous slit. Coxa of pereonite 1 not demarked, but laterally broadly flattened, margin convex, with two circular convexities dorsally marking insertion of pereopod 1 musculature. Pereonites 2-4 similar, with shallow transverse dorsal groove; coxae demarked, rectangular. Pereonites 5-6 narrower than preceding pereonites; coxae demarked, roughly rectangular. Pereonite 7 very short, lacking coxa. Pleon consisting of five pleonites plus pleotelson. Pleonite 1 short, similar to pereonite 7, lacking free lateral margin. Pleonite 2 medially very short, widening laterally, with broad rectangular lateral extension. Pleonite 3 medially very short, widening into broad lateral extension, somewhat posterodistally produced. Pleonite 4 very short, with narrow lateral extension slightly shorter than that of pleonite 3. Pleonite 5 very short, lacking free lateral margins. Pleotelson roughly rectangular; distolateral corners rounded, separated from short, broad triangular apex by notch for insertion of uropod; proximal half dorsally convex, with low, rounded ridge running to apex.

Antennular peduncle 4-segmented, basal segment slightly longer than subequal segments 2 and 3; fourth segment very short; flagellum of five articles, reaching to base of antennal flagellum. Antennal peduncle 5-segmented, segments 1 and 2 moderately broad; segment 3 inserted almost at right angle to segment 2; segments 4 and 5 moderately broad; flagellum of eight articles. Mandibles indurate; molar process on each side reduced to spiniform process; palp 3-segmented, first and third segments subequal, one-third length of middle

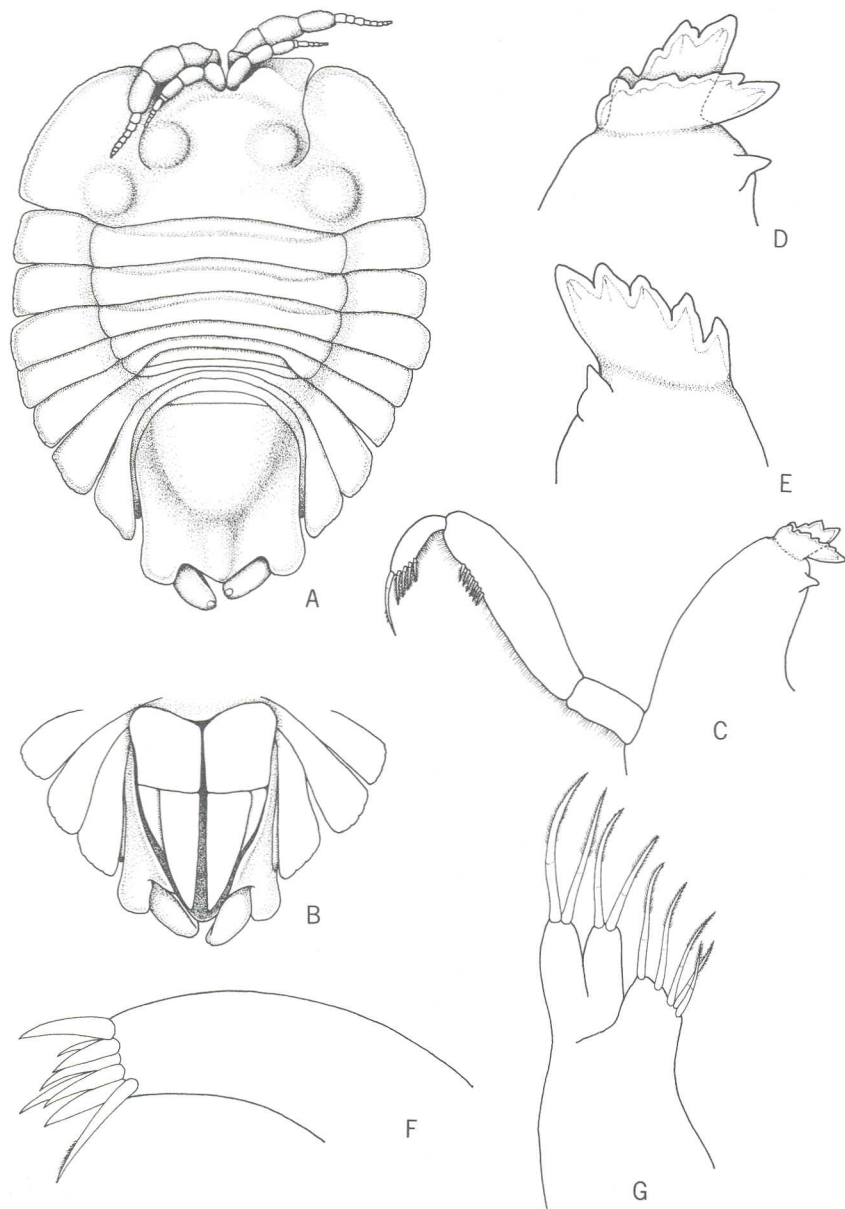


Fig. 1. *Naudea louwae*. A. Holotype in dorsal view. Scale = 1 mm. B. Ventral view of pleon. C. Left mandible. D. Apex of left mandible. E. Apex of right mandible. F. Maxilla 1. G. Maxilla 2.

