

AUSTRALASIAN ANTARCTIC EXPEDITION

1911-14.

UNDER THE LEADERSHIP OF SIR DOUGLAS MAWSON, O.B.E., B.E., D.Sc., F.R.S.

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SCIENTIFIC REPORTS.  
SERIES C.—ZOOLOGY AND BOTANY.

Edited by Professor T. Harvey Johnston,  
University of Adelaide.

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VOL. II. PART 2.

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ISOPODA AND TANAIIDACEA

BY

HERBERT M. HALE,  
DIRECTOR, SOUTH AUSTRALIAN MUSEUM.

WITH NINETEEN TEXT FIGURES.

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PRICE: SIX SHILLINGS AND SIXPENCE.

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# THE ISOPODA AND TANAIIDACEA.

By HERBERT M. HALE, Director, South Australian Museum.

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(With Nineteen Text Figures.)

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## I.—INTRODUCTORY NOTE.

The crustaceans herein dealt with had been entrusted to the late Dr. Chas. Chilton, who, owing to increased pressure of work and for other reasons, found it impossible to examine them. When Dr. Chilton retired, the collection was handed to me by Sir Douglas Mawson for report, and the manuscript was submitted for publication nearly ten years ago. References have been added and a few necessary alterations made more recently.

## II.—THE COLLECTION AND LOCALITIES WHENCE OBTAINED.

The following are the localities at which Isopoda or Tanaidacea were taken, together with a list of the species secured at each. The notes regarding collecting, etc., were furnished by Mr. J. G. Hunter (Biologist to the Expedition) by labels, and were gleaned in part from accounts in the "Home of the Blizzard."

### AUSTRALIA AND SUBANTARCTIC.

Approximately thirty miles east of Maria Island, Tasmania, 1,300 fathoms, December 12th, 1912.

*Accalathura gigas* (Whitelegge).

Approximately thirty miles east of Maria Island, Tasmania, 75 fathoms, December 13th, 1912.

*Aega punctulata* Miers.

*Aega cyclops* Haswell.

**Macquarie Island.**

Unless otherwise mentioned, all specimens from Macquarie Island were collected by Mr. H. Hamilton, Biologist to the Macquarie Island party. Most of the material was obtained by shore collecting, in pools, under rocks and amongst the seaweeds, especially kelp.

*Tanais ohlini* Stebbing.

*Tanais litoralis* Vanhöffen.

*Nototanais dimorphus* (Beddard).

*Leptognathia oculata* Vanhöffen.

*Cirolana* sp.

*Aega semicarinata* Miers.

*Exosphaeroma gigas* (Leach).

*Cassidinopsis emarginata* (Guérin).

*Limnoria antarctica* Pfeffer.

*Notasellus sarsi* Pfeffer.

*Iais pubescens* (Dana).

*Iaeropsis patagoniensis* Richardson.

*Munna macquariensis*, sp. nov.

*Munna neozelanica* Chilton.

**Locality not noted (probably near Australia).**

*Codonophilus imbricatus* (Fabricius).

**ANTARCTIC.**

The bulk of the Isopodan material was taken at the Main Base, Cape Denison, Adelie Land, where Mr. J. G. Hunter made dredgings in 1912, and again in 1913 during the final summer cruise of the "Aurora." Dr. A. L. McLean acted as Biological recorder at the Main Base in 1913 and, between September 22nd and 30th of that year, dredgings were carried out in depths up to 5 fathoms, inside the "Boat Harbour" and just off its entrance.

The Western Base (Queen Mary Land) Biologist, Mr. C. T. Harrison, was placed in the unfortunate position of not having water shallow enough for hand dredging, and only a single Isopod was secured there. The winter quarters were situated on a floating glacier, and the sea at the edge of this was 210 fathoms in depth. During the summer cruise of 1913-14, however, a number of dredgings were carried out off this glacier (Stations viii-xii).

A few Isopoda were collected by Messrs. Hunter and Hamilton at nine of the twelve Antarctic stations worked at during this final summer cruise.

**Main Base, Commonwealth Bay, Adelle Land, lat. 67° S., long. 142° 36' E.**  
3½ fathoms to 5 fathoms. May 28th, and June 1st, 1912 (Hunter).

*Notasellus sarsi* Pfeffer.

25 fathoms to 30 fathoms. September 3rd, and November 3rd and 4th, 1912 (Hunter).

*Nototanais dimorphus* (Beddard).

*Strongylura antarctica* Vanhöffen.

*Gnathia antarctica* (Studer).

*Gnathia calva* Vanhöffen.

*Eisosthos antarcticus* Vanhöffen.

*Cymodocella tubicauda* Pfeffer.

*Glyptonotus antarcticus* Eights, var. *acutus* Richardson.

*Antarcturus polaris* (Hodgson).

*Antarcturus adoreanus* Hodgson.

*Munna antarctica* Pfeffer.

*Paramunna dubia* sp. nov.

*Austrosignum glaciale* Hodgson.

*Pseudarachna spicata* (Hodgson).

45 fathoms to 50 fathoms. December 14th, 1913. Small dredge of Ball type. "Rich bottom with abundance of animal life" (Hunter).

*Nototanais dimorphus* (Beddard).

*Strongylura antarctica* Vanhöffen.

**Boat Harbour, 2 fathoms to 4 fathoms. September, 1913 (McLean).**

*Cymodocella tubicauda* Pfeffer.

*Munna antarctica* Pfeffer.

*Munna neglecta* Monod.

*Paramunna antarctica* Richardson.

*Paramunna lunata* sp. nov.

**Boat Harbour, 3 fathoms to 5 fathoms. September, 1913 (McLean).**

*Nototanais dimorphus* (Beddard).

*Antias mawsoni* sp. nov.

*Notasellus sarsi* Pfeffer.

*Ectias turqueti* Richardson.

**Western Base, off Shackleton Ice-shelf, Queen Mary Land, lat. 66° 18' S., long. 94° 58' E., 1912-13.**

*Aega glacialis* Tattersall.

**Station ii, lat. 66° 55' S., long. 145° 21' E., 288 fathoms to 300 fathoms.**  
December 28th, 1913, temperature —1.8° C., bottom ooze, large Monegasque trawl.

*Euneognathia gigas* (Beddard).

*Accalathura gigas* (Whitelegge).

*Serolis trilobites* (Eights).

*Antarcturus furcatus* (Studer).

*Antarcturus debilis* sp. nov.

**Station iii, lat. 66° 32' S., long. 141° 39' E., 157 fathoms.** December 31st, 1913; temperature —1.62° C.; bottom ooze; large Monegasque trawl.

*Accalathura gigas* (Whitelegge).

**Station vi, lat. 63° 13½' S., long. 101° 42' E., 870 fathoms.** January 14th, 1914, temperature —0.2° C., bottom ooze and rocks, large Monegasque trawl.

*Serolis meridionalis* Bruce.

**Station vii, off Drygalski Island, lat. 65° 42' S., long. 92° 10' E., 60 fathoms.**  
January 21st, 1914; bottom Red Algae with few small rocks, but mainly animal forms; large Monegasque trawl.

*Aega antarctica* Hodgson.

*Cymodocella tubicauda* Pfeffer.

*Notasellus sarsi* Pfeffer.

*Munna antarctica* Pfeffer.

*Coulmannia frigida* Hodgson.

**Station viii, off Shackleton glacier, lat. 66° 8' S., long. 94° 17' E., 120 fathoms.**  
January 27th, 1914; bottom no ooze, few rocks and abundant fauna; small dredge of Ball type.

*Gnathia calva* Vanhöffen.

**Station ix, off Shackleton glacier, lat. 65° 20' S., long. 95° 27' E., 240 fathoms.**  
January 28th, 1914, temperature —1.38° C., bottom ooze, Monegasque trawl.

*Serolis trilobites* (Eights).

**Station x, off Shackleton glacier, lat. 65° 6' S., long. 96° 13' E., 325 fathoms.**  
January 29th, 1914; temperature —1.65° C.; bottom ooze; Monegasque trawl.

*Euneognathia gigas* (Beddard).

*Serolis trilobites* (Eights).

*Antarcturus furcatus* (Studer).



**Station xi, off Shackleton glacier, lat. 64° 44' S., long. 97° 28' E., 358 fathoms.**  
January 31st, 1914; bottom ooze; Monagasque trawl.

*Accalathura gigas* (Whitelegge).

*Serolis trilobites* (Eights).

**Station xii, off Shackleton glacier, lat. 64° 32' S., long. 97° 20' E., 110 fathoms.**  
January 31st, 1914; bottom, no ooze, but abundance of animal forms and a few rocks;  
Monagasque trawl.

*Accalathura gigas* (Whitelegge).

*Cirolana oculata* Vanhöffen.

**Locality not noted.**

*Cirolana intermedia* Vanhöffen.

In all, forty-five species were taken. Twenty-eight were secured in the Antarctic only, twelve in the Subantarctic (Macquarie Island littoral), one in both the Antarctic and at Macquarie Island, three near Australia, and in one case the range of a species is extended from the eastern coast of Australia to latitude 66° 55' S. Most of the species were taken in shallow water; approximately thirteen hundred and fifty specimens were secured and of these only one hundred and twelve are from depths of more than fifty fathoms.

It will be seen from the above lists that the species referred to as ranging from Australia to Antarctica is *Accalathura gigas* (Whitelegge) (see p. 14). This form was originally described from four specimens taken off the coast of New South Wales in 1898 and, apart from the eighteen specimens now recorded, apparently has not been seen since. This circumstance is somewhat extraordinary when one considers that the species is the giant of the family Anthuridae (attaining a length of 52 mm.) and that the A.A.E. netted it off Tasmania and at four of the Antarctic stations where relatively brief trawling operations were conducted; it would thus appear that the species is not rare in the south and it is strange that it has not been recorded previously from Antarctic waters.

### III.—SYSTEMATIC DESCRIPTION.

#### ORDER TANAIIDACEA.

##### TANAIS *Audouin and Milne Edwards (sensu lato)*.

A moderate series of specimens, representing two species, was collected by Mr. Hamilton at Macquarie Island.

As remarked by Vanhöffen and Monod the status of the subantarctic species of the genus is unsatisfactory.

TANAIS OHLINI *Stebbing*.

*Tanais ohlini* Stebbing, Proc. Zool. Soc., 1914, p. 349, pl. i.

Two ovigerous females and a juvenile (?) male are referred here. The larger female is 4.1 mm. in length and has the endopod of the uropod four-jointed; in the other, which is but little smaller, it is three-jointed. The supposed male is only 1.5 mm. in length and has the uropodal ramus four-jointed. In all three there is no indication of a minute terminal joint in the uropods and the egg-sac of the females is single. According to Stebbing his single female, 4.5 mm. in length, from the Falkland Islands, has five joints in the ramus of the uropods, and no terminal style is indicated in his figures.

*Locality*.—Macquarie Island, Garden Bay, 17th November, 1912. "Obtained by scraping off spongy covering to rocks below low water."

*T. gracilis* Heller apparently has a distinct minute terminal joint in the uropods, a character which may or may not be of specific import.

TANAIS LITORALIS *Vanhöffen*.

*Tanais litoralis* Vanhöffen, Deutsche Südpolar Exped. (1901-03), XV, 1914, p. 465, fig. 5a-d.

*Tanais* sp. (? *litoralis*) Monod, Rés. du Voy. "Belgica" (1897-99), Zool. Anvers, 1926, p. 11, fig. 2a-e.

A single adult male and a number of females.

The females are all pale or dirty yellow in colour and the largest (with double egg-sac) is 6.5 mm. in length. In the biggest examples the endopod of the uropods is four-jointed, but in specimens 5 mm. or less in length it is three-jointed; in all there is what appears at first glance (under a high magnification) to be a small terminal joint in addition, but this may not be in reality a true joint, but the apparent division may be due to the disposition and close approximation of the subterminal setae. Vanhöffen states that the uropod sometimes has a small subapical rudiment and this is shown in his fig. 5a; Monod does not indicate it in his fig. 2e.

The male is 5 mm. in length, and agrees closely with Vanhöffen's figure, and with his description; there are two joints, plus the supposed apical rudiment, in the uropodal ramus. The dorsum is darkly pigmented, mottled laterally, and the large gnathopods are whitish, mottled with brown.

*Locality*.—Macquarie Island, Garden Bay, 16th August, 1912. "One specimen (the male) found on carcass of dead shag lying on sea beach."

Associated with the females of this species was the single small ? male referred to *T. ohlini*; this was readily separated on account of the more slender habit and the less robust uropods.

NOTOTANAIS *Richardson*.

NOTOTANAIS DIMORPHUS (*Beddard*).

*Paratanais dimorphus* Beddard, Proc. Zool. Soc., 1886, p. 119, and "Challenger" Rep., Zool., xvii, 1886, p. 130, pl. xvii, figs. 1-8.

*Nototanaeis dimorphus* Richardson, Expéd. Antarc. Française (1903-05); Sci. Nat.: Doc. Sci., Isopodes, 1906, p. 3; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 470; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool., iii, 1921, p. 197; Stephensen, Videns. Medd. nat. For. Kjobenhavn, lxxxiii, 1927, p. 373.

*Nototanaeis australis* Richardson, loc. cit., 2nd Mém., 1908, p. 1, fig. 1.

*Locality*.—Main Base, 25 fathoms, 45-50 fathoms, and Boat Harbour, 3-5 fathoms. (A large number of females and some males.) Macquarie Island, Garden Bay, 17th November, 1912. "Obtained by scraping off spongy covering to rocks below low water" (one example).

"LEPTOGNATHIA" OCULATA *Vanhöffen*.

*Leptognathia oculata* Vanhöffen, Deutsche Südpolar Exped., 1901-03, xv, 1914, p. 477, fig. 13.

A single example 3.8 mm. in length, taken in company with *Tanaeis ohlini* and *Nototanaeis dimorphus* at the above locality. It agrees well with Vanhöffen's description and figure. The uropods have the two-jointed endopod short, and the exopod single-jointed.

*Locality*.—Macquarie Island, Garden Bay, 17th November, 1912. "Obtained by scraping off spongy covering to rocks below low water."

"STRONGYLURA" ANTARCTICA *Vanhöffen*.

*Strongylura antarctica* Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 479, fig. 17a-e.

Thirteen specimens of this extraordinary species were taken. The male has five pairs of pleopods; the pleon of the female is very variable in size and in some individuals is extremely swollen, and forms by far the greater part of the bulk of the animal. The

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abdominal segments in most of the examples before me are not so distinctly marked as would appear from Vanhöffen's figures to be the case with the type specimens.

