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# AMPHIPODA

By

K. H. BARNARD, D.Sc., F.L.S.

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By K. H. Barnard, D.Sc., F.L.S.

(Plate I and text-figs 1-174.)

## INTRODUCTION

THE collection of Amphipods made during the cruises of the R.S.S. 'Discovery' and the R.S.S. 'William Scoresby,' and by the staff of the Marine Biological Station at South Georgia during the years 1925-7, is a large one, comprising approximately 6600 specimens, of which about 4550 are Gammaridea, 1650 Hyperiidea, and 400 Cyamidea. The Lysianassidae alone are represented by over 1100 specimens. Out of a total number of 179 genera and 326 species, 19 genera and 107 species were considered as new. Of these 17 genera and 18 species were described for the first time in a preliminary notice in *Ann. Mag. Nat. Hist.* (10), VII. pp. 425-30, 1931. There are also 5 new varieties; and 1 new species described from a specimen in the South African Museum.

It would be no exaggeration to describe this collection as the most important brought back by any expedition since the days of the U.S. Exploring Expedition and the 'Challenger.' It is probably the most comprehensive and richest collection from one particular geographical region, certainly as far as concerns the southern hemisphere. Besides the bulk of the collection, which was made in the area specially investigated, a considerable amount of important material was secured on the outward and homeward voyages, and during the two winter cruises to South Africa.

The size of the collection is due to the enthusiasm and energy of the staff. It is evident that no opportunity was lost of making the investigation as thorough as possible. The staff is to be congratulated not only on having obtained so much material, but also on having taken so much care in preserving it. Except for a small minority of specimens, which were unavoidably mutilated by the means of capture, the whole collection is in excellent condition. Moreover, in a large number of instances, colour notes on the living animals, colour sketches, photographs, and biological data were made. The labour thus entailed must have been enormous, when it is remembered that various kinds of animals come up in the dredge or trawl, each of which requires special methods of preservation.

In addition to these words of praise for the staff in general for having amassed such a valuable collection, I have to express my thanks to Dr S. Kemp, the leader of the expedition, for having entrusted me with the examination of it. In accepting the undertaking I was fully aware of the disadvantages attending residence in the southern hemisphere, far from libraries and, even more necessary, the collections made by previous Antarctic expeditions. The importance of examining these type collections was not fully realized until the study of the Discovery collection was under way and difficulties of identification began to crop up.

With the advent of further and larger collections from the Antarctic the earlier

descriptions get subjected more and more to the fire of criticism. It is comparatively easy to sort out the specimens into species; the assignation of names, giving due credit to earlier authors, is the difficulty. All praise is due to those who have paved the way in the study of Antarctic and sub-Antarctic Amphipods. It is inevitable that pioneers should leave a few stones, sticks and snags as stumbling-blocks to those who follow. It takes much work to make a well-defined path, and also to arrive at a clear-cut definition of a "species."

It is also inevitable, with an ever more searching analysis of specific characters, that even the most elaborate descriptions will often be found to lack just the precise information which a later student requires.

Therefore, I realize only too well the deficiencies, and no doubt the errors, in the present report. In many instances I have been led to conclusions differing from those of other writers. In some cases I have utilized characters which have not been utilized before, with the result that perhaps it will at first have made confusion worse confounded. This is not really so, but it means that many precious records are not available for the discussion of problems of geographical distribution until the material has been re-examined. The final settlement of such questions must be left to a student who has the opportunity of making a critical study and comparison of the Antarctic material now preserved in the museums at London, Paris and Berlin.

With reference to the times of day of the captures as set out in the Station List, I would like to remark on the convenience in having the hours between sunset and sunrise printed in heavy type. This very greatly facilitates working out the daily bathymetrical migration of certain species.

I also wish to thank Dr W. T. Calman, F.R.S., and Dr Isabella Gordon, of the British Museum, for their kindly help in giving me transcriptions, tracings, and answers to many queries.

When entrusting me with the collection of Terra Nova Amphipods, Dr Calman included also a small collection of specimens made in South Georgia by Major Barrett-Hamilton. The identifications of these have been included as an appendix to the present report with the concurrence of Dr Kemp.

I have also seen some MS. notes on a few Amphipods from the Quest Expedition, by the late Dr Chilton. These do not extend our knowledge of the distribution of the species beyond what is recorded in the present report, with the exception of one species (see *infra*, p. 54), and they are therefore not included here. I have not seen the specimens.

The important paper of Dr Schellenberg (March 1931) on the Gammarids of the Swedish Antarctic Expedition and other collections was received after my MSS. had gone to press<sup>1</sup>. This explains why only the obvious and certain synonyms have been struck out. There are probably other synonyms among the species here described as new, but which are better reserved for more deliberate consideration than can be given in the present circumstances.

<sup>1</sup> Forwarded on February 13 and received by the Discovery Committee on March 10, 1931.

## GEAR

In the list of stations the following symbols represent the various kinds of gear used:

- B        Oblique.  
H        Horizontal.  
V        Vertical.  
BTS     Small beam trawl. Beam 8 ft. in length (2.45 m.): mesh at cod-end  $\frac{1}{2}$  in. (12.5 mm.).  
DC       Conical dredge. Mouth 16 in. in diameter (40.5 cm.), with canvas bag.  
DL       Large dredge. Light pattern, 4 ft. in length (1.2 m.).  
DLH     Large dredge. Heavy pattern, 4 ft. in length (1.2 m.).  
DS       Small dredge. 2 ft. in length (0.6 m.).  
LH       Hand lines.  
N 4-T } Nets with mesh of 4 mm. or 7 mm. (0.16 in. or 0.28 in.) attached to back of trawl.  
N 7-T }  
N 70     70 cm. tow-net. Mouth circular, 70 cm. in diameter (27.5 in.): mesh graded, at cod-end 74 to the linear inch.  
N 100    1 m. tow-net. Mouth circular, 1 m. in diameter (3.3 ft.): mesh graded, at cod-end 16 to the linear inch. From July 1, 1927, this net was replaced by another, of similar pattern, but with the cod-end made of stramin with 11-12 meshes to the linear inch.  
N 200    2 m. tow-net. Mouth circular, 2 m. in diameter (6.6 ft.): mesh graded, at cod-end 4 mm. (0.16 in.).  
N 450    4½ m. tow-net. Mouth circular, 4½ m. in diameter (14.8 ft.): mesh graded, at cod-end 7 mm. (0.28 in.).  
NC 50    Coarse 50 cm tow-net. Mouth circular, 50 cm in diameter (19.5 in.): 25 meshes to the linear inch.  
NCS-D } Tow-net of coarse silk, with 16 meshes to the linear inch, attached to trawl or other net.  
NCS-T }  
NH       Hand net.  
NHS     High speed tow-net. Mouth 3 in. in diameter (7.5 cm.): mesh 74 to the linear inch.  
NRL     Large rectangular net. Frame 8 ft. long and 2¼ ft. wide (2.45 m. × 0.7 m.) with bag of ½ in. mesh (12.5 mm.).  
NRM     Medium rectangular net. Frame 4 ft. long and 1¼ ft. wide (1.2 m. × 0.38 m.) with bag of 7 mm. mesh (0.28 in.).  
OTC     Commercial otter trawl. Head rope 80 ft. long (24.5 m.): mesh at cod-end 1½ in. (3.8 cm.).  
OTL     Large otter trawl. Head rope 40 ft. long (12.2 m.): mesh at cod-end 1¼ in. (3.2 cm.).  
RM       Mussel rake.  
TNL     Large fish-trap. Rectangular, 4 ft. by 4 ft. by 2½ ft. (1.2 m. × 1.2 m. × 0.75 m.), with netting or wire of ½ in. mesh (12.5 mm.).  
TYF     Young fish trawl. Mouth about 20 ft. in circumference (6 m.): bag of stramin with 11-12 meshes to linear inch. Fished until July 1926 with poles and otter-boards, thereafter attached to a circular tow-net frame 2 m. in diameter (6.6 ft.).

LIST OF STATIONS AT WHICH AMPHIPODA WERE  
COLLECTED, WITH THE SPECIES OBTAINED AT  
EACH STATION

R.R.S. 'DISCOVERY'

10. x. 25. 41° 37' N, 12° 30' W. N 200. 0-9000 m.: *Cystisoma pellucidum* (W. Suhm).
11. x. 25. 39° 05' N, 13° 04' W. N 100. 0 m.: *Phronima atlantica*, Guér.
14. x. 25. 34° 23' N, 14° 32' W. N 70. 0 m., day: *Corophium bonellii* (M. Edw.); *Oxycephalus clausi*, Bov.; *Caprella equilibra*, Say.
14. x. 25. 33° 37' N, 14° 39' W. N 100. 0 m.: *Oxycephalus clausi*, Bov.
16. x. 25. 29° 26' N, 15° 07' W. N 200. 0-900 m.: *Scina crassicornis* (Fabr.); *Phronima sedentaria* (Forsk.); *Rhabdosoma whitei*, Bate. From stomach of *Naucrates ductor*: *Platyscelus ovoides* (Claus).
25. x. 25. 17° 24' N, 18° 15' W. From stomach of *Thynnus pelamys*: *Phronima sedentaria* (Forsk.).
28. x. 25. 13° 25' N, 18° 22' W. N 450. 0-9000 m.: *Scina curvidactyla*, Chevr.; *Cystisoma pellucidum* (W. Suhm); *C. fabricii*, Stebb.; *Phronima sedentaria* (Forsk.).
2. xi. 25. 6° 55' N, 15° 54' W. N 200. 0-800 m.: *Scina vosseleri*, Tatt.; *Vibilia cultripes*, Voss.; *Cystisoma pellucidum* (W. Suhm); *C. fabricii*, Stebb.
12. xi. 25. 2° 20' S, 12° 45' W. N 100. 0 m.: *Vibilia viatrix*, Bov.; *Paraphronima gracilis*, Claus; *P. crassipes*, Claus; *Phronima sedentaria* (Forsk.); *P. atlantica*, Guér.; *Phronimella elongata* (Claus); *Phrosina semilunata*, Risso; *Thyropus sphaeroma*, Claus.
13. xi. 25. 3° 50' S, 12° 54' W. N 200. 0 m.: *Phronima sedentaria* (Forsk.); *P. curvipes*, Voss.
29. xi. 25. 25° 47' S, 14° 48' W. NH. 0 m.: *Brachyscelus rapax*, Claus.
- St. 1. 16. xi. 25. Clarence Bay, Ascension Island. NRM. 16-27 m., crl. s. sh.: *Maera ascensionis*, n.sp.; *Ampithoë ? brasiliensis* (Dana).
- St. 2. 17. xi. 25. Clarence Bay, Ascension Island. Shore collecting (and from buoy, sic on label): *Leucothoë spinicarpa* (Abildg.); *Hyale* sp.; *Ampithoë ? brasiliensis* (Dana).
- St. 3. 3. xii. 25. 29° 31' S, 13° 56' W. N 200. 500-700 m., day: *Phronima sedentaria* (Forsk.).
- St. 4. 30. i. 26. Tristan da Cunha. DL. 40-46 m.: *Ampithoë brevipes* (Dana); *Jassa pusilla* (Sars); *Parajassa tristanensis* (Stebb.); *Caprella acutifrons*, Latr.; *Pseudaeginella tristanensis* (Stebb.). From stomach of *Perca antarctica*, Blue Fish (see note, p. 27): *Vibilia armata*, Bov.; *Cylopus magellanicus*, Dana; *Phronima sedentaria* (Forsk.). N 100. 0-10 m., day: *Phronima sedentaria* (Forsk.).
- St. 5. 31. i. 26. Quest Bay, Tristan da Cunha. NRM. 7-12 m., g. r.: *Stenothoë* sp.; *Pontogeneia tristanensis*, n.sp.; *Ischyrocerus anguipes*, Kröy., var. *longimanus*, Hasw. Shore collecting and from stream through settlement: *Orchestia platensis*, Kröy.
- St. 6. 1. ii. 26. Tristan da Cunha, 3 miles N 30° E of settlement. DL. 80-140 m., r.: *Paramoera tristanensis*, n.sp.
- St. 8. 8. ii. 26. 42° 36' S, 18° 19' W. N 200. 600-700 m., day-night: *Cyphocaris richardi*, Chevr.; *Parandania boeckii* (Stebb.). N 100 H. 0-10 m., day: *Parathemisto gaudichaudii* (Guér.).
- St. 9. 11. ii. 26. 46° 11' S, 22° 27' W. N 200. 1250 (-0) m., day: *Parandania boeckii* (Stebb.); *Parathemisto gaudichaudii* (Guér.). N 100 H. 0-5 m., day: *Primno macropa*, Guér. N 450. 3500 (-0) m., day: *Lanceola serrata*, Bov.
- St. 24. 14. iii. 26. 10 miles N 72° E of Jason Light, South Georgia. N 100 H. 60 (-0) m., day: *Parathemisto gaudichaudii* (Guér.).
- St. 25. 14. iii. 26. 18 miles N 60° E of Jason Light, South Georgia. N 100 H. 0-5 m., night: *Cylopus lucasii*, Bate.



St. 26. 14. iii. 26. 26.5 miles N 54° E of Jason Light, South Georgia. N 100 H. 60 (-0) m., night: *Cylopus lucasii*, Bate; *Parathemisto gaudichaudii* (Guér.).

St. 27. 15. iii. 26. West Cumberland Bay, South Georgia. DL. 110 m., m. r.: *Ampelisca bouvieri*, Chevr.; *Haploöps securiger*, Brnrd.; *Heterophoxus videns*, Brnrd.; *Gnathiphimedia mandibularis*, Brnrd.; *Liljeborgia longicornis*, Schell.; *Methalimnedon nordenskjöldi*, Schell.; *Epimeria excisipes*, n.sp.; *Eusirus antarcticus*, Thoms.; *Schraderia gracilis*, Pfr.

St. 30. 16. iii. 26. West Cumberland Bay, South Georgia. DLH. 251 m., m. st.: *Aeginoides gaussi*, Schell.

St. 32. 17. iii. 26. 22.8 miles N 70½° E of Jason Light, South Georgia. N 100 H. 50 (-0) m., night: *Cylopus magellanicus*, Dana; *C. lucasii*, Bate.

St. 33. 18. iii. 26. 33 miles N 37° E of Jason Light, South Georgia. N 100 H. 50 (-0) m., day: *Parathemisto gaudichaudii* (Guér.). N 100 H. 90 (-0) m., day: *Primno macropa*, Guér.

St. 35. 18. iii. 26. 53 miles N 40° E of Jason Light, South Georgia. N 100 H. 90 (-0) m., day: *Cylopus magellanicus*, Dana; *Primno macropa*, Guér. N 100 H. 50 (-0) m., day: *Parathemisto gaudichaudii* (Guér.).

St. 36. 18. iii. 26. 38 miles N 39° E of Jason Light, South Georgia. N 100 H. 50 (-0) m., night: *Vibilia antarctica*, Stebb. 90 (-0) m., night: *Vibilia antarctica*, Stebb.; *Cylopus lucasii*, Bate; *Hyperia spinigera*, Bov.; *Parathemisto gaudichaudii* (Guér.). 0-5 m., night: *Cylopus magellanicus*, Dana; *C. lucasii*, Bate; *Parathemisto gaudichaudii* (Guér.).

St. 37. 18-19. iii. 26. 28 miles N 36° E of Jason Light, South Georgia. N 100 H. 50 (-0) m., night: *Cylopus magellanicus*, Dana; *C. lucasii*, Bate.

St. 38. 19. iii. 26. 18.5 miles N 33° E of Jason Light, South Georgia. N 100 H. 0-5 m., night: *Cylopus lucasii*, Bate. 90 (-0) m., night: *Primno macropa*, Guér.

St. 39. 25. iii. 26. East Cumberland Bay, South Georgia. OTL. 179-235 m., gy.m.: *Acidostomella cultrifera*, Schell.; *Orchomenella rossi* (Wlkr.); *O. macronyx*, Chevr.; *Pachychelium davidis*, Steph.; *Andaniotes linearis*, n.sp.; *Parharpinia rotundifrons*, n.sp.; *Leucothoë spinicarpa* (Abildg.); *Seba antarctica*, Wlkr.; *Metopella ovata* (Stebb.); *Colomastix fissilingua*, Schell.; *Acanthonotozomella oatesi*, Brnrd.; *Epimeria intermedia*, Schell.; *Polycheria antarctica* (Stebb.); *Eurystheus purpureus*, n.sp.; *Caprellinoides mayeri* (Pfr.); *Dodecas reducta*, n.sp.; *Aeginoides gaussi*, Schell.

St. 41. 28. iii. 26. 16½ miles N 39° E of Barff Point, South Georgia. N 70. 240-150 m., day: *Pseudorchomene coatsi* (Chilton); *Halice profundus*, n.sp.; *Parathemisto gaudichaudii* (Guér.). 100-50 m., day: *Parathemisto gaudichaudii* (Guér.).

St. 42. 1. iv. 26. Off mouth of Cumberland Bay, South Georgia. N 7-T and OTL. 120-204 m., m.: *Aristias antarcticus*, Wlkr.; *Lepidepecrella ovalis*, n.sp.; *Orchomenella rossi* (Wlkr.); *O. macronyx*, Chevr.; *Pseudorchomene coatsi* (Chilton); *Andaniotes linearis*, n.sp.; *Ampelisca eschrichtii* Kröy.; *A. macrocephala*, Lilj.; *Haploöps securiger*, Brnrd.; *Leucothoë spinicarpa* (Abildg.); *Proboloides typica* (Wlkr.); *P. carinata*, Schell.; *P. crenatipalmatus* (Stebb.); *Iphimediella margueritei*, Chevr.; *Gnathiphimedia macrops*, n.sp.; *Pagetina genarum*, Brnrd.; *Oediceroides macrodactylus*, Schell.; *Epimeria excisipes*, n.sp.; *Parepimeria crenulata*, Chevr.; *Melphidippa antarctica*, Schell.; *Eurystheus distichon*, Brnrd.; *Podocerus* sp.; *Caprellinoides mayeri* (Pfr.); *Dodecasella elegans*, Brnrd.; *Aeginoides gaussi*, Schell.

St. 44. 3. iv. 26. 32 miles N 51° E of Jason Light, South Georgia. N 100 H. 0-5 m., night: *Cylopus lucasii*, Bate.

St. 45. 6. iv. 26. 2.7 miles S 85° E of Jason Light, South Georgia. N 4-T and NCS-T. 238-270 m., gy.m.: *Aristias antarcticus*, Wlkr.; *Tryphosa kergueleni* (Miers); *Lepidepecrella ovalis*, n.sp.; *Orchomenella rossi* (Wlkr.); *O. macronyx*, Chevr.; *Pseudorchomene coatsi* (Chilton); *Pagetina genarum*, Brnrd.; *Halice profundus*, n.sp.; *Oediceroides calmani*, Wlkr.; *O. macrodactylus*, Schell.; *Syrrhoë psychrophila*, Monod; *Epimeria puncticulata*, Brnrd.; *Melphidippa antarctica*, Schell.; *Paraceradocus miersii* (Pfr.); *Eurystheus dimorphus*, n.sp.; *E. distichon*, Brnrd.; *Dodecasella elegans*, Brnrd.

- St. 46. 21. iv. 26. 51° 13' S, 49° 50' W. N 100 H. 0-5 m., night: *Vibilia antarctica*, Stebb.
- St. 47. 23. iv. 26. 50° 55' S, 54° 38' W. N 100 H. 0-5 m., night: *Vibilia antarctica*, Stebb.; *Cylopus magellanicus*, Dana; *Parathemisto gaudichaudii* (Guér.).
- St. 49. 3. v. 26. 13.5 miles N 51° E of Cape Bougainville, East Falkland Island. N 100 H. 0-5 m., night: *Vibilia antarctica*, Stebb.; *Parathemisto gaudichaudii* (Guér.).
- St. 51. 4. v. 26. Off Eddystone Rock, East Falkland Island. DLH, OTL, and N 4-T. 105-115 m., f.s.: *Amaryllis macrophthalma*, Hasw.; *Tryphosites chevreuxi*, Stebb.; *Orchomenella cavimanus* (Stebb.); *Urothoë falcata*, Schell.; *Leucothoë spinicarpa* (Abildg.); *Seba saundersii*, Stebb.; *Probolooides porcellanus*, n.sp.; *Colomastix castellata*, n.sp.; *Labriphimedia vespuccii*, Brard.; *Liljeborgia longicornis*, Schell.; *Monoculodes vallentini* (Stebb.); *Chosroës incisus*, Stebb.; *Rhachotropis antarctica*, n.sp.; *Atyloella dentata*, n.sp.; *Polycheria antarctica* (Stebb.); *Eurystheus remipes*, n.sp.; *Podocerus ? brasiliensis* (Dana); *Parathemisto gaudichaudii* (Guér.).
- St. 53. 12. v. 26. Port Stanley, East Falkland Island. Hulk of 'Great Britain.' 0-2 m., kelp roots: *Pariphimedia normani* (Cunn.); *Panoploea macrocystidis*, n.sp.; *Halirages huxleyanus* (Bate); *Haplocheira robusta*, n.sp.; *Ampithoë brevipes* (Dana).
- St. 54. 15. v. 26. Port Stanley, East Falkland Island. Shore collecting: *Paramoera obliquimanus*, n.sp.; *Haplocheira robusta*, n.sp.; *Corophium cylindricum* (Say).
- St. 55. 16. v. 26. Entrance to Port Stanley, East Falkland Island. BTS. 10-16 m.: *Acontistoma marionis*, Stebb.; *Halirages huxleyanus* (Bate); *Eurystheus eurypodii*, n.sp.; *Ampithoë brevipes* (Dana).
- St. 56. 16. v. 26. Sparrow Cove, Port William, East Falkland Island. BTS. 10½-16 m.: *Halirages huxleyanus* (Bate); *H. regis* (Stebb.); *Pontogeneia simplex* (Dana); *Atyloella magellanica* (Stebb.); *Ampithoë brevipes* (Dana).
- St. 57. 16. v. 26. Port William, East Falkland Island. BTS and NCS-T. 15 m.: *Liljeborgia kinahani* (Bate) var. *falklandica* n.
- St. 58. 19. v. 26. Port Stanley, Falkland Islands. RM. 1-2 m., piles of jetty: *Pachychelium davidis*, Steph.; *Atyloella magellanica* (Stebb.); *Haplocheira robusta*, n.sp.
- St. 62. 22. v. 26. 49° 22' S, 54° 48' W. N 100 H. 45 (-0) m., night: *Vibilia antarctica*, Stebb. N 100 H. 90 (-0) m., night: *Phronima sedentaria* (Forsk.).
- St. 64. 22. v. 26. 48° 34' S, 53° 34' W. N 100 H. 0-5 m., night: *Platyscelus ovoides* (Claus).
- St. 66. 23. v. 26. 48° 09' S, 52° 50' W. N 100 H. 0-5 m., night: *Cylopus magellanicus* Dana. N 100 H. 45 (-0) m., night: *Hemityphis rapax* (M. Edw.).
- St. 67. 23. v. 26. 47° 18' S, 51° 52' W. N 70 H. 45 (-0) m., day: *Vibilia australis*, Stebb.; *Cylopus magellanicus*, Dana.
- St. 69. 25. v. 26. 45° 06' S, 49° 00' W. N 100 H. 90 (-0) m., night: *Vibilia viatrix*, Bov.; *Paraphronima crassipes*, Claus.
- St. 71. 30. v. 26. 43° 20' S, 46° 02' W. TYF. 2000 (-0) m., day: *Cyphocaris richardi*, Chevr.; *Parandania boeckii* (Stebb.); *Eusiroides stenopleura*, n.sp.; *Micromimonectes irene*, Wolt.; *Lanceola serrata*, Bov.; *Scina curvidactyla*, Chevr.; *Vibilia antarctica*, Stebb.; *V. armata*, Bov.; *V. pyripes*, Bov.; *Cylopus magellanicus*, Dana; *Cystisoma fabricii*, Stebb.; *Parathemisto gaudichaudii* (Guér.); *Phronima sedentaria* (Forsk.); *Primno macropa*, Guér.
- St. 72. 1. vi. 26. 41° 43' S, 42° 20' W. N 450. 2000 (-0) m., night: *Cyphocaris richardi*, Chevr.; *Parandania boeckii* (Stebb.); *Lanceola remipes*, n.sp.; *Parathemisto gaudichaudii* (Guér.); *Phronima sedentaria* (Forsk.).
- St. 76. 5. vi. 26. 39° 50' S, 36° 23' W. N 450. 1500 (-0) m., day: *Cyphocaris richardi*, Chevr.; *Parandania boeckii* (Stebb.); *Lanceola pacifica*, Stebb.; *Scina curvidactyla*, Chevr.; *Vibilia viatrix*, Bov.; *Phronima sedentaria* (Forsk.).

St. 78. 12. vi. 26.  $35^{\circ} 18' S$ ,  $19^{\circ} 01' W$ . TYF. 1000 (-0) m., day: *Cyphocaris richardi*, Chevr.; *C. anonyx*, Boeck; *C. challengerii*, Stebb.; *Metacyphocaris helgae*, Tatt.; *Katius obesus*, Chevr.; *Parandania boeckii* (Stebb.); *Lanceola serrata*, Bov.; *Scina curvidactyla*, Chevr.; *S. incerta*, Chevr.; *S. borealis* (Sars); *Vibilia armata*, Bov.; *Paraphronima crassipes*, Claus; *Cystisoma pellucidum* (W. Suhm); *Parathemisto gaudichaudii* (Guér.); *Primno macropa*, Guér.

St. 80. 17. vi. 26.  $32^{\circ} 46' S$ ,  $10^{\circ} 00' W$ . N 200 H. 30-0 m., night: *Scina crassicornis* (Fabr.).

St. 81. 18. vi. 26.  $32^{\circ} 45' S$ ,  $8^{\circ} 47' W$ . N 450 H. 650 (-0) m., day: *Cyphocaris richardi*, Chevr.; *C. anonyx*, Boeck; *C. faurei*, Brnrd.; *Lanceola pacifica*, Stebb.; *Scina crassicornis* (Fabr.); *S. submarginata*, Tatt.; *Vibilia armata*, Bov.; *V. cultripes*, Voss.; *Cyllopus magellanicus*, Dana; *Cystisoma fabricii*, Stebb.; *Phronima sedentaria* (Forsk.); *P. curvipes*, Voss.; *Parascelus typhoides*, Claus.

St. 83. 21. vi. 26.  $32^{\circ} 30' S$ ,  $1^{\circ} 23' W$ . N 200 H. 650 (-0) m., night: *Cyphocaris challengerii*, Stebb.; *C. faurei*, Brnrd.; *Scina crassicornis* (Fabr.); *Brachyscelus cruscolum*, Bate; *Platyscelus ovoides* (Claus).

St. 84. 22. vi. 26.  $32^{\circ} 52' S$ ,  $1^{\circ} 55' E$ . NCS-D. 2000-0 m., night: *Cyphocaris richardi*, Chevr.; *Vibilia viatrix*, Bov.; *Paraphronima gracilis*, Claus; *Hyperioides longipes*, Chevr.

St. 85. 23. vi. 26.  $33^{\circ} 07' S$ ,  $4^{\circ} 30' E$ . N 450 H. 2000 (-0) m., night: *Metacyphocaris helgae*, Tatt.; *Parandania boeckii* (Stebb.); *Euandania gigantea* (Stebb.); *Scypholanceola vanhoeffeni*, Wolt.; *Scina curvidactyla*, Chevr.; *Pegohyperia princeps*, Brnrd.; *Phronima sedentaria* (Forsk.). N 70 V. 500-0 m., day: *Platyscelus ovoides* (Claus).

St. 86. 24. vi. 26.  $33^{\circ} 25' S$ ,  $6^{\circ} 31' E$ . N 450 H. 1000 (-0) m., day: *Cyphocaris richardi*, Chevr.; *C. faurei*, Brnrd.; *Lanceola serrata*, Bov.; *L. pacifica*, Stebb.; *Scypholanceola vanhoeffeni*, Wolt.; *Scina crassicornis* (Fabr.); *Phronima sedentaria* (Forsk.); *Streetsia challengerii*, Stebb.

St. 87. 25. vi. 26.  $33^{\circ} 53' S$ ,  $9^{\circ} 26' E$ . TYF. 1000 (-0) m., day: *Cyphocaris anonyx*, Boeck; *C. challengerii*, Stebb.; *Andaniexis australis*, n.sp.; *Stenopleura atlantica*, Stebb.; *Eusirella elegans*, Chevr.; *Scypholanceola vanhoeffeni*, Wolt.; *Parascina fowleri*, Stebb.; *Scina crassicornis* (Fabr.); *S. incerta*, Chevr.; *S. borealis* (Sars); *S. uncipes*, Stebb. f. *spinosa*, Voss.; *S. tullbergi* (Bov.); *Vibilia viatrix*, Bov.; *V. propinqua*, Stebb.; *V. armata*, Bov.; *Paraphronima crassipes*, Claus; *Hyperioides longipes*, Chevr.; *Phronima atlantica*, Guér.; *P. pacifica*, Streets; *Parapronoë campbelli*, Stebb.; *Streetsia challengerii*, Stebb.; *Hemityphis rapax* (M. Edw.).

St. 88. 27. vi. 26.  $34^{\circ} 04' S$ ,  $13^{\circ} 00' E$ . N 100 H. 3000-0 m., day: *Vibilia armata*, Bov.; *Hyperioides longipes*, Chevr.; *Phronima sedentaria* (Forsk.).

St. 89. 28. vi. 26.  $34^{\circ} 05' S$ ,  $16^{\circ} 00' E$ . TYF. 1000 (-0) m., day: *Cyphocaris richardi*, Chevr.; *C. anonyx*, Boeck; *C. challengerii*, Stebb.; *Andaniexis australis*, n.sp.; *Synopioides macronyx*, Stebb.; *Stenopleura atlantica*, Stebb.; *Lanceola serrata*, Bov.; *Scypholanceola vanhoeffeni*, Wolt.; *Scina crassicornis* (Fabr.); *S. incerta*, Chevr.; *S. langhansi*, Wagl.; *S. borealis* (Sars); *S. uncipes*, Stebb. f. *affinis*, Wagl.; *S. oedicarpus*, Stebb.; *Vibilia propinqua*, Stebb.; *V. armata*, Bov.; *Cyllopus magellanicus*, Dana; *Paraphronima crassipes*, Claus; *Hyperioides longipes*, Chevr.; *Dairella latissima*, Bov.; *Phronima atlantica*, Guér.; *Phrosina semilunata*, Risso; *Primno macropa*, Guér.; *Eupronoë minuta*, Claus; *Lycaea nasuta*, Claus; *Brachyscelus cruscolum*, Bate; *Platyscelus ovoides* (Claus); *Hemityphis rapax* (M. Edw.).

St. 90. 10. vii. 26. Simon's Town, False Bay, South Africa. NRM. 10-12 m.: *Lysianassa variegata* (Stmpsn); *Ampelisca palmata*, Brnrd.; *Liljeborgia kinahani* (Bate) var. *capensis* n.; *Melita inaequistylis* (Dana).

St. 91. 8. ix. 26. Off Roman Rock, False Bay, South Africa. NRL. 35 m., s.: *Amaryllis macrophthalmia*, Hasw.; *Lysianassa variegata* (Stmpsn); *Tryphosa onconotus*, Stebb.; *Ampelisca brevicornis*, Costa; *Phylluropus capensis*, n.sp.; *Aora typica*, Kröy., var. *gibbula* n.; *Lenboides afer*, Stebb.; *Photis macinata*, n.sp.; *Eurystheus palmoides*, n.sp.

St. 101. 14. x. 26.  $33^{\circ} 50' - 34^{\circ} 13' S$ ,  $16^{\circ} 04' - 15^{\circ} 49' E$ . N 450. 850-950 m., day: *Cyphocaris richardi*, Chevr.; *Katius obesus*, Chevr.; *Lanceola pacifica*, Stebb.; *Phronima sedentaria* (Forsk.). N 450. 1310-1410 m., day: *Cyphocaris richardi*, Chevr.; *Parandania boeckii* (Stebb.); *Lanceola serrata*, Bov.; *Parathemisto gaudichaudii* (Guér.); *Phronima sedentaria* (Forsk.). 15. x. 26. N 450 H. 350-400 (-0) m., night: *Phronima sedentaria* (Forsk.); *Phrosina semilunata*, Risso; *Anchylomera blossevillii*, M. Edw.; *Brachyscelus crusculum*, Bate; *Oxycephalus clausi*, Bov.

St. 103. 30. x. 26.  $39^{\circ} 04' S$ ,  $17^{\circ} 38' E$ . N 70 V. 500-250 m., day: *Paraphronima crassipes*, Claus.

St. 105. 3. xi. 26.  $44^{\circ} 32' S$ ,  $18^{\circ} 17' E$ . N 100 H. 117 m., day: *Primno macropa*, Guér.

St. 107. 4. xi. 26.  $45^{\circ} 03' S$ ,  $17^{\circ} 03' E$ . N 450. 850-950 m., day: *Cyphocaris richardi*, Chevr.; *C. faurei*, Brnrd.; *Katius obesus*, Chevr.; *Parandania boeckii* (Stebb.); *Lanceola serrata*, Bov.

St. 114. 12. xi. 26.  $52^{\circ} 25' S$ ,  $9^{\circ} 50' E$ . N 450. 1310-1410 m., day: *Cyphocaris richardi*, Chevr.; *Parandania boeckii* (Stebb.); *Eusiroides stenopleura*, n.sp.; *Lanceola serrata*, Bov.

St. 116. 14. xi. 26.  $50^{\circ} 30' S$ ,  $5^{\circ} 34' E$ . N 100 H. 55 m., night: *Eusirus microps*, Wlkr.; *Vibilia antarctica*, Stebb.; *Cylopus magellanicus*, Dana; *Hyperrella dilatata*, Stebb.; *Parathemisto gaudichaudii* (Guér.).

St. 120. 22. xi. 26.  $51^{\circ} 44' S$ ,  $5^{\circ} 19' W$ . N 100 H. 575-675 m., day: *Scina borealis* (Sars); *Vibilia antarctica*, Stebb.; *Parathemisto gaudichaudii* (Guér.); *Primno macropa*, Guér.

St. 122. 14. xii. 26. Maiviken, West Cumberland Bay, South Georgia. Shore collecting: *Talorchestia scutigera* (Dana).

St. 123. 15. xii. 26. Off mouth of Cumberland Bay, South Georgia. N 4-T and OTL. 230-250 m., gy.m.: *Shackletonia robusta*, Brnrd.; *Tryphosa kergueleni* (Miers); *Orchomenella rossi* (Wlkr.); *O. macronyx*, Chevr.; *Ampelisca macrocephala*, Lilj.; *Haploöps securiger*, Brnrd.; *Proboloides typica* (Wlkr.); *P. carinata*, Schell.; *P. crenatipalmatus* (Stebb.); *Gnathiphimedia mandibularis*, Brnrd.; *G. sexdentata* (Schell.); *Oediceroides macrodactylus*, Schell.; *Oradarea tridentata*, n.sp.; *Austropleustes simplex*, n.sp.; *Epimeria excisipes*, n.sp.; *E. puncticulata*, Brnrd.; *Parepimeria crenulata*, Chevr.; *Eclysis similis*, n.g., n.sp.; *Melphidippa antarctica*, Schell.; *Eusirus antarcticus*, Thoms.; *Maera pfefferi*, n.sp.; *Paraceradocus miersii* (Pfr.); *Eurystheus dimorphus*, n.sp.; *E. distichon*, Brnrd.; *E. serricrus*, n.sp.; *Megamphopus blaisus*, n.sp.; *Dodecasella elegans*, Brnrd.; *Aeginoides gaussi*, Schell.

St. 125. 18-19. xii. 26.  $53^{\circ} 28' S$ ,  $36^{\circ} 20' W$ . N 100 H. 0-5 m., night: *Vibilia antarctica*, Stebb.; *Hyperoche medusarum* (Kröy.); *Parathemisto gaudichaudii* (Guér.).

St. 128. 19. xii. 26.  $53^{\circ} 38' S$ ,  $37^{\circ} 08' W$ . N 100 H. 50 (-0) m., day: *Parathemisto gaudichaudii* (Guér.).

St. 129. 19. xii. 26.  $53^{\circ} 28' S$ ,  $37^{\circ} 08' W$ . N 100 H. 84 (-0) m., night: *Vibilia antarctica*, Stebb.; N 100 H. 0-5 m., night: *Vibilia antarctica*, Stebb.

St. 130. 20. xii. 26.  $54^{\circ} 06' S$ ,  $36^{\circ} 23' W$ . N 100 H. 38 m., day: *Hyperoche medusarum* (Kröy.).

St. 132. 20. xii. 26.  $53^{\circ} 52' S$ ,  $35^{\circ} 58' W$ . N 100 H. 38 m., day: *Parathemisto gaudichaudii* (Guér.).

St. 133. 20-21. xii. 26.  $53^{\circ} 45' S$ ,  $35^{\circ} 46' W$ . N 100 H. 0-5 m., night: *Vibilia antarctica*, Stebb. N 100 H. 100 m., night: *Vibilia antarctica*, Stebb.

St. 136. 21. xii. 26.  $54^{\circ} 22' S$ ,  $35^{\circ} 21' W$ . N 100 H. 0-5 m., night: *Parharpinia obliqua*, n.sp.; *Vibilia antarctica*, Stebb.; *Parathemisto gaudichaudii* (Guér.). N 100 H. 99 (-0) m., night: *Vibilia antarctica*, Stebb.

St. 137. 22. xii. 26.  $54^{\circ} 19' S$ ,  $35^{\circ} 03' W$ . N 100 H. 66 m., day: *Vibilia antarctica*, Stebb.; *Parathemisto gaudichaudii* (Guér.).

St. 138. 22. xii. 26.  $54^{\circ} 17' S$ ,  $34^{\circ} 47' W$ . N 100 H. 77 m., day: *Vibilia antarctica*, Stebb.

St. 140. 23. xii. 26. Stromness Harbour to Larsen Point, South Georgia. N 4-T. 122-136 m., gn.m. st.: *Uristes gigas*, Dana; *Tryphosa kergueleni* (Miers); *T. triangularis*, n.sp.; *Lepidepecreella ovalis*, n.sp.; *Ampelisca bouvieri*, Chevr.; *Haploöps securiger*, Brnrd.; *Seba antarctica*, Wlkr.; *Proboloides crenatipalmatus* (Stebb.); *Gnathiphimedia mandibularis*, Brnrd.; *Echiniphimedia hodgsoni* (Wlkr.); *E. echinata* (Wlkr.); *Monoculodes scabriculosus*, n.sp.; *Methalimедon nordenskjöldi*, Schell.; *Syrrhoë psychrophila*, Monod; *Epimeria excisipes*, n.sp.; *E. puncticulata*, Brnrd.; *E. intermedia*, Schell.; *Parepimeria crenulata*, Chevr.; *Melphidippa antarctica*, Schell.; *Eusirus antarcticus*, Thoms.; *Eurystheus dimorphus*, n.sp.; *E. serricus*, n.sp.; *Megamphopus blaisus*, n.sp.; *Haplocheira barbimanus* (Thoms.); *Dodecasella elegans*, Brnrd.

St. 141. 29. xii. 26. East Cumberland Bay, South Georgia. BTS. 17-27 m., m.: *Tryphosa triangularis*, n.sp.; *Orchomenella acanthurus* (Schell.); *Parharpinia rotundifrons*, n.sp.; *Oradarea tridentata*, n.sp.; *Eusiroides georgianus*, n.sp.; *Djerboa furcipes*, Chevr.; *Schraderia gracilis*, Pfr.; *Paradexamine fissicauda*, Chevr.; *Megamphopus blaisus*, n.sp.; *Haplocheira barbimanus* (Thoms.).

St. 142. 30. xii. 26. East Cumberland Bay, South Georgia. NCS-T and OTL. 88-273 m., m.: *Allogaussia lobata*, n.sp.; *Orchomenella rossi* (Wlkr.); *Pseudorchomene coatsi* (Chilton); *Seba antarctica*, Wlkr.; *Halice profundus*, n.sp.; *Oradarea tridentata*, n.sp.; *Epimeria intermedia*, Schell.; *Polycheria antarctica* (Stebb.); *Didymochelia spongicola*, Brnrd.

St. 144. 5. i. 27. Off mouth of Stromness Harbour, South Georgia. N 4-T and NCS-T. 155-178 m., gn.m. s.: *Uristes gigas*, Dana; *Tryphosa kergueleni* (Miers); *T. triangularis*, n.sp.; *T. analogica*, n.sp.; *Andaniotes linearis*, n.sp.; *Ampelisca eschrichtii*, Kröy.; *Haploöps securiger*, Brnrd.; *Proboloides typica* (Wlkr.); *P. crenatipalmatus* (Stebb.); *Acanthonotozomella oatesi*, Brnrd.; *Gnathiphimedia mandibularis*, Brnrd.; *Liljeborgia longicornis*, Schell.; *Parapericulodes brevimanus*, Brnrd.; *Oediceroides macrodactylus*, Schell.; *Syrrhoë psychrophila*, Monod; *Oradarea tricarinata*, n.sp.; *Epimeria excisipes*, n.sp.; *Parepimeria crenulata*, Chevr.; *Melphidippa antarctica*, Schell.; *Eusirus antarcticus*, Thoms.; *Rhachotropis antarctica*, n.sp.; *Schraderia gracilis*, Pfr.; *Maera pfefferi*, n.sp.; *Polycheria antarctica* (Stebb.); *Eurystheus dimorphus*, n.sp.; *E. distichon*, Brnrd.; *Megamphopus blaisus*, n.sp.; *Haplocheira barbimanus* (Thoms.); *Dodecasella elegans*, Brnrd.

St. 145. 7. i. 27. Stromness Harbour, South Georgia. BTS. 26-35 m., weedy ground: *Cheirimedon femoratus* (Pfr.); *Tryphosa triangularis*, n.sp.; *Orchomenella acanthurus* (Schell.); *Gnathiphimedia mandibularis*, Brnrd.; *Liljeborgia kinahani* (Bate) var. *georgiensis* n.; *Oediceroides calmani*, Wlkr.; *Oradarea tridentata*, n.sp.; *Djerboa furcipes*, Chevr.; *Schraderia gracilis*, Pfr.

St. 146. 8. i. 27. 53° 48' S, 35° 37' W. DLH. 728 m., r.: *Haploöps securiger*, Brnrd.

St. 148. 9. i. 27. Off Cape Saunders, South Georgia. N 4-T. 132-148 m., gy.m. st.: *Andaniotes linearis*, n.sp.; *Gnathiphimedia mandibularis*, Brnrd.; *G. sexdentata* (Schell.); *Echiniphimedia hodgsoni* (Wlkr.); *E. echinata* (Wlkr.); *Oediceroides macrodactylus*, Schell.; *Epimeria excisipes*, n.sp.; *E. puncticulata*, Brnrd.; *Melphidippa antarctica*, Schell.; *Eurystheus dimorphus*, n.sp.

St. 149. 10. i. 27. Mouth of East Cumberland Bay, South Georgia. N 4-T and OTL. 200-234 m., m.: *Aristias antarcticus*, Wlkr.; *Orchomenella rossi* (Wlkr.); *O. macronyx*, Chevr.; *Andaniotes linearis*, n.sp.; *Leucothoë spinicarpa* (Abildg.); *Gnathiphimedia sexdentata* (Schell.); *Echiniphimedia hodgsoni* (Wlkr.); *E. echinata* (Wlkr.); *Oediceroides macrodactylus*, Schell.; *Oradarea tridentata*, n.sp.; *Melphidippa antarctica*, Schell.; *Eusirus antarcticus*, Thoms.; *Eurystheus dimorphus*, n.sp.

St. 151. 16. i. 27. 53° 25' S, 35° 15' W. N 450. 1025-1275 m., day: *Parandania boeckii* (Stebb.). N 100 H. 500-625 m., day: *Vibilia antarctica*, Stebb.; *Parathemisto gaudichaudii* (Guer.); *Primno macropa*, Guér.

St. 152. 17. i. 27. 53° 51' S, 36° 18' W. DLH. 245 m., r.: *Orchomenella cavimanus* (Stebb.); *Proboloides typica* (Wlkr.); *P. crenatipalmatus* (Stebb.); *Parepimeria crenulata*, Chevr.; *Melphidippa antarctica*, Schell.; *Maera pfefferi*, n.sp.; *Aeginoides gaussi*, Schell.

