

THE SOUTH AFRICAN MUSEUM'S *MEIRING NAUDE* CRUISES

PART 6

AMPHIPODA

By

CHARLES GRIFFITHS

Zoology Department, University of Cape Town

(With 10 figures)

[MS. accepted 4 August 1977]

ABSTRACT

Amphipoda recovered during the 1975, 1976 *Meiring Naude* cruises are listed and species of note discussed. The collection includes two new genera—*Izinkala* gen. nov. and *Valettiella* gen. nov. (Lysianassidae)—represented by *I. fihla* sp. nov. and *V. castellana* sp. nov. Three further species are recorded from southern Africa for the first time and *Bathyamaryllis conocephala* (K. H. Barnard) is redescribed.

CONTENTS

	PAGE
Introduction	105
List of species	106
Systematic discussion	108
Acknowledgements	123
References	123

INTRODUCTION

The material described herein is derived from collections made by the staff of the South African Museum during exploratory cruises by the R.V. *Meiring Naude* in 1975 and 1976. These cruises are of particular interest since they have investigated deeper waters off Natal which have previously received scant attention, despite their potential zoogeographical interest. A full listing of station data from both cruises has been presented elsewhere (Louw 1977), but few of these samples in fact used gear suitable for the capture of benthic amphipods. Although the number of amphipods recovered was limited, the proportion of new or unusual species in the collection bears witness to the potential for further exploration of this area.

All material described below has been deposited in the South African Museum, Cape Town.

LIST OF SPECIES

	<i>SM Station Number</i>	<i>Number of Individuals</i>
Suborder GAMMARIDEA		
Family Acanthonotozomatidae		
<i>Dikwa acrania</i> Griffiths	86	2
Family Ampeliscidae		
<i>Ampelisca anomala</i> Sars	86	10
<i>Ampelisca brevicornis</i> (Costa)	69	1
<i>Ampelisca byblisoides</i> K. H. Barnard	53	2
	103	1
<i>Ampelisca palmata</i> K. H. Barnard	53	3
<i>Byblis anisuropus</i> Stebbing	86	1
<i>Byblis gaimardi</i> (Kröyer)	60	1
	109	3
Family Amphilochidae		
<i>Hoplopleon medusarum</i> K. H. Barnard	103	1
<i>Unguja yaya</i> Griffiths	86	1
Family Corophiidae		
<i>Chevalia aviculae</i> Walker	86	77
	103	2
<i>Concholestes armatus</i> Griffiths	31	3
	78	31
	86	4
	103	34
	109	13
<i>Gammaropsis afra</i> Stebbing	86	41
	91	3
	103	32
	109	2
<i>Photis uncinata</i> K. H. Barnard	86	26
<i>Unciolella spinosa</i> Griffiths	60	1
	69	1
	86	8
	109	1
Family Dexaminidae		
<i>Atylus homochir</i> Haswell	109	1
<i>Lepechinella occlo</i> J. L. Barnard	60	1
Family Eusiridae		
<i>Dautzenbergia grandimanus</i> (Chevreux)	86	9
	60	1
	107	4
Family Gammaridae		
<i>Maera inaequipes</i> (Costa)	86	6
<i>Maera mastersi</i> (Haswell)	86	2
Family Haustoriidae		
<i>Urothoe elegans</i> Bate	53	1
<i>Urothoides inops</i> J. L. Barnard	86	1
Family Ischyroceridae		
<i>Cerapus tubularis</i> Say	103	26
Family Leucothoidae		
<i>Leucothoe dolichoceras</i> K. H. Barnard	103	2
<i>Leucothoe spinicarpa</i> (Abildgaard)	86	12

	SM Station Number	Number of Individuals
Family Liljeborgiidae		
<i>Liljeborgia epistomata</i> K. H. Barnard	86	2
Family Lysianassidae		
<i>Amaryllis macrophthalma</i> Haswell	86	24
	103	26
<i>Bathymaryllis conocephala</i> (K. H. Barnard)	60	2
	61	2
	78	1
	103	1
	109	1
<i>Hippomedon longimanus</i> (Stebbing)	69	1
	86	2
	109	2
<i>Hippomedon onconotus</i> (Stebbing)	53	1
<i>Izinkala fihla</i> gen. et sp. nov.	86	4
	103	1
<i>Lepidepecreum clypeatum</i> Chevreux	60	1
	103	2
<i>Lepidepecreum twalae</i> Griffiths	60	1
<i>Lysianassa ceratina</i>	69	1
	86	1
<i>Valettiella castellana</i> gen. et sp. nov.	86	1
Family Oedicerotidae		
<i>Periocolodes longimanus</i> (Bate & Westwood)	86	1
Family Phoxocephalidae		
<i>Heterophoxus opus</i> Griffiths	60	3
	69	3
	86	8
Family Podoceridae		
<i>Laetmatophilus purus</i> Stebbing	86	2
Family Stegocephalidae		
<i>Stegocephaloides australis</i> K. H. Barnard	86	1
Family Stenothoidae		
<i>Parametopa grandimana</i> Griffiths	86	13
	103	11
<i>Proboloides rotunda</i> (Stebbing)	60	1
	103	6
Superfamily TALITROIDEA		
Family Phliantidae		
<i>Plioplateia triquetra</i> K. H. Barnard	86	2
	103	43
Suborder CAPRELLIDEA		
Family Aeginellidae		
<i>Eupariambus fallax</i> K. H. Barnard	60	3
	69	1
	103	8
<i>Pseudoprotella phasma</i> (Montagu)	86	7
Family Phtisicidae		
<i>Phtisica marina</i> Slaber	86	2

