Material

	♀ *Overall length*	♂ *Overall length*	*Station*	*Depth (m)*
SAM.A10453	50 mm		A191	2745
	41 mm			
SAM.A10460	78 mm		A192	2708
	51 mm			
	41 mm			
SAM.A10569	43 mm		A193	2745
	36 mm			
SAM.A10487	64 mm		A315	2891–2965
	62 mm			
	53 mm			
SAM.A10475	65 mm	82 mm	A315	2745
	54 mm			
	41 mm			
	39 mm			
SAM.A10570	71 mm		A317	2708–3038
	67 mm			
SAM.A10501	52 mm		A317	2708–3038
	41 mm			
SAM.A10522	100 mm		A318	2525–2782
	38 mm			
SAM.A10520	94 mm		A318	2525–2782
SAM.A10533	101 mm		A319	2690–2727
	99 mm			
	85 mm			
SAM.A10568	75 mm		A322	2745

Stereomastis sculpta (Smith, 1882)

Pentacheles sculpta Smith, 1882: 23.
Polycheles sculpta: Stebbing, 1910: 377.
Stereomastis sculpta: Barnard, 1950: 572, fig. 105 d.

Previous records and distribution

Off Cape Point, 600 fms (1180 m), off Durban, 440 fms (865 m), Gibraltar, Canary Islands, East African coast, Mediterranean, East Indies, west coast of North America.

Material

SAM.A10443, ♀♀, overall length 92 mm, 87 mm, ♂, 69 mm. St. A189, 1098 fms.

Stereomastis nana (Smith, 1884)

Pentacheles nanus Smith, 1884: 359.
Polycheles nana: Stebbing, 1910: 377.
Stereomastis nana: Barnard, 1950: 573, fig. 105 e.

Previous records

Off Cape Point, 800 fms (1570 m), 1200 fms (2360 m), east and west coasts of North America, Gulf of Panama.

Material

SAM.A10559, ♀♀, overall length 55 mm, 47 mm. St.A189, 1098 fms.

Remarks

This species is very similar to the preceding one, the main differences being in the median carapace spines (2, 1, 2, 1—2, 2, 2 in *sculpta*, 2, 1, 1, 2, 1—2, 2, 2, in *nana*), the spinous structure of the sixth abdominal keel in *nana* and the slightly more spinous condition of the posterior portion of the carapace in *nana*. With reference to this, it is interesting to note that in two of the three specimens of *sculpta* in this collection there are traces of spines on the raised keel of abdominal segment six. The possibility exists that *nana* is a juvenile form of *sculpta* and that some of the spines are lost with development.

Willemoesia bona-spei n.sp.

Figs 4, 5

Description

Carapace one and a half times longer than broad, lateral margins of posterior carapace parallel, anterior margins converging. Antero-lateral angle formed by large spine (largest on carapace). Frontal margin emarginate. Two prominent spines above antennules, between which a prominent median spine (latter not marginal but just posterior to margin) projecting almost vertically from carapace. Medio-dorsal carina spine formula variable, three to five single spines, one pair and final single spine anterior to cervical groove. (1.1.1.1.2.1.C.2, . . .). Prominent posterior median carina in some specimens with pair of small spines just posterior to cervical groove. No regular arrangement posterior to this. Lateral branchial spine formula variable (6–9, 5–8, 18–30). Whole carapace covered with close-set tiny spinules. Latter scattered over orbito-gastric and post-median ridges. Supra-branchial ridge with about eight tiny spines. Anterior carapace margin and antero-lateral margins fringed with short hairs. Basal joints of antennules produced mesially into two wing-like processes, furnished with eight to ten small spines. Second and third antennular joints together equal in length to 1st joint. Antennal peduncle slightly longer than antennular peduncle. Mandible with thirteen to fourteen heavily chitinized teeth. Chelipeds almost three times longer than carapace. Finger of chela with spine at right angles to it, situated in distal half of finger. Latter and thumb equal in length to or slightly longer than palm. Latter with spines along both edges, and along outer edge of finger. Carpus two-thirds length of chela with spines along outer edge. Merus equal in length to chela, with inner margin spined.

Abdomen (excluding telson) three quarters carapace length. First five segments dorsally carinate, first four each with single small forwardly-directed tooth. Sixth segment dorsally smooth. Postero-lateral angle of sixth segment with small lobe. Telson triangular, apically acute, equal in length to posterior three and a half segments. Exopod of uropod subcircular, endopod elongate-

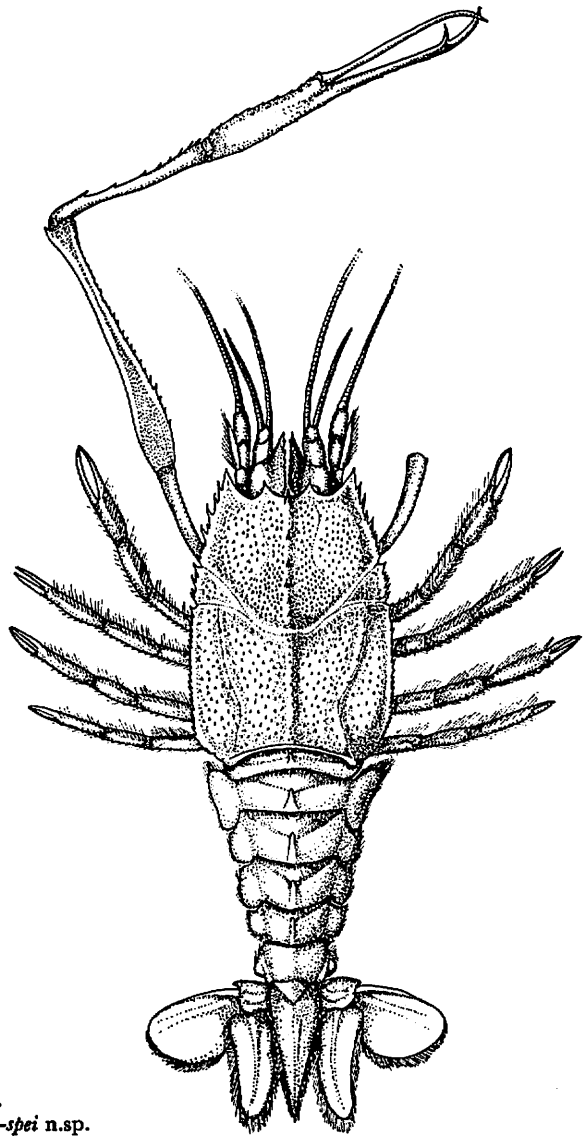

FIG. 4.
Willemoesia bona-spei n.sp.

oval, both fringed with setae. Pleuron of second segment almost circular, twice as broad as that of third. Pleurae of fifth and sixth segments ventrally pointed, anterior three ventrally rounded.

Material

	♀ *Overall length*	♂ *Overall length*	*Station*	*Depth (m)*	*Spine formulae* *Median*	*Lateral*
SAM.A10473 ..		108 mm	A193	2745	11121/2..	9/7/27
		74 mm			111121/...	9/6/27

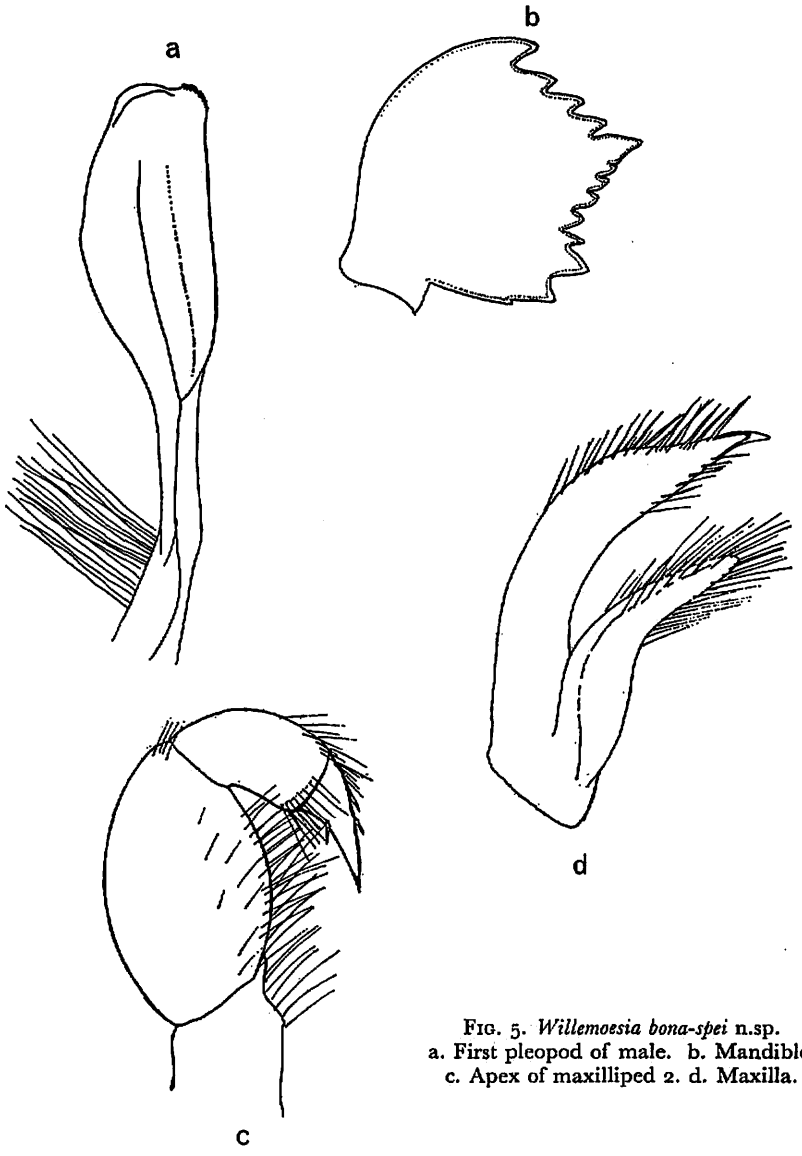

FIG. 5. *Willemoesia bona-spei* n.sp.
a. First pleopod of male. b. Mandible.
c. Apex of maxilliped 2. d. Maxilla.

