VOLUME 69 PART 11 JUNE 1976 ISSN 0303-2515

ANNALS

OF THE SOUTH AFRICAN MUSEUM

CAPE TOWN

ANNALS OF THE SOUTH AFRICAN MUSEUM
ANNALE VAN DIE SUID-AFRIKAANSE MUSEUM

Volume 69 Band
June 1976 Junie
Part 11 Deel

ISOPODAN AND TANAIDACEAN CRUSTACEA FROM THE ST PAUL AND AMSTERDAM ISLANDS, SOUTHERN INDIAN OCEAN

By

BRIAN KENSLEY

Cape Town Kaapstad

The ANNALS OF THE SOUTH AFRICAN MUSEUM

are issued in parts at irregular intervals as material becomes available

Obtainable from the South African Museum, P.O. Box 61, Cape Town

Die ANNALE VAN DIE SUID-AFRIKAANSE MUSEUM

word uitgegee in dele op ongereelde tye na beskikbaarheid van stof

Verkrygbaar van die Suid-Afrikaanse Museum, Posbus 61, Kaapstad

OUT OF PRINT/UIT DRUK

1, 2(1, 3, 5–8), 3(1–2, 4-5, t.–p.i.), 5(1–3, 5, 7–9), 6(1, t.–p.i.), 7(1–4), 8, 9(1–2), 10(1), 11(1–2, 5, 7, t.–p.i.), 15(5), 24(2), 27, 31(1–3), 33

Price of this part/Prys van hierdie deel
R5,00

ISBN 0 949940 90 9

Printed in South Africa by
The Rustica Press, Pty., Ltd.,
Court Road, Wynberg, Cape

In Suid-Afrika gedruk deur
Die Rustica-pers, Edms., Bpk.,
Courtweg, Wynberg, Kaap

ISOPODAN AND TANAIDACEAN CRUSTACEA FROM THE ST PAUL AND AMSTERDAM ISLANDS, SOUTHERN INDIAN OCEAN

By

BRIAN KENSLEY

South African Museum, Cape Town

(With 26 figures)

[*MS accepted 26 February 1976*]

ABSTRACT

A collection of land and marine Isopoda and Tanaidacea from the St Paul and Amsterdam Islands, southern Indian Ocean, is dealt with. Three species of tanaids and thirty-four species of isopods are discussed. Of these, seven new species are described, viz. *Eisothistos crateris*, *Panathura amstelodami*, *Cymodocella sapmeri*, *Munnogonium subtilis*, *Coulmannia unicornis*, *Echinomunna uroventralis*, and *Ianisera trepidus*. The latter species belongs to the new genus *Ianisera*, while a species of *Janira*, viz. *J. angusta* Barnard, is transferred to the new genus *Ianiroides*. The isopod fauna is analysed into zoogeographical components. It is shown that there is a strong endemic fauna (27%), as well as a South American/Antarctic/Subantarctic and a widespread component, but by far the largest component (35%) is that group common to the islands and South Africa (mostly the west coast of South Africa). It is concluded that the isopod fauna of the St Paul and Amsterdam Islands falls into the cold-temperate faunal category with strong affinities to the fauna of South Africa.

CONTENTS

INTRODUCTION

During 1971–2, a resèarch programme centred on the St Paul and Amsterdam Islands was sponsored by Terres Australes et Antarctiques, with the logistic support of the Société Anonyme de Pêche Maritime et de Ravitaillement (S.A.P.M.E.R.). As part of this programme, J. Beurois of the Station Marine d'Endoume et Centre Oceanographie, Marseille, made extensive collections of invertebrates from these islands, both intertidally and subtidally. The marine and the few terrestrial isopods collected were submitted to the author for identification. The following is an account of the species found, with a discussion of their zoogeographical implications. Most of the type specimens are deposited in the Paris Museum of Natural History. A few paratypes are deposited in the South African Museum, and are designated 'SAM'.

Ann. S. Afr. Mus. **69** (11), 1976: 261–323, 26 figs.

REVIEW OF PUBLISHED WORK ON ISOPODA FROM THE ST PAUL AND AMSTERDAM ISLANDS

The St Paul and Amsterdam Islands, situated at 38.43S, 77.32E and 37.55S, 77.40E respectively (see fig. 1), almost midway in the southern Indian Ocean, and just north of the Subtropical Convergence, have been visited by biologists at infrequent intervals. The Austrian frigate *Novara* called at the islands during its circumnavigation of the earth in 1857–9. A preliminary report on the isopods by C. Heller was published in 1861, while the full report appeared in 1865. This dealt with five species of isopods and one tanaid: *Idotea nitida*, *Cleantis granulosa*, *Porcellio paulensis*, *Sphaeroma perforata*, *Cirolana rugicauda* and *Tanais gracilis*.

Brocchi (1877) reported on a collection of isopods made by Velain and d'Lisle during the French mission sent to observe the passage of Venus. Nine species were dealt with, viz. *Idotea nitida*, *Porcellio paulensis*, *Sphaeroma perforata*, *Sphaeroma tuberculata*, *Cymodoce picta*, *Cirolana rugicauda*, *Rocinela major* and *Cymothoa gadorum*. This material, unfortunately, cannot be located and must be presumed lost.

The German South-Polar Expedition of 1901–3 visited the islands on the *Gauss*. Vanhöffen (1914) reported on the marine isopods, listing seven species and one tanaid: *Cirolana rugicauda*, *Cycloidura perforata*, *Dynamenella brunnea*, *Jaeropsis paulensis*, *Antias hispidus*, *Antias marmoratus*, *Janira* sp. and *Tanais gracilis*. Budde-Lund (1906) dealt with the land isopods of this expedition and mentions *Deto armata* from St Paul. Finally, André (1932) lists three species, viz. *Paridotea ungulata*, *Cycloidura perforata* and *Porcellio paulensis*.

To date, the total number of isopods from the St Paul and Amsterdam Islands numbers 16 species, 4 of these being of uncertain identity. The present collection includes 35 species, bringing the total number of isopods to 44, this more-than-doubling of the number being a reflection of the very thorough collecting carried out by J. Beurois.

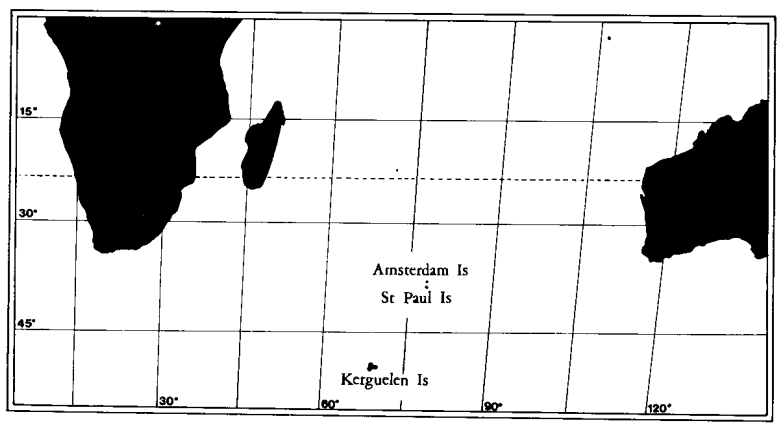

Fig. 1. Map showing position of the St Paul and Amsterdam Islands.

SPECIES LIST

In the following list, the species are arranged in the order in which they are dealt with in the systematic section.

*—not dealt with in systematic section.

SPECIES	St Paul and Amsterdam habitat and depth distribution				General distribution		
	Littoral	Upper infralittoral	Sublittoral	Endemic	South Africa	South America Antarctic	Other
TANAIDACEA							
Anatanais gracilis (Heller) . .	—	among kelp roots, stones	under stones and sponges, 25–50 m		Lüderitz to Durban	—	Ceylon
Leptochelia barnardi Brown .	—	among kelp roots	among stones and algae		Table Bay False Bay	—	—
Leptochelia savignyi (Kröyer) .	—	among kelp roots	among stones and algae		Lüderitz to Moçambique	—	North and and South Atlantic Mediter-ranean Indo-Pacific
ISOPODA							
* *Cleantis granulosa* Heller .	under gravel and stones				—	Argentina Tierra del Fuego	—
Idotea metallica Bosc . . .	—		on buoy cable		Cape to Moçambique	Straits of Magellan Patagonia Antarctic	Greenland, Tristan Nova Scotia
Paridotea nitida (Heller) . .	—	among kelp roots, stones, algae, 3–4 m	among algae and sponges 25–30 m	+	—	—	—
Paridotea reticulata Barnard .	—	on *Macrocystis* 'leaves' 0–5 m			Lüderitz to False Bay	—	—

SPECIES	St Paul and Amsterdam habitat and depth distribution			General distribution			
	Littoral	Upper infralittoral	Sublittoral	Endemic	South Africa	South America Antarctic	Other
Eisothistos crateris sp. nov. .	—	from rock scrapings, on sponges, bryozoa	—	+	—	—	—
Panathura amstelodami sp. nov.	—	among kelp roots	from rock, algae, sponges, 50–80 m	+	—	—	—
Panathura serricauda (Barnard)	—	among kelp roots, algae	—		Lüderitz to False Bay	—	—
Cirolana rugicauda Heller . .	—	among kelp, algae, stones, sponges in organic debris, 0,6 m	—		Port Nolloth St Helena Bay	—	—
* *Cymodocea picta* Brocchi .							
Cymodocella sapmeri sp. nov. .	amongst algae	among kelp roots, algae, 1–4 m	among algae, sponges, bryozoa, 60 m	+	—	—	—
Dynamenella brunnea Vanhöffen	amongst algae, stones	among kelp roots, stones, sponges, 1–4 m	—	+	—	—	—
Dynamenella dioxus Barnard .	—	among kelp roots 3–4 m	from sponges, algae, 25–60 m		Lüderitz to False Bay	—	—
Parisocladus perforatus (H. M. Edwards) . . .	intertidal pools among stones, algae	amongst algae, in black sediment 3 m	—		Rocky Point, S.W.A., to East London	—	—
* *Spheroma tuberculata* Brocchi	—	—	—				
Limnoria quadripunctata Holthuis	—	in kelp roots	in red algae 30 m			Chile	North Sea California

* *Cymothoa gadorum* Brocchi						
Lironeca raynaudii (H. M. Edwards) . . .	on gill cover of *Latris lineata*			Table Bay Durban	—	New Zealand, Japan, Tasmania, Australia
Aega antillensis Schiödte & Meinert	on *Thyrsites atun*			Natal	—	Japan, West Indies
Aega monilis Barnard . . .	—	—	among sponges, corals, 60–70 m	Table Bay, East London	— —	— —
* *Rocinela major* Brocchi .						
Stenetrium crassimanus Barnard	—	—	among algae, corals, sponges	False Bay Natal	—	—
Stenetrium saldanha Barnard .	—	—	among algae, sponges, 50–90 m	Saldanha Bay False Bay Still Bay	—	—
Antias dimorphus Menzies . .	—	among kelp, algae	amongst organic debris, algae, sponges, from coarse sand, 50–80 m	—	Chile Kerguelen	—
Antias hispidus Vanhöffen . .	—	among kelp, algae, sponges	among algae, sponges, in black sediment, 50–60 m	—	Auckland Is. Falkland Is. Antarctic	—
Antias hofsteni Nordenstam .	—	—	among algae, sponges, stones, 45–100 m	—	South Georgia	—
Caecianiropsis ectiformis (Vanhöffen)	—	—	scrapings from boulder	—	Kerguelen Is.	—
Ianiroides angusta (Barnard) .	—	—	among algae, sponges, 25 m	False Bay	—	—

SPECIES	St Paul and Amsterdam habitat and depth distribution: Littoral	Upper infralittoral	Sublittoral	General distribution: Endemic	South Africa	South America Antarctic	Other
Ianisera trepidus sp. nov. . .	—	—	among sponges, bryozoa, corals, 30–100 m	+	—	—	—
Janira capensis Barnard . .	—	among kelp roots on *Macrocystis* 0,6 m	among stones, algae, sponges, bryozoa		Lüderitz to False Bay	—	—
Ianiropsis palpalis Barnard .	among algae, stones, intertidal pools	among algae, sponges, kelp 0,6 m	among stones, sponges, algae, bryozoa, on gorgonian, 40–120 m		Lüderitz to East London	—	—
Jaeropsis beuroisi Kensley . .	—	among kelp roots 0,3 m	among corals, bryozoa, sponges, 25–80 m	+	—	—	—
Jaeropsis paulensis Vanhöffen .	—	among kelp roots, stones, organic debris	on sponges, bryozoa		—	Gough Is.	—
Munnogonium subtilis sp. nov.	—	—	50–60 m	+	—	—	—
Coulmannia unicornis sp. nov.	—	—	80–100 m	+	—	—	—
Echinomunna uroventralis sp. nov.	—	—	on bryozoa, corals, sponges	+	—	—	—
Munna nana Nordenstam . .	—	on kelp roots, among *Ulva* 0,6 m	among algae, corals, bryozoa, sponges, 50–120 m			Chile Falkland Is.	—

***Munna* sp.**	—	—	on coral, sponges, 80–100 m	—	—	—
Deto echinata Guérin . . .	upper and mid-littoral crevices, under stones	—	—	Rocky Point, S.W.A., to Knysna	—	—
Porcellio scaber Latreille . .	feeding on kelp washed ashore		—	Cape	Tristan da Cunha, St Helena Is.	—

STATION LIST

AMSTERDAM ISLAND (AMS)

Station No.	*Date*	*Depth (metres)*	*Locality and ecological data*
a1	10.2.1971	upper infralittoral	north coast; obtained from scraping 400 cm² amongst abundant algae
a2	10.2.1971	upper infralittoral	north coast; obtained from scraping 400 cm² amongst *Ulva* and *Splachnidium*
a3	10.2.1971	upper infralittoral	north coast; obtained from scraping 400 cm² amongst *Splachnidium*
a4	11.2.1971	upper infralittoral	north coast; among rock crevices and kelp holdfasts
a5	11.2.1971	upper infralittoral	north coast; in *Laminaria* holdfasts
a6	11.2.1971	upper infralittoral	north coast, amongst algae
a7	11.2.1971	upper infralittoral	north coast, under stones, and in clean sediment
a8	27.2.1971	upper infralittoral	north coast, under stones
a9	27.2.1971	midlittoral	north coast among boulders
a10	27.2.1971	between midlittoral and sublittoral	north coast, in wet sediment
b1	12.2.1971	littoral	north—north-east coast; amongst algae and sponges
b2/1a	12.2.1971	midlittoral	north—north-east coast; amongst small molluscs and algae
b2/1b	12.2.1971	lower midlittoral	north—north-east coast
b2/2	12.2.1971	midlittoral	north—north-east coast amongst *Porphyra* and *Splachnidium*
b3	12.2.1971	upper infralittoral	north—north-east coast under stones
c1	14.2.1971	midlittoral	east coast; scrapings from algal growth on wall
c2	14.2.1971	midlittoral	east coast; scrapings from wall
c3	14.2.1971	upper infralittoral	east coast; scrapings from cavity
3	9.2.1971		north coast; algae from lobster pot
5a	19.2.1971		north coast, from *Macrocystis* holdfast washed ashore
5b	19.2.1971		north coast, from *Macrocystis* holdfast washed ashore
6a	19.2.1971		north coast, from *Laminaria* holdfast
6b	19.2.1971		north coast, from *Laminaria* holdfast
8	22.2.1971	upper infralittoral	north coast, under stones
	23.2.1971	low tide	north coast, natural tide-pool
10	23.2.1971	0,5	north coast, under stones
11	24.2.1971	40–50	south-east coast from lobster pot
12	27.2.1971	midlittoral	north coast, under stones
14	9.3.1971	upper midlittoral	north coast, in tide-pools
15	9.3.1971	midlittoral	north coast
16	9.3.1971	upper sublittoral	north coast, amongst red algae on *Macrocystis* fronds
23	5.12.1971		north-east coast, from coralligenous bottom, with bryozoa, sponges, and corals
28	5.12.1971	120	north-east coast, from coralligenous bottom
39	11.12.1971	80–100	north-east coast from antipatharian epifauna
41a	13.12.1971	80–100	north-east coast, from encrusting fauna of stones, sponges, bryozoans, etc.
41b	13.12.1971	80–100	north-east coast, from antipatharian epifauna
44	14.12.1971	80–100	

Station No.	*Date*	*Depth (metres)*	*Locality and ecological data*
48	16.12.1971	80–100	north-east coast from bryozoans encrusting antipatharian trunk
60	2.1.1972	80–100	south-east coast from gorgonacian *Acanthogorgia*
64a	3.1.1972	80	south-east coast epifauna from cable submerged for one year
64b	3.1.1972		south-east coast, from buoy and 3-metre floating cable
73	6.1.1972	80–100	north-east coast, from coralligenous bottom
74	8.1.1972		north-east coast, from encrusting fauna of stone
78	9.1.1972	25	from buoy cable
83	9.1.1972		south-east coast, from encrusting fauna of stones
94	13.1.1972	60–100	north-east coast, from bryozoans encrusting antipatharian trunk
96	13.1.1972	80–100	north-east and south coasts, washed from variety of coralligenous organisms
100	14.1.1972	0–5	north-east coast, on *Macrocystis* fronds
101	14.1.1972	80–100	east coast, from epifauna of antipatharian
103	15.1.1972	80–100	north-east coast, from epifauna of antipatharian
111	16.1.1972	80–100	north-east coast, from encrusting fauna of stones
119	20.1.1972	80	north-east coast, from epifauna of bryozoan
132	22.1.1972	80–100	east coast, from epifauna of gorgonacian *Acanthogorgia*
133	23.1.1972	80–100	north coast, from sponges and corals
142a	25.1.1972	50	south-west coast, from epifauna of bryozoans and sponges
142b	25.1.1972	50	south-west coast, from epifauna of algae and sponges
143	25.1.1972	25–30	south-west coast, from amongst red algae and sponges
147	25.1.1972	60	west coast, from amongst algae, corals, and sponges
148	25.1.1972	80	west coast, from sponge on antipatharian base
173	12.2.1972	50–60	north-east coast, from epifauna of antipatharian trunk
D1	6.12.1971	80–90	south-east of island
D7	2.1.1972	60–80	east coast
D12	23.2.1972	40–50	north coast
D9	23.1.1972	50–60	east coast
B9	17.12.1971	50	north-east coast

In the following stations, the date of collection is also the station number:

Date	*Depth (metres)*	*Locality and ecological data*
2.5.1969		east coast, from amongst alga *Pterocladia*
27.3.1970a	sublittoral	north coast, from crevices in rocks
27.3.1970b	sublittoral	north coast, from crevices in rocks
28.3.1970a	sublittoral	north coast, from crevices in rocks and under stones
28.3.1970b	sublittoral	north coast, from rocky wall and pools

Date	*Depth (metres)*	*Locality and ecological*
12.12.1970	70	on dead antipatharian trunk
16.1.1971	30	north-east coast, from *Macrocystis* holdfast
17.1.1971	30	east coast, from encrusting fauna of rock

Isopods from the following stations were all taken from the stomach and digestive tracts of the fish *Acantholatris monodactylus*, all taken with a line, from 2 to 3 metres depth, in February–March 1971:
P1, P2, P6, P7, P13a, P13b, P11, P16, P17, P23, P26, P27, P28, P29, P30, P31, P33, P34, P36, P37, P38, P39, P42, P44, P46, P47, P48, P49, P50.
Isopods from the following station were taken from the stomach contents of the rock lobster *Jasus paulensis*:
J11.

ST PAUL ISLAND

Station No.	*Date*	*Depth (metres)*	*Locality and ecological data*
3	19.12.1971	2–3	north edge of crater, from amongst sponges, bryozoans, and ascidians growing on submerged gill net
6a	19.12.1971	sublittoral	inside crater, amongst algae
6c	19.12.1971	sublittoral	inside crater, amongst *Ulva*
7a	20.12.1971	sublittoral	inside crater, amongst algae
7b	20.12.1971	sublittoral	inside crater, from under stones
8a	20.12.1971	mid- to sublittoral	inside crater, amongst stones and algae
8b	20.12.1971		inside crater, from black sediment between stones and algae
8c	20.12.1971		inside crater, amongst organic debris and green algae
14	21.12.1971	upper sublittoral	exterior of north jetty, amongst red algae
15	21.12.1971	littoral	exterior of north jetty, from amongst *Splachnidium rugosum*
16	21.12.1971	sublittoral	exterior of north jetty, on rocks
18	21.12.1971	sublittoral	inside crater, amongst encrusting algae, sponges, and ascidians
19	21.12.1971		from rock scrapings
20	21.12.1971		from rock scrapings
22a	22.12.1971	sublittoral	inside crater, amongst encrusting corals, bryozoa, and worm tubes on boulders
22b	22.12.1971	sublittoral	inside crater, amongst encrusting algae on boulders
22c	22.12.1971	sublittoral	inside crater, amongst encrusting ascidians, sponges and bryozoans
23	22.12.1971	sublittoral	amongst encrusting algae, sponges and bryozoans
23a	22.12.1971	sublittoral	amongst encrusting algae, sponges, and ascidians
24a	22.12.1971	upper sublittoral	from *Laminaria* holdfast
24b	22.12.1971	upper sublittoral	from *Laminaria* holdfast
26	23.12.1971	littoral	exterior of crater, east coast
27	23.12.1971	littoral	exterior of crater, east coast
28	23.12.1971	littoral	amongst algae exterior of crater, east coast
30a	23.12.1971	0,6	inside crater, from *Laminaria* holdfast
30b	23.12.1971	0,6	inside crater, from *Laminaria* holdfast
32	23.12.1971	0,6	inside crater, from *Macrocystis* fronds
35	26.12.1971	3,0	inside crater, amongst sponges, ascidians and algae

Station No.	*Date*	*Depth (metres)*	*Locality and ecological data*
59	28.1.1972		from stomach contents of fish *Thyrsites atun*
67	30.1.1972	80–100	south-east coast, amongst encrusting algae, bryozoans and ascidians
77a	2.2.1972		from *Macrocystis* holdfast
77b	2.2.1972		from *Macrocystis* holdfast
82	4.2.1972		on operculum of fish, *Latris lineata*
85	4.2.1972	60–70	north-east coast, from encrusting sponges, worm tubes, and corals
90	15.2.1972	sublittoral	inside crater, from encrusting sponges, bryozoans, ascidians, etc.
91	15.2.1972	sublittoral	inside crater, from encrusting worm tubes, and green algae
B7	24.12.1971	45	inside crater, from encrusting bryozoans, worm tubes and algae on stones
B19	27.1.1972	30	exterior of crater, amongst red algae and bryozoans
D3	30.1.1972	50–80	north-east coast, from coarse sandy bottom
D5a	30.1.1972	3–4	east coast, from *Laminaria* holdfast
D5b	30.1.1972	3–4	east coast, from *Laminaria* holdfast
D5c	30.1.1972	3–4	east coast, from red algae
D6	16.2.1972	40–50	north-east coast, from red algae, and bryozoans
D8	16.2.1972	40	north-east coast, from coarse sediment

In the following stations the date of collections is also the station number:

Date	*Depth (metres)*	*Locality and ecological data*
1970		exterior of crater, from *Macrocystis*
29.12.1970	25–30	exterior of crater, amongst sponges, ascidians and hydroids
1.1.1971		on floating buoy
3.1.1971		interior of crater, found in fishing boat
29.1.1971	80–100	exterior of crater, from submerged cable

SYSTEMATIC DISCUSSION

Order TANAIDACEA

Family **Tanaidae**

Anatanais gracilis (Heller)

Tanais gracilis Heller, 1865: 133, pl. 12 (fig. 3). Vanhöffen, 1914: 468, fig. 6a–g. Barnard, 1925*a*: 381; 1940: 489.