St. 153. 17. i. 27.  $54^{\circ} 08' S$ ,  $36^{\circ} 27' W$ . DLH. 106 m., r.: *Ampelisca boucieri*, Chevr.; *Haploöps securiger*, Brnrd.

St. 154. 18. i. 27. Jason Harbour to Larsen Point, South Georgia. N 4-T. 60-100 m., r.: *Orchomenella rossi* (Wlkr.); *Pseudorchomene coatsi* (Chilton); *Paraperiocolodes brevimanus*, Brnrd.; *Eur stheus dimorphus*, n.sp.

St. 156. 20. i. 27.  $53^{\circ} 51' S$ ,  $36^{\circ} 21' W$ . DLH. 200-236 m., r.: *Uristes gigas*, Dana; *Tryphosa analogica*, n.sp.; *Andaniotes linearis*, n.sp.; *Heterophoxus videns*, Brnrd.; *Acanthonotozomella oatesi*, Brnrd.; *Gnathiphimedia sexdentata* (Schell.); *Syrrhoë psychrophila*, Monod; *Epimeria excisipes*, n.sp.; *Maera pfefferi*, n.sp.

St. 158. 21. i. 27.  $53^{\circ} 48' S$ ,  $35^{\circ} 57' W$ . DLH. 401-411 m., r.: *Phippsiella rostrata*, n.sp.; *Echiniphimedia hodgsoni* (Wlkr.).

St. 159. 21. i. 27.  $53^{\circ} 52' S$ ,  $36^{\circ} 08' W$ . DLH. 160 m., r.: *Ambasiopsis georgiensis*, Brnrd.; *Uristes gigas*, Dana; *Tryphosa major*, n.sp.; *T. triangularis*, n.sp.; *T. analogica*, n.sp.; *Tmetonyx longitelson*, n.sp.; *Parharpinia sinuata*, n.sp.; *Gnathiphimedia mandibularis*, Brnrd.; *Liljeborgia longicornis*, Schell.; *Oediceroides calmani*, Wlkr.; *Epimeria excisipes*, n.sp.; *Eusiroides georgianus*, n.sp.; *Schraderia gracilis*, Pfr.; *Maera pfefferi*, n.sp.; *Eurystheus distichon*, Brnrd.

St. 160. 7. ii. 27. Near Shag Rocks,  $53^{\circ} 43' S$ ,  $40^{\circ} 57' W$ . DLH. 177 m., gy.m. st. r.: *Acidostomella cultrifera*, Schell.; *Storacontion insigne*, n.sp.; *Proboloides typica* (Wlkr.); *Liljeborgia longicornis* Schell.; *Eurystheus distichon*, Brnrd.

St. 162. 17. ii. 27. Off Signy Island, South Orkneys. DLH. 320 m., gn.m.: *Harpinia cariniceps*, n.sp.; *Epimeriella macronyx*, Wlkr.

St. 164. 18. ii. 27. East end of Normanna Strait, South Orkneys. NCS-T. 24-36 m.: *Cardenio paurodactylus*, Stebb.; *Metopella ovata* (Stebb.); *Monoculodes scabriculosus*, n.sp.; *Liouvillea oculata*, Chevr.; *Kuphocheira setimanus*, Brnrd.; *Jassa falcata* (Mont.).

St. 165. 18-20. ii. 27. Dove Strait, Signy Island, South Orkneys. TNL. 24-36 m., from stomach of *Notothenia*: *Cheirimedon femoratus* (Pfr.); *Tryphosa kergueleni* (Miers); *Lepidepcreum cingulatum*, n.sp.; *Pontogeneiella brevicornis* (Chevr.).

St. 166. 19. ii. 27. SE point of Paul Harbour, Signy Island, South Orkneys. Shore collecting: *Pontogeneia antarctica*, Chevr.

St. 167. 20. ii. 27. Off Signy Island, South Orkneys. N 7-T and N 4-T. 244-344 m., gn.m.: *Harpinia cariniceps*, n.sp.; *Monoculodes antarcticus*, n.sp.; *Oediceroides calmani*, Wlkr.; *Eusirus antarcticus*, Thoms.; *E. perdentatus*, Chevr.; *Rhachotropis antarctica*, n.sp.; *Paraceradocus miersii* (Pfr.); *Eurystheus purpureus*, n.sp.

St. 169. 22. ii. 27.  $60^{\circ} 48' S$ ,  $51^{\circ} 00' W$ . TYF. 1000-1100 m., day: *Vibilia antarctica*, Stebb.; *Cyllopus lucasii*, Bate.

St. 170. 23. ii. 27. Off Cape Bowles, Clarence Island.  $61^{\circ} 25' S$ ,  $53^{\circ} 46' W$ . DLH. 342 m., r.: *Shackletonia robusta*, Brnrd.; *Waldeckia obesa* (Chevr.); *Aristias antarcticus*, Wlkr.; *A. collinus*, n.sp.; *Ambasiopsis uncinata*, n.sp.; *Tryphosella albina*, n.sp.; *Tryphosa major*, n.sp.; *Tmetonyx carinata* (Schell.); *Allogaussia navicula*, n.sp.; *A. lobata*, n.sp.; *Ampelisca hemicryptops*, Brnrd.; *Byblis antarctica*, Schell.; *Haploöps securiger*, Brnrd.; *Leucothoë spinicarpa* (Abildg.); *Gnathiphimedia sexdentata* (Schell.); *Echiniphimedia hodgsoni* (Wlkr.); *Liljeborgia longicornis*, Schell.; *Syrrhoë nodulosa*, n.sp.; *Syrrhoites anaticauda*, Brnrd.; *Clarencia chelata*, Brnrd.; *Chosroës decoratus*, n.sp.; *Oradarea impressicauda*, n.sp.; *Austropleustes cuspidatus*, Brnrd.; *Epimeria macrodonta*, Wlkr. f. *similis*, Chevr.; *E. inermis*, Wlkr.; *E. excisipes*, n.sp.; *Epimeriella walkeri*, Brnrd.; *Parepimeria crenulata*, Chevr.; *P. crenulata*, Chevr. var. *miothele* n.; *Lepechinella cetrata*, n.sp.; *Eusirus perdentatus*, Chevr.; *Eusiroides georgianus*, n.sp.; *Rhachotropis antarctica*, n.sp.; *Eurystheus serrius*, n.sp.; *Podoceroopsis elephantis*, n.sp.; *Jassa ingens* (Pfr.); *Pseuderichthonius gaussi*, Schell.

St. 172. 26. ii. 27. Off Deception Island, South Shetlands. 62° 59' S, 60° 28' W. DLH. 525 m., r.: *Waldeckia obesa* (Chevr.); *Oradarea tricarinata*, n.sp.

St. 173. 28. ii. 27. Port Foster, Deception Island, South Shetlands. NCS-T. 5-60 m.: *Cheirimedon femoratus* (Pfr.); *Orchomenella rossi* (Wlkr.); *Monoculodes scabriculosus*, n.sp.; *Oradarea edentata*, n.sp.; *Pontogeneiella brevicornis* (Chevr.); *Prostebbingia gracilis* (Chevr.); *Paramoera walkeri* (Stebb.); *P. edouardi*, Schell.

St. 174. 28. ii.-2. iii. 27. Deception Island, South Shetlands. TNL. 5-10 m.: *Cheirimedon femoratus* (Pfr.); *Tryphosa kergueleni* (Miers); *Orchomenella rotundifrons*, n.sp.; *Bovallia gigantea*, Pfr.; *Eurymera monticulosa*, Pfr.

St. 175. 2. iii. 27. Bransfield Strait, South Shetlands. 63° 17' S, 59° 48' W. DLH. 200 m., m. st. g., night: *Kerguelenia palpalis*, n.sp.; *Aristias collinus*, n.sp.; *Uristes gigas*, Dana; *Tryphosa major*, n.sp.; *T. adarei*, Wlkr.; *Allogaussia navicula*, n.sp.; *Orchomenella charcoti* (Chevr.); *Andaniotes linearis*, n.sp.; *Ampelisca hemicyptops*, Brnrd.; *Heterophoxus trichosus*, n.sp.; *Parharpinia obliqua*, n.sp.; *Leucothoe spinicarpa* (Abildg.); *Iphimediella margueritei*, Chevr.; *I. bransfieldi*, n.sp.; *Gnathiphimedia sexdentata* (Schell.); *Echiniphimedia hodgsoni* (Wlkr.); *Monoculodes antarcticus*, n.sp.; *Tiron antarcticus*, n.sp.; *Syrrhoites anaticauda*, Brnrd.; *Liouvillea oculata*, Chevr.; *Oradarea tricarinata*, n.sp.; *Epimeria macrodonta*, Wlkr. f. *similis*, Chevr.; *E. incermis*, Wlkr.; *E. excisipes*, n.sp.; *Parepimeria crenulata*, Chevr.; *Melphidippa antarctica*, Schell.; *Eusirus antarcticus*, Thoms.; *Eusiroides georgianus*, n.sp.; *Rhachotropis antarctica*, n.sp.; *Prostebbingia gracilis* (Chevr.); *Jassa ingens* (Pfr.); *Pseuderichthionius gaussi*, Schell.; *Aeginoides gaussi*, Schell.

St. 177. 5. iii. 27. 27 miles SW of Deception Island, South Shetlands. DLH. 1080 m., m. cs.st.: *Lepidepcreoides xenopus*, Brnrd.; *Ampelisca bransfieldi*, n.sp.; *Parepimeria major*, n.sp.

St. 178. 9-10. iii. 27. Melchior Harbour, Schollaert Channel, Palmer Archipelago. TNL. 17 m.: *Orchomenella rossi* (Wlkr.).

St. 179. 10. iii. 27. Melchior Island, Schollaert Channel, Palmer Archipelago. DS. 4-10 m., r.: *Cheirimedon femoratus* (Pfr.); *Pariphimedia integricauda*, Chevr.; *Bovallia gigantea*, Pfr.; *Eurymera monticulosa*, Pfr.; *Pontogeneia antarctica*, Chevr.; *Prostebbingia gracilis* (Chevr.); *Djerboa furcipes*, Chevr.; *Jassa ingens* (Pfr.).

St. 180. 11. iii. 27. Off Gand Island, Schollaert Channel, Palmer Archipelago. DLH. 160 m., m. st.: *Ampelisca eschrichtii*, Kröy.; *Eusirus perdentatus*, Chevr. N 7-T. 160-330 m., m. st.: *Oediceroides calmani*, Wlkr.; *Parathemisto gaudichaudii* (Guér.).

St. 181. 12. iii. 27. Schollaert Channel, Palmer Archipelago. N 7-T and N 4-T. 160-335 m., m.: *Lepidepcreoides xenopus*, Brnrd.; *Orchomenella rossi* (Wlkr.); *Ampelisca hemicyptops*, Brnrd.; *Byblisoides juxtacornis*, Brnrd.; *Harpinia cariniceps*, n.sp.; *Nicippe unidentata*, n.sp.; *Monoculodes antarctica*, n.sp.; *Oediceroides calmani*, Wlkr.; *Syrrhoë nodulosa*, n.sp.; *Epimeria macrodonta*, Wlkr. f. *macrodonta* and f. *similis*; *Eusirus antarcticus*, Thoms.; *E. perdentatus*, Chevr.; *Rhachotropis antarctica*, n.sp.

St. 182. 14. iii. 27. Schollaert Channel, Palmer Archipelago. N 4-T. 278-500 m., m.: *Nicippe unidentata*, n.sp.; *Monoculodes antarcticus*, n.sp.; *Oediceroides calmani*, Wlkr.; *Syrrhoë nodulosa*, n.sp.; *Epimeria macrodonta*, Wlkr. f. *similis*, Chevr.; *Epimeriella walkeri*, Brnrd.; *Eusirus antarcticus*, Thoms.; *Rhachotropis antarctica*, n.sp.; *Podocerus septemcarinatus*, Schell.

St. 184. 15-16. iii. 27. Fournier Bay, Anvers Island, Palmer Archipelago. TNL. 36 m.: *Waldeckia obesa* (Chevr.); *Orchomenella rossi* (Wlkr.).

St. 186. 16. iii. 27. Fournier Bay, Anvers Island, Palmer Archipelago. DLH. 295 m., m.: *Ampelisca hemicyptops*, Brnrd.; *Byblisoides juxtacornis*, Brnrd.; *Harpinia cariniceps*, n.sp.; *Eusirus perdentatus*, Chevr.

St. 187. 18. iii. 27. Neumayr Channel, Palmer Archipelago. DLH. 259 m., m.: *Ampelisca eschrichtii*, Kröy.; *A. hemicryptops*, Brnrd.; *Anchiphimedia dorsalis*, Brnrd.; *Monoculodes antarcticus*, n.sp.; *Rhachotropis antarctica*, n.sp.

St. 189. 21-23. iii. 27. Port Lockroy, Palmer Archipelago. TNL. 7 m.: *Orchomenella rossi* (Wlkr.). 23-24. iii. 27. TNL. 70 m.: *Waldeckia obesa* (Chevr.); *Orchomenella rossi* (Wlkr.).

St. 190. 24. iii. 27. Bismarck Strait, Palmer Archipelago. DLH and NRL. 90-130 m., st. m. r.: *Cheirimedon femoratus* (Pfr.); *Andaniotes linearis*, n.sp.; *Ampelisca hemicryptops*, Brnrd.; *Leucothoë spinicarpa* (Abildg.); *Acanthonotozomella oatesi*, Brnrd.; *Gnathiphimedia sexdentata* (Schell.); *Echiniphimedia hodgsoni* (Wlkr.); *E. echinata* (Wlkr.); *Pardalisca abyssoides*, n.sp.; *Eusirus perdentatus*, Chevr.; *Eurystheus purpureus*, n.sp.; *Cerapus oppositus*, n.sp.; *Podocerus septemcarinatus*, Schell.; DLH. 315 m., m. r.: *Gnathiphimedia sexdentata* (Schell.); *Oediceroides calmani*, Wlkr.; *Epimeria excisipes*, n.sp.; *Eusirus perdentatus*, Chevr.; *Rhachotropis antarctica*, n.sp.; *Pontogeneiella longicornis* (Chevr.).

St. 195. 30. iii. 27. Admiralty Bay, King George Island, South Shetlands. 62° 07' S, 58° 28' W. N 7-T and N 4-T. 391 m., m. st.: *Waldeckia obesa* (Chevr.); *Harpinia cariniceps*, n.sp.; *Heterophoxus videns*, Brnrd.; *Proboloides antarcticus*, Wlkr.; *Panoploea joubini*, Chevr.; *Liljeborgia longicornis*, Schell.; *Oediceroides macrodactylus*, Schell.; *Syrrhoë nodulosa*, n.sp.; *Epimeria excisipes*, n.sp.; *Parepimeria crenulata*, Chevr. var. *miothele* n.; *Eusirus antarcticus*, Thoms.; *E. perdentatus*, Chevr.; *Aeginoides gausi*, Schell.

St. 196. 3. iv. 27. Bransfield Strait, South Shetlands. 62° 17' S, 58° 21' W. N 70. 720 m., m. di.oz.: *Urothoides oniscoides*, n.sp.

St. 197. 3. iv. 27. Bransfield Strait, South Shetlands. 62° 27' S, 58° 11' W. N 70 V. 750-500 m., day: *Cyphocaris richardi*, Chevr.

St. 198. 3. iv. 27. Bransfield Strait, South Shetlands. N 100 H. 76 m., night: *Cyphocaris richardi*, Chevr.

St. 202. 5. iv. 27. Bransfield Strait, South Shetlands. 62° 48' S, 60° 05' W. N 100 H. 0-5 m., night: *Eusirus microps*, Wlkr.

St. 208. 7. iv. 27. Off Livingston Island, South Shetlands. TYF. 800 (-0) m., day: *Allogaussia lobata*, n.sp.; *Orchomenella rossi* (Wlkr.); *O. abyssorum* (Stebb.); *Parandania boeckii* (Stebb.); *Halice profundus*, n.sp.; *Vibilia antarctica*, Stebb.; *Cylopus magellanicus*, Dana; *C. lucasii*, Bate; *Parathemisto gaudichaudii* (Guér.).

St. 216. 18. iv. 27. Drake Strait. 58° 53' S, 67° 55' W. N 70 V. 750-500 m., day: *Cystisoma fabricii*, Stebb.

St. 219. 21. iv. 27. Drake Strait. 57° 32' S, 67° 04' W. N 70 V. 750-500 m., day: *Cystisoma fabricii*, Stebb.

St. 222. 23-24. iv. 27. St Martin's Cove, Hermite Island, Cape Horn. TNL and NRL. 30-35 m.: *Amaryllis macrophthalma*, Hasw.; *Tryphosa castellata*, n.sp.; *Tryphosites chevreuxi*, Stebb.; *Nototropis villosus* (Bate); *Paramoera gregaria* (Pfr.); *P. hermitensis*, n.sp. 23. iv. 27. Shore collecting: *Hyaella patagonica*, Ortm. 25. iv. 27. Fresh-water lakes, 300-350 ft.: *Hyaella patagonica*, Ortm.

St. 239. 2. vi. 27. 46° 56' S, 46° 03' W. N 450. 1050-1350 m., day: *Cyphocaris richardi*, Chevr.; *Parandania boeckii* (Stebb.); *Eusiroides stenopleura*, n.sp.; *Lanceola serrata*, Bov.; *Cylopus magellanicus*, Dana; *Parathemisto gaudichaudii* (Guér.); *Phronima sedentaria* (Forsk.); *Prinno macropa*, Guér.

St. 245. 10. vi. 27. 38° 20' S, 22° 18' W. N 450. 1800-2000 m., day: *Lanceola pacifica*, Stebb.

St. 250. 17. vi. 27. 36° 09' S, 5° 33' W. TYF. 300 (-0) m., night: *Stenopleura atlantica*, Stebb.; *Scina curvidactyla*, Chevr.; *Phronima sedentaria* (Forsk.); *Streetsia challengeri*, Stebb.



St. 253. 21. vi. 27. 35° 06' S, 2° 19' E. TYF. 1000-1050 m., day: *Cyphocaris richardi*, Chevr.; *C. anonyx*, Boeck; *Katius obesus*, Chevr.; *Parandania boeckii* (Stebb.); *Lanceola serrata*, Bov.

St. 254. 21. vi. 27. 35° 04' S, 2° 59' E. TYF. 200 (-0) m., night: *Scina crassicornis* (Fabr.); *Phronima sedentaria* (Forsk.); *Phrosina semilunata*, Risso; *Streetsia challengerii*, Stebb.

St. 256. 23. vi. 27. 35° 14' S, 6° 49' E. TYF. 850-1100 (-0) m., day: *Cyphocaris richardi*, Chevr.; *C. anonyx*, Boeck; *C. faurei*, Brnrd.; *Parandania boeckii* (Stebb.); *Synopioides macronyx*, Stebb.; *Stenopleura atlantica*, Stebb.; *Lanceola serrata*, Bov.; *L. pacifica*, Stebb.; *Scypholanceola vanhoeffeni*, Wolt.; *Scina curvidactyla*, Chevr.; *S. incerta*, Chevr.; *S. borealis* (Sars); *S. wolterecki*, Wagl.; *Vibilia cultripes*, Voss; *Phronima sedentaria* (Forsk.).

St. 257. 24. vi. 27. 35° 01' S, 10° 18' E. TYF. 250 (-0) m., night: *Stenopleura atlantica*, Stebb.; *Primno macropa*, Guér.; *Anchylomera blossevillei*, M. Edw.; *Brachyscelus cruscolum*, Bate.

St. 259. 26. vi. 27. 34° 59' S, 16° 39' E. TYF. 170-250 (-0) m., night: *Scina crassicornis* (Fabr.); *Paraphronima crassipes*, Claus.

St. 266. 21. vii. 27. 29° 34' S, 14° 24' E. TYF. 200 (-0) m., night: *Stenopleura atlantica*, Stebb.; *Scina oedipus*, Stebb.; *Paraphronima gracilis*, Claus; *Phronima pacifica*, Streets; *Phrosina semilunata*, Risso; *Primno macropa*, Guér.; *Eupronoë minuta*, Claus; *Streetsia challengerii*, Stebb.

St. 267. 23. vii. 27. 24° 31' S, 12° 15' E. TYF. 450-550 (-0) m., night: *Cyphocaris challengerii*, Stebb.; *Scina curvidactyla*, Chevr.; *Brachyscelus cruscolum*, Bate. N 100 B. 117-0 m., night: *Scina curvidactyla*, Chevr.; *Phrosina semilunata*, Risso.

St. 268. 25. vii. 27. 18° 37' S, 10° 46' E. TYF. 100-150 (-0) m., night: *Scina crassicornis* (Fabr.); *Vibilia viatrix*, Bov.; *Vibilia* sp.; *Oxycephalus clausi*, Bov.; *Platyscelus ovoides* (Claus); *P. armatus* (Claus); *P. serratus*, Stebb. N 100 B. 73-0 m., night: *Vibilia armata*, Bov.; *V. cultripes*, Voss; *Paraphronima crassipes*, Claus; *Phronima sedentaria* (Forsk.); *Oxycephalus clausi*, Bov.

St. 270. 27. vii. 27. 13° 58' S, 11° 43' E. N 100 B. 126-0 m., night: *Scina curvidactyla*, Chevr. TYF. 200 (-0) m., night: *Scina curvidactyla*, Chevr.; *Vibilia viatrix*, Bov.; *Oxycephalus piscator*, M. Edw.

St. 273. 31. vii. 27. 9° 38' S, 12° 42' E. TYF. 200-230 (-0) m., night: *Cacao lacteus*, Brnrd.; *Scina crassicornis* (Fabr.); *Paraphronima crassipes*, Claus; *Phronima sedentaria* (Forsk.); *Phrosina semilunata*, Risso; *Brachyscelus cruscolum*, Bate; *B. globiceps* (Claus); *Streetsia challengerii*, Stebb.

St. 276. 5. viii. 27. 5° 54' S, 11° 19' E. N 100 B. 110-0 m., night: *Scina crassicornis* (Fabr.). TYF. 150 (-0) m., night: *Scina curvidactyla*, Chevr.; *Cystisoma fabricii*, Stebb.; *Pronoë capito*, Guér.; *Parapronoë crustulum*, Claus; *Brachyscelus cruscolum*, Bate; *Platyscelus inermis* (Claus).

St. 281. 12. vii. 27. 00° 46' S, 5° 49' E. TYF. 850-950 (-0) m., day: *Cyphocaris anonyx*, Boeck; *Metacyphocaris helgae*, Tatt.; *Lanceola pacifica*, Stebb.; *Scypholanceola vanhoeffeni*, Wolt.; *Scina crassicornis* (Fabr.); *S. curvidactyla*, Chevr.; *S. borealis* (Sars); *Vibilia cultripes*, Voss; *Cystisoma pellucidum* (W. Suhm); *C. fabricii*, Stebb.; *Phronima sedentaria* (Forsk.); *Thamneus platyrhynchus*, Stebb.; *Oxycephalus piscator*, M. Edw.; *Streetsia challengerii*, Stebb.

St. 282. 12. viii. 27. 1° 11' S, 5° 38' E. TYF. 300 (-0) m., night: *Rhabdosoma whitei*, Bate.

St. 283. 14. viii. 27. Off Annobon, Gulf of Guinea. DLH. 77 m., day: *Phrosina semilunata*, Risso.

St. 284. 15. viii. 27. 2° 13' S, 1° 52' E. N 100 B. 71-0 m., night: *Lanceola sayana*, Bov.; *Phrosina semilunata*, Risso; *Oxycephalus clausi*, Bov.

St. 285. 16. viii. 27. 2° 43' S, 00° 56' W. N 450. 125-175 (-0) m., night: *Cyphocaris faurei*, Brnrd.; *Lanceola sayana*, Bov.; *Scina crassicornis* (Fabr.); *Vibilia cultripes*, Voss; *Phronima sedentaria* (Forsk.); *P. curvipes*, Voss; *Phrosina semilunata*, Risso; *Parapronoë crustulum*, Claus; *Oxycephalus clausi*, Bov.; *Streetsia challengerii*, Stebb.; *Rhabdosoma whitei*, Bate; *Platyscelus ovoides* (Claus); *P. armatus* (Claus).

St. 286. 17. viii. 27. 3° 06' S, 3° 53' W. N 70 B. 102-0 m., night: *Lanceola sayana*, Bov. TYF. 125 (-0) m., night: *Lanceola sayana*, Bov.; *Scina crassicornis* (Fabr.); *Phrosina semilunata*, Risso;

*Parapronoë crustulum*, Claus; *Sympronoë parva* (Claus); *Lycaea nasuta*, Claus; *Brachyscelus cruscolum*, Bate; *Oxycephalus clausi*, Bov.; *Streetsia steenstrupi*, Bov.

St. 287. 19. viii. 27. 2° 49' S, 9° 25' W. TYF. 800-1000 (-0) m., night: *Cyphocaris anonyx*, Boeck; *Metacyphocaris helgae*, Tatt.; *Parandania boeckii* (Stebb.); *Mimonecteola macronyx*, n.sp.; *Lanceola pacifica*, Stebb.; *Scypholanceola vanhoeffeni*, Wolt.; *Parascina chevreusi*, Pirl.; *Cystisoma fabricii*, Stebb.; *Phronima pacifica*, Streets; *Phrosina semilunata*, Risso; *Oxycephalus clausi*, Bov.; *Rhabdosoma whitei*, Bate. N 100 B. 124-0 m., night: *Scina crassicornis* (Fabr.); *Paraphronima crassipes*, Claus; *Parapronoë crustulum*, Claus; *Oxycephalus clausi*, Bov.

St. 288. 21. viii. 27. 00° 56' S, 14° 08' W. TYF. 250 (-0) m., night: *Cyphocaris faurei*, Brnrd.; *Katius obesus*, Chevr.; *Lanceola sayana*, Bov.; *Parascina chevreusi*, Pirl.; *Pronoë capito*, Guér.; *Streetsia challengerii*, Stebb.; *Rhabdosoma whitei*, Bate; *R. armatum* (M. Edw.); *Platyscelus ovoides* (Claus). N 100 B. 73-0 m., night: *Scina crassicornis* (Fabr.); *Phronima curvipes*, Voss; *Oxycephalus clausi*, Bov.; *Rhabdosoma whitei*, Bate; *R. armatum* (M. Edw.).

St. 289. 23-24. viii. 27. 3° 04' N, 16° 52' W. TYF. 125-225 (-0) m., night: *Rhabdosoma whitei*, Bate.

St. 290. 24. viii. 27. 3° 25' N, 16° 50' W. TYF. 100 (-0) m., day: *Scina marginata*, Bov.; *Phronima colletti*, Bov.; *Parapronoë crustulum*, Claus; *Oxycephalus clausi*, Bov.; *Streetsia porcellus* (Claus); *Rhabdosoma whitei*, Bate.

St. 292. 24. viii. 27. 4° 03' N, 16° 51' W. TYF. 100-180 (-0) m., day: *Rhabdosoma whitei*, Bate.

St. 294. 25. viii. 27. 4° 33' N, 16° 52' W. N 70 B. 101-0 m., night: *Lanceola sayana*, Bov. TYF. 100-150 (-0) m., night: *Pronoë capito*, Guér.; *Oxycephalus clausi*, Bov.; *Rhabdosoma whitei*, Bate; *Platyscelus ovoides* (Claus).

St. 295. 25. viii. 27. 5° 30' N, 17° 45' W. TYF. 2500-2700 (-0) m., day: *Cyphocaris anonyx*, Boeck; *Scina rattrayi*, Stebb.; *Cystisoma pellucidum* (W. Suhm); *Pronoë capito*, Guér.; *Streetsia challengerii*, Stebb.

St. 296. 26. viii. 27. 8° 12' N, 18° 49' W. TYF. 450-500 (-0) m., night: *Cyphocaris faurei*, Brnrd.; *Metacyphocaris helgae*, Tatt.; *Scina crassicornis* (Fabr.); *Paraphronima crassipes*, Claus; *Phronima curvipes*, Voss; *Phronimella elongata* (Claus); *Pronoë capito*, Guér.; *Parapronoë clausoides*, Stebb.; *Brachyscelus cruscolum*, Bate; *Oxycephalus clausi*, Bov.; *Streetsia challengerii*, Stebb.; *Leptocotis tenuirostris* (Claus); *Rhabdosoma whitei*, Bate.

St. 297. 28. viii. 27. 12° 08' N, 20° 53' W. TYF. 200-300 (-0) m., night: *Cystisoma fabricii*, Stebb.; *Phronima sedentaria* (Forsk.); *Phrosina semilunata*, Risso; *Primno macropa*, Guér.; *Rhabdosoma whitei*, Bate; *Platyscelus inermis* (Claus). N 100 B. 163-0 m., night: *Eupronoë maculata*, Claus; *Rhabdosoma whitei*, Bate.

St. 298. 29. viii. 27. 13° 01' N, 21° 34' W. TYF. 900-1200 (-0) m., day: *Lanceola aestiva*, Stebb.; *Vibilia cultripis*, Voss; *Hyperia spinigera*, Bov.; *Platyscelus ovoides* (Claus).

### R.R.S. 'WILLIAM SCORESBY'

12. ix. 26. Walvis Bay, South-west Africa. LH. 4.57 m., from stomach of *Trigla capensis*: *Ampelisca palmata*, Brnrd.; *Melitu subchelata*, Schell.; *Lembos hypacanthus*, Brnrd.

5. x. 26. Hoetjes Bay, Saldanha Bay, South Africa. LH. 8 m., from stomach of *Trigla capensis*: *Liljeborgia epistomata*, n.sp. NH. 0 m., from Medusae: *Hoplopleon medusarum*, n.sp.; *Hyperia galba*, Mont.

St. WS 25. 17. xii. 26. Undine Harbour, South Georgia. BTS. 18-27 m., m. s.: *Paralysianopsis odhneri*, Schell.; *Tryphosa triangularis*, n.sp.; *T. analogica*, n.sp.; *Orchomenella acanthurus* (Schell.); *Heterophoxus videns*, Brnrd.; *Parharpinia rotundifrons*, n.sp.; *Oediceroides calmani*, Wlkr.; *Oradarea tridentata*, n.sp.; *Eusiroides georgianus*, n.sp.; *Pontogeneiella longicornis* (Chevr.); *Djerboa furcipes*, Chevr.; *Schraderia gracilis*, Pfr.; *Haplocheira barbimanus* (Thoms.).

St. WS 27. 19. xii. 26.  $53^{\circ} 55' S$ ,  $38^{\circ} 01' W$ . N 100 H. 107 m. (bottom 80 m., g.): *Acidostomella cultrifera*, Schell.; *Leucothoë spiniarpa* (Abildg.); *Colomastix fissilingua*, Schell.; *Polycheria antarctica* (Stebb.).

St. WS 33. 21. xii. 26.  $54^{\circ} 59' S$ ,  $35^{\circ} 24' W$ . N 100 H. 130 m. (bottom 135 m., gy.m. st.): *Acidostomella cultrifera*, Schell.; *Lepidepcreella ovalis*, n.sp.; *Lepidepcreoides xenopus*, Brnrd.; *Orchomenella acanthurus* (Schell.); *Haploöps securiger*, Brnrd.; *Acanthonotozomella oatesi*, Brnrd.; *Gnathiphimedia mandibularis*, Brnrd.; *Oediceroides calmani*, Wlkr.; *Methalimedon nordenskjöldi*, Schell.; *Tiron antarcticus*, n.sp.; *Epimeria excisipes*, n.sp.; *E. puncticulata*, Brnrd.; *Haplocheira barbimanus* (Thoms.); *Caprellinoides mayeri* (Pfr.).

St. WS 38. 22-23. xii. 26.  $54^{\circ} 01' S$ ,  $35^{\circ} 14' W$ . N 100 H. 53 m., night: *Orchomenella rossi* (Wlkr.). N 100 H. 0-5 m., night: *Vibilia antarctica*, Stebb.; *Cylopus magellanicus*, Dana; *Parathemisto gaudichaudii* (Guér.).

St. WS 53. 11-12. i. 27. From  $53^{\circ} 42' S$ ,  $37^{\circ} 12' W$  to  $53^{\circ} 29' S$ ,  $37^{\circ} 13' W$ . N 100 H. 0-5 m., night: *Uristes gigas*, Dana; *Phoxocephalus coxalis*, n.sp.

St. WS 56. 14. i. 27. Larsen Harbour, Drygalski Fjord, South Georgia. NH. 2 m., kelp roots: *Bovallia gigantea*, Pfr.; *Pontogeneiella brevicornis* (Chevr.); *Schraderia gracilis*, Pfr.

St. WS 62. 19. i. 27. Wilson Harbour, South Georgia. BTS. 26-83 m.: *Paraperioculodes brevi-manus*, Brnrd.; *Monoculodes scabriculosus*, n.sp.; *Djerboa furcipes*, Chevr.

St. WS 69. 22. ii. 27.  $52^{\circ} 19' S$ ,  $52^{\circ} 11' W$ . N 70 H. 0-5 m., night: *Parathemisto gaudichaudii* (Guér.).

St. WS 71. 23. ii. 27. 6 miles N  $60^{\circ} E$  of Cape Pembroke, East Falkland Island. OTC. 82 m., s.: *Amaryllis macrophthalma*, Hasw.; *Tryphosites chevreuxi*, Stebb.; *Haplocheira robusta*, n.sp.

St. WS 72. 5. iii. 27.  $50^{\circ} 07' S$ ,  $57^{\circ} 34' W$ . OTC and N 4-T. 95 m., s. sh.: *Chosroës incisus*, Stebb.; *Parathemisto gaudichaudii* (Guér.).

St. WS 76. 11. iii. 27.  $51^{\circ} 00' S$ ,  $62^{\circ} 02' W$ . DC. 207 m., f.d.s.: *Urothoë falcata*, Schell.

St. WS 79. 13. iii. 27.  $51^{\circ} 01' S$ ,  $64^{\circ} 59' W$ . N 7-T. 132-131 m., f.d.s., night: *Atyloella dentata*, n.sp.

St. WS 81. 19. iii. 27. 8 miles N  $11^{\circ} W$  of North Island, West Falkland Island. N 7-T. 81-82 m., s.: *Epimeria fasciata*, n.sp.

St. WS 85. 25. iii. 27. 8 miles S  $66^{\circ} E$  of Lively Island, East Falkland Island. OTC. 79 m., s. sh.: *Amaryllis macrophthalma*, Hasw.; *Lysianassa falklandica*, n.sp.; *Iphimediella nodosa* (Dana); *Epimeria fasciata*, n.sp.; *Haplocheira robusta*, n.sp.

St. WS 86. 3. iv. 27.  $53^{\circ} 53' S$ ,  $60^{\circ} 34' W$ . OTC. 151-147 m., s. sh. st.: *Epimeria fasciata*, n.sp.; *Haplocheira robusta*, n.sp.

St. WS 88. 6. iv. 27.  $54^{\circ} 00' S$ ,  $64^{\circ} 57' W$ . OTC. 118 m., s. sh. st.: *Ampelisca statenensis*, n.sp.; *Parharpinia sinuata*, n.sp.; *Eusirus antarcticus* (Thoms.).

St. WS 89<sup>1</sup>. 7. iv. 27. 9 miles N  $21^{\circ} E$  of Arenas Point Light, Tierra del Fuego. N 4-T. 23-21 m., m. g. st.: *Nototropis villosus* (Bate); *Parathemisto gaudichaudii* (Guér.).

St. WS 92. 8. iv. 27.  $51^{\circ} 58' S$ ,  $65^{\circ} 01' W$ . N 7-T. 145-143 m., f.d.s. st.: *Tryphosites chevreuxi*, Stebb.; *Chosroës incisus*, Stebb.

St. WS 95. 17. iv. 27.  $48^{\circ} 58' S$ ,  $64^{\circ} 45' W$ . TYF. 30 (-0) m., day: *Cylopus magellanicus*, Dana; *Hyperia galba*, Mont.; *Parathemisto gaudichaudii* (Guér.); *Phronima sedentaria* (Forsk.).

St. WS 96. 17. iv. 27.  $48^{\circ} 00' S$ ,  $64^{\circ} 58' W$ . OTC. 96 m., f.d.s.: *Phoxocephalopsis zimmereri*, Schell.

St. WS 97. 18. iv. 27.  $49^{\circ} 00' S$ ,  $61^{\circ} 58' W$ . OTC. 146-145 m., s. g. st.: *Lysianassa falklandica*, n.sp.

<sup>1</sup> Wrongly plotted in *Discovery Reports*, vol. I, Station List, pl. 1v.

St. WS 99. 19. iv. 27. 49° 42' S, 59° 14' W. OTC. 251-225 m., f.d.s., dawn, from stomach of *Merluccius: Parathemisto gaudichaudii* (Guér.).

St. WS 105. 24. iv. 27. 48° 50' S, 64° 24' W. N 100 H. 101 m., day: *Phronima sedentaria* (Forsk.).

St. WS 123. 8-9. vi. 27. Gough Island. Shore collecting: *Paramoera tristanensis*, n.sp.; *Allorchestes* sp.

### MARINE BIOLOGICAL STATION

St. MS 2. 11. ii. 25. 2½ cables E of Hope Point, East Cumberland Bay, South Georgia. NC 50 H. 15 m., day: *Hyperiella antarctica*, Bov.

St. MS 6. 12. ii. 25. East Cumberland Bay, South Georgia. BTS. 24-30 m.: *Oradarea tridentata*, n.sp.; *Schraderia gracilis*, Pfr.

St. MS 10. 14. ii. 25. East Cumberland Bay, South Georgia. BTS. 26-18 m.: *Bovallia gigantea*, Pfr.; *Pontogeniella longicornis* (Chevr.); *Djerboa furcipes*, Chevr.; *Schraderia gracilis*, Pfr.; *Parajassa georgiana*, Schell.

St. MS 14. 17. ii. 25. Off Sappho Point, East Cumberland Bay, South Georgia. DS. 190-110 m.: *Caprellinoides tristanensis*, Stebb.

St. MS 22. 9. iv. 25. 1.3 miles N of Dartmouth Point, East Cumberland Bay, South Georgia. NC 50 V. 40-0 m.: *Pagetina genarum*, Brnrd.; *Hyperiella antarctica*, Bov.

St. MS 25. 13. iv. 25. East Cumberland Bay, South Georgia. BTS. 36 m.: *Eusiroides georgianus*, n.sp. NC 50 H. 10 m., day: *Hyperiella antarctica*, Bov.

St. MS 26. 15. iv. 25. East Cumberland Bay, South Georgia. NC 50 H. 10 m., day: *Hyperiella antarctica*, Bov.

St. MS 30. 30. iv. 25. East Cumberland Bay, South Georgia. NC 50 V. 40-0 m., day: *Vibilia antarctica*, Stebb.; *Hyperoche medusarum* (Kröy.).

St. MS 32. 1. v. 25. East Cumberland Bay, South Georgia. BTS. 40 m.: *Djerboa furcipes*, Chevr. NC 50 H. 0-5 m., day: *Prinno macropa*, Guér.

St. MS 36 B. 14. x. 25. King Haakon Bay, South Georgia. NHS. 0 m., day: *Parathemisto gaudichaudii* (Guér.).

St. MS 39. 25. x. 25. King Haakon Bay, South Georgia, to 3 miles S of Undine Harbour. NHS. 0 m., day: *Parathemisto gaudichaudii* (Guér.).

St. MS 40. 25. x. 25. ¾ mile S of Cape Pariadin to 5 miles W of Welcome Island, South Georgia. NHS. 0 m., night: *Hyperiella antarctica*, Bov.

St. MS 62. 24. ii. 26. East Cumberland Bay, South Georgia. BTS. 31-40 m. *Orchomenella acanthurus* (Schell.).

St. MS 63. 24. ii. 26. East Cumberland Bay, South Georgia. BTS. 23 m.: *Parepimeria crenulata*, Chevr.; *Paradexamine fissicauda*, Chevr.

St. MS 64. 24. ii. 26. 1.8 miles SE by S of King Edward Point Light, East Cumberland Bay, South Georgia. DS. 7-15 m.: *Polycheria antarctica* (Stebb.).

St. MS 65. 28. ii. 26. East Cumberland Bay, South Georgia. BTS and NCS-T. 39 m.: *Cardenio paurodactylus*, Stebb.; *Djerboa furcipes*, Chevr.; *Paradexamine fissicauda*, Chevr.

St. MS 66. 28. ii. 26. East Cumberland Bay, South Georgia. NCS-T. 18 m.: *Monoculodes scabriculosus*, n.sp.; *Oediceroides calmani*, Wlkr.; *Paradexamine fissicauda*, Chevr.

St. MS 67. 28. ii. 26. East Cumberland Bay, South Georgia. BTS. 38 m.: *Cheirimedon femoratus* (Pfr.); *Gitanopsis antarctica*, Chevr.; *Metopoides parallelocheir* (Stebb.); *Thaumatelson nasutum*, Chevr.; *T. cultricauda*, n.sp.; *Monoculodes scabriculosus*, n.sp.; *Oediceroides calmani*, Wlkr.; *Oradarea bidentata*, n.sp.; *Pontogeneiella longicornis* (Chevr.); *Prostebbingia gracilis* (Chevr.); *Djerboa furcipes*, Chevr.; *Schraderia gracilis*, Pfr.

St. MS 68. 2. iii. 26. East Cumberland Bay, South Georgia. [N 200. 200-0 m. sic on label.] *Orchomenella rossi* (Wlkr.). NRL and NCS. 220-247 m.: *Orchomenella macronyx*, Chevr.; *Paraperiocolodes brevimanus*, Brnrd.; *Oradarea tridentata*, n.sp.

St. MS 71. 9. iii. 26. East Cumberland Bay, South Georgia. BTS and NCS-T. 110-60 m.: *Aristias antarcticus*, Wlkr.; *Leucothoë spinicarpa* (Abildg.); *Iphimediella margueritei*, Chevr.; *Gnathiphimedia mandibularis*, Brnrd.; *Echiniphimedia hodgsoni* (Wlkr.); *Halice profundi*, n.sp.; *Monoculodes scabriculosus*, n.sp.; *Oediceroides calmani*, Wlkr.; *Oradarea bidentata*, n.sp.; *Epimeria puncticulata*, Brnrd.; *Parepimeria crenulata*, Chevr.; *Eusiroides georgianus*, n.sp.; *Prostebbingia gracilis* (Chevr.); *Djerboa furcipes*, Chevr.; *Polycheria antarctica* (Stebb.); *Cerapus oppositus*, n.sp.

St. MS 74. 17. iii. 26. East Cumberland Bay, South Georgia. NCS and BTS. 22-40 m.: *Thaumatelson nasutum*, Chevr.; *Monoculodes scabriculosus*, n.sp.; *Oradarea tridentata*, n.sp.; *O. bidentata*, n.sp.; *Prostebbingia gracilis* (Chevr.); *Djerboa furcipes*, Chevr.; *Paradexamine fissicauda*, Chevr.

St. MS 82. 6. ix. 26. Off Salamander Point, Saldanha Bay, South Africa. BTS. 4 fms. (7-14 m.): *Iphimedia capicola*, n.sp.; *Panoploea excisa*, n.sp.; *Paramoera capensis* (Dana).

Examples of Cyamidae were collected at South Georgia, South Shetlands, Saldanha Bay, Durban, and at 14° 45' N, 18° 24' W.

## GENERAL REMARKS AND OBSERVATIONS

### CLASSIFICATION

It is not always easy to steer a middle course between "lumping" and "splitting". In many modern works a noticeable tendency towards the latter is present, and there is much to be said in its favour. In cases where abundant material in all stages of growth can be obtained from well-explored areas like the European seas, it is often possible to establish an acceptable synonymy. But in a vast region like the southern hemisphere, where extremely little detailed exploration has been carried out, and we are only just starting to acquire a knowledge of the fauna, much greater caution is necessary. As a result of the study of the Discovery collection, it has been borne in upon me, to my great regret, that much of the work of the late Dr Chilton was marred by too premature an insistence on the "variability" and "wide distribution" of certain species in the Antarctic and sub-Antarctic seas.

Variation should not be invoked to account for slight differences between forms from different regions. It should be determined on a large number of individuals from one locality or contiguous areas (e.g. *Echiniphimedia echinata*). And when determined in one form it should not be attributed by analogy, or only with the greatest caution, to another allied species or, *a fortiori*, genus.