	♀ *Overall length*	♂ *Overall length*	*Station*	*Depth (m)*	*Spine formulae Median*	*Lateral*
SAM.A10509 ..	87 mm		A317	2708–3038	111121/2..	8/7/30
		113 mm			11121/2...	7/5/27
		108 mm			111211/...	9/7/21
SAM.A10543 ..	109 mm		A322	2745	11121/....	6/8/30
(Holotype)	(ovig.)					
SAM.A12637 ..		107 mm			11121/2...	9/7/18
		94 mm			1111121/2.	9/5/25

Remarks

From an assessment of the spine formulae of the present species, it would seem that it is closely related to several described species, such as *leptodactyla* (Willemoes-Suhm), *pacifica* Sund, or *challengeri* Sund. Specific delimitation in this genus is very difficult, particularly as the number of specimens available is very low. Both *leptodactyla* and *challengeri* have a thick 'fur', unlike the present species, the carapace of which is covered with tiny spines. The present species resembles Bate's 1888 plate 19 C (a specimen captured off the coast of Chile and named *pacificus* by Sund in 1920) both in the shape of the frontal margin, and in the presence of teeth on the supra-branchial ridge. This species differs from *pacificus* and indeed from all the described species in that the posterior portion of the median dorsal carina does not have any regular spine formula, but simply has a scattering of the tiny spines as found on the rest of the carapace.

Sund's *pacificus* has the orbital sinus more angular than the present species and the most anterior median spine is not marginal. In lateral view, the present species is only feebly arched, while in *pacificus* 'the carapace, when seen in profile, is strongly arched' (Sund, 1920). The present specimens are thus described as a new species, but every likelihood exists that with more material becoming available, it will be found to be synonymous with an already described species.

Eryoneicus spinoculatus Bouvier, 1905

Fig. 6

Eryoneicus spinoculatus Bouvier, 1905: 480. Bernard, 1953: 34. Belloc & Lorillou, 1961: 10.

Description

Carapace longer than wide, unarmed except for carinal spines. Rostrum a pair of small spines. Median dorsal carina spine formula—1,1,2,'1,1,C,2,2,'1,2, ('1 indicates a blunt spine). Lateral carina spine formula 6, 3, 7. Posterior carapace ridge, between median and lateral carinae, with ten or eleven spines. Orbito-cervical line with three small spines. Frontal margin rounded. First abdominal segment with two medio-dorsal spines, segments two to five with three medio-dorsal spines. Sixth with single posterior spine, anterior portion smooth. Single lateral spine on each abdominal tergum. Single spine on pleurae two to five. Pleuron of second segment twice as wide as that of third. Ventral margins of pleurae denticulate. Telson with two median spines, seven or eight lateral spines. First pleopods relatively undeveloped.

Material

SAM.A10448, one specimen, carapace length 24 mm, width 20 mm, overall length 44 mm. St. A190, 2269 m.

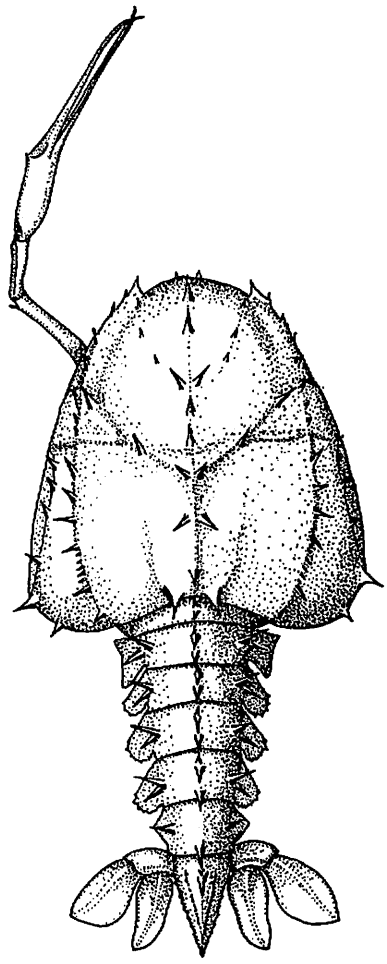

FIG. 6.
Eryoneicus spinoculatus Bouvier.

Remarks

From the median dorsal spine formula, it would seem that this specimen belongs to the *spinoculatus* group (Bernard, 1953). Using his key to the group, one arrives at *E. spinoculatus* var. *hibernicus* (Selbie), distinguished from *spinoculatus s.s.* by the lack of anterior spines on the sixth abdominal tergum. This variety has been recorded from 2100 metres off the coast of Ireland, from the north Atlantic and from the waters of Greenland.

PENAEIDEA

Family **Penaeidae**

Plesiopenaeus nitidus Barnard, 1947

Plesiopenaeus nitidus Barnard, 1947: 383. 1950: 622, fig. 116. Grindley & Penrith, 1965: 280.

Previous records

Off Cape Point, 475–630 fms (930–1240 m), south-west Indian Ocean.

Material

	♀ *Carapace length*	♂ *Carapace length*	*Station*	*Depth (m)*
SAM.A10441	17·2 mm		A189	1098
SAM.A10442	27·2 mm		A189	1098
	31·0 mm			
	31·6 mm			
		27·5 mm		
		22·7 mm		

Haliporus villosus Alcock & Anderson, 1874

Figs 7, 8

Haliporus villosus Alcock & Anderson, 1894: 146. Alcock, 1900: pl. 26, fig. 1.
Hymenopenaeus villosus: Burkenroad, 1936: 105.

Description

Integument soft and glabrous; carapace torn in places, rostrum missing. Carapace dorsally carinate, strongly arched, with distinct notch one third of carapace length from base of rostrum, formed by cervical groove. Mid-dorsal carina flattened for three millimetres just posterior to cervical notch. Eight dorsal teeth between cervical notch and rostral base. Strong post-antennal carinate spine present. Post-antennal carina meets obliquely descending cervical

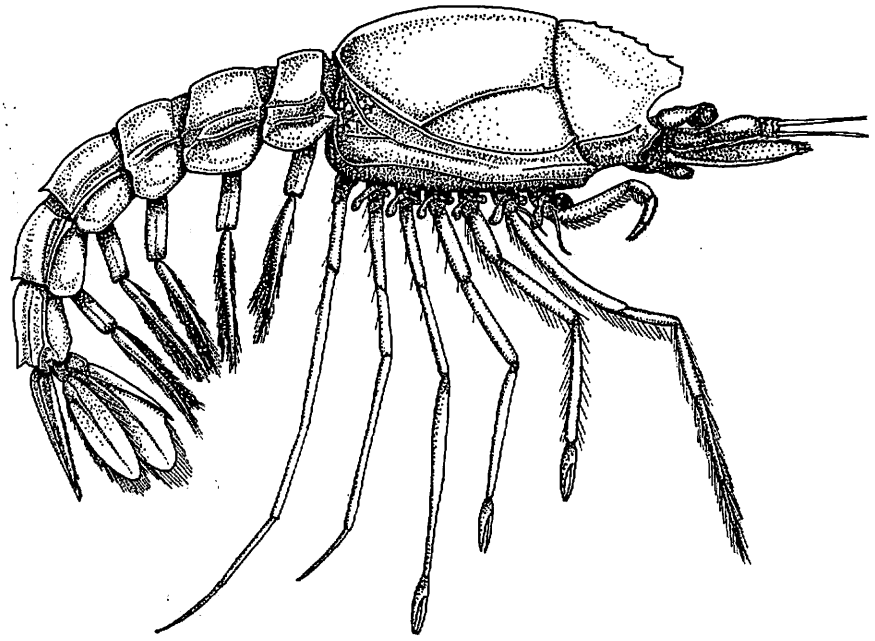

FIG. 7. *Haliporus villosus* Alcock & Anderson.

Previous record

Off Cape Point, 360–1014 fms (700–1990 m).

Material

SAM.A10577, ♂, carapace length 8·3 mm; ♀, carapace length 11·2 mm. St. A.321, 3239–3440 m.

Gennadas kempi Stebbing, 1914

Gennadas kempi Stebbing, 1914: 283. Calman, 1925: 4. Balss, 1927: 260. Barnard, 1950: 630, fig. 118 a–d.

Previous records

Off Cape Point, 1000 fms (1970 m), south Atlantic.

Material

SAM.A10575, ♂, carapace length 8·5 mm. St. A321, 3239–3440 m.
SAM.A10576, ♂♂, carapace length 9 mm, 9 mm. St. A190, 1240 fms.

Gennadas bouvieri Kemp, 1909

Gennadas bowieri Kemp, 1909: 727. Burkenroad, 1936: 80. Tirmizi, 1960: 360.
Amalopenaeus alcocki (*non* Kemp) Balss, 1935: 266.
Amalopenaeus bouvieri: Balss, 1925: 267.

Description

Rostrum of typical *Gennadas* type. Carapace carinate throughout its length. Thelycum of female with eighth thoracic sternite bearing a pair of slightly elongate antero-lateral projections, with setose tips.

Previous records and distribution

Arabian Sea, Zanzibar, eastern Pacific, Bahamas, Bermuda, Caribbean, south Atlantic (Ascension).

Material

SAM.A10578, ♀, carapace length 8·3 mm. St. A321, 3239–3440 m.