SYSTEMATIC DISCUSSION

Family *Acanthonotozomatidae**Dikwa acrania* Griffiths, 1974

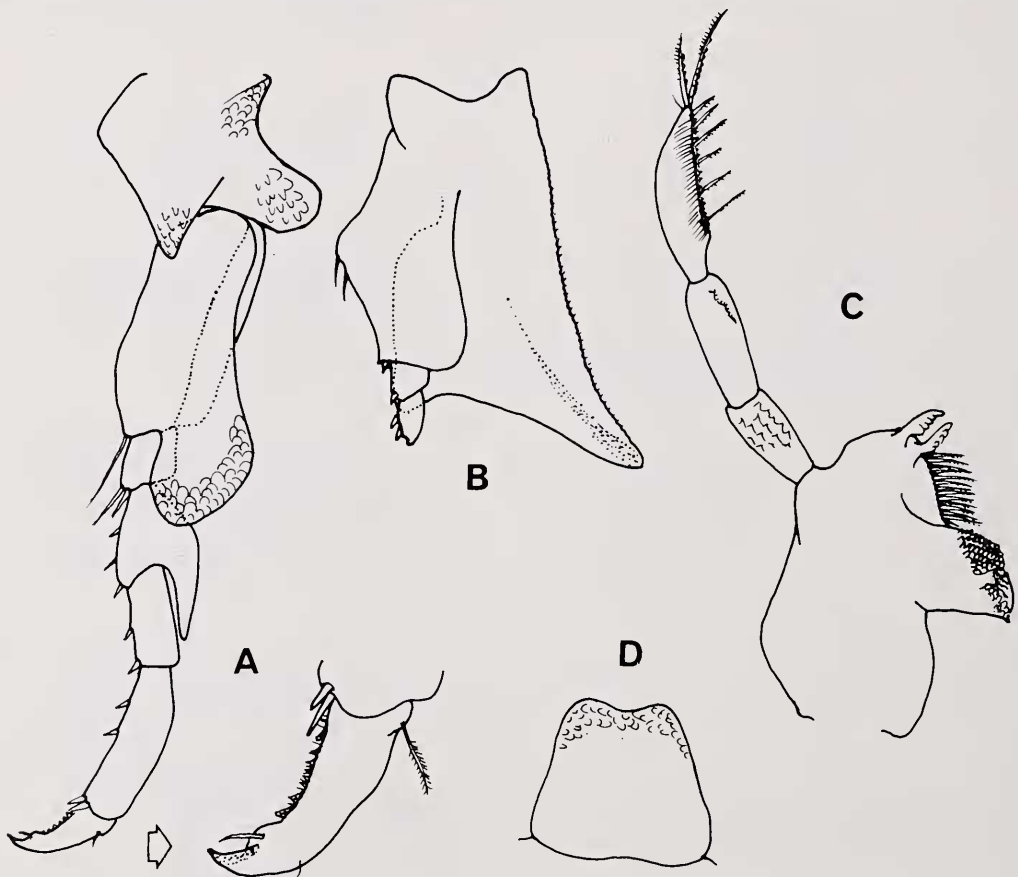
Fig. 1

Dikwa acrania Griffiths, 1974: 266, fig. 2.*Material*

SM 86, 2 specimens

Remarks

This record is only the second of this interesting species and extends its range considerably to the north. Further drawings of certain appendages are provided here to supplement the original description. These reveal a number of interesting features previously unnoticed. The surface of the mandibular molar is strongly tritulative and projects a considerable distance from the body of the mandible, the apical margin is formed into a sharp chitinized ridge. Article 2 of pereopods 3 and 4 is posteriorly keeled on inner and outer margins, leaving a

Fig. 1. *Dikwa acrania* Griffiths, 1974.

Ovigerous female, 4,5 mm. A. Pereiopod 4 with dactyl enlarged. B. Medial view of pereiopod 5.
C. Mandible. D. Telson.

deep groove posteriorly, article 4 is acutely produced distally and the dactyl bears small chitinized teeth. The fifth pereopod was erroneously described as missing in the original description. It is, in fact, grossly reduced with article 2(?) apparently fused to, and partially covered by, an enlarged coxa 7; the remainder of the appendage consists of two small articles bearing short anterior spines. This remarkable feature is somewhat similar to that found in *Tetradeion* (Stegocephalidae) and should be incorporated into the generic definition of *Dikwa*.

Distribution

Endemic, Still Bay to Zululand 200–550 m.

Family Dexaminidae

Lepechinella oclo J. L. Barnard, 1973

Fig. 2

Lepechinella oclo J. L. Barnard, 1973: 21, figs 8–9.

Material

SM 60, 1 specimen

SM 86, 9 specimens

Remarks

The present material differs only marginally from that described by Barnard. Thus in South African specimens coxae 1 and 2 are more distinctly bifid, the accessory teeth on pereon segments 6 and 7 and pleon segments 1–3 somewhat more distinct, and the epimeral setae less marked. These differences cannot be considered of taxonomic significance, particularly in the light of similar size-related differences reported by Barnard (1973).

Distribution

New Zealand, 721–860 m; Natal 550–810 m. This record is the first from southern Africa.

Family Eusiridae

Dautzenbergia grandimanus (Chevreux, 1887)

Fig. 3

Parapleustes megachir Walker, 1897: 230, pl. 18 (fig. 4).

Sympleustes megachir: Stebbing, 1906: 317. Stephensen, 1944: 5, fig. 1.

Sympleustes grandimanus: Sexton, 1909: 857, pl. 90 (figs 8–32).

Sympleustes (*Dautzenbergia*) *grandimana*: K. H. Barnard, 1937: 158.

Dautzenbergia grandimanus: J. L. Barnard, 1961: 106.

Material

SM 60, 1 specimen

SM 107, 4 specimens

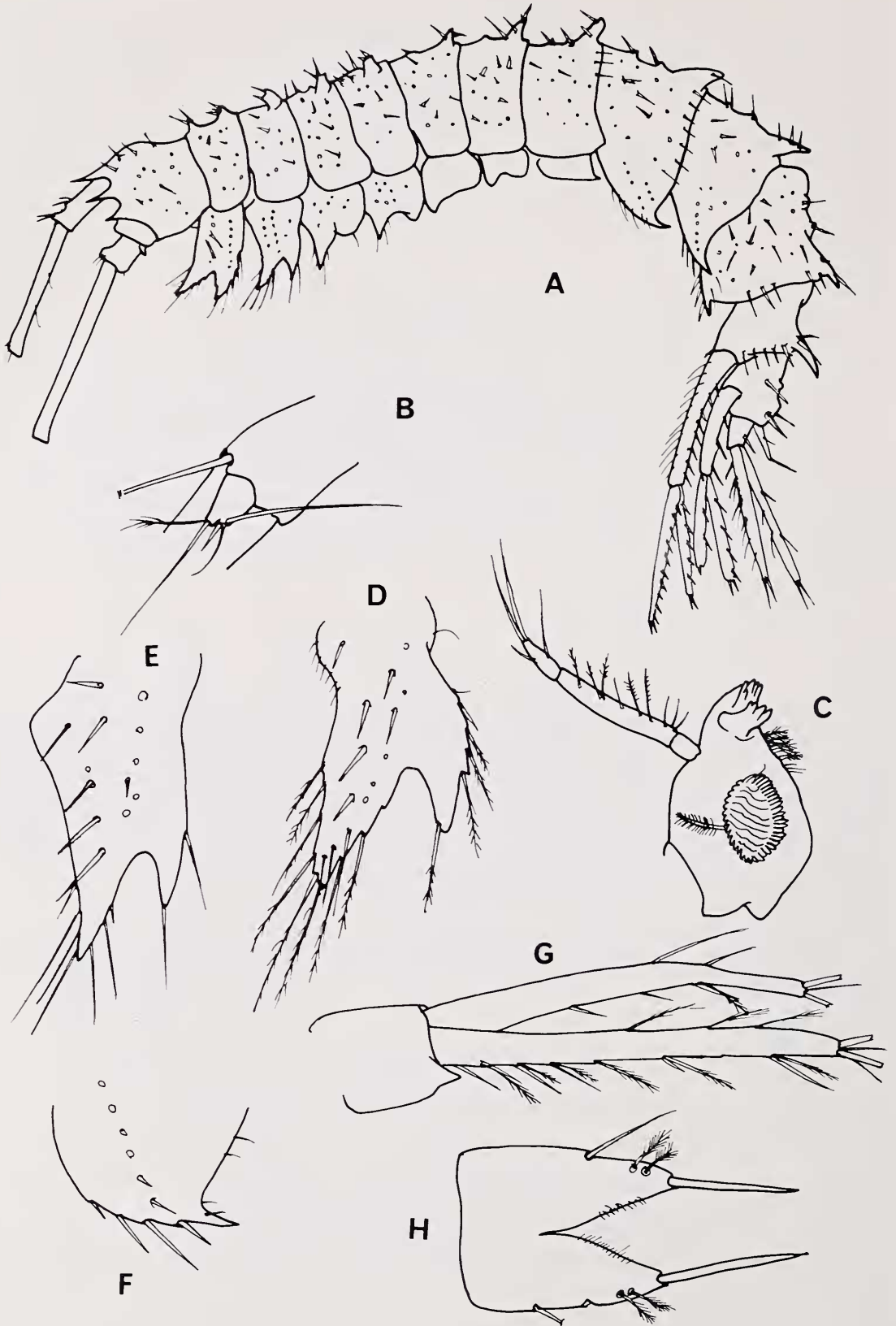


Fig. 2. *Lepechinella oclo* J. L. Barnard, 1973.
 Male, 6 mm. A. Lateral aspect. B. Accessory flagellum. C. Mandible. D-E. Coxae 1, 2.
 F. Third pleonal epimeron. G. Uropod 3. H. Telson.