The recognition of this principle and the desire to avoid an increase in the number of "species" seem to be responsible for the tendency to adopt a trinomial nomenclature. It is questionable whether it is not more convenient, as often as not, to regard every

form or variety, unless connected with the typical form by full series of gradations, as a species.

For example, the common Lysianassid *Orchomenella chilensis* occurs in several forms (cf. Schellenberg, 1926) in Antarctic and sub-Antarctic waters. It also occurs in South Africa in a form (f. *plicata*) so distinct that one may well consider it as a species; as a species, moreover, which does not occur elsewhere so far as we yet know. But the trinomial system of recording is certainly far better and more accurate than the statement that *O. chilensis* is a variable and widely distributed species. Such a statement would entirely conceal and confuse the facts of geographical distributions.

A further example of confusion caused by "lumping" is the *Nannonyx kidderi* "complex", which may be said to have been imposed, and to have imposed, upon all authors since 1909.

A very great deal of work has yet to be done on the southern fauna before the classification rests on as firm a footing as does that of the northern fauna; and many points in the latter are still not settled. In the meantime it seems wiser to err on the side of "splitting".

## HISTORICAL

It may be of interest to give a brief outline of the growth of our knowledge of the Amphipodan fauna of the area primarily investigated by the 'Discovery', i.e. the South American quadrant; for this purpose the Chilean and Patagonian coast north of 47° S lat., and also Tristan da Cunha, will be excluded.

It is rather surprising that the first Amphipod to be described from this region, in fact from the Antarctic, should be a pelagic form and not a littoral form, even though it is the commonest pelagic form there. In 1825 Guérin described *Themisto gaudichaudii*, collected near the Malouines (Falkland Islands) by Gaudichaud, who was botanist on the 'Uranie'.

Gaudichaud also collected an *Anchylomera* (*abbreviata* = *blossevillei* M. Edw.) and a *Phlias* (*serratus*) in the course of a voyage between the Malouines and Port Jackson. These were described by Guérin in 1836. It is probable that both these species were collected in the Southern Pacific. *Anchylomera* has not been found in the area under discussion; and *Phlias* has not since been rediscovered, though Stebbing (1899, *Trans. Linn. Soc. Lond.*, p. 417) reported a specimen from the Mediterranean which agreed with the generic characters of *Phlias*. Both these species, therefore, are here ignored.

To the enterprise of the early French whalers we owe the important paper by Rousell de Vauzème on *Cyamus* in 1834, in which are described the three species of whale louse, *ovalis*, *erraticus*, and *gracilis*, based on specimens collected from "whales harpooned under his own eyes" in the neighbourhood of Tristan da Cunha and the Falklands (see Stebbing, 1888, p. 155).

In 1848 Milne-Edwards described the huge Amphipod *Lysianassa magellanica*, collected by D'Orbigny from the stomach of a fish caught off Cape Horn. This species has not been rediscovered in the south, though it has been identified with the Arctic

*Eurythenes gryllus*. I am by no means prepared to accept this identification, as from our present knowledge of the Arctic and Antarctic faunas it seems far more likely that *magellanica* will prove to be a valid species (see *infra*, p. 58).

Meanwhile the U.S. Exploring Expedition had traversed our area, and the following Amphipoda, with their equivalent modern names, were described in Dana's classic work (1852, 1853 and 1855):

<i>Stenia magellanica</i>	Tierra del Fuego)	United, and considered <i>species dubiae</i> (Stebbing, 1906)
<i>Anonyx fuegiensis</i>	„	
<i>Uristes gigas</i>	Antarctic, stomach of fish	<i>Uristes g.</i>
<i>Iphimedia nodosa</i>	Hermite Island	<i>Iphimediella n.</i>
<i>Atylus simplex</i>	„	<i>Pontogeneia s.</i>
<i>Gammarus fuegiensis</i>	“Feejee Islands”	<i>Lembos f.</i> (see Stebbing, 1914)
<i>Orchestia scutigerula</i>	Tierra del Fuego	<i>Talorchestia s.</i>
„ <i>nitida</i>	„	<i>Orchestia n.</i>
<i>Amphithoe brevipes</i>	Hermite Island	<i>Amphithoe b.</i>
<i>Cylopus magellanicus</i>	Tierra del Fuego	<i>Cylopus m.</i>
<i>Themisto antarctica</i>		<i>Parathemisto gaudichaudii</i>
<i>Hyperia trigona</i>	“Lagulhas Bank near Cape Horn” <sup>1</sup>	Probably a young <i>P. gaudichaudii</i>

We may thus reckon that eight definite and recognized species were added to the fauna list. No further additions were made until Bate visited the Paris Museum and described in his British Museum Catalogue of Amphipoda (1862) some specimens derived from the collections made during the voyage of ‘La Zélée’ (1837-40). These were:

<i>Orchestia fuegensis</i>	Port Famine	= <i>O. nitida</i> , Dana
<i>Cylopus danae</i>	Near Powel Island (South Orkneys)	= <i>C. magellanicus</i> , Dana
<i>Cylopus lucasii</i>	„ „ „	= <i>C. lucasii</i>
<i>Vibilia edwardsii</i>	„ „ „	= <i>V. edwardsii</i> (see p. 264)

He also recorded from the same expedition *Themisto antarcticus*, Dana, from 62° 25' S, 58° W.

In the same work Bate described two species collected at Hermite Island by the British Expedition of the ‘Erebus’ and ‘Terror’ under Sir James Clarke Ross (1839-43) (referred to by Bate as the “Antarctic Expedition”), viz.:

<i>Atylus huxleyanus</i>	= <i>Halirages h.</i>
„ <i>villosus</i>	= <i>Nototropis v.</i>

The latter has remained obscure until rediscovered by the ‘Discovery’.

Although not collected within our area, mention may here be made of *Anonyx* (= *Orchomenella*) *chilensis* described by Heller in 1868 from the collections of the ‘Novara’. This is a polymorphic species which is considered (Schellenberg, 1926) to include several forms which do occur in our area.

In 1871 Cunningham gave an account of some Amphipods collected by him during

<sup>1</sup> Stebbing (1910 a, p. 476) included this in the South African fauna, suggesting that Dana meant to write “Cape of Good Hope”. Bate records it from the “Antarctic Expedition”.

the cruise of H.M.S. 'Nassau' in the years 1866-9. Brief and unsatisfactory descriptions were given of the following:

*Allorchestes patagonicus*, of which *Hyaella patagonica* Ortm. 1911 may be a synonym.

*Atylus batei*, which Stebbing (1888, p. 405) held to be synonymous with *luxleyanus*. Although Cunningham recorded also the latter species, I incline to Stebbing's view.

*Iphimedia normani*, a species which Stebbing rediscovered in a collection from the Falkland Islands and referred to the genus *Pariphimedia*.

In 1887 Bovallius described *Tyro* (= *Scina*) *tullbergi* from off Cape Horn. There is no further record of a *Scina* from this area, nor has the 'Discovery' taken any.

Next came the important paper by Pfeffer (1888) on the Amphipods collected by the German Transit of Venus Expedition at South Georgia in the years 1882-3. Up to this time South Georgia was *terra incognita* so far as concerned Amphipoda. Pfeffer described 13 species, all of which he considered as new to science. Chilton in 1913 re-examined the types and came to the conclusion that six of the species were synonymous with previously described species.

From the study of the present collection I am venturing to disagree with Chilton in regard to some of these synonyms. In my opinion ten of Pfeffer's species are to be maintained as valid, viz.:

<i>Orchomenella zschauii</i>	<i>Paramoera gregaria</i>
<i>Cheirimedon femoratus</i>	<i>Schraderia gracilis</i>
<i>Metopoides sarsii</i>	<i>Pontogeneia georgiana</i>
<i>Bovallia gigantea</i>	<i>Paraceradocus miersii</i>
<i>Eurymera monticulosa</i>	<i>Caprellinoides mayeri</i>

In the same year (1888), but later than Pfeffer's paper, appeared Stebbing's Challenger Report, the most wonderful work yet published on the Amphipoda. That the 'Challenger' added comparatively few species to the fauna list of our area is due to her having passed but once through Magellan Strait (January 1876) and captured specimens of Amphipods at only three stations. One of these (St. 313), however, provided nine new species. The additions to the fauna list were as follows:

<i>Acontistoma magellanica</i>	<i>Proboloides crenatipalmata</i>
<i>Amaryllis macrophthalma</i> Hasw.	<i>Seba saundersii</i> Stebb.
<i>Metopella ovata</i>	<i>Chosroes incisus</i>
<i>Metopoides magellanicus</i>	<i>Atylopsis dentata</i>
<i>M. parallelocheir</i>	<i>Atyloella magellanica</i>
<i>M. compactus</i>	<i>Hyperia gaudichaudii</i> = <i>galba</i>

A month after the 'Challenger,' the 'Gazelle' also passed through Magellan Strait, and at St. 47-53 a few Amphipods were collected, which, however, were not identified or reported upon (see Studer, *Forschungsreise 'Gazelle'*, III, pp. 279 sqq., 1889).

To bridge the gap between the Challenger Report and that of the First French Antarctic Expedition, we find that Mayer has recorded (in 1890) *Caprella equilibra* and (in 1903) *C. acutifrons* and *ungulina*, and *Piperella grata*. The latter, derived apparently from the same collection whence Pfeffer had already described *Caprellinoides mayeri*, is in my opinion only the young of *C. mayeri*.



Our first insight into the richness of the fauna of the more southerly portions of the area in question was provided by the results of the First French Antarctic Expedition, 'Le Français' (1903-5). Chevreux in his report (1906) recorded nine species already known and 15 new species. Allowing for probable synonymy, I think that 17 of these two dozen species can be admitted as additions to the fauna list.

In 1911 Chevreux was able to record two species from the South Sandwich Group, an area which it is seldom possible to visit on account of the pack ice. These two are, in my opinion, synonymous with previously described species and are not reckoned here.

Ortmann (Princeton University Expedition to Patagonia) in 1911 described *Hyaella patagonia*, which may be the same as Cunningham's *Allorchestes patagonicus*.

Chevreux's preliminary diagnoses of some of the Amphipods of the Second French Antarctic Expedition, the 'Pourquoi Pas?' (1908-10), and also Chilton's account of the Amphipods of the Scottish National Antarctic Expedition, 'Scotia', appeared in 1912. Chevreux's full account appeared the following year. These two expeditions added about 24 ('Pourquoi Pas?') and 11 ('Scotia') species to the fauna list.

The collections of Mr Rupert Vallentin at the Falkland Islands enabled Stebbing (1914) to add ten more species, four of which were new.

In 1914 also a pelagic Amphipod originally described from another sector of the Antarctic (*Tauria macrocephala*, Dana) was recorded by Shoemaker from South Georgia.

Finally Monod in his report (1926) on the "Belgica" Amphipods recorded five species from the Magellan Strait area, and seven from about 87° W long. Some of the specimens, being juveniles, were not referred to definite species.

Reckoning these doubtful species, approximately 120 species were thus known when the Discovery Investigations were beginning.<sup>1</sup>

The first two years' cruising of the 'Discovery' and the 'William Scoresby' has resulted in doubling the number of species on the fauna list. Approximately 242 species are now known.

## ARCTIC AND ANTARCTIC FAUNAS

One notable result of the Discovery Investigations has been the finding of further evidence of the similarity of the northern and southern faunas.

Chevreux (1913) noted 11 families of Gammaridea, and also the Caprellidae, as absent from Antarctic waters. Representatives of four of these families, and of the Caprellidae, were collected by the 'Gauss'. The 'Terra Nova' obtained a Lafystiid. Consequently there are only a few of the smaller families like the Stenothoidae, Cressidae, Anamixidae, Ingolfiellidae, Argissidae, etc., which are not yet known to be represented in the Antarctic fauna.

Though the 'Discovery' has not brought back representatives of any known family not previously recorded from Antarctic or sub-Antarctic waters, she has discovered representatives of a new family, Pagetinidae, and a new genus which may also require

<sup>1</sup> Schellenberg's 1931 report on the Swedish Antarctic Expedition material not included.

to be put in a family of its own. Moreover Bate's *Atylus villosus* has been rediscovered, so that the Atylidae are now known to be definitely present in the Antarctic.

In regard to genera the 'Discovery' has added the following to the Antarctic fauna list: *Byblis*, *Haploöps*, *Pardalisca*, *Nicippe*, *Halice*, *Tiron*, *Maera*, *Megamphopus*, *Podoceropsis*.

Evidence of the similarity of the northern and southern faunas is thus accumulating rapidly. Though it may still be correct to say that the southern area lacks certain families or genera, the balance may soon tilt the other way, and it will be the northern area which will be noted for its deficiencies. For the abundance and richness of the Antarctic fauna is being confirmed to an ever increasing degree by every successive expedition.

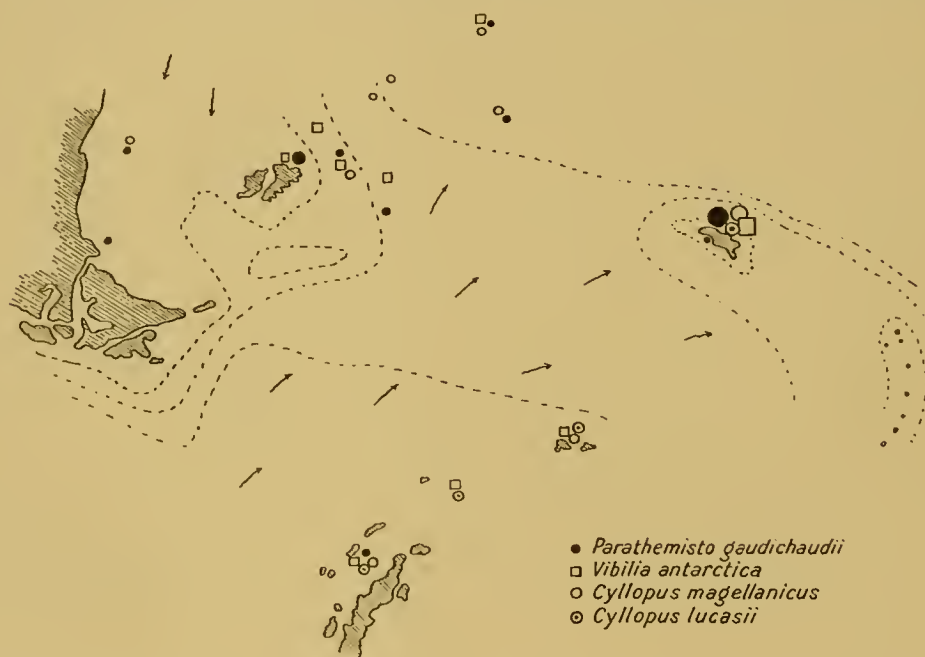


Fig. 1. Chart showing distribution of the four commonest pelagic Amphipods. The relative abundance is indicated approximately by the size of the signs. For details of the South Georgia area see Fig. 2. The South Orkney records are from Bate (1862). (Isobaths approximate only.)

As examples of the wealth of species in some localities, the lists of species at certain stations may be mentioned. Around South Georgia St. 42 and St. 140 both produced 25 species, St. 123 28 species, and St. 144 29 species. Off Clarence Island St. 170 produced 36 species. In Bransfield Strait St. 175 produced 33 species. These are all bottom dwellers, and were captured in a single haul at each station.

## DISTRIBUTION

It would be premature to attempt a lengthy discussion of the geographical distribution of the components of the Amphipodan fauna of the area investigated, especially in view of the further investigations now being undertaken by the 'Discovery II'. It may not be amiss, however, to deal briefly and tentatively with some of the conclusions to which the results of the Discovery (1925-7) investigations seem to point.

The detailed oceanographical results have yet to be published, but it is sufficient for our purpose to note the main course of the currents and the bathymetrical features.

The cold west drift current passes through Drake Strait and across the Southern Atlantic. South Georgia lies athwart its course; a fact which has very important bearings on the distribution of whale food and whales (see Hardy, *Geogr. Journ.*, LXXII, Sept. 1928). The Falkland Islands lie on the northern flank of this current, and between them and the mainland of South America a warmer current flows southwards.

These two currents seem to have but little influence on the pelagic Amphipods. The three most abundant pelagic species in the Discovery collection are found in both currents (cf. chart, Fig. 1), though a fourth species, *Cylopus lucasii*, appears to be confined to the colder waters.

Within the limits of the cold west drift current, the distribution of the pelagic Amphipods around South Georgia is noteworthy, especially as it coincides in a striking manner



Fig. 2. Chart showing the stations around South Georgia at which the five commonest pelagic Amphipods were captured. (Cf. Hardy, *Geogr. Journ.*, LXXII, Sept., 1928, figs. 4, 5.)

with the distribution of *Euphausia superba* (cf. Hardy, *loc. cit.* Figs. 4 and 5) and is evidently due to similar ecological factors.

With the exception of two captures of *Parathemisto gaudichaudii* by members of the Marine Station, not a single pelagic Amphipod was captured on the south-west side of South Georgia; whereas on the north-east side several species were found, some of them in great abundance (cf. chart, Fig. 2).

It is true that the two vessels of the expedition did more collecting on the north-east side (cf. *Discovery Reports*, 1, Station list, pl. ii), but the 'William Scoresby' ran a line of stations (WS 40-52 and 63) on the south-west side with entirely negative results, so far as Amphipods are concerned.

The conclusion seems warranted that the causes which Hardy (*loc. cit.*) suggested are operative determining the distribution of *Euphausia*, are operative also in the case of the pelagic Amphipods. The same contrast in the relative abundance of Amphipods on the two sides of South Georgia is found also in the bottom fauna, though in a much less noticeable degree.

As regards the bottom fauna of the whole region under discussion, one outstanding feature becomes evident when we analyse its composition in the several areas.

The 100 fathom (183 m.) line unites the Falkland Islands with Tierra del Fuego and the mainland, and there is considerable similarity in their faunas. These two areas are separated, however, from the more southerly groups of islands by a considerable depth of water, in Drake Strait by a depth of over 2000 fathoms, and by the sudden hydrographic change known as the Antarctic Convergence. That a strong contrast should be found between the shallow-water faunas on opposite sides of this channel was not surprising. It was apparent to some extent from the results of previous explorations, but the Discovery Investigations have accentuated it very considerably.

As in the case of the boreal and austral faunas, so in a similar manner on a smaller scale the contrast is most marked in the species, less so in the genera, and still less so in the families; though even here there is a difference. So far as our present knowledge goes, the Atylidae and Aoridae are present in the Magellanic area (including under this term the Falkland Islands), but not in the more southerly groups of islands. On the other hand the latter area contains seven families which have no representatives in the Magellanic area; the most important of these families being the Pardaliscidae, Tironidae and Pleustidae.

As examples of genera, which are found in the Magellanic area but do not appear to extend farther south, may be mentioned *Amaryllis*, *Lysianassa*, *Tryphosites*, *Urothoë*, *Halirages*, *Nototropis*, *Lembos*, *Stenothoë*, *Amphithoë*, and *Melita*.

The following genera are common to both areas, but are represented by different species in the two areas:

<i>Tryphosa castellata</i>	in Magellanic area	opposed to	<i>analogica</i> .
<i>Seba saundersii</i>	“ “ “		<i>antarctica</i> and other species.
<i>Colomastix castellata</i>	“ “ “		<i>fissilingua</i> .
<i>Iphimediella nodosa</i>	“ “ “		<i>margueritei</i> and others.
<i>Pariphimedia normani</i>	“ “ “		<i>integricauda</i> .
<i>Panoploea macrocystidis</i>	“ “ “		<i>joubini</i> .
<i>Monoculodes vallentini</i>	“ “ “		<i>antarcticus</i> .
<i>Chosroës incisus</i>	“ “ “		<i>decoratus</i> .
<i>Epimeria acanthurus</i>	“ “ “		<i>macrodonta</i> and other species.
<i>Pontogeneia simplex</i>	“ “ “		<i>antarctica</i> .
<i>Paradexamine namis</i>	“ “ “		<i>fissicauda</i> .
<i>Eurystheus eurypodii</i>	“ “ “		<i>distichon</i> and others.
<i>Haplocheira robusta</i>	“ “ “		<i>barbimannus</i> .

As regards the Epimeriids the 'Terra Nova' record of *Epimeria inermis* from west of the Falkland Islands appears anomalous, but is not really so, as there is a tongue of deep water running northwards between the Falkland Islands and Tierra del Fuego.<sup>1</sup>

The 'Discovery' crossed this tongue of deep water recording depths of 578-675 m., but unfortunately secured no Amphipods (St. 227-230). Further investigation of this area might prove interesting.

<sup>1</sup> Cf. chart in Pratje, Beitrag zur Bodengestaltung des Atlantischen Ozeans, *Centralbl. Min. Geol. Palaeont.*, Abt. B, No. 3, p. 129, fig. 2, 1928.

Among the species which inhabit both areas there are one or two interesting cases. Widely distributed species like *Leucothoë spinicarpa*, *Jassa falcata*, and *Polycheria antarctica* may be ignored; also *Eusirus antarcticus* and *Rhachotropis antarctica* which are probably more bathypelagic than true bottom dwellers.

In the same category is *Parharpinia sinuata*, which like most Phoxocephalids is probably pelagic at night or at certain seasons. Records of *Pachychelium* and the Metopids are to be used with caution, as these forms are often liable to be misidentified owing to the minuteness of the differential characters.

Of particular interest, however, is the occurrence of *Paramoera gregaria* and *Talorchestia scutigerula* at South Georgia as well as in the Tierra del Fuego area. The former is a littoral or shallow-water form, and might conceivably have migrated before Drake Strait became the wide and deep channel it now is. But the latter is a terrestrial form and not improbably dates back to a still earlier period when the Antarctic continent—or at least South Georgia—was connected with Tierra del Fuego (v. Gregory, *The Geological History of the Atlantic Ocean*, *Quart. Journ. Geogr. Soc.*, LXXXV, Pt. 2, p. cvii sqq. and maps, p. cxviii, 1929).

There is a strong resemblance between the faunas of the South Shetland Islands and Palmer Archipelago on the one hand, and the Ross Sea area on the other hand, as evidenced by the Acanthonotozomatids, Epimeriids and other forms.

## BIOLOGICAL

With a view to gaining an insight into the mutual relationships of marine organisms, it may be of interest to collect together lists of those Amphipods which were found by the 'Discovery' in the stomachs of fishes, and those which were found commensal in sponges and Ascidians.

From stomach of "*Perca antarctica*", Blue Fish<sup>1</sup>: *Vibilia armata*, *Cylopus magellanicus*, *Phronima sedentaria*.

From stomach of *Thynnus pelamys*: *Phronima sedentaria*.

From stomach of *Merluccius*: *Parathemisto gaudichaudii*.

From stomach of *Naucrates ductor*: *Platyscelus ovoides*.

From stomach of *Notothenia*: *Cheirimedon femoratus*, *Tryphosa kergueleni*, *Lepidepecreum cingulatum*, *Pontogeneiella brevicornis*.

From stomach of skate (*Psammodontus*): *Phoxocephalopsis zimmeri*.

From stomach of *Trigla capensis*: *Ampelisca palmata*, *Liljeborgia epistomata*, *Melita subchelata*, *Lembos hypacanthus*.

On or in sponges: *Leucothoë spinicarpa*, *Seba antarctica*, *Colomastix castellata*, *Echiniphimedia hodgsoni*, *Echiniphimedia echinata*, *Chosroës incisus*, *Oradarea tridentata*, *Polycheria antarctica*, *Didymochelia spongicola*.

On *Cephalodiscus*: *Podocerus septemcarinatus*.

On the crab *Eurypodius*: *Eurystheus eurypodii*.

In branchial chamber of Ascidians: *Orchomenella macronyx*, *Probolooides porcellanus*.

In Medusae: *Hoplopleon medusarum*, *Hyperia galba*.

<sup>1</sup> Probably = *Serirolella velaini*, Sauv., see Regan, *Ann. Mag. Nat. Hist.* (8), XI, p. 467, 1913.

## SYSTEMATIC ACCOUNT

## GAMMARIDEA

## Family LYSIANASSIDAE

Stebbing, 1906, pp. 8 and 717-721.

Schellenberg, 1926, p. 239.

Barnard, 1930, p. 318.

REMARKS. In dealing with several genera in this family the characters of the epistome plus upper lip, and the profile outline of pleon segment 4 have been regarded as of specific importance. Some other authors have assumed an extensive variability in these characters, without adducing definite proof of such variability in every case, and on this basis have attempted to lump many forms together under one name, whereby the "species" has acquired a "wide distribution". An outstanding example of this procedure is the sinking of the Australian *Tryphosa camelus*, Stebb. as a synonym of the Norwegian *T. sarsi* (cf. Chilton, 1921a, p. 43).

On the contrary I have found in examining the present collection very little evidence of variability. Enlarged drawings of the profiles of pleon segment 4 of several individuals, if superimposed, would naturally not coincide exactly; but the essential and characteristic curve of the profile is maintained. It is thus a good specific character.

One feature has not been taken into account in dealing with the more closely allied representatives of this family, viz. the surface sculpturing. The possible importance of this was not fully realized until the bulk of this report was completed and the Pontogeneiids were being studied (*infra*, p. 195). I may suggest, however, that the value of this character be investigated in, e.g., the genera *Orchomene*, *Orchomenella* and *Tryphosa*. The Cape form of *chilensis* (*plicata*) has the surface nitidulous with scattered pits, whereas *rossi* has a perfectly nitidulous surface without any pits.

Genus *Kerguelenia*, Stebb.

Stebbing, 1906, p. 11.

Schellenberg, 1926, p. 239.

Barnard, 1930, p. 318.

*Kerguelenia palpalis*, n.sp.

Schellenberg, 1926, p. 241, fig. 2. (*Kerguelenia* sp., juv.)

Occurrence: St. 175. South Shetlands. 1 (? ♂) 6 mm.<sup>1</sup>

REMARKS. This specimen seems to belong to the same species as the young specimen mentioned by Schellenberg. It has the same stout palp on the maxilliped as figured by him, the biramous 3rd uropod, and the distally expanded and lobed 2nd joint of peraeopod 3. First antenna with 6-jointed flagellum, 4-jointed accessory flagellum. Second antenna with 6-jointed flagellum. Eyes as in *borealis*.

<sup>1</sup> Except where otherwise stated, all measurements are taken from the point of the head or rostrum to the end of the telson.

From *borealis* it differs in the much stouter palp of the maxilliped, the slightly more broadly rounded postero-inferior angle of pleon segment 3, and the (vertical) depth of the excavation on side-plate 4 being equal to the (vertical) depth of the backward process (in *borealis*, Sars, 1895, pl. xl, fig. 2, the former is greater than the latter, if the figure is a true side view and the lower parts of the side-plates are not foreshortened).

DISTRIBUTION. 'Gauss' winter station, 385 m.

### Genus *Shackletonia*, Brnrd.

Barnard, 1931, p. 425.

Body robust. Side plates deep, 1st deeper than 2nd and 3rd, 4th large, deeply excavated, 5th bilobed, posterior lobe deeper than anterior. Telson deeply cleft. Antennae (immature) short, 2nd and 3rd peduncular joints of 1st antenna very short, accessory flagellum nearly as long as flagellum. Mouth-parts rather prominent. Epistome evenly convex in front, passing into upper lip without any intervening notch or groove. Mandible elongate, cutting edge straight, molar slight, conical, palp inserted in middle of trunk just behind molar. Lobes of lower lip subacute. First maxilla slender, outer lobe with very oblique distal margin set with six strong recurved hooks, palp 2-jointed, distally narrowing to subacute apex. Second maxilla slender, inner lobe shorter than outer. Maxilliped with inner plate small, slender; outer plate large, margin entire and unarmed; palp moderate, 4-jointed. First gnathopod simple. Second gnathopod minutely chelate. Peraeopods 3-5 with 2nd, 4th and 5th joints strongly expanded. Uropods 2 and 3 with peduncle stout. Accessory branchiae one on each of segments 2-5, two on segment 6.

REMARKS. This form has characters of both *Acidostoma* and *Phoxostoma*. The mouth-parts show the peculiar hook-like spines on the 1st maxilla only found elsewhere in *Acidostoma*, and which are possibly adaptations to a particular diet. On the other hand the palps of maxilla 1 and maxilliped show no degeneration. The development of the accessory branchiae is exactly like that of *Waldeckia obesa* and raises the question as to what systematic value these structures possess.

Named in commemoration of the exploits of the late Sir Ernest Shackleton in the Antarctic regions.

### *Shackletonia robusta*, Brnrd. (Fig. 3).

Barnard, 1931, p. 425.

Occurrence: 1. St. 123. South Georgia. 1 juv. 12 mm.

2. St. 170. South Shetlands. 1 immat. 28 mm. *Type*.

DESCRIPTION. Body robust, tumid in middle as in *Waldeckia obesa*. Integument indurated, with scattered punctures extending over the peraeon, pleon, side-plates and 2nd joints of peraeopods 3-5.

Head with antero-lateral angle rounded. Eyes large, reniform, wider below than above, dark.

Side-plate 1 slightly deeper than 2 and 3, rounded below, not expanded forwards; 4 deep and strongly excavate, contiguous with margin of anterior lobe of 5; posterior lobe of 5 deeper than anterior lobe, hidden below 2nd joint of peraeopod 3; 6 and 7 ovate, deeper than long.

Pleon segment 1 with antero-inferior angle quadrate, postero-inferior angle rounded; postero-inferior angle of segment 2 quadrate, of segment 3 shortly produced in a short acute point, margin above straight; dorsal profile of segment slightly gibbous.

Telson longer than basal width, cleft to base, lobes tapering evenly to acute apices, smooth, without any spinules.

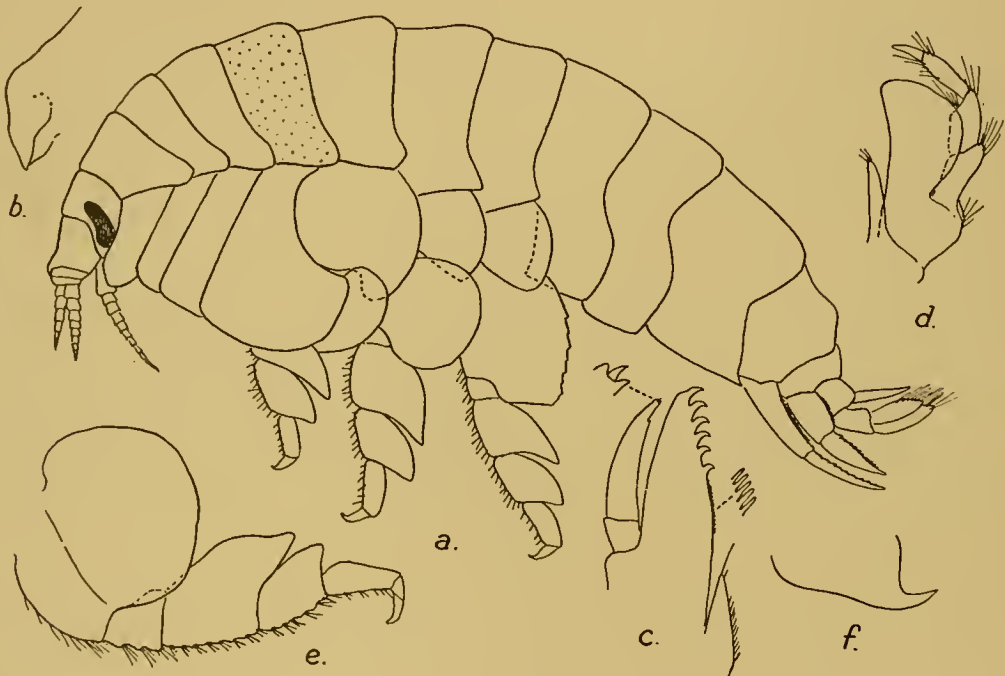


Fig. 3. *Shackletonia robusta*, Brnrd. a. General view, punctuation indicated on segment 4. b. Profile of epistome and upper lip. c. Maxilla 1. d. Maxilliped. e. Peraeopod 5. f. Pleon segment 3 of young (St. 123).

Antenna 1, 1st joint large and stout, slightly produced on inner upper apex, 2nd and 3rd joints very short, flagellum 9-jointed, accessory flagellum nearly as long as flagellum, 6-jointed. Antenna 2 slightly longer than antenna 1, 5th joint shorter than 4th, flagellum 11-jointed.

Epistome convex in front, passing evenly into the upper lip, without any deep intervening groove or notch. Mandible elongate, cutting edge straight, with denticle at each end, oblique, secondary cutting plate and spine row obsolete, molar weak, conical, palp inserted just behind molar, 3rd joint shorter than 2nd, falcate, a comb-like row of spine setae on margin of 3rd joint and distal half of 2nd joint. Lower lip with lobes apically subacute. Maxilla 1 slender, inner lobe feeble, tipped with 1 seta and 1 setule, outer lobe strong, apex oblique, with six strong hook-like spines, followed by a comb-like row of short spinules, palp 2-jointed, 2nd joint not quite reaching apex of outer lobe, tapering distally to a subacute apex, with one minute spinule, another minute spinule



on inner margin just below apex. Maxilla 2 slender, inner lobe shorter and narrower than outer, both tipped with setules and rather strong spine setae. Maxilliped with inner plate slender, tipped with three spines; outer plate large, extending to middle of 3rd joint of palp, margin quite smooth and unarmed; 4th joint of palp well developed.

Gnathopod 1 simple, stout. Gnathopod 2 much more slender, 6th joint about two-thirds length of 5th, its lower apex produced in a short rounded lobe opposed to the finger.

Peraeopods 1 and 2 moderately stout. Peraeopods 3-5 very stout, 2nd joints strongly expanded, especially in peraeopods 3 and 4, where they are broader than long, hind margins convex, scarcely notched, in peraeopod 5 oblong, upper and lower hind angles quadrate, hind margin gently convex, slightly notched; 4th and 5th joints also strongly expanded especially in peraeopods 3 and 4; anterior margins of 2nd-6th in all three peraeopods strongly armed with spines and spinules.

Uropod 1 not extending beyond apex of telson, upper outer margin of peduncle strongly spinulose, rami acuminate, outer margin of outer ramus spinulose, and inner margin of inner ramus also, but to a less extent. Uropod 2 with peduncle stout, similar to uropod 1 in armature. Uropod 3 extending to apex of telson, rami ovate, apices subacute, inner margins of both rami with dense fringe of plumose setae, 2nd joint of outer ramus represented by a minute spinule.

Accessory branchiae developed on segments 2-6, one on each of segments 2-5, two on segment 6.

In the young specimen (St. 123) pleon segment 3 has a considerably more produced postero-inferior angle, and each lobe of telson has a minute apical spinule. The eyes are smaller and more oval.

Even the type specimen shows no sign of penial processes or brood lamellae.

REMARKS. This form bears a close general resemblance to *Waldeckia obesa*, an example of which was caught in the same haul (St. 170), but the relations of the 4th and 5th side-plates and the expanded joints of peraeopods 3-5 at once distinguish it.

Schellenberg (1928, *Zool. Anz.*, LXXIX, p. 285), in a preliminary account of *Stephensenia haematopus*, claims on analogy with the members of the Haustoriidae that the expansion of the joints of the last three peraeopods indicates a burrowing mode of life. Although this feature is rare in the Lysianassidae, it is not unknown, as it occurs in *Acidostoma*, *Menigrates* and *Onisimus plautus*; in fact the fossorial character of peraeopods 3-5 is better developed in *Acidostoma* than it is in *Stephensenia*.

If the expansion of the joints of the last three peraeopods is really indicative of fossorial habits, the present form must certainly be put in the category of burrowing species. In *Acidostoma*, however, the mouth-parts are considered (Sars, 1895, p. 38) to indicate a semi-parasitic mode of life. Direct observations are required rather than speculations as to the possible functions of certain features. The nature of the bottom at St. 170 is given as "rock," and at St. 123 as "grey mud."

Genus *Acidostomella*, Schell.

Schellenberg, 1926 *b*, p. 197.

As pointed out below, the possession of a 2-jointed mandibular palp as originally described must be regarded as an unconfirmed character of the genus. No accessory branchiae.

*Phoxostoma*, Brnrd. (1925), is distinguished by the mandibular palp being set far back at the base of the trunk, the very short unguiform 4th joint of the palp of the maxilliped, and by having no groove between the upper lip and the epistome. The peculiar bulbous expansion at the base of the 2nd joint of the palp of maxilla 1 is not found in *Phoxostoma*, though this joint has the same stiff knife-like character as in *Acidostomella*.

*Acidostomella cultrifera*, Schell.

Schellenberg, 1926 *b*, p. 197, fig. 1.

- Occurrence*: 1. St. 39. South Georgia. 1 ♀ 9 mm., 1 juv. 4.5 mm.  
 2. St. 160. Shag Rocks. 1 ♀ 8.5 mm.  
 3. St. WS 27. South Georgia. 2 ♀♀ 7 mm.  
 4. St. WS 33. South Georgia. 1 ♀ 8 mm., 1 juv. 4.5 mm.

REMARKS. Agreeing with the 'Valdivia' specimen in all respects, except that the mandibular palp is 3-jointed. The 3rd joint is two-thirds the length of the 2nd and is setose as usual. The apex of the 2nd joint bears setae as in Schellenberg's figure, and it would seem that the absence of a 3rd joint was accidental. Inner ramus of uropod 2 constricted. Schellenberg (1931, p. 22) now regards this form as synonymous with *Socarnoides kergueleni*, Stebb.

DISTRIBUTION. Kerguelen, 5-10 m.

Genus *Acontiostoma*, Stebb.

Stebbing, 1906, p. 15.

*Acontiostoma marionis*, Stebb.

- Stebbing, 1888, p. 709, pl. xxx and p. 714, pl. xxxi (*magellanicum*, = juv.).  
 Stebbing, 1906, p. 15, fig. 4 and p. 15 (*magellanicum*).  
 Stebbing, 1914, p. 356.  
 Chilton, 1912, p. 462.  
 Schellenberg, 1931, p. 5.

*Occurrence*: St. 55. Falkland Islands. 1 ♀ with embryos 10 mm.

REMARKS. The embryo has 1-2 spine setae on uropod 3 and two spines on the telson, but lacks the hump on pleon segment 4. These features and the finding of an adult *marionis* in the Magellanic region support the view that *magellanicum* should be regarded as the young of *marionis*.

The colour is noted as "pure white with pink antennae". This seems to show that Chilton's endeavour to identify "bright red" specimens from New Zealand with this species requires further investigation.

The present specimen is larger than either the 'Challenger' or the 'Scotia' specimens. The strongly chitinized apices of the outer plates of the maxilliped are very noticeable.

DISTRIBUTION. Marion Island 90-135 m.; Cape Virgins 100 m.; Gough Island 100 fathoms; Falkland Islands; Kerguelen.

Genus *Stomacontion*, Stebb.

Stebbing, 1906, p. 16.

Barnard, 1916, p. 109.

The species described below is provisionally placed in this genus, though differing in certain respects. In other respects it combines the characters of both *Acontiostruma* and *Stomacontion*. From both it differs noticeably in the 1st gnathopod.

Chilton (1912) was of opinion that *Stomacontion* was not generically distinct from *Acontiostruma*, and in describing *S. capense* I was of the same opinion. But further study

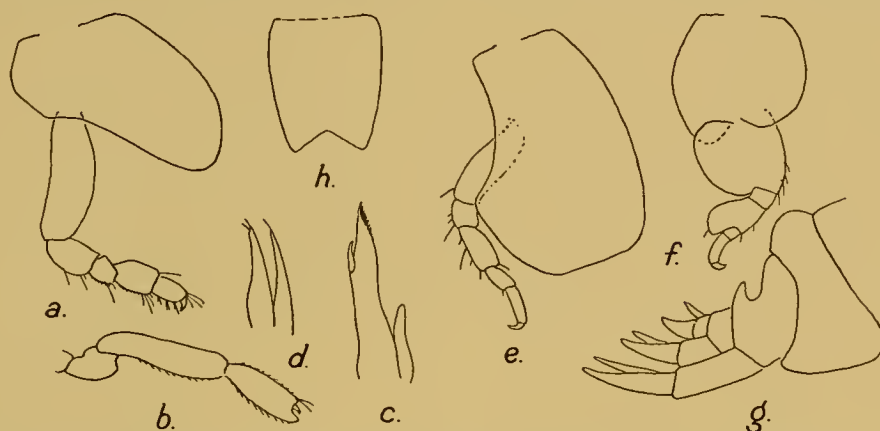


Fig. 4. *Stomacontion insigne*, n.sp. a. Gnathopod 1. b. Gnathopod 2. c. Maxilla 1. d. Maxilla 2. e. Peraeopod 2. f. Peraeopod 3. g. Pleon segments 3-6 and uropods. h. Telson.

of these forms is necessary. If the palp of maxilla 1 is of generic importance the 1st gnathopod might also be considered as such.

*Stomacontion insigne*, n.sp. (Fig. 4).

Occurrence: St. 160. Shag Rocks. 1 specimen about 6 mm.

DESCRIPTION. Integument (as preserved) moderately indurated, smooth. Eyes absent. Side-plates deep, non-setose, 1st subtriangular but not markedly shorter than 2, 4 somewhat truncate below, 5 with posterior lobe deeper than anterior. Pleon segment 3 remarkably shortened dorsally, forming a rounded hump, postero-lateral angle quadrate, slightly produced; segment 4 falling away abruptly from segment 3, with a strong upturned process on posterior margin. Telson oblong, slightly longer than broad, apex angularly and shallowly excised.

Antenna 1 stout, 2nd and 3rd joints very short, flagellum 4-jointed, 1st joint longest, accessory flagellum 2-jointed, 1st joint slender, longer than 1st joint of flagellum, 2nd joint minute. Antenna 2, 5th joint shorter than 4th, flagellum subequal to 5th joint, 4-jointed.

Mandible without molar, palp set far back. Maxilla 1, inner lobe without setae, palp minute, 1-jointed. Maxilla 2, both lobes slender, with 1-2 apical setae. Maxilliped, outer plate apically subacute, inner distal margin shallowly excised, 4th joint of palp quite rudimentary.

Gnathopod 1, 6th joint shorter and narrower than 5th, ovate. Gnathopod 2, 6th joint distinctly shorter than 5th, only about two-thirds its length.

Peraeopods 1-5 in general similar to those of *pepinii*, but hind margin of 2nd joint of peraeopods 3-5 quite smooth; 5th joint abruptly narrower than the expanded 4th.

Uropods 1 and 2 biramous, rami smooth. Uropod 3 consisting of a rather stout conical peduncle, without trace of rami.

#### Genus *Amaryllis*, Hasw.

Stebbing, 1906, p. 23 and p. 717 (*Vijaya*).

Barnard, 1925, p. 324.

#### *Amaryllis macrophthalma*, Hasw.

Stebbing, 1888, p. 707, pl. xxix.

Barnard, 1916, p. 114.

Schellenberg, 1926, p. 243 (references); 1931, p. 10.

*Occurrence*: 1. St. 51. Falkland Islands. 1 ♀ 12 mm., from kelp root.

2. St. 91. South Africa. 2 ♂♂, 2 ♀♀ 10 mm., 4 immat. 6-7 mm.

3. St. 222. Cape Horn. 1 ♀ 13 mm.

4. St. WS 71. Falkland Islands. 1 ovig. ♀ 15 mm.

5. St. WS 85. Falkland Islands. 1 ♂ 14 mm., 2 ♀♀ 14-15 mm., 3 ovig. ♀♀ 14, 16 and 17 mm.

REMARKS. This appears to be the only occasion on which this species has been taken in this area since the 'Challenger' took a small specimen off Cape Virgins. The specimens do not differ in any respect except size from South African specimens. The ♂ is not fully adult as the 2nd antennae are not longer than in the ♀. The eyes are dark.

The distribution is rather remarkable and it might perhaps be worth while to re-examine the East African specimen (Walker, 1909, p. 327) to see whether it is not really referable to the Cingalese species *tenuipes*.

DISTRIBUTION. Australasia; South and East Africa; Cape Virgins, 55 fathoms.

#### Genus *Cyphocaris*, Boeck.

Schellenberg, 1926, p. 243; 1926 *b*, p. 202.

Schellenberg in the 'Valdivia' Report has discussed the value of the specific characters of the species in this genus, and has shown that certain characters undergo considerable change during growth.