Previous records

Lüderitzbucht to Durban, St Paul and Amsterdam Islands, Ceylon.

Material

AMS	a4	1	St Paul	6c	1
	b3	1		7a	2
	11	1		7b	1
	74	1	8a	1 ovig. ♀ + 1	
	142b	1	D5/c	1 ovig. ♀ + 1	
				18	2
				20	3
				22b	1 ovig. ♀
				77a	2
				90	3
				93	2

Leptochelia barnardi Brown

Leptochelia barnardi Brown, 1957: 406, figs 4a–c, 5a.

Previous records

False Bay, Table Bay.

Material

AMS	a4	6	St Paul	90	1

Leptochelia savignyi (Kröyer)

Leptochelia savignyi: Brown, 1957: 404, fig. 5b (synonymy).

Previous records

Lüderitzbucht to Moçambique, north and south Atlantic, Mediterranean, Indo-Pacific.

Material

AMS	a4	7	St Paul	B7	1
				7b	1
				D5/c	1
				19	1
				90	2

Order ISOPODA

Suborder VALVIFERA

Family **Idoteidae**

Idotea metallica Bosc

Idotea metallica: Barnard, 1914: 203; 1940: 507. Schultz, 1969: 78, fig. 97.

Previous records

Wide-ranging, almost cosmopolitan: Cape, Moçambique, Natal, Tristan da Cunha, Greenland, Nova Scotia, Straits of Magellan.

Material

AMS 78 1 ovig. ♀

Genus *Paridotea* Stebbing

Heller (1861, 1865) and Brocchi (1877) in their lists of isopods from St Paul and Amsterdam Islands both include *Idotea nitida*. Hale (1924), André (1932), and Sheppard (1957) place *I. nitida* in the synonymy of *Paridotea ungulata* (Pallas). Examination of the idoteids from St Paul and Amsterdam Islands in the present collection, however, revealed two abundant species of *Paridotea*, neither being *P. ungulata*. Examination of Heller's type material, and comparison with *P. ungulata* from the Cape, make it clear that *P. nitida* is a valid species.

Paridotea nitida (Heller)
Fig. 2B, D, F

Idotaea nitida Heller, 1861: 497.
Idotea nitida Heller, 1865: 131, pl. 12 (fig. 1). Brocchi, 1877: 97.

Previous records

St Paul Island.

Material

AMS	2.5.69	1 ♂	5 ♀♀		St Paul	D5/b		1 ♀	
	a4	2 ♂♂	2 ♀♀			D5/c	3 ♂♂	4 ♀♀	
	a5		2 ♀♀			6c	2 ♂♂		1 ovig. ♀
	a6	16 ♂♂	24 ♀♀	17 juv.		7a	2 ♂♂		
	a7	2 ♂♂				14	26 ♂♂	21 ♀♀	
	a8	1 ♂	1 ♀			19	2 ♂♂		2 ovig. ♀♀
	C1	12 ♂♂	18 ♀♀			20		1 ♀	1 ovig. ♀
	C2	1 ♂	1 ♀			28	6 ♂♂	2 ♀♀	
	C3	3 ♂♂	3 ♀♀			59	1 ♂		
	16	3 ♂♂							
	3	10 ♂♂	13 ♀♀	5 juv.					
	143			2 juv.					
	P16		1 ♀						
	P13	1 ♂							
	P29	1 ♂	1 ♀						
	P30	2 ♂♂	2 ♀♀						
	P34	4 ♂♂	3 ♀♀						
	P37		1 ♀						
	P38	8 ♂♂	11 ♀♀	1 ovig. ♀					
	P42		1 ♀						
	P46	1 ♂							
	P49	1 ♂	5 ♀♀						
	P50		2 ♀♀						

Remarks

P. nitida can be separated from *P. ungulata*, with which it was for many years confused, by the structure of the pleotelsonic apex (distal corners rounded, separated by shallow concave distal margin in *P. nitida*, distal corners acute and spinose, with more concave distal margin in *P. ungulata*), the uropodal ramus (distinctly broader than long in *P. nitida*, as long as wide in *P. ungulata*), and the shape of the coxal plates of the last four pereional segments. (See fig. 2A, C, E.)

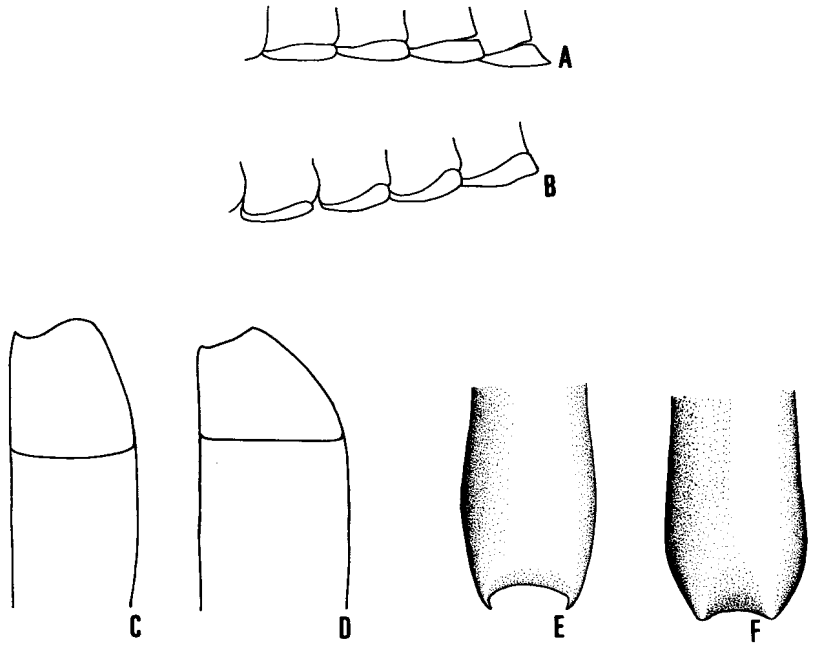

Fig. 2. *Paridotea ungulata* (Pallas).
A—Four posterior coxal plates; C—Uropodal ramus; E—Pleotelsonic apex.
Paridotea nitida (Heller).
B—Four posterior coxal plates; D—Uropodal ramus; F—Pleotelsonic apex.

Separation of *P. nitida* from *P. apposita* Barnard, 1965, recorded from Gough Island, however, is more difficult. The pleotelsonic structure is identical in these two species, the uropodal ramus very similar (possibly not as wide in *P. apposita* as in *P. nitida*), while the seventh pereional coxal plate is perhaps more acute and produced in *P. apposita*. These differences, however, are very subtle, and more material from Gough Island may well prove the species to be synonymous, the subtle differences being a reflection of the isolation of the population.

Paridotea reticulata Barnard

Paridotea reticulata Barnard, 1914: 424, pl. 36D; 1940: 507; 1955: 6.

Previous records

Lüderitzbucht, Port Nolloth, Lamberts Bay, Table Bay, False Bay.

Material

AMS	23	1 ♂			St Paul	32	6 ♀♀ 1 ovig. ♀
	79	8 ♂♂	15 ♀♀	3 juv.			
	100	4 ♂♂	5 ♀♀	1 ovig. ♀ 7 juv.			

Remarks

The notch found on the sternum of the seventh pereional segment in South African specimens is not present in specimens from the St Paul and Amsterdam Islands. The spines of the disto-lateral corner of the pleotelson are sometimes absent, possibly worn away.

Suborder ANTHURIDEA

Family **Anthuridae**

Eisothistos crateris sp. nov.

Fig. 3A–G

Description

Male: (head and mouthparts damaged). Head with anterior margin between eyes evenly convex, about half length of pereional segment I, with poorly defined median ridge. Pereional segments I–III subequal, each with anterior 'shoulder' and medio-dorsal ridge not quite reaching anterior margin. Pereional segments IV–VII posteriorly expanded, rounded, also with medio-dorsal ridge. Segment VII somewhat shorter than preceding segments. Dorso-lateral keels obvious on anterior three segments only. Anterior three pleonal segments wider than long, laterally rounded, 4th and 5th segments not distinct, possibly fused, much shorter and narrower than preceding segments.

Eyes well developed, ocelli large, distinct.

Antennular peduncle consisting of three stout segments, distal segment bearing pad of elongate setae; flagellum 6-segmented.

Antennal peduncle consisting of two short proximal segments plus two slender elongate segments; flagellum 6-segmented.

Pereiopod I dactylus with well-developed unguis; propodus two and a half times longer than wide, ventral margin bearing single distal spine plus 10 small serrate spines; carpus short, triangular.

Following pereiopods essentially similar to pereiopod I, but with carpi slightly longer, not underriding the propodi.

Pleopod 2 with elongate rami, exopod carrying six slender setae, endopod with four setae and sabre-shaped stylet on inner margin reaching well beyond apex of ramus, apically acute.

Uropods and telson indurated. Uropodal exopod tripartite, consisting of inner rounded basal process armed with three to four small spines, median spike-like elongate portion and outer spine-like process; endopod just reaching apex of telson, apically acute, margins dentate.

Telson evenly rounded, distally wider than proximally, latero-distal margins serrate; strong flattened medio-dorsal keel present, bearing three or four small spines distally.

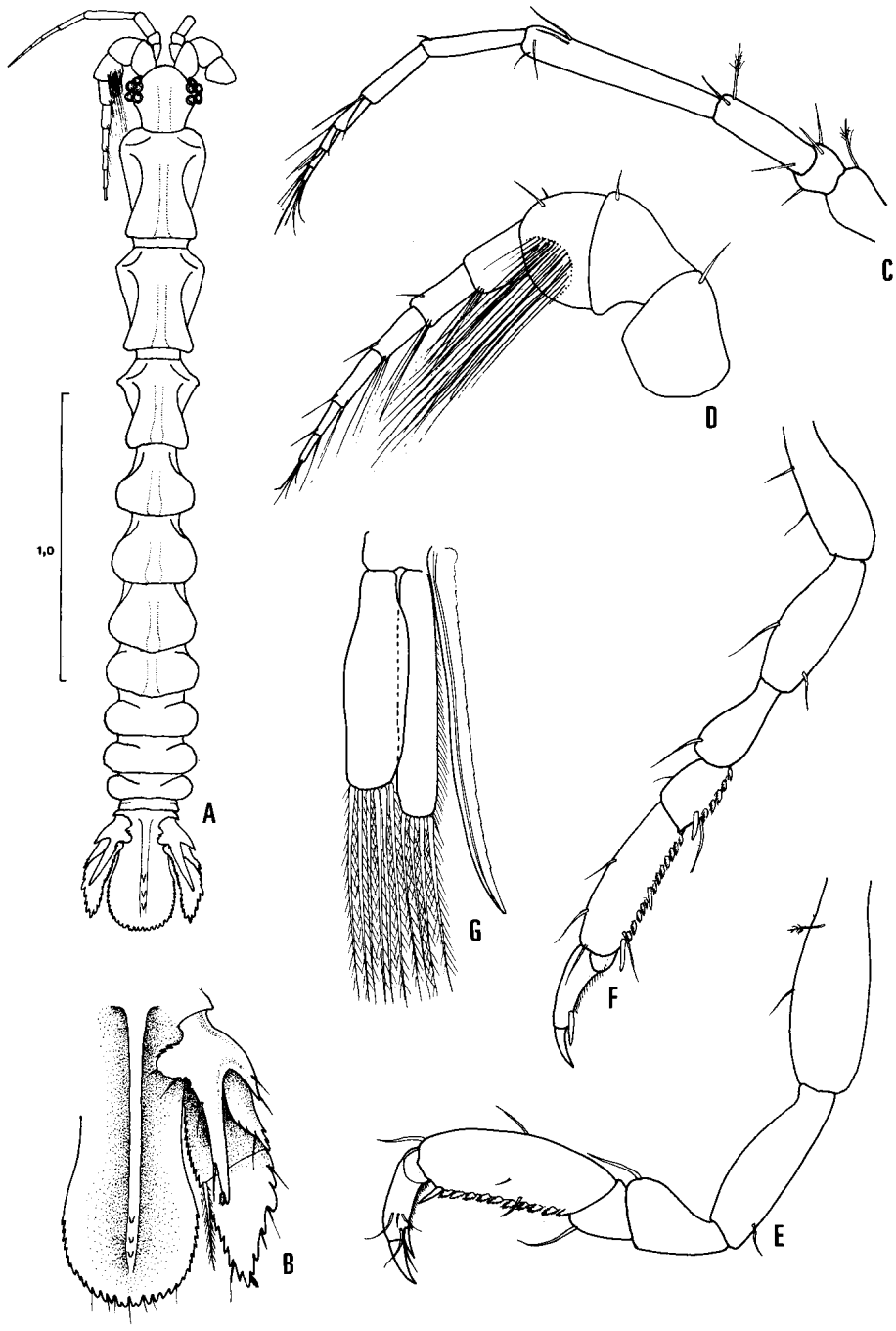

Fig. 3. *Eisothistos crateris* sp. nov.
A—Holotype in dorsal view; B—Telson and uropod; C—Antennule; D—Antenna; E—Pereiopod I; F—Pereiopod VII; G—Pleopod 2.

Material

Holotype: St Paul 90 1 ♂. Paris Museum Is. 1001

Remarks

Of the three species of *Eisothistos* described, *E. vermiformis* Haswell and *E. atlanticus* Vanhöffen are easily separated from the present species, either by general body shape, or on the nature of the telson. There is a marked resemblance to *E. antarcticus* Vanhöffen 1914. The telson of the Antarctic species differs from the present species in having the medio-dorsal ridge armed with numerous spines (instead of four obscure spines), and in the outer process of the uropodal exopod, which is blunt and dentate (rather than spiniform). These differences could perhaps be due to variation within the same species. Another obvious difference is in the pleonal structure. The present specimen has the anterior three pleonal segments large and laterally rounded and the posterior segments obscure, while in *E. antarcticus* the anterior five pleonal segments are subequal.

The species is named *crateris* as it was collected from the crater of St Paul Island which is open to the sea.

Panathura amstelodami sp. nov.

Figs 4A–H, 5A–F

Description

Male: Anterior margin of head with median point; eye spots lateral. Pereional segment I twice length of head, segment II slightly shorter than I, segments III–VI subequal, VIIth somewhat shorter. Pleonal segments distinct. Antennule with 5-segmented peduncle, two basal segments as broad as long, 3rd and 4th segments subequal, wider than long, 5th segment more elongate, flagellum 4-segmented. Antenna with 3-segmented peduncle, 3-segmented flagellum. Mandibular palp 3-segmented, 1st and 3rd segments subequal, each about half length of middle segment; third segment bearing row of 7 spines, proximal 4 spines short; incisor portion of mandible consisting of three strong teeth plus thin plate with dentate margin.

Maxilla slender, bearing 6 spines.

Maxillipedal palp 4 or 5-segmented, 3rd segment largest, endite extending on inner margin to distal level of 3rd palp segment, distally tapered.

Pereiopod I propodus with strong proximal triangular tooth forming a 'thumb', palm with two smaller proximal and one distal tooth; unguis of dactylus large and well-defined.

Pereiopod II more slender and longer than I, palm with strong proximal 'thumb' and small tooth at base, larger distal tooth; carpus with two spines on ventral margin. Pereiopods III–VII similar, propodus twice length of carpus, both segments bearing ventral fringed spines; carpus hardly underriding propodus.

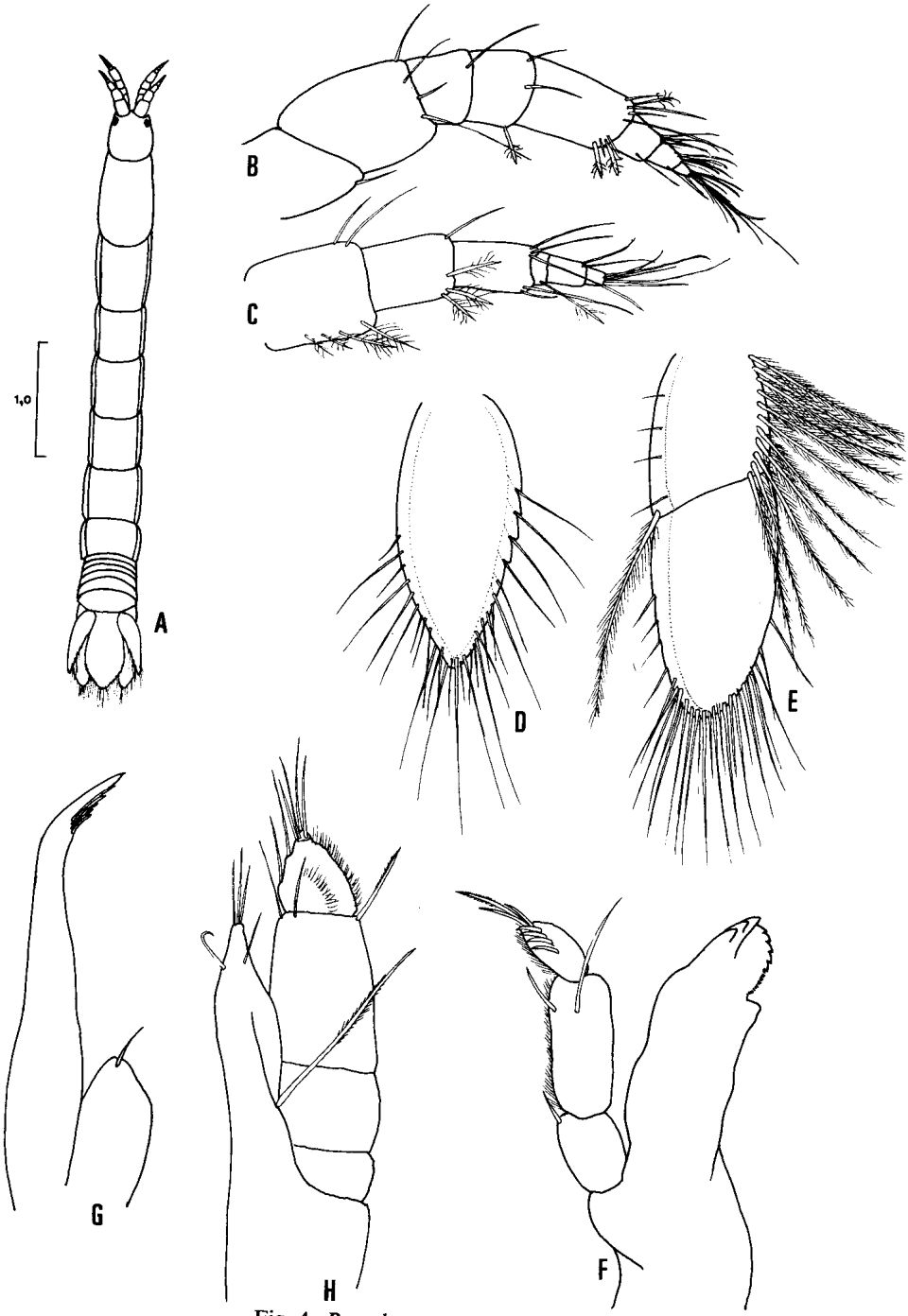

Fig. 4. *Panathura amstelodami* sp. nov.
A—Holotype in dorsal view; B—Antenna; C—Antennule; D—Uropodal exopod; E—Uropodal basis and endopod; F—Mandible; G—Maxilla; H—Maxilliped.