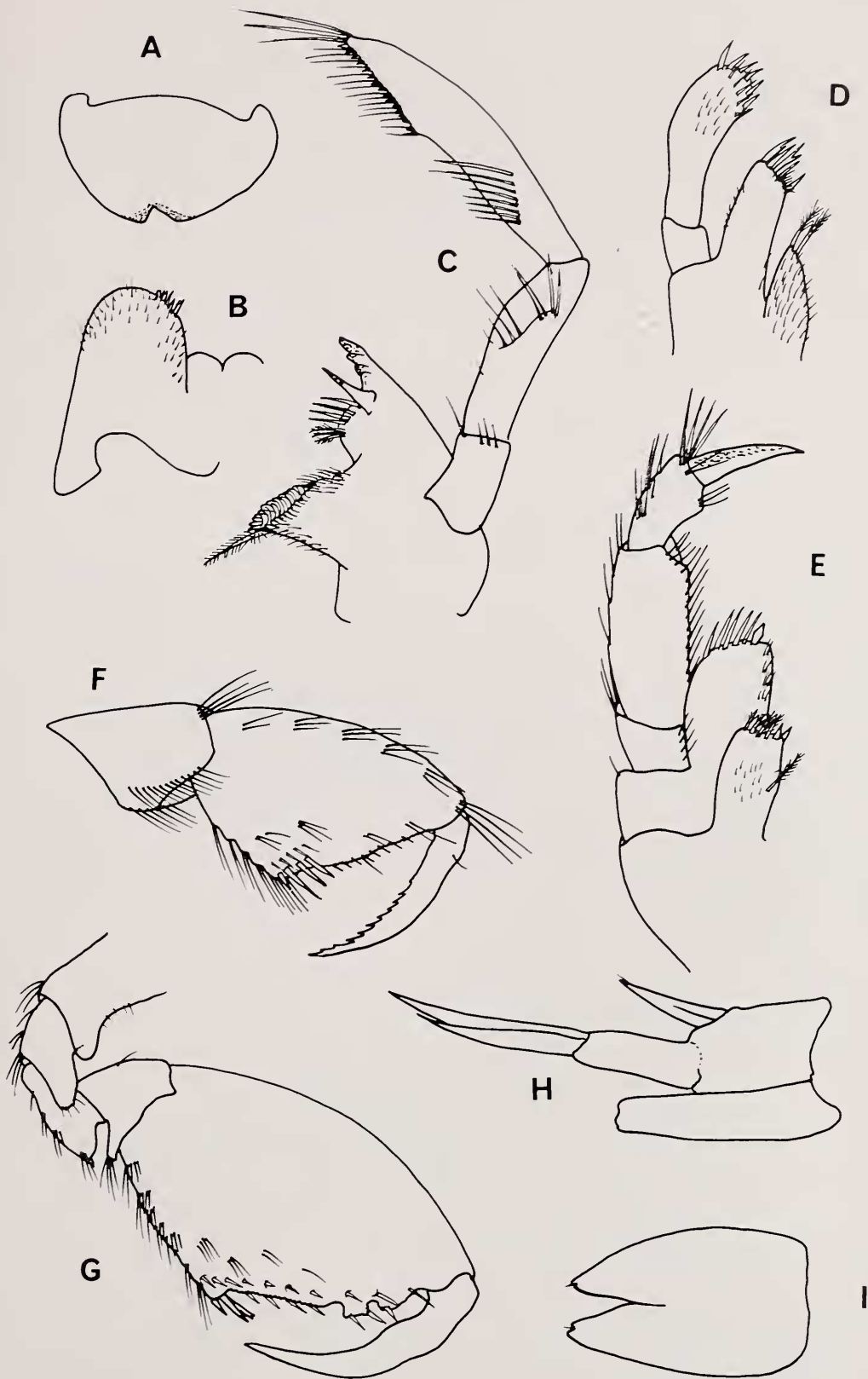


Fig. 3. *Dautzenbergia grandimanus* (Chevreux, 1887).

Ovigerous female, 8,5 mm. A. Upper lip. B. Lower lip. C. Mandible. D. Maxilla 1.
E. Maxilliped. F-G. Gnathopods 1, 2. H. Uropod 3 and telson. I. Telson.

Remarks

The genus *Dautzenbergia* has recently been revived by J. L. Barnard (1961) to accommodate species of 'Sympleustes' with a partially cleft telson. Of the three species in the genus *D. grandimanus* and *D. megacheir* appear to be indistinguishable. The present material correlates closely with the descriptions given by Sexton (1909) and Stephensen (1944).

Distribution

North Atlantic, Indian Ocean. This is the first record from southern Africa.

Family **Haustoriidae**

Urothoides inops J. L. Barnard, 1967

Fig. 4

Urothoides inops J. L. Barnard, 1967: 23, figs 8–10.

Material

SM 86, 1 specimen

Remarks

There can be no doubt that the present material is synonymous with that illustrated by J. L. Barnard (1967). This unusual species can readily be distinguished by its broad, flat, down-turned rostrum, which covers the anterior end of the body and deflects antenna 2 laterally. Pereiopods 3–5 are strongly developed and have article 2 thickened by glandular tissue. The mouthparts, and particularly the mandibles, are extremely large relative to the body, which is almost as broad as long.

Distribution

California, 2 700 m; Natal 550 m. This is the first record of this species from the southern African region.

Family **Lysianassidae**

Bathymaryllis conocephala (K. H. Barnard, 1925)

Fig. 5

Amaryllis conocephalus K. H. Barnard, 1925: 324.

Bathymaryllis conocephala: K. H. Barnard, 1940: 441.

Material

SM 61, 2 specimens (including neotype SAM-A13657)