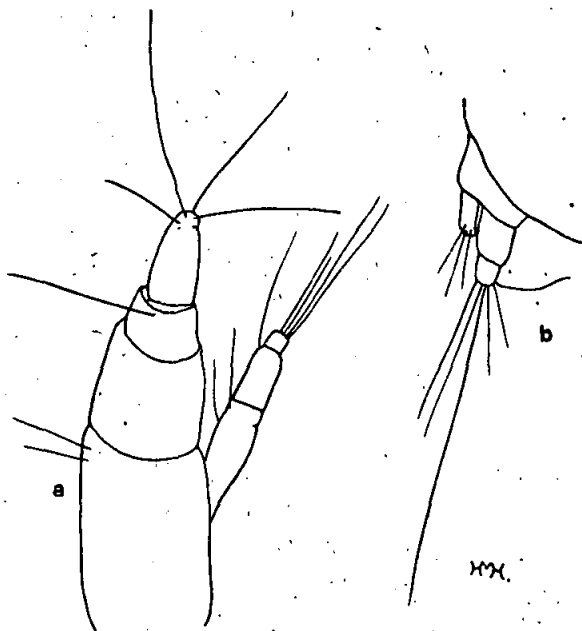


Fig. 1.—*Strongyluru antarctica*, male; *a*, antennae and *b*, uropoda ( $\times 220$ ).

*Locality*.—Main Base, 3rd September, 1912, 25 fathoms, and 14th December, 1913, 45-50 fathoms.

#### ORDER ISOPODA.

#### FAMILY GNATHIIDAE.

#### EUNEOGNATHIA *Stebbing*.

#### EUNEOGNATHIA GIGAS (*Beddard*).

*Anceus gigas* Beddard, "Challenger" Rep., Zool., xvii, 1886, p. 137, pl. xviii, figs. 8-10.

*Euneognathia gigas* Stebbing, Internat. Sci. Ser., Hist. of Crust., 1893, p. 338, pl. xiv; Monod, Mem. Soc. Sci. Nat., Maroc, xiii, 1926, p. 313, figs. 126-128 (ref.).

[Isopoda, Hunter, "Home of the Blizzard," II, 1915, pl. facing p. 294, fig. *e*.]

Three males and two females; males, 16 mm. (two) and 11 mm. (one).

*Locality*.—Station ii, 28th December, 1913, 288-300 fathoms. Station x, 29th January, 1914 325 fathoms.

GNATHIA *Leach*.GNATHIA ANTARCTICA (*Studer*).

*Anceus antarcticus* Studer, Abb. K. Preuss. Akad. Wiss., Berlin (1883) 1884, p. 4.

*Gnathia polaris* Hodgson, Crust. in "Southern Cross" Coll., 1902, p. 241, pl. xxxii.

*Gnathia antarctica* Richardson, Exped. Antarc. Française (1903-1905); Sci. Nat.: Doc. Sci., Isopodes, 1906, p. 3; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 486, figs. 23, 24; Monod, Mem. Soc. Sci. Nat., Maroc., xiii, 1926, p. 339, fig. 133 (ref.).

Twenty-four males, some damaged, were taken "from dredgings; found amongst roots of Brown Algae" at the Main Base; they were associated with a large number of larvae and juveniles, two males of *G. calva* and adult females, some of which may be referable to *G. calva*. Three of the females, 4 mm. in length, closely resemble that figured by Vanhöffen as *G. antarctica continentalis* (*ut supra* fig. 24b).

*Locality*.—Main Base, 3rd-4th November, 1912, 25-30 fathoms.

GNATHIA CALVA *Vanhöffen*.

*Gnathia calva* Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 489, fig. 26; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool. iii, 1921, p. 248, pl. xi, figs. 1, 2; Monod, Mem. Soc. Sci. Nat., Maroc., xiii, 1926, p. 381, fig. 151.

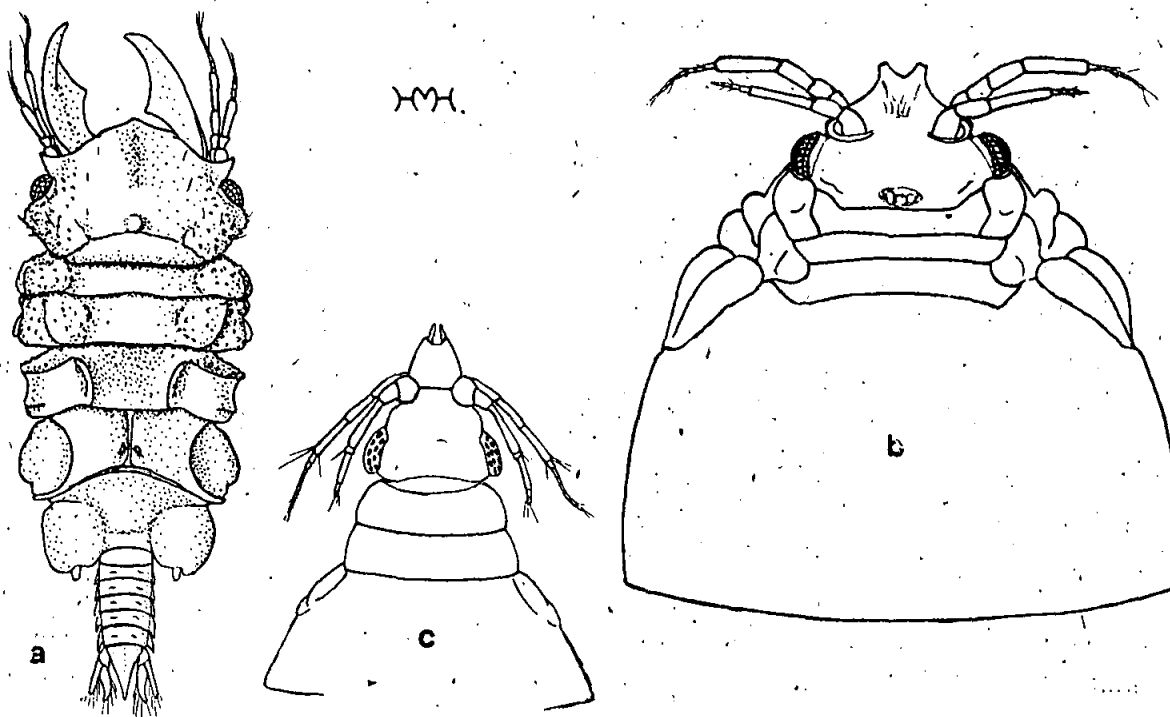


Fig. 2.—*Gnathia calva*, a, Pale-eyed male from Station vii ( $\times 12$ ); b, Adult female from Main Base ( $\times 24$ ); c, Juvenile from Station vii ( $\times 220$ ).

Two males, and several females, which are here regarded as belonging to *G. calva*, were taken in company with both sexes of *G. antarctica* from roots of Brown Algae, at the Main Base; also, two males and three juveniles 5 mm. and 5.5 mm. in length were dredged at Station vii. The juveniles (fig. 2, *c*) have the flagellum of the first antennae four-jointed, that of second seven-jointed.

The male of *G. calva* is readily separated from that of *G. antarctica* by the larger size, the less quadrate head, narrower pylopods, very sparse hairy clothing and the character of the hinder peraeon segments. The males of *G. calva* now examined have a distinct tubercle near the hinder margin of the head; in the two from the Main Base the eyes are black, but in the other two they are pale (fig. 2, *a*).

Monod suggests that the female referred by Tattersall to *G. calva*<sup>1</sup> may belong to *G. tuberculosa*. The females now examined are 5 mm. in length and have five articles in the flagellum of the first antennae and seven in that of the second. As in the males there is a median tubercle near the hinder margin of the cephalon. The frontal process is subtriangular and rather deeply emarginate apically (fig. 2, *b*) although in some examples one side of this bifid apex is injured or aborted so that the frons is asymmetrical.

*Locality*.—Main Base, 3rd–4th November, 1912, 25–30 fathoms. Station vii, 21st January, 1914, 60 fathoms.

#### FAMILY ANTHURIDAE.

##### ACCALATHURA *Barnard*.

##### ACCALATHURA GIGAS (*Whitelegge*).

*Calathura gigas* Whitelegge, Mem. Austr. Mus., iv, 1901, p. 225, figs. 19*a*–19*c*.

[Isopoda, Hunter, "Home of the Blizzard," ii, 1915, pl. facing p. 294, fig. *b*.]

A fine series of eighteen examples, six from off Tasmania and the remainder from Antarctic waters. Apart from the distribution, the range of depth of this species is rather remarkable, being from 36 fathoms (*Whitelegge*) to 1,300 fathoms (off Tasmania).

One of the examples now examined is 52 mm. in length, so that the aptly named *A. gigas* is the largest known member of the family.

In his useful revision of the family, *Barnard* erects the genus *Accalathura*<sup>2</sup> and includes therein specimens from South Australia which agree closely with *Calathura sladeni* *Stebbing*<sup>3</sup> but which he tentatively identifies as *Calathura gigas* *Whitelegge*, suggesting that the two species may be identical. I have now compared *Whitelegge*'s three syntypes of *C. gigas* (from New South Wales) with the South Australian specimens, and with the "A.A.E." series now available, and find that *C. gigas* is quite distinct from

<sup>1</sup>Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool. iii, 1921, pl. xi, fig. 3.

<sup>2</sup>Barnard, Journ. Linn. Soc., Zool., xxxvi, 1925, p. 147.

<sup>3</sup>Stebbing, Trans. Linn. Soc., xiv, 1910, p. 91, pl. viia.

*C. sladeni*, to which the South Australian specimens are evidently referable. It differs from *C. sladeni*, and from Barnard's diagnosis of *Accalathura*, in having dorsal pits on the fourth to sixth perasen segments, and in having the telson and first pleopod indurated. Eyes are wholly absent and the endopod of the uropod is wider than shown in Whitelegge's fig. 19c.

Stebbing's species has a rather deep groove on the anterior margin of peraeon segments four to six, but in *A. gigas* these are replaced by the aforementioned distinct pits—the "median depressions" described by Whitelegge.

*Locality*.—Off Maria Island (Tasmania), 12th December, 1912, 1,300 fathoms; station ii, 28th November, 1913, 288–300 fathoms; station iii, 31st December, 1913, 157 fathoms; station xi, 31st January, 1914, 358 fathoms; station xii, 31st January, 1914, 110 fathoms.

EISOSTHISTOS *Haswell*.

EISOSTHISTOS ANTARCTICUS *Vanhöffen*.

*Eisosthistos antarcticus* Vanhöffen, Deutsche Südpolar Exped. (1901–03), xv, 1914, p. 494, figs. 33a–c; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910) Zool., iii, 1921, p. 232; Barnard, Journ. Linn. Soc., Zool., xxxvi, 1925, p. 134.

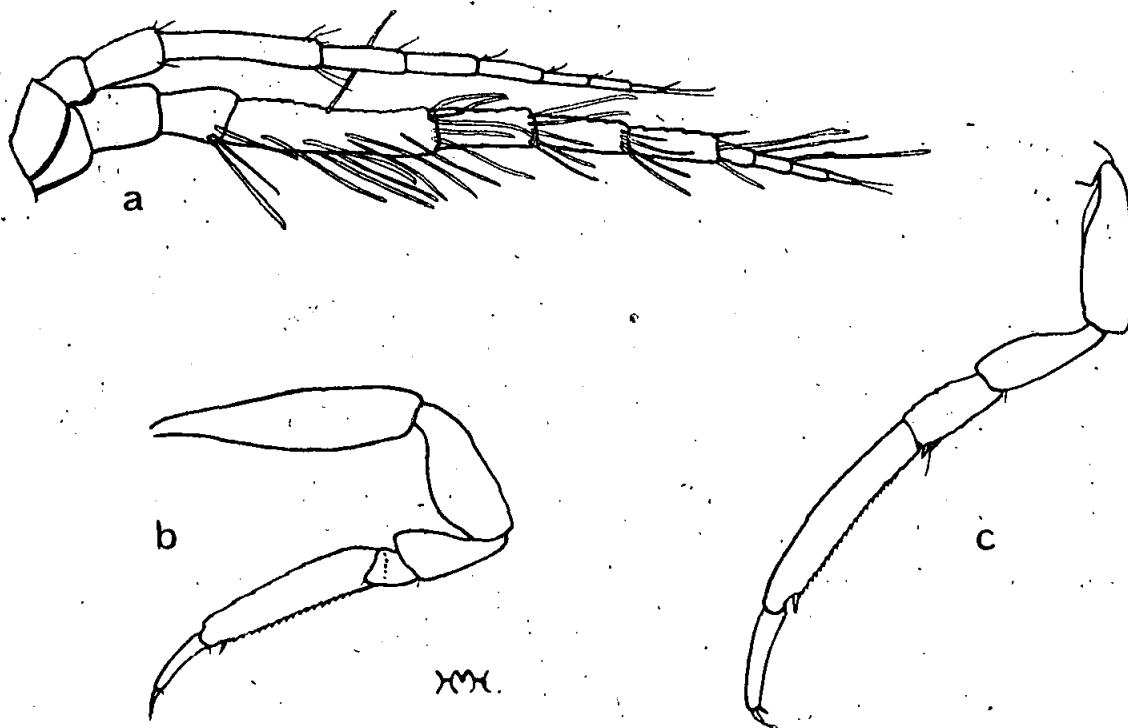


Fig. 3.—*Eisosthistos antarcticus*, male; a, antennae; b and c, first and second pereopods (all  $\times 107$ ).

A male 4.1 mm. in length was found in a tube containing a mass of Tanaiids and sand grains. In dorsal view the thoracic segments are fiddle-shaped; the first three are widest towards the front, the other four widest near the posterior end. The body is keeled dorso-laterally and the second joints of the legs emanate from lateral sockets, which overarch this joint dorsally. All the limbs are slender; the fifth joint of the posterior peraeopods is long and only very slightly underrides the sixth joint. The antennae and first and seventh peraeopods of this example are shown in fig. 3.

*Locality*.—Main Base, 3rd September, 1912, 25 fathoms.

FAMILY CYMOTHOIDAE.

SUBFAMILY CIROLANINAE.

CIROLANA *Leach*.

CIROLANA SP.

This is the "large isopod" referred to by Waite in his account of the A.A.E. Fishes<sup>4</sup>. It was taken from the stomach of *Notothenia colbecki* and is much digested, only the exoskeleton of head and thorax, in a very flaccid condition, being available.

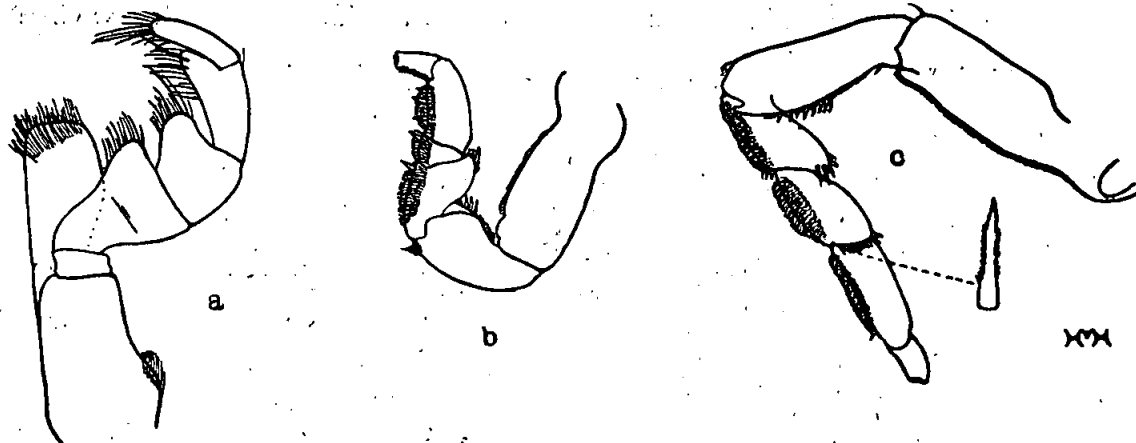


Fig. 4.—*Cirolana* sp., Macquarie Island; a, maxilliped ( $\times 19$ ); b and c, first and sixth legs ( $\times 6$ ).