Remarks

On lifting the thelycal plate between the bases of the third and fourth pereiopods, a pair of brown spermatophores could be seen. Each spermatophore has a rounded swollen base and a curved neck ending in a hook which is inserted into the spermatheca and makes removal difficult.

Apart from Balss's record of a male from the Ascension Island region, this species has not been found in the south Atlantic. This is thus a new record for the South African region.

Family **Sergestidae**

Genus SERGESTES Milne Edwards

Up to and including 1950, the following species of *Sergestes* had been recorded from South African waters: *articus* Kröyer, *potens* Burkenroad (=*phorcus*

groove at hepatic spine, then runs posteriorly upward to posterior midline of carapace. A carina, anteriorly with two spines, stretches from the lateral midpoint of cervical groove, to lateral midpoint of post-antennal carina. No antennal spine but a blunt projection on carapace margin. Branchiostegal spine minute. Pterygostomial spine much larger. Pterygostomial carina stretches to below cervical groove. Another keel, ventral to pterygostomial carina, extends length of carapace to posterior margin. Several smaller branching keels in posterior region of carapace, meeting in posterior midline. Eyes slightly wider than eyestalks, reaching to end of first antennular peduncle joint. Antennular peduncle two and a half times length of eyestalk, basal joint with small spine on outer distal angle. Tiny tubercle on inner margin of eyestalk. Second joint of antennal peduncle with strong outwardly flared spine, just anterior to pterygostomial spine. Antennal scale broad, flexible, almost foliaceous, fringed with setae, tiny spine on outer margin. All mouthparts fringed with setae. Exopod of maxilliped 2 twice length of exopod of maxilliped 3. Maxillipeds 2 and 3, and pereiopods 1–4 with leaf-like epipods. Epipod of maxilliped 2 also has podobranch, maxilliped 3 with rudimentary podobranch. Epipods of pereiopods without podobranchs. Maxilliped 3 and pereiopod 4 reaching equally far forward, former with slender dactyl, propodus and carpus of almost equal length. Pereiopods long, fairly stout, 1 to 3 chelate. Fifth pereiopod longest, ending in very slender dactyl. All abdominal segments dorsally carinate, fourth, fifth, and sixth ending in slight raised spines. Each abdominal segment with two lateral ridges, latter meeting on posterior margin of each segment. Pleopods large, with long setiferous endo- and exopods. Telson apically acute, armed with four small lateral spines. Uropods almost foliaceous, setiferous, endopod slightly shorter than exopod. Latter with marginal tooth some distance from apex.

Previous records

Presumably from the Indian region (the paper containing the original description is not available in South Africa).

Material

SAM.A10461, ♀, carapace length 58·5 mm, overall length 168 mm. St. A192, 2798 m.

Remarks

This is a new record for the South African region. The species has apparently not been collected since it was recorded by the *Investigator* in 1894. The only difference between the present specimen and the holotype is that in the latter the integument is covered with short fine hairs, while the former has a glabrous integument.

Gennadas gilchristi Calman, 1925

Gennadas gilchristi Calman, 1925: 6. Barnard, 1950: 633, fig. 118 g, h.
Amalopenaeus elegans (*non* Smith) Stebbing, 1917: 31.

Previous record

Off Cape Point, 360–1014 fms (700–1990 m).

Material

SAM.A10577, ♂, carapace length 8·3 mm; ♀, carapace length 11·2 mm. St. A.321, 3239–3440 m.

Gennadas kempi Stebbing, 1914

Gennadas kempi Stebbing, 1914: 283. Calman, 1925: 4. Balss, 1927: 260. Barnard, 1950: 630, fig. 118 a–d.

Previous records

Off Cape Point, 1000 fms (1970 m), south Atlantic.

Material

SAM.A10575, ♂, carapace length 8·5 mm. St. A321, 3239–3440 m.
SAM.A10576, ♂♂, carapace length 9 mm, 9 mm. St. A190, 1240 fms.

Gennadas bouvieri Kemp, 1909

Gennadas bouvieri Kemp, 1909: 727. Burkenroad, 1936: 80. Tirmizi, 1960: 360.
Amalopenaeus alcocki (*non* Kemp) Balss, 1935: 266.
Amalopenaeus bouvieri: Balss, 1925: 267.

Description

Rostrum of typical *Gennadas* type. Carapace carinate throughout its length. Thelycum of female with eighth thoracic sternite bearing a pair of slightly elongate antero-lateral projections, with setose tips.

Previous records and distribution

Arabian Sea, Zanzibar, eastern Pacific, Bahamas, Bermuda, Caribbean, south Atlantic (Ascension).

Material

SAM.A10578, ♀, carapace length 8·3 mm. St. A321, 3239–3440 m.

Remarks

On lifting the thelycal plate between the bases of the third and fourth pereiopods, a pair of brown spermatophores could be seen. Each spermatophore has a rounded swollen base and a curved neck ending in a hook which is inserted into the spermatheca and makes removal difficult.

Apart from Balss's record of a male from the Ascension Island region, this species has not been found in the south Atlantic. This is thus a new record for the South African region.

Family **Sergestidae**

Genus SERGESTES Milne Edwards

Up to and including 1950, the following species of *Sergestes* had been recorded from South African waters: *articus* Kröyer, *potens* Burkenroad (=*phorcus*

Faxon), *prehensilis* Bate (= *gloriosus* Stebbing), *armatus* Kröyer, *splendens* Sund.

The 1960 midwater collection of Decapoda yielded the following species: *potens* Burkenroad, *prehensilis* Bate, *regalis* Gordon, *armatus* Kröyer, *atlanticus* Milne Edwards, *sargassi* Ortmann, *corniculum* Kröyer, *splendens* Sund.

The present deep-water collection has yielded *regalis* Gordon, *armatus* Kröyer, *prehensilis* Bate, *corniculum* Kröyer.

Burkenroad (1937), in describing the Sergestidae of the Templeton Crocker Expedition to California, noted that only some species of *Sergestes* had specialized organs in the gastrohepatic region, first noted by Pesta in 1918. It is thought that these 'organs of Pesta' have a luminescent function. Burkenroad also noted that those species of *Sergestes* which lacked organs of Pesta invariably possessed dermal photophores, and went further to suggest that possibly the genus could be split into two natural groups. This has been done by Yaldwyn (1957). Those species possessing organs of Pesta fall into the subgenus *Sergestes*, while those possessing photophores fall into the subgenus *Sergia*. This classification has been followed in this work. In life, the organs of Pesta have a conspicuous colouring of red and blue, but in preserved material these organs, which are internal and difficult to see without damage to the specimen, become opaque-white.

Further division of the subgenus *Sergia* can be based on the type of photophore, whether it posses a translucent lens-like structure or whether merely an opaque-white dermal spot.

Sergestes (*Sergestes*) *atlanticus* Milne Edwards, 1830

Figs 9 d, 10 c, 11 d

Sergestes atlanticus Milne Edwards, 1830: 346. Bate, 1888: 389. Hansen, 1896: 951. 1903: 58. 1922: 41.
Sergestes (*Sergestes*) *atlanticus*: Yaldwyn, 1957: 8.

Description

Rostrum an apically acute spine. Prominent supra-orbital spine; well-developed hepatic spine. Feeble cervical groove midway along carapace. Slight gastrohepatic groove and suprabranchial ridge. Eyes wider than the eyestalk. Eyestalk half length of first antennular segment. Maxilliped 3 equals pereiopod 3 in length. Two distal segments of pereiopod 5 setose on only one margin. No dermal photophores.

Petasma of male short and stumpy. Processus uncifer not apically hooked. Processus ventralis apically acute, broadly triangular in shape. The lobus terminalis a short lobe below the oblong-oval lobus inermis. Lobus connectens and lobus armatus short; apically blunt lobes.

Previous records and distribution

North Atlantic, off South American coast, off Japan, Fiji, south of Australia.

Material

SAM.A12529, ♂ carapace length 27·9 mm. IK. St. 6, west of Cape Town; caught 200 metres in a depth of water 1600 metres.

Remarks

This appears to be the first record from South African waters of this species.

Sergestes (*Sergestes*) *armatus* Kröyer, 1855

Sergestes armatus: Hansen, 1922: 174. Calman, 1925: 26. Barnard, 1950: 643, fig. 120 m–p.
Sergestes (*Sergestes*) *armatus:* Yaldwyn, 1957: 8.

Material

SAM.A10528, ♀ carapace length ± 17 mm. St. A318, 2525–2782 m.
SAM.A10532, ♀ carapace length 11·6 mm. St. A.319, 2690–2727 m.

Remarks

The most useful diagnostic feature of this species is the very obvious and well-developed third maxilliped, which is longer and stouter than the longest pereiopod. This feature is also found in *Sergestes sargassi* to some extent, but that species can easily be distinguished by the two distal segments of the fifth pereiopod which have setae on only one margin in *armatus*.

Previous records and distribution

Table Bay, 300 fms (590 m), Cape Point, 310 fms (600 m), north and south Atlantic, off Agulhas, off Natal coast, south-west Indian Ocean, South Australia, Mediterranean.

Sergestes (*Sergestes*) *sargassi* Ortmann, 1893
Figs 9 c, 10 d, 11 c

Sergestes sargassi Ortmann, 1893: 34. Hansen, 1922: 148.
Sergestes (*Sergestes*) *sargassi:* Yaldwyn, 1957: 8.