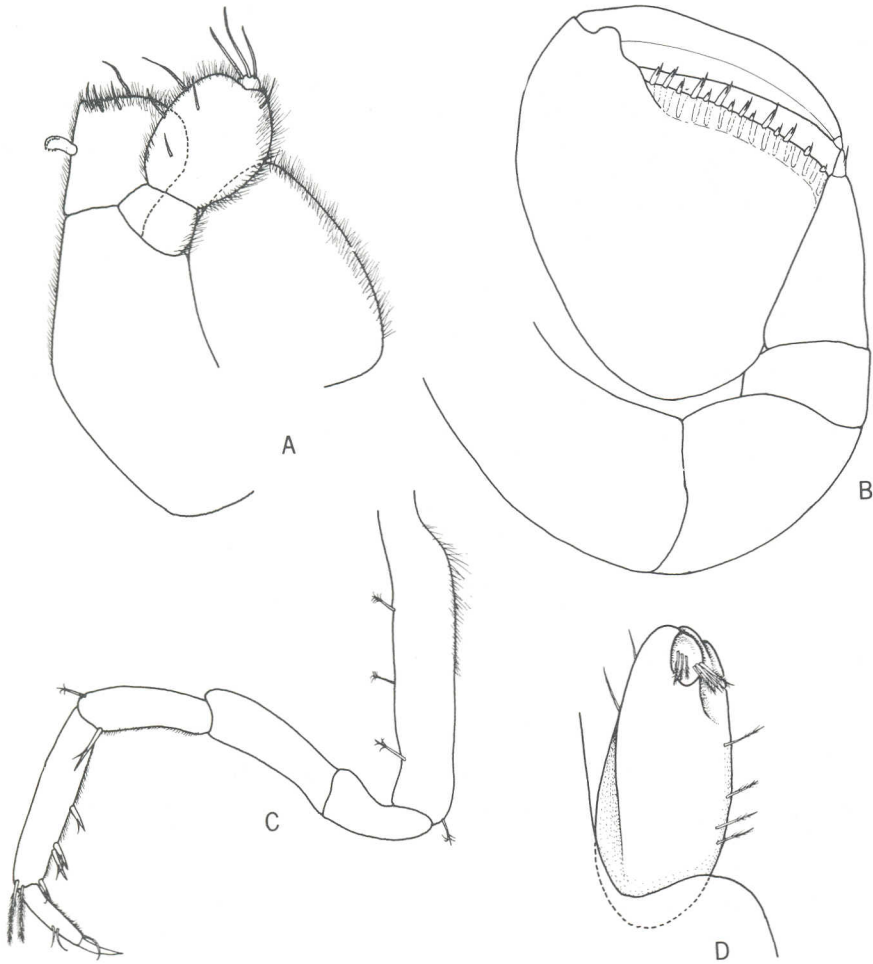


Fig. 2. *Naudea louwae*. A. Maxilliped. B. Pereopod 1. C. Pereopod 6. D. Uropod.

segment; latter with six short, fringed spines in distal half; terminal segment curved, with elongate terminal spine and four shorter fringed spines in distal half. Left mandibular incisor with four rounded cusps, lacinia transversely broad, with five or six short rounded cusps. Right mandible, incisor of five rounded cusps; lacinia lacking. Maxilla 1 consisting of single strongly curved indurate ramus armed distally with nine spines. Maxilla 2 with bilobed outer ramus, each lobe bearing two elongate fringed spines; inner ramus tipped with five fringed spines. Maxilliped exopod broadly oval, outer margin fringed with fine setules; endite about as broad as palp, with single strong coupling hook on median margin and four setae on distal margin; palp of three segments, first and third shorter and narrower than broadly oval second segment; terminal segment

tiny, with three elongate setae. Pereopod 1 robust, subchelate; dactylus meeting spine at distal end of carpus; dactylar unguis very short; propodus proximally broad, palm with slightly convex hyaline border bearing fourteen sensory spines of varying lengths; carpus triangular, with single strong distal sensory spine; merus half length of carpus. Pereopods 2-6 ambulatory, similar; unguis half length of dactylus; propodus twice length of dactylus, with four sensory spines on posterior margin and two fringed spines distally; carpus two-thirds length of