The frontal plate, antennae, etc., are much as in *C. rugicauda* Heller, but the thoracic appendages (fig. 4) are different. The anterior legs have a fringe of dense fur on the inner margin (and extending on to the outer face) of the merus, carpus and propodus, and sparser fringes of fur on the margins of the other joints. The apex of the carpus of the sixth legs is armed with twelve spines, most of which are serrated.

Length of head and thorax (approx.), 18 mm.

*Locality*.—Macquarie Island.

<sup>4</sup>Waite, Aust. Antarc. Exped., Sci. Rep., Series C, iii, 1916, p. 70.



CIROLANA INTERMEDIA *Vanhöffen*.

*Cirolana intermedia* Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 500, fig. 37, *a-i*; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910) Zool., iii, 1921, p. 205.

A much damaged young female, 14 mm. in length, taken from the stomach of *Trematomus loennbergii*. The number of the station is not noted but all specimens of *T. loennbergii* were taken in Antarctic waters<sup>5</sup>.

CIROLANA OCULATA *Vanhöffen*.

*Cirolana oculata* Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 499, fig. 36, *a-h*.

A single female 22 mm. in length seems to be referable to this species. The head, eyes, antennae and pleon are as figured by Vanhöffen, but the number of spines arming the legs differs slightly.

*Locality*.—Station xii, 31st January, 1914, 110 fathoms.

## SUBFAMILY AEGINAE.

AEGA *Leach*.

Five specimens, representing five different species, were taken. Two were collected 30 miles off the Tasmanian coast; two in Antarctic waters, and one was secured at Macquarie Island.

AEGA PUNCTULATA *Miers*.

*Aega punctulata* Miers, Proc. Zool. Soc., 1881, p. 77, pl. vii, figs. 10-12.

A female with young in the marsupium; it agrees closely with Miers' description excepting in the following characters:—The first and second joints of the peduncle of the antennules are dilated to a greater extent than is shown in his fig. 11, and the rostral projection is more prominent. The sparse hairy clothing of the thorax and pleon is lacking; the telson, like the rest of the dorsum, is covered with punctures, and has a definite median, incised line of punctures, running longitudinally for the whole length, and the posterior margin is crenulated.

The following additional points may also be noted. The eyes are brown. The antennules have the first joint as long as wide and the flagellum is eight-jointed. There are sixteen articles in the flagellum of the left antenna, seven in that of the right; the shape of the large frontal lamina, and the proportions of the antennal joints, are shown in fig. 5, *a* and *b*. The basis of all the legs is carinate, the carinae of the posterior

\*3718—B

<sup>5</sup>Waite, loc. cit., p. 20.

peraeopods becoming successively more prominent. The endopod of the uropoda has half a dozen small spines on the subtruncate apex and the exopod, which is slightly shorter, is suboval.

Length, 36.5 mm.; width, 17 mm.

In juveniles from the brood-pouch the antennae reach to the hinder angle of the first free thoracic segment, and have a twelve-jointed flagellum. The flagellum of the antennules is composed of six joints, and reaches to the middle of the last segment of the peduncle of the antenna. The uropods and telson are margined with tiny spines. The endopod of the first-named is much more obliquely subtruncate than in the adult, and the crenulation of the posterior margin of the telson is scarcely apparent (fig. 5, *g*).

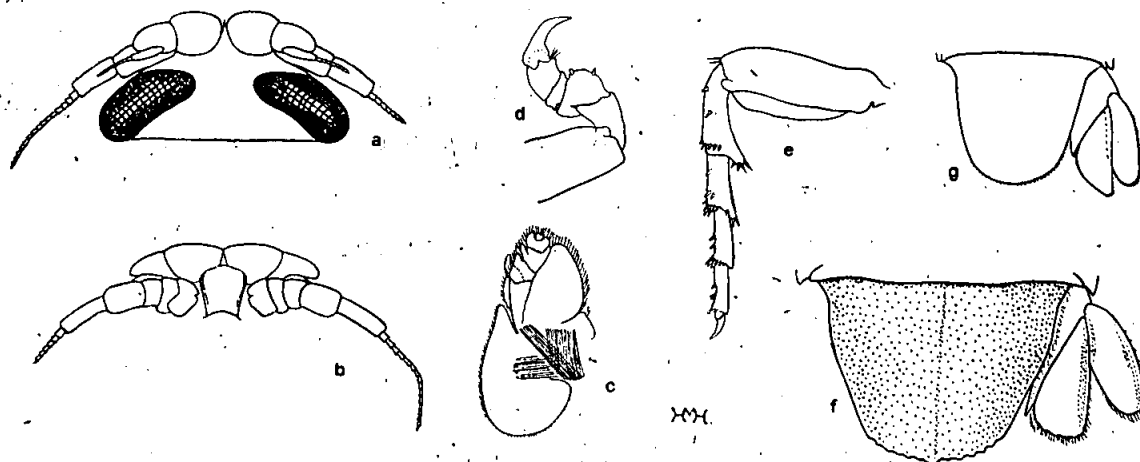


Fig. 5.—*Aega punctulata* adult female; *a*, dorsal view of cephalon and antennae ( $\times 5$ ); *b*, frontal lamina and antennae ( $\times 5$ ); *c*, maxilliped ( $\times 6\frac{1}{2}$ ); *d* and *e*, first and seventh pereopods ( $\times 5$ ); *f*, telson and uropod ( $\times 4$ ); *g*, telson and uropod of juvenile from brood-pouch ( $\times 14$ ).

Length, 7.7 mm.; width, 2.8 mm.

*Locality*.—Off Maria Island (Tasmania), 13th December, 1912, 75 fathoms.

According to Richardson's description of *A. lecontii* (Dana)<sup>6</sup>; that species is rather close to *A. punctulata* but differs in the narrower form and less robust legs, while the frontal lamina is unlike that of the specimen from off Tasmania; Miers, however, does not describe the frontal plate of his single example of *A. punctulata*, which was taken in the Straits of Magellan.

#### AEGA CYCLOPS *Haswell*.

*Aega cyclops* Hasw., Proc. Linn. Soc., New South Wales, vi, 1881, p. 192, and Cat. Aust. Crust., 1882, p. 285; Hale, Trans. Roy. Soc., S. Aust., xlix, 1925, p. 180, fig. 26, and l, 1926, p. 233, fig. 20.

A female 13 mm. in length, which resembles the male figured by me in 1926, and differs similarly from Haswell's type male. The colour is olivaceous, densely dotted with small, dark chromatophores.

*Locality*.—Off Maria Island (Tasmania), 13th December, 1912, 75 fathoms.

<sup>6</sup>Richardson, Bull. 54, U.S. Nat. Mus., 1905, p. 176, figs. 158, 159.

AEGA SEMICARINATA *Miers.*

*Aega semicarinata* Miers, Ann. Mag. Nat. Hist., (4) xvi, 1875, p. 115, and Philos. Trans., Roy. Soc., clxviii, 1879, p. 201, pl. xi, fig. 1 and 1a-d; Stebbing, Proc. Zool. Soc., 1919, p. 334.

*Aega urotoma* Barnard, Ann. S. Afr. Mus., x, 1914, p. 367, pl. xxxii A, and xv, 1916, p. 106.

A non-ovigerous female, 30 mm. in length; the median carina of the telson is low but quite marked. Miers' type, from Kerguelen, was 2½ inches in length; as he states, the species is close to *Aega serripes* M. Edw.

*Locality*.—Macquarie Island; Lusitania Bay, 18th December, 1912, 6 fathoms. Mr. Hunter notes that this specimen was brought up on a fishing line, from amongst kelp, and that the life colouration was salmon pink.

AEGA ANTARCTICA *Hodgson.*

*Aega australis* Richardson, Exped. Antarc. Française (1903-05); Sci. Nat.: Doc. Sci. Isopodes, 1906, p. 4, figs. 8-11 (*non A. australis* Whitelegge, 1901).

*Aega antarctica* Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04), Nat. Hist., v, 1910, p. 17, pl. ii; Richardson, 2<sup>o</sup> Expéd. Antarc. Franç. (1908-10), Isopodes, 1913, p. 4; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool., iii, 1921, p. 211.

An example 22 mm. in length.

*Locality*.—Station vii, 21st January, 1914, 60 fathoms.

AEGA GLACIALIS *Tattersall.*

*Aega glacialis* Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool., iii, 1921, p. 211, pl. iv, figs. 1-10.

A female 16 mm. in length was taken from the stomach of a Weddell Seal. Notwithstanding its comparatively small size, this agrees well with Tattersall's description and figures.

*Locality*.—Western Base.

## SUBFAMILY CYMOTHOINAE.

CODONOPHILUS *Haswell.*CODONOPHILUS IMBRICATUS *Fabricius.*

*Codonophilus imbricatus* Hale, Trans. Roy. Soc., S. Austr., 1, 1926, p. 223, figs. 15, 16 (syn. and ref.); Monod, Senckenbergiana, xiii, 1931, p. 23.

"*Locality*.—? A.A.E."

## FAMILY SPHAEROMIDAE.

As regards species the family is poorly represented in the collection; although about seven hundred and fifty specimens were secured, they comprise only four apparently common forms.

## SUBFAMILY SPHAEROMINAE.

## SPHAEROMINAE HEMIBRANCHIATAE.

EXOSPHAEROMA *Stebbing*.EXOSPHAEROMA GIGAS (*Leach*).

*Sphaeroma gigas* Leach, Dict. Sci. Nat., xii, 1818, p. 346.

*Exosphaeroma gigas* Stebbing, Proc. Zool. Soc., 1900, p. 553 (*lit.*), pl. xxxix; Chilton, Subantar. Is., N. Zeal., Art. xxvi, 1909, p. 652; Barnard, Ann. S. Afr. Mus., x, 1914, p. 374; Stephensen, Videns. Medd. nat. For Kjobenhavn, lxxxiii, 1927, p. 362; Nierstrasz, "Siboga" Exped., Mon. xxxic, 1931, p. 194.

More than two hundred and fifty examples were collected at Macquarie Island, where the species is abundant.

*Locality*.—Macquarie Island, 1912, "extremely common between tide marks under stones" and "from stomach of *Harpagifer bispinis*"; and Garden Bay, 28th February, 1913, and "from mouth of *Notothenia macrocephala*" (E. R. Waite, June, 1912).

## SPHAEROMINAE EUBRANCHIATAE.

CASSIDINOPSIS *Hansen*.CASSIDINOPSIS EMARGINATA (*Guérin*).

*Cassidina emarginata* Guérin, Icon. Règne Anim., Crust., 1843, p. 31; Cunningham, Trans. Linn. Soc., xxvii, 1871, p. 499, pl. lix, fig. 4; Miers, Phil. Trans., Roy. Soc., clxviii, 1879, p. 204; Studer, Isop. Reise "Gazelle," 1884, p. 19; Pfeffer, Jahrb. Hamburg. Wiss. Anst., iv, 1887, p. 103, pl. ii, figs. 9, 10, pl. v, figs. 23-30 and pl. vi, figs. 1-10; Stebbing, Proc. Zool. Soc., 1900, p. 562; Ortmann, Princeton Univ. Exped. Patagonia, iii, 1911, p. 650.

*Cassidina latistylis* Dana, U.S. Expl. Exped., xiii, 1853, Crust., p. 784, pl. lii, fig. 12, a-e.

*Cassidinopsis emarginata* Hansen, Quart. Journ. Micro. Sci., xlix, 1905, p. 128; Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04), Nat. Hist., v, 1910, p. 4; Stebbing, Proc. Zool. Soc., 1914, p. 351; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 514; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool., iii, 1921, p. 223; Monod, Senckenbergiana, xiii, 1931, p. 25.

*Locality*.—Macquarie Island: South-east Harbour, July, 1913, "roots of kelp," and North End, 28th November, 1912, "found in brown algae at extremely low water, original colour dark red-brown, some specimens having medial green stripe."

## CYMODOCELLA Pfeffer.

## CYMODOCELLA TUBICAUDA Pfeffer.

*Cymodocella tubicauda* Pfeffer, Jahrb. Hamburg. wiss. Anst., iv, 1887, p. 110, pl. ii, fig. 8 and pl. vi, figs. 11, 12; Richardson, Expéd. Antarc. Française (1903-05), 2nd Mém., Sci. Nat.: Doc. Sci., Isopodes, 1908, p. 4; Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04), Nat. Hist., v, 1910, p. 31; Chilton, Subantarctic Is. N. Zeal., Art. xxvi, 1909, p. 657; Richardson, 2e Expéd. Antarc. Française (1908-10), Isopodes, 1913, p. 6; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool., iii, 1921, p. 222; Monod, Senckenbergiana, xiii, 1931, p. 25.

*Sphaeroma* (?) *egregia* Chilton, Trans. N. Zeal. Inst., xxiv, 1892, p. 269.

*Cymodocella egregia* Hansen, Quart. Journ. Micro. Sci., xlix, 1905, p. 126; Richardson, Expéd. Antarc. Française (1903-05), Sci. Nat.: Doc. Sci., Isopodes, 1906, p. 6.

*Cymodoce antarctica* Hodgson, Crustacea in "Southern Cross" Coll., 1902, p. 243, pl. xxxii, fig. 2.

This species is evidently common in Antarctic waters; in all, four hundred and forty-three specimens were collected at the following stations.

*Locality*.—Main Base: Boat Harbour, September, 1913, 2-4 fathoms, and Boat Harbour, September, 1913, 3 fathoms, "muddy bottom, found in large numbers whenever dredge was lowered," and 3rd-4th September, 1912, "from dredgings in 25 fathoms, not so numerous as in shallower water"; Station vii, 21st January, 1914, 60 fathoms.

## SUB-FAMILY LIMNORIINAE.

## LIMNORIA Leach.

## LIMNORIA ANTARCTICA Pfeffer.

*Limnoria antarctica* Pfeffer, Jahrb. Hamburg. wiss. Anst., iv, 1887, p. 96, pl. ii, figs. 12-13 and pl. v, figs. 2-22; Stebbing, Fauna Geog. Maldiva and Laccadive Archip., ii, 1904, p. 714; Calman, Ann. Mag. Nat. Hist., (8) v, 1910, p. 185; Richardson, 2e Expéd. Antarc. Française (1908-10), Isopodes, 1913, p. 8; Chilton, Ann. Mag. Nat. Hist. (8) xiii, 1914, p. 382, pl. xvii, fig. 8 and p. 448; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 509, fig. 43; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool., iii, 1921, p. 448.

*Limnoria* (*pfefferi* ?) Stephensen, Videns. Medd. nat. For. Kjobenhavn, lxxxiii, 1927, p. 361 (*nec* Stebbing).