Description

Rostrum short, anterior margin almost vertical, topped by a short, sharp, horizontal spine. Carapace with well-defined cervical groove, prominent supra-branchial ridge, distinct gastrohepatic groove, minute supra-orbital and hepatic spines. Eyestalk twice as long as eye, latter slightly wider than the stalk. Eyestalk reaching half-way along first joint of antennular peduncle. Maxilliped 3 stouter and longer than the pereiopods, two distal segments with internal margins having comb-like rows of bristles. Pereiopod 3 longest, reaching slightly beyond the antennular peduncle. Pereiopod 4 flattened with long setae on distal segments. Pereiopod 5 about half length of fourth, two distal segments setose on both margins. No dermal photophores. Petasma lobes generally elongate, possessing lobus inermis (a small lobe on the lobus terminalis), stout processus ventralis, and smaller, thinner lobus armatus. Inner surface of processus ventralis armed with five stellate spines, followed by a marginal row of hooks, ending in two slightly larger apical hooks.

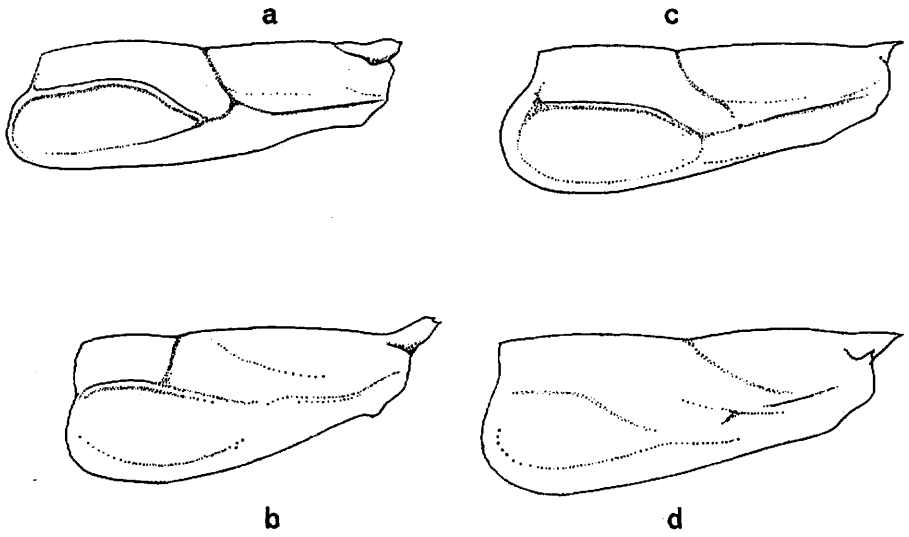

FIG. 9.
a. *Sergestes corniculum* Kröyer. Carapace. b. *Sergestes regalis* Gordon. Carapace. c. *Sergestes sargassi* Ortmann. Carapace. d. *Sergestes atlanticus* Milne Edwards. Carapace.

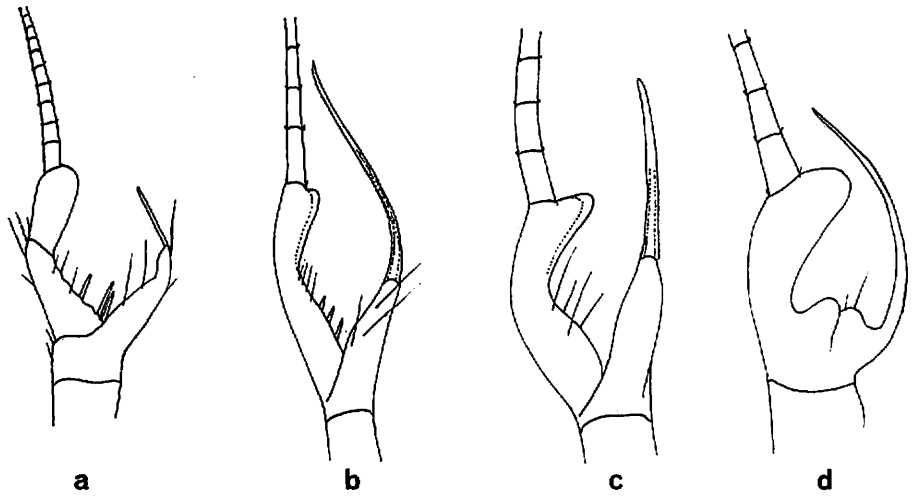

FIG. 10.
a. *Sergestes regalis* Gordon. Second ramus of antennule of male. b. *Sergestes corniculum* Kröyer. Second ramus of antennule of male. c. *Sergestes atlanticus* Milne Edwards. Second ramus of antennule of male. d. *Sergestes sargassi* Ortmann. Second ramus of antennule of male.

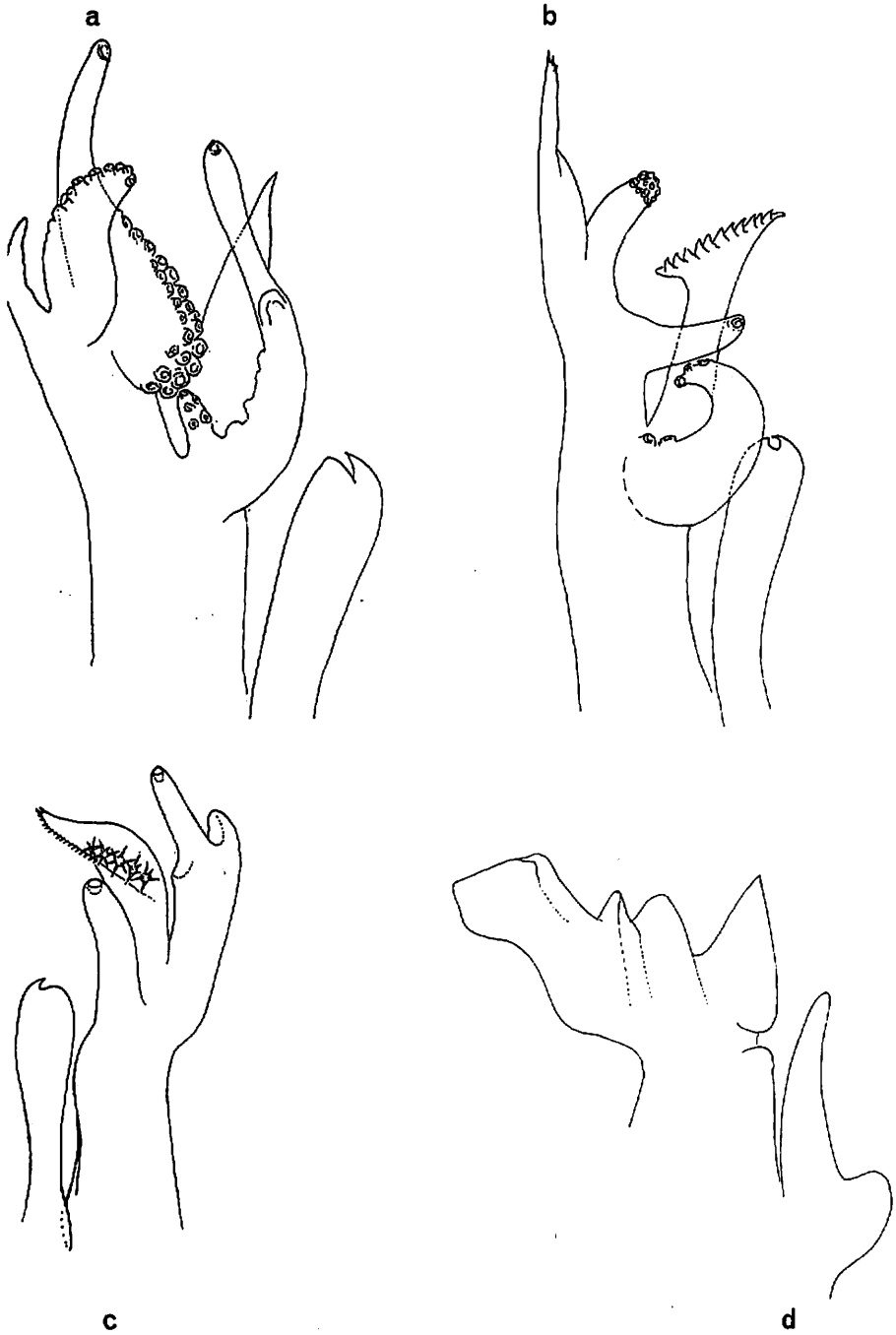

FIG. 11.
a. *Sergestes regalis* Gordon. Petasma. b. *Sergestes corniculum* Kröyer. Petasma. c. *Sergestes sargassi* Ortmann. Petasma. d. *Sergestes atlanticus* Milne Edwards. Petasma.

Distribution

Off Madeira, Azores, Sargassum Sea.

Material

SAM.A12528, ♂, carapace length 8 mm, overall length 27 mm, IK St. 6, west of Cape Town caught at 200 metres in a depth of water of 1600 metres.

Remarks

It is remarkable that, like *Sergestes atlanticus*, only one specimen of this species was taken from all the hauls containing sergestids. This is the first record of this species from the South African region.

Sergestes (*Sergestes*) *corniculum* Kröyer, 1855

Figs 9 a, 10 b, 11 b

Sergestes corniculum Kröyer, 1855: 22. Pesta, 1918. Burkenroad, 1937: 316. Hansen, 1922: 126. *Sergestes* (*Sergestes*) *corniculum:* Yaldwyn, 1957: 7.