*C. richardi* must certainly be regarded as the least specialized, followed by *anonyx*. The prolongation of the 2nd joint of peraeopod 3 and the enlargement of the 6th joint of peraeopods 1-4 is a further development of a line of evolution already indicated in certain examples of *richardi*.

The three species *bouvieri*, *challengeri* and *faurei* are closely related to one another, much more so than to *richardi* and *anonyx*. The transformation of the 2nd joint of

peraeopod 3 into a sharp spine containing glands, which are possibly poison glands, might almost be regarded as justifying generic distinction.

*Cyphocaris richardi*, Chevr.

Chilton, 1912, p. 464, pl. i, figs. 1-4 (*anonyx*, non Boeck).

Stephensen, 1915, p. 37, figs. 21, 22.

Schellenberg, 1926, p. 245, fig. 4; 1926 *b*, p. 206, pl. v, fig. 1 and text-figs. 2 *a*, 3, 4; 1929, p. 195; 1931, p. 15.

- Occurrence*: 1. St. 8. South Atlantic. 1 ♂ 25 mm., 3 ♀♀ 26-27 mm.<sup>1</sup>  
 2. St. 71. South-west Atlantic. 1 ♂ 27 mm., 2 ♀♀ 30 mm., 31 immat. 16-21 mm.  
 3. St. 72. South-west Atlantic. 1 ♀ 31 mm.  
 4. St. 76. South-west Atlantic. 1 ovig. ♀ 31 mm.  
 5. St. 78. South Atlantic. 7 immat. 14-20 mm.  
 6. St. 81. South Atlantic. 1 immat. 21 mm.  
 7. St. 84. South-east Atlantic. 1 immat. 21 mm.  
 8. St. 86. South-east Atlantic. 2 ♀♀ 22 and 24 mm.  
 9. St. 89. South Africa. 2 immat. 20, 21 mm.  
 10. St. 101. South Africa. 4 ♂♂ 23-25 mm., 8 ♀♀ 25-30 mm.  
 11. St. 107. South-east Atlantic. 3 ♀♀ 23-30 mm.  
 12. St. 114. Bouvet Island. 3 ♂♂ 23-24 mm., 10 ♀♀ 24-30 mm., 4 immat. 17-19 mm.  
 13. St. 197. South Shetlands. 1 ♀ 38 mm., 1 ovig. ♀ 40 mm.  
 14. St. 198. South Shetlands. 1 ♂ 36 mm.  
 15. St. 239. South-west Atlantic. 4 ♂♂ 20-22 mm., 8 ♀♀ 22-31 mm., 3 ovig. ♀♀ 30-31 mm., 8 immat. 16-20 mm.  
 16. St. 253. South-east Atlantic. 7 immat. 14-21 mm.  
 17. St. 256. South-east Atlantic. 1 ♂ 20 mm., 1 ♀ 21 mm.

REMARKS. Notes 17, 18, 19, all referring to the specimens caught at St. 8, read as follows: "deep red, rostrum white with pale red tip", "red, rostrum slightly paler red", "orange-red, rostrum broken at tip, but whitish". No. 2, 5 and 6 are recorded as being "bright orange", "bright orange-red" and "bright scarlet" respectively.

All the present localities lie between about  $32\frac{3}{4}^{\circ}$  S and  $52\frac{1}{4}^{\circ}$  S, with two stations also in the South Shetlands. Chilton's record (as *anonyx*) is the most southerly ( $71^{\circ} 50'$  S) yet recorded. It is interesting to note that this species was not taken at any station on the homeward journey from Cape Town, i.e. in the Benguella Current along the west coast of Africa, in contrast with the other species recorded below.

Ovigerous ♀♀ were taken in April (South Shetlands) and June (north-east of Falkland Islands).

The largest ♀♀ (no. 13) and the largest ♂ (no. 14) both came from the higher latitudes.

The least depth at which specimens were caught was 76 m. (no. 14); this was a night haul, but at the neighbouring station (no. 13) the species was not caught either by day or by night at lesser depths than 750-500 m. With this exception there is no evidence that the species ascends towards the surface at night.

DISTRIBUTION. Atlantic:  $54^{\circ}$  N- $37^{\circ}$  N and  $14^{\circ}$  S- $55^{\circ}$  S and nearly  $72^{\circ}$  S, 0-4900 m. Pacific.

<sup>1</sup> All measurements in this genus are exclusive of the rostrum.

**Cyphocaris anonyx**, Boeck.

Stebbing, 1888, p. 656, pl. xvi (*micronyx*).

Chevreaux, 1900, p. 165, pl. xiv, fig. 11 (coloured) (*micronyx*).

Schellenberg, 1926, p. 244; 1926 *b*, p. 210, pl. v, fig. 2 and text-figs. 2 *b*, 5; 1929, p. 195.

Pirlot, 1929 *a*, p. 5.

*Non* Chilton, 1912, p. 464 (*richardi*).

- Occurrence*: 1. St. 78. South Atlantic. 2 ♀♀ 13 mm.  
 2. St. 81. South Atlantic. 3 ♀♀ 12-13 mm.  
 3. St. 87. South-east Atlantic. 3 ♂♂ 10-12 mm., 3 ♀♀ 12-13 mm., 1 immat. 8 mm.  
 4. St. 89. South Africa. 4 ♀♀ 10-13 mm.  
 5. St. 253. South-east Atlantic. 1 ♀ 13 mm.  
 6. St. 256. South-east Atlantic. 2 ♀♀ (1 ovig.) 13-14 mm., 2 juv. 8-9 mm.  
 7. St. 281. South Atlantic. 3 ♀♀ 12-13 mm.  
 8. St. 287. Mid-Atlantic. 3 ♀♀ 9-12 mm.  
 9. St. 295. Mid-Atlantic. 1 ♀ 13 mm.

REMARKS. No. 2 is recorded as being "bright scarlet". The present collection fills gaps in, but does not materially extend, the known distribution of this species.

DISTRIBUTION. Atlantic: 78° N-35½° S, 310-3000 m. Indo-Pacific.

**Cyphocaris challengerii**, Stebb.

Stebbing, 1888, p. 661, pl. xvii.

Chevreaux, 1905 (*Bull. Inst. océan. Monaco*, no. 27), p. 1, figs. 1, 2 (*alicei*).

Schellenberg, 1926, p. 243; 1926 *b*, p. 212, pl. v, fig. 3 and text-figs. 2 *d*, 6-10; 1929, p. 195.

Pirlot, 1929 *a*, p. 7.

- Occurrence*: 1. St. 78. South Atlantic. 1 ♂ 11 mm., 1 juv. 7 mm.  
 2. St. 83. South-east Atlantic. 1 ♂ 11 mm.  
 3. St. 87. South-east Atlantic. 6 ♂♂ 8.5-10 mm., 10 ♀♀ 6-9 mm. (2 ovig.).  
 4. St. 89. South Africa. 2 ♂♂ 9 mm., 6 ♀♀ 7-8 mm. (1 ovig.).  
 5. St. 267. South-west Africa. 1 ovig. ♀ 9 mm.

REMARKS. Ovigerous ♀♀ were found in June and July. The shallowest depths at which the 'Discovery' took this species were 650 (-0) and 450-550 (-0) m. (nos. 2 and 5), both of which were night hauls. Where there are so few records this has no great significance.

DISTRIBUTION. Atlantic: 36° N-35½° S, 5000-0 m. Indo-Pacific.

**Cyphocaris faurei**, Brnrd.

Barnard, 1916, p. 117, pl. xxvi, fig. 4.

Schellenberg, 1926 *b*, p. 215, pl. v, fig. 4 and text-figs. 2 *e*, 11, 12; 1929, p. 195.

- Occurrence*: 1. St. 81. South Atlantic. 1 ovig. ♀ 22 mm., 1 immat. 13 mm.  
 2. St. 83. South-east Atlantic. 1 ♀ 22 mm.  
 3. St. 86. South-east Atlantic. 1 ♀ with embryos 22 mm.  
 4. St. 107. South-east Atlantic. 1 ♂ 25 mm., 1 ♀ with embryos 23 mm.  
 5. St. 256. South-east Atlantic. 1 juv. 8 mm.  
 6. St. 285. Mid-Atlantic. 1 ♂ 19 mm.  
 7. St. 288. Mid-Atlantic. 2 ♀♀ 19 and 23 mm., 1 immat. 11 mm.  
 8. St. 296. Mid-Atlantic. 1 ♂ 18 mm.

REMARKS. No. 1 is recorded as being "bright scarlet". The present collection extends the known distribution in the Atlantic to  $8^{\circ} 47'$  W long.,  $45^{\circ}$  S lat. and to  $8^{\circ} 12'$  N lat. It would appear that the species is taken in lesser depths during the night than during the day.

DISTRIBUTION. Atlantic:  $36^{\circ}$  S,  $17\frac{1}{2}^{\circ}$  E, and off Cape Point, S. Africa. Indian Ocean, off East London (South Africa). Pacific.

### Genus *Metacyphocaris*, Tattersall.

Tattersall, 1906, p. 29.

The occasional presence of a rudimentary mandibular palp somewhat weakens the reasons for the generic separation of this form from *Paracyphocaris* Chevr. The reduced inner ramus of uropod 3, however, is an additional difference between the two genera.

### *Metacyphocaris helgae*, Tattersall (Fig. 5).

Tattersall, 1906, p. 29, pl. iii, fig. 1, pl. iv.

Stephensen, 1923, p. 54.

Schellenberg, 1926 *b*, p. 216 and pp. 235, 238, 241, text-figs. 26 *c*, 27; 1927, p. 666, fig. 60; 1929, p. 196.

Pirlot, 1929 *a*, p. 8.

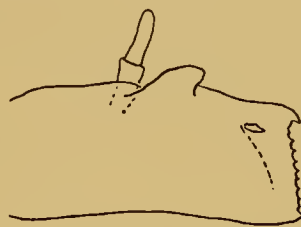


Fig. 5. *Metacyphocaris helgae*, Tattersall. Mandible of ♀. (St. 281.)

- Occurrence: 1. St. 78. South Atlantic. 2 immat. 11–12 mm.  
 2. St. 85. South-east Atlantic. 1 immat. 13 mm.  
 3. St. 281. Mid-Atlantic. 1 ♀ with brood lamellae 17 mm., 1 immat. 13 mm.  
 4. St. 287. Mid-Atlantic. 2 immat. 10–11 mm.  
 5. St. 296. Mid-Atlantic. 1 immat. 11 mm.

REMARKS. The large ♀ (no. 3) seems to be the first known specimen which is approximately mature. The brood lamellae are elongate linguiform, with setose margins. It is also remarkable in that both mandibles retain a 2-jointed rudiment of the palp.

The ventral surface in the smaller specimens is more or less bulging, a fact which may indicate parasitic (blood-sucking) habits.

The known distribution in the Atlantic is much extended by the above finds, viz. to south of the equator ( $2^{\circ} 49'$  S) in the Gulf of Guinea, and to  $35^{\circ}$  S Mid-Atlantic.

DISTRIBUTION. Atlantic:  $64^{\circ}$  N– $47^{\circ}$  N, 1800–2800 m.

### Genus *Paralysianopsis*, Schell.

Schellenberg, 1931, p. 7.

Barnard, 1931, p. 425 (*Austronisimus*).

Side-plate 1 not expanded below, 5 evenly bilobed. Pleon segment 3 with postero-inferior angle produced, rounded. Telson short, ovate, with a short terminal notch. Antenna 1 stout, 2nd and 3rd joints very short. Epistome straight, not prominent; upper lip produced in an acute process. Mandible with molar moderate, palp attached over molar. Maxilla 1, outer lobe with 7–8 spines, palp moderately slender. Maxilla 2, lobes

moderately slender, subequal in length. Maxilliped, outer plate with smooth inner margin. Gnathopod 1 feebly subchelate. Uropod 2 with inner ramus constricted. Uropod 3, 2nd joint of outer ramus two-thirds length of 1st. Branchiae simple, apparently without accessory branchiae.

REMARKS. A genus which has many of the characters of *Onisimus*, but which differs in the subequal and more slender lobes of maxilla 2, and the large 2nd joint of the outer ramus of uropod 3. In both of these characters it resembles *Lysianella*, but lacks the enlarged 4th joint of antenna 2 found in that genus. The produced upper lip is comparable with that of *Lysianella*. From *Paronesimus* it is distinguished by the 2nd maxilla. The epistome and upper lip for this latter genus are not described, unless we can assume from Stebbing's words (1894, *Bijdr. Dierk.*, xvii, p. 14): "The single specimen was dissected under the impression that it belonged to *Chironesimus debruyinii* . . .", that the upper lip was strongly projecting as in that species. Further distinguished from *Pseudonesimus*, Chevr. 1926 by the feebly subchelate 1st gnathopod and the 3rd uropod.

The other genus to which this form might be run down in Stebbing's key (1906) is *Paratryphosites*, but the epistome and upper lip are not described, at least not in the works accessible to me.

*Paralysianopsis odhneri*, Schell. (Fig. 6).

Schellenberg, 1931, p. 7, fig. 2.

Barnard, 1931, p. 425 (*A. rhinoceros*).

Occurrence: St. WS 25. South Georgia. 1 ♀ 6 mm.

DESCRIPTION. Integument (as preserved) not indurated. Head with anterolateral angle quadrate. Eyes oval, dark. Side-plate 1 parallel-sided, somewhat rounded below; 5 evenly bilobed. Postero-inferior angles of pleon segments 1 and 2 quadrate, of segment 3 produced in a rounded lobe. Pleon segment 4 dorsally depressed behind the

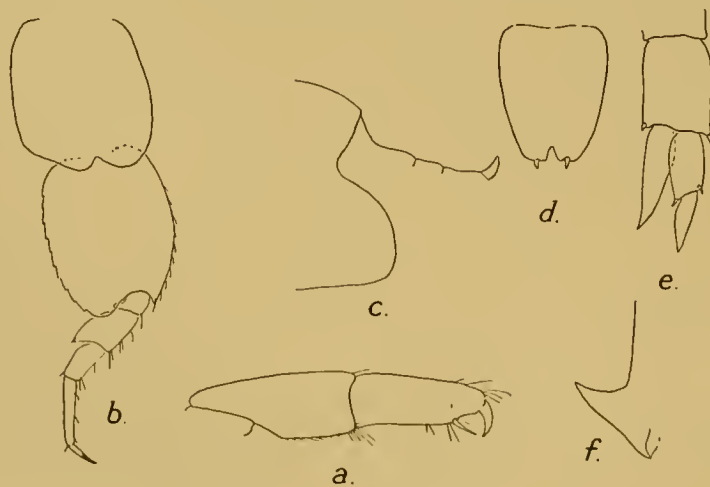


Fig. 6. *Paralysianopsis odhneri*, Schell. a. Gnathopod 1. b. Peraeopod 3. c. Pleon segments 3-6. d. Telson. e. Uropod 3. f. Profile of epistome and upper lip.



proximal hump, but not carinate. Telson short, oval, with a short apical notch, an apical spinule on each lobe.

Antenna 1, flagellum 9-jointed, accessory flagellum 5-jointed. Antenna 2, flagellum 8-jointed.

Epistome straight, upper lip produced in an acute, slightly upturned, process. Mandible, molar moderately strong, palp attached above molar or above its posterior margin, but not behind it. Maxilla 1, outer lobe with 7-8 serrulate spines, palp extending beyond apex of outer lobe, moderately slender, apex with four short stout spinules and a seta. Maxilla 2, both lobes nearly equal in length and moderately slender. Maxilliped, inner plate with two apical short spinules, outer plate with smooth margin.

Gnathopod 1, 6th joint nearly as long as (upper margin) 5th, slightly tapering, palm short, oblique, defined by a rather long slender spine and a seta. Gnathopod 2, 6th joint half length of 5th, narrow ovate, minutely subchelate.

Peraeopods 1-5 slender, 2nd joint in peraeopods 3-5 ovately expanded, longer than wide, hind margin serrulate, 4th joint moderately expanded in peraeopod 3, but less so in peraeopods 4 and 5.

Uropod 2, rami slender acuminate, inner ramus constricted. Uropod 3 rather stout, rami a little longer than peduncle, outer ramus slightly longer than inner, its 2nd joint two-thirds length of its 1st joint.

DISTRIBUTION. Falkland Islands.

#### Genus *Lysianassa*, M. Edw.

Stebbing, 1906, pp. 37, 718.

#### *Lysianassa variegata* (Stmps.).

Stebbing, 1888, p. 682, pl. xxiii and 1910 *a*, p. 449.

*Occurrence*: 1. St. 90. South Africa. 2 ♀♀ 9-10 mm.  
2. St. 91. South Africa. 2 ♀♀ (1 ovig.) 7.5 mm.

DISTRIBUTION. South Africa (False Bay to East London).

#### *Lysianassa falklandica*, n.sp. (Fig. 7).

*Occurrence*: 1. St. WS 85. Falkland Islands. 1 ♀ 7 mm. *Type*.  
2. St. WS 97. Between Falkland Islands and South America. 2 ovig. ♀♀ 9 mm.,  
1 immat. 6.5 mm.

DESCRIPTION. Integument indurated. Head, peraeon and pleon dorsally with minute scattered setules. Head with antero-lateral angle quadrate or subacute. Eyes rather narrow oval-reniform, brown.

Side-plates 1-4 deep, 1 slightly expanded forwards, 4 not strongly excavate, the excavation evenly rounded.

Pleon segment 4 with dorsal profile slightly excavate in middle; postero-inferior angles of segment 1 rounded, of 2 quadrate, of 3 produced backwards in a rounded lobe.

Telson longer than wide, distal margin truncate or feebly excised, a spinule on each apex.

Antenna 1, flagellum 7-jointed, accessory flagellum 3-jointed. Antenna 2, flagellum 9-jointed.

Epistome not prominent, separated by a deep groove from the upper lip which is produced in a linguiform process. Mouth-parts as in *plumosa* (Sars, 1895, pl. xvi, fig. 1, as *costae*), but inner lobe of maxilla 2 scarcely broader than outer lobe.

Gnathopod 1, 2nd joint stout, straight, 5th oblong, 6th longer than 5th, narrow, tapering. Gnathopod 2, 6th joint rather more than half length of 5th, feebly chelate.

Peraeopod 3, 2nd joint strongly expanded, subcircular, hind margin feebly notched. Peraeopod 4, 2nd joint ovoid, longer than wide, hind margin distally emarginate. Peraeopod 5, 2nd joint broadly ovate, nearly subcircular.

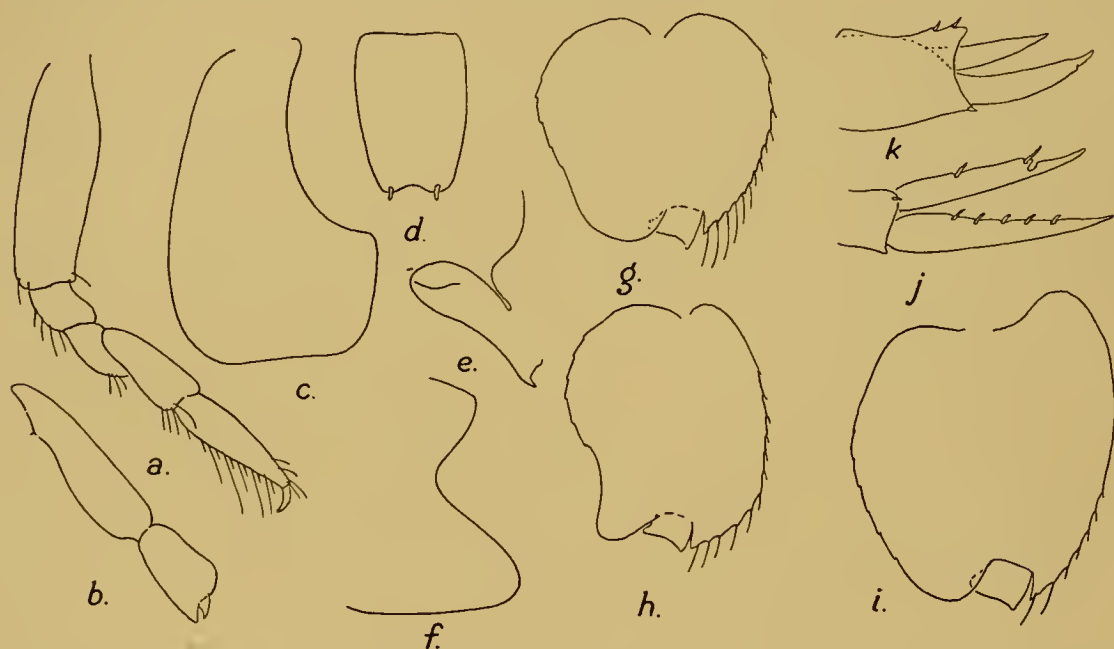


Fig. 7. *Lysianassa falklandica*, n.sp. a. Gnathopod 1. b. Gnathopod 2. c. Side-plate 4. d. Telson. e. Profile of epistome and upper lip. f. Pleon segment 3. g. 2nd joint of peraeopod 3. h. 2nd joint of peraeopod 4. i. 2nd joint of peraeopod 5. j. Uropod 2. k. Uropod 3.

Uropod 2, inner ramus constricted. Uropod 3 not very short, the rami not rudimentary or reduced, upper outer margin of peduncle distally lobed, with 1-2 spinules on its upper margin.

Branchiae tending to be slightly folded. Accessory branchiae absent.

REMARKS. It is perhaps possible that this species may prove to be the same as Dana's *nasuta* from Rio de Janeiro, which Stebbing (1906) regards as a doubtful or inadequately described species. Bate's description (1862, p. 66), quoted from Dana, gives no criteria for comparison; his figure (pl. x, fig. 6), which is shaded and therefore taken from an actual specimen, shows the postero-inferior angle of pleon segment 3 much less produced than in the present species. The 1st antenna is described and figured as longer than the 2nd antenna, which is not so in the present specimens.

Genus *Socarnoides*, Stebb.

Stebbing, 1888, p. 690 and 1906, p. 47.

See also Schellenberg, 1931, pp. 6, 22.

Although there are no representatives of this genus in the 'Discovery' collection, I make no apology for introducing the following discussion on these Antarctic or sub-Antarctic forms. (But see also under *Acidostomella cultrifera*, *supra* p. 32).

The type species is *kerqueleni*, Stebb. 1888.

In 1888 Stebbing, with one of S. I. Smith's specimens of "*Lysianassa*" *kidderi* before him, pointed out the differences between it and *Socarnoides kerqueleni*, and in 1906 assigned the former to the genus *Nannonyx*, Sars 1891.

In 1909 Chilton united *S. kerqueleni*, *Ephippiphora kröyeri*, White, *N. thomsoni*, Stebb., and *L. stebbingi*, Thoms., with *kidderi*, Smith, but under the later generic name *Nannonyx*.

Stebbing then referred (1910, p. 571) *N. thomsoni* to a new genus *Parawaldeckia*, which agreed with *Waldeckia* in possessing accessory branchiae.

In 1922 Tattersall accepted Chilton's synonymy and Stebbing's genus *Parawaldeckia*, and expressed the hope that this form, described under at least half a dozen specific names and referred to three genera, had at last come to rest. But if all these "species" are really synonymous, he defeated his own object by adopting the oldest specific name and the latest generic name. Monod (1926) adopted *Nannonyx*, and Stephensen (1927) followed Tattersall. The name should be *Socarnoides kidderi* (Smith).

But it appears to me to be very doubtful whether all these forms are legitimately united.

In 1921 Chilton (1921 *a*, p. 35) was able to distinguish two of the forms he had previously united: a form which he refers to *Ephippiphora kröyeri* (using the preoccupied generic name) and another which he refers to *Nannonyx kidderi*, with *Parawaldeckia thomsoni* as a synonym. I feel sure that our knowledge of these forms is still inadequate, in spite of Chilton's words (1909, p. 617) that "this species has already been fully described by various other authors". Some points of conflict in these descriptions may be discussed.

The accessory branchiae were first mentioned by Stebbing (1910) and led to the institution of the genus *Parawaldeckia* "from its agreement with *Waldeckia* in possessing accessory lobes to the branchial vesicles". Presumably they are present on segments 2-6, but neither Stebbing nor Stephensen (1927, p. 301) state the actual number. It is not fair to assume that Stebbing overlooked them in describing *S. kerqueleni*. Nor are they mentioned by Sars in the description of *Nannonyx göesii*. We may therefore separate a form *Parawaldeckia thomsoni* (Stebb.), New Zealand, which is further characterized by having the postero-inferior angle of pleon segment 3 "acutely up-turned" (Stebbing, 1906, p. 36). The 3rd uropod is very short with the inner ramus almost rudimentary, as in *Nannonyx*. But the character of the epistome and upper lip is unknown.

The epistome and upper lip are not at all prominent in *N. göesii* or in the form figured by Monod (1926, fig. 50). But in *Socarnoides* they are both prominent, the epistome forming a very conspicuous plate. Stephensen's fig. 2 (1927) shows a strongly projecting profile very similar to that of the *upper lip* in *kerqueleni*, though the description says the epistome projects. What was the character of the epistome and upper lip in Chilton's (1909 and 1921a) and Tattersall's specimens?

A further point arises in the comparison of the shape of the 4th side-plate. Monod figures a very deep excavation, the lobe extending backwards to the end of the 5th side-plate. Thomson (1892, *Proc. Roy. Soc. Tasman.*, p. 64, pl. v, fig. 10) and Tattersall figure a *rectangular* excavation. Both forms are utterly different from Stebbing's figure of *kerqueleni*, and surely the agreement between Thomson's and Tattersall's figures is not accidental, but expresses a real difference which should cause one to hesitate before uniting these forms with *kerqueleni*. Is the *Parawaldeckia kidderi* of Tattersall (which has accessory branchiae) a synonym of "*Lysianax*" *stebbingi*, Thoms.?

A comparison of the figures of the 1st gnathopod (and to a less extent the 2nd gnathopod) given by Stebbing (1888), Thomson (1892), Tattersall (1922), Monod (1926), and Stephensen (1927) leads one also to the conclusion that several (two at least) species have been unjustifiably united.

This criticism may sound drastic, but it shows that the union of all these forms under the one name *kidderi* is most unfortunate. One must admit that Stebbing's description of *kerqueleni* is a full and satisfactory description; Stephensen's specimens are easily recognizable, as are Monod's and probably also Tattersall's. Though Stephensen compares and contrasts his specimens with *kerqueleni*, one would have liked a figure of the 4th side-plate; and in the case of the 'Belgica' specimens one would like to know whether accessory branchiae were present.

One may perhaps hazard a guess that the 'Belgica' specimens will prove to be a species of true *Nannonyx*; that *P. kidderi*, Tattersall will be synonymous with *stebbingi*, Thoms. and a true *Parawaldeckia*, but distinct from *thomsoni*, Stebb. As for Stephensen's specimens they have the upper lip of *Socarnoides*, the 3rd uropod of *Nannonyx*, plus the accessory branchiae of *Parawaldeckia*. A thorough study of abundant Australasian material is obviously required.

Finally, although Stebbing compared his genus with *Socarnes*, Boeck, the comparison might have been made with *Lysianassa* which is closely allied with *Socarnes*. The distinctive features of *Socarnoides*, which separate it from both the other genera, are the maxillipeds and the prominent epistome, and in both of these features it shows an approach to *Socarnopsis*, Chevr., 1910.

These remarks were written before the appearance of Schellenberg's 1931 paper.

Genus *Waldeckia*, Chevr.

Chevreux, 1906, p. 13.

*Waldeckia obesa* (Chevr.).

Chevreux, 1906, p. 15, figs. 8-10 and 1911, p. 403.

Chilton, 1912, p. 471. (*zschauii*, non *Anonyx zschauii*, Pfr.)

Barnard, 1930, p. 323, fig. 1a (references).

- Occurrence*: 1. St. 170. South Shetlands. 1 ♀ 25 mm., 2 juv. 11 mm.  
 2. St. 172. South Shetlands. 1 ♂ 20 mm., 1 ovig. ♀ 25 mm.  
 3. St. 184. Palmer Archipelago. 1 ♂ 18 mm., 1 ♀ 25 mm.  
 4. St. 189. Palmer Archipelago. 2 ♂♂ 18 and 22 mm., 6 ♀♀ 21-22 mm. (2 ovig.).  
 5. St. 195. South Shetlands. 1 ♂ 18 mm., 1 ♀ 15 mm.

REMARKS. The postero-inferior angle of pleon segment 2 is quadrate with a small upturned point, as Schellenberg remarks; and the antero-inferior angle of pleon segment 1 is also quadrate.

The bathymetrical range is rather noteworthy, being from 36 m. (no. 3) to 425 m. (no. 2).

DISTRIBUTION. Coats Land; Palmer Archipelago and Graham Land; McMurdo Sound; 'Gauss' winter station; South Sandwich Group.

Genus *Aristias*, Boeck.

Stebbing, 1906, pp. 49, 718.

As regards the Antarctic species, Walker described neither the epistome nor the upper lip, and Schellenberg only described the former. A certain amount of doubt therefore arises as to the identity of the specimens listed below.

*Aristias antarcticus*, Wlkr. (Fig. 8 a, b).

Walker, 1907, p. 11, pl. iii, fig. 5.

Barnard, 1930, p. 324.

Non Schellenberg, 1926, p. 255, fig. 10 (*antarcticus* non Wlkr. = ? sp.nov.).

- Occurrence*: 1. St. 42. South Georgia. 1 ♀ 12 mm.  
 2. St. 45. South Georgia. 1 ovig. ♀ 12 mm.  
 3. St. 149. South Georgia. 3 ♀♀ 8, 9 and 11 mm.  
 4. St. 170. South Shetlands. 1 ♂ 7 mm., 1 ♀ 8.5 mm.  
 5. St. MS 71. South Georgia. 2 ♂♂ 9 mm., 6 ♀♀ 10-12 mm.

REMARKS. These specimens are referred to Walker's species solely on their agreement with his figure of the dorsal profile of pleon segment 4. Future research must show whether they agree with his type specimen as regards the epistome and upper lip. The upper angle of the upper lip is always quadrate, but varies a little in the extent to which it protrudes beyond the epistome. The telson has the lobes more tapering than in Walker's figure, but not angularly bevelled off as figured by Schellenberg. Peraeopods 1-5 have the 5th joint markedly wider than the 6th, as in Walker's figure. Uropod 3 in the ovigerous ♀ has both rami broadly ovate, much broader than in Walker's figure or

Sars' figure of *tumidus* (1895, pl. xviii, fig. 1), the margins strongly serrulate except the outer margin of the outer ramus which is smooth.

The specimens from St. 170 have the antero-lateral angle of the head more like Schellenberg's fig. 10 *a* than Walker's; perhaps the blunter angle is characteristic of younger specimens.

Schellenberg himself remarked on the differences between the 'Gauss' and the 'Discovery' (1901-04) specimens.

DISTRIBUTION. McMurdo Sound.

*Aristias collinus*, n.sp. (Fig. 8 *c, d*).

Occurrence: 1. St. 170. South Shetlands. 1 immat. (♀) 9 mm. *Type*.

2. St. 175. South Shetlands. 1 juv. 7 mm.

DESCRIPTION. Distinguished at once from *antarcticus* by the rounded upper lip, and the much deeper dorsal depression on pleon segment 4, which is followed by a rounded hump or boss (not a carina). Telson with the lobes angularly bevelled off distally as in Schellenberg's fig. 10 *b* (feebly so in no. 2, but distinctly so in no. 1).

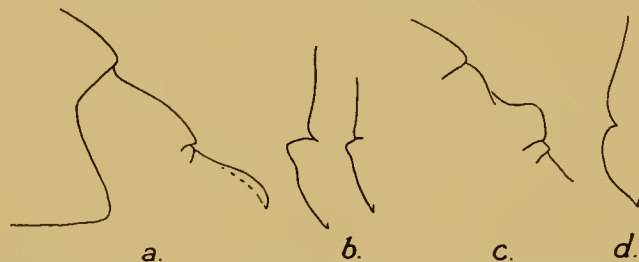


Fig. 8. *Aristias antarcticus*, Wlkr. *a.* Pleon segments 3-6. *b.* Profile of epistome and upper lip. *Aristias collinus*, n.sp. *c.* Pleon segments 3-6. *d.* Profile of epistome and upper lip.

REMARKS. I fully expect that, though this species resembles the 'Gauss' specimens from Kerguelen (referred by Schellenberg to *antarcticus*), the latter will be found to be distinct if the upper lip be closely examined.

#### Ambasiopsis, Brnrd.

Barnard, 1931, p. 425.

Agreeing with *Metambasia*, Steph. 1923, but differing as follows: 1st gnathopod feebly subchelate, outer plate of maxilliped non-spinose, inner ramus of uropod 2 not constricted, peraeopods 3-5, especially 5, much shorter and 4th joint more expanded, 3rd joint of antenna 2 not expanded.

The last character is provisional as the only ♂ (see *uncinata*, *infra*) may not have attained its adult characters.

*Ambasiopsis georgiensis*, Brnrd. (Fig. 9).

Barnard, 1931, p. 425.

Occurrence: St. 159. South Georgia. 3 ovig. ♀♀ 10-11 mm.

DESCRIPTION. Integument indurated. Head with antero-lateral angle pointed. Eyes not visible. Peraeon dorsally rounded. Side-plate 1 subtriangular, pointed below, the

lower corner concealed by side-plate 2. Side-plates 2-4 deep but not closely packed, 4 with moderately deep excavation; 5 notched, the two lobes subequal; 6 similar but posterior lobe broader, though not deeper, than anterior; 7 trapezoidal, the hind margin longer than the anterior.

Pleon rounded, except for the rather high carina on segment 4, which slopes gradually on the anterior side and falls abruptly and vertically on the posterior side, very much as in *Ambasia atlantica*. Postero-inferior angles of segments 1 and 2 rounded, of 3 rather less than a right angle, the corner rounded. Telson not twice as long as wide, cleft for three-quarters of its length, lobes slightly dehiscent, apically acute with a subapical spinule on outer side, and two lateral marginal spinules.

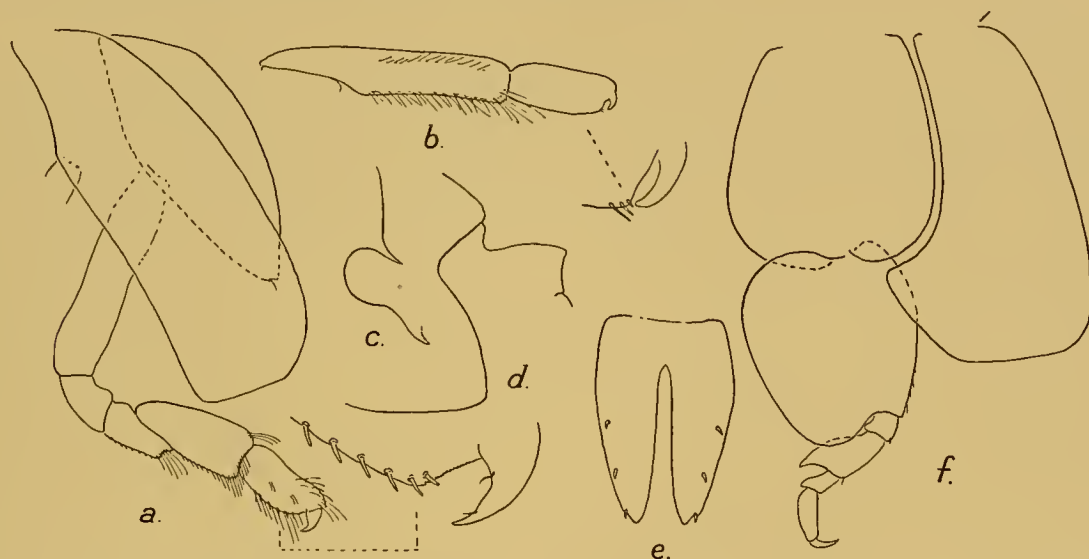


Fig. 9. *Ambasiopsis georgiensis*, Brnrd. a. Side-plates 1 and 2 and gnathopod 1, with palm further enlarged. b. Gnathopod 2, with palm further enlarged. c. Profile of epistome and upper lip. d. Pleon segments 3 and 4. e. Telson. f. Side-plates 4 and 5 and peraeopod 3.

Antenna 1, peduncle stout, 1st joint apically produced on upper margin, 2nd and 3rd joints very short, flagellum 8-jointed, 1st joint half as long as 1st peduncular joint, setose, accessory flagellum 3-jointed, 1st joint the longest, but not as long as 1st flagellar joint. Antenna 2, 4th joint longest, 5th shorter than 3rd, flagellum shorter than peduncle, 9-jointed.

Epistome not projecting, upper lip produced in a rounded lobe. Mandible, cutting edge straight with a denticle at each end, spine row minute, molar strong, truncate, setose, palp longer than trunk, inserted over molar, 3rd joint two-thirds length of 2nd. Maxilla 1, inner lobe short, ovate, tipped with two long and one short setae, outer lobe with seven feebly serrate spines, palp extending beyond outer lobe, narrow, tipped with two short stout spines and 1-2 setules. Maxilla 2, inner lobe distinctly shorter than outer, as in *faeroensis*. Maxilliped, inner plate with 3-4 apical spinules, outer plate with minutely serrate inner and distal margin but without spinule, palp rather stout.

Gnathopod 1 feebly subchelate, 6th joint shorter than 5th, oblong, upper margin slightly indented, lower margin spinose, passing into the short, oblique and minutely fimbriate palm by a rounded angle, finger short, stout, curved. Gnathopod 2, 6th joint oval, half length of 5th, with a short straight almost transverse palm, with one short spinule at the angle.

Peraeopod 3, 2nd joint broadly ovate, hind margin very obscurely notched, anterior margin spinulose distally, 4th joint moderately expanded, 3rd-6th joints very feebly armed with a few spinules and setules. Peraeopod 4, 2nd joint less broadly ovate, otherwise like peraeopod 3. Peraeopod 5, 2nd joint more broadly expanded than in peraeopod 4, but more oblong than in peraeopod 3, longer than the other joints together, 4th joint less expanded than in peraeopods 3 and 4, 3rd-6th joints rather more strongly armed with spinules.

Uropods 1 and 2 extending very slightly beyond apex of uropod 3, rami shorter than peduncles, acuminate, spinose, inner ramus of uropod 2 not constricted. Uropod 3, rami longer than peduncle, 2nd joint of outer ramus well developed, inner ramus extending to middle of 2nd joint of outer, both rami without spines or setae.

*Ambasiopsis uncinata*, n.sp. (Fig. 10).

*Occurrence*: St. 170. South Shetlands. 1 ♂ 8 mm., 1 ♀ 14 mm., 2 ovig. ♀♀ 12, 13 mm.

*DESCRIPTION*. Closely resembling *georgiensis* in general, but: pleon segment 3 with postero-inferior angle quadrate, but not sharp at the corner; segment 4 with a high

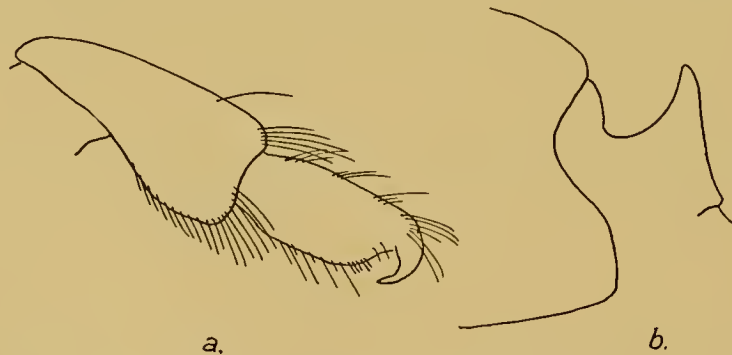


Fig. 10. *Ambasiopsis uncinata*, n.sp. a. Gnathopod 1.  
b. Pleon segments 3 and 4.

conical, somewhat unciform, tooth, pointing slightly forwards; telson rather shorter in proportion to its breadth; all the antennal flagella with one more joint apiece; gnathopod 2 stouter, 5th joint broader, more triangular, 6th joint markedly narrower than 5th, upper margin not indented, lower margin more closely spinose especially near junction with palm; hind margins of 2nd joints of peraeopods 3-5 distinctly though shallowly notched.

The 3rd joint of antenna 2 is not expanded as in *M. faeroensis*, though the ♂ specimen is probably not fully grown.



Genus *Uristes*, Dana.

Stebbing, 1906, p. 63.

Barnard, 1916, p. 126; 1925, p. 333.

Schellenberg, 1931, p. 26.

*Uristes gigas*, Dana (Fig. 11).

Bate, 1862, p. 89, pl. xiv, fig. 8 (after Dana).

Stebbing, 1888, p. 617, pl. vi (*Tryphosa antennipotens*); 1906, p. 64.

Walker, 1907, p. 16.

- Occurrence*: 1. St. 140. South Georgia. 1 ♂ 21 mm.  
 2. St. 144. South Georgia. 1 juv. 10 mm.  
 3. St. 156. South Georgia. 1 ♀ 19 mm.  
 4. St. 159. South Georgia. 1 ♂ 18 mm.  
 5. St. 175. South Shetlands. 3 ♂♂ 21, 23, 26 mm., 1 ♀ 27 mm., 4 ovig. ♀♀ 26-27 mm.  
 6. St. WS 53. South Georgia. 2 ♂♂ 15-16 mm., 1 ♀ 15 mm.

REMARKS. These specimens differ but little from Stebbing's description and figures. The eyes are very indistinct, but are reniform, widening below; Stebbing's figure shows punctae over the whole head, but the position of the eyes is best seen by the absence of these punctae. The whole integument is sparsely punctate.

The epistome and upper lip form nearly a straight line, with a notch at their junction; neither is at all prominent. The palp of maxilla 1, when flattened, is a little broader than in Stebbing's figure.



Fig. 11. *Uristes gigas*, Dana. Dorsal profiles of pleon segment 4 to show variation.

Gnathopod 1 distinctly subchelate, thus conflicting with Stebbing's key (1906, p. 11) and diagnosis, palm better developed than in Stebbing's figure which is perhaps not quite a true profile, the defining angle with two strong spines.

A single accessory branchia on both segments 5 and 6.

No sexual differences in the length of the antennae.

Note 129 gives the colour of the specimens from St. 175 as: "creamy buff, dorsally with a narrow orange-red transverse band at posterior end of each segment of thorax and abdomen, liver visible as a bluish mass; eyes deep crimson".

The capture by the 'William Scoresby' of both sexes of this species in a night haul near the surface is interesting.

DISTRIBUTION. Antarctic Seas (Dana); Heard Island, 274 m.; Ross Sea.

Genus *Cheirimedon*, Stebb.

Stebbing, 1906, pp. 66, 720.

Schellenberg, 1926, p. 262.

The original definition of this genus has been widened to include *femoratus* and *fougeri*, in which the mandibular palp arises immediately behind the molar, and the

hand of gnathopod 1 is scarcely or not at all distally widened. These two species do not run down to *Cheirimedon* in Stebbing's key (1906), but to *Orchomenella* or *Orchomenopsis*, to which it must be confessed they are closely allied.

### *Cheirimedon femoratus* (Pfr.).

Pfeffer, 1888, p. 93, pl. ii, fig. 2.

Chevreux, 1906, p. 2, figs. 1-4; 1913, p. 92 (*dentimanus*).

Chilton, 1912, p. 467.

- Occurrence*: 1. St. 145. South Georgia. 2 ♀♀ 13-14 mm. (the larger ovig.).  
 2. St. 165. South Orkneys. 58 specimens 11-15 mm., incl. ovig. ♀♀ from stomach of *Notothenia*.  
 3. St. 173. South Shetlands. 17 ♂♂ 9-10 mm., 8 ♀♀ (3 ovig.) 11-13 mm.  
 4. St. 174. South Shetlands. 6 ♀♀ 11-13 mm.  
 5. St. 179. Palmer Archipelago. A lot ♂♂, ♀♀, some ovig. and juv. 5-15 mm.  
 6. St. 190. Palmer Archipelago. 4 ♀♀ 10-12 mm.  
 7. St. MS 67. South Georgia. 4 ♂♂ 9 mm.  
 8. Deception Island, South Shetlands, 28. ii. 27. Found dead and parboiled on beach by hot springs. 50 specimens 9-15 mm., a few ♂♂ and immat., but mostly ♀♀.