SM 78, 1 specimen

SM 109, 1 specimen

SM 103, fragment

SM 60, 2 specimens

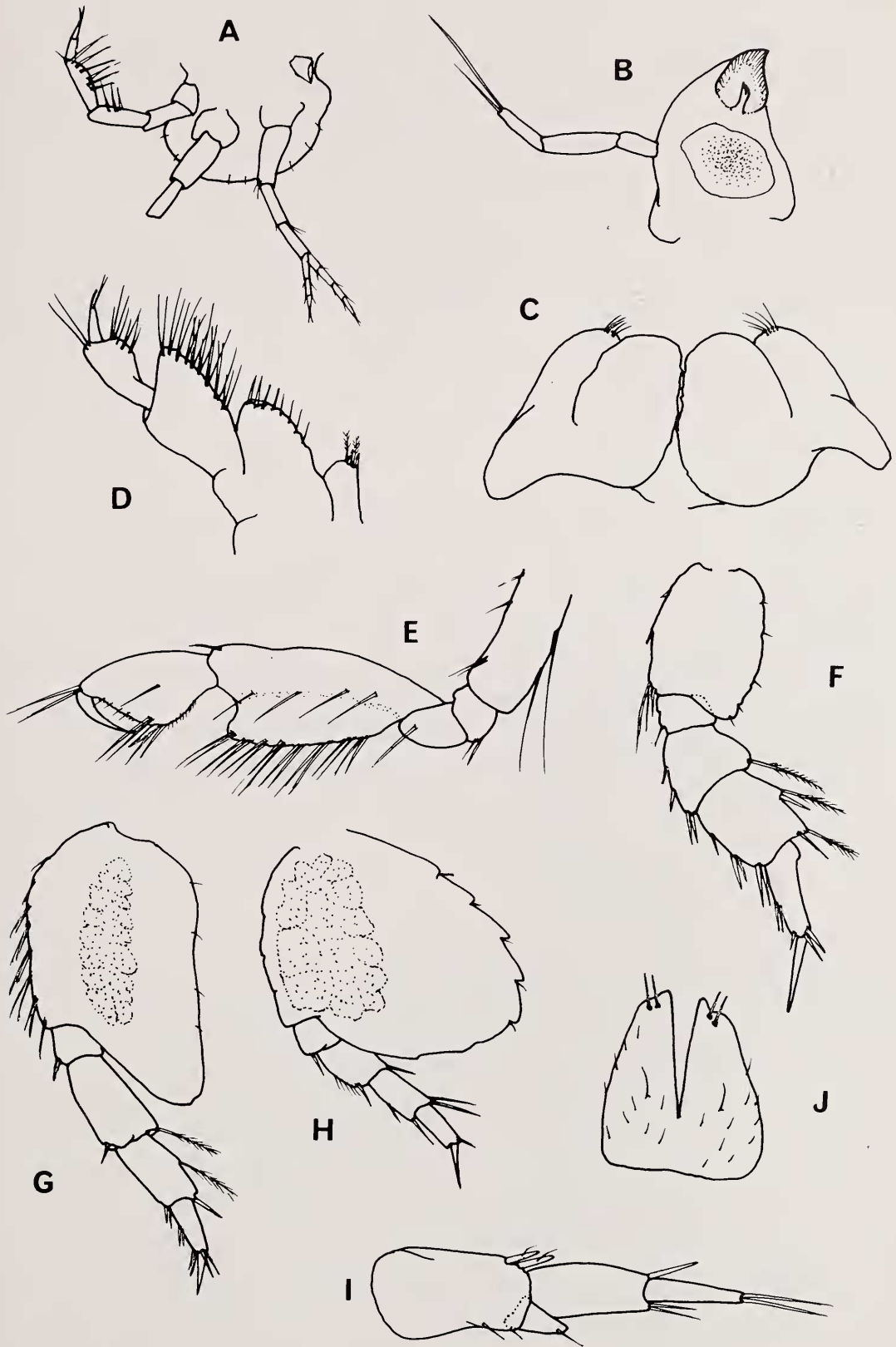


Fig. 4. *Urothoides inops* J. L. Barnard, 1967.

Female, 2 mm. A. Ventral view of rostrum. B. Mandible. C. Lower lip. D. Maxilliped. E. Gnathopod 1. F-H. Pereiopods 3, 4, 5. I. Uropod 3. J. Telson.

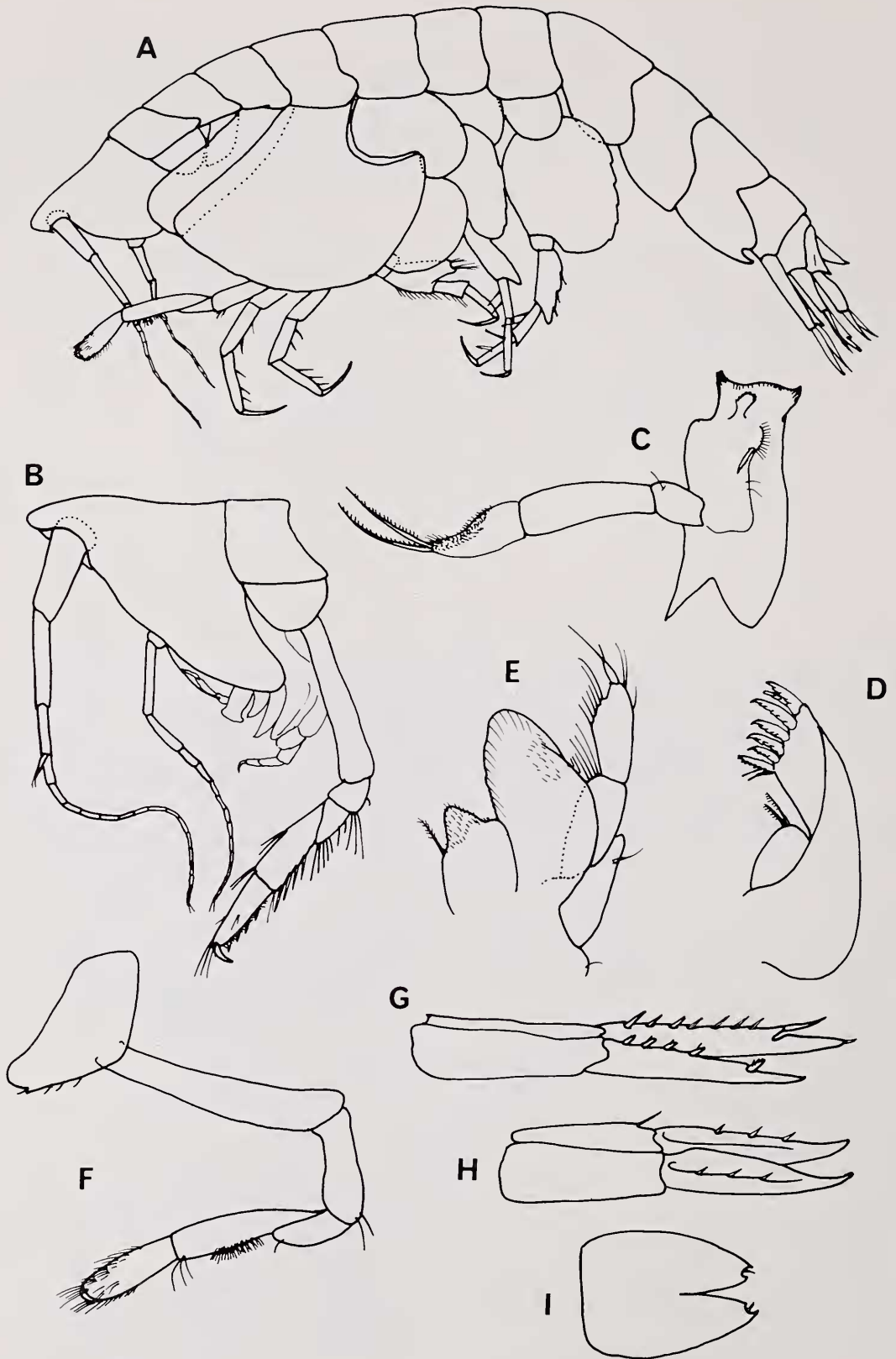


Fig. 5. *Bathymaryllis conocephala* (K. H. Barnard, 1925).

Female, 5 mm. A. Lateral aspect. B. Head and gnathopod 1. C. Mandible. D. Maxilla 1. E. Maxilliped. F. Gnathopod 2. G-H. Uropods 2, 3. I. Telson.

Remarks

This species has hitherto been known only through K. H. Barnard's somewhat scanty and unfigured description of the holotype female. When an attempt was made to obtain this specimen from Barnard's type collection it was found to have completely decomposed. A neotype has hence been selected from the present material and is shown in Figure 5. The bevelled off antero-lateral angles of the head clearly identify this species and distinguish it from the allied *B. rostrata* (Chevreux), in which the lateral lobes of the head are large and vertically truncated. The unusual form of the head in these two species is quite distinct from that in the other members of the genus—*B. haswelli* (Stebbing) and *B. perezii* Pirlot.