A number of specimens from Macquarie Island are representatives of the species which Vanhöffen (from near Kerguelen) and Chilton (from S. Orkneys) identify as *L. antarctica*; it seems certain also that the *Limnoria* found in floating "Lessonia" one mile east of Auckland Island, and determined by Stephensen as *L. (pfefferi)* Stebbing ?) is the same. According to Stebbing's description of *L. pfefferi*<sup>7</sup> the latter differs from *L. antarctica* mainly in the longer telson and the more oval, less elongate epipod of the

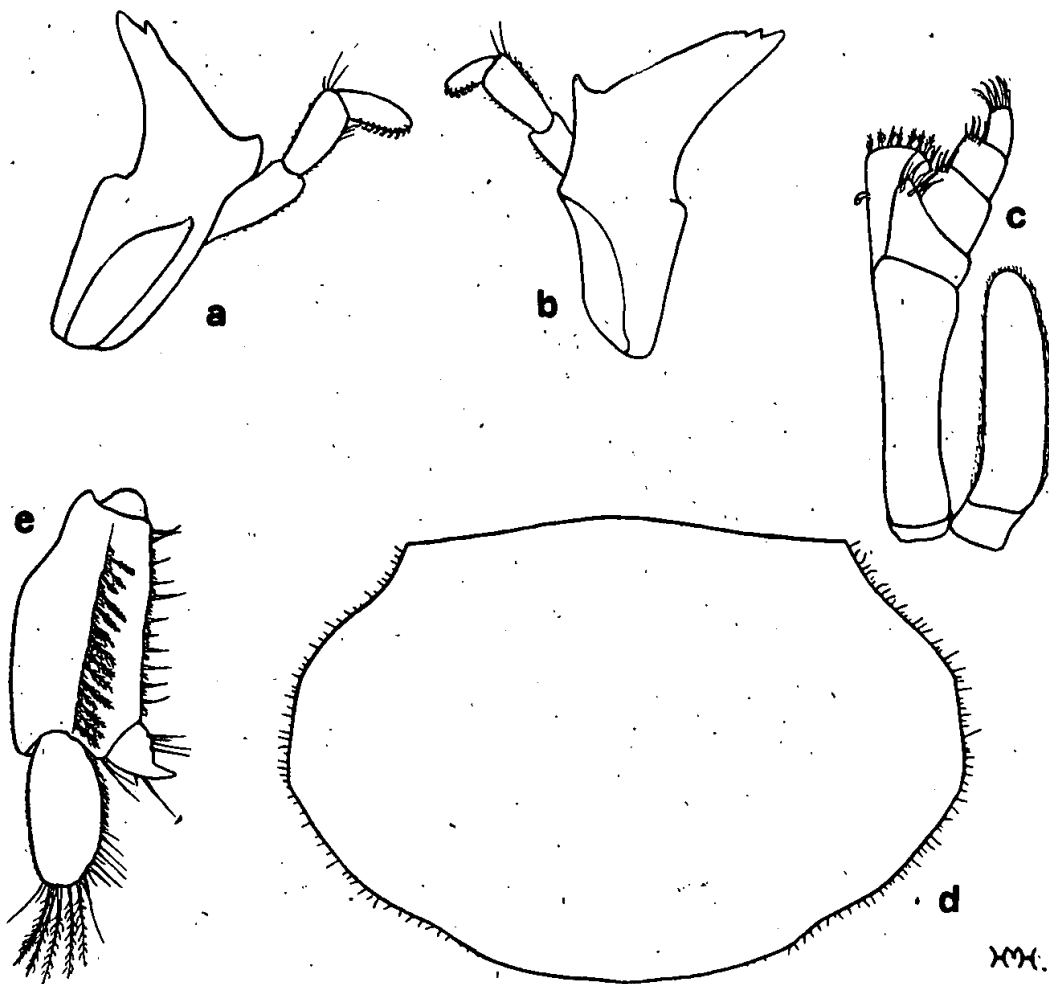


Fig. 6.—*Limnoria antarctica*, female; a and b, right and left mandibles ( $\times 48$ ); c, maxilliped ( $\times 481$ ); d, telson ( $\times 26$ ); e, uropoda ( $\times 48$ ).

maxillipeds; in the Macquarie Island specimens this last (fig. 6, c) has the lateral margins subparallel and the apex not so acutely rounded as shown in Vanhöffen's fig. 43a, an appearance which may have been due to slight obliquity. "Grooving" is present to a greater or less degree on the first and other peraeon segments of examples now examined, but this seems to be due mainly to the action of the preservative.

<sup>7</sup> Stebbing, Fauna Geog. Maldive and Laccadive Archip., ii, 1904, p. 714, pl. lii, A.

The inner ramus of the uropods is unguiform; the rami are of the same relative proportions in examples from 3.5 mm. to 10 mm. in length, so that apparently no growth changes occur in these appendages as suggested by Vanhöffen, although the hairs are relatively longer in the smaller specimens.

In a dissected female the cutting edge of the mandibles is divided into two teeth, and the left mandible has indication of a third tooth (fig. 6, *a* and *b*).

An interesting feature is the large size attained, females with developing marsupial plates being 10 mm. in length.

*Locality*.—Macquarie Island: North End, 3rd September, 1912, "found in burrows in roots of kelp—*Macrocystis*" and South-east Harbour, August, 1913, "root of kelp."

#### FAMILY SEROLIDAE.

##### SEROLIS *Leach*.

##### SEROLIS TRILOBITES (*Eights*).

*Brongniartia trilobites* Eights, Trans. Albany. Inst., ii, 1833, p. 53, pls. i, ii.

*Serolis trilobites* Audouin and M. Edwards, Arch. du Mus. d'Hist. Nat., ii, 1841, p. 29; Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04), Nat. Hist., v, 1910, p. 23, pl. iv; Richardson, 2e Expéd. Antarc. Française (1908-10), Isopodes, 1913, p. 9; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, p. 59, fig. 5a.

*Serolis cornuta* Beddard, "Challenger" Rep., Zool., xi, 1884, p. 49, pl. i, figs. 1-16.

(Isopoda, Hunter, "Home of the Blizzard," ii, 1915, pl. facing p. 294, fig. *j*).

A series of forty-five fine specimens was secured. The largest male is 70 mm. in length and 63 mm. in width, while the largest female (ovigerous) is 74 mm. long and 63 mm. wide; a number of the other individuals attain nearly to this size.

*Locality*.—Station ii, 28th December, 1913, 288-300 fathoms. Station ix, 28th September, 1914, 240 fathoms. Station x, 29th January, 1914, 325 fathoms. Station xi, 31st January, 1914, 358 fathoms.

##### SEROLIS MERIDIONALIS *Bruce*.

*Serolis meridionalis* Bruce, Rep. Sci. Res., Voy. "Scotia," (1902-04), iv, Zool., 1918, p. x, pl. xi, fig. 33; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 518, fig. 51.

(Isopoda, Hunter, "Home of the Blizzard," ii, 1915, pl. facing p. 294, fig. *h*).

Vanhöffen credits this species to Hodgson, but it appears that W. S. Bruce (editor of the Report of the scientific results of the "Scotia") is really responsible for the name; on the plate cited appears a readily recognisable illustration, reproduced from a photograph by Bruce, with the name (below figure—with misprint "*Scrolis*"—and on p. x) and the further information that the species is new and that it was taken near Coats Land, in 1,410 fathoms, lat.  $71^{\circ} 22' S.$ , long.  $16^{\circ} 34' W.$  [Mar. 18, 1904, see p. 69 of "Scotia" Report cited]; the size also is indicated.

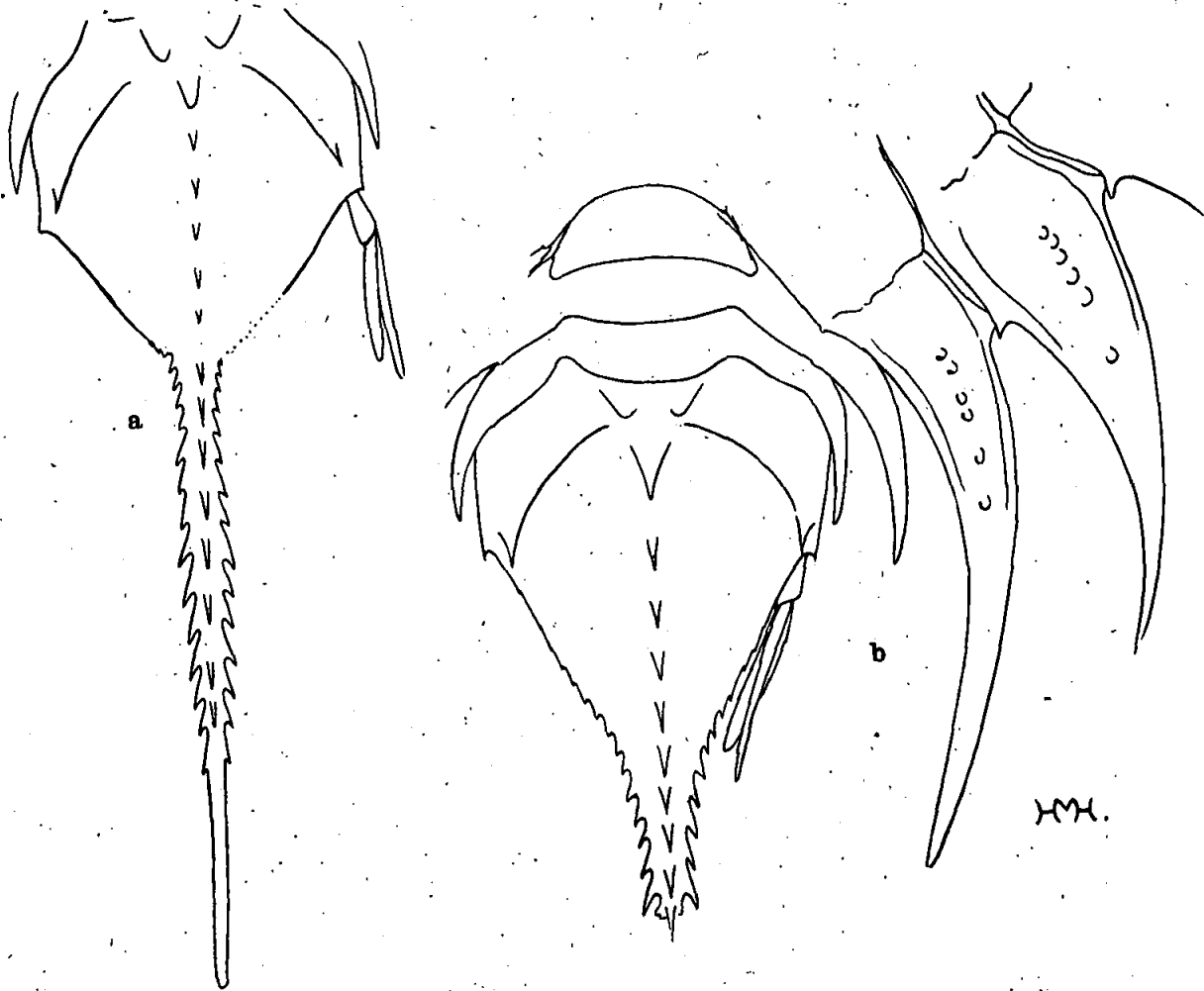


Fig. 7.—*Serolis meridionalis*; a, telson of female; b, pleon and posterior epimeral plates of male ( $\times 3\frac{1}{2}$ ).

Four males and one female (non-ovigerous, with developing marsupial plates) were taken by the Australasian Antarctic Expedition; unfortunately all are damaged, evidently by rocks which were encountered at Station vi, in 870 fathoms. The latter locality is given on the label accompanying the specimens, and this is assumed to be correct. In the explanation of Hunter's figure in the "Home of the Blizzard," however, the depth is given as "240 fathoms" (Station ix) for this species and "870 fathoms" for a



specimen of *S. trilobites*. As some of the latter are labelled as from Station ix, 240 fathoms, it seems almost certain that a mistake has occurred in the explanation of Hunter's photographs.

The most perfect of the specimens now available is a male, which is illustrated by Hunter; it is 50 mm. in width and 55 mm. in length, exclusive of the caudal prolongation, which is broken, and has portions of the fourth (right side only) and succeeding coxal plates broken off.

The spiny posterior prolongation of the pleon is broken in all but the female, which is 38 mm. in width and 50 mm. in length, exclusive of this prolongation, which is 27 mm. in length (fig. 7, *a*); in the ovigerous female figured by Vanhöffen the pleon is very much shorter.

The largest male is 60 mm. in length (the narrow posterior part of the telson missing). In this sex the body appears to be relatively wider than in the female owing to the proportionately longer and more boldly outswEEPing coxal plates (fig. 7, *b*), and the serrations of the lateral margins of the telson are more pronounced.

Hunter notes that during life the eye was "golden yellow."

*Locality*.—Station vi, 14th January, 1914, 870 fathoms.

#### SUBORDER VALVIFERA.

#### FAMILY IDOTHEIDAE.

#### GLYPTONOTUS *Eights*.

#### GLYPTONOTUS ANTARCTICUS *Eights*, var. ACUTUS *Richardson*.

*Glyptonotus acutus* Richardson, Expéd. Antarc. Française (1903-05). Sci. Nat.; Doc. Sci., Isopodes, 1906, p. 10, pl. i, figs. 2-4; Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04) Nat. Hist., v, 1910, p. 45, pl. v ii; Richardson, 2<sup>o</sup> Expéd. Antarc. Française (1908-10), Isopodes, 1913, p. 17; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 527.

*Glyptonotus antarcticus*, var. *acutus* Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910) Zool. iii, 1921, p. 233, pl. ix, figs. 3-4; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, p. 104.

*Locality*.—Main Base, 3rd September, 1912, dredged 25 fathoms; two immature examples.

## FAMILY ARCTURIDAE.

ANTARCTURUS *zur Strassen*.ANTARCTURUS POLARIS (*Hodgson*).

*Arcturus polaris* Hodgson, Crust. in "Southern Cross" Coll., 1902, p. 247, pl. xxxiv, fig. 2 and pl. xxxv.

*Antarcturus polaris* Richardson, 2e Exped. Antarc. Française (1908-10), Isopodes, 1913, p. 9; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool., iii, 1921, p. 237, pl. viii, figs. 3, 4.

Seven specimens, the largest 27 mm. in length, exhibiting the variation in armature mentioned by Richardson.

*Locality*.—Main Base, 3rd September, 1912. Station vii, 21st January, 1914, 60 fathoms.

ANTARCTURUS ADAREANUS (*Hodgson*).

*Arcturus adareanus* Hodgson, Crust. in "Southern Cross" Coll., 1902, p. 249, pl. xxxiii, fig. 1.

*Antarcturus adareanus* Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04) Nat. Hist., v, 1910, p. 35, pl. v, fig. 1; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, pp. 125 and 149, fig. 34.

*Antarcturus franklini* Hodgson, *loc. cit.* (1910), p. 40, pl. v, fig. 2, male only; Tattersall, Brit. Antarc. "Terra Nova" Exped., 1910, Zool., iii, 1921, p. 240, male only, *fidé* Nordenstam, *loc. cit.* p. 149.