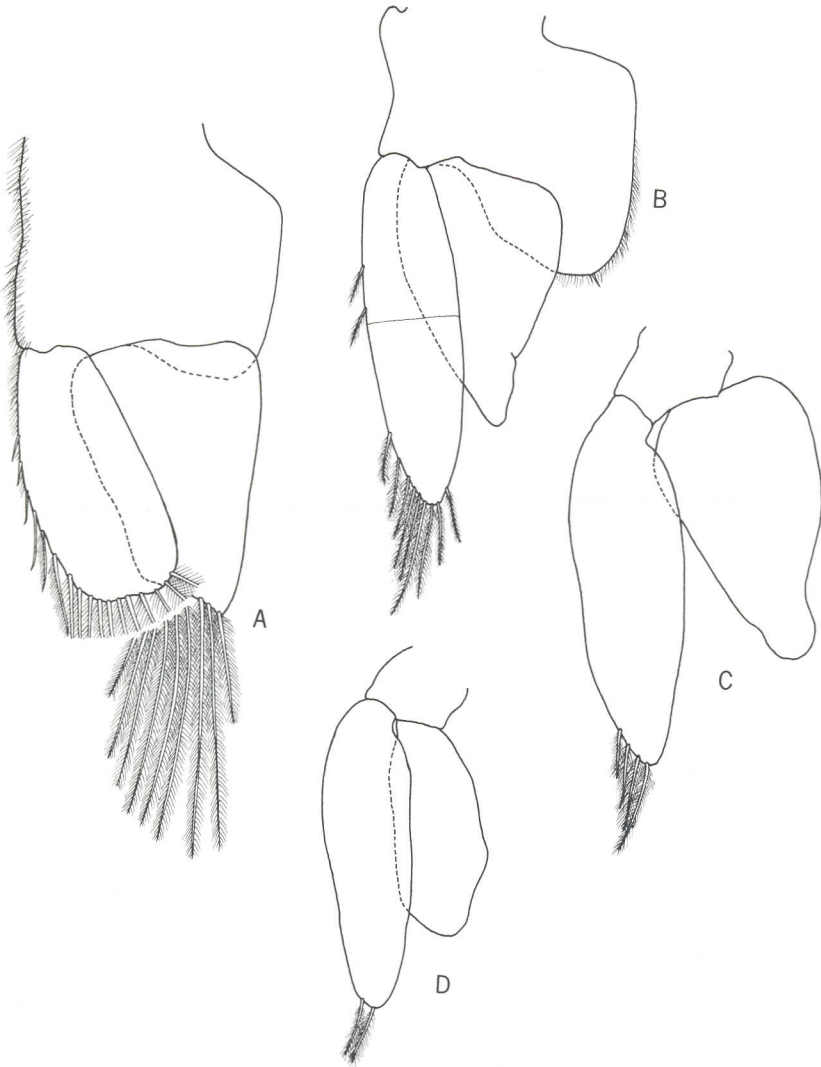


Fig. 3. *Naudea louwae*. A. Pleopod 2. B. Pleopod 3. C. Pleopod 4. D. Pleopod 5.

propodus with single, distal sensory spine; basis equal in length to merus and ischium together. Pereopod 7 absent. Oostegites absent. Pleopod 1 indurate, operculiform; protopod broad; endopod narrowly triangular, together with shorter and narrower exopod meeting ventral pleonal margins and completely closing off branchial chamber. Pleopod 2 with broad, roughly rectangular protopod; exopod inserted obliquely on protopod, rectangular, distal margin truncate, bearing eleven elongate plumose setae, several shorter plumose setae on outer margin; endopod basally broad, tapering distally, distal margin oblique, with nine elongate plumose setae. Pleopod 3 with lateral half of protopod broadened, distally rounded; endopod triangular, shorter than narrowly lanceolate exopod; latter with transverse suture at midlength, eight distal plumose setae. Pleopod 4 endopod basally broad, shorter than narrowly lanceolate exopod; latter with four distal plumose setae. Pleopod 5 shorter than pleopod 4, exopod with two distal plumose setae; endopod narrower than in pleopod 4. Uropod a single roughly cylindrical segment, little more than twice longer than wide, few scattered setae on outer margin; obscurely trilobed distally, with single, small, rounded ramus bearing seven setae.

Material

Holotype SAM-A16205, ♀ total length 3,5 mm.

Meiring Naude station SM 129, 30°53'S 30°31'E (off Natal), 850 m.

Etymology

The species is named for Elizabeth Louw of the Department of Marine Biology of the South African Museum, in appreciation of her help to the author in the Museum's *Meiring Naude* programme, both during the cruises and subsequently.

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