Distribution

Endemic, Cape Peninsula to Natal, 680–1 300 m.

Izinkala gen. nov.*Diagnosis*

Head and coxa 1 both very small, largely concealed by enlarged coxa 2; epistome and upper lip inconspicuous; mandible with distinct non-dentate incisor, palp attached distally; maxillae poorly developed; maxilliped lacking plates, palp with minute article 4; gnathopod 1 slender, minutely subchelate, articles 3 and 5 elongate; gnathopod 2 chelate; uropod 3 reduced, enclosed within urosomite 3, outer ramus with small article 2; telson entire.

Type species

Izinkala fhla sp. nov.

Relationships

This remarkable genus appears quite discrete from any known form. The greatly reduced mouthparts are of particular note. A comparable degree of reduction occurs in *Kerguelenia* Stebbing, but here the mandible lacks both incisor and molar, while the maxilliped retains small plates and a normal palp of four articles. The two genera, however, differ grossly in other respects, such as the form of gnathopod 1 and relative prominence of coxa 1, although other notable similarities with certain species of *Kerguelenia* occur, for example the enclosure of uropod 3 within urosomite 6 in *K. borealis* Sars. *Izinkala* gen. nov. also bears a certain resemblance to various genera in the *Lepidepcreum* group. Thus species such as *L. clypodentatum* J. L. Barnard show carinate peduncular segments in antenna 1, similar gnathopods 1 and 2 and enlarged article 2 of pereopod 5. *Clepidocrella* J. L. Barnard lacks certain of these features but has reduced maxillipedal plates, a short uropod 3 and entire telson. Despite these features, *Izinkala* gen. nov. remains quite distinct with its grossly reduced coxa 1 and forward projecting, enlarged coxa 2.

Izinkala fhla sp. nov.

Figs 6–7

Description (of ?female 3,2 mm)

Head shorter than pereon segment 1, post-antennal angles acutely produced; peduncle of antenna 1 large, article 1 acutely produced, article 2 overhanging remainder of antenna as a broad lobe with lateral flanges between which distal articles originate, flagellum 4-articulate, article 1 broad, posteriorly fringed with long aesthetascs, accessory flagellum 3-articulate; antenna 2 with article 1 sub-circular, apparently fused to head, gland cone prominent, flagellum 3-articulate; epistome and upper lip inconspicuous; mandible with non-dentate incisor, spine row absent, molar apparently large and smooth; maxillae not satisfactorily resolved, minute; maxilliped completely lacking both inner and outer plates, palp article 4 reduced.

Coxa 1 small and thickened by muscle fibres, completely concealed by large forward-projecting coxa 2, margins of coxae 2–4 of the two sides abutting ventrally, the small gap below the head closed by projecting lobe of article 2 of antenna 1; gnathopod 1 slender, elongate, articles 3 and 5 each as long as 2, palm slightly oblique, defined by a single strong spine which projects into a pocket formed within the thick, highly chitinized dactyl, which bears sharp transparent lateral flanges; gnathopod 2 chelate; article 2 of pereopod 3 rotund, article 4 greatly widened posteriorly; pereopod 4 similar in structure to 3 but longer; pereopod 5 with article 2 elongate and produced distally as far as tip of article 4, articles 4 and 5 acutely lobed posteriorly.

Pleonal epimera 1 and 2 smoothly rounded, 3 rounded-quadrate; pleon segment 4 with a rounded dorsal carina overhanging pleon segment 5; uropods 1 and 2 strongly spinose dorsally, rami equal; pleon segment 6 overhanging uropod 3 and telson above and to the sides; uropod 3 very small, outer ramus with a spinose article 2 overhung by dorsal projection of article 1, inner ramus shorter, evenly tapering; telson elongate, entire, bearing strong dorsal and terminal spines.

Holotype

SAM-A13659, ?female, 3,2 mm.

Type locality

SM 86, 27°59,5'S 32°40,8'E, 550 m, 22 May 1976.

Material

SM 86, 4 specimens

SM 103, 1 specimen

Valettiella gen. nov.*Diagnosis*

Antenna 1 geniculate, articles 2 and 3 slender and elongate; article 1 of antenna 2 greatly enlarged; upper lip and epistome inconspicuous; mandibular

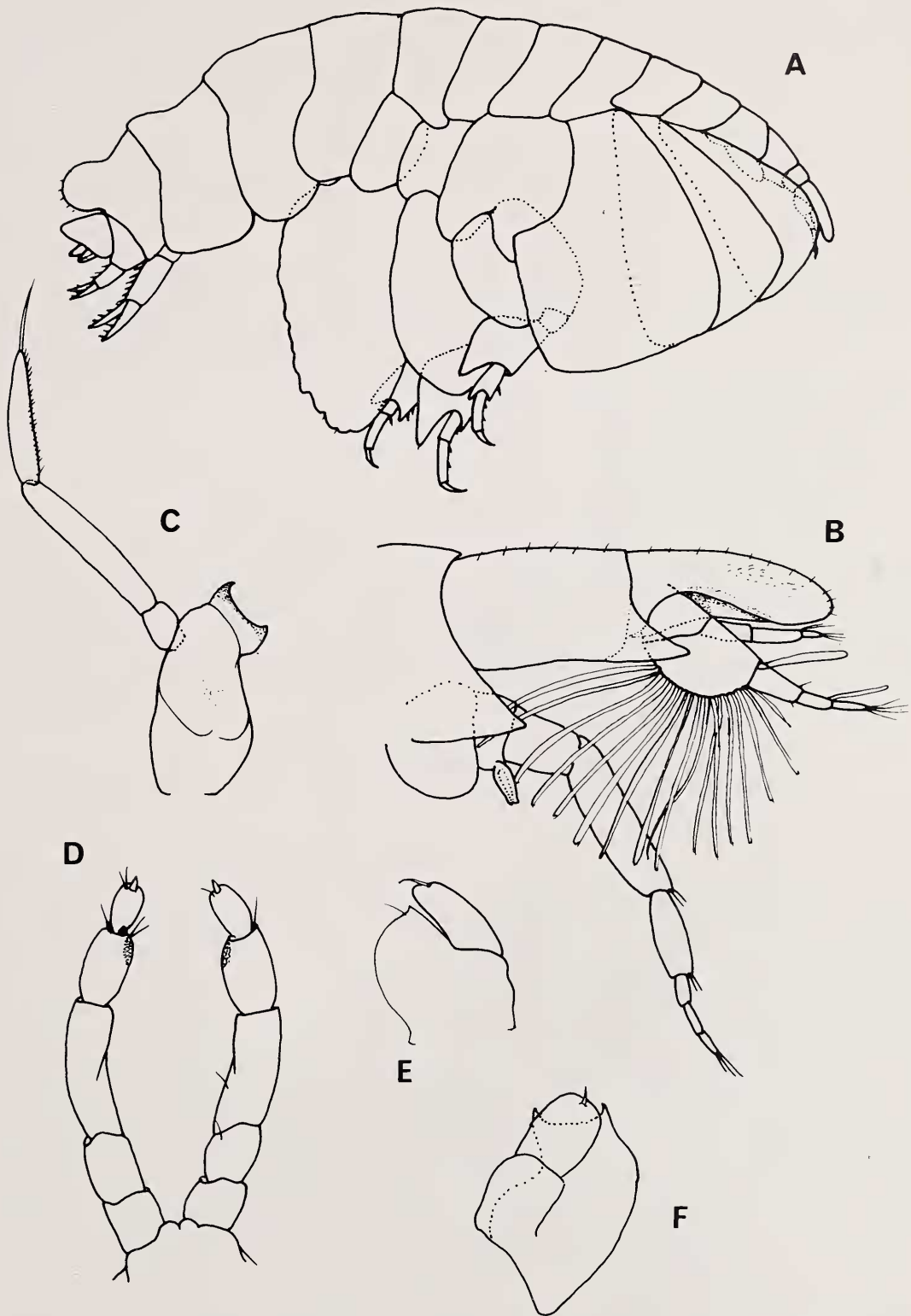


Fig. 6. *Izinkala fihla* gen. et sp. nov.