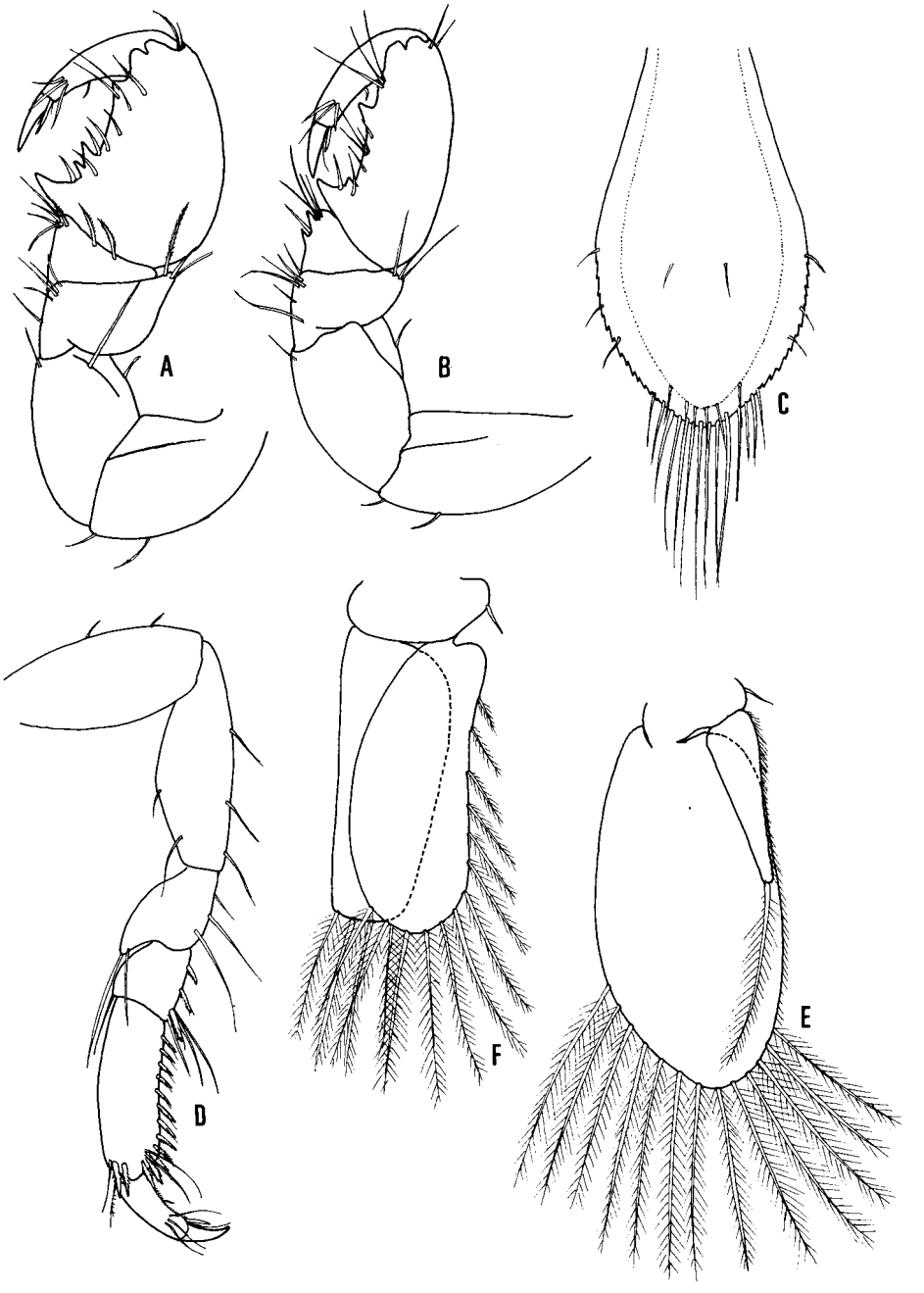

Fig. 5. *Panathura amstelodami* sp. nov.
A—Pereiopod I; B—Pereiopod II; C—Telson; D—Pereiopod VII; E—Pleopod 1; F—Pleopod 2.

Pleopod 1 exopod broad, operculiform, fringed with 13–14 plumose setae; endopod less than half length of exopod, very narrow, triangular, with single terminal plumose seta.

Pleopod 2 exopod and endopod equal in length, former distally truncate, latter distally rounded.

Uropodal exopod leaf-shaped, bearing numerous marginal setae, outer margin with four to five serrations in hyaline border; endopod with distal segment longer than proximal, with hyaline border non-serrate.

Telson widest in distal half, with broad hyaline border, latter finely dentate distally, apical region bearing numerous simple setae.

Material

Holotype	AMS	a4	1 ♂	total length	5,0 mm		Paris Museum Is. 1002
Paratypes	AMS	119	3 ♀♀	3,0 mm	3,2 mm	4,4 mm	SAM–A14994
Paratypes	AMS	142b	2 ♀♀	3,2 mm	3,8 mm		Paris Museum Is. 1003

Remarks

Barnard (1925*b*) defines *Panathura* as similar to *Apanthura*, but possessing a 6-segmented maxilliped and with the palm of pereiopod I straight. The distinctive maxilliped, together with the distinct pleonal segments, operculiform 1st pleopods, and the 5th segment of pereiopods IV–VII underriding the 6th segment, complete the generic definition. The present material agrees with all these features, with the possible exception of the pereiopodal carpi, which only just underride the propodi. The present species differs from *P. serricauda*, with which it was collected, on several counts. The telson and uropods in Barnard's species are indurated and obviously serrated, and the uropodal exopod is a broad structure. In *P. amstelodami* the telson and uropods are not indurated, and possess a thin hyaline border, the exopod is a leaf-shaped structure, and although slightly serrate on the outer margin does not approach the almost dentate condition in *P. serricauda*. Further differences may be seen in the pereiopodal structure, as well as in the 1st pleopod with its reduced endopod. *P. formosa* Menzies & Frankenberg (1966), recorded from deep water off Georgia, U.S.A. possesses a very distinctive pleotelsonic structure, while the endite is not as developed as in the present species.

Panathura serricauda (Barnard)

Fig. 6A–D

Apanthura serricauda Barnard, 1920: 339, pl. 15 (figs 11–12).
Panathura serricauda: Barnard, 1940: 490, 497; 1955: 5.

Previous records

Lüderitzbucht, Saldanha Bay, Table Bay, False Bay.

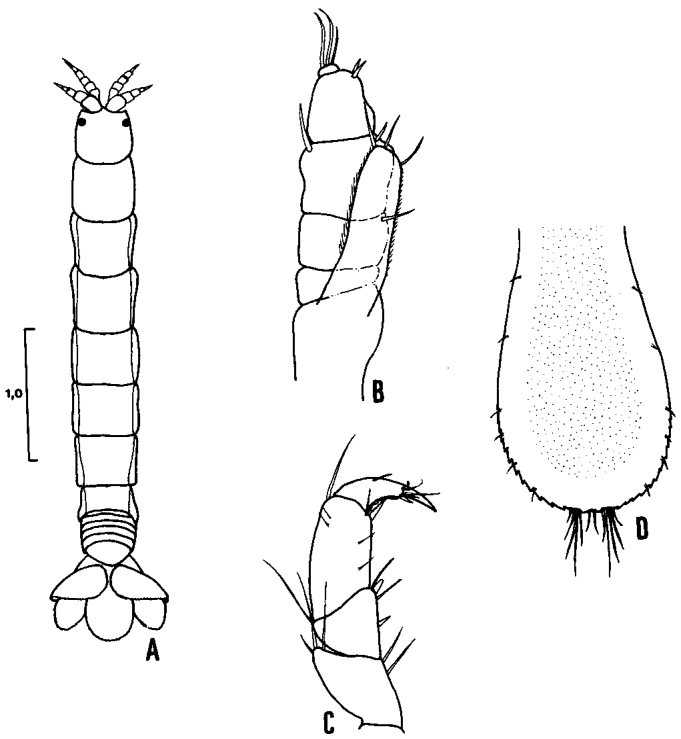

Fig. 6. *Panathura serricauda* (Barnard).
A—Animal in dorsal view; B—Maxilliped; C—four distal segments of pereiopod I; D—Telson.

Material

AMS	a4	7 ovig. ♀♀ + 20 specimens	St Paul	90	2 specimens
	a5	1 specimen			
	a6	1 specimen			

Suborder FLABELLIFERA

Family **Cirolanidae**

Cirolana rugicauda Heller

Cirolana rugicauda Heller, 1861: 497; 1865: 142, pl. 12 (fig. 13). Brocchi, 1877: 99. Hansen, 1890: 358. Vanhöffen, 1914: 503, fig. 40. Barnard, 1940: 397, fig. 8.

Previous records

St Paul Island, Port Nolloth, St Helena Bay.

Material

AMS			
a1			1 juv.
a2			1 juv.
a3			1 juv.
a4	19 ♂♂	33 ♀♀	sev. juv.
a5		6 ♀♀	
a6			sev. juv.
a7		3 ♀♀	5 juv.
a8	4 ♂♂	4 ♀♀	
a9			2 juv.
a10	1 ♂	8 ♀♀	
b3			1 juv.
C1	1 ♂	2 ♀♀	2 juv.
C3		1 ♀	3 juv.
P46		1 ♀	
6b	1 ♂	4 ♀♀	2 juv.
8	1 ♂	1 ovig. ♀	sev. juv.
10		1 ♀	
24a	2 ♂♂	1 ♀	sev. juv.
2.5.1969		1 ♀	
27.3.1970/b	3 ♂♂	6 ♀♀	

St Paul				
6c	2 ♂♂	3 ♀♀		7 juv.
7a	1 ♂	3 ♀♀		5 juv.
7b	9 ♂♂	10 ♀♀		6 juv.
8a	10 ♂♂	20 ♀♀	1 ovig. ♀	sev. juv.
8b	2 ♂♂	4 ♀♀		6 juv.
8c				7 juv.
14	1 ♂			1 juv.
22a				1 juv.
24b	1 ♂	6 ♀♀		sev. juv.
30a	3 ♂♂	8 ♀♀		sev. juv.
30b		4 ♀♀		8 juv.
90	17 ♂♂	10 ♀♀		
93	4 ♂♂	11 ♀♀		4 juv.

Family **Sphaeromatidae**

Cymodocella sapmeri sp. nov.

Figs 7A–G, 8A–E, 9A–E

Description

Body two and one third times longer than wide, widest at VIIth pereional segment; head and pereional segments I–VI smooth; posterior margin of VIIth segment slightly nodose; pleon segment 1 usually concealed by pereion; last pleonal segment bearing irregular row of ten to twelve small conical tubercles. Pleotelson very convex, bearing numerous tubercles, some rounded, most conical. Apex of pleotelson forming dorsally flexed tube, the opening of which has tiny spike or papilla protruding into it. Coxal plates of pereional segments bearing pile of short hairs.

Epistome Λ-shaped, with slender rami.

Antennules shorter than antennae, with 3-segmented peduncle longer than flagellum. Antennal peduncle 5-segmented, distal segment longest; flagellum of about twenty-two segments, longer than peduncle.

Mandibular palp 3-segmented, terminal segment with thirteen pectinate setae, middle segment with eight pectinate setae; incisor process of four teeth, lacinia mobilis of three teeth; setal row of eight penicilis; molar process broad, with dentate margin.

Inner ramus of first maxilla bearing four elongate fringe setae, plus shorter simple seta; outer ramus tipped with eight dentate spines, degree of dentition varying from fairly smooth to many large denticles.

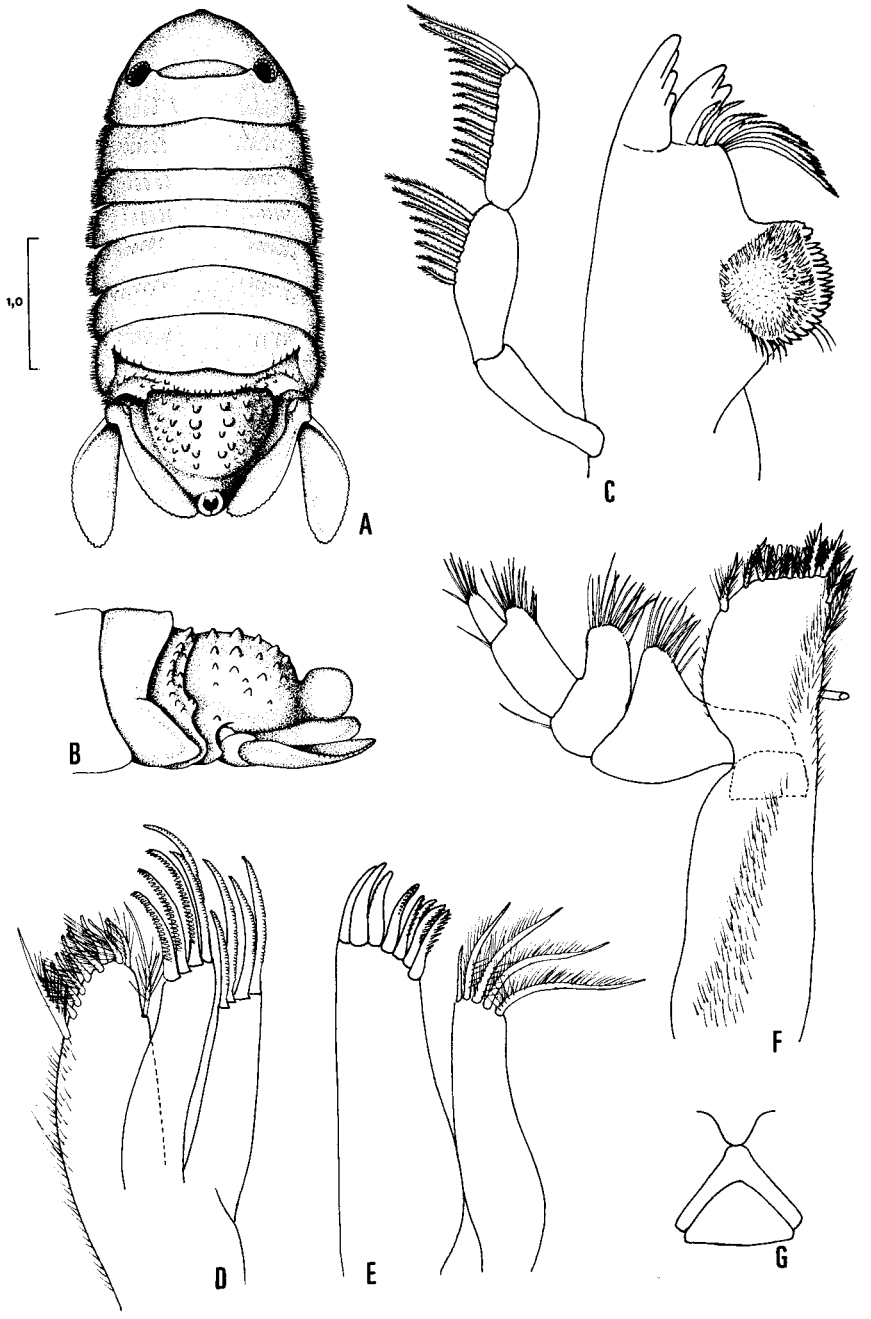

Fig. 7. *Cymodocella sapmeri* sp. nov.
A—Holotype in dorsal view; B—Pleotelson in lateral view; C—Left mandible; D—Second maxilla; E—First maxilla; F—Maxilliped; G—Epistome.

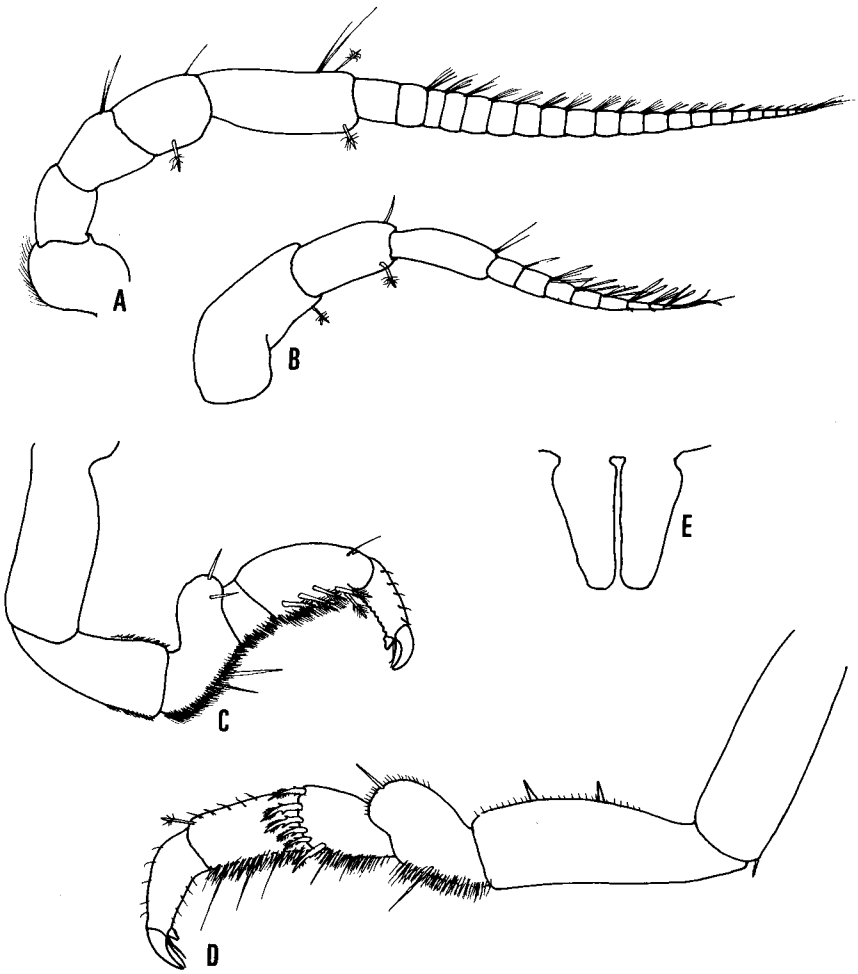

Fig. 8. *Cymodocella sapmeri* sp. nov.
A—Antenna; B—Antennule; C—Pereiopod I; D—Pereiopod VII; E—Penes.

Second maxilla, inner ramus with about ten fringed spines, both lobes of outer ramus tipped with four or five pectinate curved spines.

Maxillipedal palp 5-segmented, second segment longest; segments two, three and four somewhat lobed, lobes bearing clumps of simple setae; endite bearing about ten fringed spines, and single coupling hook.

Pereiopod I with propodus, carpus, merus, and distal part of ischium bearing pile of fine short setules; propodus bearing five fringed spines; carpus very short; dactylus tipped with distal curved spine with shorter blunt spine at its base. Pereiopods increasing slightly in length posteriorly.

Pereiopod VII with carpus bearing six fringed spines; ischium with two strong spines on dorsal margin.

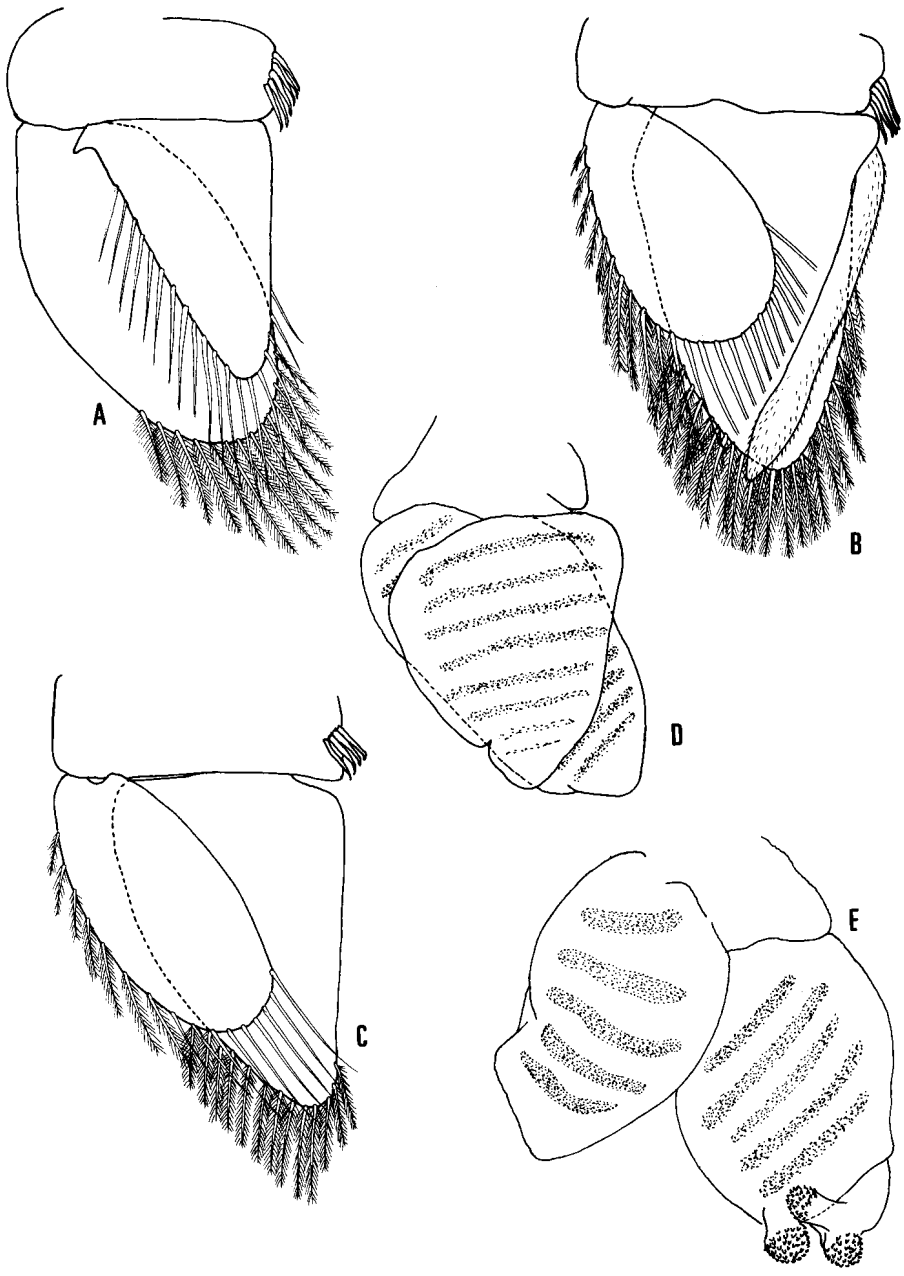

Fig. 9. *Cymodocella sapmeri* sp. nov.
A—Pleopod 1; B—Pleopod 2; C—Pleopod 3; D—Pleopod 4; E—Pleopod 5.

Rami of penis moderately elongate, tapering slightly.

Pleopod 1 exopod broadly oval, longer than triangular endopod.

Pleopod 2 exopod oval, much smaller and shorter than triangular endopod; latter with stylet on median margin, stylet slightly longer than endopod, distally dilated, apically narrowly rounded.

Pleopod 3 with oval exopod shorter than triangular endopod.

Pleopods 4 and 5 with both rami membranous, pleated.

Both rami of uropod elongate-oval, of equal length, distally rounded, margins slightly serrulate.

Pleotelson of female less obviously tuberculate than that of male.