REMARKS. The differences in the figures of the telson given by Pfeffer and Chevreux may well be explained, as Chilton has done, by the fact that Pfeffer did not dissect the only two specimens he had.

A single accessory branchia on both segments 5 and 6.

The two specimens from St. 145 are noticeable in having the produced point on the postero-inferior angle of pleon segment 3, the carina on segment 4, and the epistome all more prominent than in the typical form as illustrated by Chevreux.

DISTRIBUTION. South Georgia; South Orkneys; Palmer Archipelago.

### Genus *Tryphosella*, Bonnier.

Stebbing, 1906, pp. 67, 720.

#### *Tryphosella albina*, n.sp. (Fig. 12).

Cf. *T. georgiana*, Schell., 1931, p. 30, fig. 13.

*Occurrence*: St. 170. South Shetlands. 1 ♂ 11 mm.

DESCRIPTION. Head with antero-lateral angle subacute, extending to end of 1st joint of antenna 1. Eyes invisible. Side-plate 1 subtriangular, narrowed below. Pleon segment 3 with postero-inferior angle produced in a short subacute point, segment 4 with an evenly rounded carina following the basal depression. Telson twice as long as basal width, cleft nearly to base, the lobes not dehiscent, tapering, apically notched, with a spinule in the notch.

Antenna 1, 1st joint not apically produced over 2nd, 2nd and 3rd joints very short, flagellum stout, 13-jointed, 1st joint longest, setose, other joints broader than long, with calceoli. Antenna 2, flagellum 13-14-jointed, calceoliferous.

Epistome and upper lip forming a moderately arcuate curve, with a notch at their

junction. Mandible with palp inserted over the strong molar. Maxilliped with inner margin of outer plate serrulate, a few large squarish spines on the apical margin.

Gnathopod 1, 5th joint short, triangular, 6th oblong, parallel-sided, palm transverse, slightly convex, two strong spines at the angle, and a row of setae along palm, finger with a small tooth distally on inner margin. Gnathopod 2, 6th joint a little more than half length (along upper margin) of 5th, ovate, obscurely chelate.

Peraeopods 1-5 stouter than in *barbatipes*, especially peraeopods 3-5, the 4th joints strongly expanded.

Uropod 3, rami lanceolate, subequal, inner distal margins setose.

A single accessory branchia on both segments 5 and 6.

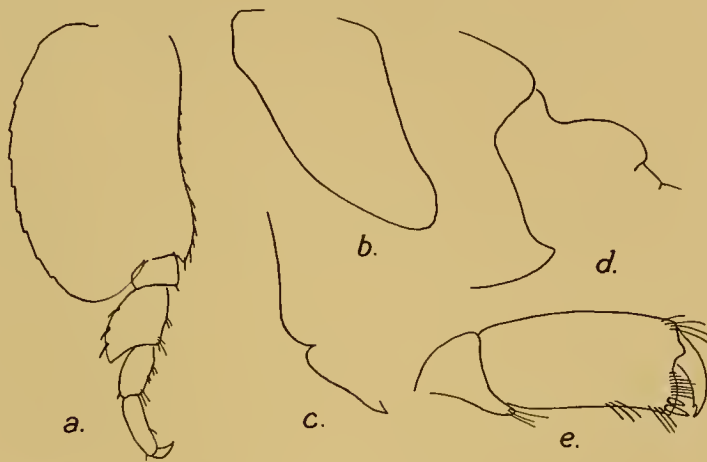


Fig. 12. *Tryphosella albina*, n.sp. a. Peraeopod 5. b. Side-plate 1. c. Profile of epistome and upper lip. d. Pleon segments 3 and 4. e. Gnathopod 1.

REMARKS. This form seems to be allied to *barbatipes*, Stebb., from Kerguelen, but differs in the stronger hand of gnathopod 1, with its short 5th joint, and the stouter posterior peraeopods.

#### Genus *Tryphosa*, Boeck.

Stebbing, 1906, pp. 68, 720.

Stephensen, 1925, p. 101.

Schellenberg, 1926, p. 266.

#### *Tryphosa kergueleni* (Miers) (Fig. 13).

Stebbing, 1888, p. 623, pl. viii; 1906, p. 69.

Shoemaker, 1914, p. 74.

Schellenberg, 1926, p. 266, fig. 15 a; 1931, p. 34 (part).

Barnard, 1930, p. 327.

#### *Typical form*

*Occurrence*: 1. St. 165. South Orkneys. 1 ♂, 1 ovig. ♀ 14-15 mm. Stomach of *Notothenia*.

2. St. 174. South Shetlands. 1 ovig. ♀ 14 mm.

*Hypsilophic form*

- Occurrence*: 1. St. 45. South Georgia. 1 ♀ 10 mm.  
 2. St. 123. South Georgia. 1 ♂ 13 mm.  
 3. St. 140. South Georgia. 1 ♂ 9 mm., 4 ovig. ♀♀ 9-14 mm.  
 4. St. 144. South Georgia. 2 ♂♂ 11-12 mm., 3 ♀♀ 9-10 mm., 2 ovig. ♀♀ 10 mm.,  
 1 juv. 6 mm.

**REMARKS.** The two forms here placed under *kerueleni* should in my opinion be regarded as specifically distinct. The raised keel on pleon segment 4 is correlated with a more prominently projecting upper lip.



Fig. 13. *Tryphosa kerueleni* (Miers). Dorsal profile of pleon segment 4 and profile of epistome and upper lip of: a. typical form; b. hypsilophic form.

Schellenberg figures the two forms of carina, but says nothing about the upper lip. Both forms were found together at the 'Gauss' winter station. In the Discovery collection the hypsilophic form was found in a different locality and in much deeper water.

The two forms should be distinguished in all future records, and earlier records should be re-examined.

**DISTRIBUTION** (*kerueleni* sensu lato). Kerguelen; 'Gauss' winter station; Ross Sea; South Georgia; New Zealand.

*Tryphosa major*, n.sp. (Fig. 14).

- Occurrence*: 1. St. 159. South Georgia. 4 ♀♀ 16-21 mm., 3 ovig. ♀♀ 18-22 mm.  
 2. St. 170. South Shetlands. 2 ♂♂ 14 mm., 1 ♀ 14 mm., 1 ovig. ♀ about 20 mm. (mutilated). *Types*.  
 3. St. 175. South Shetlands.  
 3 ♀♀ 12, 13, 16 mm.

**DESCRIPTION.** Closely resembling the typical form of *kerueleni* in pleon segments 3 and 4, but apparently a larger species. In other respects generally resembling *kerueleni* but inner lobe of maxilla 1 with six plumose spine setae, and epistome produced in a convex, but somewhat flattened lamina from between the bases of the 2nd antennae to the upper lip.

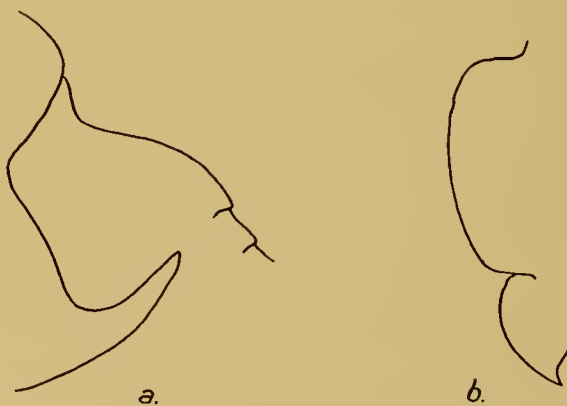


Fig. 14. *Tryphosa major*, n.sp. a. Pleon segments 3 and 4. b. Profile of epistome and upper lip.

*Tryphosa adarei*, Wlkr. (Fig. 15).

Walker, 1903, p. 49, pl. viii, figs. 38-44.

Barnard, 1930, p. 326.

*Occurrence*: St. 175. South Shetlands. 2 ♂♂ 15 and 21 mm., 1 ♀ 14 mm., 4 immat. 10-12 mm.

**REMARKS.** Pleon segment 3 with postero-inferior angle quadrate; segment 4 with the dorsal carina rounded. Epistome and upper lip forming an arcuate profile as in Schellenberg's fig. 16 (1926) of *murrayi*. Gnathopod 1, 6th joint subequal to upper margin of 5th. Gnathopod 2, 6th joint nearly as long as hind margin of 5th. Telson elongate, tapering.

*T. murrayi*, Wlkr. 1907, and *T. murrayi*, Schell. 1926, both appear to be composite species. The variation mentioned by Walker (1907, p. 16) should be tested to see whether it is really a case of variation or whether two or more species have not been united. The original description of *adarei* made no mention of the epistome, and this feature also



Fig. 15. *Tryphosa adarei*, Wlkr. a. Pleon segments 3 and 4.  
b. Profile of epistome and upper lip.

requires examination in the type material. Here, as in the Terra Nova Report, I regard *murrayi* as a perfectly distinct species. Chilton's (1912) and Schellenberg's (1926) records therefore do not apply; and in the Terra Nova Report the reference to Schellenberg and the Gauss locality should be deleted.

It is curious that this species was only taken once by the 'Discovery.'

**DISTRIBUTION.** Ross Sea.

*Tryphosa triangularis*, n.sp. (Fig. 16).

*Occurrence*: 1. St. 140. South Georgia. 1 ♂, 1 immat. ♀ 9 mm.

2. St. 141. South Georgia. 1 ♂ 9 mm., 1 ♀ 10 mm., 4 ovig. ♀♀ 9-12 mm.

3. St. 144. South Georgia. 2 ovig. ♀♀ 11 mm., 1 immat. 7.5 mm.

4. St. 145. South Georgia. 7 ♀♀ 9-11 mm., 4 ovig. ♀♀ 10-12 mm.

5. St. 159. South Georgia. 11 ♀♀, with ova and embryos, 10-11 mm. *Types*.

6. St. WS 25. South Georgia. 3 ♀♀ 9-10 mm., 1 juv. 5 mm.

**DESCRIPTION.** The distinctive features of this species are: antero-lateral angle of head acute, reaching three-quarters the length of 1st joint of antenna 1; eyes invisible; pleon

segment 3 with the lower margin and the slightly convex hind margin meeting in an angle less than  $90^\circ$ , the corner rounded (cf. Schellenberg's fig. 16 *b* for *murrayi*); segment 4 with a triangular carina, the posterior margin falling away steeply but obliquely; side-plate 1 produced forwards and narrowed below, subtriangular or slipper-shaped (cf. *adarei*); epistome produced in a triangular projection above the upper lip; gnathopod 1 rather slender, as in *adarei*; uropod 3 with inner ramus as long as 1st joint of outer ramus, both rami spinulose, without plumose setae; telson ovate, about half as long again as wide, each lobe with two apical and two lateral spines.

REMARKS. This appears to be a close ally of *trigonica* and *adarei*, but pleon segment 3 and the epistome are distinctive; the carina on segment 4 is not symmetrical as in *trigonica*. Possibly some of the specimens attributed to *murrayi* by Schellenberg (1926, fig. 16 *b*) should belong here.

The specific name refers to the likeness to *trigonica* and to the shape of the epistome.

#### *Tryphosa analogica*, n.sp. (Fig. 17).

Cf. *T. serrata*, Schellenberg, 1931, p. 34, figs. 15, 16.

Occurrence: 1. St. 144. South Georgia. 2 ovig. ♀♀ 12 and 15 mm., 1 juv. 6 mm.

2. St. 156. South Georgia. 3 ♀♀ 10–13 mm.

3. St. 159. South Georgia. 1 ovig. ♀ 12 mm.

4. St. WS 25. South Georgia. 1 ♂ 14 mm., 1 ♀ 14 mm., 2 ovig. ♀♀ 16–17 mm. *Types*.

DESCRIPTION. Antero-lateral angle of head pointed, but not very acute, reaching three-quarters the length of 1st joint of antenna 1. Eyes invisible. Pleon segment 3 with postero-inferior corner produced in a rounded, serrate lobe; segment 4 with a strong subtriangular carina, rounded at apex, posterior margin vertical. Side-plate 1 slightly but distinctly narrowed distally. Epistome produced in a broadly rounded lobe above the upper lip. Gnathopod 1 slender. Peraeopods 3–5 with 2nd joint feebly notched on hind margin. Telson twice as long as wide, each lobe with three lateral and two apical spines.

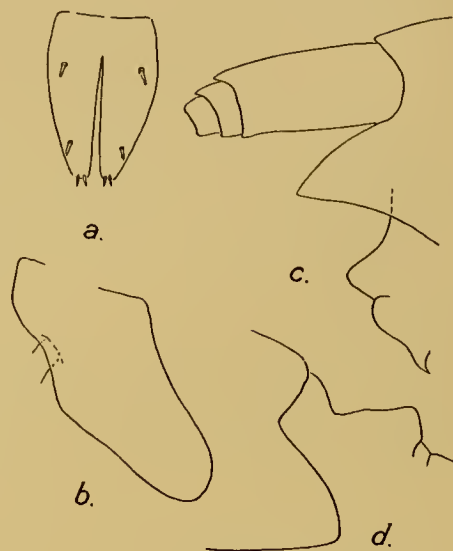


Fig. 16. *Tryphosa triangularis*, n.sp. a. Telson. b. Side-plate 1. c. Anterior margin of head with peduncle of antenna 1, and epistome and upper lip. d. Pleon segments 3 and 4.

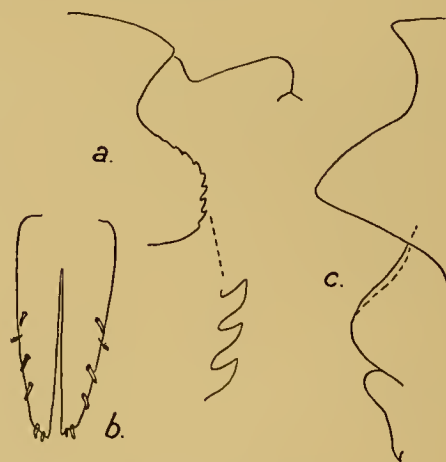


Fig. 17. *Tryphosa analogica*, n.sp. a. Pleon segments 3 and 4, with serration further enlarged. b. Telson. c. Anterior margin of head with epistome and upper lip (the dotted line indicates a slight variation found in some specimens).

REMARKS. A casual glance at the serrate pleon segment 3 might lead one to expect that this form was *Tryphosites chevreuxi*, but the epistome is distinctive. The serrations on pleon segment 3 and on the 2nd joints of peraeopods 3-5 are less strong than in the latter species, the carina on pleon segment 4 is more prominent, and the telson longer.

*Tryphosa castellata*, n.sp. (Fig. 18).

Occurrence: St. 222. Cape Horn. 2 ovig. ♀♀ 11.5-12 mm.

DESCRIPTION. Close to *analogica*, but easily distinguished by the bluntly rounded antero-lateral angle of head, the more narrowly rounded and less prominent epistome, the distally widened 1st side-plate, stouter 1st gnathopod, the low rounded carina on pleon segment 4, and the less produced postero-inferior angle of pleon segment 3, with its fewer and squarer denticles.

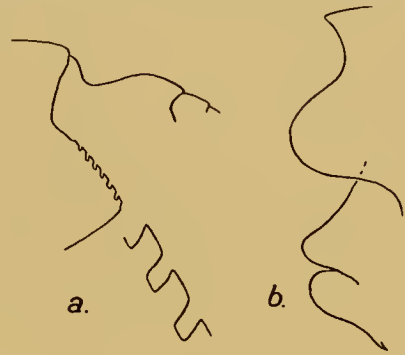


Fig. 18. *Tryphosa castellata*, n.sp. a. Pleon segments 3 and 4 with serration further enlarged. b. Anterior margin of head with epistome and upper lip.

*Tryphosa onconotus*, Stebb.

Stebbing, 1908 (*Ann. S. Afr. Mus.*, vi), p. 65, pl. xxxv.

Schellenberg, 1926, p. 276, fig. 20 (juv.); 1926 b, p. 219.

Occurrence: St. 91. South Africa. 2 ♂♂ 5 mm., 5 ♀♀ 4-5.5 mm. (all immat.).

REMARKS. Schellenberg is quite right in suggesting that the acute point on the postero-inferior angle of pleon segment 3 is characteristic of the young. In half-grown specimens it still remains as a minute blunt and obscure point, but in the adult, as in Stebbing's figure, there is no trace of it.

The original specimens did not come from "False Bay" as Schellenberg (1926) states, but from off the west coast of the Cape Peninsula.

The species is evidently a cold-water form; its occurrence in False Bay does not disprove this statement, as cold currents frequently round the Cape of Good Hope and enter False Bay. It is possible that this species migrates in from the outer waters with these currents; both the present record and the 'Gauss' specimens were taken in winter (September and July respectively). The surface temperatures in Table Bay and False Bay differ but little at this season (cf. Gilchrist, 1902, *Mar. Invest. S. Afr.*, 1, p. 203, pl. vi).

DISTRIBUTION. South Africa, off Table Bay, 448 m.; Simons Bay, littoral; off west slope of Agulhas Bank, 564 m. Also specimens in the South African Museum from off Saldanha Bay, 87 fathoms.

Genus *Tryphosites*, Sars.

Stebbing, 1906, p. 77; 1914, p. 355.

Sexton, 1911 (*Ann. Mag. Nat. Hist.*, ser. 8, vol. VII), p. 510.

The genus is characterized by the prominent spiniform process of the epistome. It includes the northern *longipes* (Bate and Westw.) with a strong upturned point on the postero-inferior angle of pleon segment 3, and *alleni*, Sext., with two points, *stebbingi* (Wlkr.) from Cape Adare and Coats Land,<sup>1</sup> with a short point, and *chevreuxi* Stebb. with the lower hind margin strongly serrate.

*Tryphosites chevreuxi*, Stebb. (Fig. 19).

Stebbing, 1914, p. 355, pl. iii.

*Occurrence*: 1. St. 51. Falkland Islands. 1 ♂ 7.5 mm., 2 ♀♀ 8–9 mm., 1 juv. 6 mm., from kelp root.

2. St. 222. Cape Horn. 1 juv. 7 mm.

3. St. WS 71. Falkland Islands. 3 ♀♀ (1 ovig.) 12–13 mm.

4. St. WS 92. Between Falkland Islands and South America. 1 ♀ 8 mm., 2 immat. 7 mm.

**REMARKS.** Antenna 1 in ♀, flagellum 14-jointed, accessory flagellum 5-jointed. Antenna 2, flagellum 14-jointed. Side-plate 1 slightly narrowed, or at least not widened, below. Telson more tapering than in Stebbing's figure, with narrower subacute apices, each lobe with two apical and two lateral spines. The epistomal process is more upturned and falciform than in *longipes*. A single accessory branchia on both segments 5 and 6.

**DISTRIBUTION.** Falkland Islands, 8 fathoms.

Genus *Tmetonyx*, Stebb.

Stebbing, 1906, pp. 73, 720.

Schellenberg, 1926, p. 278; 1931, p. 40.

*T. stebbingi* (Wlkr.) must be transferred to the genus *Tryphosites* as Chilton (1912) has shown, owing to its having the epistome produced in a long acute process. The only other austral representatives are *miersi* from Australia, the Kerguelen species *cicadoides* Stebb., and the Antarctic ('Gauss' winter station) species *cicadopsis* Schell.

The following species is very closely allied to the last-mentioned.

*Tmetonyx longitelson*, n.sp. (Fig. 20).

*Occurrence*: St. 159. South Georgia. 2 ovig. ♀♀ 15 and 18 mm., 1 ♀ with embryos 15 mm.

**DESCRIPTION.** Differing from *cicadopsis* as follows: palp of maxilla 1 neither emarginate on outer margin nor serrate on inner margin; postero-inferior angle of pleon segment 3

<sup>1</sup> In some MS notes on the 'Quest' Expedition, which the late Dr Chilton kindly forwarded to me, this species is recorded from St. 102 off Prince Olaf Station, South Georgia. I have not seen the specimen.



Fig. 19. *Tryphosites chevreuxi*, Stebb. *a.* Anterior margin of head with epistome and upper lip. *b.* Variation of epistome. *c.* Pleon segments 3 and 4.



rounded-quadrate (though Schellenberg says the point in his species may be absent); pleon segment 4 with distinct basal indentation and a low keel which overlaps the 5th segment in a rather characteristic manner; telson elongate, at least twice as long as broad, even when pressed flat; inner ramus of uropod 2 not constricted. The antero-lateral angle of the head seems to be shorter and more quadrate (Schellenberg gives no figure); in this respect these specimens are more like *cicadoides* Stebb. (1888, pl. v), but from this species they are easily distinguished by the postero-inferior angle of pleon segment 3.

Side-plate 1 is neither narrowed distally as in *cicadopsis* nor widened as in *cicadoides* (*loc. cit.*, pl. iv), but parallel-sided, rounded below.

The telson and absence of strong upstanding spines on the outer plate of the maxilliped distinguishes this species from *miersi* Stebb.

All the specimens are pale creamy in colour, and there is no trace of eyes.

*Tmetonyx carinata* (Schell.)

Schellenberg, 1926, p. 271, fig. 18 (*Tryphosa c.*).

Occurrence: St. 170. South Shetlands. 1 ♂ 16 mm.

REMARKS. The triangular process on the upper lip, the character of the 1st gnathopod (simple in ♂, feebly subchelate in ♀, and with a strong tooth on inner margin of finger), and the 2nd maxilla seem to indicate that this species would be better placed in the present genus.

It should be compared with the type of *T. stebbingi* (Wlkr.), the upper lip of which is undescribed.

DISTRIBUTION. 'Gauss' winter station, 385 m.

Genus *Katius*, Chevr.

Chevreur, 1905 (*Bull. Inst. océan. Monaco*, no. 35), p. 1.

Stebbing, 1906, pp. xxi, 721.

Schellenberg, 1927, p. 681.

This genus was originally placed near *Orchomenopsis* and occupies a similar position in the works of Stebbing, Stephensen (1925) and Schellenberg. It seems remarkable that no one has commented upon its extraordinary resemblance to *Eurythenes*. In face of the acceptance of the genus by all authorities it may seem bold to ask what are the characters on which *Katius* is separated from *Eurythenes* and to question the validity of these characters for generic purposes.

A comparison of the descriptions and figures given by Chevreur, Sars (1895, p. 85, pl. xxx) and Schellenberg (1927) shows the following differences: *Katius* has a less

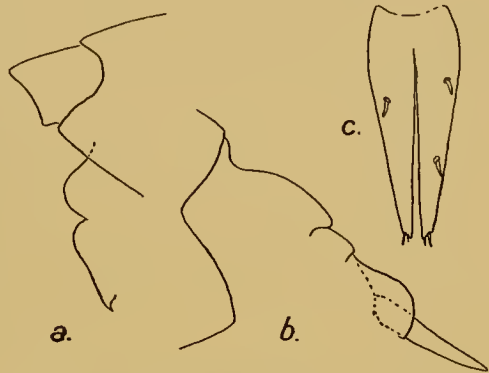


Fig. 20. *Tmetonyx longitelson*, n.sp. a. Anterior margin of head with antenna 1, epistome and upper lip. b. Pleon segments 3-6 and telson. c. Telson.

prominent epistome, two setae on the inner lobe of maxilla 1 instead of several, shallower side-plates, especially side-plate 2, the hind lobe of side-plate 5 deeper than the anterior lobe instead of *vice versa*, and elongate dactyli on peraeopods 1-5. The first two of these characters can be excluded from the discussion in view of the remarks made below on the Discovery specimens.

On the other hand, there is such an obvious agreement in the mouth-parts and other appendages (*v. infra*) that the differences just mentioned would seem to be specific rather than generic, with the exception perhaps of the dactyli. The enlargement of the dactyli probably indicates a mode of life different from that of *Eurythenes gryllus* (cf. Stephensen, 1915, pp. 37 and 43, and Schellenberg, 1926 *b*, p. 241). I would suggest that this mode of life (in *Katius*) is predaceous on quickly moving animals, rather than semi-parasitic, because the mouth-parts show no trace of degeneration as they do in e.g. *Chevreuxiella*, Steph. If enlarged dactyli be regarded as a generic feature, are *Liljeborgia macronyx*, *Epimeriella macronyx*, *Hyperia macronyx* also to have new generic names created for them? The difference in length of the dactyli in the allied species of these genera may not be as great as that between *Katius* and *Eurythenes*; but that very fact weakens the value of the character for generic purposes.

The physiological argument was used in the Terra Nova Report (1930, p. 346) for splitting up the Iphimediids, but in that case the separation of the genera was made on the mouth-parts, which are not only more important physiologically, but showed far greater morphological differences than the mere difference in the length of the dactyli in *Katius* and *Eurythenes*.

In the present family a great importance—possibly too great an importance—has been attached to the characters of the mouth-parts. Where the characters of the mouth-parts are identical, as in *Eurythenes* and *Katius* (even as regards the character of the spines on the outer lobe of maxilla 1, and the warts along the inner margin of the outer plate of the maxilliped) there would seem to be no question of generic separation on morphological grounds. The branchiae are said to be simple in *Eurythenes*, in *Katius* they are slightly pleated.

Yet it must be admitted that *Katius* has the head curved downwards (cf. Stephensen, 1925, p. 126) and a somewhat inflated and arched peraeon which gives it an appearance not unlike that of a Lanceolid.

***Katius obesus*, Chevr. (Fig. 21 and Pl. I, fig. 1).**

Chevreaux, 1905 (*loc. cit.*), p. 1, figs. 1-3.

Stephensen, 1915, p. 37; 1925, p. 126.

Shoemaker, 1920 (*Canad. Arct. Exp.*), p. 8.

Schellenberg, 1927, p. 681, fig. 72; 1931, p. 16.

- Occurrence*: 1. St. 78. South Atlantic. 1 juv. 16 mm.  
 2. St. 101. South Africa. 1 ovig. ♀ 42 mm.  
 3. St. 107. South-east Atlantic. 1 juv. 16 mm., 1 ♂ 25 mm.  
 4. St. 253. South-east Atlantic. 1 juv. 23 mm. (no penes, no brood lamellae).  
 5. St. 288. Mid-Atlantic. 1 juv. 23 mm. (no penes, no brood lamellae).

REMARKS. Antero-lateral angle of head rounded (but not so blunt as in Chevreux's figure) in the young, becoming subacute in the ♂ and half-grown specimens, and acute in the large ♀. A medio-dorsal keel from peraeon segment 4 to pleon segment 4, stronger posteriorly, and more prominent in adult than young specimens. If the pleon be flexed a basal depression is visible on segments 2-4. The 6th pleon segment bears two dorso-lateral low keels which project as triangular lobes on either side of the base of the telson (cf. Liljeborg, *loc. cit.*, quoted under *Eurythenes*, *infra*, p. 7).

Antero-inferior angle of pleon segment 1 in young rounded, in adult quadrate; postero-inferior angle of segment 2 with a small point; inferior margin of pleon segment 3 convex in young, nearly straight in adult ♀. The antero-inferior angle and margin is feebly costate, and on segments 1 and 2 there is a feeble oblique keel.

The epistome is considerably more prominent than described by Chevreux, and in fact does not differ essentially from that of *Eurythenes gryllus* (Sars, 1895, pl. xxx).

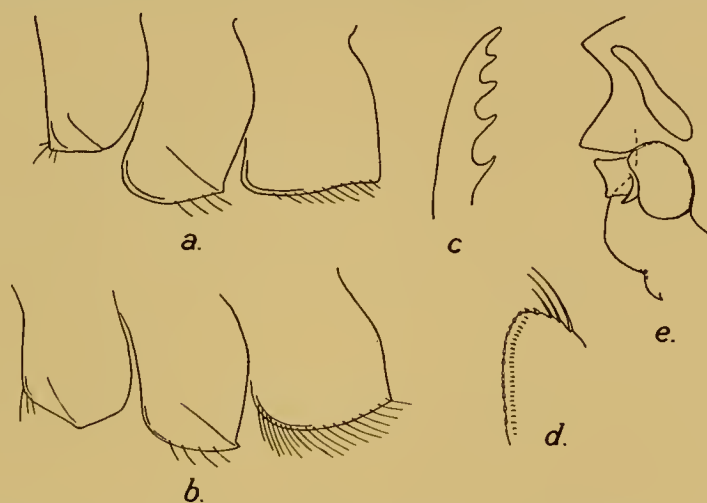


Fig. 21. *Katius obesus*, Chevr. a. Pleurae of pleon segments 1-3, adult ♀ (St. 101). b. The same, juvenile (St. 78). c. Spine from apex of outer lobe of maxilla 1. d. Apex of outer plate of maxilliped. e. Anterior margin of head with basal joints of antenna 2, epistome and upper lip.

Basal joint of antenna 2 large, bulbous, visible externally (as in *Eurythenes*). Maxilla 1, outer lobe with spines which bear acute and rather widely spaced denticles (as in *Eurythenes*), inner lobe with 2-4 plumose setae in young, five in adult. Maxilliped, outer plate with minute wart-like spinules on inner margin (as described by Schellenberg for *Eurythenes*, 1927, p. 678), 2-3 more obviously spiniform ones distally, and 2-3 plumose setae on outer distal margin.

Branchiae with moderate folds, seemingly indicated in Chevreux's fig. 3 C, but not mentioned in his text. Arising from near the base of each branchia on segments 2-7 posteriorly and externally is a small irregularly triangular accessory lobe.

After the above remarks there would seem to be no need to harp further on the similarity of *Katius* to *Eurythenes*. Besides the dactyli of peraeopods 1-5 and the side-plates, a further difference may exist in the branchiae, but Liljeborg's statement (*loc. cit.* under *Eurythenes*, p. 6) ought to be confirmed.

The ovigerous ♀ (St. 101) seems to be the largest and the only adult specimen yet captured. The 'Ingolf' took a specimen about 33 mm. in length with small brood lamellae.

A coloured sketch of this large ♀ was taken at the time and is here reproduced. The colour of no. 1 was noted as "white with pale brown eyes; hepatic and other internal organs visible as a grey mass".

The occurrence of this species in the Southern Atlantic has not hitherto been recorded, except by Schellenberg, 1931.

DISTRIBUTION. North Atlantic: Davis Strait to Azores (about 65° N–36° N); North Pacific, 0–3000 m.

#### Genus *Eurythenes*, S. I. Smith.

Liljeborg, 1865 (*N. Act. Soc. Upsala*, ser. 3, VI, p. 11; or *Arsskr. Kong. Univ.*, p. 6) (*Eurytenes*, preocc.).

Sars, 1895, p. 85 (*Euryporeia*).

Chevreaux, 1900, p. 24 (*Euryporeia*).

Stebbing, 1906, p. 72 (references).

Schellenberg, 1927, p. 678.

As Chevreaux remarks, Smith in changing the preoccupied *Eurytenes* into *Eurythenes* altered the spelling though not the sound in languages where "h" is silent. Relaxation of the nomenclatorial rules in favour of Sars' name would set a precedent which might have far-reaching consequences in these days of linguistic aspirations.

The following discussion centres around the magnificent Amphipod collected by d'Orbigny in the stomach of a fish caught near Cape Horn and described by M. Edwards as *Lysianassa magellanica*. Liljeborg (*loc. cit.*) on receiving three large Amphipods taken from the stomach of *Scymnus borealis* at Hammerfest, came to the conclusion that they were identical with the Antarctic form, and gave a description of them under the name *Eurytenes magellanicus*. The Arctic form, however, had already been described in 1822, and is now known as *Eurythenes gryllus* (Licht.).

In 1865 Bate (*Zool. Rec.*, II, p. 331) criticized Liljeborg's opinion as to the identity of the Arctic and Antarctic forms, pointed out several differences, and maintained the accuracy of his description and figure of *magellanicus* in the British Museum Catalogue (1862, p. 66, pl. x, fig. 5).

No great significance attaches to the differences mentioned by Bate, though we may note that the depth of the peraeon is one character which distinguishes *Eurythenes* from *Katius* (cf. *supra*). But Bate himself seems to have fallen into an error, for he uses the words (*loc. cit.*, 1865, p. 332) "*Lysianassa magellanica*, with its squamiform, undivided telson. . .", and adduces this as the final argument why *magellanica* cannot be put into the genus "*Anonyx*" from which he says he cannot distinguish Liljeborg's genus *Eurytenes*. He claims (1865, p. 331) to have seen the type specimen and from it to have made small corrections in the figure given in 1862. Yet M. Edwards in his original description distinctly states "deux appendices styliformes. . .représentent le septième anneau" (cf. *infra*).

I think we may safely rely on M. Edwards' statement, and the conclusion is not too hazardous that *magellanica* is a *Eurythenes*. But the validity of the species must be tested by a comparison of the type, if extant, with actual specimens of *gryllus*.

I am indebted to Prof. Gravier of the Paris Museum for the information that, though there is a specimen of *Lysianassa magellanica* in poor condition in the Paris Museum, he very much doubts whether it is the type specimen studied by M. Edwards.

As regards *gryllus*, the descriptions are not too clear on all points. Stebbing's diagnosis (1906) includes the contradictory statements of Sars and Liljeborg, and also a further statement about certain segments of the peraeon and pleon. Schellenberg (1927, p. 679) has introduced a further complication by stating that the last peraeon segment and the five following (pleon) segments have a low longitudinal groove (Rinne). Obviously one and the same segment cannot be both dorsally rounded and keeled, or both grooved and keeled. *Eurythenes gryllus* is worthy of a fuller description based on as much material as possible; there are already quite a number of specimens in European Museums (Stephensen, 1925, p. 110).

One difference in the published figures may be noted here. Liljeborg (*loc. cit.*, figs. 1 and 22) shows the 2nd pleon segment with the postero-inferior angle produced as a distinct point, from which arises an oblique keel. Sars (1895, pl. xxx) shows scarcely any point on the broadly rounded postero-inferior angle.

Though the Magellanic species must remain for the present *sub judice*, it may be useful to quote here M. Edwards' original description.

#### *Eurythenes magellanicus* (M. Edw.).

M. Edwards, 1848 (*Ann. Sci. Nat. Hist.*, ser. 3, zool. ix), p. 398.

Lucas, 1857 (*Anim. nouv. Austr. l'Amer. du Sud. Entomol.*), p. 13, pl. i, fig. 3.

Bate, 1862, p. 66, pl. x, fig. 5 (traced from Lucas' figure and corrected from the type specimen).

? *non* Liljeborg, *loc. cit. supra*.

“L'ordre des Crustacés amphipodes n'est représenté jusqu'ici dans nos collections que par des animaux de très petite taille, tels que les Orchesties, les Talitres et les Crevettes de nos côtes; mais il existe dans l'océan Antarctique une espèce de Lysianasse qui est presque aussi grande que les Écrevisses ordinaires de nos rivières. Cet Amphipode remarquable a été trouvé par M. d'Orbigny dans l'estomac d'un Poisson pêché près du Cap Horn, et fait partie des collections déposées par ce voyageur dans notre Museum national. La forme générale de ce Crustacé est trapue; la tête petite, et garnie en avant de lobes jugaux qui s'avancent entre la base des antennes supérieures et inférieures. Les antennes de la seconde paire sont grêles, sans poils ni cupules, et atteignent le quatrième anneau du thorax lorsqu'elles sont reployées en arrière. Les pattes antérieures sont très courtes; celles de la deuxième paire sont longues, très grêles, et terminées par une petite griffe pointue. Les pattes des trois dernières paires sont très petites et subdenticulées sur les bords. Enfin l'abdomen est caréné en dessus, et le sixième anneau de cette portion du corps présente sur sa face dorsale deux fortes crêtes terminées en forme de dent; deux appendices styliformes très forts représentent le septième anneau. La longueur du corps est de 9 centimètres, et la hauteur 3 centimètres. Dans la galerie du Museum, nous avons désigné cet Amphipode sous le nom de *Lysianassa magellanica*.”

Genus *Lepidepecreum*, B. and W.

Stebbing, 1906, p. 78.

Stephensen, 1925, p. 117.

*Lepidepecreum cingulatum*, n.sp. (Fig. 22).*Occurrence*: St. 165. South Orkneys. 4 ♀♀ (2 ovig.) 7-7.5 mm., from stomach of *Notothenia*.

DESCRIPTION. Integument not strongly indurated (as preserved). Head with ocular angle almost rectangular, post-antennal angle obtusely quadrate. Eyes oval-reniform. Peraeon and pleon dorsally rounded, not at all carinate, and without any processes. Side-plates 1-4 deep, lower margins almost straight, and together forming an even line; excavation on 4 nearly rectangular, long (dorso-ventrally) but shallow; 5th deep, shallowly bilobed, posterior lobe slightly deeper and larger than anterior, 6th similar,

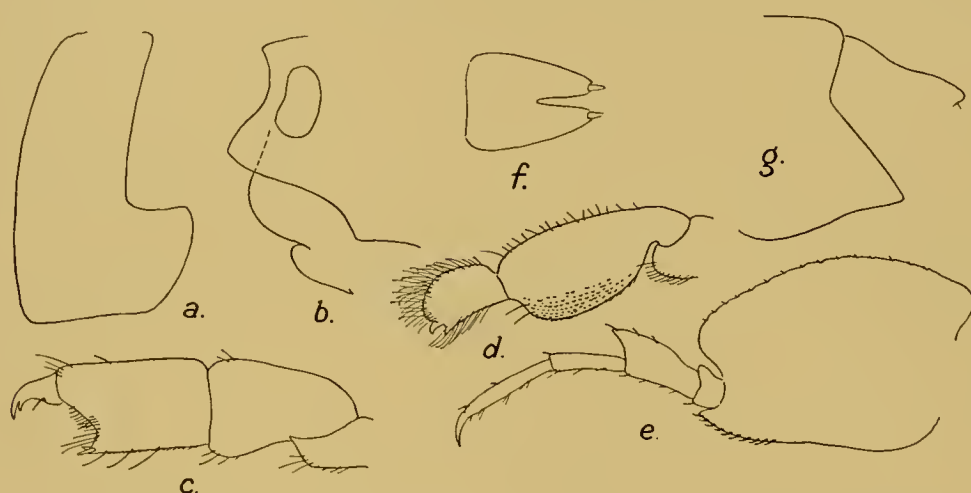


Fig. 22. *Lepidepecreum cingulatum*, n.sp. a. Side-plate 4. b. Anterior margin of head with epistome and upper lip. c. Gnathopod 1. d. Gnathopod 2. e. Peraeopod 5. f. Telson. g. Pleon segments 3 and 4.

7th deeper than long, rounded below. Postero-inferior angle of pleon segment 1 rounded, of 2 quadrate, of 3 somewhat produced in an angle less than  $90^\circ$ , lower and hind margins almost straight. Telson longer than broad, cleft almost to centre, lobes apically subacute, each with one stout spine.

Antenna 1, 1st joint carinate on dorsal edge, but not apically produced, flagellum 11-12-jointed, accessory flagellum 5-jointed. Antenna 2, flagellum 13-14-jointed.

Epistome and mouth-parts as figured for *umbo* (Sars, pl. xxxix, fig. 2) including the short stout spinules along inner margin of outer plate of maxilliped.

Gnathopod 1 as in *umbo*, 2nd joint long, setose on front margin; but 5th and 6th joints stouter, the defining angle of concave palm more produced. Gnathopod 2 also as in *umbo*, but 6th joint more broadly oval, and chela minute.

Peraeopods 1 and 2 slender. Peraeopods 3-5, 2nd joints ovately expanded, lower hind angle rounded, hind margin obscurely crenulate, 4th joints moderately expanded, 5th abruptly narrower.

Uropods 1-3 extending back about equally, the inner ramus in each slightly shorter than outer ramus.

Colour (as preserved) pale yellowish, with a greyish transverse band on each segment from peraeon segment 1 to pleon segment 5, extending on peraeon segments 1-5 only to the upper parts of the side-plates; eyes black.

REMARKS. The resemblances of this form to *umbo* as regards the mouth-parts and 1st gnathopod appear to outweigh the absence of features usually found in the members of this genus, such as dorsal processes and the produced apex of the 1st joint of the 1st antenna. The feebly indurated integument may possibly be due to the specimens having been taken from a fish stomach, though they are in excellent condition and not at all mutilated or semi-digested. In *longicorne* there is a very similar segmental arrangement of pigment.

### Genus *Lepidepecreella*, Schell.

Schellenberg, 1926, p. 281.

Barnard, 1930, p. 321 (*Paracyclocharis*).

Stephensen, 1931 (*Arkiv Zool.*, xxii), pp. 1, 6.

From the nearly related genera *Lepidepecreum*, *Lepidepecreopsis*, and the new genus described below, this genus is distinguished by the entire telson. The 4th side-plate is received into a definite groove on the 5th side-plate, as in *Waldeckia*.

#### *Lepidepecreella ovalis*, n.sp. (Fig. 23).

*Occurrence*: 1. St. 42. South Georgia. 1 ♀ 8 mm.

2. St. 45. South Georgia. 2 ♀♀ 6.5 and 7 mm. *Types*.

3. St. 140. South Georgia. 2 ♀♀ 7 and 8.5 mm.

4. St. WS 33. South Georgia. 1 ♀ 7 mm., 1 ♀ with embryos 8 mm.

DESCRIPTION. Very close to *ctenophora*, Schell., but distinguished as follows: postero-inferior angle of pleon segment 3 with a tiny upturned acute point followed by a small and feeble semicircular notch (both features obscure in nos. 3 and 4); margin above very minutely and feebly serrulate; telson longer than broad, ovate; uropod 3 with outer ramus half as long as peduncle, inner margin minutely serrulate, 2nd joint minute, inner ramus completely fused with peduncle; rostral process more prominent, extending as far as apex of epistomal projection; tooth on posterior margin of pleon segment 4 higher and more strongly developed. Integument indurated, strongly and closely punctured, especially on pleon segments 1-3.

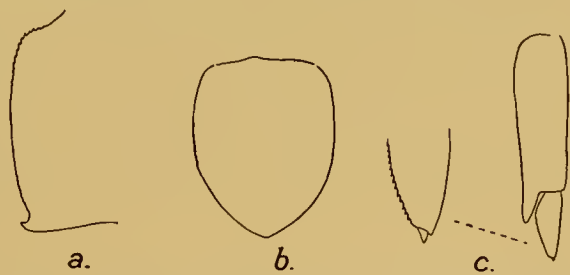


Fig. 23. *Lepidepecreella ovalis*, n.sp. a. Pleon segment 3. b. Telson. c. Uropod 3, with apex of ramus further enlarged.

REMARKS. The above distinctive characters seem sufficient to justify a separate species. *L. ctenophora* was obtained by the 'Gauss' at her winter station, approx.  $89\frac{1}{2}^{\circ}$  E,  $66^{\circ}$  S.

### *Lepidepecreoides*, Brnrd.

Barnard, 1931, p. 426.

Integument indurated. Body scarcely carinate anteriorly, but distinctly so posteriorly. Side-plates 1-5 deep; the 5th almost as deep as 4th, solid anteriorly, thin posteriorly, not grooved for reception of 4th; 6th with a rather wide excavation between the anterior and posterior lobes; 7th longer than deep. Telson cleft to base. First joint of antenna 1 not carinate or apically produced. Epistome straight in profile, not expanded; upper lip gibbous. Mandible with palp inserted opposite molar, 2nd joint of palp not very elongate. Lower lip with lobes apically rounded. Gnathopod 1, 6th joint widening slightly distally, palm oblique. Gnathopod 2, 6th joint rather broadly oval, subchelate. Peraeopod 3, 2nd joint abnormally thick, angularly expanded in front and behind. Peraeopods 4 and 5, 2nd joints ovate, not abnormally thick. A single accessory branchia on both segments 5 and 6.

REMARKS. From its close allies—*Lepidepecreum*, B. and W., *Lepidepecreopsis*, Steph. 1925, and *Lepidepecreella*, Schell.—this genus is easily distinguished by the unusually great depth of the 5th side-plate, and the unexpanded epistome. The mouth-parts agree with those of *Lepidepecreopsis*, the mandibular palp being inserted much more forward than in the other two genera.

### *Lepidepecreoides xenopus*, Brnrd. (Fig. 24).

Barnard, 1931, p. 426.

- Occurrence: 1. St. 177. South Shetlands. 1 ♀ 11 mm.  
 2. St. 181. Palmer Archipelago. 1 ♂ 9 mm. *Type*.  
 3. St. WS 33. South Georgia. 1 juv. 4.5 mm.