Female 3,2 mm. A. Lateral aspect. B. Antennae 1 and 2. C. Mandible. D. Maxilliped
E-F. Unidentified mouthparts, probably maxilla 1.

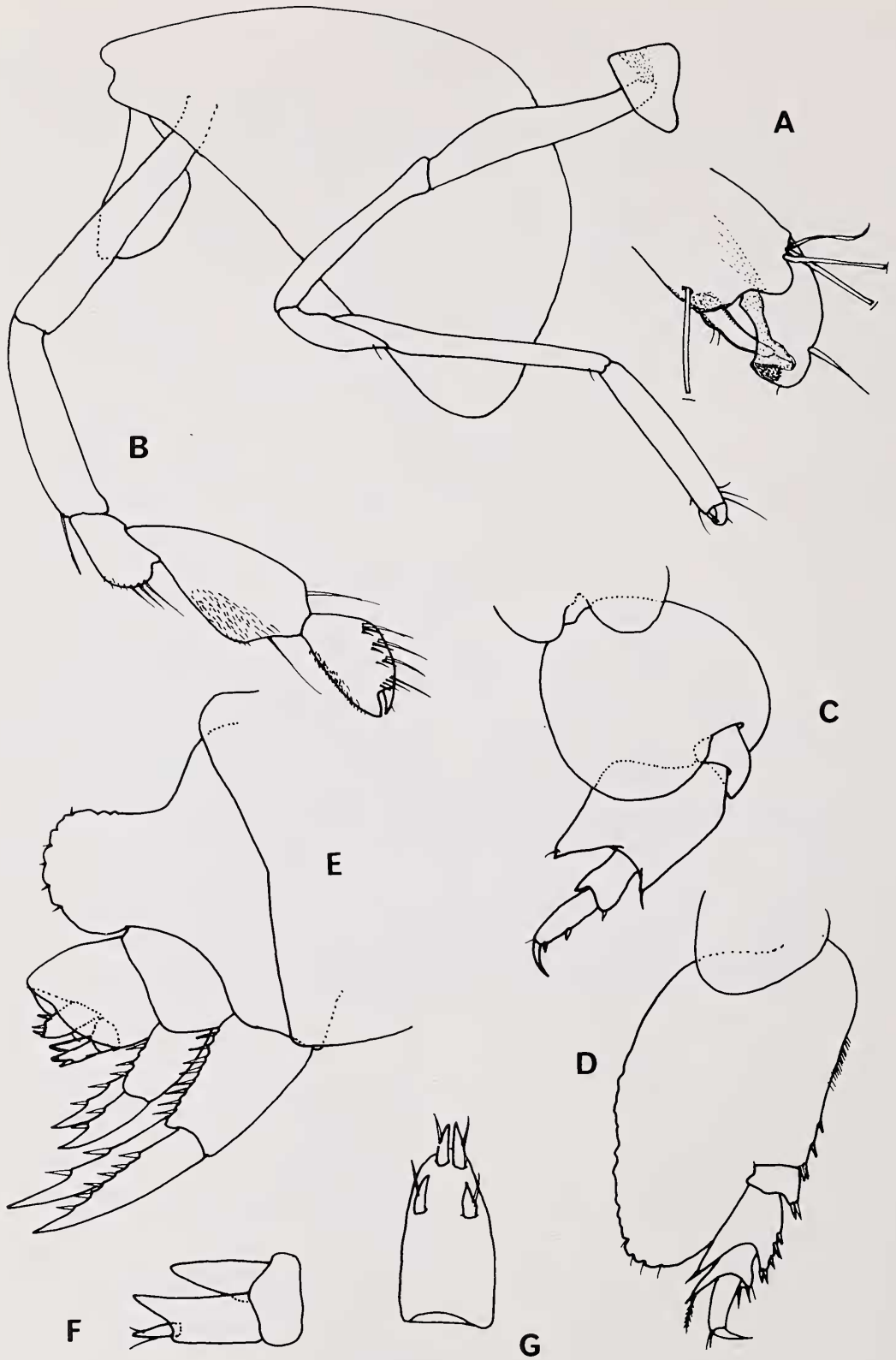


Fig. 7. *Izinkala fihla* gen. et sp. nov.

Female, 3,2 mm. A. Gnathopod 1 with palm enlarged. B. Gnathopod 2. C-D. Pereiopods 3, 5. E. Lateral view of urosome. F. Uropod 3. G. Telson.

molar triturative, incisor strongly toothed, palp attached level with molar; inner plate of maxilla 1 setose medially; coxae 1 and 2 rectangular and equally elongate; gnathopod 1 weakly chelate; gnathopod 2 subchelate; telson short, cleft.

Type species

Valettiella castellana sp. nov.

Relationships

The strongly dentate mandibular incisor and unspecialized gnathopods of this genus place it in a distinct group presently comprising *Valettia* Stebbing, 1888 and *Valettiopsis* Holmes, 1908.

The new form, however, shows features intermediate between those defining *Valettia* and *Valettiopsis*, as well as a number of distinct characteristics of its own. Thus *Valettia* has the outer plate of the maxilliped apically produced and coxae 1 and 2 similarly short and broad, while *Valettiopsis* has a normal maxilliped but coxa 2 elongate and almost covering a reduced coxa 1. *Valettiella* gen. nov. not only combines a normal maxilliped with elongate and equal coxa 1 and 2, but also differs from both the above genera in its unusual geniculate antenna 1 with elongate peduncle, enlarged article 1 of antenna 2, widened and castelloserrate article 2 of posterior pereopods and shortened uropod 3 with reduced inner ramus.

Valettiella castellana sp. nov.

Figs 8–9

Description (of ovigerous female, 4 mm)

Head as long as first two pereon segments, ocular lobes acute, eyes weak; antenna 1 with article 1 elongate, article 2 almost as long as 1, normally folded back into ventral groove of article 1, flagellum 9-articulate, accessory flagellum uni-articulate; article 1 of antenna 2 acutely produced into an enlarged shield projecting just below ocular lobe of head, gland cone prominent, flagellum 5-articulate; mandible with 3-articulate palp, incisor with 6 strong teeth, lacinia mobilis with 4 teeth, spine row of 8 spines, molar large and strongly ridged; maxilla 1 with bi-articulate palp projecting beyond tip of outer plate, palp with 7 terminal spine teeth, outer plate bearing 8 strong serrate spines, inner plate setose medially; inner plate of maxilla 2 strongly setose medially; maxilliped with powerful 4-articulate palp, outer plate apically rounded, bearing eight medial spine teeth.

Coxae 1–3 equally elongate, 1 and 2 with small postero-distal tooth; gnathopod 1 weakly chelate, article 5 considerably larger than 6; gnathopod 2 with article 3 only slightly elongate, articles 5 and 6 subequal, palm oblique; pereopods 3–5 progressively longer, article 2 greatly lobed posteriorly, anterior margin spinose, posterior margin strongly castelloserrate.