Description

Rostrum with single acute apical spine, flanked by well-developed supra-orbital ridges, very seldom having a minute spine. Well-defined cervical groove about half-way along carapace. At base of cervical groove, a prominent ridge runs anteriorly to eye. Two well-defined ridges in the branchial region. A minute hepatic spine is sometimes present, more usually a blunt knob-like protuberance. Eye prominent, black, wider than the eye-stalk. Tiny tubercle on inner side of stalk, just posterior to eye. Eyestalk reaching half-way along first antennular peduncle segment. All pereiopods laterally compressed. Second and third pereiopods equally long and slender. Fifth pair about half the length of fourth. Two distal segments of pereiopod 5 setose on both margins. No dermal photophores. Petasma of male with processus ventralis distally expanded, having eight to ten papilla-like protuberances. Lobus armatus stout, curved. Lobus connectens small, lobus terminalis apically blunt; lobus inermis longest, reaching furthest distally, apically acute, ending in two or three spines.

Previous records and distribution

Mediterranean, north Atlantic, off Durban, Agulhas, south-west Indian Ocean, off Cape Point.

Material

SAM.A10502, ♂, carapace length 15 mm. St. A317, 2708–3038 m.
SAM.A10556, ♀, carapace length 13 mm. St. A321, 3239–3440 m.
SAM.A10571, ♀, carapace length 14 mm. St. A321, 3239–3440 m.

Remarks

This appears to be the first record of this species from South African waters. It appears to be plentiful, occurring at most of the Isaacs-Kidd midwater stations in addition to the 1959 collection, in depths ranging from 200 metres to about 3700 metres.

Sergestes (*Sergia*) *regalis* Gordon, 1939
Figs 9 b, 10 a, 11 a

Sergestes regalis Gordon, 1939: 498.
Sergestes (*Sergia*) *regalis:* Yaldwyn, 1957: 9.

Description

Rostrum apically bifid. Carapace with well-defined supra-branchial ridge, with a less well-defined ridge ventral to the former. Cervical groove in posterior third of the carapace. Slight groove in antero-lateral third of carapace. Eye prominent, eyestalk two-thirds the length of first antennular peduncle segment. Pereiopods 1–3 slender, third longest, second and third chelate, with stiff red bristles. Pereiopods 4 and 5 shorter, flattened, fringed with long setae. Sixth abdominal segment ends in a spinule, telson medially grooved. Photophores of the 'opaque spot' type, difficult to detect. A variable number of photophores on the merus of the third pereiopod, usually about ten. Petasma of male with lobus connectens longer than lobus terminalis; lobus armatus and lobus connectens ending in retracted hooks, lobus armatus longer than processus ventralis.

Previous records and distribution

Mid south Atlantic, off Durban, south-west Indian Ocean.

Material

SAM.A10574, ♀, carapace length 26 mm, abdominal length 44 mm. St. A192, 2708 m.

Remarks

Only one large female was taken in this collection, but several more specimens were obtained from the Isaacs-Kidd midwater collection. This is the first record of the species from the South African region.

Sergestes (*Sergia*) *prehensilis* Bate, 1888

Sergestes prehensilis Bate, 1888: 193. Gordon, 1935: 314.
Sergestes (*Sergia*) *prehensilis:* Yaldwyn, 1957: 9.
Sergestes gloriosus Stebbing, 1905: 84. 1910: 38. Barnard, 1950: 642, fig. 120 h–j.

Description

Rostrum apically acute, sometimes a small denticle on the upper margin; indistinct supra-orbital ridge present, no supra-orbital spine. No hepatic spine but a blunt knob-like protuberance. Dermal photophores of the lens-like type.

Previous records and distribution

Off Sandy Point, 800 fms (1570 m), off Durban, 260 fms (510 m), East London region, Agulhas, south-west Indian Ocean, Japan.

Material

	♂ *Carapace length*	♀ *Carapace length*	*Station*	*Depth (m)*
SAM.A10483	12 mm		A315	2891–2965
SAM.A10513		12·4 mm	A317	2708–3038
SAM.A10516		11·0 mm	A318	2525–2782
SAM.A10553		11·8 mm	A321	3239–3440

Remarks

This species appears to be the most plentiful sergestid in South African waters. It was obtained at all the Isaacs-Kidd midwater stations in large quantities. It does not appear to be very plentiful in the hauls from the greater depths of the 1959 collection.

CARIDEA

Family **Oplophoridae**

Systellaspis debilis (Milne Edwards, 1881)

Systellaspis debilis: Chace, 1940: 181. Barnard, 1950: 663, fig. 124 a. Grindley & Penrith, 1965: 281.

Previous records and distribution

Off Cape Point, 1500 fms (2950 m), off Natal, north and west Atlantic, Indo-Pacific.

Material	♀ *Carapace length*	♂ *Carapace length*	*Station*	*Depth (m)*
SAM.A10444		10·2 mm	A189	1098
SAM.A10455	12 mm		A191	2745
SAM.A10494		11·0 mm	A316	3148–3257
SAM.A10495	13 mm (ovig.)		A316	3148–3257
SAM.A10544	12 mm		A322	2745

Remarks

The carapace length of ovigerous females varies from 12 mm to 14 mm in the Isaacs-Kidd material as well as the present collection. Egg size is 3–3 ·5 mm.

Hymenodora glacialis (Buchholz, 1874)

Hymenodora glacialis: Kemp, 1910: 72. Calman, 1925: 15. Barnard, 1950: 665, fig. 124 b.

Description

Number of rostral spines varying from three to six. Eyes very feebly pigmented, narrower than eyestalk. Telson broken in all the specimens.

Previous records and distribution

Off Cape Point, 1500 fms (2950 m), north Atlantic, west coast of Ireland, 1150 fms (2260 m), north and east Pacific.

Material	♀ *Carapace length*	♂ *Carapace length*	*Station*	*Depth (m)*
SAM.A10563	11·0 mm		A190	2269
SAM.A10562		13·5 mm	A190	2708
SAM.A10566		15·0 mm	A192	2708
SAM.A10513	9·6 mm 12·0 mm		A317	2708–3038

Notostomus westergreni Faxon, 1893

Notostomus westergreni Faxon, 1893: 208. 1895: 171. Stebbing, 1905: 110. 1910: 395. Chace, 1940: 171.
Notostomus auriculatus Kemp (in MS) Barnard, 1950: 670, fig. 124 b, i.

Previous records and distribution

Off Cape Point, 800 fms (1570 m), off coast of Ecuador, off Bermuda, 900 fms (1770 m) off Keeling Islands, Indian Ocean.

Material

SAM.A10517, ♀, carapace length 38·6 mm, overall length (excluding rostrum), 97·5 mm. St. A318, 2525–2782 m (rostrum missing).

SAM.A12563, ♂, carapace length 42 mm, overall length (excluding rostrum), 90 mm, IK. St. 14, caught at 500 metres in a depth of 2000 metres.

Remarks

Stebbing (1905) noted that the specimen from Cape Point was perhaps a species other than *westergreni*, as it had a strong posterior tooth on the sixth abdominal segment. According to Barnard (1950), Kemp saw this specimen and named it *auriculatus* in MS.; this MS. could not be traced. Comparison of the present specimens and Stebbing's specimen with the original description of *westergreni* make it seem probable that all three specimens belong to this species. Although Faxon does not mention a spine on the sixth abdominal segment, the colour plate illustration (pl. F) shows one. Chace, 1940, also notes that the specimen of *westergreni* in the U.S. National Museum possesses a tooth on the sixth segment. There are minor variations in all the specimens. The lateral carina of the rostrum curves downward in Stebbing's specimen, while the above specimens are as in Faxon's plate, ending horizontally in the gastric region. The asymmetry of the antennal scales in Stebbing's specimen is almost certainly abnormal. The present specimens agree with Faxon's sketch; the outer apical spine extends some way past the apex of the scale and there is no asymmetry. The length of the rostral spines also seems to vary, but as these are very brittle, this variation may have no specific importance. Until further specimens are available for comparison the extent of variation of the species will remain unknown, and the name *westergreni* should be retained.

Acanthephyra haeckelii (Von Martens, 1868)

Ephyra haeckelii Von Martens, 1868: 54.
Acanthephyra haeckelii: Kemp, 1939: 575. Chace, 1940: 140. Barnard, 1950: 668. Grindley & Penrith, 1965: 280.

Previous records and distribution

Off Cape Point, 900 fms (1770 m), south-west Indian Ocean, north Atlantic, south Atlantic, Mediterranean, south Pacific.

Material	♀ *Carapace length*	♂ *Carapace length*	*Station*	*Depth (m)*	*Telson spines*
SAM.A10536	20·0 mm		A319	2690–2727	10
SAM.A10553		15·0 mm	A321	3239–3440	10
SAM.A10452	16·5 mm		A190	2269	9
SAM.A10439	11·5 mm		A189	1098	9

Acanthephyra quadrispinosa Kemp, 1939

Acanthephyra quadrispinosa Kemp, 1939: 576. Barnard, 1950: 668, fig. 124 g. Grindley & Penrith, 1965: 280.
Acanthephyra batei (*non* Faxon) Stebbing, 1905: 107.

Previous records and distribution

Off Cape Point, 700–1800 fms (1380–3540 m), off Natal, 820 fms (1610 m), south-east of Agulhas, south-west Indian Ocean, Indo-Pacific.

Material	♀ *Carapace length*	♂ *Carapace length*	*Station*	*Depth (m)*
SAM.A10561	15·5 mm 9·5 mm		A321	3239–3440
SAM.A10560	14·0 mm	17·0 mm	A319	2690–2727
SAM.A10458	15·0 mm (ovig.)	11·0 mm	A192	2708

Carapace lengths of ovigerous ♀♀ (from IK material): 14·0 mm, 14·3 mm, 15·0 mm, 15·5 mm, 17·6 mm, 18·4 mm, 19·3 mm.

Acanthephyra gracilipes Chace, 1940

Figs 12, 14 a

Acanthephyra gracilipes Chace, 1940: 149. Sivertsen & Holthuis, 1956: 6.