Material

Holotype AMS C3 1 ♂ Paris Museum Is. 1004
Allotype AMS C2 1 ovig. ♀ Paris Museum Is. 1005
Paratypes St Paul D5/c 13 ♂♂ 9 ♀♀ 6 ovig. ♀♀ Paris Museum Is. 1006
Paratypes AMS C1 5 ♂♂ 12 ♀♀ 14 ovig. ♀♀ SAM–A14995

AMS				
a2		5 ♀♀	1 juv.	
a3		1 ♀	1 juv.	
a4		3 ♀♀		
a5	1 ♂	1 ♀		
a6		3 ♀♀	1 ovig. ♀	2 juv.
b1		1 ♀		
b2/2		6 ♀♀		6 juv.
C2	5 ♂♂	7 ♀♀	10 ovig. ♀♀	17 juv.
C3	4 ♂♂	1 ♀	3 ovig. ♀♀	7 juv.
P29			1 ovig. ♀	
P30		3 ♀♀		
P33			1 ovig. ♀	
P34			1 ovig. ♀	
P36		2 ♀♀		
3	1 ♂			
6b	2 ♂♂			2 juv.
24a	2 ♂♂	2 ♀♀	1 ovig. ♀	
147				2 juv.
28.3.1970/b	1 ♂	1 ♀		

St Paul				
D/5a		3 ♀♀	1 ovig. ♀	2 juv.
D5/b			1 ovig. ♀	
14	4 ♂♂	10 ♀♀		5 juv.
16	1 ♂	1 ♀		
19			2 ovig. ♀♀	
20	1 ♂	1 ♀	1 ovig. ♀♀	
22b	1 ♂			
28		7 ♀♀	1 ovig. ♀	11 juv.
90	6 ♂♂	16 ♀♀	3 ovig. ♀♀	

Remarks

Of the eleven species of *Cymodocella* described, the present species only resembles *C. nipponica* Nishimura, from Japan, to a limited degree. That Japanese species possesses numerous rounded tubercles on the pleotelson, while the present species possesses more numerous conical tubercles. Apart from this tenuous similarity, *C. sapmeri* is quite distinct from all other described species. This species is named for S.A.P.M.E.R., the lobster-fishing company operating around the St Paul and Amsterdam Islands (see introduction), and for the ship used by the Company.

Dynamenella brunnea Vanhöffen

Fig. 10A–B

Dynamenella brunnea Vanhöffen, 1914: 516, fig. 49. *non Dynamenella huttoni:* Barnard, 1940: 419.

Previous records

St Paul Island.

Material

AMS	a1		1 ♀		St Paul	D5/a	2 ♂♂	2 ♀♀	1 juv.
	a3		2 ♀♀			D5/c		11 ♀♀	sev. juv.
	a4	2 ♂♂	3 ♀♀			7b	1 ♂		
	a5			2 juv.		8a			2 juv.
	a6		11 ♀♀	sev. juv.		14	1 ♂		sev. juv.
	a7	5 ♂♂				20		1 ♀	5 juv.
	a8	2 ♂♂				26		1 ♀	
	a10	5 ♂♂	2 ♀♀			28		3 ♀♀	
	b1		1 ♀						
	b2/2		2 ♀♀						
	c1	1 ♂	14 ♀♀	sev. juv.					
	c2		7 ♀♀						
	c3		2 ♀♀						
	P1		1 ♀						
	P2			sev. juv.					
	P4			1 juv.					
	P6			3 juv.					
	P7			2 juv.					
	P13b		1 ♀						
	P16	1 ♂		sev. juv.					
	P23			2 juv.					
	P26			sev. juv.					
	P27			4 juv.					
	P28			1 juv.					
	P29			sev. juv.					
	P31			1 juv.					
	P30	3 ♂♂	2 ♀♀	sev. juv.					
	P36			sev. juv.					
	P34			sev. juv.					
	P38	1 ♂	4 ♀♀	sev. juv.					
	P44			1 juv.					
	P45			1 juv.					
	P48			2 juv.					
	P49			sev. juv.					
	P50	3 ♂♂	6 ♀♀	sev. juv.					
	P83			7 juv.					
	3	3 ♂♂	6 ♀♀	sev. juv.					
	8	58 ♂♂	28 ♀♀						
	12	9 ♂♂	1 ♀						
	16		1 ♀	10 juv.					
	24a		1 ♀						
	2.5.1969	1 ♂	6 ♀♀						
	1.3.1970	1 ♂	3 ♀♀						
	27.3.1970/b	3 ♂♂							
	28.3.1970/b	4 ♂♂	9 ♀♀						

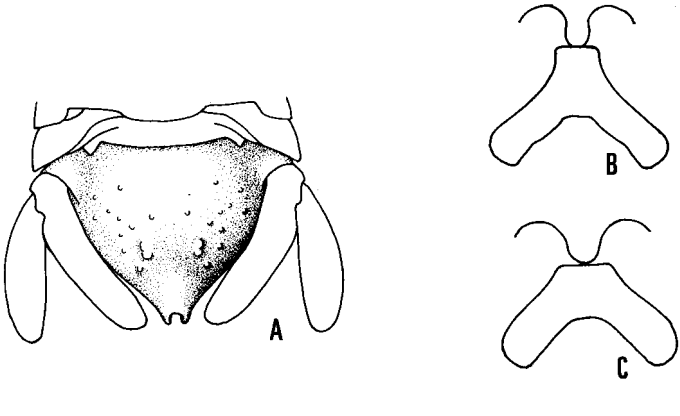

Fig. 10. *Dynamenella brunnea* Vanhöffen.
A—Pleotelson; B—Epistome; C—Epistome of *D. huttoni*.

Remarks

Examination of Vanhöffen's type material in both the Berlin Museum and the British Museum, together with the very large number of specimens in the present collection, shows that this is indeed a valid species. Separation from *D. huttoni* which resembles (and with which Barnard synonymized it) is best done by reference to three features: pleotelsonic structure, epistome and head structure, and colour pattern. The dorsal surface of the pleotelson in *D. brunnea* always has some indication of tuberculation. In juveniles of less than 2 mm length, the two main submedian tubercles can already be seen, while in larger specimens these two large tubercles are supplemented by several smaller tubercles. *D. huttoni* by contrast invariably possesses a smooth pleotelson. The median ventrally-directed lobe of the sinuous frontal margin of the head in *D. brunnea* is relatively narrower than in *D. huttoni*; a subtle difference in the shape of the epistomes is also constant. The colour pattern, though variable in both species, is more constant in *D. brunnea*, where a rhomboidal pale patch is frequently seen mid-dorsally on pereional segments II to IV. While *D. huttoni* often has pale dorsal patches, these almost never are as regular as in the former species.

Dynamenella dioxus Barnard

Dynamenella dioxus Barnard, 1914: 419; 1940: 418, 505. Day, Field & Penrith, 1970: 48.

Previous records

Lüderitzbucht, Port Nolloth, Lamberts Bay, Table Bay, False Bay.

Material

AMS	a4	2 ♂♂	1 ♀		St Paul D/5a	1 ♂
	74	3 ♂♂	4 ♀♀			
	142a	1 ♂	1 ♀			
	142b	7 ♂♂	18 ♀♀	5 juv.		
	147	1 ♂	1 ♀			

Parisocladus perforatus (H. M. Edwards)

Sphaeroma perforata Edwards, 1840: 211. Heller, 1861: 496; 1865: 139, pl. 12 (fig. 9).
Spheroma perforata: Brocchi, 1877: 97.
Dynamenella perforata: Hansen, 1905: 117, 126.
Cycloidura perforata: Stebbing, 1910: 431. Vanhöffen, 1914: 511, figs 45–46.
Parisocladus perforatus: Barnard, 1914: 402, pl. 32H; 1940: 418, 505. Penrith & Kensley, 1970*a*: 228; 1970*b*: 259. Day, Field & Penrith, 1970: 48.

Previous records

Rocky Point (S.W.A.), Möwe Bay (S.W.A.), Swakopmund, Lüderitzbucht, Port Nolloth, Lamberts Bay, Dyers Island, Table Bay, False Bay, Port Alfred, East London, St Paul Island, Amsterdam Island.

Material

AMS	a1			sev. juv.	St Paul	D5/a	1 ♂	36 ♀♀	
	a3	6 ♂♂	8 ♀♀	sev. juv.		D5/b			1 juv.
	a4	4 ♂♂	6 ♀♀	sev. juv.		D5/c	5 ♂♂	8 ♀♀	1 juv.
	a5		3 ♀♀			6a			1 juv.
	a7		2 ♀♀			6c	12 ♂♂		sev. juv.
	a9	1 ♂	1 ♀			7a	13 ♂♂	3 ♀♀	sev. juv.
	b2/1a		1 ♀			8a	2 ♂♂		4 juv.
	b2/1b		4 ♀♀	sev. juv.		8b	1 ♂		
	b2/2	3 ♂♂	3 ♀♀	sev. juv.		14	6 ♂♂		sev. juv.
	b3	1 ♂		2 juv.		15	2 ♂♂		sev. juv.
	C2	3 ♂♂	1 ♀			16	7 ♂♂		sev. juv.
	C3			2 juv.		18	1 ♂	3 ♀♀	3 juv.
	J11			1 juv.		19	3 ♂♂		sev. juv.
	P2	1 ♂				20			sev. juv.
	P11	4 ♂♂	7 ♀♀			22a		1 ♀	2 juv.
	P13a	3 ♂♂	3 ♀♀			22b			2 juv.
	P13b	2 ♂♂	4 ♀♀	sev. juv.		22c		1 ♀	1 juv.
	P17			6 juv.		23a			sev. juv.
	P26			6 juv.		26	1 ♂	4 ♀♀	
	P28			1 juv.		23	13 ♂♂	10 ♀♀	
	P29			6 juv.		27	1 ♂		4 juv.
	P30			6 juv.		28	3 ♂♂		sev. juv.
	P33			sev. juv.		30b	3 ♂♂	1 ♀	
	P34			sev. juv.		30g	13 ♂♂	9 ♀♀	
	P36			sev. juv.		35		3 ♀♀	
	P39			1 juv.		76	8 ♀♀		9 juv.
	P44			7 juv.		77a		2 ♀♀	
	P45			1 juv.		90		6 ♀♀	
	P46	2 ♂♂		3 juv.		91	3 ♂♂		sev. juv.
	P47			3 juv.					
	P50	1 ♂							
	3	2 ♂♂		sev. juv.					
	5a	2 ♂♂	4 ♀♀	sev. juv.					
	6b	2 ♂♂	3 ♀♀						
	8	16 ♂♂	5 ♀♀	2 juv.					
	9		2 ♀♀						
	12	3 ♂♂							
	14	13 ♂♂	37 ♀♀	sev. juv.					
	24a	17 ♂♂	6 ♀♀	sev. juv.					
	2.5.1969	1 ♂							
	27.3.1970/b	24 ♂♂	21 ♀♀	3 juv.					
	28.3.1970/b	2 ♂♂	5 ♀♀	4 juv.					

Family **Limnoriidae**

Limnoria (*Limnoria*) *quadripunctata* Holthuis

Limnoria quadripunctata Holthuis, 1949: 167. Menzies & Mohr, 1952: 81. Menzies, 1957: 127. Schultz, 1969: 143.

Previous records

North Sea coast of Holland, California coast, Valparaiso (Chile).

Material

AMS					St Paul			
a4	1 ♂				B19	1 ♂		
5a		1 ♀	1 ovig. ♀	13 juv.	77a	6 ♂♂	9 ♀♀	9 ovig. ♀♀
5b		1 ♀		4 juv.	1970	3 ♂♂		4 ovig. ♀♀
16.1.1971	2 ♂♂		2 ovig. ♀♀	6 juv.				

Remarks

These specimens were all found in the holdfasts of the giant brown algae *Macrocystis pyrifera* and *Laminaria pallida* from the upper infralittoral zone, with the exception of station B19 on St Paul Island, where the isopods were found in clusters of red algae from a depth of 30 metres.

Family **Cymothoidae**

Lironeca raynaudii (H. M. Edwards)

Livoneca raynaudii: Barnard, 1920: 358; 1940: 501; 1955: 6.

Previous records

Table Bay, Durban, New Zealand, Tasmania, New South Wales, Japan.

Material

St Paul	82	1 ♂
	3.1.1971	1 ♀

Family **Aegidae**

Aega '*antillensis*' Schiödte & Meinert

Aega antillensis: Richardson, 1905: 170. Barnard, 1925*a*: 389. Schultz, 1969: 190.

Previous records

Natal, West Indies, Japan.

Material

St Paul	3.1.1971	1	from fishing-boat
	3.1.1971	1	on *Thyrsites atun*

Remarks

Slight differences in the frontal laminae, telson, etc., suggest that *A. antillensis s.s.*, and specimens from South Africa, and others from St Paul Island are not all the same species, although all keyed out to this species.

Aega monilis Barnard

Aega monilis Barnard, 1914: 365, pl. 31C; 1940: 500.

Previous records

Table Bay, off Cape Peninsula, off East London.

Material

St Paul 85 1 ovig. ♀

Remarks

It seems probable from the brief description provided by Brocchi (1877: 100) of *Rocinela major*, from St Paul Island, that this was a specimen of *Aega monilis*. Examination of Brocchi's type, however, is necessary to establish the identity of *R. major*

Suborder ASELLOTA

Family **Stenetriidae**

Stenetrium crassimanus Barnard

Stenetrium crassimanus Barnard, 1914: 217; 1940: 510. Wolff, 1962: 23.

Previous records

False Bay (Cape), Natal.

Material

St Paul 18 1 ♂
91 2 ♂♂

Stenetrium saldanha Barnard

Fig. 11A–F

Stenetrium saldanha Barnard, 1920: 403. Wolff, 1962: 24, 29.

Previous records

Saldanha Bay, False Bay, Still Bay.

Material

AMS	D1	1 ♂	1 ♀		St Paul	18		1 ♀	1 ovig. ♀
	142b	1 ♂	1 ♀			91	1 ♂	1 ♀	

Remarks

Wolff's key (1962: 22), taken from Barnard's description of *S. saldanha*, places this species in the group which lacks any process at the antero-lateral corner of the first antennal peduncle segment. This segment, however is produced into a triangular process which is sometimes difficult to see.

Family **Antiasidae**

Antias dimorphus Menzies

Antias dimorphus Menzies, 1962: 63, fig. 16.

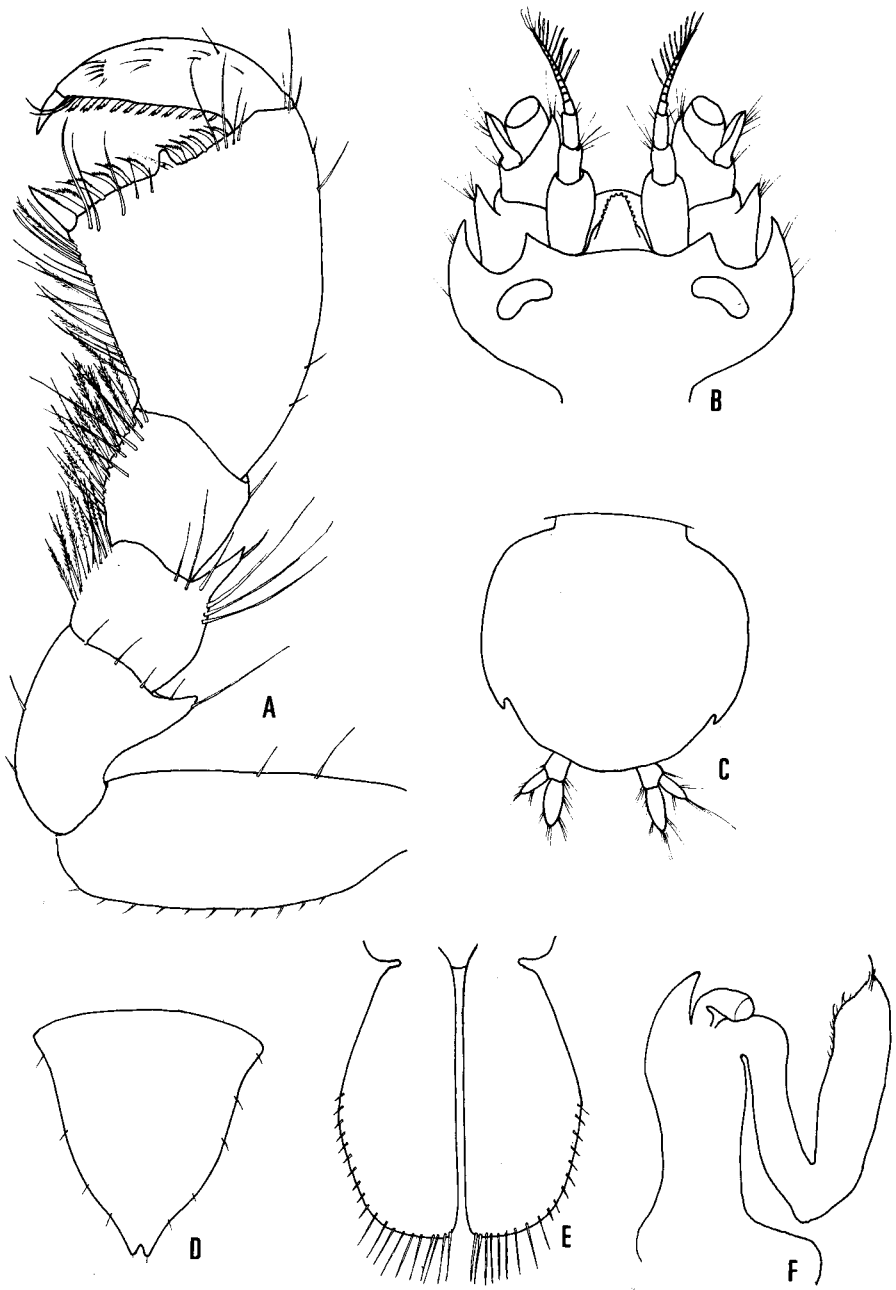

Fig. 11. *Stenetrium saldanha* Barnard .
A—Pereiopod I; B—♀ head in dorsal view; C—Pleotelson; D—Operculum ♀;
E—Pleopod 1 ♂; F—Pleopod 2 ♂.

Previous records

Southern Chile, Kerguelen Island.

Material

AMS	a1	15 ♂♂	16 ♀♀	14 ovig. ♀♀	St Paul	D3	1 ♂		
	a2	5 ♂♂		2 ovig. ♀♀		8a	42 ♂♂	9 ♀♀	24 ovig. ♀♀
	a3	5 ♂♂	4 ♀♀	3 ovig. ♀♀		8b	3 ♂♂		1 ovig. ♀
	C2	9 ♂♂	2 ♀♀	5 ovig. ♀♀		8c	16 ♂♂	16 ♀♀	5 ovig. ♀♀
	C3	2 ♂♂	1 ♀	3 ovig. ♀♀		14	1 ♂		2 ovig. ♀♀
	6b	1 ♂				90			2 ovig. ♀♀
						93	26 ♂♂	9 ♀♀	10 ovig. ♀♀

Remarks

Amongst Vanhöffen's material of *Antias marmoratus* collected by the Südpolar Expedition at Kerguelen Island (Berlin Museum 17699) are four specimens of *Antias dimorphus* showing the enlarged first pereional segment. The remaining specimens of *A. 'marmoratus'* from Kerguelen at St Paul Island collected by the Südpolar Expedition are probably *A. hofsteni* Nordenstam. As Vanhöffen's material is a mixture of two species, each from a different location, the name *A. marmoratus* will be omitted from the faunal list of the two islands, but remains on the list of species for Kerguelen Island.

Antias hispidus Vanhöffen
Fig. 12A–B

Antias hispidus Vanhöffen, 1914: 533, fig. 60. Stephensen, 1927: 356, fig. 24. Nordenstam, 1933: 201, fig. 47. Menzies & Miller, 1955: 385.

Previous records

St Paul Island, Auckland Island, Falkland Island, Graham region (Antarctica).

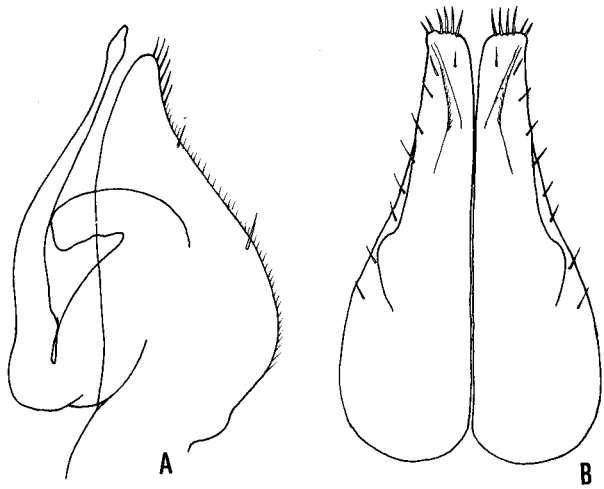

Fig. 12. *Antias hispidus* Vanhöffen.
A—Pleopod 2 ♂; B—Pleopod 1 ♂.

Material

AMS	a6	1 ♂	1 ♀		St Paul	8a	7 ♂♂	7 ♀♀	6 ovig. ♀♀
	a4	6 ♂♂	1 ♀	3 ovig. ♀♀		8b			1 ovig. ♀
	b3	2 ♂♂	1 ♀			14	1 ♂		
	D12		1 ♀			16		2 ♀♀	1 ovig. ♀
	173	1 ♂				77a	1 ♂		
						93	3 ♂♂	2 ♀♀	4 ovig. ♀♀

Antias hofsteni Nordenstam

Fig. 13

Antias hofsteni Nordenstam, 1933: 205. Menzies & Miller, 1955: 385. Menzies, 1962: 60.

Previous records

South Georgia.

Material

AMS	17.1.1971	1 ♂	1 ovig. ♀	St Paul	29.1.1971	1 ♀	
	D19	1 ♂			B7		1 ovig. ♀
	119	1 ♂	1 ovig. ♀				
	142b		1 ovig. ♀				

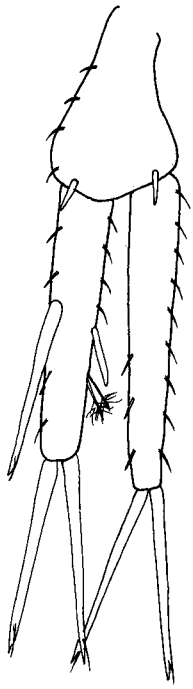

Fig. 13. *Antias hofsteni* Nordenstam.
Uropod.