DESCRIPTION. Integument indurated; when seen by transmitted light it has a honey-comb reticulation, but when seen in an oblique reflected light each hexagonal mark seems to have a raised border so that the integument appears strongly scabrous. Head with antero-lateral angle quadrate. No eyes. Peraeon moderately compressed, scarcely or feebly carinate, but dorsal profile indented at junctions of segments, especially posteriorly. Side-plates deep; 1-4 deeper than their segments, setulose on their anterior margins, 1-3 oblong, with a denticle at postero-inferior angle, 4 also oblong with the whole hind margin excavate for the reception of the deep 5th side-plate, which is very solid in front portion but with a crescentic hollowing posteriorly for reception of 2nd joint of peraeopod 3, hind margin and lower part of anterior margin setulose; side-plate 6 slightly deeper than long, with lower margin excavate between anterior and posterior lobes; side-plate 7 longer than deep, ovoid; hind margins of 6 and 7 setulose. On segments 5, 6 and 7 just above the junction of the side-plates there is a rounded nodulose prominence. Pleon carinate, dorsal profile on each of segments 1-3 undulate, carina



ending on segment 3 in a triangular tooth-like projection; segment 4 with a strong slender upstanding tooth; segment 5, very short; postero-inferior angles of segments 1-3 rounded. Segments 1-3 each have a lateral prominence which is rather indefinite, the most projecting part being in line with the prominences on peraeon segments 5-7. Telson twice as long as basal width, cleft to base, lobes tapering to acute apices, each with a terminal spinule.

Antenna 1, peduncle stout but not carinate, the 1st and 2nd joints scabrous, 3rd very short, flagellum 6-jointed, 1st joint large, with regular brush of plumose setae along lower margin, 2nd-6th joints much smaller, accessory flagellum 2-jointed, as long as 1st flagellar joint, 1st joint long, 2nd very short. Antenna 2 slender, 4th and 5th joints subequal, flagellum 7-jointed.

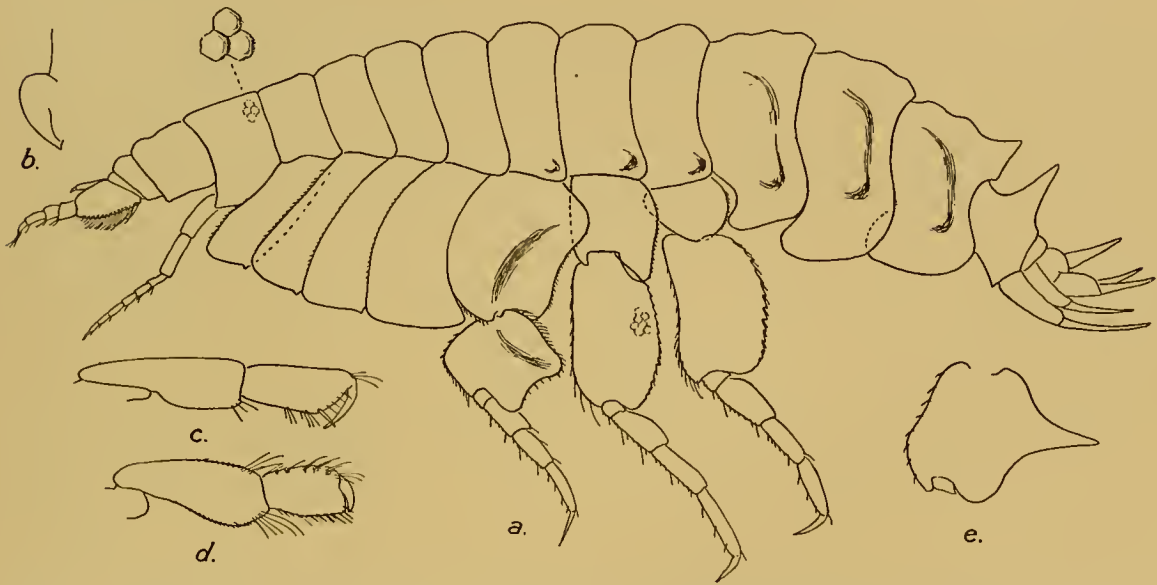


Fig. 24. *Lepidepecreoides xenopus*, Brnrd. a. General view, integumentary sculpture indicated on head and pereopod 4. b. Profile of epistome and upper lip. c. Gnathopod 1. d. Gnathopod 2. e. 2nd joint of pereopod 3 of juvenile (St. WS 33).

Epistome straight in profile, not expanded; upper lip considerably gibbous. Mouthparts as in *Lepidepecreopsis* (Stephensen, 1925, p. 120, fig. 33). Lower lip with lobes apically rounded as in *Lepidepecreum*. Spines on apex of outer plate of maxilla 1 very stout; inner plate with two setae. The short stout spines on apex of palp of maxilla 1 and on inner margin of outer plate of maxilliped very regular, as in Stephensen's figures.

Gnathopod 1 moderately slender; 6th joint about two-thirds length (upper margin) of 5th, widening slightly to the oblique palm, a spine at the defining angle, finger overlapping palm. Gnathopod 2, 6th joint ovoid, broader than in any of the allied genera, palm convex, slightly projecting, but not chelate, finger overlapping palm.

Pereopods 1 and 2 armed with a few rather long outstanding setae, dactyl elongate, two-thirds length of 6th joint (cf. *Lepidepecreopsis*). Pereopod 3, 2nd joint remarkably thick, quadrangular, angularly expanded on both anterior and posterior margins, the

proximal part of anterior margin with a few spinules, the distal part and the whole posterior margin with short plumose setae, 3rd, 4th and 5th joints also with plumose setae as well as a few longer simple setae, dactyl slender, two-thirds length of 6th joint. In the juvenile the 2nd joint is more oblong than square and the hind margin is produced in a strong straight spine. Peraeopods 4 and 5, 2nd joints not abnormally thick, ovate, hind margin strongly serrate and with short plumose setae, armature of other joints as in peraeopod 3; peraeopod 4 slightly longer than 5.

Uropods 1 and 2, rami subequal, acuminate, sparsely spinose. Uropod 3 extending as far back as uropod 1 and slightly beyond apex of telson, rami lanceolate, 2nd joint of outer ramus well developed, inner margin of both rami with long plumose setae.

A single accessory branchia on both segments 5 and 6.

REMARKS. The extraordinarily shaped 2nd joint of peraeopod 3 fits within the hollowed portion of the 5th side-plate when the limb is folded back. The whole animal was covered with very fine particles of foreign matter due to the muddy nature of the bottom; and the setulose margins of the side-plates would seem to be for the purpose of excluding such foreign matter from penetrating between them.

#### Genus *Allogaussia*, Schell.

Schellenberg, 1926, p. 245.

The first species here described is very like the species of this genus described by Schellenberg, but shows the following peculiarities.

Antenna 1 in both sexes very stout, 2nd joint of peduncle very short compared with its breadth, 3rd easily visible dorsally, but ventrally entirely masked on inner side by the 1st joint of flagellum, which is in continuity with the 2nd peduncular joint. First flagellar joint stout and elongate, 1st joint of accessory flagellum also elongate. Epistome expanding from quite near the bases of 1st antennae into a broad lamina, with a deep narrow notch separating it from the upper lip (the latter feature as in *Allogaussia*). Side-plate 4 fitting into a groove on side-plate 5, thus preventing the 2nd joint of peraeopod 3 from external movement over the posterior lobe of the latter. Uropod 3 extending slightly beyond apices of uropods 1 and 2, well developed, rami with marginal setae. Telson elongate, concave above. Accessory branchiae present on segments 5 and 6.

Accessory branchiae are said to be absent in *Allogaussia paradoxa*, Schell. The mandibular palp is inserted "far behind" (no figure given), and the palp of maxilla 1 in the new species has many more apical spinules than any of the three species described by Schellenberg.

The locking of side-plates 4 and 5 and the confinement of peraeopods 3 and 4 to movement within the side-plates (as in *Waldeckia* and *Kerguelenia*) seems to be a greater specialization than is found in the original three species of this genus, where, according to Schellenberg's figures (1926, figs. 5 and 7), peraeopod 3 is freely movable outside and over the posterior lobe of the 5th side-plate. The epistome, telson and uropod 3 are not so very different, but the 1st antenna is entirely different and in conjunction with the character of the side-plates almost makes a separate genus advisable.

Schellenberg states that *Allogaussia* is near *Orchomenella* though he places it far away in his Gauss Report. He also refers to the likeness and possible identity of his *A. litoralis* (p. 249) with *Orchomenella franklini*, Wlkr. The relationship between both of Walker's species, *pinguides* and *franklini*, and the species of *Allogaussia* seem to be very close, and it is difficult to decide without material of the northern species for comparison whether the former have been rightly referred to *Orchomenella*. Sars' figures of *O. minuta* and *pinguis* (1895, pl. xxiv, figs. 1 and 2), but not of *ciliata* (= *nanus*) and *groenlandica* (pl. xxv, fig. 2 and pl. xxvi, fig. 1), nor Bonnier's figures of *laevis*, show a very definite posterior lobe on the 5th side-plate and also a narrow projecting lobe on the 4th side-plate. Walker's figures of *franklini* (1903, pl. viii, figs. 31 and 35) show the same features and likewise the two species here described.

But in the northern species the 2nd joint of peraeopod 3, though it appears (Sars, pl. xxiv, fig. 1, *p*<sup>5</sup>.) to be confined within the 5th side-plate, is not particularly expanded. Of what generic value are these characters?

The epistome in the original species of *Allogaussia* and of the two here included is not greatly different from that of the typical species of *Orchomenella*. The epistome of Walker's two species is undescribed.<sup>1</sup> If *pinguides* and *franklini* be included in *Allogaussia* on account of peraeopod 3, then the form of telson ceases to be of generic importance, as there are both the short entire form (*paradoxa*) and the long form which may be either notched (*navicula*) or shallowly (*litoralis*) or deeply (*pinguides* and *lobata*) cleft.

Further work on the points here raised is required, including a comparison of the northern and southern species of *Orchomenella*.

#### *Allogaussia navicula*, n.sp. (Fig. 25).

*Occurrence*: 1. St. 170. South Shetlands. 3 ♂♂, 4 ♀♀ 7-8 mm.

2. St. 175. South Shetlands. 2 ♂♂ 8 mm., 2 ♀♀ 8-9 mm. *Types*.

**DESCRIPTION.** Integument indurated, with scattered punctae. Body distinctly plumper in ♀ than in ♂. Head with antero-lateral angle quadrate, but the actual angle rounded. Eyes large, narrow above, widening below, pale brown or reddish. Peraeon dorsally rounded. Side-plates deep, 1-3 oblong, rounded below, more so in 1 than in 3; 4 narrow, with long but rather shallow excavation, the posterior projection narrow, rounded, fitting into a slight groove on 5, which is ovate, deeper than long with a distinct posterior lobe but no anterior lobe; 6 oblong, the posterior lobe distinct; 7 deeper than long, rounded below. Pleon dorsally rounded, except for a low rounded medio-dorsal keel on segment 4 and 2 dorso-lateral keels on segment 6 projecting as two short rounded lobes on either side of telson; postero-inferior angle of segment 1 rounded, of 2 quadrate, of 3 rounded-quadrate, margin entire. Telson oblong, twice as long as broad, slightly tapering, deeply concave dorsally like a gouge chisel, extending to about

<sup>1</sup> In the Nimrod specimens of *pinguides* and *franklini* recorded in the Terra Nova Report (1930, p. 448), which certainly seem to agree with Walker's descriptions and figures, the epistome forms a strongly projecting lamina, and side-plate 4 does not fit into a groove in side-plate 5.

middle of rami of uropod 3, apex truncate or slightly emarginate according as it is observed in its natural form or flattened, each apex with a spinule and a setule.

Antenna 1 very stout, 1st joint obese, flattened on inside but dorsal margin not sharply keeled, 2nd joint very short, as broad as 1st, 3rd wider dorsally than ventrally, just visible ventrally on outside but on inside entirely masked by the 1st flagellar joint which is thus in continuity with the 2nd peduncular joint (cf. *Kerguelenia antarctica*, Brnrd., 1930, p. 318, fig. 1 b); flagellum 10-jointed, 1st joint stout, elongate, strongly setose on inner and lower surfaces, the other nine joints short, accessory flagellum 4-jointed, 1st joint elongate, lying in a groove on 1st flagellar joint, setose on its lower margin. No sexual difference except that there are eight short joints following the large 1st joint in ♀.

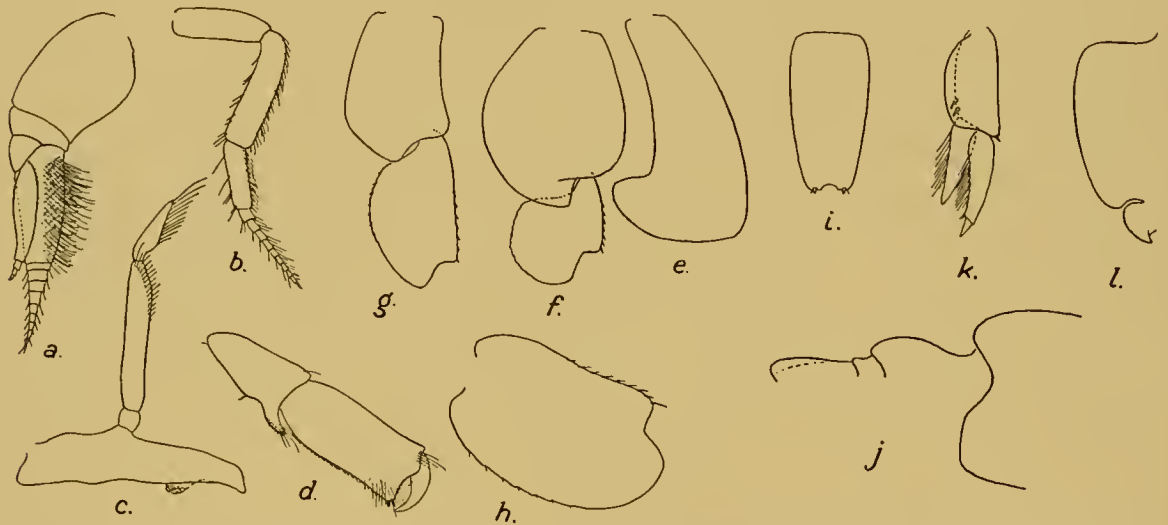


Fig. 25. *Allogaussia navicula*, n.sp. a. Antenna 1. b. Antenna 2 (3rd peduncular joint onwards). c. Mandible. d. Gnathopod 1. e. Side-plate 4. f. Side-plate 5 and 2nd joint of peraeopod 3. g. Side-plate 6 and 2nd joint of peraeopod 4. h. 2nd joint of peraeopod 5. i. Telson. j. Pleon segments 3-6. k. Uropod 3. l. Profile of epistome and upper lip.

Antenna 2 slender, 4th joint longest, 4th and 5th strongly setose on upper margins, flagellum 10-jointed in ♂, 9 in ♀.

Epistome expanding from near bases of 1st antennae into a broad oblong lamina, rounded at upper and lower corners, separated by a deep curved groove from the upper lip, which is gibbous but not projecting beyond the epistome. Mandible, cutting edge somewhat rounded without any denticles, secondary cutting plate and spine row absent, molar well developed, rugulose, palp longer than trunk, inserted about in middle of trunk and behind molar, 2nd joint a little more than twice as long as 3rd, distal half of margin setose, 3rd joint nearly straight, margin setose. Maxilla 1, inner lobe narrow, acuminate, with two feeble apical setules, outer lobe with 8-9 serrate spines, palp extending beyond outer lobe, its truncate apex with 9-10 short stout spinules. Maxilla 2 with both lobes narrow, subequal. Maxilliped, inner plate acuminate, without apical spines, outer plate extending to just beyond apex of 2nd joint of palp, inner margin with

crenulations passing into 2-3 separate stout spines on apex, palp 4-jointed, 4th joint slender.

Gnathopod 1 subchelate, 2nd joint straight, setose on anterior margin, 5th rather elongate triangular, lower distal projection narrow, 6th oblong, parallel-sided, twice as long as broad, palm transverse, straight or slightly concave, or even slightly convex, obscurely crenulate, with 1-2 spinules at angle, finger slender, slightly overlapping palm. Gnathopod 2 minutely chelate, 6th joint shorter than 5th, oblong.

Peraeopod 3, 2nd joint subcircularly expanded, hind margin obscurely notched, 4th joint not strongly expanded. Peraeopod 4, 2nd joint ovate, anterior margin straight, hind margin obscurely notched. Peraeopod 5, 2nd joint ovate, but more strongly expanded than in peraeopod 4.

Uropods 1 and 2, rami subequal, acuminate, with a few spinules. Uropod 3 extending slightly beyond apices of uropods 1 and 2, and beyond telson, upper outer margin of peduncle rather expanded, convex, upper inner margin straight, with 2 spinules, inner ramus, which is actually inserted above the outer ramus, as long as 1st joint of outer, inner margins of both with plumose setae in both sexes.

A single elongate accessory branchia on both segments 5 and 6.

*Allogaussia lobata*, n.sp. (Fig. 26).

- Occurrence*: 1. St. 142. South Georgia. 1 juv. 5.5 mm.  
 2. St. 170. South Shetlands. 1 ♀ 13 mm. *Type*.  
 3. St. 208. South Shetlands. 2 ♀♀ 9-10 mm.

*DESCRIPTION*. Like *navicula*, but larger. Eyes pale reddish. Side-plates as in *navicula*. Pleon segment 3 very similar to that of *navicula* as regards postero-inferior angle; segment 4 with a more prominent dorsal keel which ends posteriorly in a rounded lobe



Fig. 26. *Allogaussia lobata*, n.sp. a. Telson. b. Pleon segments 3-6. c. Profile of epistome and upper lip. d. 2nd joint of peraeopod 3.

overlapping segment 5; segment 6 with the dorso-lateral keels on either side of telson more prominent. Telson longer than wide, cleft for two-thirds its length, the lobes dehiscent, each with an apical spinule.

Antennae 1 and 2, and mouth-parts as in *navicula*. Epistome not expanded proximally, its profile sinuous.

Gnathopod 1, palm slightly convex, crenulate.

Peraeopod 3, 2nd joint strongly expanded into a rounded lobe.

In other respects, including presence of an accessory branchia on segments 5 and 6, like *navicula*.

REMARKS. Considerably larger than any of the other species (including also *pinguides* and *franklini*). The specific name refers to the 2nd joint of peraeopod 3, the carinae on segments 4 and 6, and the distinct lobes of the telson.

### Genus *Orchomenella*, G. O. Sars.

Sars, 1891-95, p. 66, and p. 73 (*Orchomenopsis*).

Stebbing, 1906, p. 81, and p. 83 (*Orchomenopsis*).

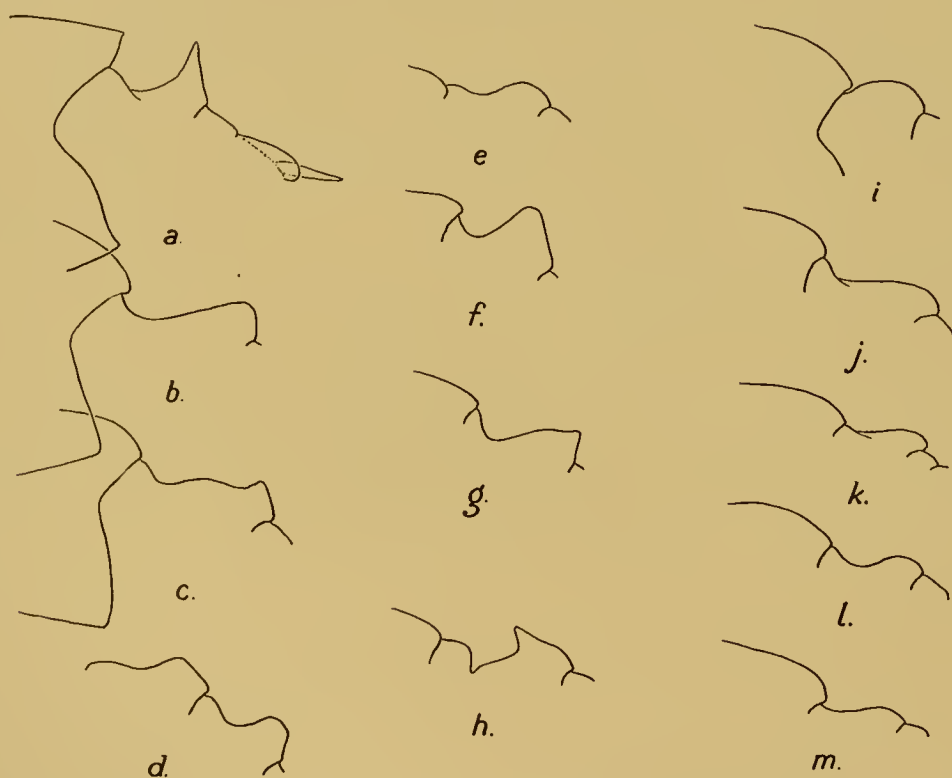


Fig. 27. Dorsal profiles of pleon segments 3 and 4 (also segments 5 and 6 in *a*) of species of *Orchomenella* and *Orchomene*. *a*. *Orchomenella acanthurus*, Schell. *b*. *abyssorum* (Stebb.). *c*. *rotundifrons*, n.sp. *d*. *macronyx*, Chevr. *e*. *rossi* (Wlkr.). *f*. *charcoti* (Chevr.). *g*. *cavimanus* (Stebb.). *h*. *zschauii* (Pfr.). *i*. *nodimanus* (Wlkr.). *j*. *pinguides*, Wlkr. *k*. *franklini*, Wlkr. *l*. *chelipes*, Wlkr. *m*. *Orchomene goniops*, Wlkr. (Figs. *i*-*m* are from drawings from the type specimens in the British Museum kindly made by Dr I. Gordon.)

As Stebbing says in his key (1906, p. 11) there are no constant differences between the two genera, and with the discovery that *O. zschauii* possesses a projecting epistome together with the 2nd antennae considerably longer than the 1st antennae, the differences hitherto relied upon are obliterated.

*Orchomenella cavimanus* (Stebb.) (Fig. 27 *g*).

Stebbing, 1888, p. 679, pl. xxii.

Schellenberg, 1926, p. 285, fig. 25.

- Occurrence*: 1. St. 51. Falkland Islands. 4 ♂♂ 8 mm., 12 ♀♀ (incl. specimens with ova and embryos) 8–10 mm., 5 juv. 6–7 mm.  
2. St. 152. South Georgia. 1 ♀ 10 mm.

REMARKS. Eyes pale brown. Epistome and upper lip as in Stebbing's figure. Pleon segment 4 as in Schellenberg's figure. The 2nd antennae are distinctly longer than the 1st in ♂.

DISTRIBUTION. Kerguelen; 'Gauss' winter station.

*Orchomenella abyssorum* (Stebb.) (Figs. 27 *b*, 28).

Stebbing, 1888, p. 676, pl. xxi.

Schellenberg, 1926, p. 291, fig. 27 (*chilensis* form *abyssorum*).

- Occurrence*: St. 208. South Shetlands. 1 ♂ 6.5 mm., 1 ♀ 10 mm.

REMARKS. The stout plates of the 2nd maxilla and the stout outer plate of the 1st maxilla are not at all like those of the typical *Orchomenella* species. The large yellowish brown pear-shaped eyes and other features indicate that these specimens are correctly identified with the Gauss specimens, and also I think with the Challenger type. The characters separating this species from *rossi* are so great that I cannot agree to regarding it as a form of *chilensis*.

DISTRIBUTION. South Atlantic (off Buenos Aires), 3578 m.; 'Gauss' winter station, 385 m.



Fig. 28. *Orchomenella abyssorum* (Stebb.). *a*. Profile of epistome and upper lip. *b*. Palp of maxilla 1.

*Orchomenella rossi* (Wlkr.) (Fig. 27 *e*).

Schellenberg, 1926, p. 288, fig. 26.

Barnard, 1930, p. 327.

- Occurrence*: 1. St. MS 68. South Georgia. 1 ♂, 1 ♀ 19 mm.  
2. St. 39. South Georgia. 2 ovig. ♀♀ 25 and 30 mm.  
3. St. 42. South Georgia. Many ♀♀ 17–29 mm., the larger ones ovigerous.  
4. St. 45. South Georgia. 6 ♂♂ 17–21 mm., 1 ♀ 19 mm., 4 ovig. ♀♀ 26–28 mm.  
5. St. 123. South Georgia. Many ♂♂ and ♀♀ and immat. 15–28 mm., the largest ♀♀ ovigerous.  
6. St. 142. South Georgia. 14 ♂♂ 14–21 mm., 7 ♀♀ 17–25 mm., 2 ovig. ♀♀ 23 and 25 mm., 19 juv. 5–12 mm.  
7. St. 149. South Georgia. 12 ♂♂ 18–21 mm., 2 ♀♀ 20 and 22 mm., 4 ovig. ♀♀ 25–28 mm.  
8. St. 154. South Georgia. 4 ♂♂ 18–20 mm.  
9. St. 173. South Shetlands. 1 ovig. ♀ 16 mm.  
10. St. 178. Palmer Archipelago. 1 ♂ 15 mm., 2 ♀♀ 14 mm., 2 ovig. ♀♀ 20 and 25 mm.  
11. St. 181. Palmer Archipelago. Many ovig. ♀♀ 21–38 mm., comparatively few ♂♂ 17–30 mm., a few juv. 11–15 mm.

12. St. 184. Palmer Archipelago. Many ♂♂, ovig. ♀♀ and immat. up to 25 mm.
13. St. 189. Palmer Archipelago (70 metres). 3 ♂♂ 16-20 mm., 5 ♀♀ 20-27 mm., 1 ovig. ♀ 21 mm.
14. *Ibid.* (7 metres). 3 ♂♂ 20-27 mm., 1 ♀ 31 mm., several juv. 6-13 mm.
15. St. 208. South Shetlands. 2 ovig. ♀♀ 22 and 24 mm.
16. St. WS 38. South Georgia. 1 ♀ 20 mm.

REMARKS. The 1st side-plate is strongly produced forwards, and the lower profile of side-plates 1-4 forms a very even, often slightly concave line.

The colours of nos. 3 and 11 are given as "creamy white with black eyes" and "creamy white, thorax and abdomen scarlet above, eyes black" respectively.

Schellenberg (1926) has uttered a caution against uniting all the various forms of *chilensis* under one name, and has wisely adopted names for the various forms. Being against the principle of a trinomial nomenclature, I should prefer to keep them all as species. But the main point is that all records of *chilensis* should state definitely which form is meant, so that the distribution of each may be determined.

DISTRIBUTION. Ross Sea; 'Gauss' winter station; Palmer Archipelago. Probably also South Orkneys and Coats Land (Chilton, 1912).

#### *Orchomenella charcoti* (Chevr.) (Fig. 27 f).

Chevreaux, 1913, p. 92, figs. 4-6 (*Orchomenopsis c.*).

Occurrence: St. 175. South Shetlands. 1 ♀ with embryos 17 mm.

REMARKS. There is no doubt that this is the form described by Chevreaux. The eyes are brown (as preserved), not black as in *rossi*. The palm of the 1st gnathopod is even less obvious than in Chevreaux's figure, in fact the 1st gnathopod might almost be described as simple. The finger of the 2nd gnathopod is stronger, and overlaps the minute distal projection of the 6th joint more than in Chevreaux's figure. There are two apical spines on each lobe of the telson, but one is not actually apical, but a little subapical (and not symmetrical on the two lobes), and there are 2-3 lateral spines (also not symmetrical). The carina on pleon segment 4 is more obviously triangular than in Chevreaux's figure, resembling closely Stebbing's figure of that of *Tryphosa trigonica*. The epistome is straighter and not so prominent as the gently gibbous upper lip.

Although drawn into the synonymy of the polymorphous "species" *chilensis* by Schellenberg, I think this is worthy of specific rank. The 4th pleon segment, gnathopod 1, the flattened or slightly emarginate lower hind margin of the 2nd joint of peraeopod 5 (which feature is also present in the 'Discovery' specimen) and the brown eyes enable it to be picked out at once from specimens of *rossi*.

DISTRIBUTION. Palmer Archipelago.

#### *Orchomenella macronyx*, Chevr. (Figs. 27 d, 29).

Chevreaux, 1906, p. 8, figs. 5-7.

Chilton, 1912, p. 470.

Schellenberg, 1931, p. 43, fig. 22.



- Occurrence*: 1. St. MS 68. South Georgia. 2 ♂♂ 7-7.5 mm., 2 ♀♀ 9-10 mm., 1 ovig. ♀ 13 mm., 2 juv. 5 mm., from pharynx of Ascidian.
2. St. 39. South Georgia. 1 ♂ 8 mm., 2 ♀♀ 10 mm., 6 ovig. ♀♀ 11-13 mm., 14 juv. 5-6 mm.
3. St. 42. South Georgia. 2 ♀♀ (1 ovig.) 9 mm., 1 juv. 6 mm.
4. St. 45. South Georgia. 59 specimens 5-14 mm., a few ♂♂ and juv. mostly ♀♀ incl. some ovig.
5. St. 123. South Georgia. 3 ♂♂ 7.5-8 mm., 28 ♀♀ (1 ovig.) 9-13 mm., 7 juv. 3-8 mm., from branchial chamber of large Ascidian.
6. St. 149. South Georgia. 1 ♂ 7 mm., 12 ♀♀ 10-12 mm., from branchial chamber of Ascidian.

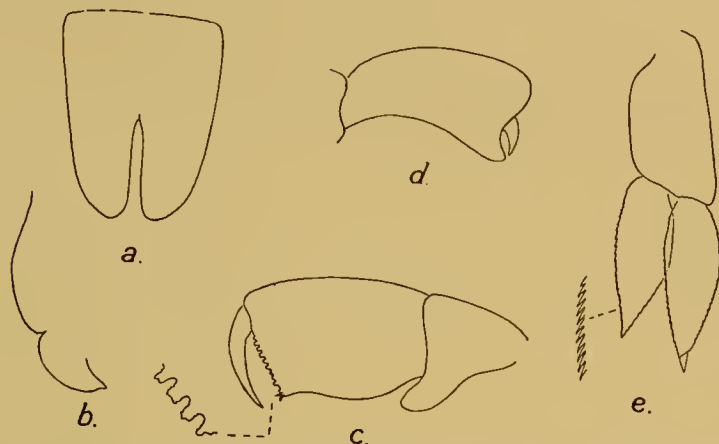


Fig. 29. *Orchomenella macronyx*, Chev. a. Telson. b. Profile of epistome and upper lip. c. Gnathopod 1, with palmar denticles further enlarged. d. Gnathopod 2 (setae omitted). e. Uropod 3 with part of margin further enlarged.

REMARKS. These specimens are evidently the adults of Chevreux's species. As Chilton remarks in the Scotia specimens, the eye is narrower oval than in Chevreux's figure, and in the adult widens slightly below.

The 4th and 5th side-plates are as figured by Chevreux (fig. 7 D, C). The transverse depression is present on pleon segment 3, and the profile of segment 4 is quite characteristic. The telson has a narrow slit between the rather broadly rounded lobes, which appear to be quite unarmed.

The 1st joint of antenna 1 is very plump and gives a rounded appearance to the front of the head. Epistome slightly convex, but not prominent.

Gnathopod 1, 6th joint short and stout, palm well developed, transverse, with two small spines at angle and set with a series of little straight processes, some of which are often bifid or fimbriate, with spaces between them. Gnathopod 2, 6th joint oblong, widening distally, minutely chelate, the finger short and stout.

Peraeopod 3, 2nd joint considerably more expanded than in Chevreux's figure. It is not confined within the 5th side-plate, but can move freely outside.

Uropod 3, rami broadly lanceolate, both margins of both rami minutely serrulate. This is a most characteristic feature and serves at once to distinguish the species.

A single accessory branchia on both segments 5 and 6.

DISTRIBUTION. Palmer Archipelago; South Orkneys.

*Orchomenella rotundifrons*, n.sp. (Figs. 27 c, 30).

*Occurrence*: St. 174. South Shetlands. 10 ♀♀ (1 ovig.) 11 mm.

**DESCRIPTION.** Head with lateral angle rounded. Eyes large, oval, widening a little below, black. Pleon segment 3 with postero-inferior angle quadrate, the hind margin slightly convex. Pleon segment 4 with the carina gently convex behind the usual depression, then upturned into a small triangular tooth, the hind margin of which slopes down obliquely (not vertically as in *cavimanus*). Telson about twice as long as wide, cleft for two-thirds its length, lobes slightly dehiscent, each with apical spine and three lateral spines.

Epistome nearly straight, not prominent, upper lip gibbous.

Antenna 1, 1st joint very stout, when folded down giving the front of the head a rounded appearance as in *macronyx*.

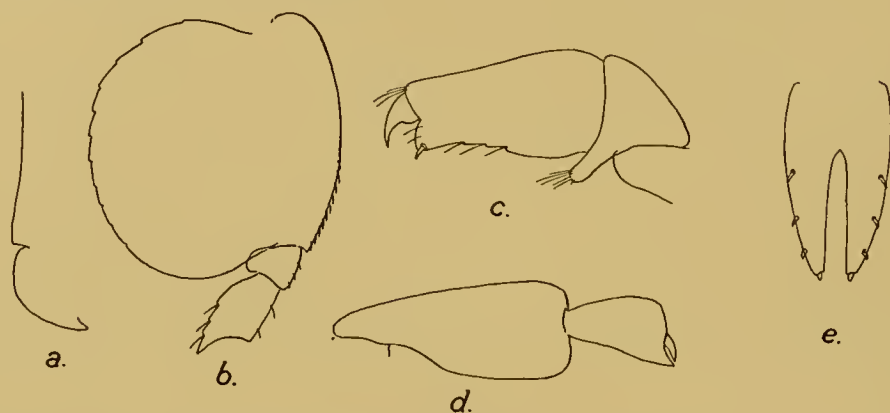


Fig. 30. *Orchomenella rotundifrons*, n.sp. a. Profile of epistome and upper lip. b. Proximal joints of peraeopod 3. c. Gnathopod 1. d. Gnathopod 2 (setae omitted). e. Telson.

Gnathopod 1, 6th joint stout, narrowing distally, palm short, transverse, gently convex, entire, defined by one spine; finger short, stout, matching or only slightly overlapping palm. Gnathopod 2, 6th joint moderately broad, minutely chelate.

Peraeopod 3, 2nd joint very strongly expanded, subcircular, hind margin slightly serrate.

Uropod 3, inner ramus not reaching the 2nd joint of outer ramus, inner margins of both with plumose setae, outer margins spinose.

**REMARKS.** It seems necessary to institute a new species for these specimens, which will not fit into any of the described ones. They might be referred to *proxima*, Chev., except that Chevreux does not specially mention the carination on pleon segment 4, comparing his specimens with *obtusa*, Sars, where the carina is of quite a different shape. Moreover the postero-inferior angle of pleon segment 3 is distinctly rounded in *obtusa*.

The objections to referring them to *nodimanus*, Wlkr., are that the hand of gnathopod 1 has no tubercle on the lower margin, and the shape of the carina on pleon segment 4 is quite different (see Fig. 27 i).

*Orchomenella acanthurus* (Schell.) (Figs. 27 a, 31).

Schellenberg, 1931, p. 47, fig. 25.

- Occurrence*: 1. St. 141. South Georgia. 1 ovig. ♀ 10 mm.  
 2. St. 145. South Georgia. 1 ovig. ♀ 13 mm.  
 3. St. WS 33. South Georgia. 1 juv. 7 mm.  
 4. St. MS 62. South Georgia. 2 juv. 5-6 mm.

**DESCRIPTION.** Body plump. Integument indurated. Head with antero-lateral angle quadrate. Eyes oval, wider below, black. Side-plates deep, one parallel-sided, rounded below, five nearly evenly bilobed, the posterior lobe only a little deeper than anterior, peraeopod 3 therefore freely movable outside the side-plate. Pleon segment 3 with dorsal profile less convex than usual, posteriorly subcarinate, and ending in a square, almost pointed, projection, postero-inferior angle quadrate; segment 4 with a high acute triangular process following the indentation. Telson ovate, scarcely half as long again as wide, cleft for a little over half its length, lobes tapering to acute apices with a spinule in a notch on outside of apex, and three lateral spinules.

Antenna 1, 1st joint stout, 2nd and 3rd short, flagellum 9-jointed, 1st joint long, accessory flagellum 6-jointed, 1st joint also long. Antenna 2 a little longer than antenna 1, flagellum 13-jointed.

Epistome produced in a broadly rounded lobe projecting beyond the upper lip.

Gnathopod 1, 6th joint distinctly narrowing distally, palm transverse, defined by two spines, its margin with minute squarish denticles, finger overlapping palm. Gnathopod 2, 6th joint minutely chelate.

Second joint in peraeopod 3 broadly expanded, in peraeopod 4 less so, in peraeopod 5 again broadly expanded; hind margins of all feebly notched.

Uropod 3, inner ramus extending to apex of 1st joint of outer ramus, margins of both rami spinulose.

**REMARKS.** An easily recognized species. The carination of the 3rd pleon segment, raised above the insertion of segment 4, is interesting.

*Orchomenella zschauii* (Pfr.) (Fig. 27 h).

Pfeffer, 1888, p. 87, pl. ii, fig. 1.

Stebbing, 1906, p. 85 (part).

Shoemaker, 1914, p. 73.

Schellenberg, 1931, p. 46, fig. 24.

- Occurrence*: 1. South Georgia. 3. iv. 25. Many ♂♂ and ♀♀ 9-13 mm.  
 2. East Cumberland Bay, South Georgia. 30. xii. 26. 11-36 m., 2 ♀♀ 9 and 12 mm.

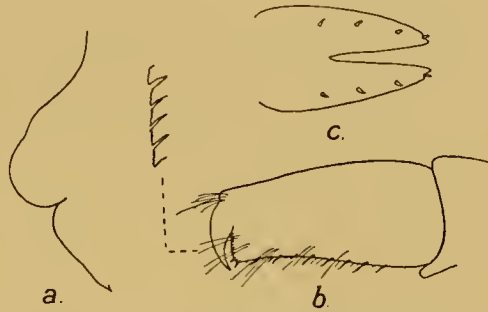


Fig. 31. *Orchomenella acanthurus* (Schell.).  
 a. Profile of epistome and upper lip. b. Gnathopod 1, with palmar denticles further enlarged.  
 c. Telson.

REMARKS. The collection of specimens agreeing exactly with Pfeffer's description and figures, and from the same locality, is welcome, as it enables one to vindicate Pfeffer's specific name, and the systematic position assigned to it by Stebbing in 1906, as well as to describe the only two important structural details which Pfeffer omitted to mention. Shoemaker has already reported the species (under the name *Waldeckia zschauii*) from the Bay of Isles, South Georgia, but beyond clearly stating that the specimens agreed with Pfeffer's species and not with Chevreux's *obesa*, he did not further discuss it.

The epistome is distally gibbous, as in Stebbing's figure of that of *cavimanus* (1888, pl. xxii). One of the distinctions between *Orchomenella* and *Orchomenopsis* therefore breaks down.

The 2nd antennae are elongate in the ♂ as described by Pfeffer.

The finger of gnathopod 2, though overlooked by Pfeffer amongst the thick terminal brush of setae, is present; it is rather small and impinges against the slightly projecting lower distal corner of the 6th joint, as it does in *cavimanus*; there is also an indication of the little projecting process or platform figured by Schellenberg (1926, fig. 25 b) for the same species, but not so prominent.

This raises the question whether *cavimanus* should not be considered synonymous, as Stebbing himself thought in 1906. Schellenberg, however, maintains *cavimanus* as distinct, and in my opinion he is undoubtedly right. The peculiar shape of the dorsal profile of pleon segment 4 is quite distinctive and constant. A glance at the figures of the two species here given will show that there is no possibility of confusion. In *cavimanus* the highest point of the keel is vertically above the posterior margin of the segment, whereas in *zschauii* it is much more forward.

As Schellenberg (1926) remarks for *cavimanus*, there is a tendency for the branchial lamellae to develop transverse pleats. A single accessory branchia is found on both segments 5 and 6.

The telson is cleft nearly to the base and the lobes though parallel are separated by a narrow space, as in Pfeffer's figure; each lobe has a terminal spinule and two lateral spines.

DISTRIBUTION. South Georgia. The specimens from Coats Land recorded by Chilton as *Waldeckia zschauii* are not this species but *W. obesa*.

#### Genus *Pseudorchomene*, Schell.

Schellenberg, 1926, p. 295.

Distinguished by the slender 1st gnathopod.

#### *Pseudorchomene coatsi* (Chilton).

Chilton, 1912, p. 477, pl. i, figs. 8, 9 (*Orchomenopsis*?).

Schellenberg, 1926, p. 295.

- Occurrence*: 1. St. 41. South Georgia. 1 ♂ 9 mm., 2 ♀♀ (1 ovig.) 13 mm.  
 2. St. 42. South Georgia. 3 ovig. ♀♀ 12-14 mm.  
 3. St. 45. South Georgia. 1 ♂ 11 mm., 1 ♀ 13 mm.  
 4. St. 142. South Georgia. 2 ♂♂ 10-11 mm., 1 ovig. ♀ 13 mm., 7 juv. 5-8 mm.  
 5. St. 154. South Georgia. 1 ♀ 10 mm.

REMARKS. Both in the dorsal profile of pleon segment 4 and the non-projecting epistome this species resembles *rossi*, but the slender 1st gnathopod and reddish brown eyes at once distinguish it.

A single accessory branchia on both segments 5 and 6.

DISTRIBUTION. Coats Land, 161 fathoms; 'Gauss' winter station, 385 m.

### Genus *Pachychelium*, Steph.

Stephensen, 1925, p. 121.

Schellenberg, 1926, p. 296; 1931, p. 18.

To help towards a complete definition of this genus, it may be stated that the mandible has a non-dentate cutting edge, no molar, and a well-developed palp; maxilla 1 bears 3-4 strong teeth on the outer lobe, one spine seta on the inner lobe, and lacks all trace of a palp.

### *Pachychelium davidis*, Steph. (Fig. 32).

Stephensen, 1925, p. 121, fig. 35.

Schellenberg, 1926, p. 296, fig. 30 (*antarcticum*).

Occurrence: 1. St. 39. South Georgia. One specimen 3.5 mm.

2. St. 58. Falklands. One specimen (? ♂) 6 mm.

REMARKS. I was unable to trace any inner plate of the maxilliped such as Schellenberg shows on one side of his fig. 30 *a*. Uropod 3 is exactly as figured by Stephensen for *davidis*, the inner ramus not spine-like as in Schellenberg's figure of *antarcticum*.

There are 2-3 feeble crenulations, with setules, on the hind margins of side-plates 5-7; Stephensen shows one setule only on side-plate 7. The 1st flagellar joint of antenna 1 is not enlarged or setose as in *davidis*, but like *antarcticum*. Branchial lamellae small, ovate, simple.

I am of opinion that *antarcticum* should be regarded as a synonym of *davidis*, as the shape of the inner ramus of uropod 3 is probably that of the immature form. Cases like this, where the differential features are so minute, are liable to prejudice any discussion of bipolarity. But see Schellenberg, 1931.

Should this prove to be the northern species it would be but a fitting commemoration of the navigator John Davis, who visited the Falkland Islands in 1592, as well as discovering Davis Strait.

DISTRIBUTION. Davis Strait (approx. 66° N, 55° W), 740 m.; 'Gauss' winter station, 385 m.



Fig. 32. *Pachychelium davidis*, Steph. *a*. Maxilla 1. *b*. Mandible.

## Family STEGOCEPHALIDAE

Stebbing, 1906, p. 88.

Schellenberg, 1929, p. 196 (key to genera).

Genus *Phippsiella*, Schell.

Schellenberg, 1925 (*Mitt. Zool. Mus. Berlin*, XI), p. 200; 1926 *b*, p. 220; 1929, p. 196.

Stephensen, 1925, p. 130.

In the key (1929) the 2nd joint of peraeopod 6 is said to be expanded in *Stegoccephalopsis* but not in *Phippsiella*; this is evidently a typographical transposition. This joint is expanded in *Phippsiella*.

The genus comprises two northern species, and *kerqueleni* from the southern hemisphere.

*Phippsiella rostrata*, n.sp. (Fig. 33).

*Occurrence*: St. 158. South Georgia. 1 ♂, 2 ♀♀ (1 ovig.) 17-18 mm.