Two males, dried and somewhat damaged, agree with the specimen figured by Hodgson (1910, pl. v, fig. 2) as "*Antarcturus australis*," which he states "is the male of *A. franklini*" (1910, p. 74). Nordenstam points out that the males referred to the last-named species by Hodgson and Tattersall probably belong to *A. adareanus*.

*Locality*.—Main Base, 3rd September, 1912, 25-30 fathoms.

ANTARCTURUS FURCATUS (*Studer*).

*Arcturus furcatus* Studer, Sitz. Ges. Naturf. Freunde Berlin, 1882, p. 57, and Abh. K. Akad. Wiss., Berlin (1883) 1884, p. 12, pl. i, fig. 3, *a-e*; Beddard, "Challenger" Rep., Zool., xvii, 1886, p. 85.

*Antarcturus furcatus* *zur Strassen*, Zool. Anz., xxv, 1902, p. 686; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool., iii, 1921, p. 238, pl. viii, figs. 1, 2; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, p. 129, fig. 29.

[Isopoda, Hunter, "Home of the Blizzard," ii, 1915, pl. facing p. 294, fig. 1.]

In specimens examined by Tattersall (*ut supra*) the terminal spines of the pleon "are about one-sixth of the total length of the body and equal to the terminal unsegmented portion of the abdomen." Three examples before me agree closely with Studer's figures in the proportions of these spines, which are relatively much shorter than in Tattersall's material.

The cephalic spines in a single specimen from Station ii are decidedly less adpressed than in the other two, otherwise all are as described by Studer.

*Locality*.—Station ii, 28th December, 1913, 288–300 fathoms. Station x, 29th January, 1914, 325 fathoms.

*ANTARCTURUS DEBILIS* *sp. nov.*

♂ Form slender, the body widest at the second and third "free" peraeon segments. Cephalon excavated in front and with two pairs of dorsal spines, one pair situated at

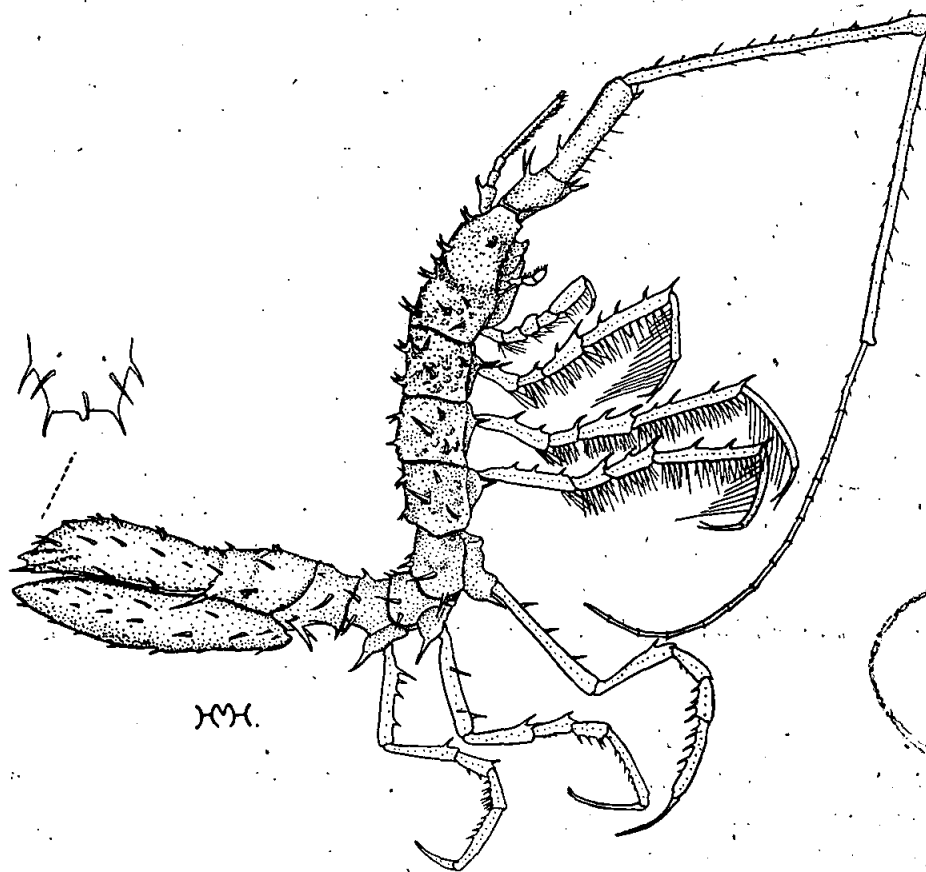


Fig. 8.—*Antarcturus debilis*, type male ( $\times 4$ ).

about first fourth of length, the other near the posterior margin. Eyes almost obsolete, on small elevations. First antennae reaching to approximately three-fourths of length

of third joint of second antennae; first article with a dorsal spine at anterior margin; second and third articles together subequal in length to first, the second slightly longer than third; flagellum longer than peduncle. Peduncle of second antennae very long, equal in length to body; fifth joint a little longer than fourth and twice as long as second and third articles combined; second joint with a single (right side) or a double (left) dorsal spine and with an inferior spine anteriorly; third with a superior spine near proximal end and a small inferior spine distally; flagellum one-third as long again as last joint of peduncle, composed of fifteen joints and a terminal style, the first article much longer than any of the others.

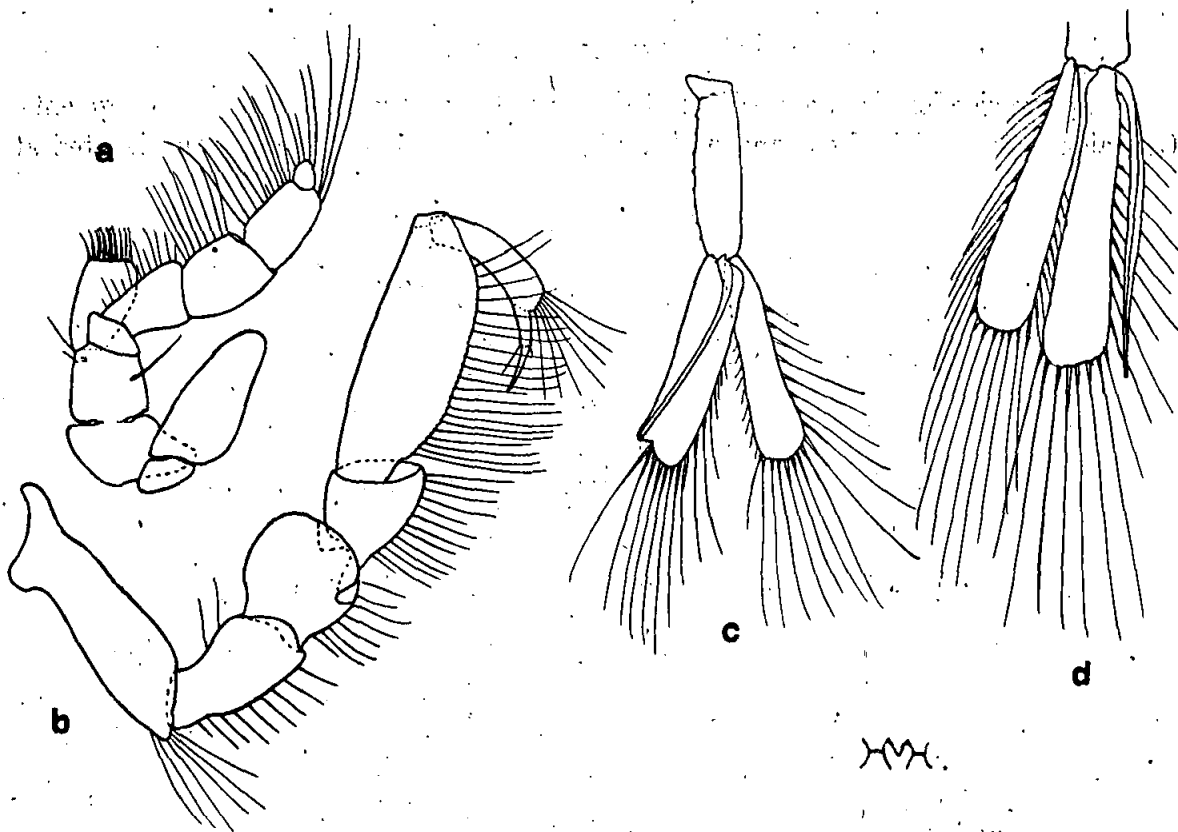


Fig. 9.—*Antarccturus debilis*, type male; a, maxilliped ( $\times 22$ ); b, first pereopod ( $\times 22$ ); c and d, first and second pleopods ( $\times 12$ ).

A pair of spines is situated in the depression marking the fused suture between cephalon and first "free" pereopod segment. Each of the first four thoracic segments has two pairs of dorsal spines (the posterior pairs becoming successively shorter) a few less conspicuous spinules, and three lateral spines on each side. Fifth to seventh segments each with one pair of dorsal spines (near posterior margins) and two spines on each side. Coxae of second to seventh segments each with a spine, that of the posterior three more salient than the others.

The armature of the pleon and uropods is shown in fig. 8; the largest spines are a ventro-lateral, forwardly-directed pair on the first segment, and a similar but backwardly-directed pair on the third. Terminal spines projecting a little beyond end of abdomen.

The first pereopod has the dactylus swollen for three-fourths of its length, where it becomes suddenly reduced. The outer margins of the second, third and fourth pereopods have one, two and three spines respectively on the basis, one at the distal angle of the ischium, two on the merus (one being at distal angle) and three to four on the propodus (one of these at distal angle); the front margins are clothed with long setae.

The last three pairs of pereopods are slender but lack long setae; in these the outer margin of the basis bears two to three spines, there is a spine near the distal angle of the ischium, another in a similar position on the merus, and the inner margins of the carpus and propodus bear a number of slender spines.

Length, 25 mm.

*Locality*.—Station ii, 28th December, 1913, 288-300 fathoms.

Only the single specimen described above was taken. Salient features are the slender body, aborted eyes, armature, long antennae and the structure of the legs.

#### SUBORDER ASELLOTA.

Many specimens of this suborder were associated with larger species in the collecting tubes. Consequently, after the lapse of nearly two decades some of the material is considerably damaged.

#### FAMILY ASELLIDAE.

##### *ANTIAS* Richardson.

##### *ANTIAS MAWSONI* sp. nov.

♀ Ovigerous. Body pyriform, smooth, practically unarmed with setae or spines. Head transverse, as wide as first pereon segment and twice as wide as median length; frons shallowly concave. Ocular lobes prominent and eyes distinct. First antennae with flagellum one and one-half times as long as peduncle and composed of three joints, the first of which is nearly half as long again as the second, which is barely half as long as the third. Last segment of peduncle of second antennae as long as the two preceding joints together; penultimate three times as long as third. Pereon with first segment of same length as, but a little narrower than, fourth segment; second and third segments wider and longer than any of the others; last three curved posteriorly and successively decreasing in width; the lateral parts of all segments are rounded, and the rounded epimera bear a few small setae; a short curved spine on side-plates of last segment. Two

pleon segments are apparent, the first being very short. Urosome rather elongate, its medial length one and one-half times greatest width; lateral margins slightly sinuate and angulate, with a curved spine on each side at about middle of length of pleon; apex, posterior to insertion of uropods, subtriangularly rounded. Uropoda as a whole five-sixths length of urosome, with branches subtruncate, subequal in length and spinulose. Legs spinulose and moderately robust, much as in *A. hispidus* Vanhöffen.

Length, 1.6 mm.

*Locality*.—Main Base, Boat Harbour, September, 1913, 3–5 fathoms.

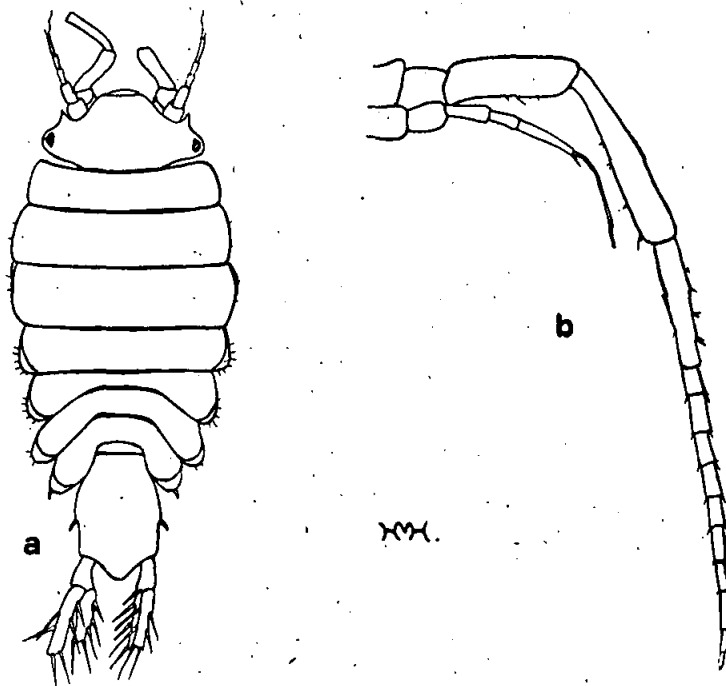


Fig. 10.—*Antias mawsoni*; a, type female ( $\times 40$ ); b, antennae of a paratype female ( $\times 100$ ).

Four ovigerous females were taken, the largest being 2.1 mm. in length. Uropods are missing in all but the type. In a specimen with the second antennae intact the flagellum consists of one long joint and ten short joints (fig. 10, b).

This species is very different from the only other Antarctic member of the genus, *A. charcoti* Richardson, but resembles more nearly *A. hispidus* Vanhöffen<sup>(\*)</sup>; in the last species, however, the body is spiny, the urosome is wider and of different shape, and the segments of the peraeon are of different proportions.

(\*) Vanhöffen, Deutsche Südpolar Exped., 1901–03, xv, 1914, p. 533, fig. 60, and Stephensen, Videns. Medd. nat. For. Kjøbenhavn, lxxiii, 1927, p. 356, fig. 24.

## FAMILY IANIRIDAE.

NOTASELLUS *Pfeffer*.NOTASELLUS SARSI *Pfeffer*.

*Notasellus sarsi* Pfeffer, Jahrb. Hamburg. wiss. Anst., iv, 1887, p. 125, pl. vii, fig. 5-28; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910) Zool., iii, 1921, p. 201; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 532.

*Notasellus australis* Hodgson, Crustacea in "Southern Cross" Coll., 1902, p. 251, pl. xxxvi; Richardson, Expéd. Antarc. Française (1903-05), Sci. Nat.: Doc. Sci., Isopodes, 1906, p. 13, and 1908, p. 5; Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04), Nat. Hist., v, 1910, p. 49; Richardson, 2<sup>e</sup> Expéd. Antarc. Française (1908-10), 1913, p. 17.

Thirty-seven specimens of this variable species were taken at the following localities.