Remarks

In the general body structure and proportions, and in the appendages, the present material agrees completely with Nordenstam's description. The uropod, which was lacking in all the Antarctic material previously collected, is figured.

Family **Janiridae**

Caecianiropsis ectiformis (Vanhöffen)

Fig. 14A–C

Austroniscus ectiformis Vanhöffen, 1914: 553, fig. 80.
Caecianiropsis ectiformis: Menzies & Pettit, 1956: 446.

Previous records

Observatory Bay, Kerguelen Island.

Material

St Paul 90 1 ♀ Total length 1,5 mm

Remarks

Vanhöffen's figure does not show the first pleonal segment. This segment, although difficult to see, is present in both the Kerguelen and St Paul specimens.

Ianiroides gen. nov.

Diagnosis

Janirid possessing eyes, slight rostral point, scale on antennal peduncle. Pereional segments more or less equal in length and width. Coxal plates dorsally visible on all segments. Pleon longer than wide.

Pereiopod I similar in male and female; propodus distally expanded, palm straight; dactylus biunguiculate.

Pereiopods II–VII triunguiculate.

Uropod with well-developed basis, exopod half length and width of endopod.

Pleopod 1 in male narrow, Y-shaped, proximal halves of rami contiguous, distal halves divergent, narrow.

Discussion

In the structure of the antennae and mouthparts, the rostral projection, the prehensile first pereiopod, the triunguiculate dactyli of the remaining pereiopods, this species could be placed into the genus *Janira*, as Barnard (1920) did. The Y-shaped first pleopod of the male, however, which resembles no other janirid, demands the creation of a new genus. The type species of the genus is *Ianiroides angusta* (Barnard, 1920), and was originally described from a single male from False Bay, Cape. Some of the appendages of this specimen have been refigured.

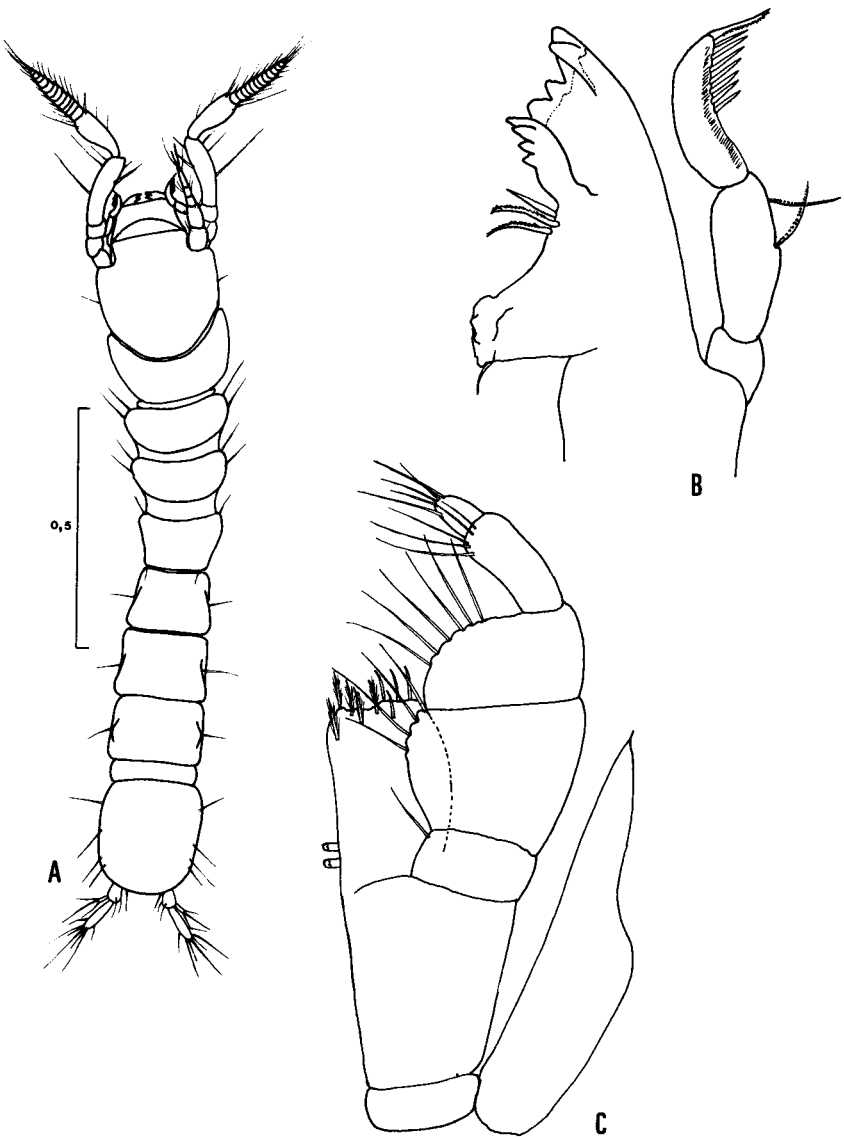

Fig. 14. *Caecianiropsis ectiformis* (Vanhöffen).
A—♀ in dorsal view; B—Mandible; C—Maxilliped.

Ianiroides angusta (Barnard)

Figs 15A–F, 16A–D

Janira angusta Barnard, 1920: 404, pl. 17 (figs 1–3); 1940: 511. Wolff, 1962: 41.

Previous records

False Bay, Cape 1 ♂.

Material

AMS 74 3 ♀♀ 1,5 mm 1,8 mm 2,0 mm

Supplementary description

Eyes with nine or ten ocelli. Coxal plates visible on all pereional segments, those on segments I–IV situated at antero-lateral corners, those on segments V–VII on postero-lateral corners; coxal plates of segments I and II distally acute, remaining plates rounded.

Pereiopod I similar in male and female, with propodus distally broad, palm armed with five or six short blunt sensory setae; dactylus apically biunguiculate.

Operculum in female broader than long, with distal margin slightly concave.

Pleopod 1 in male narrow, rami proximally contiguous, distally divergent, apically tapered, tipped with several setae.

Ianisera gen. nov.

Diagnosis

Janirid possessing eyes, no distinct rostral point; scale on antennal peduncle; antennule well developed. Pereional segments more or less equal in length and width. Coxal plates dorsally visible on all segments. Maxillipedal palp 5-segmented, three proximal segments expanded. Pereiopods similar, ambulatory, dactyli all biunguiculate. Uropodal basis short, rami separate, exopod slightly shorter and narrower than endopod. First pleopod of male very broad, expanded, rami fused proximally. Pleotelson marginally serrate, bearing dorso-lateral ridge. The type species of the genus is *Ianisera trepidus* sp. nov.

Remarks

The presence of eyes, well-developed antennules, uropods, and molar process of the mandible, together with the enlarged segments of the maxillipedal palp, all the pereiopods being ambulatory, and the body parallel-sided, suggest the group of genera *Jaera*, *Janira*, *Janilirata*, *Ianiropsis*. The first pereiopods of the male are not more elongate than the following pereiopods as in *Ianiropsis*, or prehensile as in *Janira*, neither are the uropods produced well beyond the body margin as in *Janilirata*, nor does the species possess indented lateral margins of the posterior pereional segments. This species is characterized by the broad first pleopod of the male, the pleotelson bearing a lateral ridge, and all the pereiopods armed with two dactylar spines.

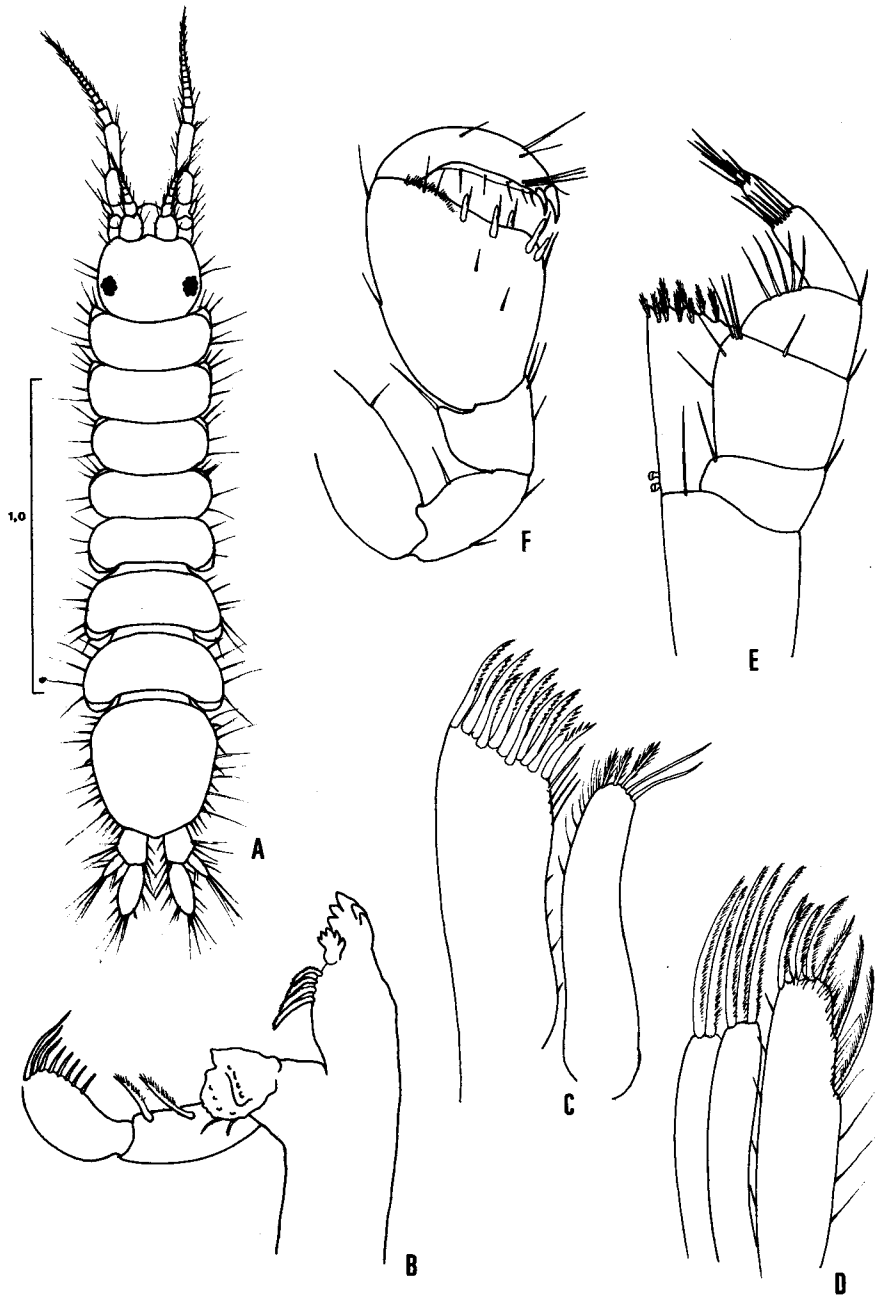

Fig. 15. *Ianiroides angusta* (Barnard).
A—♀ in dorsal view; B—Mandible; C—First maxilla; D—Second maxilla; E—Maxilliped; F—First pereiopod ♀.

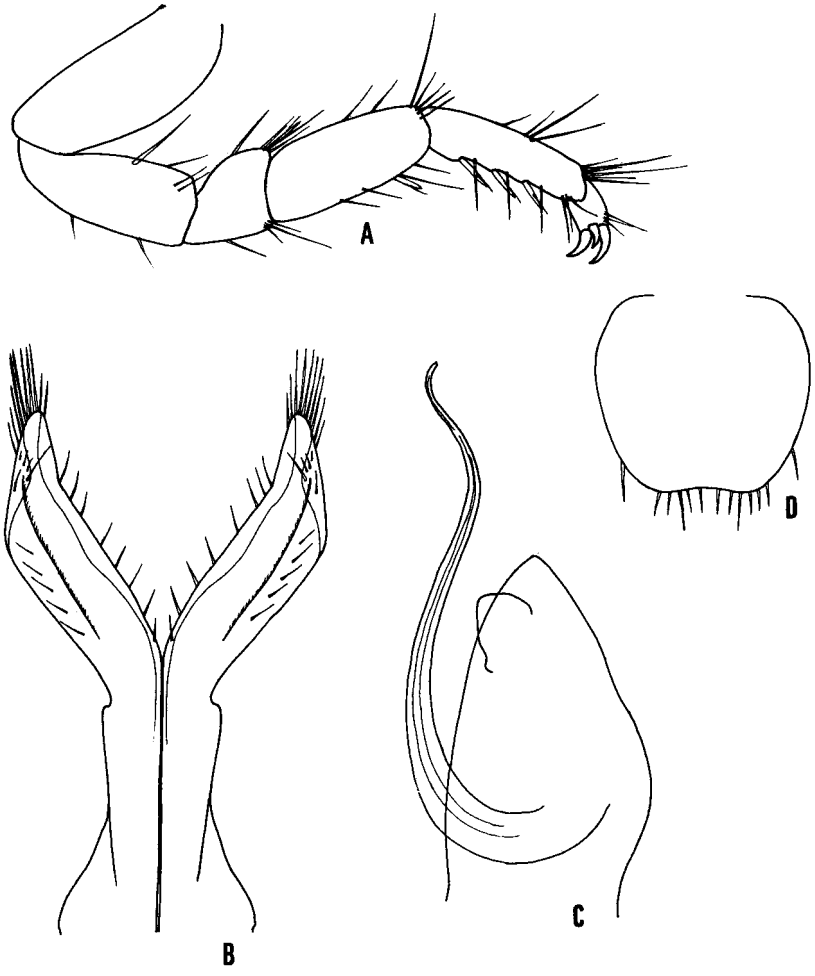

Fig. 16. *Ianiroides angusta* (Barnard).
A—Pereiopod VII; B—Pleopod 1 ♂; C—Pleopod 2 ♂; D—Operculum ♀.

Ianisera trepidus sp. nov.

Figs 17A–G, 18A–D

Description

Male: Body elongate, parallel-sided, bearing numerous short setae. Head anteriorly trilobed, rostral process evenly rounded; eyes tiny, dorsal, situated in posterior half of head. Coxal plates visible on all pereional segments. Pleotelson slightly longer than wide; lateral margins bearing about five serrations, posterior margin with broadly rounded median lobe; single lateral ridge on distal half, just median to lateral margin, ending distally in spine. Antennule about half length of antennae, consisting of large basal segment, second segment about half length and width of basal segment, flagellum of four segments. Antenna consisting of 5-segmented peduncle, second segment bearing well-developed scale; first and second segments equal in length to third segment, latter two-thirds length of fourth segment; flagellum of twelve segments. Mandible bearing 3-segmented palp, distal segment curved, armed with seven serrate spines, middle segment with four slender serrate spines; incisor process of five teeth, setal row of six serrate setae well separated from distally truncate molar process.

First maxilla, inner ramus bearing two stout setae plus several very fine setae, outer ramus with at least twelve serrate spines.

Second maxilla, outer ramus slender, bearing three elongate simple setae; outer lobe of inner ramus slender, bearing four elongate simple setae, inner ramus stout, carrying numerous simple setae.

Maxillipedal palp 5-segmented, two distal segments slender, three proximal segments expanded; endite bearing several fringed setae distally, two coupling hooks medially. Pereiopods similar, basal segment longest, all dactyli tipped with two curved spines. Pleopod 1 broad, two basal sections together forming almost complete sphere, distal area between median line and outer spine broadly convex, carrying about twenty alternately long and short setae.

Pleopod 2 bearing eight elongate simple setae distally.

Uropods with base almost hidden by distal margin of pleotelson, outer ramus slightly longer and broader than inner, both carrying numerous setae.

Female: Similar in all head and pereional appendages to male.

Operculum carrying numerous close-set setae on distal margin, latter somewhat concave medially.

Material

Holotype	AMS	16.1.1971	1 ♂	2,0 mm	Paris Museum Is. 1007				
Paratypes	AMS	133	2 ♂♂	1,1 mm	1,7 mm	2 ♀♀	1,3 mm	1,9 mm	Paris Museum Is. 1008
Paratypes	AMS	17.1.1971	1 ♂	1,8 mm	2 ♀♀	1,3 mm	1,8 mm	SAM–14996	
	AMS	39	2 ♀♀	1,9 mm		2,0mm			

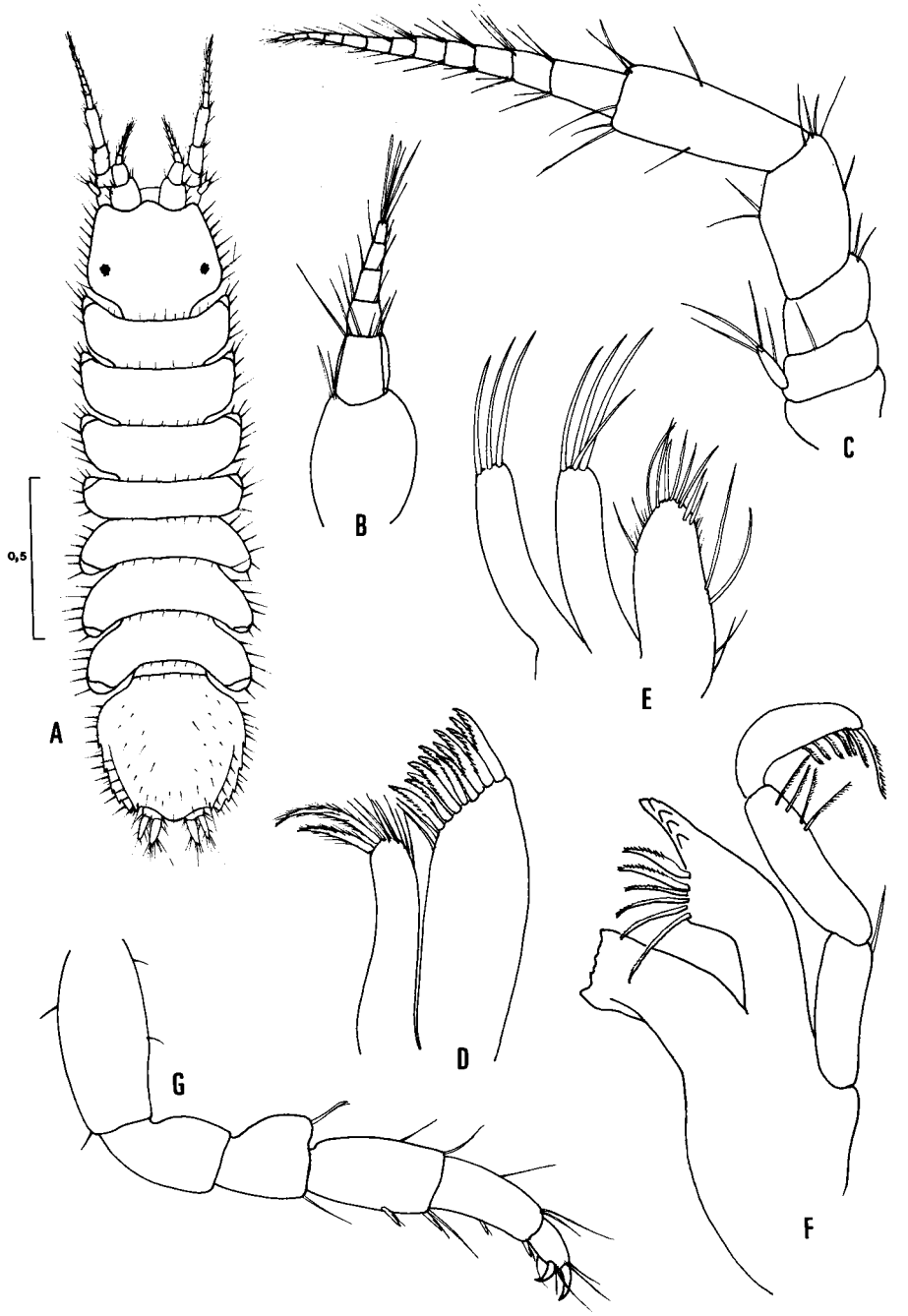

Fig. 17. *Ianisera trepidus* sp. nov.
A—Holotype in dorsal view; B—Antennule; C—Antenna; D—First maxilla; E—Second maxilla; F—Mandible; G—Pereiopod I.

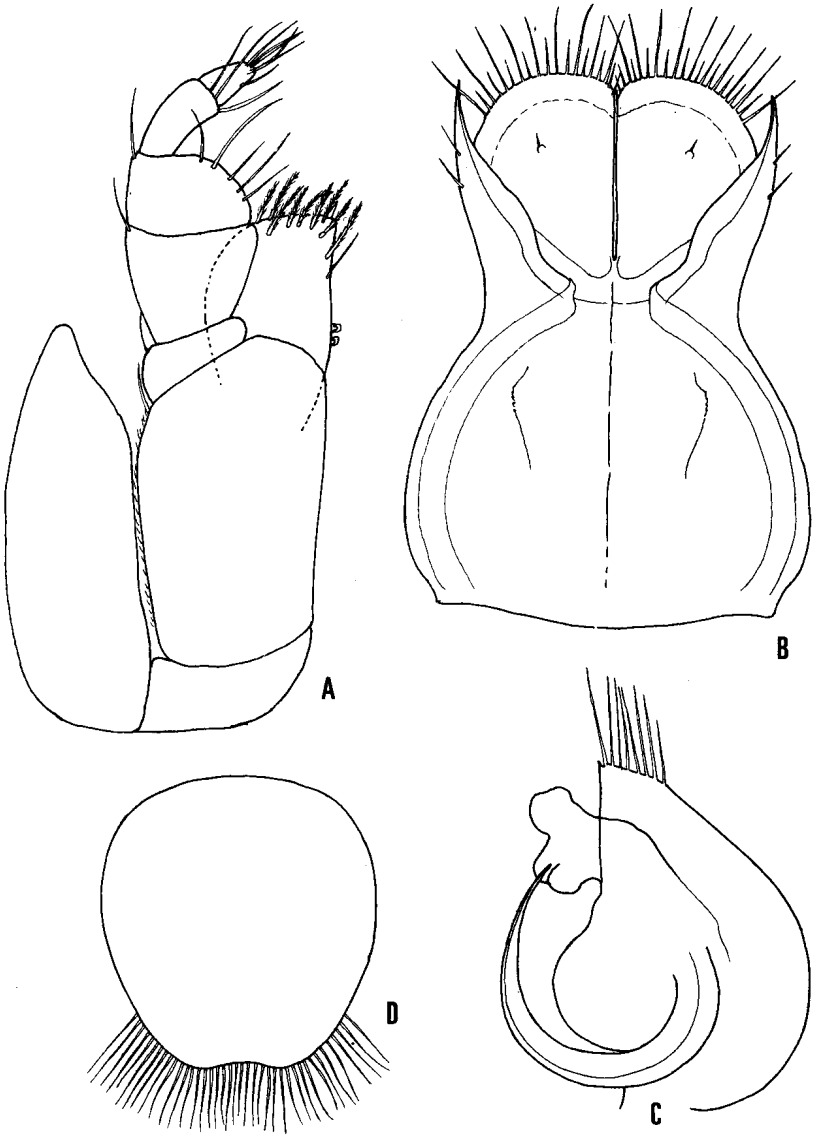

Fig. 18. *Ianisera trepidus* sp. nov.
A—Maxilliped; B—Pleopod 1 ♂; C—Pleopod 2 ♂; D—Operculum ♀.