**DESCRIPTION.** Close to *similis* Sars. Integument indurated, with scattered punctae. Rostrum long, reaching almost to end of peduncle of 1st antenna. Faint indications of ocular pigment, but no lenses. Side-plate 4 received into a slight groove on side-plate 5. Postero-inferior angle of pleon segments 2 and 3 acutely produced, that on segment 2 more so than that on segment 3; margin above on segment 3 smooth. Telson cleft to half its length.

Peraeopods 4 and 5, 2nd joint expanded, hind margin nearly straight in peraeopod 4, convex in peraeopod 5, with feeble and widely-spaced notches, lower hind corner rounded.

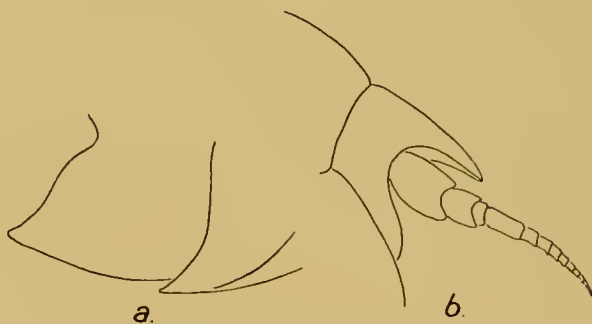


Fig. 33. *Phippsiella rostrata*, n.sp. a. Pleon segments 2 and 3. b. Head with antenna 1.

Genus *Andaniexis*, Stebb.

Stebbing, 1906, p. 94.

In view of the new species here described Stebbing's diagnosis needs a slight emendation as regards the 2nd gnathopod.

*Andaniexis australis*, n.sp. (Fig. 34).

*Occurrence*: 1. St. 87. South-east Atlantic. 4 ♀♀ 4-4.5 mm. *Types*.

2. St. 89. South Africa. 1 ♀ 5 mm.

**DESCRIPTION.** Resembling *abyssi* (Boeck) except in the following particulars.

Gnathopod 2, 6th joint not very slender, almost as wide and scarcely longer than 5th, and subequal in length to the 6th joint of gnathopod 1; the lower margin has a very

slight concavity distally which is defined by a rather long and stout spine against which the finger impinges.

Peraeopods 4 and 5, hind margin of 2nd joint perfectly smooth and entire.

Colour (as preserved) yellowish brown, ocular pigment whitish.

REMARKS. This is a very interesting discovery because it is the first record of the northern genus *Andaniexis* in the southern oceans. Strauss' record is open to doubt as pointed out under *Parandania boeckii* (*infra*).

The white patch of ocular pigment is present and even larger apparently than in *abyssi*. In the course of dissection an attempt was made to determine the presence or

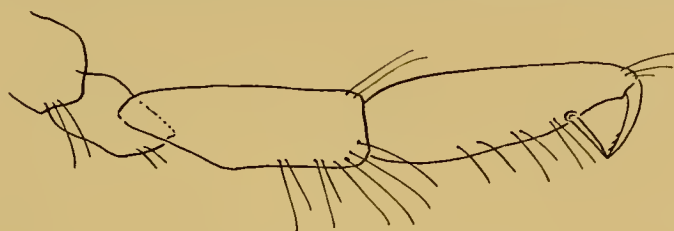


Fig. 34. *Andaniexis australis*, n.sp. Gnathopod 2

absence of ocular elements and optic nerve, but for this purpose the preservation is not too good; and in any case sectioning would be the only proper and conclusive method in such a small animal.

#### Genus *Parandania*, Stebb.

Stebbing, 1906, p. 95.

#### *Parandania boeckii* (Stebb.) (Fig. 35).

Stebbing, 1888, p. 735, pl. xxxvi.

Chevreaux, 1905 (*Bull. Inst. océan. Monaco*, no. 35), p. 7.

Walker, 1909, p. 330.

Barnard, 1916, p. 131.

Schellenberg, 1926, p. 300; 1926 *b*, p. 223, 242, fig. 28 *c*.

Pirlot, 1929 *a*, p. 8.

? Strauss, 1909, p. 78 (*Andaniexis abyssi*, non Boeck).

*Occurrence*: 1. St. 8. South Atlantic. 3 immat. 11–13 mm.

2. St. 9. South Atlantic. 1 ♂ 18 mm., 2 ♀♀ 17–18 mm., 5 immat. 10–11 mm.

3. St. 71. South-west Atlantic. 4 ♂♂ 18–19 mm., 6 ♀♀ 16–25 mm., 1 ♀ with uterine ova 24 mm., 6 immat. 12–14 mm., 14 juv. 4–10 mm.

4. St. 72. South-west Atlantic. 5 ♀♀ 16–20 mm.

5. St. 76. South-west Atlantic. 1 ♂ 19 mm., 2 ♀♀ 22 mm.

6. St. 78. South Atlantic. 1 immat. 14 mm.

7. St. 85. South-east Atlantic. 3 ♀♀ 18 mm., 2 immat. 15 mm.

8. St. 101. South Africa. (1310–1410 m.) 1 ♀ 16 mm.

9. St. 107. South-east Atlantic. 1 ♂ 15 mm., 1 ♀ 22 mm.

10. St. 114. Bouvet Island. 1 ♂ 19 mm., 10 ♀♀ 18–28 mm., 4 juv. 11–15 mm.

11. St. 151. South Georgia. 1 immat. 13 mm.

12. St. 208. South Shetlands. 2 immat. 8 and 15 mm.

13. St. 239. South-west Atlantic. 11 ♂♂ 15-22 mm., 11 ♀♀ 17-24 mm., 1 ♀ with embryos 26 mm., 6 immat. 11-15 mm.  
 14. St. 253. South-east Atlantic. 1 ♀ 16 mm.  
 15. St. 256. South-east Atlantic. 1 mutilated, 1 immat. 12 mm.  
 16. St. 287. Mid-Atlantic. 2 ♂♂ 13 and 14 mm., 1 ♀ 12 mm., 2 juv. 6 and 9 mm.  
 17. St. 298. Cape Verde. 1 ♀ 16 mm.

DESCRIPTION. The integument is not covered with "hexagonal markings", but is speckled all over with minute points as represented in Stebbing's figure of side-plate 1 (1888, pl. xxxvi, *gn*<sub>1</sub>). Eyes completely obsolete. Side-plate 1 triangular, deeper than its basal length; side-plate 4,  $1\frac{1}{3}$  times deeper than its greatest length (just below the

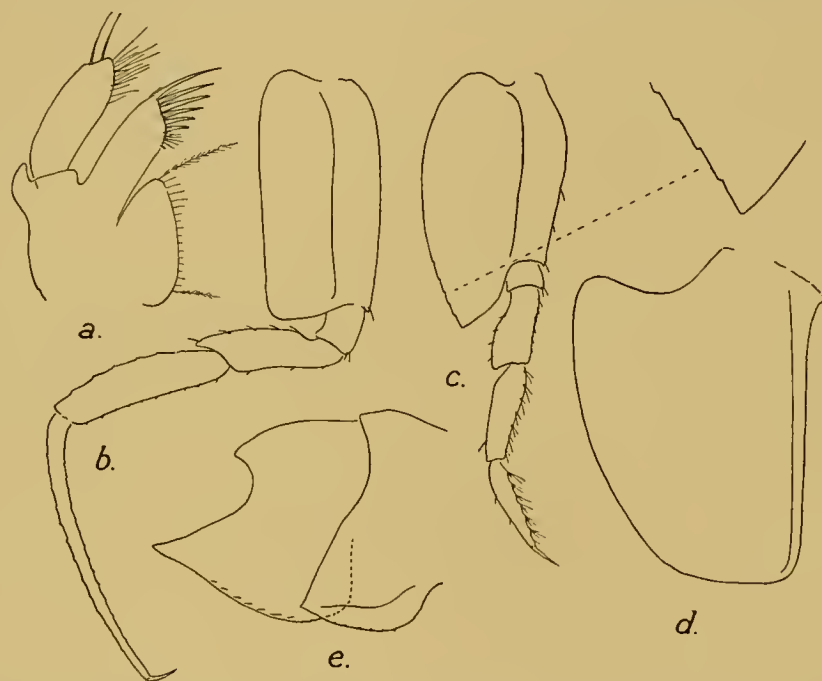


Fig. 35. *Parandania boeckii* (Stebb.). a. Maxilla 1 (whole inner margin of inner lobe with long plumose setae). b. Peraeopod 4. c. Peraeopod 5, with lower hind margin of 2nd joint further enlarged. d. Side-plate 4. e. Pleon segments 2 and 3.

posterior excavation). Pleon segment 2 with postero-inferior angle quadrate; segment 3 acutely produced.

Antenna 1, flagellum about 20-jointed, 1st joint densely setose, accessory flagellum nearly bare, without long terminal setae. Antenna 2, flagellum about 35-jointed.

Epistome carinate. Maxilla 1, with an acute projection on outer side of insertion of palp (probably invisible if the appendage were squashed under a coverslip).

Peraeopods 3 and 4, 6th joint almost equal to 4th and 5th joints together, quite equal if the dactylus be included, slender, minutely spinulose. Peraeopod 5, 2nd joint ovate, anterior margin proximally gibbous, but not strongly so, distal hind angle considerably more pointed than in Stebbing's figure.

Uropods 1 and 2, peduncle carinate on ventral surface. Uropod 3, peduncle carinate on dorsal surface. Both margins of outer ramus and inner margin of inner ramus of



uropod 1 minutely serrulate or pectinate; inner margin of outer ramus, and outer margin of inner ramus, in uropods 2 and 3 also minutely serrulate or pectinate.

REMARKS. Although there are a few specimens which exactly fit the Challenger specimen, the great majority differ slightly as regards the characters set out above. The length of the dactyls of pereopods 3 and 4 is the most noteworthy difference. It seems that the normal form is as here described and that the Challenger specimen was exceptional. The specimens with short dactyls are mostly smaller specimens, but the length of the dactyls is not dependent on growth changes, because quite small specimens (e.g. juveniles of no. 3) have the typical elongate dactyls. Intermediate lengths also occur. Schellenberg (1926 *b*) has figured a pereopod "6" (= 4) with long dactyl in connection with his remarks on bathypelagic adaptations.

On most occasions hitherto this species has been captured only singly, whereas the 'Discovery' on several occasions has taken it in fair numbers, viz. 15, 29 and 31 at a time.

All the specimens are more or less brown in colour, though some are somewhat bleached. No. 3 is recorded as being "very dark brown", and Note 20 at St. 8 says "jet black in front, abdomen purplish black". The embryos from the brood pouch of no. 13 are white. This brown or blackish colour is found also in *E. gigantea*, *A. abyssi* and other Stegocephalids.

The eyes are completely obsolete. No traces of ocular pigment were visible in any of the specimens, and the optic nerve and ganglion are quite absent. A similar condition was found in the specimens identified by Strauss as *Andaniexis abyssi* (1909, p. 78). I very much doubt this identification; the size, nearly 20 mm., is against their being *A. abyssi*, whereas it is in favour of their being *P. boeckii*, which is now known to have a wide distribution in southern waters. Strauss was not a systematist and has perpetrated several synonyms and *nomina nuda*; it is a pity he did not have his specimens properly identified, especially as he has called the stage of complete degeneration of the eye the "Andaniexis" stage. The true *Andaniexis* has at least ocular pigment (Sars, 1895), and so far as we know may still retain rudiments of the visual elements and optic ganglion. A re-examination of Strauss' material is desirable, as Schellenberg has shown in regard to the Gauss and Valdivia collections, which Strauss also worked.

The ♀ with embryos was caught in June, that with uterine ova in May; the Cape ♀ with ova (Barnard, 1916) was caught towards the end of April. The breeding season would thus seem to be autumn and winter in the southern hemisphere.

There is no evidence of a nocturnal upward migration.

Our knowledge of the distribution in the south-westerly portion of the Atlantic has been considerably extended, the most southerly locality being 53° 25' S off South Georgia, though in the easterly portion of the Atlantic the 'Valdivia' recorded this species from 55° 20' S.

DISTRIBUTION. North Atlantic (Bay of Biscay to equator); South Atlantic (off Pernambuco and south to 55° S); Indian Ocean; South Africa.

Genus *Euandania*, Stebb.

Stebbing, 1906, p. 97.

*Euandania gigantea* (Stebb.).

Stebbing, 1888, p. 730, pl. xxxv; 1906, p. 97.

? Walker, 1907, p. 18.

*Occurrence*: St. 85. South-east Atlantic. 1 ♀ 33 mm.

**REMARKS.** As preserved the integument is very flimsy, and the colour a pale horn colour.

The rami of uropod 3 extend as far as those of uropod 1, and are similar in character.

Walker's record remains unconfirmed; he himself recorded the species with a query, as he did not dissect the specimen.

**DISTRIBUTION.** Off Marion Island, 2926-3430 m. McMurdo Sound?

Genus *Andaniotes*, Stebb.

Stebbing, 1906, p. 96.

Barnard, 1930, p. 328.

*Andaniotes linearis*, n.sp. (Fig. 36).

- Occurrence*: 1. St. 39. South Georgia. 1 ♀ 7 mm.  
 2. St. 42. South Georgia. 3 ovig. ♀♀ 5.5-6 mm.  
 3. St. 144. South Georgia. 2 ♀♀ (1 ovig.) 11 mm.  
 4. St. 148. South Georgia. 1 ♀ 10 mm.  
 5. St. 149. South Georgia. 1 ovig. ♀ 11 mm.  
 6. St. 156. South Georgia. 6 ♀♀ 9-10 mm. (1 with one embryo left in pouch). *Types*.  
 7. St. 175. South Shetlands. 1 ♀ 9 mm.  
 8. St. 190. Palmer Archipelago (90-130 m.). 1 ♀ 7.5 mm., 1 ovig. ♀ 8 mm.

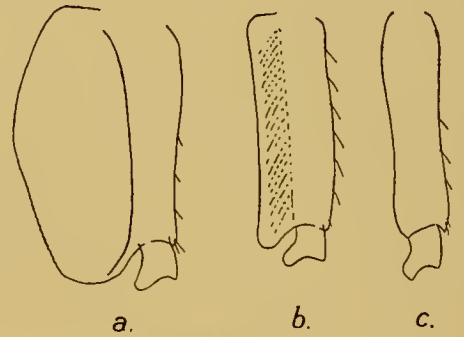


Fig. 36. *Andaniotes linearis*, n.sp. a. Peraeopod 5. b. Peraeopod 4 (dotted lines indicate a ridge with setae on inner surface). c. Peraeopod 3.

**DESCRIPTION.** Differing from *corpulentus* in its larger size, in the linear 2nd joint of peraeopod 4, the almost smooth hind margin of 2nd joint of peraeopod 5, and the slender evenly tapering 6th joint of gnathopod 2.

From *ingens* it differs in not showing any sign of the degeneration of the palp of maxilla 1 or the palp of the maxilliped, or shortening of the mandibles, being in these respects quite like *corpulentus*.

**REMARKS.** It is possible that the specimens from Port Charcot recorded by Chevreux (1906, p. 22) as *corpulentus*, an Australasian species, should really belong here.

## Family AMPELISCIDAE

Stebbing, 1906, p. 97.

Strauss, 1909, pp. 20-36 (eye structure).

Barnard, 1916, p. 132; 1925, p. 335; 1930, p. 329.

Three of the four known genera are now found to be represented in the Antarctic. The South African *Triodos*, Brnrd., was instituted to express the breakdown of the generic definitions which up to that time were clear cut, though *Byblis anisuropus*, Stebb. 1908, showed a slight anomaly. The Antarctic fauna is now shown to possess a *Haploöps* with an expanded 2nd joint in peraeopod 5 as in *Ampelisca* and *Byblis*; the type of a new genus with rather distinctive features of its own, together with characters of *Ampelisca* and *Byblis*; also two forms with simple branchiae, a character which is in conflict with the hitherto accepted definition of the family. Finally, the *Haploöps* which has been brought to light by the 'Discovery' has the lower pair of corneal lenses on the ventral surface of the head, as in *A. hemicyptops* recently described from the Terra Nova collection.

Genus *Ampelisca*, Kröy.

Stebbing, 1906, pp. 98, 721.

Barnard, 1916, p. 132; 1925, p. 335; 1930, p. 329.

*Ampelisca eschrichtii*, Kröy. (Fig. 37 a).

Chevreux, 1906, p. 20, fig. 11; 1913, p. 96.

Occurrence: 1. St. 42. South Georgia. 1 ♀ 24 mm.

2. St. 144. South Georgia. 1 ♂ 22 mm., 2 ovig. ♀♀ 21 and 25 mm., 6 juv. 10-11 mm.

3. St. 180. Palmer Archipelago (160 m.). 3 ♀♀ 20-23 mm.

4. St. 187. Palmer Archipelago. 2 ♀♀ 21 and 23 mm.

REMARKS. On the question of the identity of the northern and southern forms see Chevreux (1906), Chilton (1917, *Journ. Zool. Res.*, XI, p. 75) and Stephensen (1925, p. 140). Stappers and Stephensen are able to distinguish *macrocephala* from *eschrichtii* and these two species are very distinct in Sars' figures. *A fortiori* I fail to see how it is possible to include either *acinaces* or *chiltoni* in *eschrichtii*. The more evenly rounded hind margin of the 2nd joint of peraeopod 5 and the stronger dorsal keel on pleon segment 4 seem to be sufficient to distinguish the southern form, though in the opinion of some authors these may not constitute *specific* characters. I entirely agree with Stephensen, and think that a new name should be found for the southern *eschrichtii*.

The 2nd joint of the mandibular palp is linear in the southern as in the northern form.

DISTRIBUTION. Palmer Archipelago, 60-200 m.



Fig. 37. Outline of head of: a. *Ampelisca eschrichtii*, Kröy.; b. *hemicyptops*, Brnrd.

***Ampelisca macrocephala*, Lilj. (Fig. 38).**

Walker, 1903, p. 53, pl. ix, figs. 58-61\*; 1907, p. 18.

Stebbing, 1914, p. 357.

*Occurrence*: 1. St. 42. South Georgia. 2 ♂♂, 8 ♀♀ (incl. 4 ovig.) 9-11 mm.

2. St. 123. South Georgia. Many ♂♂, ♀♀, some ovig. 10-11 mm.

**DESCRIPTION.** Body dorsally compressed, but scarcely keeled except slightly on head. Head moderately deep. Corneal lenses 4, upper in the upper angle of head, lower actually on the lower margin. Postero-inferior angle of pleon segment 3 produced in an acute point, margin above nearly straight; pleon segment 4 with a low triangular ridge dorsally.

Antenna 1 about half length of antenna 2 in ♀, two-thirds in ♂. Antenna 2 extending to about 6th peraeon segment; 4th and 5th peduncular joints subequal.

Mandibular palp with 2nd joint linear, as in the northern *macrocephala*.

Peraeopods 1 and 2, dactyls considerably longer than 5th and 6th joints together. Peraeopod 5, 2nd joint expanded into a nearly evenly rounded lobe, somewhat truncate below, extending to middle of 4th joint, 3rd-6th joints gradually increasing in length, 6th abruptly narrower than 5th, narrow ovate, dactyl shorter than 6th.

Uropod 3 with rami narrow lanceolate.

**REMARKS.** This form is extraordinarily close to the northern *macrocephala*, Lilj., and *latipes*, Steph., but differs in the almost straight hind margin of pleon segment 3 above the produced point, straighter even than in *latipes*. Gnathopods 1 and 2 are rather stouter than in Sars' figure of *macrocephala* (pl. lx, fig. 1), but gnathopod 1 is not as stout as in *latipes*. Peraeopod 5 is like that of *latipes*. On the whole this form resembles *latipes* more than *macrocephala*. In my opinion this form should be specifically separated from the northern species, as in the case of the two forms of *eschrictii*.

**DISTRIBUTION.** McMurdo Sound; Falkland Islands.

***Ampelisca bouvieri*, Chevr.**

Chevreux, 1913, p. 96, figs. 7-9.

*Occurrence*: 1. St. 27. South Georgia. 1 ♂ 19 mm., 1 ♀ 26 mm.

2. St. 140. South Georgia. 1 ♀ 20 mm.

3. St. 153. South Georgia. 1 ♀ 22 mm.

**REMARKS.** Chilton (1917, *loc. cit.*, p. 79) in discussing the synonymy of *eschrictii*, mentioned that Chevreux in describing his species did not point out the special characters distinguishing it. Chilton without critical discussion places it in the synonymy of *eschrictii*.

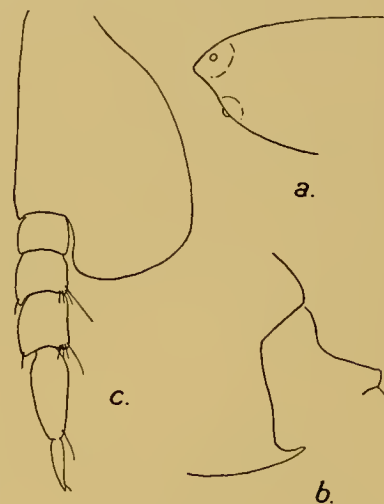


Fig. 38. *Ampelisca macrocephala*, Lilj. a. Head. b. Pleon segments 3 and 4. c. Peraeopod 5 (setae on 2nd joint omitted).

From Chevreux's figures it is easy to see that the process on pleon segment 3 is larger than in *eschrictii*, and the 2nd joint of peraeopod 5 more evenly rounded than in even the Antarctic form of *eschrictii*. But the most distinctive feature is the shape of the head, which at once distinguishes *bouvieri* from all other Antarctic Ampeliscids except *Haploöps securiger* (*infra*). The 2nd joint of the mandibular palp is linear.

*A. bouvieri* is undoubtedly a distinct species.

DISTRIBUTION. Palmer Archipelago, 60-70 m.

***Ampelisca hemicryptops*, Brnrd. (Fig. 37 b).**

Barnard, 1930, p. 329, fig. 8.

- Occurrence*: 1. St. 170. South Shetlands. 1 ovig. ♀ 23 mm.  
 2. St. 175. South Shetlands. 3 ♂♂ 19-22 mm., 2 ♀♀ 22-23 mm., 1 ovig. ♀ 23 mm.,  
 3 juv. 11-13 mm.  
 3. St. 181. Palmer Archipelago. 1 ♂, 2 ♀♀ 14-15 mm.  
 4. St. 186. Palmer Archipelago. 1 ♂ 20 mm.  
 5. St. 187. Palmer Archipelago. 1 ovig. ♀ 21 mm.  
 6. St. 190. Palmer Archipelago (315 m.). 1 ♀ 21 mm.

REMARKS. Contrary to the Terra Nova specimens, these have the long subapical spine on the outer ramus of uropod 2. The 6th joint of peraeopod 5 is linear. The examination of further specimens shows that there is not the slightest difficulty in distinguishing this species from *eschrictii* at a first glance. The shape of the head and the position of the upper corneal lens are distinctive, as shown in the figure here given, apart from the position of the lower corneal lens. The position of the latter is quite constant.

DISTRIBUTION. McMurdo Sound, 256-441 m.

***Ampelisca bransfieldi*, n.sp.**

*Occurrence*: St. 177. South Shetlands. 1 ♂ 19 mm., 1 ♀ 16 mm.

DESCRIPTION. Like *eschrictii* but without any corneal lenses, or (as preserved) ocular pigment. Head slightly compressed dorsally, but not keeled, about intermediate between *eschrictii* and *hemcryptops* in this respect. Second joint of mandibular palp linear. Postero-inferior angle of pleon segment 3 more strongly produced than in *eschrictii*; dorsal carina on segment 4 as in the Antarctic form of *eschrictii*.

Antennae 1 and 2 subequal, extending to about 4th or 5th peraeon segment. Dactyli of peraeopods 1 and 2 subequal to 5th and 6th joints together. Peraeopod 5, 2nd joint like that of the northern form of *eschrictii*, i.e. with a distinct subangular bend in hind margin, though the greatest breadth is a little lower, opposite the end of 3rd joint, 5th joint without distal notch on anterior margin, 6th joint subequal to 5th, narrow, sub-linear.

REMARKS. The species may be compared with *odontoplax* Sars, though it differs in the more produced postero-inferior angle of pleon segment 3, and the narrower 6th joint of peraeopod 5.

*Ampelisca statenensis*, n.sp. (Fig. 39).

*Occurrence*: St. WS 88. Cape Horn. 1 ovig. ♀ 14 mm.

**DESCRIPTION**. Body dorsally compressed, with a faint keel from head to pleon segment 3. Head truncate, lower margin concave in front. Corneal lenses 4, the upper in upper angle of head, the lower on the lower margin. Postero-inferior angle of pleon segment 2 rounded, of 3 with a small point; segment 4 with a high, bluntly rounded dorsal keel.

Antenna 1 extending to end of peduncle of antenna 2, and about equal to head plus peraeon segments 1 and 2. Antenna 2 very slender, 5th joint half length of 4th joint, flagellum extending to about 6th peraeon segment. Mandibular palp with linear 2nd joint.

Peraeopods 1 and 2, dactyls longer than 5th and 6th joints together, 4th joint in peraeopod 1 not produced over base of 5th joint. Peraeopod 5, 2nd joint expanded into a subtriangular lobe extending downwards to end of 4th joint, obliquely truncate with hind angle rounded, greatest width opposite base of 3rd joint, 4th slightly longer than 3rd, 5th large, expanded on hinder apex, 6th as long as 5th, ovate, dactyl two-thirds 6th joint.

Uropod 3, rami very broadly laminate, the outer ovate, outer margin spinulose, inner with long plumose setae, inner ramus rather more lanceolate, but with apex truncate, with plumose setae.

**REMARKS**. Somewhat resembling *gibba*, Sars, as regards the dorsal process on pleon segment 4, but more like *latipes*, Steph., as regards peraeopod 5. The 3rd uropods are very large.

Specific name from the locality near Staten Island.

*Ampelisca brevicornis*, Costa.

Stebbing, 1906, p. 100.

Barnard, 1916, p. 132.

Schellenberg, 1925, p. 130 (formae *dentifera*, *rectangula*, *intermedia* and *platypus*).

*Occurrence*: St. 91. South Africa. Nine specimens 6-8 mm.

**REMARKS**. These specimens have the high rounded carina on pleon segment 4 and the broadly oval rami of uropod 3 as described by Schellenberg for *dentifera* and *platypus* respectively. Postero-inferior angle of pleon segment 2 with a small tooth; of segment 3 with a smaller tooth and sinus than in the typical northern form (Sars, pl. lix, fig. 1),

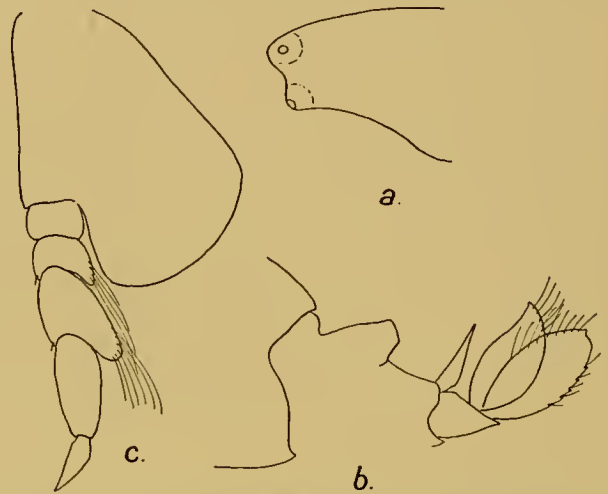


Fig. 39. *Ampelisca statenensis*, n.sp. a. Head. b. Pleon segments 3-6, with uropod 3. c. Peraeopod 5 (setae on 2nd joint omitted).

but larger than those figured by Schellenberg for *intermedia* (*loc. cit.*, p. 132, fig. 9). No ocular pigment remaining in the preserved specimens.

To my mind the southern form should be specifically separated from the northern form.

DISTRIBUTION (Southern form). South Africa (False Bay and Agulhas Bank); West coast of Africa. Also East Africa (Schellenberg).

*Ampelisca palmata*, Brnrd.

Barnard, 1916, p. 136, pl. xxviii, figs. 30, 31.

Schellenberg, 1925, p. 127.

Occurrence: 1. Walvis Bay. 12. ix. 26. From stomach of *Trigla capensis*. Twenty-four specimens 5-8 mm.

2. St. 90. South Africa. 1 ovig. ♀ 8 mm.

REMARKS. Schellenberg is quite right about the slight variations from the typical form as originally described. The 2nd joint of peraeopod 5 is not always so distinctly truncate below as figured, and the palm is less marked and carries fewer spines. Of the two original specimens one has a very distinct palm as figured, the other approaches more to *spinimana*. I should be quite prepared to sink the species in *spinimana* but that Schellenberg has distinguished both species from the same localities (Senegal and French Congo).

The sealing-wax red ocular pigment is very distinct in the preserved specimens.

DISTRIBUTION. South and west coasts of Africa up to Senegal.

Genus *Byblis*, Boeck.

Stebbing, 1906, pp. 111, 722; 1908 (*Ann. S. Afr. Mus.* vi), p. 71.

*Byblis antarctica* Schell. (Fig. 40).

Schellenberg, 1931, p. 59, fig. 31.

Occurrence: St. 170. South Shetlands. 5 ♀♀ (4 ovig.) 14-16 mm.

DESCRIPTION. Integument smooth, shining. Head, peraeon and pleon dorsally rounded. Head with very short rostral point; post-antennal angle very obtuse. No corneal lenses; no ocular pigment (as preserved). Side-plate 1 expanded below, broadly rounded (as in *Haploöps tubicola*), setose; 2 shallower than 1, subfalcate, with a semi-circular excision on distal half of anterior margin; 3 as deep as 2, its distal anterior margin straight or slightly emarginate; 4 almost as deep as long, slightly but distinctly shallower than 3. Postero-inferior angle of pleon segment 3 broadly rounded. Pleon segment 4 with dorsal depression followed by a rounded hump; segment 6 raised in a smooth angular hump above base of telson. Telson subsemicircular, at base nearly twice as broad as long, cleft for half its length, lobes not dehiscent, slightly emarginate on outer distal margin, where a stout spine and a seta are inserted.

Antenna 1 extending back to about 4th peraeon segment, flagellum 17-jointed, 2nd and 3rd peduncular joints and flagellum with long setae. Antenna 2 about as long as antenna 1, flagellum 12-jointed, 4th and 5th peduncular joints and flagellum with long setae. Mandibular palp slender, 3rd joint two-thirds length of 2nd.

Gnathopod 1, 6th joint shorter than 5th. Gnathopod 2, 6th joint about half length of (dorsal margin) 5th.

Peraeopods 1 and 2, dactyls a little longer than 6th joint, peraeopod 2 strongly setose on hind margin. Peraeopod 3, 2nd joint similar to that of *gaimardi* (Sars, pl. lxiv) with distal groove for reception of 2nd joint of peraeopod 4, anterior margin not setose, 5th joint with transverse rows of spines, hind apex acutely produced nearly half-way along 6th joint, which is abruptly narrower and slightly produced on anterior apex. Peraeopod 4, 2nd joint broadly pyriform, hind margin slightly emarginate distally, anterior margin not strongly convex, with thick fringe of short plumose setae; a series of long plumose setae arise from a longitudinal ridge on inner surface. Peraeopod 5, 2nd joint produced in a long narrow lobe extending to end of 5th joint, upper margin slightly concave, lower margin setose right round to insertion of 3rd joint, setose on inner surface, 4th

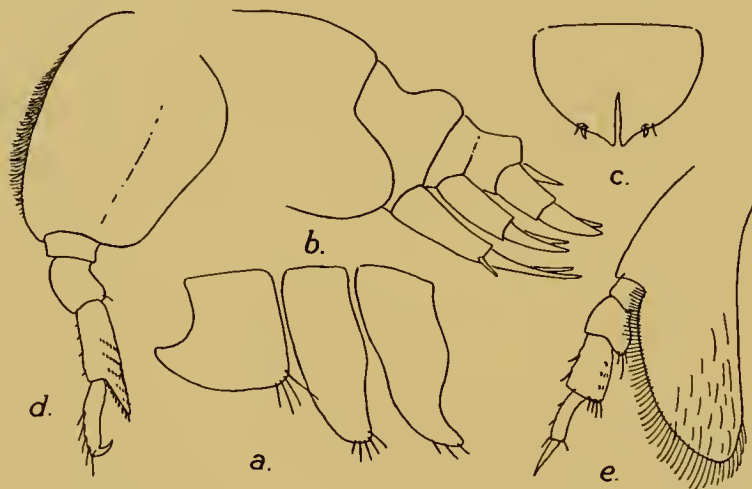


Fig. 40. *Byblis antarctica*, Schell. a. Side-plates 2-4. b. Pleon segments 3-6. c. Telson. d. Peraeopod 4. e. Peraeopod 5 (inner surface).

and 5th joints broad, the latter with a few spines arranged in transverse rows, 6th abruptly narrower, linear, dactyl spiniform.

Uropod 1 extending slightly beyond uropod 2, rami acuminate, inner slightly shorter than outer, with a few spinules on upper margin, peduncle with strong apical spine. Uropod 3 extending only slightly beyond the others, rami shorter than peduncle, short, lanceolate, with a few spinules on margin.

Branchial lamellae simple.

REMARKS. This species is clearly distinguished from the other species by the 2nd side-plate and the telson.

#### Byblisoides, Brnrd.

Barnard, 1931, p. 426.

Head with post-antennal angle very distinct, pushed forward, so that bases of 2nd antennae are closely juxtaposed to those of 1st antennae. No corneal lenses; ocular pigment not visible. Side-plates 1-4 sloping forwards, 4 obliquely truncate below posterior corner. Telson ovate, longer than broad, cleft nearly to base.



Antenna 1 very short, flagellum 2-3-jointed. Mandibular palp slender, 3rd joint half length of 2nd.

Peraeopods 3 and 4 with 2nd joint broadly expanded, 5th joint with marginal spines only. Peraeopod 5, 2nd joint distally expanded, marginal setae extending round on to margin facing 3rd joint, 6th linear, dactyl spiniform.

Branchial lamellae simple.

REMARKS. The genus is instituted on the very strong post-antennal corner of the head, simple branchiae, the very short 1st antennae, and the short flagellum of antenna 2. The side-plates and peraeopod 5 are like those of *Byblis*, the telson and peraeopods 3 and 4 like those of *Ampelisca*.

*Byblisoides juxtacornis*, Brnrd. (Fig. 41).

Barnard, 1931, p. 426.

Occurrence: 1. St. 181. Palmer Archipelago. 1 ♂ 16 mm., 3 ♀♀ 22 and 27-28 mm. (one of latter ovig.), 4 juv. 11-16 mm. *Types*.

2. St. 186. Palmer Archipelago. 1 immat. (? ♂) about 16 mm.



Fig. 41. *Byblisoides juxtacornis*, Brnrd. a. Head with antenna 1 (♂) and 2, and peraeon segments 1-4 with side-plates. b. Antenna 1 ♀. c. Pleon segments 3 and 4. d. Telson. e. Peraeopod 5 (inner surface).

DESCRIPTION. Head, peraeon and pleon dorsally rounded. Rostrum obsolete. No corneal lenses; no ocular pigment (as preserved). Post-antennal angle acute, far forward, almost at the level of the dorsal apex of head, the bases of 2nd antennae consequently

pushed forward into close juxtaposition with bases of 1st antennae. Side-plates 1-4 much deeper than their segments, sloping well forwards, 1-3 narrow oblong, 1 with a denticle on postero-inferior angle, and a fan of plumose setae on antero-inferior corner, lower margins of 1-4 with scattered plumose setae; 4 much deeper than long, oblique, lower margin evenly convex. Pleon segment 3 with posterior margin bisinuate, the postero-inferior angle produced in an acute point. Telson ovate, longer than broad, cleft almost to base, lobes contiguous, each with one apical spine and another submarginal in distal half.

Antenna 1 very short, extending scarcely beyond middle of 4th joint of antenna 2, flagellum 2-jointed in juvenile and ♂, 3-jointed in adult ♀, with plumose setae. Antenna 2 extending back to about 4th pereon segment, 4th and 5th joints subequal, flagellum 4-jointed, shorter than 5th peduncular joint, each joint widening distally and bearing two long setae. Mandibular palp slender, 3rd joint half length of 2nd.

Pereopods 1 and 2 similar except for the strong fringe of plumose setae on hind margin in pereopod 2, 4th joint slender, not strongly expanded. Pereopods 3 and 4, 2nd joint obliquely ovate in pereopod 3, subcircular in pereopod 4, 5th joint with strong marginal spines only. Pereopod 5, 2nd joint strongly lobed postero-inferiorly, the plumose seta continued round on to margin facing 3rd joint, inner surface also with plumose setae, 5th joint not very stout, 6th slightly narrower, linear, dactyl as long as 6th joint, slender, with one long and one short seta on apex.

Uropod 2, outer ramus with two long spines near apex. Uropod 3, rami lanceolate. Branchial lamellae simple.

#### Genus *Haploöps*, Lilj.

Stebbing, 1906, pp. 116, 722.

Chevreaux, 1908 (*Bull. Inst. océan. Monaco*, no. 117), p. 6.

Stephensen, 1925, p. 150.

The species described below is a true *Haploöps* except as regards the 5th pereopod. I think this divergence from the generic diagnosis scarcely calls for a new genus. The internal position of the lower pair of corneal lenses, similar to that in *A. hemicyptops*, is not found apparently in the other species.

#### *Haploöps securiger*, Brnrd. (Fig. 42).

Barnard, 1931, p. 426.

- Occurrence*: 1. St. 27. South Georgia. 4 ♂♂ 26-37 mm., 13 immat. ♀♀ 20-26 mm.  
 2. St. 42. South Georgia. 2 ♂♂ 30 and 35 mm., 4 immat. ♀♀ 21-27 mm.  
 3. St. 123. South Georgia. 2 ♂♂ 27 and 36 mm., 3 ♀♀ 33-35 mm., 1 ovig. ♀ 36 mm., 1 juv. 14 mm. *Types*.  
 4. St. 140. South Georgia. 4 ♀♀ 16-20 mm.  
 5. St. 144. South Georgia. 1 ovig. ♀ 38 mm., 1 juv. 14.5 mm.  
 6. St. 146. South Georgia. 11 ♂♂ 27-32 mm., 10 ♀♀ 27-32 mm. (1 ovig. ova 2 mm. in diameter).  
 7. St. 153. South Georgia. 2 ♂♂ 33 mm., 10 ♀♀ 21-34 mm., 9 juv. 14-20 mm.  
 8. St. 170. South Shetlands. 1 ♂ 30 mm., 3 ♀♀ 30-31 mm., 2 juv. 16 and 20 mm.  
 9. St. WS 33. South Georgia. 1 juv. 9.5 mm.

DESCRIPTION. Integument smooth, shiny. Head dorsally keeled, but not sharply. Peraeon dorsally rounded, only on the 7th segment with a very faint indication of the dorsal ridge, which becomes distinct on pleon segments 1-3, especially on 3. In the specimens from no. 1 large ♂♂ are distinctly keeled from peraeon segment 5 to pleon segment 4. Pleon segment 4 with indistinct ridge, but ending in a small point. In young specimens there are 2-3 minute setules on posterior margins of pleon segments 2-4, which get rubbed off in larger specimens. Head with short deflexed rostrum. Corneal lenses 4, the lower pair situate within the lower margin of head, immediately behind bases of 1st antennae, and thus invisible in lateral view. Side-plates 1-3 narrow, 1 produced forwards, 3 shallower than 2. Side-plate 4 much shallower than 1-3, longer than deep, posteriorly produced into a subacute point. Lower margins of 1-4 setose. Side-plates 5-7 successively shallower, 6 and 7 with a few setae on anterior lobes. Postero-inferior angle of pleon segments 1 and 2 rounded, with a few setae, of segment 3

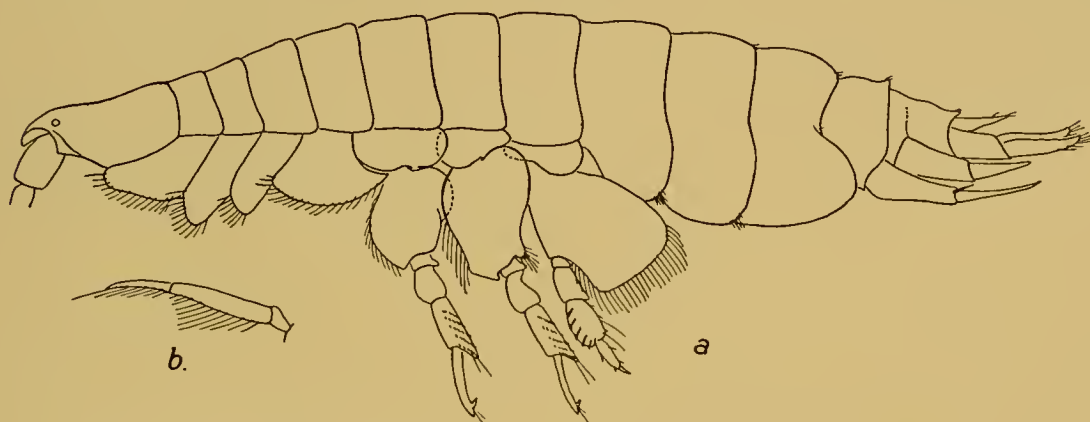


Fig. 42. *Haploöps securiger*, Brnrd. a. General view. b. Palp of mandible.

broadly rounded, non-setose. Telson ovate, cleft for three-quarters of its length, lobes contiguous, a single dorsal spinule on each lobe in distal half, and one at apex.

Antenna 1, 2nd joint  $1\frac{1}{2}$  times 1st, 3rd short, flagellum reaching to about middle of peraeon. Antenna 2, 5th joint shorter than 4th, flagellum reaching to about end of peraeon. Mandibular palp with 2nd joint slender, nearly linear, 3rd two-thirds as long as 2nd.

Gnathopod 1, 6th joint nearly as long as 5th.

Peraeopods 1 and 2, dactyl subequal to 6th joint, peraeopod 2 strongly setose on hind margin. Peraeopod 3, 2nd joint obliquely oval, anterior margin evenly convex, with plumose setae, hind margin proximally lobed, the distal part of margin not in the same plane and thus forming a groove for the reception of 2nd joint of peraeopod 4 (cf. Sars' figure of *Haploöps tubicola*, 1895, pl. lxxvii), 5th joint with transverse rows of spinules, posterior apex produced, 6th joint abruptly narrower, the anterior distal apex slightly produced over base of dactyl. Peraeopod 4, 2nd joint with sinuous anterior margin, with plumose setae, hind margin strongly lobed proximally, then concave, apically with

a small lobe bearing plumose setae, 5th and 6th joints as in peraeopod 3. Peraeopod 5, 2nd joint with anterior margin straight, hind margin strongly expanded, the lower margin slightly oblique, plumose setae on lower margin and continued round on to margin facing 3rd and 4th joints, 5th joint broad, with transverse rows of spinules on anterior margin, and spines in notches on hind margin, 6th abruptly narrower, linear.

Uropod 1, rami shorter than peduncle, narrow, acuminate, inner shorter than outer. Uropod 2, rami subequal, shorter than peduncle, narrow, acuminate. Uropod 3, rami extending beyond the others, inner ramus slightly shorter than outer, apices upturned, inner margins of both with spines and setae, setae more abundant in ♂ than ♀.

Branchial lamellae pleated on both sides.

Colour of no. 2 recorded for the two large ♂♂ as "Pale yellowish buff, blotched with salmon on lower edges of all somites, on basal segments of last 3 thoracic legs, pleopods and uropods. Eyes dark crimson, with crimson markings on adjacent parts of head". Note 102 for St. 153 gives the colour as "Cream-coloured. Fore part of head splashed with crimson and with purple eyes. Coxal plates of thoracic limbs and posterior end of abdomen tinged with salmon-red".

REMARKS. This fine species is distinguished from the other species by the rounded postero-inferior angle of pleon segment 3, and particularly by the enlarged 2nd joint of peraeopod 5. The specific name refers to the 4th side-plate which here assumes a more even, chopper-like shape than in the other species.