Description

Integument soft, thin; the specimen somewhat damaged. Eyestalk shorter than rostrum, widest at distal end. Small blunt tubercle on inner angle of stalk, just behind eye. Rostrum acutely triangular, with six dorsal teeth and no ventral teeth, reaching end of second joint of antennular peduncle. Dorsal carina ends before reaching the cervical groove. Tiny antennal spine present, also a slightly larger branchiostegal spine, unsupported by a keel. Distinct ridge-like keel above branchial region, stretching from hepatic region almost to the posterior margin. First two abdominal segments dorsally smooth, last four segments dorsally carinate, ending in short spines (spines of fifth segment broken). Distal portion of telson missing. Endopod of uropod equal in length to the sixth abdominal segment. Pereiopods long and slender.

Previous record

Off Bermuda.

Material

SAM.A10565, ♂, carapace length 16 mm, overall length ± 50 mm. St. A190, 2269 m.

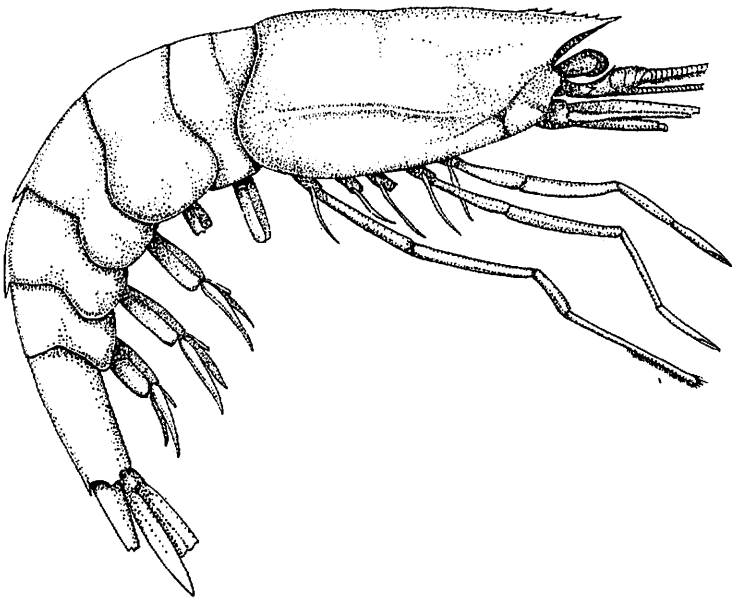

FIG. 12. *Acanthephyra gracilipes* Chace.

Remarks

This specimen agrees almost exactly with the original description of Chace (1940). The mandible is toothed over its entire length, confirming the genus. This is the first record of this species from South African waters and possibly from the southern hemisphere.

Acanthephyra brevirostris Smith, 1885
Figs 13, 14 b

Acanthephyra brevirostris Smith, 1885: 504. Balss, 1925: 252. Chace, 1940: 148. Sivertsen & Holthuis, 1956: 5.
Hymenodora duplex Bate, 1888: 843.

Description

Integument thin. Eye wider than eyestalk. Rostrum acutely triangular, reaching to end of second joint of antennular peduncle, with eight dorsal teeth; no ventral teeth. Posterior portion of carapace not carinate. Tiny antennal spine present, also a slightly larger branchiostegal spine, the anterior portion of which is supported by a slight keel. A slightly keeled ridge in the branchial region, reaching almost to posterior margin of the carapace. First two abdominal segments dorsally smooth, third to sixth segments dorsally carinate, each ending in a tooth; that of the third segment a large fleshy leaf-like structure, giving the species a distinctive appearance. Teeth of segments four to six small and sharp. Tip of telson missing.

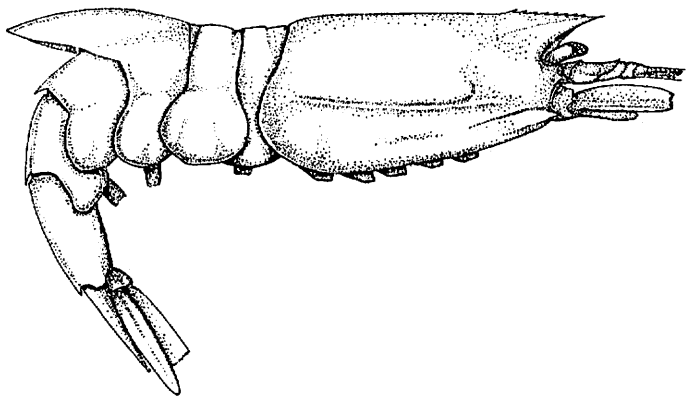

FIG. 13. *Acanthephyra brevirostris* Smith.

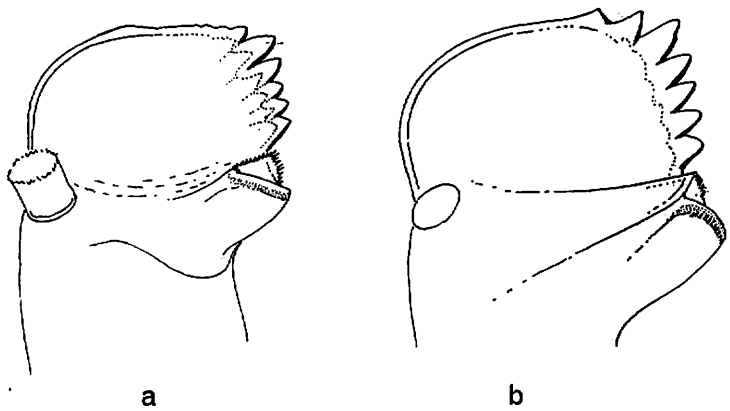

FIG. 14.
a. *Acanthephyra gracilipes* Chace. Mandible. b. *Acanthephyra brevirostris* Smith. Mandible.

Previous records and distribution

North-east coast of U.S.A., Bermuda, Bahamas, off Portugal, West Africa, south-west Indian Ocean, off Pacific coast of Ecuador, off Marion Island.

Material

SAM.A10564, carapace length 19 mm, overall length 54 mm. St. A192, 2708 m.

Remarks

The mandible is almost identical to that of *A. gracilipes* and is dentate throughout its length. This is the first record of the specimens from South African waters. The closest record to South Africa was that of a specimen taken by the *Challenger,* off Marion Island.

Acanthephyra corallina (Milne Edwards, 1883)

Figs 15, 16, 17

Notostomus corallina Milne Edwards, 1883.
Acanthephyra valdiviae Balss, 1914: 595. 1925: 260.
Acanthephyra corallina: Chace, 1936: 27.

Description

Integument firm. Carapace carinate throughout its length. A notch present in the dorsal carina, about two-thirds down the carapace. Rostrum stout, extending a little way past the antennal scales, curving slightly upward, supported by lateral keels which end some distance posterior to the orbits.

Rostral teeth: 18/3, 18/4, 17/3, 20/3, 22/3, 19/4, seven or eight teeth posterior to the orbit. The distance between the orbital groove and the dorsal carina equal to the distance between the orbital groove and the branchiostegal spine. Latter stout, outwardly flared, supported by a prominent keel. Antennal spine small. Strong hepatic spine at base of cervical groove, which is not well defined. Cervical groove joined by orbital groove. Branchiostegal keel joins with a well-developed keel in mid-branchial region. In the posterior portion of the carapace, this keel curves upwards and joins with a ridge which marks the upper border of the branchial region. Ventral branchial keel stretches from below branchiostegal keel to posterior margin of carapace, curving upward in this region. All abdominal segments dorsally keeled; segments 3–6 each ending

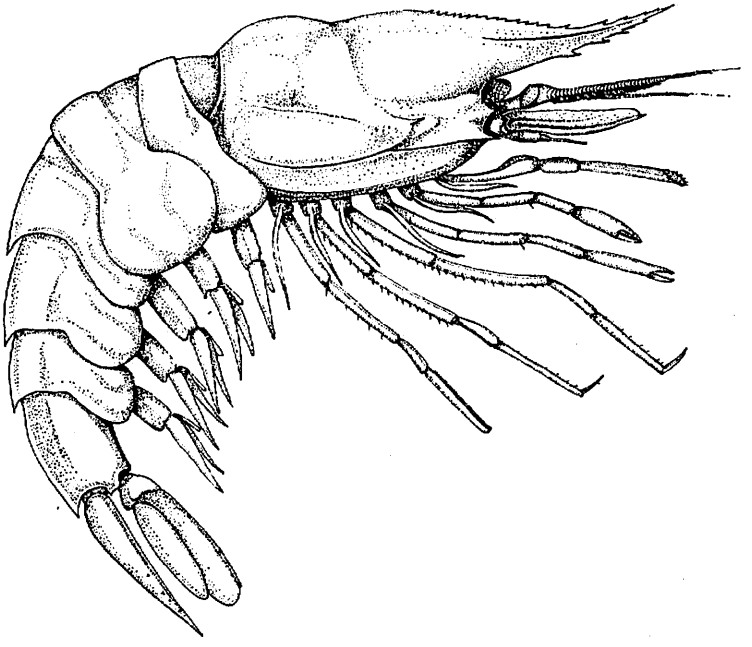

FIG. 15. *Acanthephyra corallina* (Milne Edwards).