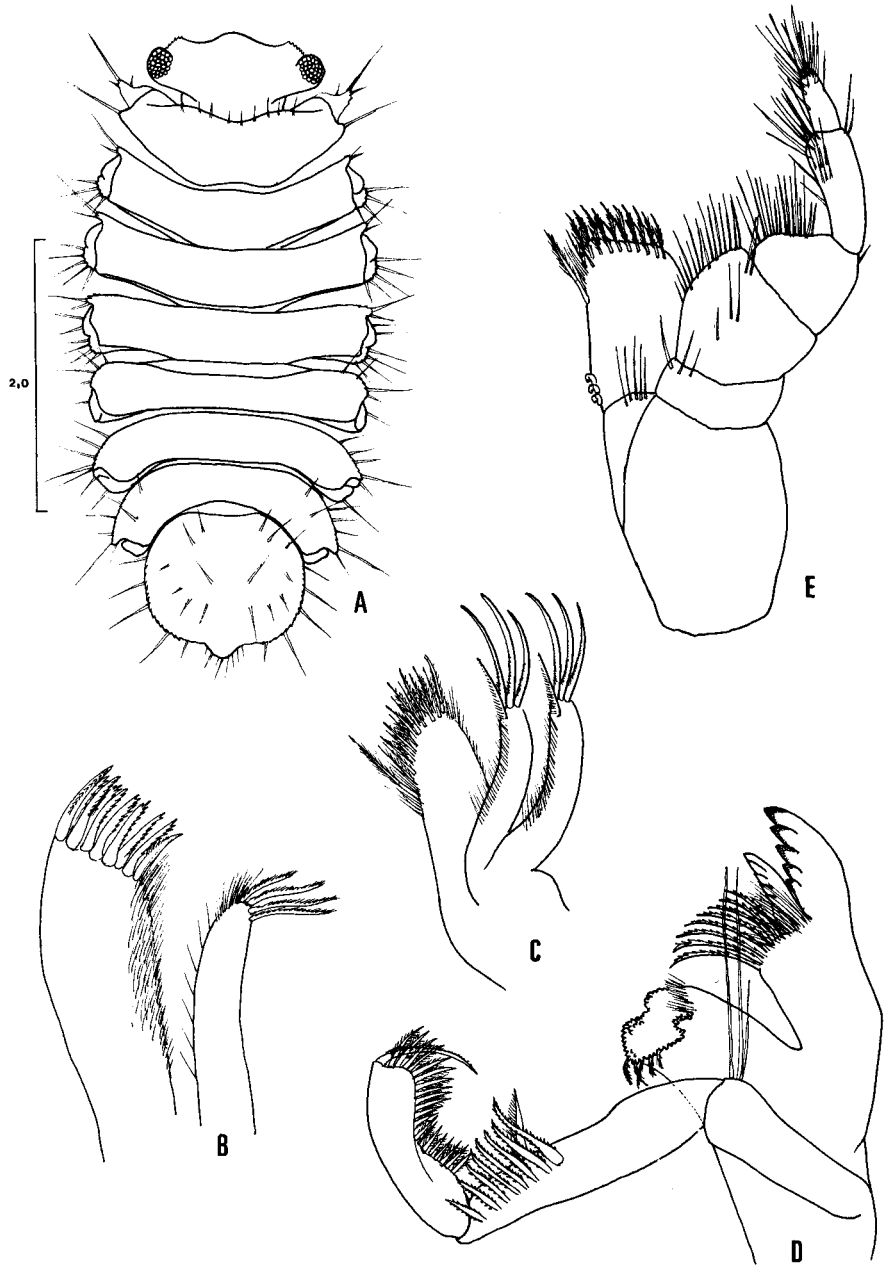

Fig. 19. *Janira capensis* Barnard.
A—♂ in dorsal view; B—First maxilla; C—Second maxilla; D—Mandible; E—Maxilliped.

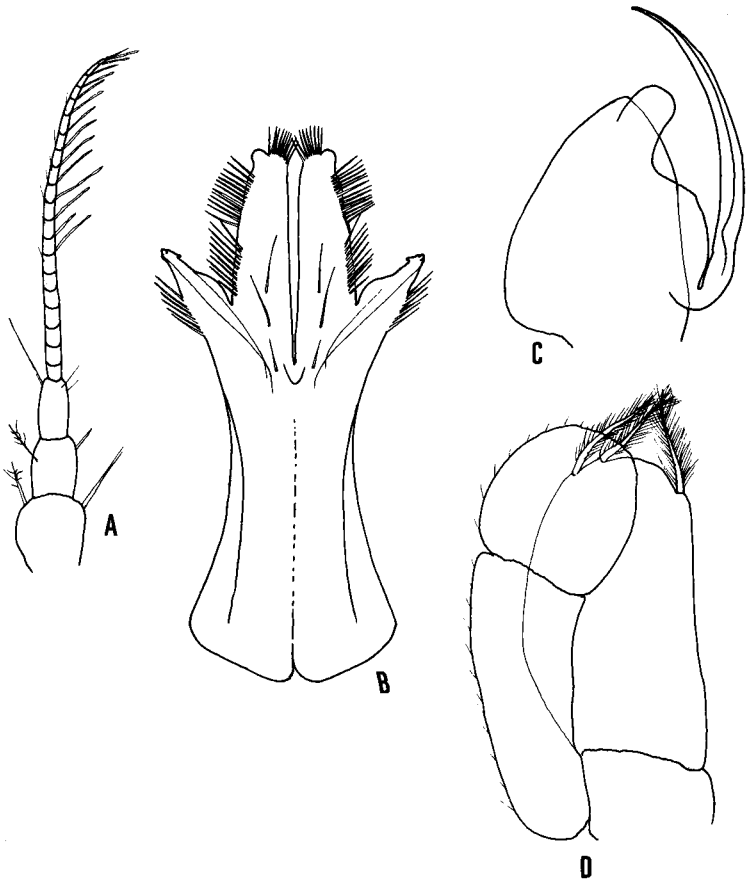

Fig. 20. *Janira capensis* Barnard.
A—Antenna; B—Pleopod 1 ♂; C—Pleopod 2 ♂; D—Pleopod 3 ♂.

Janira capensis Barnard

Figs 19A–E, 20A–D

Janira capensis Barnard, 1914: 220, pl. 20b. *non Iathrippa longicauda* Chilton, Menzies, 1962: 72.

Previous records

Lüderitzbucht, Saldanha Bay, Table Bay, False Bay.

Material

AMS		St Paul				
a7			6c	2 ♂♂	2 ♀♀	
24a	1 ♂		7a	3 ♂♂	2 ♀♀	
			B7	3 ♂♂	1 ♀ 1 juv.	
			7b	12 ♂♂	3 ovig. ♀♀	4 ♀♀
			18	13 ♂♂	2 ovig. ♀♀	11 ♀♀
			20	4 ♂♂		3 ♀♀
			22a	5 ♂♂	1 ovig. ♀	2 ♀♀
			22c	7 ♂♂	7 ovig. ♀♀	10 ♀♀ 4 juv.
			23	5 ♂♂	1 ovig. ♀	8 ♀♀ 8 juv.
			30a	1 ♂		1 ♀
			30b	2 ♂♂		1 ♀
			32	1 ♂		
			91	7 ♂♂	2 ovig. ♀♀	3 ♀♀

Remarks

Nordenstam (1933), in his description of *I. longicauda*, figures the pleotelsonic margins entire, the carpus of pereiopod I without a distal curved spine, and mentions the distinct rostrum for the species. Menzies (1962, fig. 51f–g) also shows a well-developed rostrum, which is lacking in the present material. Thus *I. longicauda* is easily distinguishable from Barnard's valid species.

Ianiropsis palpalis Barnard

Fig. 21

Ianiropsis palpalis Barnard, 1914: 222, pl. 21A. Wolff, 1962: 251.

Previous records

Lüderitzbucht, Table Bay, False Bay, Port Elizabeth, East London.

Material

AMS				St Paul			
A6		1 ♀		B7	2 ♂♂	2 ♀♀	1 ovig. ♀
B9		1 ♀		B19	9 ♂♂	6 ♀♀	
b1	6 ♂♂	3 ♀♀	3 ovig. ♀♀	D3	4 ♂♂	1 ♀	
b3	20 ♂♂	11 ♀♀	7 ovig. ♀♀	D5/a	1 ♂	3 ♀♀	1 ovig. ♀
D1	2 ♂♂	4 ♀♀		D5/c	3 ♂♂	2 ♀♀	4 ovig. ♀♀
D7		1 ♀		D6	20 ♂♂	4 ♀♀	5 ovig. ♀♀
D9	10 ♂♂	10 ♀♀	11 ovig. ♀♀	D8	1 ♂		
D12	11 ♂♂	8 ♀♀	7 ovig. ♀♀	D11	1 ♂		
J11	1 ♂	2 ♀♀		3	40 ♂♂	22 ♀♀	15 ovig. ♀♀
P1	4 ♂♂			7a	10 ♂♂	7 ♀♀	11 ovig. ♀♀
P4	1 ♂			7b	8 ♂♂	6 ♀♀	7 ovig. ♀♀
P19	1 ♂	2 ♀♀	1 ovig. ♀	14			2 ovig. ♀♀
P28		1 ♀		16	2 ♂♂	1 ♀	1 ovig. ♀
P34		1 ♀		18	14 ♂♂	3 ♀♀	3 ovig. ♀♀
P45			1 ovig. ♀	19	2 ♂♂	1 ♀	1 ovig. ♀
P83	1 ♂			20	20 ♂♂	9 ♀♀	13 ovig. ♀♀
27.3.1970/b	1 ♂	3 ♀♀		22a	8 ♂♂	2 ♀♀	6 ovig. ♀♀
28.3.1970/b	2 ♂♂	2 ♀♀		22b	6 ♂♂	2 ♀♀	3 ovig. ♀♀
12.12.1970	2 ♂♂	1 ♀	1 ovig. ♀	22c	12 ♂♂	7 ♀♀	1 ovig. ♀
17.1.1971		3 ♀♀	1 ovig. ♀	23	5 ♂♂	2 ♀♀	3 ovig. ♀♀
16.1.1971	4 ♂♂	1 ♀		23a	1 ♂	1 ♀	2 ovig. ♀♀
4		1 ♀		24b			2 ovig. ♀♀

Material

9	1 ♂		
11	1 ♂	1 ♀	
14	22 ♂♂	34 ♀♀	4 ovig. ♀♀
28	52 ♂♂	52 ♀♀	25 ovig. ♀♀
39	17 ♂♂	6 ♀♀	4 ovig. ♀♀
41a	30 ♂♂	22 ♀♀	11 ovig. ♀♀
41b	1 ♂	3 ♀♀	2 ovig. ♀♀
48	28 ♂♂	29 ♀♀	4 ovig. ♀♀
60	8 ♂♂	4 ♀♀	2 ovig. ♀♀
64a	29 ♂♂	9 ♀♀	12 ovig. ♀♀
64b	2 ♂♂	3 ♀♀	2 ovig. ♀♀
73	5 ♂♂	7 ♀♀	3 ovig. ♀♀
74	8 ♂♂	4 ♀♀	
83	2 ♂♂		1 ovig. ♀
94	66 ♂♂	30 ♀♀	31 ovig. ♀♀
96	42 ♂♂	20 ♀♀	11 ovig. ♀♀
101	5 ♂♂	5 ♀♀	5 ovig. ♀♀
103	18 ♂♂	9 ♀♀	4 ovig. ♀♀
111			1 ovig. ♀
119	16 ♂♂	6 ♀♀	6 ovig. ♀♀
132	2 ♂♂	3 ♀♀	
133	4 ♂♂	1 ♀	1 ovig. ♀
142b	21 ♂♂	10 ♀♀	2 ovig. ♀♀
147	2 ♂♂	2 ♀♀	
148	4 ♂♂	4 ♀♀	
166	58 ♂♂	40 ♀♀	34 ovig. ♀♀
173	75 ♂♂	34 ♀♀	44 ovig. ♀♀
30a	8 ♂♂	5 ♀♀	3 ovig. ♀♀
30b	26 ♂♂	12 ♀♀	8 ovig. ♀♀
35	21 ♂♂	15 ♀♀	11 ovig. ♀♀
67	1 ♂		
77a	6 ♂♂	3 ♀♀	3 ovig. ♀♀
90	5 ♂♂		3 ovig. ♀♀
1970		1 ♀	1 ovig. ♀
91	2 ♂♂	1 ♀	1 ovig. ♀
1.1971	2 ♂♂	3 ♀♀	4 ovig. ♀♀
29.1.1971	36 ♂♂	11 ♀♀	11 ovig. ♀♀

Family **Jaeropsidae**

Jaeropsis beuroisi Kensley

Jaeropsis beuroisi Kensley, 1975: 374, figs 7–8.

Previous records

St Paul and Amsterdam Islands.

Material

AMS				St Paul			
D12	2 ♂♂	1 ♀	1 ovig. ♀	B7		1 ♀	
39		1 ♀	1 ovig. ♀	B19	1 ♂	1 ♀	
41a	1 ♂	1 ♀		D6	5 ♂♂	2 ♀♀	1 ovig. ♀
41b	1 ♂			3	1 ♂	2 ♀♀	
44		1 ♀		7b	13 ♂♂	13 ♀♀	10 ovig. ♀♀
64a	1 ♂		1 ovig. ♀	18	5 ♂♂	3 ♀♀	4 ovig. ♀♀
74	4 ♂♂			20	1 ♂	1 ♀	1 ovig. ♀
94	2 ♂♂			22c	12 ♂♂	2 ♀♀	9 ovig. ♀♀
119	11 ♂♂	8 ♀♀	2 ovig. ♀♀	77a	4 ♂♂	1 ♀	1 ovig. ♀
142b	2 ♂♂	3 ♀♀	2 ovig. ♀♀	90	18 ♂♂	20 ♀♀	
147	1 ♂	1 ♀		29.12.1970			1 juv.
173	6 ♂♂	6 ♀♀	4 ovig. ♀♀	19.1.1971		1 ♀	

Jaeropsis paulensis Vanhöffen

Jaeropsis paulensis Vanhöffen, 1914: 531, fig. 59a. Barnard, 1965: 201, fig. 2b. Kensley, 1975: 371, figs 5–6.

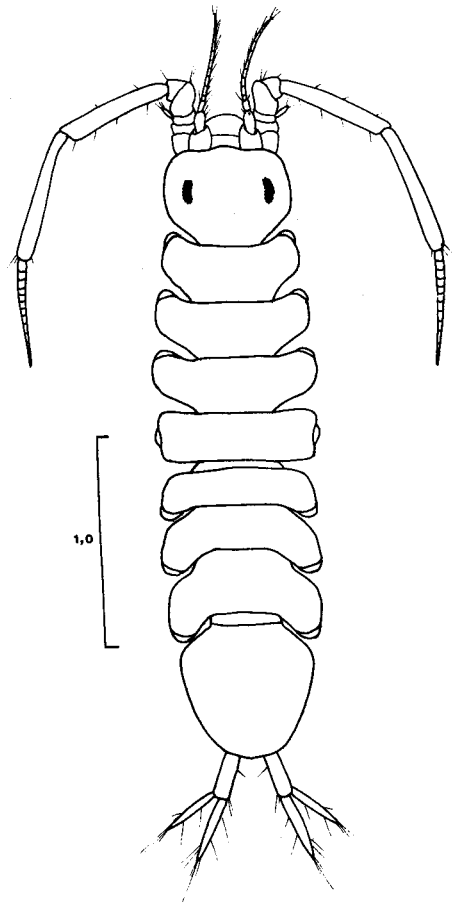

Fig. 21. *Ianiropsis palpalis* Barnard.
♂ in dorsal view.

Previous records

St Paul Island, Gough Island.

Material

AMS			
a4	9 ♂♂		8 ovig. ♀♀
a8		2 ♀♀	
a9	1 ♂		
b3	3 ♂♂	6 ♀♀	3 ovig. ♀♀
14	2 ♂♂	2 ♀♀	1 ovig. ♀
27.3.1970/b	1 ♂		

St Paul			
8a	14 ♂♂	5 ♀♀	1 ovig. ♀
8b	3 ♂♂	1 ♀	2 ovig. ♀♀
8c	9 ♂♂	3 ♀♀	2 ovig. ♀♀
93	7 ♂♂	2 ♀♀	4 ovig. ♀♀

Family **Munnidae**

Munnogonium subtilis sp. nov.

Fig. 22A–I

Description

Female: Body pear-shaped, widest at second and third pereional segments. Head with anterior margin between antennules straight; eyestalks elongate. Pereional segments I–IV broad, antero-lateral corners of segment I rounded, of segment II quadrate, segments III and IV notched; segments V to VII narrower than preceding segments, with coxal plates visible. Pleotelson as long as broad, distally broadly rounded, lateral margins as far as insertion of uropoda dentate (about 12 teeth). Antennule with 2-segmented peduncle, basal segment shorter, more curved and wider than second segment; flagellum 4-segmented. Antennae missing.

Mandible with narrow toothed incisor process, narrow lacinia mobilis, followed by four elongate setae; molar process elongate, distally slightly expanded, truncate; palp missing.

Maxilliped with two distal segments of palp much narrower than three proximal segments; endite bearing about 6 setae (three simple, three plumose), plus two coupling hooks. Pereiopod I dactylus bearing elongate terminal curved spine plus smaller spine; propodus with two sensory spines on ventral margin, carpus somewhat shorter and broader than propodus, also with two sensory spines on ventral margin; basis elongate, equal in length to merus and ischium.

Operculum distally narrowed to rounded apex bearing four stout setae.

Uropoda short, biramous, inner ramus half length and width of outer.

Material

Holotype AMS D9 1 ovig. ♀ total length 1,8 mm Paris Museum Is. 1009

Remarks

Bowman & Schultz (1974) recently revised the genus *Munnogonium* George & Stromberg. They separated the members of the genus from the closely related species of *Austrosignum* Nordenstam by the lack of a mandibular palp in species of *Munnogonium*. The resemblance is most marked in general body shape and proportion between the new species and *A. latifrons* Menzies (1962), but that species has a palp on the mandible. *A. globifrons* Menzies was placed in *Munnogonium* by Bowman and Schultz, but does not resemble the new species as closely in general body shape as does *A. latifrons*. The new species also resembles *Paramunna kerguelensis* Vanhöffen, but it is not known if a mandibular palp is present or absent in this species.

Genus *Coulmannia* Hodgson

Hodgson, 1910: 52. Vanhöffen, 1914: 580. Nordenstam, 1933: 225. Menzies, 1962: 173. Wolff, 1962: 62.

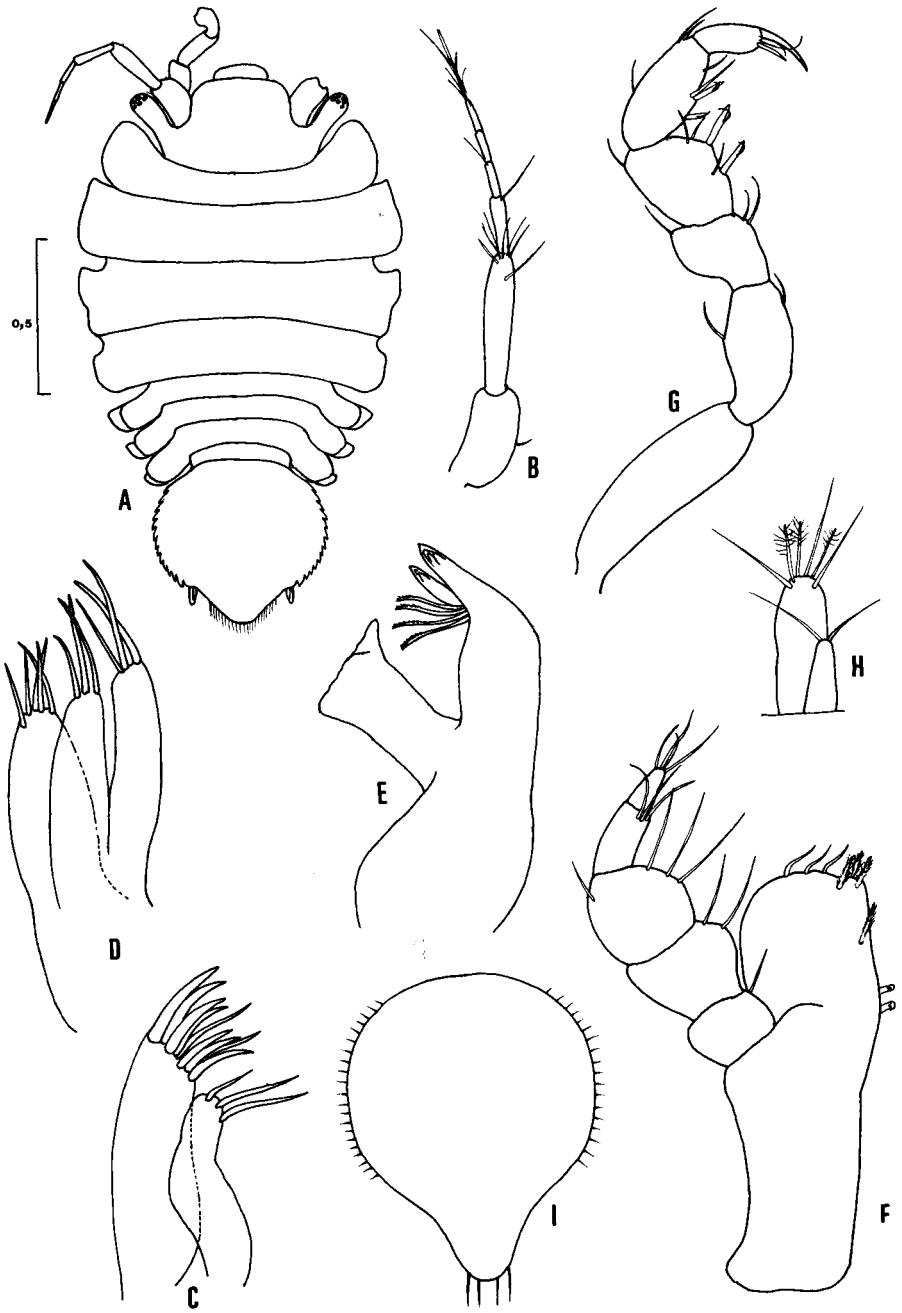

Fig. 22. *Munnogonium subtilis* sp. nov.
A—Holotype in dorsal view; B—Antennule; C—First maxilla; D—Second maxilla; E—Mandible; F—Maxilliped; G—Pereiopod I; H—Uropoda; I—Operculum.