*Locality*.—Macquarie Island, Garden Bay, December, 1912, "under stones" and Aerial Cove, 19th January, 1913, "under stones." Main Base: Boat Harbour, September, 1913, 3-5 fathoms, and 28th May, 1912, and 1st June, 1912, 3½-5 fathoms. Station vii, 21st January, 1914, 60 fathoms.

IAIS *Bovallius*.IAIS PUBESCENS (*Dana*).

*Iaera pubescens* Dana, U.S. Expl. Exped., xiii, 1853, p. 744, pl. xlix, fig. 9.

*Iais pubescens* Stebbing, Proc. Zool. Soc., 1900, p. 549, pl. xxxviii (ref. and syn.); Chilton, Subantarc. Is., N. Zeal., Art. xxvi, 1909, p. 649; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 530; Monod, Rés. du Voy. "Belgica" (1897-99), Zool. Anvers, 1926, p. 13; Stephensen, Videns. Medd. nat. For. Kjobenhavn, lxxxiii, 1927, p. 356; Monod, Senckenbergiana, xiii, 1931, p. 11; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, p. 178, fig. 41, a-c.

A great number of specimens was secured.

*Locality*.—Macquarie Island, Garden Bay, 28th February, 1913, "from species of *Exosphaeroma*."

ECTIAS *Richardson*.ECTIAS TURQUETI *Richardson*.

*Ectias turqueti* Richardson, Expéd. Antarc. Française (1903-05), Sci. Nat.: Doc. Sci., Isopodes, 1906, p. 14, pl. i, fig. 5, and text figs. 14-19, and 2<sup>e</sup> Expéd. Antarc. Française (1908-10), Isopodes, 1913, p. 18; Tattersall, Brit. Antarc.

"Terra Nova" Exped. (1910) Zool., iii, 1921, p. 202; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, p. 186.

Five examples of this elongate Ianirid were taken in Antarctica.

*Locality*.—Main Base, September, 1913, 3-5 fathoms.

*IAEROPSIS* *Koehler*.

*IAEROPSIS PATAGONIENSIS* *Richardson*.

*Iaeropsis patagoniensis* Rich., Proc. U.S. Nat. Mus., xxxvi, 1909, p. 421, fig.; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, p. 191, fig. 45a-f.

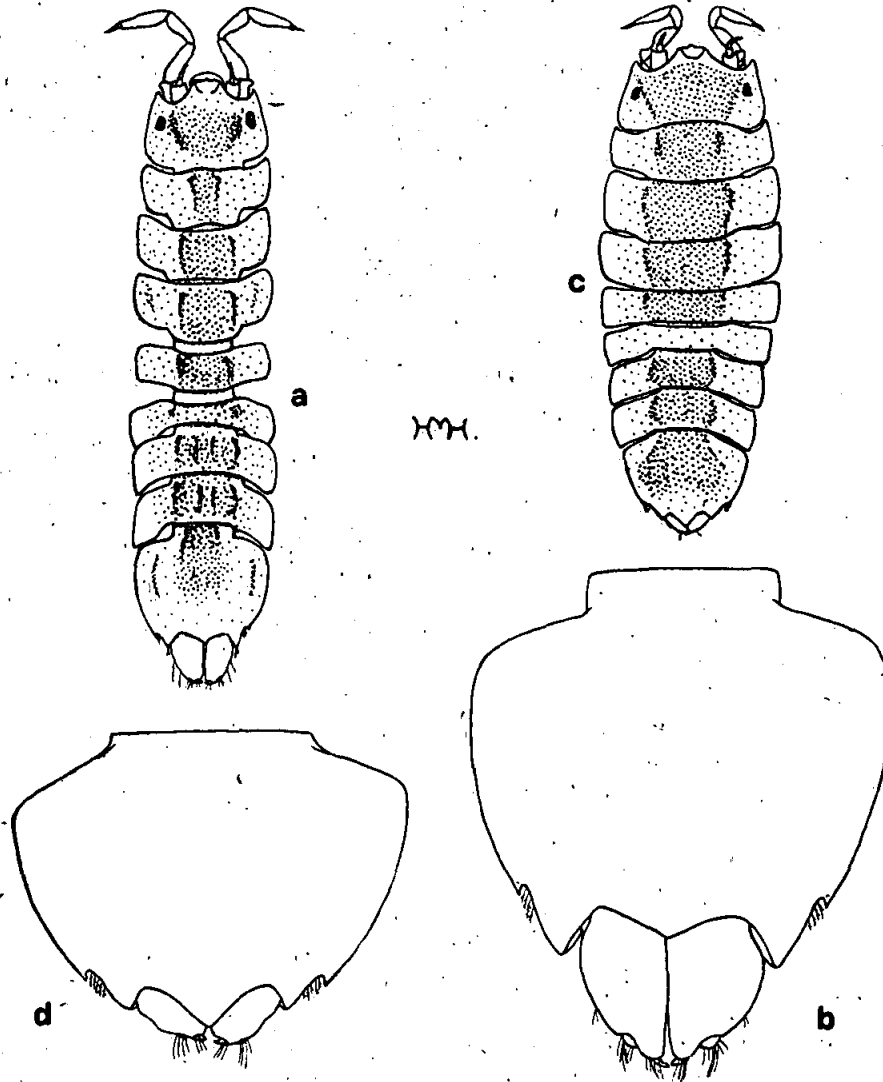


Fig. 11.—*Iaeropsis patagoniensis*; a, male ( $\times 40$ ); b, pleon and uropoda of male ( $\times 25$ ); c, female, ovigerous ( $\times 13$ ); d, pleon and uropoda of female ( $\times 40$ ).



♂ Body transversely convex dorsally, elongate, about four times as long as greatest width. Cephalon half as wide again as medial length; frons with a rostrum or "frontal lobe" fitting into an emargination; this rostrum is subtruncate anteriorly, feebly bisinuate and with a small median projection. Eyes black, of moderate size. First antennae composed of six joints, the first of which is much the largest, and has the outer anterior angle rounded and produced forwards nearly to end of second article. Second antennae robust, longer than head; first three articles of peduncle short; fourth expanded and a little longer than fifth, but shorter than the first joint of the flagellum, which has the inferior edge partly serrate; twelve very short joints complete the flagellum.

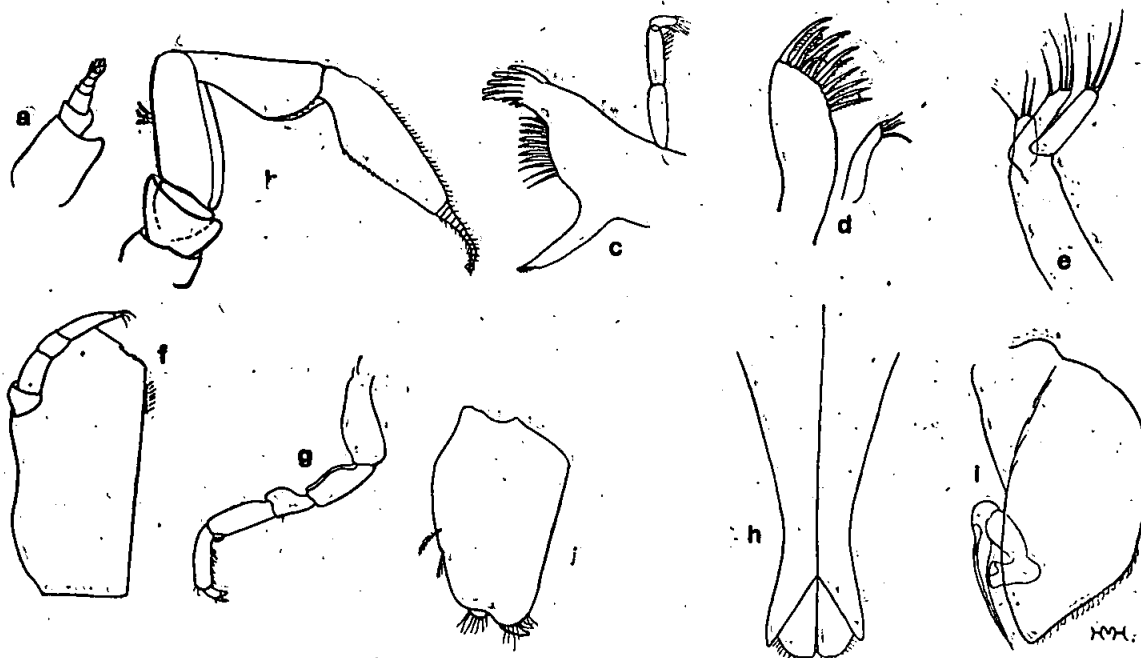


Fig. 12.—*Isopopsis patagoniensis*, male; a and b, first and second antennae ( $\times 30$ ); c, mandible ( $\times 42$ ); d and e, first and second maxillae ( $\times 42$ ); f, maxilliped ( $\times 30$ ); g, first pereopod ( $\times 20$ ); h and i, first and second pleopods ( $\times 30$ ); j, uropod ( $\times 42$ ).

Peraeon segments loosely articulated; first, second, third, sixth and seventh subequal in length; fourth and fifth shorter.

Caudal segment about one-seventh wider than medial length, including uropods in the outline cardiform; lateral margins evenly curved, but the curve is broken on each side by an emargination, producing a tooth-like projection at the level of seven-eighths of the length of the segment; behind this tooth the emargination is furnished with plumose hairs. Hinder portion of pleon broadly excavated for insertion of uropods, between which there is a wide, triangular projection, which does not extend back to the level of the postero-lateral angles of the segment. Uropods unusually large for the genus, with a peduncle three-sevenths as long as pleon and about one and three-fourths times longer than wide; exopod small, rounded and endopod a little larger, subtriangular in shape and slightly curved, with apex almost acute.

The mandibles have ten spines in the spine-row, and the outer plate of the first maxillae is furnished with twelve denticulate spines; the distal margin of the broad, plate-like second joint of the maxillipeds slopes inwards and is irregularly serrate; there are six to seven coupling hooks and none of the joints of the palp is expanded. None of the other appendages is of particular interest (see fig. 12).

Lateral parts of head, thorax and pleon colourless, but median portions with a broad purplish-brown marking, margined with darker brown, excepting on fifth peraeon segment, which is wholly white.

Length, 10 mm.

♀ Oviparous. Body oval instead of nearly parallel-sided (fig. 11, c); less than three times as long as wide, with the segments not widely separated laterally one from the other. Cephalon nearly twice as long as medial length. Width of caudal segment one and one-third times medial length; the uropods are much smaller than in the male, being only one-fourth as long as the pleon and more definitely "inserted" in the posterior excavation; the apex of the median triangular projection between the uropods is more acute and reaches back well beyond the level of the postero-lateral angles of the pleon. Colour as in male.

Length, 5 mm.

*Locality.*—Macquarie Island, Garden Bay, 23rd July, 1912, "common on under-surfaces of rocks below low water," and Garden Bay, 17th November, 1912, "obtained by scraping off spongy covering to rocks below low water," and South-east Harbour, August, 1914, "roots of kelp," and Aerial Cove, 19th January, 1913, "under stones."

A good series was secured and the species is evidently common at Macquarie Island. The colouration varies little, but while the fifth peraeon segment is usually colourless, in some specimens it is marked with purplish-brown like the others.

The difference in the uropods and caudal segment of the sexes, when adult, is of interest; in young males the uropods are relatively much smaller than in the adult, but even in juveniles the female is oval in form and wider than the male. The second antennae are proportionately shorter and stouter in the young.

Nicolet's description and figures of *I. curvicornis*, which Chilton records from New Zealand<sup>9</sup> are not available to me. That species apparently somewhat resembles *I. patagoniensis*, but according to Stebbing's remarks and illustrations<sup>10</sup> the last-named differs in the following characters: the size is larger, the frontal lobe of the head is of different shape, the lateral margins of the caudal segment are unarmed except for the one tooth on each side, and the fourth joint of the maxillipeds is not "produced on the inner margin"; also, the last peduncular joint of the second antennae is relatively longer.

(The above notes and figures were made before Nordenstam's supplementary description and remarks appeared in 1933.)

<sup>9</sup> *I. neo-zelanica* Chilton, Trans. N. Zeal. Inst., xxiv, 1892, p. 267.

<sup>10</sup> Stebbing, Herdman's Pearl Oyster Fish., Supp. Rep., xxiii, 1905, p. 51, pl. xi (C).

## FAMILY MUNNIDAE.

## MUNNA Kröyer.

## MUNNA ANTARCTICA (Pfeffer).

*Haliacris antarctica* Pfeffer, Jahrb. Hamb. Wiss. Anst., iv, 1887, p. 137, pl. vi, figs. 28-47; Chilton, Subantarctic Is. N. Zeal., Art. xxvi, 1909, p. 650, fig. 14b; Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04), Nat. Hist., 1910, p. 56; Tattersall, Brit. Antarc. "Terra Nova" Exped. (1910), Zool., iii, 1921, p. 203, pl. i, figs. 15, 16 and ii, figs. 1-3.

*Haliacris australis* Hodgson, Crustacea in "Southern Cross" Coll., 1902, p. 253, pl. xxxiv, fig. 1a-d and xxxvii; Richardson, Expéd. Antarc. Française (1903-05), Sci. Nat.: Doc. Sci., Isopodes, 1906, p. 16, fig. 20, and 1908, p. 5.

*Munna antarctica* Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 562, fig. 90 (? *partim*); Monod, Senckenbergiana, xiii, 1931, p. 14, figs. 4b, 6a-b, 10b, 11b, 12b, 14b; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, p. 211, fig. 52a, b and p. 214.

Four specimens, mostly damaged, so that it is not possible to determine whether they are referable to *Munna antarctica* (Pfeffer) or its variety *Munna australis* (Hodgson).

*Locality*.—Main Base: 3rd September, 1912, 25 fathoms, "found amongst roots of brown algae," and Boat Harbour, September, 1913, 2-4 fathoms. Station vii.

## MUNNA NEGLECTA Monod.

*Haliacris antarctica* Richardson, 2c Exped. Antarc. Française (1908-10), Isopodes, 1913, p. 19.

*Munna antarctica* Stebbing, Proc. Zool. Soc., 1919, p. 336, pl. v.

*Munna neglecta* Monod, Senckenbergiana, xiii, 1931, p. 14, figs. 3, 4a, c, 5a, b, 10a, c, 11a, 12a-c, 13a-i, 14a, 16a, b; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, p. 215, fig. 53a, b.

Associated with *M. antarctica* and other Asellota were several females and an adult male of this species. The male (fig. 13, a) is 3.4 mm. in length and is slightly wider than that shown by Monod in his fig. 4a. The gnathopods have the infero-distal angle and the tooth of the "palm" well developed, and the concavity of the opposing propodal thumb is deep (fig. 13, b).

The dorsum of these specimens is pigmented, but the colour markings are somewhat variable and this character is of no assistance in separating *M. neglecta* from *M. antarctica*, as the examples examined by Monod suggested. In that author's fig. 5b a small pale area is shown on each side of the median pale portion of the pleotelson; these are much larger

in some specimens now examined and may even join the median area and so form the "cross" thought to be characteristic of *M. antarctica*. This is shown in the accompanying illustration of the male.