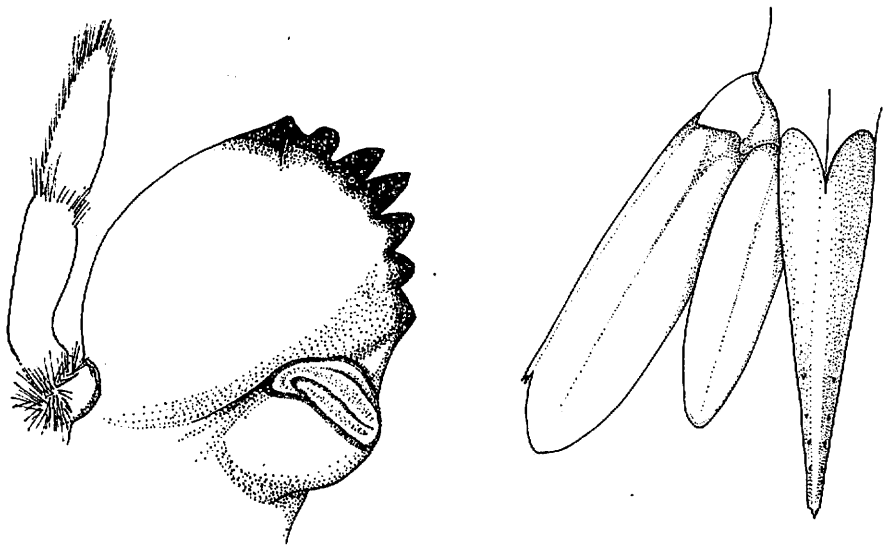

FIG. 16. *Acanthephyra corallina* (Milne Edwards).
a. Mandible. b. Telson and left uropod.

in a strong tooth. Dorso-ventral length of second abdominal segment equals the greatest dorso-ventral length of the carapace. Eyes slightly wider than eye-stalks. Antennal scales narrow. Mandibular palp short, three-jointed; seven teeth on cutting edge. Maxilliped 3 as stout as the pereiopods, reaching almost to the end of the antennal scale. Pereiopod 4 the longest, but only slightly longer than the other pereiopods. Meri of pereiopods 3, 4, 5 armed on posterior border with a single row of spinules. Dactyls of pereiopods 3 and 4 short, slender; that of pereiopod 5 reduced. Propodus of latter has a series of short stiff bristles at its distal end. Slender exopods on maxillipeds 2 and 3 and on all the pereiopods. Pleopods stout with well-developed endo- and exopods. Telson with four pairs of dorso-lateral spinules in distal half and pair of terminal spines flanking acute apex. The apex appears to be worn down with age, as some of the larger specimens do not have the sub-apical pair of spines. Exopod of uropod almost equal in length to telson, with two spines next to one another on the outer margin, some distance from the apex. Endopod slightly shorter than exopod.

Material		♀ *Carapace length*	♂ *Carapace length*	*Overall length*	*Station*	*Depth (m)*
SAM.A12531	.. .. ..		39·5 mm	149 mm	A319	2690–2727
SAM.A12532	.. .. (ovig.)	34·0 mm		138 mm	A319	2690–2727
SAM.A12533	.. .. ..	27·0 mm		111 mm	A190	2269
SAM.A10523	.. .. (ovig.)	37·0 mm		134 mm	A318	2525–2782
		33·5 mm		132 mm	A318	2525–2782
			33·5 mm	129 mm	A318	2525–2782
			26·0 mm	99 mm	A318	2525–2782

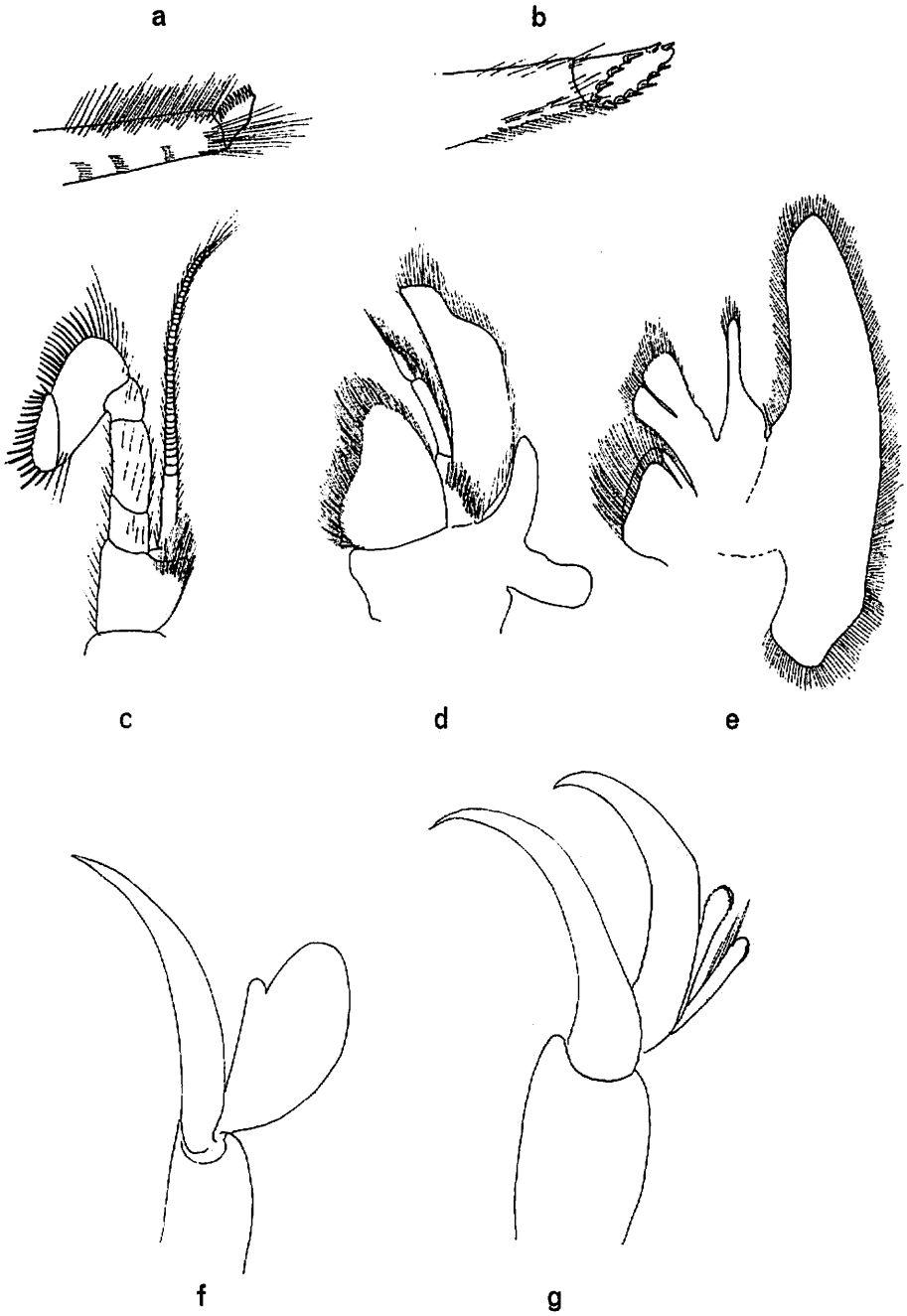

FIG. 17. *Acanthephyra corallina* (Milne Edwards).
a. Tip of pereiopod 5. b. Tip of maxilliped 3. c. Maxilliped 2. d. Maxilliped 1. e. Maxilla 2. f. Pleopod 1 of male. g. Pleopod 2 of male.

Remarks

This is a new record for the South African region. The species was previously recorded from the mid-Indian Ocean, where a single male was caught by the *Valdivia*. The presence of a hepatic spine on the carapace together with the deep rostral base serves to distinguish this uncommon species.

Family **Nematocarcinidae**

Nematocarcinus longirostris Bate, 1888

Nematocarcinus longirostris Bate, 1888: 806. Stebbing, 1914: 44. Calman, 1925: 15. Barnard, 1950: 671, fig. 125 a–k.

Previous records and distribution

Off Cape Point, 1200 fms (2360 m), Marion Island, Japan, East Indies, west coast of South America.

Material

A total of 78 specimens of this species was obtained from the following stations: A189, A190, A191, A192, A193, A315, A316, A317, A318, A319. Of the 78, 10 were ovigerous females, with a carapace length varying from 28–34 mm, while 15 were mature males, with a carapace length varying from 23 to 29 mm.

Nematocarcinus parvidentatus Bate, 1888

Nematocarcinus parvidentatus Bate, 1888: 814. Stebbing, 1915: 99. Barnard, 1950: 674, fig. 125 l–o.

Previous records and distribution

Off Durban, 440 fms (865 m), off East London, 400 fms (780 m), off Cape Point, 900 fms (1770 m), Japan.

Material

A total of 108 specimens of this species was obtained from the following stations: A190, A192, A193, A315, A316, A317, A318, A319, A322. Of the 108, 15 were ovigerous females with a carapace length varying from 19–26 mm, while 20 were mature males with a carapace length varying from 17 to 22 mm.

Remarks

Several specimens of either *parvidentatus* or *longirostris* from most of the stations were so damaged that specific identification was impossible. As can be expected from two species so closely related, the mouthparts are almost identical and are of no use in distinguishing the species. The most useful characters are the lengths of the carapace at which the males and females become mature, as well as the rostral shape. In *parvidentatus* the minimum carapace length of mature males and females is usually less than that of *longirostris*. The rostrum is variable, relative length being unsatisfactory for specific separation. In general, *parvidentatus* has a rostrum broader in the vertical plane compared with its length than *longirostris*. The ventral sinuosity at the base of the rostrum in

parvidentatus noted by Barnard (1950) is also a useful character. A bopyrid isopod was found on a specimen of *longirostris* but is neither of the two bopyrids previously recorded on *Nematocarcinus* from South Africa.

Family **Glyphocrangonidae**

Glyphocrangon sculptus (S. I. Smith, 1883)

Rhachocaris sculpta Smith, 1883: 49.
Glyphocrangon sculptus: Smith, 1884: 365. Stebbing, 1908: 37. Barnard, 1950: 719, fig. 134 a–d.

Previous records and distribution

Off Cape Point, 1000 fms (1970 m), east coast of North America.