Coulmannia unicornis sp. nov.
Figs 23A–F, 24A–H

Description

Male: Head steeply rounded anteriorly. Pereion widest at IIIrd segment. Pereional segment I laterally bulbous, rounded, bearing strong medio-dorsal 'horn', segments II–IV each with single digitiform lateral extension; segments V–VII posteriorly directed, laterally rounded. Pleotelson anteriorly narrow, cylindrical, posteriorly bulbous, with five serrations on each side, apically bluntly rounded.

Eyestalks reaching to proximal half of second antennular segment, with four ocelli. Antennule with two subequal peduncular segments, flagellum of four segments. Antenna with 5-segmented peduncle, two distal segments elongate, subequal; flagellum of six segments.

Mandible lacking palp, with incisor process bearing five teeth; setal row of three setae; molar process large, cylindrical, distally truncate, with blunt irregular teeth on grinding surface.

Maxillipedal palp 5-segmented, three basal segments broad, two distal segments more slender, all segments bearing setae; endite with strong conical tooth at medio-distal corner, seven or eight setae, single coupling hook present.

Pereiopod I subchelate, carpus with emarginate fringed palm, demarked by strong conical tooth; dactylus with long unguis; propodus bearing two stout setae with sensory tips.

Pereiopods II–VII similar, longer and more slender than pereiopod I; dactyli with long unguis; propodi and carpi elongate, meri short, ischium and bases subequal elongate. Pleopod 1 proximally fused, distally separate, distal lobes triangular, with outer basal corners bearing several short setae.

Uropod biramous, inserted without peduncle beneath ridge on bulbous pleotelson; endopod half length of exopod, both tipped with elongate setae.

Female: Pereional segments II–IV broader than in male; pereional segment I not armed with 'horn' as in male.

Pereiopod I shorter than following legs, but not subchelate.

Operculum longer than broad, distally tapering to bluntly rounded tip, fringed at widest part with short setae.

Material

Holotype	AMS 17.1.1971.	1 ♂	2,0 mm	Paris Museum Is. 1010
Allotype	AMS 17.1.1971.	1 ovig. ♀	1,4 mm	Paris Museum Is. 1011

Remarks

The absence of a mandibular palp is the most important character of this genus, along with the strong apically truncate molar process of the mandible.

Hodgson created the genus for two species, viz. *C. australis* from Coulman Island in Victoria Land, South Georgia, and Graham Land, and *C. frigida*, described from a single specimen also from the Antarctic. The differences

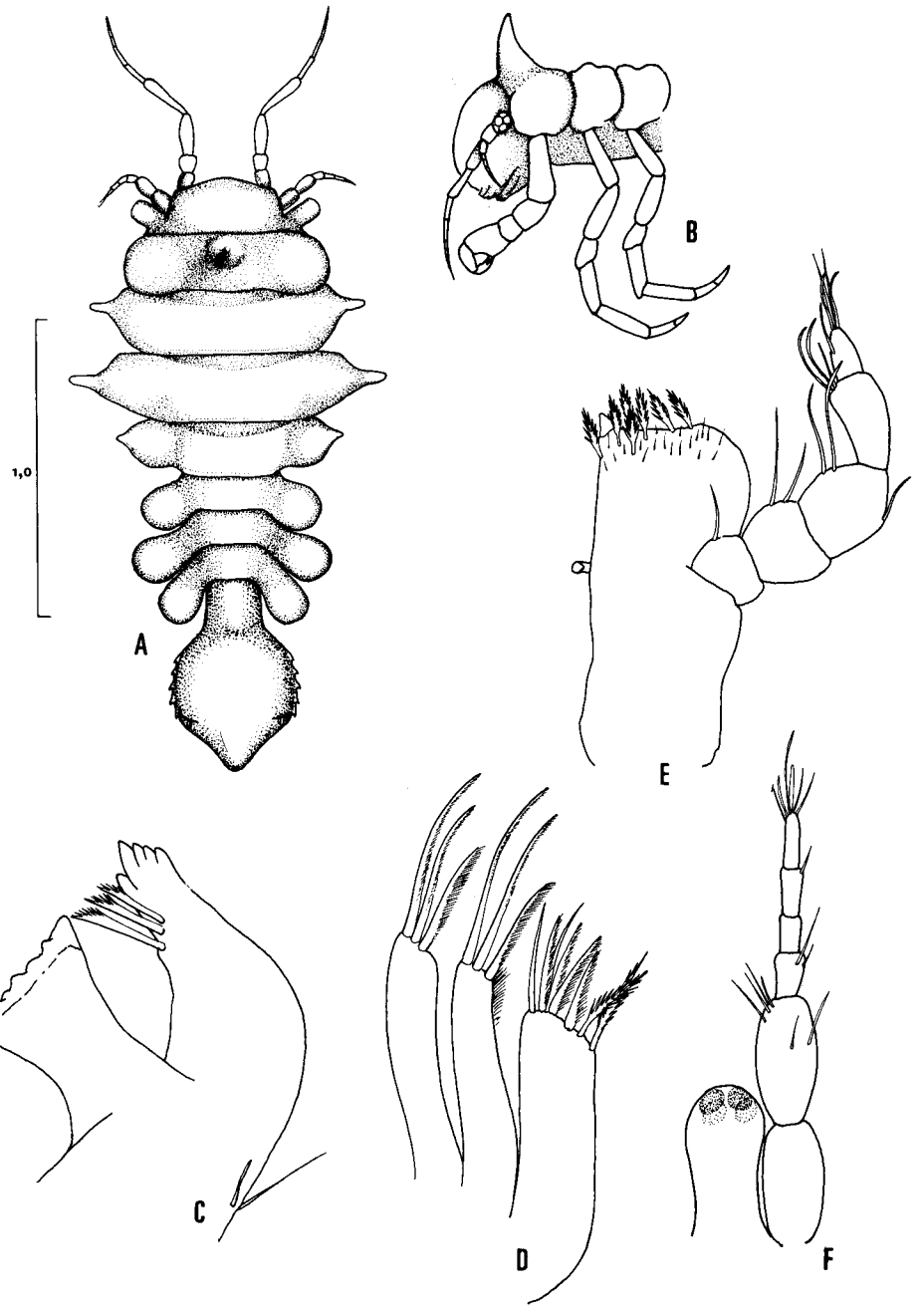

Fig. 23. *Coulmannia unicornis* sp. nov.
A—Holotype in dorsal view; B—Head and anterior segments in lateral view; C—Mandible; D—Second maxilla; E—Maxilliped; F—Antennule and eyestalk.

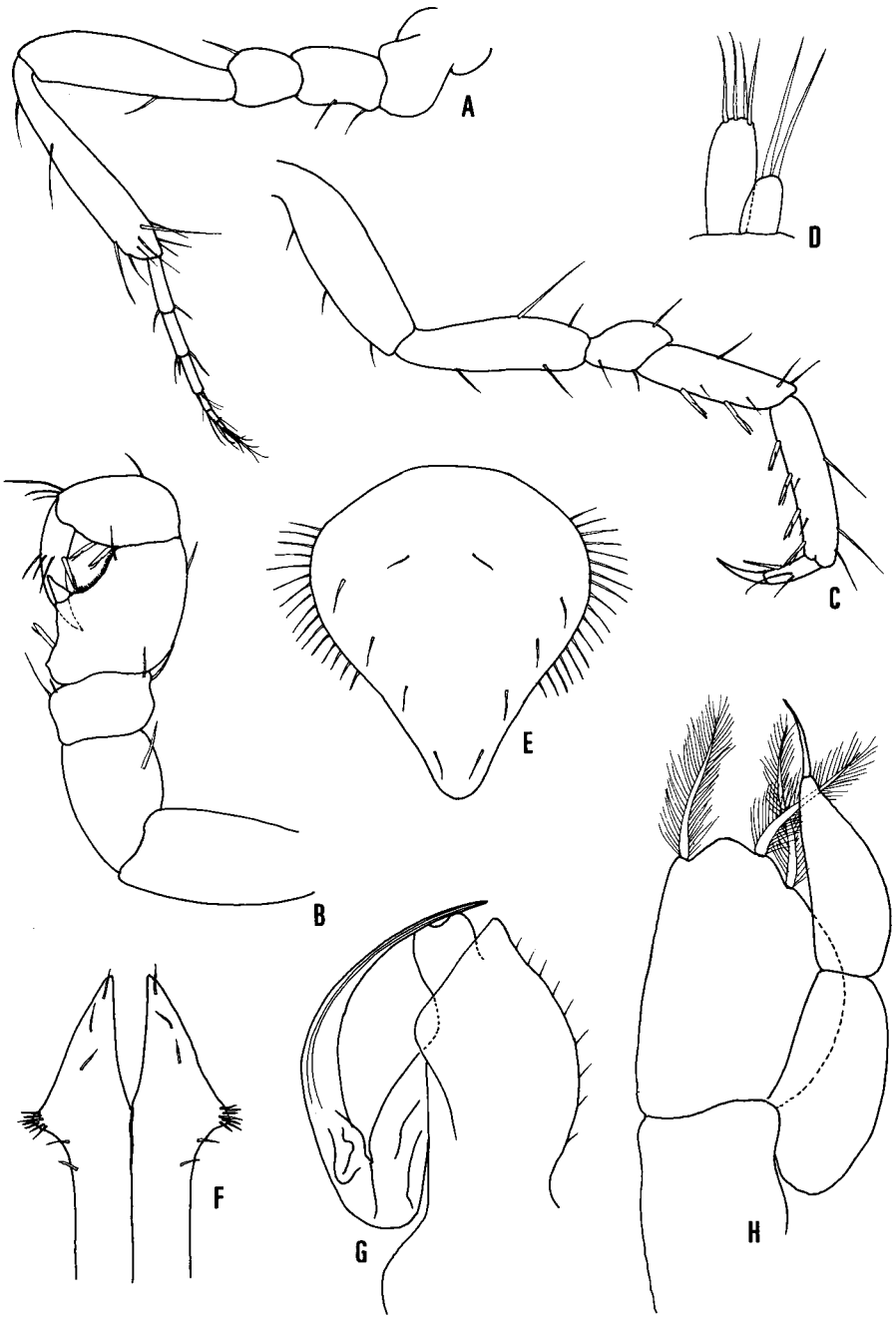

Fig. 24. *Coulmannia unicornis* sp. nov.
A—Antenna; B—Pereiopod I; C—Pereiopod VII; D—Uropoda; E—Operculum ♀; F—Pleopod 1 ♂; G—Pleopod 2 ♂; H—Pleopod 3 ♂.

between these two species and *C. unicornis* are readily apparent. The most obvious is in the structure of the lateral pereional extensions—bifid in *C. australis*, single in *C. unicornis* and *C. frigida*. *C. australis* carries a single median dorsal spine on each of the pereional segments while in the present species, only the first pereional segment bears a strong dorsal 'horn' (hence the specific name). Regarding the appendages, there is general agreement between those of *C. australis*, well illustrated by Nordenstam (1933) and the present species. Subtle differences are apparent, particularly in the maxilliped, and first pereiopod of the male.

Echinomunna uroventralis sp. nov.

Figs 25A–E, 26A–D

Description

Female: Body longer than wide, spinose. Head bearing three spines anteriorly, median spine at higher level than lateral spines. Eyes lateral. Pereional segments each bearing strong lateral spine, with two coxal spines visible in dorsal view. Pereional segment I with two submedian dorsal spines, segments II–IV with seven dorsal spines, segments V–VII with three dorsal spines. Pleon fused, longer than wide, with two strong backwardly-directed lateral spines at widest point, medio-distally with two long diverging spines.

Antennule with 2-segmented peduncle, segments subequal in length, basal segment wider than distal segment; flagellum 4-segmented, two proximal and distal segment subequal, short, third segment nine times longer than wide, very slender. Antennae in all specimens with flagella missing; peduncle of four short segments, second and third segments each with two strong spines.

Right mandible, incisor process of five strong teeth, followed by five strong fringed setae, molar process strong, distally truncate; palp 3-segmented, basal segment two-thirds length of middle segment, distal segment curved, half length of middle segment, bearing two or three fringed setae, plus numerous fine setules. Left mandible with incisor process of five strong teeth, narrow lacinia mobilis carrying five teeth, four stout fringed setae in setal row.

Maxillipedal endite broad, with nine or ten short setae on medio-distal margin, three coupling hooks on median margin, palp 6-segmented, with first to third segments wider than fourth to sixth segments, but not as marked as in *Echinomunna* s.s., first segment one-third length of second segment, third segment somewhat shorter than second, segments four and five subequal in length, terminal segment tiny.

Pereiopod I considerably shorter than following pereiopods; dactylus curved, with well-marked unguis; propodus with convex palm bearing delicate fringed membrane plus several stout setae with sensory tips; carpus distally broader than proximally, shorter than propodus, subequal to merus in length; ischium and basis elongate, subequal.

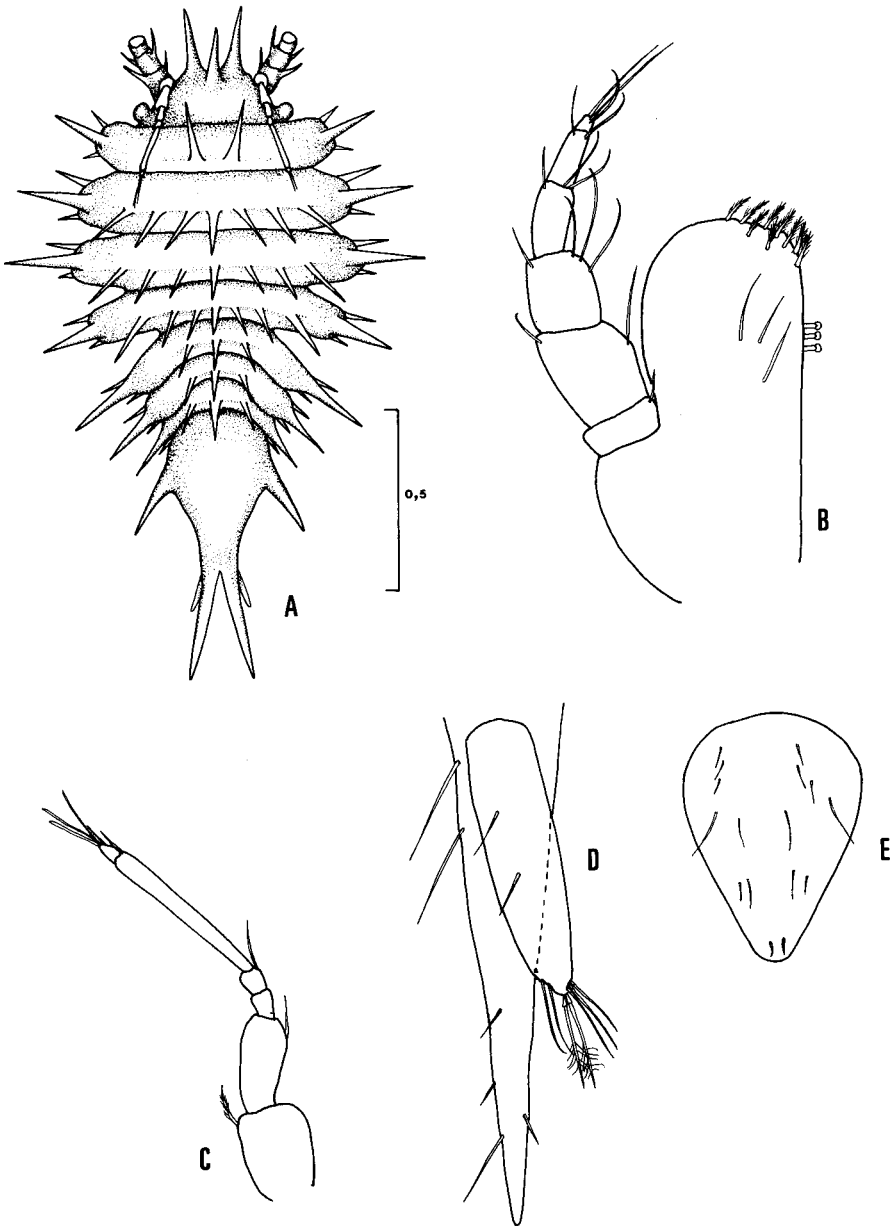

Fig. 25. *Echinomunna uroventralis* sp. nov.
A—Holotype in dorsal view; B—Maxilliped; C—Antennule; D—Uropod; E—Operculum ♀

Pereiopods II–VII slender, elongate, dactyli bearing two terminal claws; propodi and carpi slender, elongate; meri, ischia, and bases much shorter, coxae carrying two or three spinose processes, visible dorsally beneath lateral pereional spine.

Operculum longer than wide, distally tapering to broadly-rounded apex.

Uropods ventral to posterior pleonal spines, uniramous, tipped with several setae, three-and-a-half times longer than wide.

Material

Holotype	AMS 28	1 ovig. ♀	Total length 1,8 mm	Paris Museum Is. 1012
Paratypes	AMS 28	2 ovig. ♀♀	Total length 1,7 mm	Paris Museum Is. 1013

Remarks

The slender ambulatory pereiopods, lateral eyes, the pleon longer than broad, segments one to three of the maxillipedal palp broader than segments four to six, the uropod lacking a peduncle, the strong mandibular molar process, apically truncate, all place this species in the family Munnidae. Nevertheless, some differences are apparent when considering the various diagnoses for the family (e.g. Menzies 1962: 172; Wolff 1962: 59–60). The first three segments of the maxillipedal palp are not as wide as the endite, and a second pleonal segment is not visible.

A generic position for this species cannot be arrived at with any confidence. From Menzies's key (1962), using the following characters, one arrives at the choice of either *Echinomunna* or *Acanthomunna*: coxal plates visible in dorsal view, mandibular palp 3-segmented, coxal plates visible on pereional segments two to seven, body strongly spinose. The uropods of the present species are neither lateral as in *Echinomunna* nor dorsal as in *Acanthomunna*. The relatively massive, pedunculate, biramous uropods of *Acanthomunna* would seem to rule out this genus. Using Wolff's key (1962), the following characters place the species in the genus *Echinomunna*: molar process subcylindrical and strong, coxal plates two to seven visible in dorsal view, body strongly spinose.

The present material agrees with Vanhöffen's description of *Echinomunna horrida* in the spinose body, the position of the eyes, the construction of the antennule with one long flagellar segment plus several short segments, in the structure of the maxilliped and the first pereiopod. The main differences between *E. horrida* and *E. uroventralis* lie in the number of dorsal pereional spines, and especially in the pleonal structure with the ventrally inserted uropods. The Antarctic species possesses five proximal spines, while the uropods are inserted laterally, and the pleon is distally rounded-truncate. In *E. uroventralis* there are two strong lateral spines, plus two submedian distal spines with the uropods inserted beneath them.

The present species is thus placed in the genus *Echinomunna* with some reservations, and with the necessity to enlarge the definition of the genus to include uropods which are inserted either laterally or ventrally.