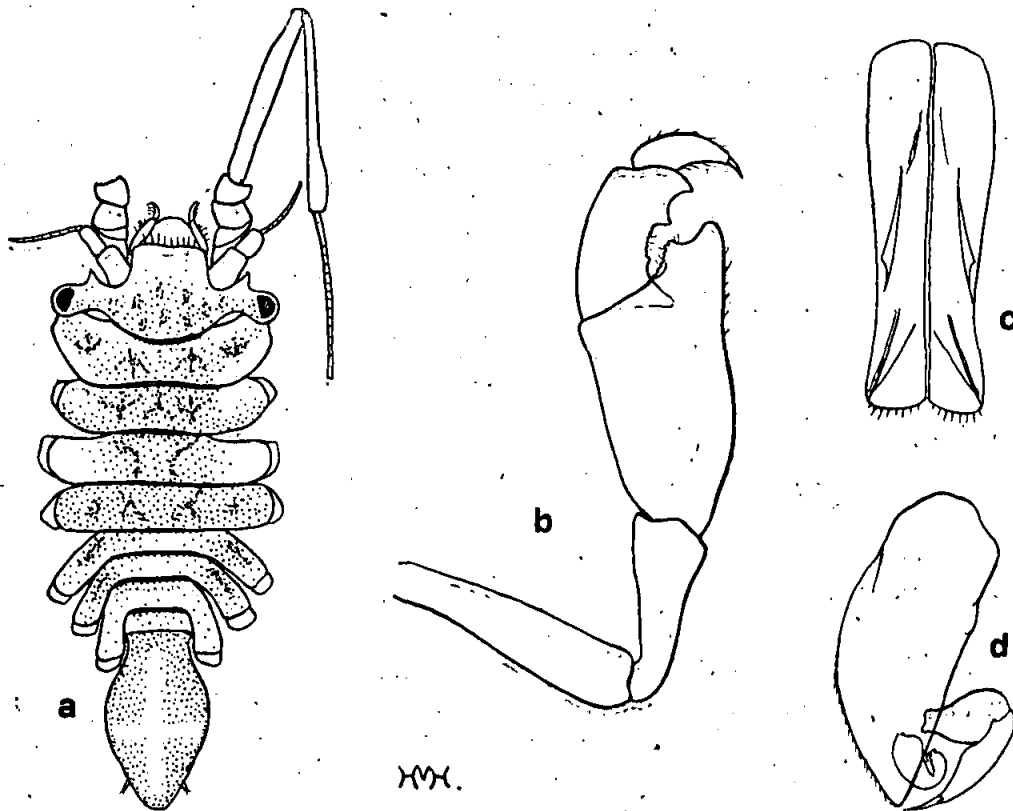


Fig. 13.—*Munna neglecta*, a, male ( $\times 22$ ); b, gnathopod of male ( $\times 40$ ); c and d, first and second pleopods of male ( $\times 75$ ).

The peduncle of the second antennae is rather stout and the last joint is as long as the third and fourth combined.

*Locality*.—Main Base: Boat Harbour, September, 1913, 2-4 fathoms.

*MUNNA MACQUARIENSIS* sp. nov.

♂ Body rather slender, three times as long as greatest width. Head about as long as first pereopod segment, with frons subtruncate; eyes small. First antennae with seven-jointed flagellum. Second antennae slender, as long as body; last peduncular joint as long as rest of peduncle and one-fourth as long again as fourth joint; flagellum little longer than fifth joint of peduncle.

First pereopod segment with antero-lateral angles narrowly rounded and produced forwards. Lateral borders of second to fourth segments rounded, of last three segments subtruncate; coxal plates rounded. First pereopod (gnathopod) clothed with long

hairs; infero-distal angle of carpus prominently produced to form a thumb as long as the propodus; "palm" of carpus crenulate, without any one particularly large tooth; opposing propodal edge with a moderately large tubercle at about middle of length and a smaller projection posterior to it, merus almost equal in length to ischium. Inner edge of propodus of posterior legs margined with spines, each of which bears a setule. Dorsum pigmented, pleotelson with a median pale area.

Length, 6 mm.

♀ The non-ovigerous female has much the same body form as the male, but egg-bearing females are relatively wider.

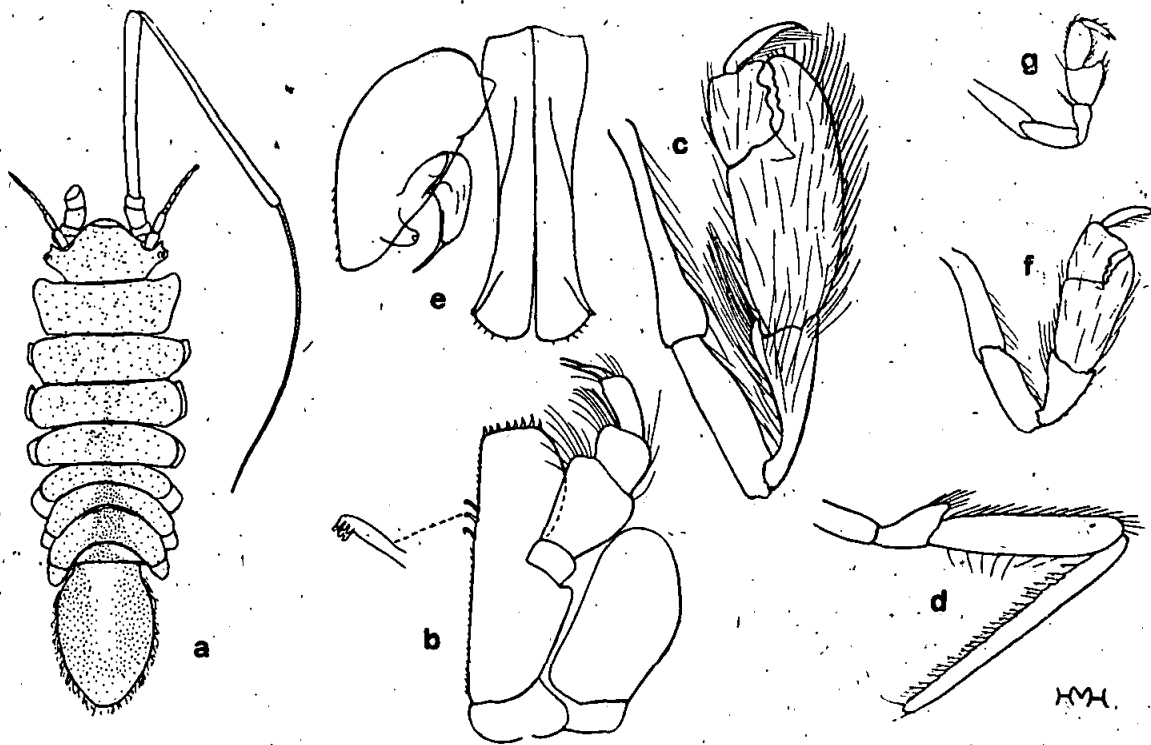


Fig. 14.—*Munna macquariensis*, a, type male ( $\times 11$ ); b, maxilliped of type male ( $\times 60$ ); c and d, gnathopod and last peracopod of type male ( $\times 22$ ); e, first and second pleopoda of type male ( $\times 60$ ); f, gnathopod of paratype male ( $\times 22$ ); g, gnathopod of paratype female ( $\times 22$ ).

*Locality*.—Macquarie Island: Aerial Cove, 19th January, 1913, "under stones."

Three males, a non-ovigerous female and several egg-bearing females were taken. An adult male is described above; the gnathopod of a younger male, 5 mm. in length, is relatively much smaller (fig. 14, f) but has the same characteristics save that the ischium is distinctly longer than the merus.

This species somewhat resembles Monod's *M. neglecta*, but has the antennae more slender, the eyes smaller and the pleotelson relatively more robust. The male gnathopods also differ rather considerably; they are far more hairy and the inferior margin of the carpus is more strongly convex in the adult; there is no prominent tooth on the carpal palm and the propodus differs in shape. The first and second pleopods of the male apparently differ slightly in the two species.

MUNNA NEOZELANICA *Chilton*.

*Munna neozelanica* Chilton, Ann. Mag. Nat. Hist. (6) ix, 1892, p. 2, pl. i and ii;  
Monod, Senckenbergiana, xiii, 1931, p. 14, figs. 8c, 9c-e.

*Haliacris neozelanica* Chilton, Subantarct. Is. N. Zeal., Art. xxvi, 1909, p. 650, fig. 14a;  
Stephensen, Videns. Medd. nat. For. Kjobenhavn, lxxxiii, 1927, p. 357.

*Locality*.—Macquarie Island, 1913, "from under stones below low water" and Garden Bay, 21st July, 1912, "found crawling over stones covered with calcareous worm tubes," and Garden Bay, 17th November, 1912, "obtained by scraping off spongy covering to rocks below low water."

PARAMUNNA *Sars*.

PARAMUNNA ANTARCTICA (*Richardson*).

*Austrimunna antarctica* Richardson, Expéd. Antarc. Française (1903-05), Sci. Nat. :  
Doc. Sci., Isopodes, 1906, p. 20, pl. i, fig. 7 and text-figs. 24-26, and xxx,  
1908, p. 5, and 2° Expéd. Antarc. Française (1908-10), Isopodes, 1913, p. 20.

*Paramunná antarctica* Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914,  
p. 572; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03,  
iii, 1933, p. 232, fig. 61.

Six specimens, males and ovigerous females, taken with other small crustaceans at the Main Base, are apparently referable to this species, but differ from Richardson's description and figures in the following particulars. The size is smaller, the males being 2 mm. or less in length and the egg-bearing females 2.1 mm. or less, and the urosome is slightly more elongate; further, the eye-stalks are longer and more slender than, and the antennae are quite twice as long as, shown in Richardson's figures. Therefore, although the general resemblance is close, it is with some hesitation that the examples now examined are identified with *P. antarctica*.

The difference in the body form of the males and females from Commonwealth Bay is very marked. In the male (fig. 15, *a*) the body is two and one-fifth times as long as wide, the pereaeon segments increase gradually in width to the fourth (which is widest) and the three hinder segments decrease in width, and are successively more curved in a posterior direction. The first thoracic segment is about as long as the second in one male, a little shorter in others. The length of the urosome is about one and one-sixth times the width. The flagellum of the second antennae consists of ten or eleven articles (six according to Richardson), the first being the longest.

The body of the ovigerous female (fig. 15, *e*) is greatly widened, its length being little more than one and one-half times the greatest width, and the first pereaeon

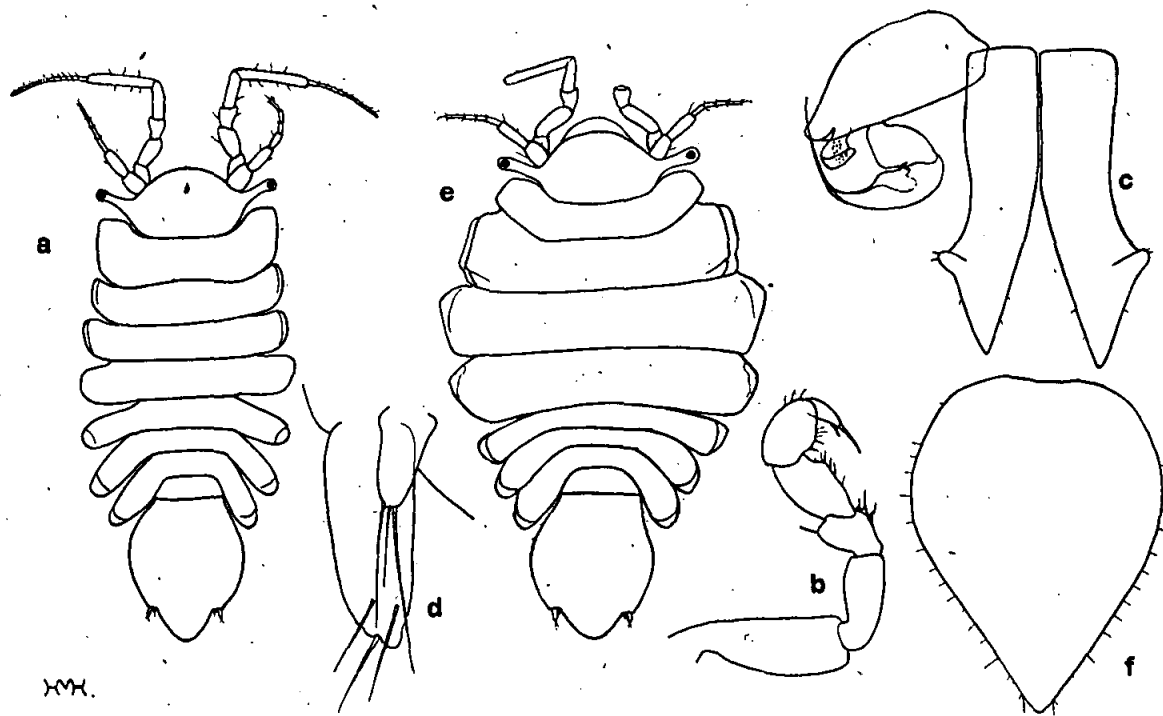


Fig. 15.—*Paramunna antarctica*, *a*, male ( $\times 33$ ); *b*, first pereopod of male ( $\times 84$ ); *c*, first and second pleopoda of male ( $\times 78$ ); *d*, uropoda of male ( $\times 460$ ); *e*, female ( $\times 33$ ); *f*, first pleopoda of female ( $\times 84$ ).

segment is conspicuously shorter than the second, third or fourth segments; the first to third segments successively increase markedly in width, and the fourth is wider than the second; the three posterior segments are shorter. The urosome is longer than wide, but is relatively slightly wider than in the male. In a specimen with intact antennae there are eight joints in the flagellum of the second pair.

*Locality*.—Main Base: Boat Harbour, September, 1913, 2-4 fathoms.

PARAMUNNA DUBIA *sp. nov.*

♀ Ovigerous. Form subfusiform, two and one-third times as long as wide, widest at second and third peraeon segments. Head elongate, as long as width excluding eye-stalks, which are stout and rather short; frons wide, subtriangular, with margins slightly sinuate. First antennae six-jointed, the first joint wider and longer than the others; second article rather more robust than the four following. Fifth peduncular joint of second antennae slightly longer, but considerably narrower than second, which is expanded; third joint very short and fourth only half as long as fifth; flagellum with five articles.

First peraeon segment with antero-lateral angles slightly produced forwards, shorter than second, which is shorter than third or fourth segment; last three segments narrower and shorter than any of the others.

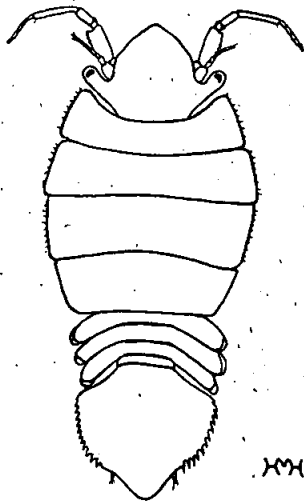


Fig. 16.—*Paramunna dubia*, type female ( $\times 35$ ).