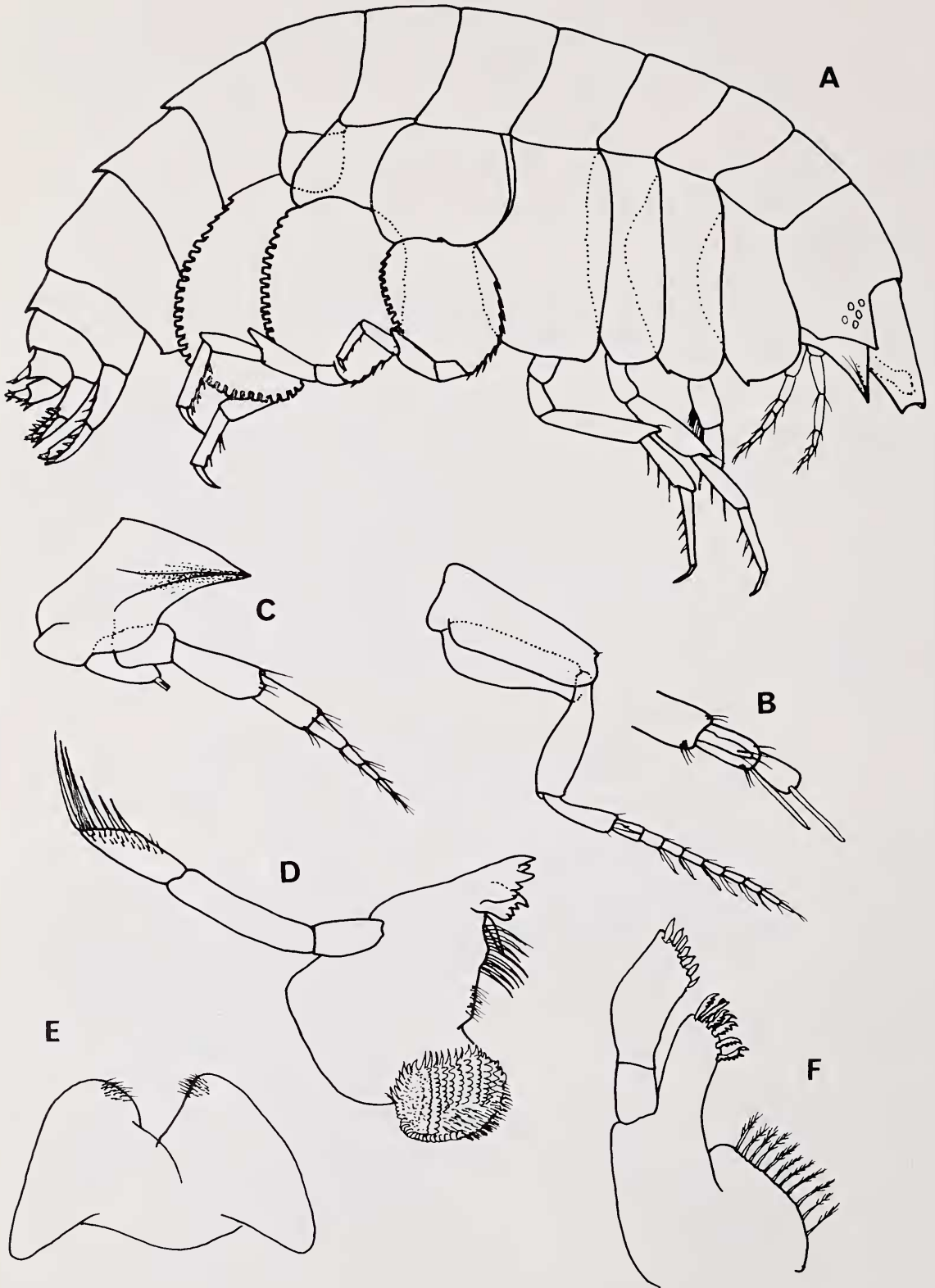


Fig. 8. *Valettiella castellana* gen. et sp. nov.

Ovigerous female, 4 mm. A. Lateral aspect. B. Antenna 1 with accessory flagellum enlarged.
 C. Antenna 2. D. Mandible. E. Lower lip. F. Maxilla 1.

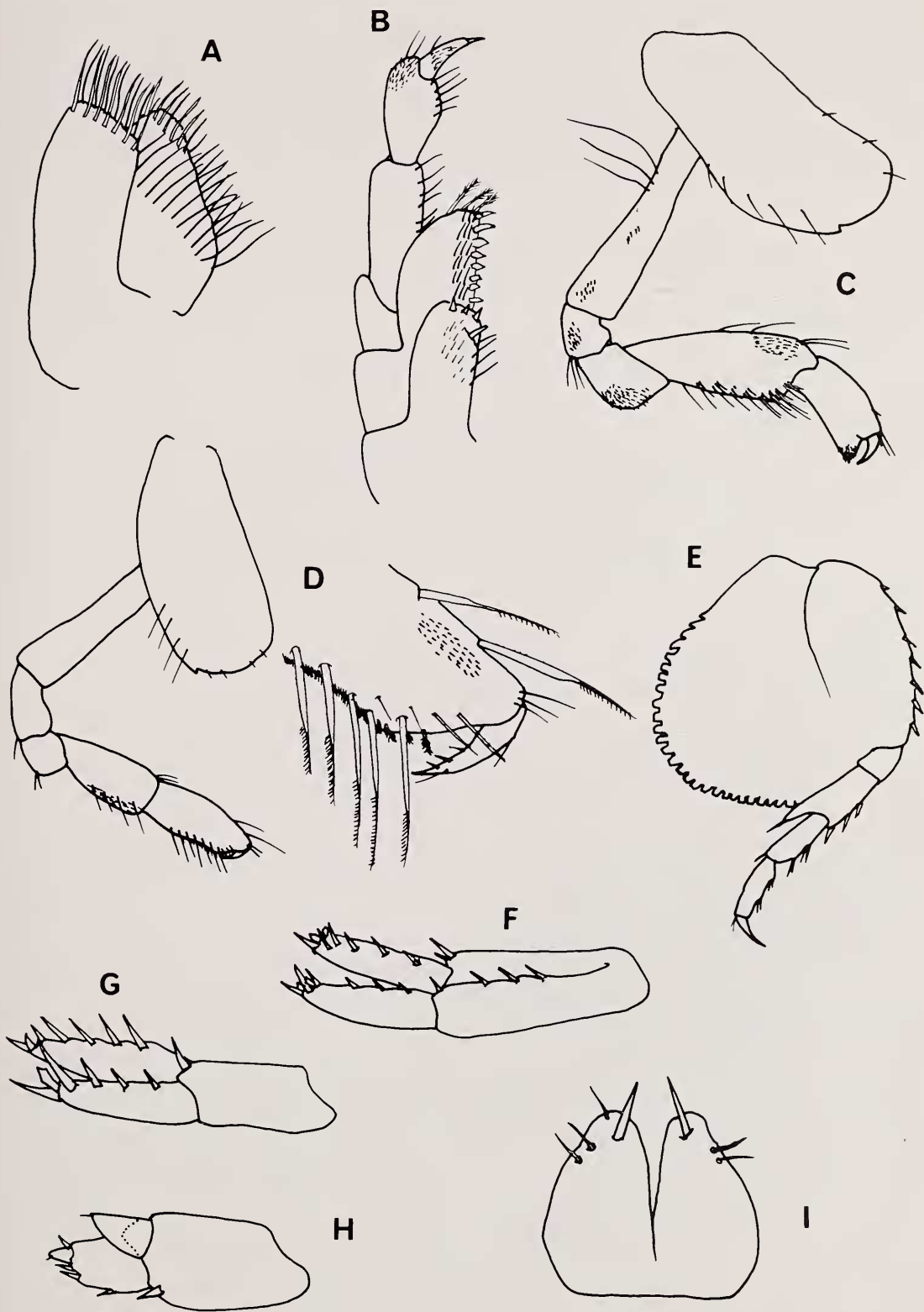


Fig. 9. *Valettiella castellana* gen. et sp. nov.