Material	♀ *Carapace length*	♂ *Carapace length*	*Juveniles*	*Station*	*Depth (m)*
SAM.A10521		20·5 mm	4	A318	2525–2782
		21·0 mm			
		22·8 mm			
SAM.A10515		22·8 mm	2	A318	2525–2782
SAM.A10535	21·0 mm	22·1 mm		A319	2690–2727
		22·5 mm			
SAM.A10451	26·0 mm	21·1 mm		A190	2269
	(ovig.)	19·5 mm			
	25·5 mm	19·0 mm			
	(ovig.)	21·3 mm			
	25·0 mm	21·0 mm			
	(ovig.)	17·5 mm			
	25·0 mm	18·9 mm			
	(ovig.)	17·5 mm			
	24·0 mm	18·9 mm			
	(ovig.)	15·6 mm			
	21·5 mm	15·6 mm			
	22·0 mm				
	19·3 mm				
	22·8 mm				
	21·0 mm				
SAM.A12534			1	A193	2745
SAM.A10459			2	A192	2708
SAM.A10547			5	A322	2745
SAM.A10462			2	A193	2745
SAM.A10464			1	A193	2745
SAM.A10549			1	A322	2745
SAM.A10539			4	A319	2745

Family **Crangonidae**

Sclerocrangon bellmarleyi Stebbing, 1914

Sclerocrangon bellmarleyi Stebbing, 1914: 29. Barnard, 1950: 804, fig. 152.

Previous records and distribution

Off Durban, 440 fms (865 m), Natal coast, 400 fms (780 m).

Material

SAM.A10446, ♀ ovigerous, carapace length 13 mm, overall length 52 mm. St. A189, 1098 m.

Remarks

This ovigerous female is the largest specimen of this species yet obtained. The eggs, of which only four remain, measure 2·5 mm in length and are in an advanced state of development, the shape of the larvae being clearly visible. This is the most southerly record of this apparently endemic species.

Pontophilus occidentalis Faxon var. *indica* de Man, 1918
Figs 18, 19

Pontophilus occidentalis var. *indica* de Man, 1918: 161. 1920: 264.

Description

Carapace with median dorsal keel bearing one cardiac and two gastric spines, the more anterior of which always the smaller. Two lateral carapace spines, one hepatic, one epibranchial, lying in an oblique plane. Well-developed antennal and branchiostegal spines, latter supported by a blunt keel. Minute post-orbital spinule above the post-orbital fissure. Antero-lateral angle of carapace with a minute spine. Rostrum varies in length in relation to eyes and in general shape; usually with one or two pairs of minute denticles at its base. Eyes large and rounded, tending to obscure the stalks. Pereiopod 1 stout, armed with the characteristic crangonid chela. Pereiopod 2 about half the

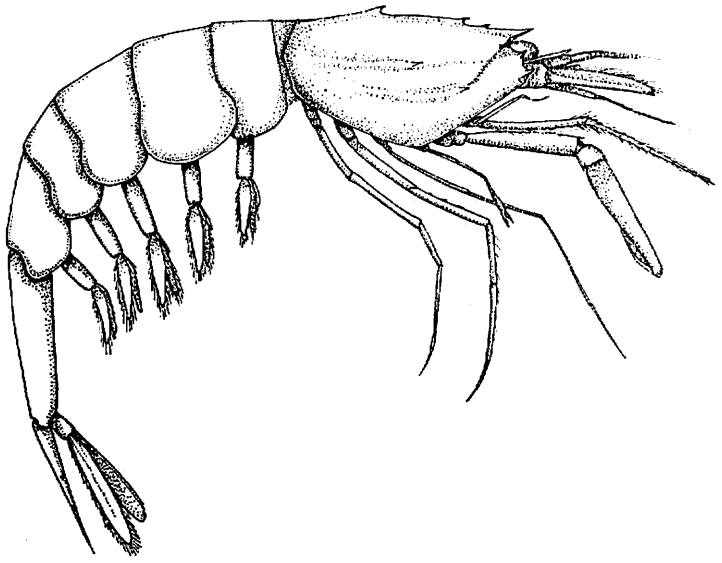

FIG. 18. *Pontophilus occidentalis* var. *indica* de Man.

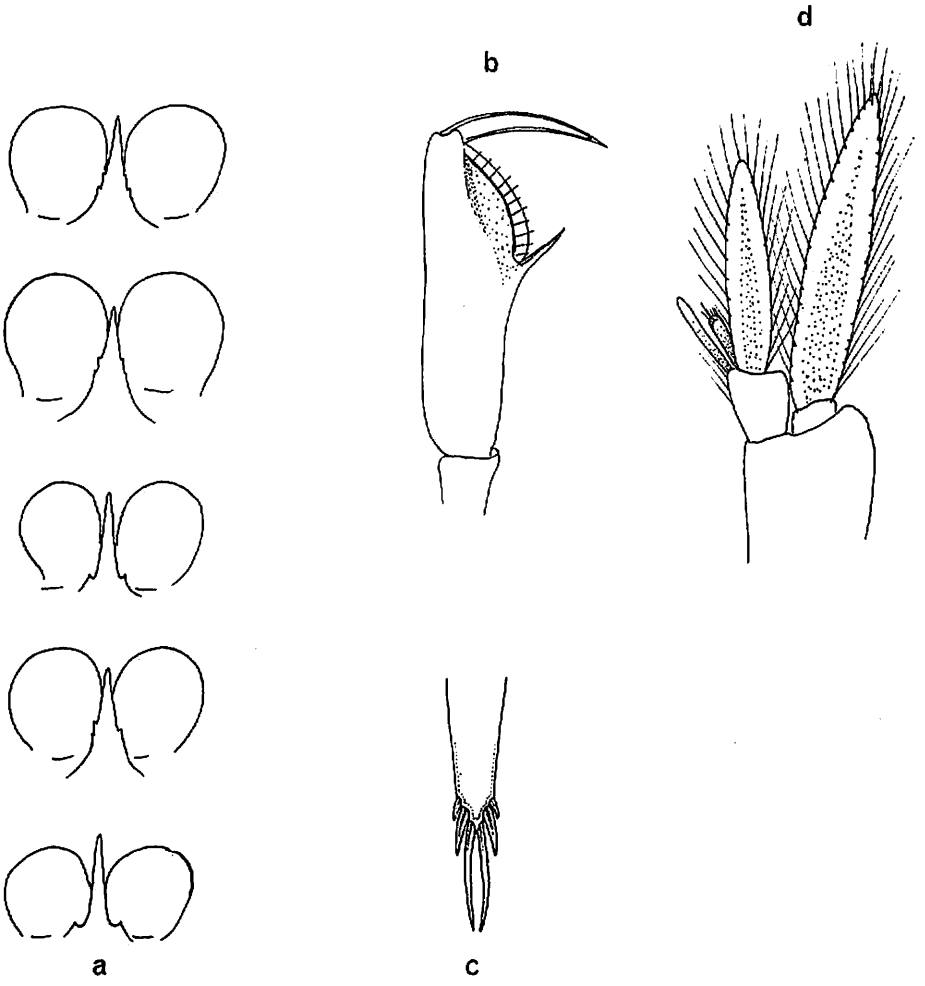

FIG. 19. *Pontophilus occidentalis* var. *indica* de Man.
a. Rostrum and eyes, showing variations. b. Chela of pereiopod 1. c. Tip of telson. d. Pleopod 2 of male.

length of pereiopod 1; chelate, very slender. A rounded knob ending in a tiny spine present between bases of second pair of pereiopods. Pereiopod 3 longer than pereiopod 1, very slender. Pereiopods 4 and 5 almost equal in length to pereiopod 3, but slightly stouter. Abdomen dorsally smooth, the sixth segment at least twice the length of the fifth. Appendix masculina of pleopod 2 of the male shorter and stouter than the appendix interna. Telson with two pairs of minute lateral spines ending in three pairs of spines, the submedian pair being the longest.

Previous records and distribution

East Indies, in region of Makassar Straits.

Material

A total of about 90 specimens from the following stations was obtained: A191, A192, A193, A315, A316, A317, A318, A319, A321, A322.

The carapace lengths of ovigerous females varied between 11 and 12·5 mm.

Remarks

De Man (1920) distinguishes *Pontophilus occidentalis* Faxon from its variety *indica* by its smaller size (48 mm as against 73 mm), the almost microscopical size of the anterior gastric spine and the length of the abdomen. In *occidentalis* the abdomen is two and a half times the length of the carapace, while in *occidentalis* var. *indica* it is three times the carapace length. De Man (1920) noted that the closely related species *gracilis* Smith, *abyssi* Smith, *challengeri* Ortmann, *junceus* Bate, *profundus* Bate, *occidentalis* Faxon, and *occidentalis* var. *indica* de Man, might prove to be geographical races of a widely distributed species. It certainly is difficult to distinguish between the species and its variety. In all the present specimens, the first gastric spine is always smaller than the second (characteristic of the variety). The ratio between carapace length and abdominal length is very variable, being anything from 2·2 to 3. This criterion is thus not reliable in distinguishing the variety from the species. The largest specimen had an overall length of 53·1 mm, only slightly larger than de Man's limit of 48 mm. This is the first record of the species from the South African region. *Pontophilus gracilis* Smith, known from off the Cape Peninsula, has been recorded from depths of 190, 250, 470 fms (370, 490, 925 m), while the present species has been taken from depths of 2525–3440 m.

Summary

A collection of deep-sea decapod Crustacea from west of Cape Point, South Africa, in depths between 1098 and 3440 metres, is described. The collection includes approximately 480 specimens of 35 species, of which 3 are new species and 12 are new records.

Acknowledgements

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