Pleon composed of two segments; caudal segment about as long as wide, cardiform, with lateral margins dentate and posterior margin subtriangularly rounded.

Length, 1.8 mm.

Locality.—Main Base, 3rd September, 1912, 25 fathoms.

The single specimen available has not been dissected. This species is allied to *P. rostrata* Hodgson, *P. dilatata* Vanhöffen and *P. serrata* Richardson. It differs from the first two species in the shape of the front of the head and in the narrower posterior thoracic segments. According to Richardson, *P. serrata* has both the frons of the cephalon and the hinder margin of the caudal segment broadly rounded and the size is larger. Nevertheless, the small female now described is apparently so close to



Richardson's species that its description as new must be regarded as provisional for as indicated by Stephenson<sup>11</sup>. *P. serrata* may be a variable species. On the other hand the male from Auckland Island which Stephenson tentatively records as *P. serrata* may represent another closely allied new species; it is of about the same size as *P. dubia*, but has only three joints in the flagellum of the first antennae and seven in that of the second, and the caudal segment is relatively wider.

*PARAMUNNA LUNATA* sp. nov.

♂ Head elongate, excluding the slender eye-stalks as long as width, and much narrower than first segment of thorax, into which it is rather deeply sunk; frons rounded. First antennae less than half as long as peduncle of second antennae, and with a flagellum

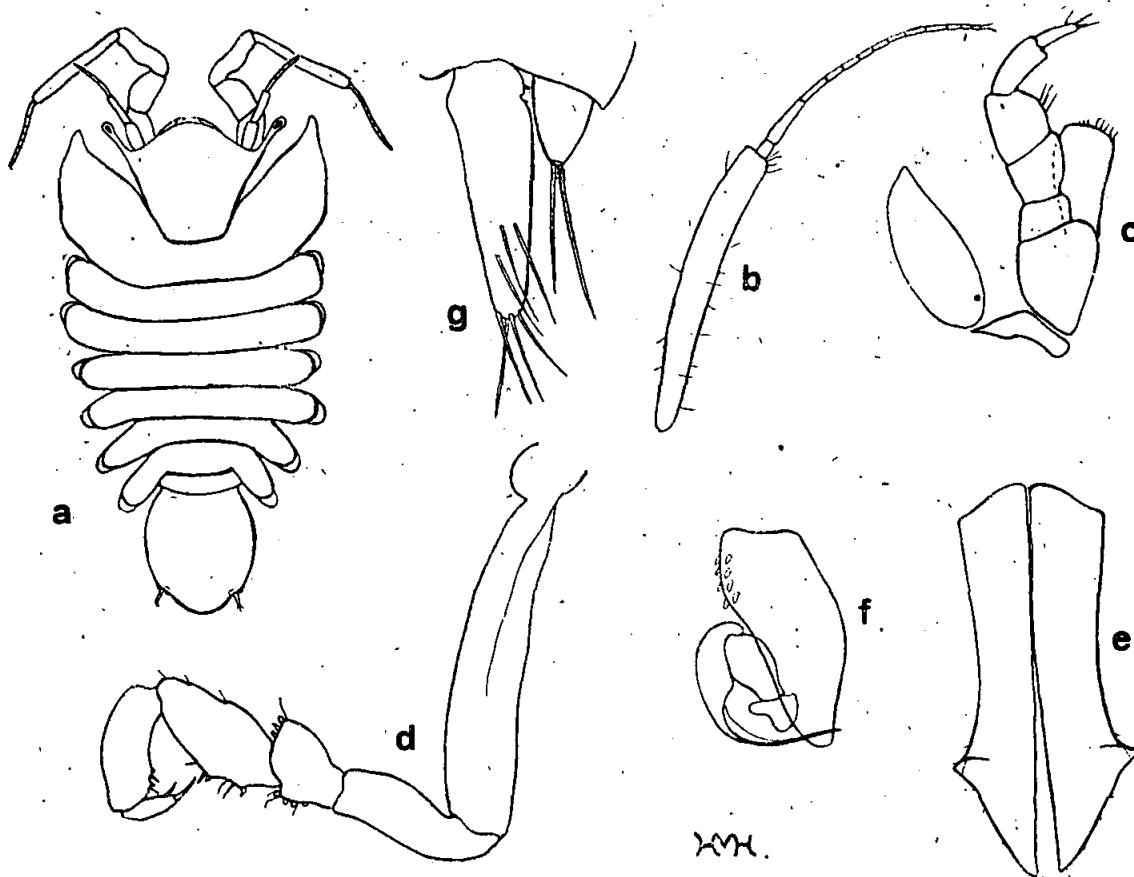


Fig. 17.—*Paramunna lunata*, a, type male ( $\times 28$ ); b-g, paratype male; b, second antenna ( $\times 80$ ); c, maxilliped ( $\times 126$ ); d, first peracopod ( $\times 70$ ); e and f, first and second pleopods ( $\times 70$ ); g, uropod ( $\times 400$ ).

of four joints. Second antennae with fifth peduncular segment almost twice as long as fourth joint, which is longer but narrower than the third article; flagellum slightly shorter than fifth joint of peduncle and composed of thirteen articles.

First segment of the peraeon wider than any of the others, with lateral parts expanded and antero-lateral angles narrowly rounded and produced forwards to level of ends of ocular peduncles; second and third segments subequal in length and breadth; remaining segments successively and regularly becoming narrower. Lateral margins of second to seventh segments rounded.

Pleon of two segments, the urosome suboval and almost as wide as medial length.

First peraeopod prehensile, articulated quite near apex of antero-lateral angle of first peraeon segment, almost at level of ends of eye-stalks; propodus with two strong compound setae on inferior margin; carpus with several setae (two of which are compound) and two very short thorns; merus with four blunt, short spines and two or three setae on inferior edge; the proportions of the joints are shown in fig. 17, *d*. The remaining legs are long, slender and ambulatory.

The pleopods and uropods are best described by the illustrations (fig. 17, *e-g*).

Length, 2.7 mm.

*Locality*.—Main Base: Boat Harbour, September, 1913, 2-4 fathoms.

Two males were taken in company with *P. antarctica*, *Munna* spp., etc., etc. The head of this species resembles that of *P. incisa* Richardson but in that species the body is narrower, the eye-stalks (as figured) are stouter, the second antennae have a four-articulate flagellum, and the antero-lateral angles of the first peraeon segment are rounded and not produced forwards beyond the base of the ocular stalks.

Owing to its large first thoracic segment, at least the male of *P. lunata* has a characteristic truncate appearance anteriorly, enabling one to readily separate it with the naked eye from other small species.

#### AUSTROSIGNUM *Hodgson*.

##### AUSTROSIGNUM GLACIALE *Hodgson*.

*Austrosignum glaciale* Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04), Nat. Hist., 1910, p. 68, pl. x, fig. 2; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 578, fig. 109; Monod, Senckenbergiana, xiii, 1931, p. 12, figs. 2*a-b*, 9*a*; Nordenstam, Further Zool. Res., Swedish Antarc. Exped., 1901-03, iii, 1933, p. 241, fig. 66, *a-c*.

*Locality*.—Main Base, 3rd September, 1912, 25 fathoms, "found amongst roots of brown algae."

COULMANIA *Hodgson.*COULMANIA FRIGIDA *Hodgson.*

*Coulmannia frigida* Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04), Nat. Hist., v, 1910, p. 54; Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 580, fig. 111.

A single female.

*Locality.*—Station vii, 21st January, 1914, 60 fathoms.

## FAMILY MUNNOPSISIDAE.

PSEUDARACHNA *Sars.*PSEUDARACHNA SPICATA (*Hodgson.*)

*Notopais spicata* Hodgson, Nat. Antarc. "Discovery" Exped. (1901-04), Nat. Hist., v, 1910, p. 70, pl. viii, fig. 1.

*Pseudarachna spicata* Vanhöffen, Deutsche Südpolar Exped. (1901-03), xv, 1914, p. 593, fig. 126.

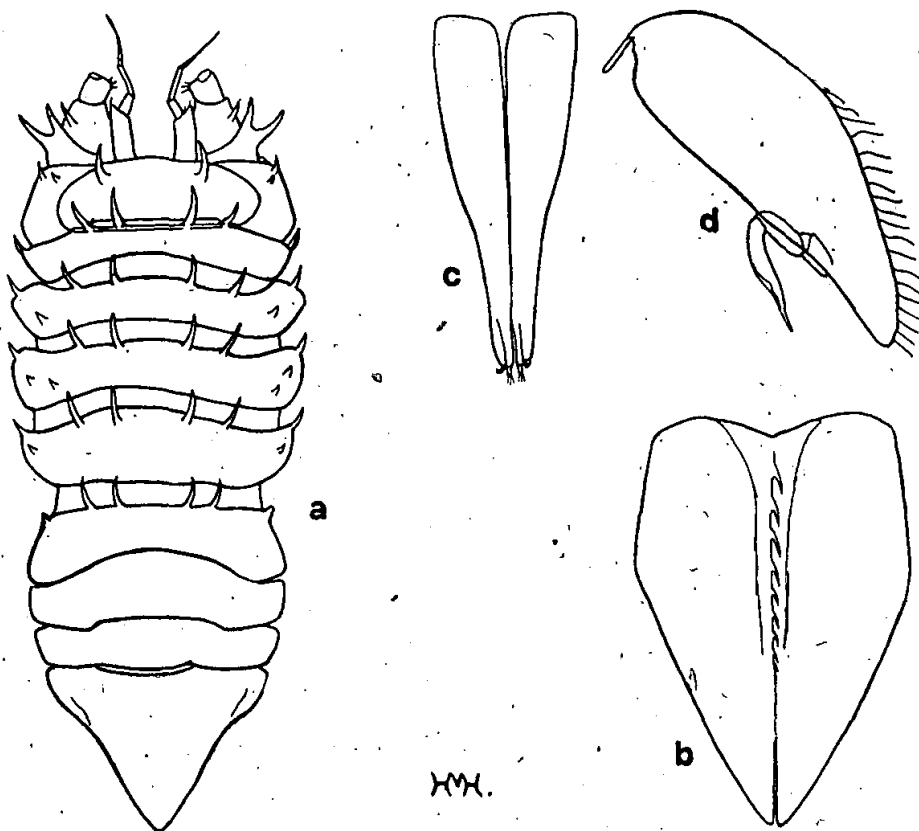


Fig. 18.—*Pseudarachna spicata*, a, ovigerous female ( $\times 13$ ); b, first pleopoda of female ( $\times 41$ ); c and d, first and second pleopoda of male ( $\times 41$ ).

Vanhöffen refers this form to *Pseudarachna*; in the type of this genus (*P. hirsuta* Sars) the uropod is stated to be uniramous, whereas Hodgson's species has two rami.

Both Hodgson and Vanhöffen illustrate males about 2 mm. in length, but the appendages have not been figured in detail.

Two males and three females from Commonwealth Bay are now available; the largest specimen, an ovigerous female (fig. 18, *a*) is 7 mm. in length. The appendages in these examples are extremely fragile and in only one are the first to fifth pereopods intact.

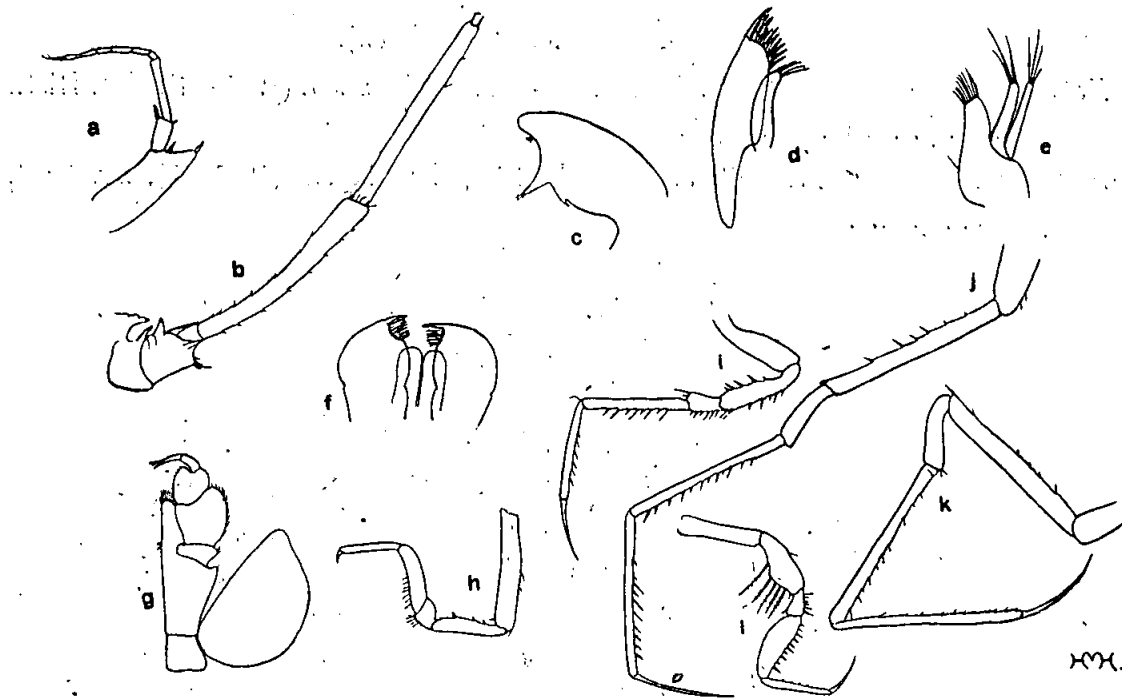


Fig. 19.—*Pseudarachna spicata*, female; *a*, first antenna ( $\times 27$ ); *b*, second antenna ( $\times 15$ ); *c*, mandible ( $\times 27$ ); *d* and *e*, first and second maxillae ( $\times 40$ ); *f*, posterior lip ( $\times 40$ ); *g*, maxilliped ( $\times 27$ ); *h* to *l*, first to fifth pereopods ( $\times 15$ ).

In the adult female the body is two and one-third times as long as the greatest width. The second joint of the peduncle of the first antennae is barely one-third the length of the first, and less than half its width; the third is still more slender, and is nearly twice as long as the second; the flagellum is about as long as the first peduncular joint, and consists of seven or eight articles. The peduncle of the second antennae, when laid back, reaches to the hinder margin of the fourth peraeon segment; its fourth and fifth joints are equal in length, elongate and spinulose, each twice as long as the first three short joints combined.

The first four pairs of legs are very slender, and the second pair are no more robust, but much longer, than the first. The third and fourth are much longer than the others, each nearly as long as the whole animal, the fourth slightly longer than the third. In the third pair the ischium is a little longer than the carpus, and in the fourth is slightly shorter than the carpus, which is subequal in length to the propodus in both. Fifth legs about as long as first, but with ischium and carpus expanded.

The pleopodal operculum of the female is cardiform, with a rather deep median keel, armed with seven or eight backwardly-directed, thorn-like spines (fig. 18, b).

The available appendages are figured herewith for comparison with those of *P. hirsuta* (fig. 19).

*Locality.*—Main Base, 3rd-4th September, 1912, 25 fathoms, "found amongst roots of brown Algae" in company with *Gnathia antarctica*.

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