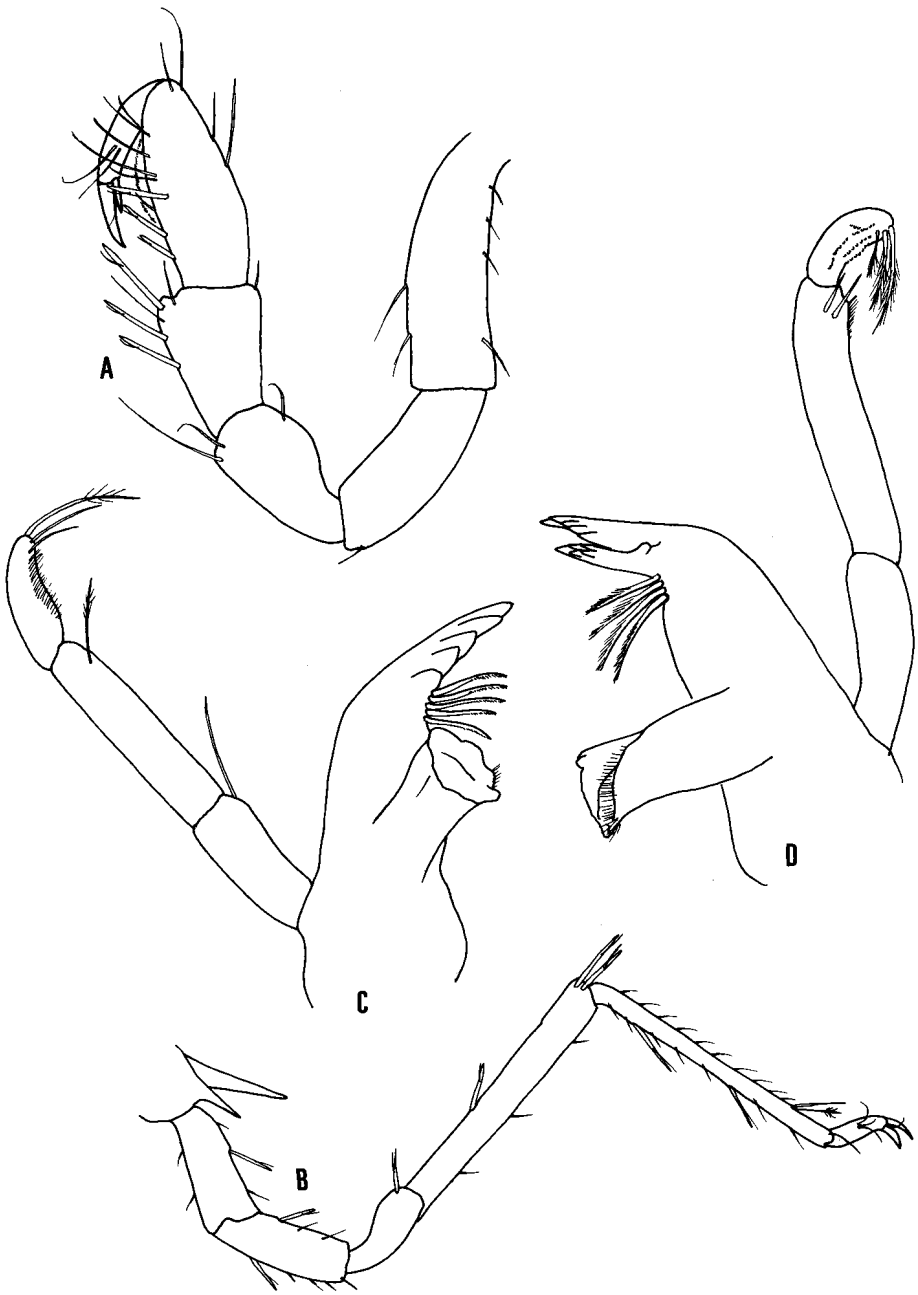

Fig. 26. *Echinomunna uroventralis* sp. nov.
A—Pereiopod I; B—Pereiopod VII; C—Right mandible; D—Left mandible.

Munna (*Uromunna*) *nana* Nordenstam

Munna nana Nordenstam, 1933: 222, figs. 56–57.
Munna nana forma "a" Menzies, 1962: 42 fig 5.

Previous records

Chile, Falkland Islands.

Material

AMS	a4		2 ♀♀		St Paul	B19		1 ♀	1 ovig. ♀
	C1			1 ovig. ♀		D36	1 ♂		1 ovig. ♀
	28		2 ♀♀	4 ovig. ♀♀		6c	2 ♂♂		
	41a	1 ♂		2 ovig. ♀♀		7a	3 ♂♂	2 ♀♀	2 ovig. ♀♀
	48			1 ovig. ♀		8c			1 ovig. ♀
	64a	1 ♂				19	1 ♂		2 ovig. ♀♀
	94		1 ♀			22a		1 ♀	
	96			2 ovig ♀♀		22c	2 ♂♂	3 ♀♀	3 ovig. ♀♀
	103		1 ♀			23a			1 ovig. ♀
	142b	3 ♂♂		1 ovig. ♀		30a			1 ovig. ♀
	173		1 ♀			30b		1 ♀	1 ovig. ♀
						77a	1 ♂	1 ♀	
						77b			1 ovig. ♀
						90	5 ♂♂	10 ♀♀	2 ovig. ♀♀

Remarks

Slight differences between the present material and Menzies's forma 'a' as well as the forma typica are apparent. The last segment of the antennal peduncle is not twice the length of the penultimate segment, while the superior dactylar spine of the pereiopods is smooth.

Suborder ONISCOIDEA

Family **Oniscidae**

Subfamily Scyphacinae

Deto echinata Guérin

Deto echinata: Budde-Lund, 1885: 234; 1906: 85, pl. 4 (figs 37–38). Panning, 1924: 185, figs 4–8. Barnard, 1932: 221, fig. 12. Vandel, 1945: 261. Green, 1974: 240.
Deto armata Budde-Lund, 1906: 85, pl. 4 (figs 26–36). Panning, 1924: 191, fig. 10.

Previous records

Rocky Point (S.W.A.), Lüderitzbucht, Lamberts Bay, Olifants River Mouth, Dyers Island, Dassen Island, Table Bay, False Bay, Hermanus, Knysna, St Paul Island.

Material

AMS	a6	7 ♂♂	4 ♀♀
	15	32 ♂♂	26 ♀♀
	27.3.1970/a		2 ♀♀
	28.3.1970/a	24 ♂♂	18 ♀♀

Remarks

Panning (1924) synonymized *D. armata* with *D. acinosa*, which he regarded as a species separate from *D. echinata*. His figure 10, however, is of an immature male from St Paul Island, not yet showing the development of dorsal spines on pereion and pleon. Barnard (1932) regards *D. acinosa* (and with it *D. armata*) as synonymous with *D. echinata*, but qualifies this by stating that the small strongly granulate form of *D. echinata* might be regarded as the form *acinosa*.

That this group of isopods is extremely variable is without doubt. It is interesting, however, to note the following: of about 100 mature males of *D. echinata* from South African localities examined, none showed spinose processes on the pleon, and that both mature males and females from South Africa frequently reach a total length of more than 20 mm. Of the 64 adult males from St Paul and Amsterdam Islands examined, none were larger than 17,5 mm; while 42 specimens possessed a pair of spines on the third pleonal segment, 14 showed a pair of spines on both pleonal segments three and four, while 8 specimens lacked pleonal spines completely. Further, these pereional and pleonal spines never showed the markedly incurved condition of the South African forms. No differences in the structure of the male genital apparatus could be seen between St Paul–Amsterdam Island specimens and South African specimens. It would seem that the St Paul–Amsterdam Island population should be regarded as part of the *D. echinata* group, but that this island population, isolated as it is, is beginning to show morphological signs of diverging from the mainland African stock.

Family **Oniscidae**

Porcellio scaber Latreille

Porcellio scaber: Budde-Lund, 1906: 88. Barnard, 1932: 252, fig. 21 (references).
Porcellio paulensis Heller, 1865: 136, pl. 12 (fig. 5). Brocchi, 1877: 97. André, 1932: 177, 180.

Previous records

Cape Province, St Helena Island, Tristan da Cunha, St Paul and Amsterdam Islands.

Material

AMS	5a	1 ovig. ♀	2 juv.
	6a	6 ♀♀	
	6b	1 juv.	

ZOOGEOGRAPHICAL DISCUSSION

The total number of species of isopods from the St Paul and Amsterdam Islands, including past collections plus the present collection, is 43. To get the effective list of species on which zoogeographical conclusions may be based, the two undetermined species, viz. *Munna* sp., and the damaged tanaid, and

the four inadequately described species of Brocchi (1877) the types of which have been lost, viz. *Spheroma* (*sic*) *tuberculata*, *Cymodoce picta*, *Cymothoa gadorum*, and *Rocinela major*, must be removed. This leaves an effective total of thirty-seven species. These thirty-seven species may be divided into various categories to give some idea of the relationships of the fauna. When the thoroughness with which the present collection was made is considered, it is unlikely that any major components of the isopod fauna have been overlooked, thus zoogeographical conclusions may be made with a fair degree of confidence. The following lists reflect the various categories into which the fauna has been divided, and the percentage of the total number of species they constitute.

Species endemic to St Paul and Amsterdam Islands—10 species—27%

Munnogonium subtilis
Coulmannia unicornis
Cymodocella sapmeri
Dynamenella brunnea
Echinomunna uroventralis
Eisothistos crateris
Ianisera trepidus
Jaeropsis beuroisi
Panathura amstelodami
Paridotea nitida

Species with Antarctic, Subantarctic, and South American Affinities—7 species—18,9%

Antias dimorphus
Antias hispidus
Antias hofsteni
Caeciniropsis ectiformis
Cleantis granulosa
Jaeropsis paulensis
Munna nana

Species with widespread distribution—7 species—18,9%

Aega antillensis
Anatanais gracilis
Idotea metallica
Leptochelia savignyi
Limnoria quadripunctata
Lironeca raynaudii
Porcellio scaber

Species found only in southern Africa and St Paul and Amsterdam Islands—13 species—35,1% (*with southern African distribution*)

Aega monilis	Table Bay, East London
Cirolana rugicauda	Port Nolloth, St Helena Bay
Deto echinata	Rocky Point, S.W.A. to Knysna
Dynamenella dioxus	Lüderitzbucht to False Bay
Ianiroides angusta	False Bay
Ianiropsis palpalis	Lüderitzbucht to East London
Janira capensis	Lüderitzbucht to False Bay
Leptochelia barnardi	Table Bay, False Bay
Panathura serricauda	Lüderitzbucht to False Bay
Paridotea reticulata	Lüderitzbucht to False Bay
Parisocladus perforatus	Rocky Point, S.W.A. to East London
Stenetrium crassimanus	False Bay to Natal
Stenetrium saldanha	Saldanha Bay, False Bay, Still Bay

Endemism

The degree of certainty with which the endemism of an area can be described is obviously related to the degree to which surrounding areas have been sampled. As four of the endemics in the present list range in depth from 30 to 120 metres —a depth range not often well sampled, these cannot be regarded as endemics with any certainty. Nevertheless, the figure of 27 per cent agrees well with that for the fish of St Paul and Amsterdam Islands given by Briggs (1974) of 28 per cent.

Southern African/St Paul and Amsterdam species

Twelve of the thirteen species in this category are typical of the cold west coast of South Africa, several being known only from Lüderitzbucht to False Bay. Three species extend to East London or Durban on the east coast; of these, *Aega monilis* is a fish parasite, while the other two are asellote isopods with a predominantly subtidal distribution, and may be considered as within Stephenson's (1947) southern warm–temperate province stretching (*in senso stricto*) from Cape Agulhas to Algoa Bay.

Knox (1960) regards St Paul and Amsterdam as a separate cold-temperate province of the austral sea, not especially related to southern Africa. Briggs (1974: 151), however, considering seven of the ten non-endemic species of fish of these islands which also occur in southern Africa, regards St Paul and Amsterdam as more probably related to the 'Cape of Good Hope . . . within the southern Africa Warm-Temperate Region'. Stephenson, with a detailed knowledge of the intertidal of southern Africa, regarded the west coast of South Africa from about Cape Point to Tropical West Africa as a cold-temperate province. As twelve of the thirteen isopod species common to South Africa and St Paul–Amsterdam may be regarded as typical cold-temperate west coast

inhabitants, Briggs's view of a warm-temperate fauna is misleading, as is Knox's view of an unrelated cold-temperate fauna.

A more accurate view, supported by the isopods and the fish, is that the St Paul and Amsterdam Islands have a cold-temperate fauna, with a marked affinity to the cold-temperate west coast fauna of South Africa, but that a small warm-temperate component related to the warm-temperate south coast fauna of South Africa is also present. An example of this latter component is *Stenetrium crassimanus*, known from False Bay to Natal. Comparison of the sea-surface temperatures of the two areas gives further weight to this view. St Paul and Amsterdam have an average summer temperature of 17,5°C, and average winter temperature of 12,5°C (Wyrtki 1971; Briggs 1974), while on the west coast of South Africa the annual inshore temperature ranges from 10°–16°C (Division of Sea Fisheries Report *33*).

The presence of a large number of South African species amongst the isopod fauna of St Paul and Amsterdam as well as other organisms common to both areas, such as the portunid crab *Ovalipes trimaculatus* (Arnaud, Beurois & Noel 1972) and various algae including *Splachnidium rugosum* and the kelp *Macrocystis pyrifera* (Briggs 1974), may easily be explained by invoking the effect of the West Wind Drift, as noted by Briggs (1974: 150).

ACKNOWLEDGEMENTS

My sincere thanks are due to the following scientists and institutions for the help and hospitality shown me: Dr H.-E. Gruner of the Natural History Museum of the Humboldt University, East Berlin; Dr R. J. Lincoln of the British Museum (Natural History); and Dr G. Pretzmann of the Natural History Museum, Vienna.

I am grateful to Mr D. C. Lee of the South Australian Museum for the loan of Idoteid material.

My grateful thanks are due to Dr P. Arnaud, and Dr J. Beurois, and their colleagues of the Station Marine D'Endoume et Centre D'Oceanographie, Marseille, for making this collection available to me, and for providing information in the form of data, as well as reprints of early works.

I am very grateful to Dr T. E. Bowman of the Smithsonian Institution, Washington, D.C., and Dr G. A. Schultz of the Jersey City State College, for their critical reading of the manuscript, and for their many useful comments.

I wish to thank the Trustees of the South African Museum, and the Council for Scientific and Industrial Research, for a travel grant allowing me to visit several European museums.

REFERENCES

ANDRÉ, M. 1932. Crustacés recueillis par M. E. Aubert de la Rue aux Iles Kerguelen, Saint-Paul et de la Nouvelle-Amsterdam.—*Bull. Mus. natn. Hist. nat., Paris* (2) **4**: 174–181.

ARNAUD, P. M., BEUROIS, J. & NOEL, P. 1972. Portunidae et Grapsidae des Îles Saint Paul et Amsterdam, Océan Indien (Decapoda, Brachyura).—*Beaufortia* **20**: 7–14.

BARNARD, K. H. 1914. Contributions to the crustacean fauna of South Africa. I. Additions to the Marine Isopoda.—*Ann. S. Afr. Mus.* **10**: 197–230.

BARNARD, K. H. 1920. Contributions to the crustacean fauna of South Africa. VI. Further additions to the list of Marine Isopoda.—*Ann. S. Afr. Mus.* **17**: 319–438.

BARNARD, K. H. 1925*a*. Contributions to the crustacean fauna of South Africa. IX. Further additions to the list of Isopoda.—*Ann. S. Afr. Mus.* **20**: 381–412.

BARNARD, K. H. 1925*b*. A revision of the family Anthuridae (Crustacea Isopoda), with remarks on certain morphological peculiarities.—*J. Linn. Soc. Lond. (zool.)* **36**: 109–160.

BARNARD, K. H. 1932. Contributions to the crustacean fauna of South Africa. XI. Terrestrial Isopoda.—*Ann. S. Afr. Mus.* **30**: 179–388.

BARNARD, K. H. 1940. Contributions to the crustacean fauna of South Africa. XII. Further additions to the Tanaidacea, Isopoda, and Amphipoda together with keys for the identification of the hitherto recorded marine and fresh-water species.—*Ann. S. Afr. Mus.* **32**: 381–543.

BARNARD, K. H. 1955. Additions to the fauna list of South African Crustacea and Pycnogonida.—*Ann. S. Afr. Mus.* **43**: 1–107.

BARNARD, K. H. 1965. Isopoda and Amphipoda collected by the Gough Island Scientific Survey.—*Ann. S. Afr. Mus.* **48**: 195–210.

BOWMAN, T. E. & SCHULTZ, G. A. 1974. The isopod crustacean genus *Munnogonium* George and Strömberg, 1968 (Munnidae, Asellota).—*Proc. biol. Soc. Wash.* **87**: 265–272.

BRIGGS, J. C. 1974. *Marine Zoogeography*. New York: McGraw-Hill Book Company.

BROCCHI, G. 1877. Liste des crustacés isopodes provenant de l'île Saint-Paul et déposés dans les galeries du Muséum d'Histoire naturelle par MM Vélain et de Lisle.—Bull. Soc. *philomath. Paris* (6) **11**: 97–101.

BROWN, A. C. 1957. A revision of the genus *Leptochelia* (Crustacea: Tanaidacea) in southern African waters.—*Ann. Mag. nat. Hist.* (12) **10**: 401–408.

BUDDE-LUND, G. 1885. *Crustacea. Isopoda terrestria per familias et genera et species descripta. Hauniae.*

BUDDE-LUND, G. 1906. Die Landisopoden.—*Dt. Südpol.-Exped.* **9**: 69–92.

DAY, J. H., FIELD, J. G. & PENRITH, M. J. 1970. The benthic fauna and fishes of False Bay, South Africa.—*Trans. R. Soc. S. Afr.* **39**: 1–108.

EDWARDS, H. M. 1840. *Histoire Naturelle des Crustacés*. Paris: Libraire Encyclopédique de Roret.

GREEN, A. J. A. 1974. Oniscoidea (Terrestrial Isopoda). *In:* WILLIAMS, W. D., *ed. Biogeography and Ecology in Tasmania*: 229–249. The Hague: Junk.

HALE, H. M. 1924. Notes on Australian Crustacea. III.—*Trans. R. Soc. S. Austr.* **48**: 209–225.

HANSEN, H. J. 1890. Cirolanidae et familiae nonnullae propinquae Musei Hauniensis.—*K. danske Vidensk. Selsk. Skr.* **5**: 239–426.

HANSEN, H. J. 1905. On the propagation, structure, and classification of the family Sphaeromidae.—*Q. Jl microsc. Sci.* **49**: 69–135.

HELLER, C. 1861. Vörlaufiger Bericht über die während der Weltumseglung der k. k. Fregatte Novara gesammelten Crustaceen.—*Verh. zool.-bot. Ges. Wien.* **11**: 495–498.

HELLER, C. 1865. Crustaceen. *In: Reise der Oesterreichischen Fregatte Novara um die Erde. Zoologischer Theil.* **2** (8): 1–280. Vienna.

HOLTHUIS, L. B. 1949. The Isopoda and Tanaidacea of the Netherlands, including the description of a new species of *Limnoria*.—*Zool. Meded., Leiden* **30**: 163–190.

HODGSON, T. V. 1910. Crustacea IX. Isopoda. *In: National Antarctic Expedition. Natural History*. **5**: 1–77. London: Trustees of the British Museum.

KENSLEY, B. F. 1975. Five species of *Jaeropsis* from the southern Indian Ocean (Crustacea, Isopoda, Asellota).—*Ann. S. Afr. Mus.* **67**: 367–380.

KNOX, G. A. 1960. Littoral ecology and biogeography of the southern oceans.—*Proc. R. Soc.* (B) **152**: 577–624.

MENZIES, R. J. 1957. The marine borer family Limnoriidae (Crustacea, Isopoda). Part 1. Northern and Central America: Systematics, distribution and Ecology.—*Bull. mar. Sci. Gulf Caribb.* **7**: 101–200.

MENZIES, R. J. 1962. The Zoogeography, ecology, and systematics of the Chilean marine isopods.—*Acta Univ. lund.* (2) **57**: 1–162.

MENZIES, R. J. & FRANKENBERG, D. 1966. *Handbook on the common isopod Crustacea of Georgia*. Athens, Georgia: University of Georgia Press.

MENZIES, R. J. & MILLER, M. A. 1955. Marine Asellote isopods of the genus *Antias* with the description of a new species from New Zealand.—*Trans. R. Soc. N.Z.* **83**: 383–389.

MENZIES, R. J. & MOHR, J. L. 1952. The occurrence of the wood-boring crustacean *Limnoria* and the Nebaliacea in Morro Bay, California.—*Wasmann J. Biol.* **10**: 81–86.

MENZIES, R. J. & PETTIT, J. 1956. A new genus and species of marine asellote isopod *Caeciani-ropsis psammophila*, from California.—*Proc. U.S. natn. Mus.* **106**: 441–446.

NORDENSTAM, A. 1933. Marine Isopoda of the families Serolidae, Idotheidae, Pseudidotheidae, Arcturidae, Parasellidae, and Stenetriidae, mainly from the South Atlantic.—*Further zool. Results Swed. Antarct. Exped.* **3**: 1–284.

PANNING, A. 1924. Isopoda.—*Beitr. Kennt. land-u. Süsswasserfauna Dt.-SudwAfr.* **2**: 169–201.

PENRITH, M.-L. & KENSLEY, B. F. 1970*a*. The constitution of the intertidal fauna of rocky shores of South West Africa. Part 1. Lüderitzbucht.—*Cimbebasia* (A) **1**: 191–239.

PENRITH, M.-L. & KENSLEY, B. F. 1970*b*. The constitution of the fauna of rocky intertidal shores of South West Africa. Part 2. Rocky Point.—*Cimbebasia* (A) **1**: 243–268.

RICHARDSON, H. 1905. A monograph of the Isopods of North America.—*Bull. U.S. natn. Mus.* **54**: 1—727.

SCHULTZ, G. A. 1969. *How to know the marine isopod crustaceans.* Dubuque, Iowa: W. C. Brown.

SHEPPARD, E. M. 1957. Isopod Crustacea Part II. The Suborder Valvifera. Families: Idoteidae, Pseudidoteidae and Xenarcturidae Fam. N.—*'Discovery' Rep.* **29**: 143–189.

STEBBING, T. R. R. 1910. General catalogue of South African Crustacea.—*Ann. S. Afr. Mus.* **6**: 281–593.

STEPHENSEN, K. 1927. Crustacea from the Campbell and Auckland Islands.—*Vidensk. Meddr. dansk naturh. Foren.* **83**: 289–390.

STEPHENSON, T. A. 1947. The constitution of the intertidal fauna and flora of South Africa. III. —*Ann. Natal Mus.* **11**: 207–324.

VANDEL, A. 1945. La répartition géographique des Oniscoidea (Crustacea Isopodes terrestres). —*Bull. biol. Fr. Belg.* **79**: 221–272.

VANHÖFFEN, E. 1914. Die Isopoden der Deutschen südpolar-Expedition 1901–1903.—*Dt. Südpol.-Exped.* **15**: 447–598.

WOLFF, T. 1962. The systematics and biology of the bathyal and abyssal Isopoda Asellota.— *Galathea Rep.* **6**: 1–320.

WYRTKI, K., *ed.* 1971. *Oceanographic atlas of the International Indian Ocean Expedition.* Washington: National Science Foundation.