Ovigerous female, 4 mm. A. Maxilla 2. B. Maxilliped. C. Gnathopod 1. D. Gnathopod 2 with palm enlarged. E. Pereiopod 5. F-H. Uropods 1, 2, 3. I. Telson.

Pleon segments 1, 2, 4 and 5 each bearing a single medio-dorsal tooth, pleonal epimera quadrate postero-distally; rami of uropods 1 and 2 equal, strongly spinose dorsally and apically; uropod 3 considerably shorter than 1 and 2, outer ramus with a small article 2, inner ramus about half size of outer and closely appressed to its medio-ventral surface; telson short, cleft, each lobe bearing a large terminal spine and three small setae.

Holotype

SAM-A13658, ovigerous female, 4 mm, unique.

Type locality

SM 86, 27°59,5'S 32°40,8'E, 550 m, 22 May 1976.

Family **Stenothoidae**

Parametopa grandimana Griffiths, 1974

Fig. 10

Parametopa grandimana Griffiths, 1974: 324, fig. 18.

Material

SM 86, 13 specimens

SM 103, 11 specimens

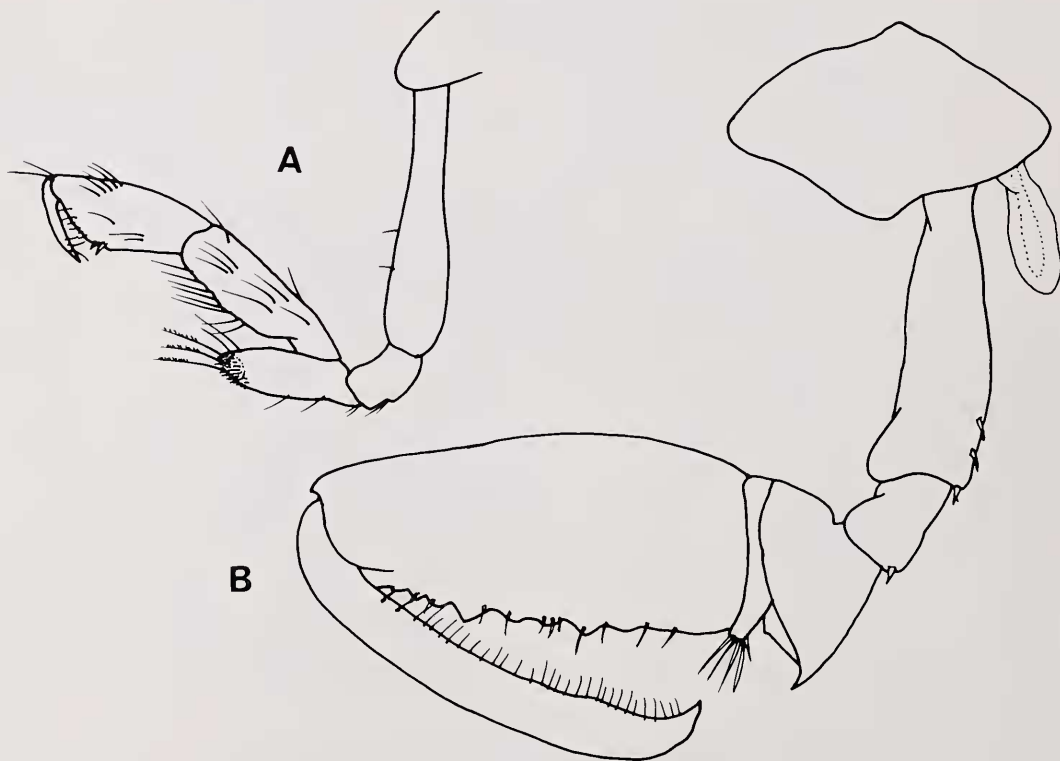


Fig. 10. *Parametopa grandimana* Griffiths, 1974. Male, 4,5 mm. A. Gnathopod 1. B. Gnathopod 2.

Remarks

The above material includes adult males of up to 4,5 mm which show gnathopods somewhat different to those described by Griffiths (1974). In terminal males the palm of gnathopod 1 is defined by two small spines and the dactyl bears three setae. Article 6 of gnathopod 2 is somewhat more elongate than is typical of smaller males and the palm is undefined, while the dactyl becomes greatly thickened terminally.

Distribution

Endemic, Still Bay to Natal 200–680 m.

ACKNOWLEDGEMENTS

This project was made possible through the generosity of the staff of the South African Museum, who not only lent the author the material but also provided excellent library facilities. I am indebted to the South African Council for Scientific and Industrial Research for financial support. My thanks also to Mrs S. Hardman who kindly typed the manuscript.

REFERENCES

- BARNARD, J. L. 1961. Gammaridean Amphipoda from depths of 400 to 6000 meters. *Galathea Rep.* 5: 23–128.
- BARNARD, J. L. 1967. Bathyal and abyssal gammaridean Amphipoda of Cedros Trench, Baja California. *Bull. U.S. natn. Mus.* 260: 1–205.
- BARNARD, J. L. 1973. Deep-sea Amphipoda of the genus *Lepechinella* (Crustacea). *Smithson. Contr. Zool.* 133: 1–31.
- BARNARD, K. H. 1925. Contributions to the crustacean fauna of South Africa. 8. Further additions to the list of Amphipoda. *Ann. S. Afr. Mus.* 20: 319–380.
- BARNARD, K. H. 1937. Amphipoda. *Scient. Rep. John Murray Exped. 1933–34* 5: 131–201.
- BARNARD, K. H. 1940. Contributions to the crustacean fauna of South Africa. 12. Further additions to the Tanaidacea, Isopoda, and Amphipoda with keys for the identification of hitherto recorded marine and freshwater species. *Ann. S. Afr. Mus.* 32: 381–543.
- GRIFFITHS, C. L. 1974. The Amphipoda of southern Africa, Part 4. The Gammaridea and Caprellidea of the Cape Province east of Cape Agulhas. *Ann. S. Afr. Mus.* 64: 251–336.
- LOUW, E. 1977. The South African Museum's Cruises on the R/V *Meiring Naude* off the east coast of southern Africa. 1. Station data, 1975, 76. *Ann. S. Afr. Mus.* 8: 147–159.
- STEBBING, T. R. R. 1906. Amphipoda 1. Gammaridea. *Tierreich* 21: I–XXXIX, 1–806.
- SEXTON, E. W. 1909. Notes on some Amphipoda from the north side of the Bay of Biscay: Families Pleustidae and Eusiridae. *Proc. zool. Soc. Lond.* 1909: 848–879.
- STEPHENSEN, K. 1944. Crustacea Malacostraca, VIII: (Amphipoda IV). *Danish Ingolf-Exped.* 3: 1–51.
- WALKER, A. O. 1897. On some new species of *Edriophthalma* from the Irish Seas. *J. Linn. Soc.* 26: 226–232.