Note 102 refers to the tubes which were collected at St. 153: "Tubes are from 45-50 mm. in length and oval in cross-section with a major diameter of about 10 mm. They are quite straight and are presumably vertical in their position on the bottom. The tubes are easily torn open longitudinally, splitting along the major diameter of the oval. Transversely and in other longitudinal directions they are rather tenacious. Inside they are very smooth, probably lined with some secretion from the Amphipod. . .". "Other tubes are larger, about 25 mm. in greater diameter and 50 mm. in length. Sometimes, but not always, they taper from bottom to top. . ." "The tubes are closely aggregated together and apparently cover the entire bottom where the dredging was made. They clogged the bag completely and made examination of the catch extremely difficult."

It may be added that the tubes are open at both ends, but can be accurately closed. They are constructed of mud, with an admixture of sponge spicules, which are probably accidental.

#### Family HAUSTORIIDAE

Stebbing, 1906, p. 118.

Barnard, 1916, p. 142.

Stephensen, 1925, p. 156.

#### Genus Cardenio, Stebb.

Stebbing, 1906, p. 125.

Originally founded on the ♀ only, the diagnosis of this genus can now be completed thanks to the discovery of the ♂, in which gnathopod 1 is strong and subchelate.

**Cardenio paurodactylus**, Stebb. (Fig. 43).

Stebbing, 1888, p. 806, pl. liii; 1906, p. 126.

Schellenberg, 1926 *b*, p. 195.

*Occurrence*: 1. St. MS 65. South Georgia. 1 ♂ 4.5 mm. *Type* of ♂.  
2. St. 164. South Orkneys. 1 ♀ 10 mm.

**DESCRIPTION** ♂. Pleon obscurely denticulate, but with little tufts of setules on posterior margins of posterior segments. Maxilliped with minute rudimentary 4th palpal joint. Antenna 1, flagellum 5-jointed, with sensory setae, accessory flagellum 3-jointed, terminal joint minute. Antenna 2, flagellum 7-jointed, each joint except the last with a spine or spiniform calceolus. Gnathopod 1 stout, 2nd joint somewhat flask-shaped, expanding distally, suture between 4th and 5th joints not distinguishable, 5th very short, 6th very large, oval, palm oblique, not defined except by the row of very regular palisade-like cylindrical spines, which are apically bifid or truncate. Other appendages resembling those of ♀.

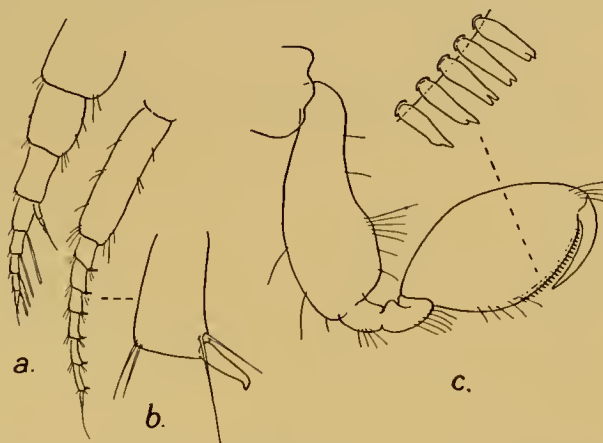


Fig. 43. *Cardenio paurodactylus*, Stebb. ♂. *a*. Antenna 1. *b*. Antenna 2, with one joint further enlarged. *c*. Gnathopod 1, with palmar spines further enlarged.

**REMARKS.** An interesting extension of the habitat of a species originally collected by the 'Challenger', and since then only by the 'Valdivia'. The ♀ is twice as large as the Challenger specimens, but agrees in all respects except that the flagellum of the antenna is 9-jointed.

**DISTRIBUTION.** Kerguelen.

### Genus *Urothoë*, Dana.

Stebbing, 1906, pp. 128, 722.

Schellenberg, 1925, p. 135.

***Urothoë falcata***, Schell. (Fig. 44).

Schellenberg, 1931, p. 61, fig. 32.

*Occurrence*: 1. St. 51. Falklands. 1 ♂ 5 mm., 1 ovig. ♀ 4.5 mm.  
2. St. WS 76. Falklands. 4 ♀♀ 3.5-4.5 mm., picked out of sand.

**DESCRIPTION.** Eyes invisible. Antero-inferior angle of head produced in an acute point curving forwards. Side-plates 1-3 narrow, 4 as in *elegans* (Sars, pl. xlvii, as *norvegica*). Pleon segment 3 dorsally gibbous as in *Haustorius*; postero-inferior angle of pleon segment 2 quadrate with a minute point, of 3 produced in a large upturned hook-like acute point, the margin above only slightly convex. Telson a little longer than wide, cleft to base, each lobe with an apical spinule, and two lateral setules.

Antenna 1, flagellum 6-jointed, accessory flagellum 2-jointed, the 2nd joint only half as long as the 1st. Antenna 2, 4th and 5th joints subequal, upper margins finely setose, flagellum in ♀ 2-jointed, in ♂ very elongate, about 46-jointed, with a calceolus on each of the basal 4-5 joints and thereafter on every alternate joint. Mouth-parts normal.

Gnathopod 1 and 2 as in *elegans*, but palm not distinct from hind margin of hand.

Peraeopods 1 and 2 as in *elegans*. Peraeopod 3, 2nd joint oblong, anterior margin strongly sinuous, posterior margin nearly straight, feebly crenulate, following joints moderately expanded. Peraeopod 4, 2nd joint rather elongate oblong, anterior margin feebly sinuous, posterior margin straight, with rounded lobe below not extending below end of 3rd joint, a row of plumose setae on inside surface of lobe. Peraeopod 5, 2nd joint oval, posterior margin smooth, with a few setules, lower lobe broadly rounded, not projecting below end of 3rd joint.

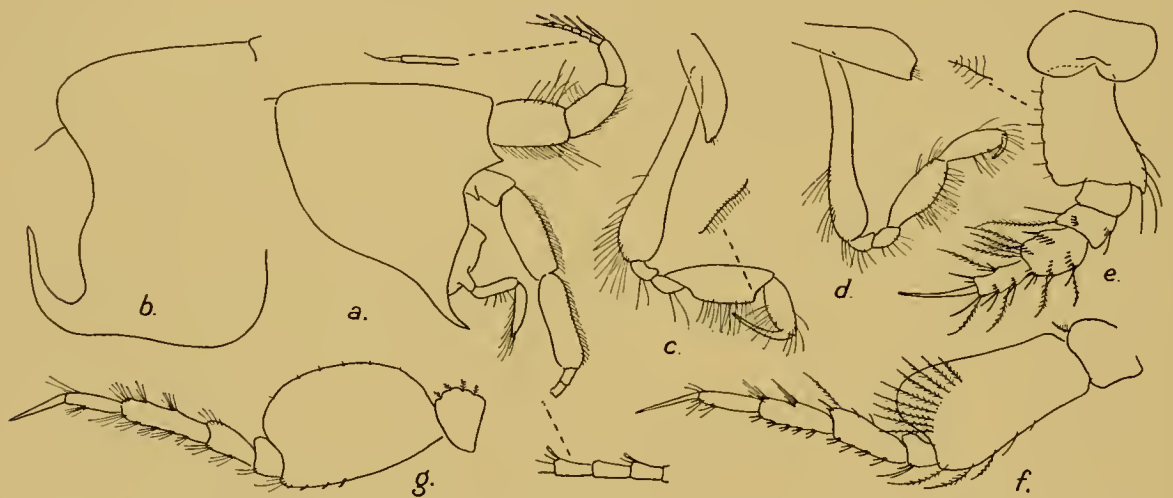


Fig. 44. *Urothoë falcata*, Schell. a. Head, with antennae 1 and 2, accessory flagellum and three flagellar joints of antenna 2 further enlarged. b. Pleon segment 3. c. Gnathopod 1, with distal margin of 5th joint further enlarged. d. Gnathopod 2. e. Peraeopod 3. f. Peraeopod 4 (inner surface). g. Peraeopod 5.

Uropods 1-3 as in *elegans*; rami of uropods 1 and 2 each with a subapical spine.

REMARKS. This is the first species of *Urothoë* to be recorded from the sub-Antarctic or Antarctic region, or indeed, barring the South African record (Barnard, 1916, p. 143), from the southern hemisphere.

The gibbous pleon segment 3, the large hook on the postero-inferior angle of pleon segment 3, and the hooked inferior angle of the head are distinctive; *dentata*, Schell., has only a small hook on pleon segment 3.

DISTRIBUTION. South of La Plata River mouth.

#### Genus *Urothoides*, Stebb.

Stebbing, 1906, p. 132.

From the description of the species given below it will be seen that the differences between this genus and *Urothoë* as set out in Stebbing's key (1906) do not apply. The

shape of the head, and of the 1st and 4th side-plates should be used instead of the 4th and 5th peraeopods.

*Urothoides oniscoides*, n.sp. (Fig. 45).

*Occurrence*: St. 196. South Shetlands. 1 ♀ with embryos 5 mm.

**DESCRIPTION.** Head and body depressed, very broad. Integument thickly covered with minute bristles. Head in dorsal view broader than long, antero-lateral angle rounded quadrate, anterior margin broadly convex; in lateral view very shallow, post-antennal angle obsolete, rostral projection not deflexed. No eyes. Side-plate 1 much expanded below, curving forwards alongside head, 2 and 3 oblong, somewhat curved, lower margins straight, 4 with anterior margin strongly convex, whole hind margin

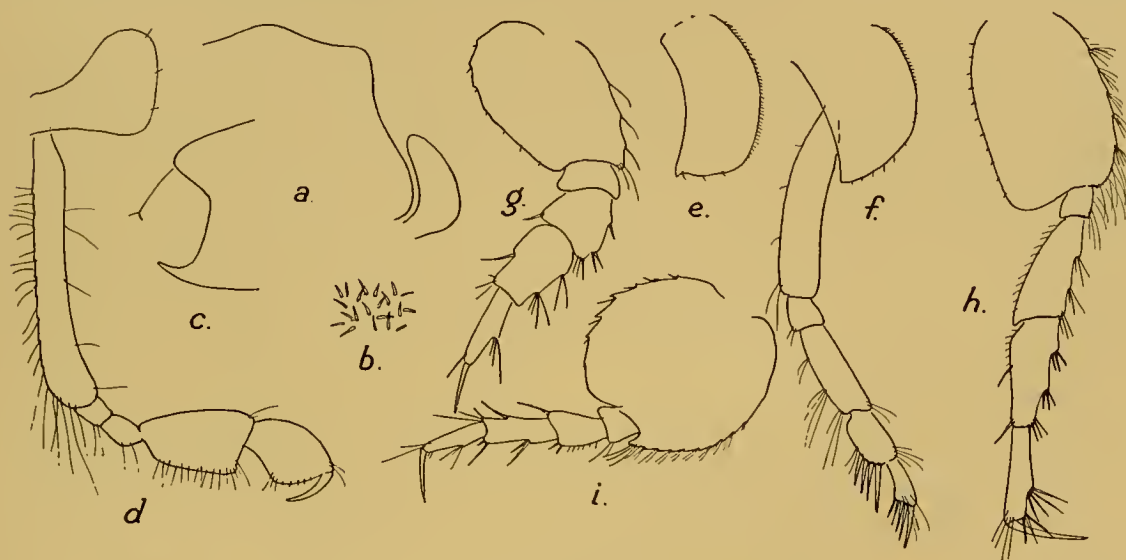


Fig. 45. *Urothoides oniscoides*, n.sp. a. Dorsal view of head, with side-plate 1 in perspective. b. Portion of integument highly magnified. c. Pleon segment 3. d. Gnathopod 1. e. Side-plate 3. f. Side-plate 4 and peraeopod 2. g. Peraeopod 3. h. Peraeopod 4. i. Peraeopod 5.

concave. Pleon segment 2 with postero-inferior angle rounded-quadrate, lower margin setose; pleon segment 3 with postero-inferior angle produced in a strong acute point. Segments 4 and 5 short, indistinctly separated. Telson as in *lachneëssa* Stebb.

Antenna 1, flagellum 5-jointed, accessory flagellum 3-jointed. Antenna 2, flagellum 5-jointed. Mouth-parts as in *lachneëssa*; mandibular palp rather longer.

Gnathopods 1 and 2, and peraeopods 1 and 2 as in *lachneëssa*, but peraeopods 1 and 2 rather more slender. Peraeopod 3 as in *lachneëssa*, but 4th and 5th joints not quite so stout. Peraeopod 4, 2nd joint oval, hind margin not concave, rest of limb much longer proportionately, and 4th and 5th joints not more expanded than in *Urothoë*. Peraeopod 5, 2nd joint subcircular, not produced downwards beyond 3rd joint, hind margin serrate with sharp points, rest of limb much longer proportionately than in *lachneëssa*. Uropods 1-3 as in *lachneëssa*.

REMARKS. The resemblance of this species to the Challenger species *lachneëssa* from Kerguelen are no less remarkable than the differences between them.

Here the rostrum is not deflexed, the 2nd side-plate not narrow, the 4th and 5th joints of peraeopod 4 not broadly expanded, the 2nd joint of peraeopod 5 not produced downwards, and the postero-inferior angle of pleon segment 3 has a strong acute point. The original description of *lachneëssa* (1888, p. 825, pl. lvii) says in regard to the last-mentioned feature "a slightly outdrawn rounded point, with a deep re-entering angle above it". In the 1906 diagnosis this becomes simply "rounded". This one feature would seem enough to separate the two species.

Stebbing (1888, p. 829) also says that in a second specimen the joints of the peraeopods were not so broadly expanded as in the ♀ figured. Even so, one can scarcely reconcile the 4th and 5th peraeopods of the present form with those of *lachneëssa*.

Side-plates 2 and 3 are quite different in shape in the two species, though one might assume that Stebbing's figure of side-plate 2 was drawn from an imperfectly flattened preparation if he had not expressly described it as narrow. (It may be noted that the expansion of side-plate 1 seems to have been reversed relatively to the limb in the Challenger figure.)

This animal looks very like an Oniscid wood-louse.

#### Phoxocephalopsis, Schell.

Schellenberg, 1931, p. 69.

Barnard, 1931, p. 426 (*Haustoriella*).

Head with short rostrum and obsolete post-antennal angles. Eyes small, feeble. Side-plates 1-4 successively deeper, 4 broadly ovate, scarcely emarginate behind. Pleon segments 2-4 with pleura produced backwards, especially segment 2. Telson broader than long, cleft to base.

Upper lip projecting beyond epistome. First antenna with first two joints expanded. Second antenna with 4th joint strongly expanded, 5th less so. Mandible with three spines on spine row, and palp strong. Lower lip with broad inner lobes, outer lobes with short but distinct mandibular processes. Maxilla 1, inner lobe ovate, with a single strong seta on middle of inner margin, palp 2-jointed, 1st joint longer than 2nd, which bears three strong plumose setae on apex. Maxilla 2, lobes broadly oval, inner with oblique row of plumose setae as well as the marginal row. Maxilliped, inner plate truncate, outer ovate, 2nd joint of palp strongly expanded internally, 3rd angularly expanded externally, 4th slender.

Gnathopod 1 as in *Urothoë*, but 6th joint weaker and dactyl short and curved. Gnathopod 2 more slender than gnathopod 1, 5th joint fusiform.

Peraeopods 1 and 2, 2nd and 4th joints stout, 5th very short, dactyls slender. Peraeopod 3, 3rd-5th joints very broad, with transverse rows of spines as in *Haustorius*. Peraeopods 4 and 5, 4th and 5th joints moderately expanded.

Uropod 1, rami acuminate. Uropod 2, rami subacute, spinose. Uropod 3, peduncle broad, spinose, rami foliaceous with spines and long plumose setae.



REMARKS. This form exhibits some of the characters of *Haustorius* combined with others of *Urothoë*. The antennae, 3rd joint of palp of maxilliped, mandibular palp, gnathopod 1, pereopod 3, and side-plate 4 are nearest to those of *Haustorius*; the other mouth-parts, uropods, and the presence of a 4th palpal joint on the maxilliped, and of dactyls on all the pereopods remind one of *Urothoë*. On the whole the animal resembles *Haustorius* more than *Urothoë*, though it has very peculiar features of its own, the most noteworthy being the prolongation of the epimeron of pleon segment 2. It is certainly less specialized than *Haustorius*.

*Phoxocephalopsis zimmeri*, Schell. (Figs. 46, 47).

Schellenberg, 1931, p. 70, fig. 36.

Barnard, 1931, p. 426 (*H. psammophila*).

Occurrence: St. WS 96. South America. Two mutilated specimens from stomach of "*Psammobates xlix*," estimated length 12 mm.

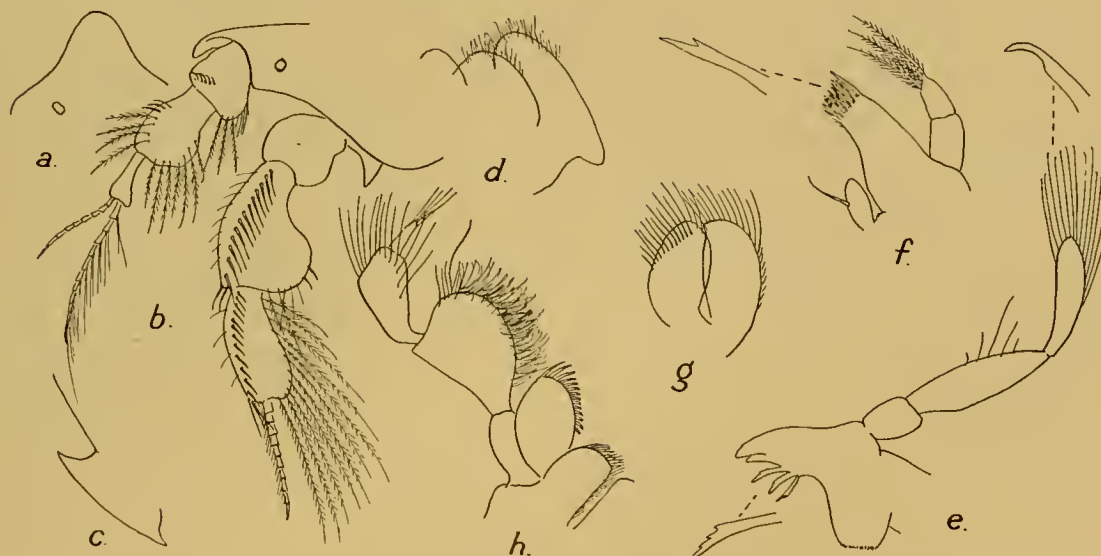


Fig. 46. *Phoxocephalopsis zimmeri*, Schell. a. Dorsal view of head. b. Head with antennae 1 and 2. c. Profile of epistome and upper lip. d. Lower lip. e. Mandible. f. Maxilla 1. g. Maxilla 2. h. Maxilliped.

DESCRIPTION. Head with a distinct though short deflexed rostrum, in dorsal view somewhat pointed, but apically rounded. Antero-lateral angle quadrate, post-antennal angle obsolete. Eyes small and feeble, oval, dark. Side-plates 1-4 successively deeper, 1 narrowing below, 2 widening below, lower margins of 1-3 straight, 4 ovate, somewhat flattened on lower margin, posteriorly scarcely emarginate. Pleon segments 2-4 with the epimera produced backwards, on segment 2 strongly produced in a rounded lobe, with a minute hook-like tooth below, 3 rather less strongly produced in an acute lobe, also with a hook-like tooth on lower margin, 4 shortly produced in an acute lobe. Pleon segment 3 not dorsally gibbous. Telson broader than long, cleft to base, lobes apically subacute with a group of three spines near base on outer margin, and 3-4 along the margin.

Antenna 1, 1st and 2nd joints enlarged, 2nd with numerous plumose setae, 3rd much narrower, flagellum 12-jointed, with numerous long sensory setae on lower margin, accessory flagellum 9-jointed. Antenna 2, 3rd joint subcircular, 4th strongly expanded, lobed on lower margin, 5th oblong, narrower than 4th, both 4th and 5th with long plumose setae on lower margin, and a row of spines near upper margin on outer surface, flagellum small, 10-jointed, setose on upper margin.

Epistome flat, upper lip projecting beyond it, in side view slightly upturned at its upper angle. Mandible, cutting edge narrow, subacute, secondary cutting plate similar, spine row of three stout spines, molar well developed, palp strong, 2nd joint fusiform, 3rd shorter than 2nd, somewhat clavate, with long simple setae which are apically

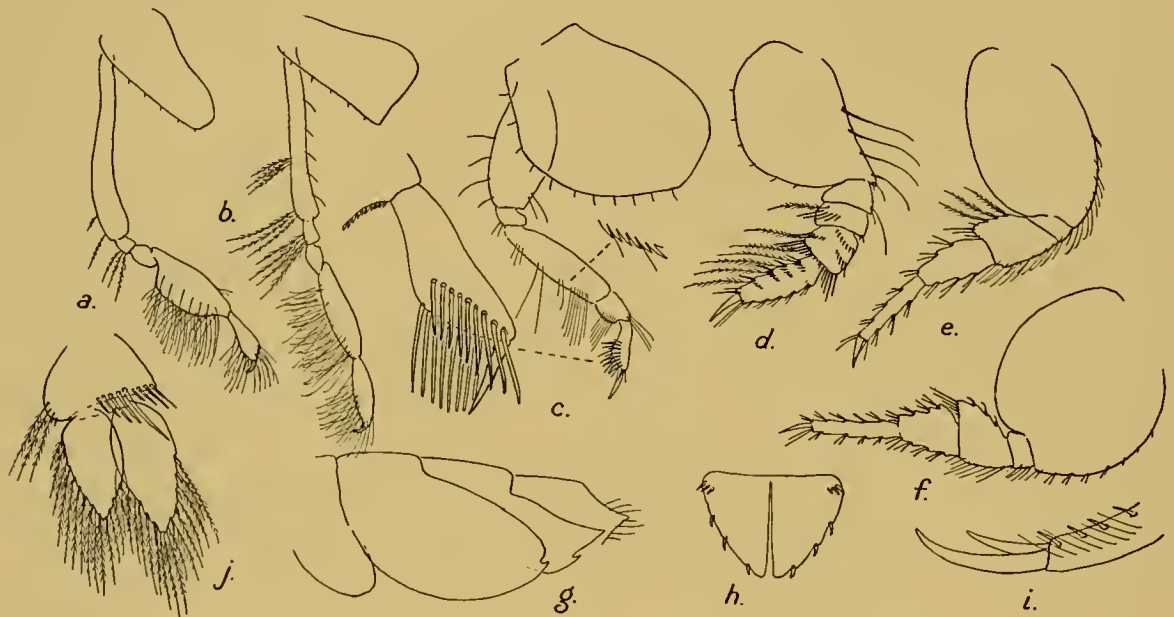


Fig. 47. *Phoxocephalopsis zimmeri*, Schell. a. Gnathopod 1. b. Gnathopod 2. c. Peraeopod 2, with margins of 4th-6th joints further enlarged. d. Peraeopod 3. e. Peraeopod 4. f. Peraeopod 5. g. Pleon segments 1-4. h. Telson. i. Uropod 1. j. Uropod 3 (upper surface).

slightly hooked. Lower lip, inner lobes broad, outer with short mandibular processes. Maxilla 1, outer lobe with numerous spines, inner ovate, with one strong seta in middle of inner margin, palp 2-jointed, 1st joint strong, 2nd shorter, with three strong plumose setae apically. Maxilla 2, both lobes ovate, apically rounded, inner with an oblique row of plumose setae as well as the marginal row. Maxilliped, inner plate truncate, outer ovate, with close-set curved spines on inner margin, 2nd joint of palp strongly expanded on inner margin, 3rd angularly expanded on outer margin, 4th terminal, slender.

Gnathopod 1 slender, 4th joint expanded on lower margin, with thick fringe of long simple setae, 6th fusiform, narrowing rather rapidly distally, with thick brush of simple setae surrounding the short curved dactyl. Gnathopod 2 slightly more slender than gnathopod 1, 5th joint narrow, fusiform, 6th also narrow, 5th and 6th with long simple setae, dactyl short, curved.

Peraeopods 1 and 2, 2nd joint stout, fusiform, 4th joint elongate, minutely serrulate on lower margin and with groups of setae, 5th very short, also serrulate on lower margin, 6th clavate, with two rows of strong spines, one submarginal on the outer surface, the other on inner margin, dactyls slender, straight, only a little larger than the largest spines. Peraeopod 3, 2nd joint ovate, somewhat angular on hind margin, 3rd–5th joints very broad, 6th abruptly narrower, the 4th and especially the 5th and 6th joints with transverse rows of stout spines, and a few plumose setae on hind margins, dactyl straight. Peraeopod 4, 2nd joint oval, 3rd not very broad, 4th moderately expanded, with spines and a few plumose setae on hind margin, 5th narrower, 6th still narrower, margins with stout spines. Peraeopod 5, 2nd joint subcircular, 4th and 5th joints expanded, 5th distinctly narrowing distally.

Uropod 1, peduncle with a few spines on upper margin, and numerous long setae on inner and outer surfaces, rami acuminate, inner considerably shorter than outer. Uropod 2, peduncle with rows of spines on inner and outer upper margins, rami subequal, apically subacute, inner margins and apices with strong spines. Uropod 3, peduncle broad, with a transverse row of stout spines on upper distal margin, starting from outer margin, and a similar row on the lower distal margin, starting from inner margin, rami foliaceous, broadly ovate, outer longer than inner, with a small 2nd joint, margins with spines and long plumose setae.

Branchial lamellae large, simple. Brood lamellae large, moderately broad.

REMARKS. Although these two specimens are more or less dismembered, they show all characters clearly. The species is evidently a burrower and undoubtedly the best way to collect further specimens would be to examine the stomachs of all bottom-dwelling fishes.

The 6th joint of peraeopods 1 and 2 with its double row of strong spines forms a very pretty scooping apparatus; at least one cannot help interpreting it as such. Both specimens have foliaceous 3rd uropods; one is a ♀ with brood lamellae, the other may perhaps be a ♂.

DISTRIBUTION. South of La Plata River mouth; Punta Arenas; Falkland Islands.

#### Family PHOXOCEPHALIDAE

Stebbing, 1906, p. 133.

Barnard, 1930, p. 330.

#### Genus *Phoxocephalus*, Stebb.

Stebbing, 1906, p. 134.

Stephensen, 1925, p. 159.

Barnard, 1930, p. 330.

#### *Phoxocephalus coxalis*, n.sp. (Fig. 48).

*Occurrence*: St. WS 53. South Georgia. 2 ♂♂ 4.5 mm.

DESCRIPTION ♂. Rostrum rather bluntly rounded (cf. *P. rotundifrons*, *infra*). Eyes large, broadly oval, dark. Side-plate 1 narrow-oblong, tapering below, 2 similar but a little wider, 3 oblong, a little wider than 2, all three with a tuft of setae at postero-

inferior angle; side-plate 4 greatly expanded, subtriangular and subequilateral, the anterior margin, however, steeper than the posterior margin which is not excavate; 5 and 6 with posterior lobes rounded, anterior lobes nearly obsolete. Pleon segment 3, postero-inferior angle produced and broadly rounded, setae on lower margin only.

Antenna 1 similar to that of *holbölli* (Sars, 1895, pl. xlix), but with a group of setae on lower distal corner of 2nd joint, flagellum 6-jointed, accessory flagellum 3-jointed. Antenna 2 as in *holbölli*, but with more numerous setae along the distal margin of 4th joint, 5th with one calceolus on lower apex, flagellum multiarticulate, proximal 3-4 joints each with a calceolus, after that every alternate joint apically bulbous and carrying a calceolus.

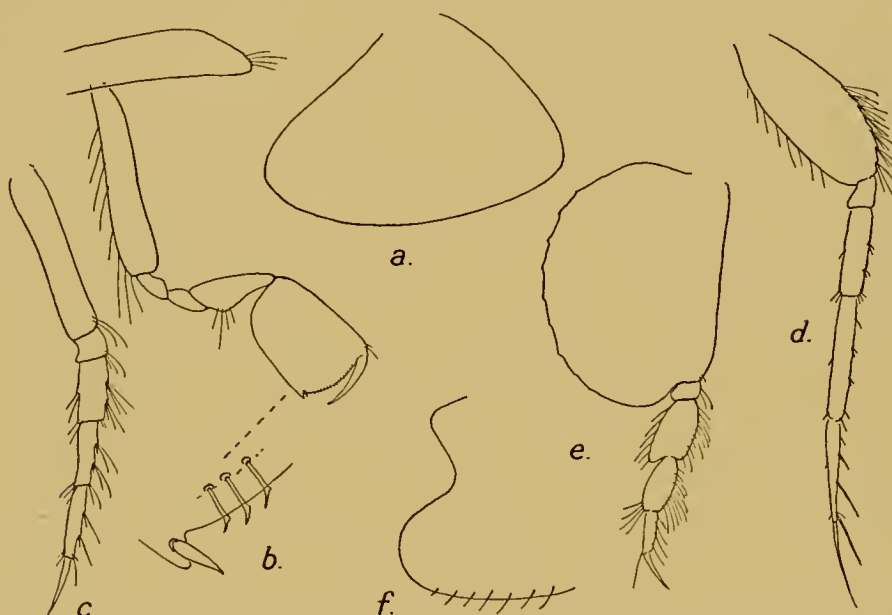


Fig. 48. *Phoxocephalus coxalis*, n.sp. a. Side-plate 4 (anterior edge on right). b. Gnathopod 1, with palmar margin further enlarged. c. Peraeopod 3. d. Peraeopod 4. e. Peraeopod 5. f. Pleon segment 3.

Gnathopods 1 and 2 as in *tenuipes* Steph. 1925, the very narrow junction between 5th and 6th joints reminiscent of *Eusirus*, 6th joint broadly subquadrangular, longer than wide, palm transverse, convex, setulose, defined by a strong tooth with a spine.

Peraeopods 1 and 2 as in *tenuipes*, dactyls nearly four-fifths as long as 6th joint. Peraeopod 3 elongate, 2nd joint slender, cylindrical, dactyl three-quarters length of 6th joint. Peraeopod 4 more elongate than peraeopod 3, 2nd joint fusiform, more strongly convex at the distal anterior margin which bears several groups of long setae, dactyl very slender, spiniform, nearly as long as 6th joint. Peraeopod 5, 2nd joint broadly expanded, no plumose setae on any of the joints.

In other respects—telson, uropods, mouth-parts—as in *holbölli*.

REMARKS. As regards the gnathopods and peraeopods this species is the counterpart of the northern *tenuipes*, Steph., though there are several differences in these appendages, notably the 2nd joints of peraeopods 3 and 4. The enormous development of the 4th

side-plate is an outstanding feature. A tendency in this direction is seen in the genus *Harpinia*, with which genus the present form has in common the narrow 2nd joint of peraeopod 3. In other respects, however, it is a *Phoxocephalus*.

### Genus *Harpinia*, Boeck.

Stebbing, 1906, pp. 140, 723.

Stephensen, 1925, p. 163.

#### *Harpinia cariniceps*, n.sp. (Fig. 49).

*Occurrence*: 1. St. 162. South Orkneys. 1 juv. 9 mm.

2. St. 167. South Orkneys. 30 ♀♀ 12-17 mm., 6 ovig. ♀♀ 17-18 mm. *Types*.

3. St. 181. Palmer Archipelago. 5 ♀♀ (3 ovig.) 17-18 mm.

4. St. 186. Palmer Archipelago. 1 ♀ 18 mm.

5. St. 195. South Shetlands. 4 juv. 8-10 mm.

**DESCRIPTION** ♀. Body glabrous. Head acute in front, sharply keeled dorsally. Side-plate 4 as in *plumosa* (Sars, 1895, pl. lii), 5th with posterior lobe a little deeper than in that species. Postero-inferior angle of pleon segment 3 produced in a strong, slightly upturned process as in *plumosa* or *obtusifrons* (Stebbing, 1888, pl. lvi), no oblique row of setae on surface. Segment 4 with gently convex dorsal profile beyond the basal depression. Telson, lobes parallel-sided, apically broadly rounded.

Antenna 1, flagellum 10-11-jointed, accessory flagellum 7-8-jointed. Antenna 2, basal joint with a large curved ensiform process, apically subacute, as in *obtusifrons*, 4th joint triangularly expanded, outer surface with an oblique row of spine setae, the upper ones simple, the lower plumose, upper apex with several long simple setae, lower margin with long plumose setae, and a submarginal row of simple spine setae, flagellum 12-jointed.

Peraeopod 4 like that of *obtusifrons*, but 2nd joint twice as long as broad, upper hind angle rather prominent, hind margin concave. Peraeopod 5, 2nd joint like that of *obtusifrons*, 3rd distally lobed anteriorly, 4th distally lobed posteriorly.

**REMARKS.** A species allied to *plumosa*, but more especially it may seem to *obtusifrons*. The ensiform projection on antenna 2 appears to arise from the 2nd joint and to represent the antennal cone, though both Stebbing and Sars consider that it arises from the 1st joint. If it were the 2nd joint, then the large triangular joint becomes the 5th joint of the peduncle, and the following abruptly smaller joint the 1st joint of the

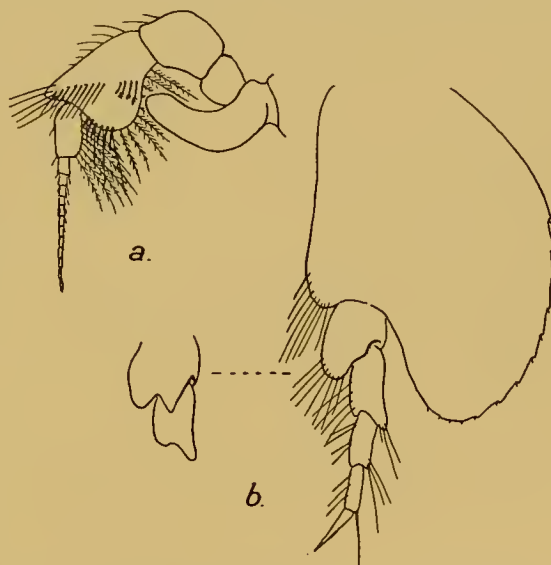


Fig. 49. *Harpinia cariniceps*, n.sp. a. Antenna 2. b. Peraeopod 5, with inner surface of 2nd and 3rd joints drawn separately.

flagellum, which seems more reasonable. I have illustrated what appears to be the very short true 1st joint.

### Genus *Heterophoxus*, Shoem.

Shoemaker, 1925, p. 22.

Barnard, 1930, p. 333.

Schellenberg, 1931, p. 73.

The great development of the basal process on antenna 2 seems to be peculiar to this genus and *Harpinia*.

#### *Heterophoxus videns*, Brnrd.

Chilton, 1912, p. 477 (*obtusifrons*, non Stebb.).

Barnard, 1930, p. 334, fig. 11.

Schellenberg, 1931, p. 74, figs. 37*b*, 38.

- Occurrence*: 1. St. 27. South Georgia. 1 ♀ 6 mm.  
 2. St. 156. South Georgia. 1 ♂ 6 mm.  
 3. St. 195. South Shetlands. 8 ♀♀ 4.5–6 mm.  
 4. St. WS 25. South Georgia. 2 ♀♀ 5–6 mm.

REMARKS. The basal ensiform process of antenna 2 was not mentioned in the original description. This feature, the postero-inferior angle of pleon segment 3, and the villose hind segments of the body constitute easy identity marks for this species.

The absence of the antennal process in Stephensen's specimens from the Auckland Islands (1927, p. 306, fig. 6) indicates a separate species; it is certainly not *obtusifrons*, Stebb., apart from other considerations.

DISTRIBUTION. Ross Sea area, 82–457 m.; South Orkney Islands.

#### *Heterophoxus trichosus*, n.sp. (Fig. 50).

*Occurrence*: St. 175. South Shetlands. 1 ♀ 12 mm.

DESCRIPTION ♀. Body dorsally rounded, setose on the posterior peraeon segments and on pleon segments 1–3. Head with hood apically rounded (cf. *Harpinia plumosa*, Sars, pl. lii). Eyes small, narrow oval, black. Sideplate 4 with shallow but better marked excavation than in *pennatus* Shoem. Pleon segment 3 with postero-inferior angle produced in an upturned acute process. Telson as in *videns*, Brnrd., with 2–3 setae on apex of each lobe.

Antenna 2 of the *Harpinia* type; basal joint with curved ensiform process as in *pennatus*, *videns* and *Harpinia cariniceps*.

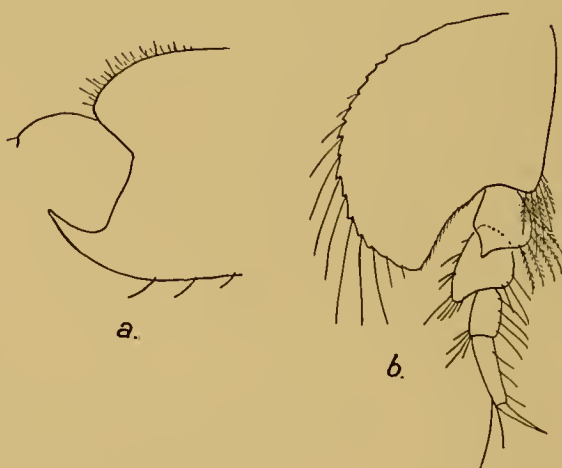


Fig. 50. *Heterophoxus trichosus*, n.sp. a. Pleon segments 3 and 4. b. Peraeopod 5.

Gnathopod 1, 5th joint rather larger proportionately than in *pennatus*. Peraeopod 5, 2nd joint considerably more broadly expanded than in either *pennatus* or *videns*, hind margin with sharp serrations, anterior margin of lobe facing the 3rd and 4th joints slightly concave, the lower anterior angle rounded-quadrate, 4th joint lobed on hind apex as in *videns*.

REMARKS. This species resembles the genotype *pennatus*, Shoem., very closely, but is distinguished by the 5th peraeopod and 4th side-plate. From the other Antarctic species the acutely produced postero-inferior angle of pleon segment 3 easily distinguishes the new form.

### Genus *Parharpinia*, Stebb.

Stebbing, 1906, p. 147.

Tattersall, 1922, p. 4.

Tattersall has doubted the value of the characters used to separate *Parharpinia* from *Pontharpinia*. The expansion of the 4th and 5th joints of peraeopods 3 and 4 certainly seems to show gradations. The following species are typical *Parharpinia* according to Stebbing's diagnosis.

#### *Parharpinia obliqua*, n.sp. (Fig. 51).

Occurrence: 1. St. 136. South Georgia. 1 ♂ 11 mm.

2. St. 175. South Shetlands. 1 ♀ 15 mm.

DESCRIPTION. Body dorsally rounded, glabrous. Hood flattened, apex in dorsal view rounded (cf. Sars, pl. li, *Paraphoxus oculatus*). Eyes black, in ♂ large, obliquely ovate, nearly meeting dorsally, in ♀ small, oval. Side-plates 1-4 fringed with setae on lower margin; 1 scarcely widened below, 4 as deep as long, excavation shallow. Postero-inferior angle of pleon segment 3 rounded, with an oblique row of long spine-setae; segment 4 with evenly rounded dorsal profile. Telson with the lobes apically rounded, a spine and a setule in a little notch towards the outer margin.

Antenna 1, 2nd joint with long setae on lower margin in ♀, flagellum 12-jointed in ♂, 11-jointed in ♀, accessory flagellum 8-jointed in ♂, 7 in ♀. Antenna 2, 4th joint expanded below, but width not more than two-thirds length, lower margin with very long spine-setae, upper margin in ♀ with some long setae on inner side, on outer side a series of about 14 very strong outstanding spines, in ♂ with thick fringe of setae, 5th joint in ♀ also with very long setae on lower margin and strong outstanding spines on upper outer margin, the latter consisting of 4 in the middle of the joint, 2 towards the apex, in ♂ upper margin with 8-9 fascicles of setae and 8-9 calceoli, flagellum 12-jointed in ♀, multiarticulate and calceoliferous in ♂. Third palpal joint of mandible equal to 1st and 2nd together. Maxilliped, outer plate easily extending beyond middle of 2nd joint of palp, fringed on inner margin with about 12 graduated serrate spines, with 2-3 plumose spine-setae distally.

Gnathopods 1 and 2, similar to Tattersall's figure of *villosa* (1922, pl. i, figs. 9, 10) but 5th joint in gnathopod 1 measured along its upper margin nearly as long as 6th joint.

Peraeopods 1 and 2, 4th joint stout as in *villosa*. Peraeopod 3, 2nd joint pyriform, anterior margin straight, with a few long setae, posterior margin gently convex, with minute setules, 4th and 5th joints nearly as *villosa*. Peraeopod 4, 2nd joint stout, anterior margin angularly rounded, strongly setose, especially distally where the setae are plumose and form a thick fringe, hind margin slightly concave in ♀, straight in ♂, with a small rounded lobe distally. Peraeopod 5, 2nd joint almost subcircularly expanded, extending to end of 4th joint, margin shallowly notched, 3rd joint somewhat lobed on anterior apex, 4th with anterior margin convex, hind apex produced in a short acute lobe.

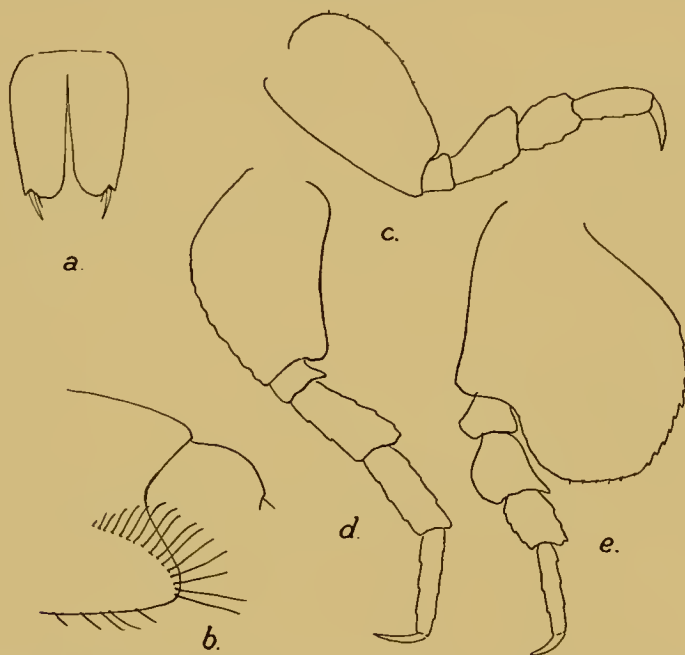


Fig. 51. *Parharpinia obliqua*, n.sp. a. Telson. b. Pleon segments 3 and 4. c. Peraeopod 3. d. Peraeopod 4 ♀. e. Peraeopod 5. (Setae in c, d, e omitted.)

Uropod 2, peduncle fringed with upstanding spines on upper margin. Uropod 3, peduncle with a half circle of spines around the lower apex, inner ramus two-thirds length of outer in ♀, in ♂ rami subequal, much enlarged, with long plumose setae.

REMARKS. Stebbing has recorded the Australian *Pontharpinia rostrata* (Dana) from the Falkland Islands (1914, p. 357), but the present species will not fit in with his 1906 diagnosis as regards the maxilliped, gnathopods and 3rd–5th peraeopods. The characters of peraeopods 3–5 also differentiate it from the West Australian specimen which Tattersall referred to *villosa*.

It bears a close resemblance to *Paraphoxus pyripes*, Brnrd. (1930, p. 332, fig. 10), as regards peraeopods 3–5, though the postero-inferior angle of pleon segment 3 is quadrate in the latter; the present form, however, has a 2-jointed palp on maxilla 1.

The ♂ was caught near the surface in a night haul.

The specific name refers to the oblique row of setae on the epimeron of pleon segment 3.



*Parharpinia sinuata*, n.sp. (Fig. 52).

*Occurrence*: 1. St. 159. South Georgia. 1 ♀ 14 mm. *Type*.

2. St. WS 88. Cape Horn. 1 ♀ 11 mm., 1 juv. 8 mm.

*DESCRIPTION* ♀. Distinguished from *obliqua* by the following characters.

Hood more sharply pointed. Eyes considerably larger. Pleon segment 3 with postero-inferior angle rounded, with a slight emargination above, set with a graduated series of setae; no oblique row of setae on the lateral surface.

Gnathopods 1 and 2, 5th joint longer proportionately to 6th; in gnathopod 1 it is equal to 6th, in gnathopod 2 almost equal to 6th (measured along upper margin).

Peraeopod 3, 2nd joint not markedly pyriform, the hind margin evenly convex. Peraeopod 4, 2nd joint not angularly but evenly convex on anterior margin, more

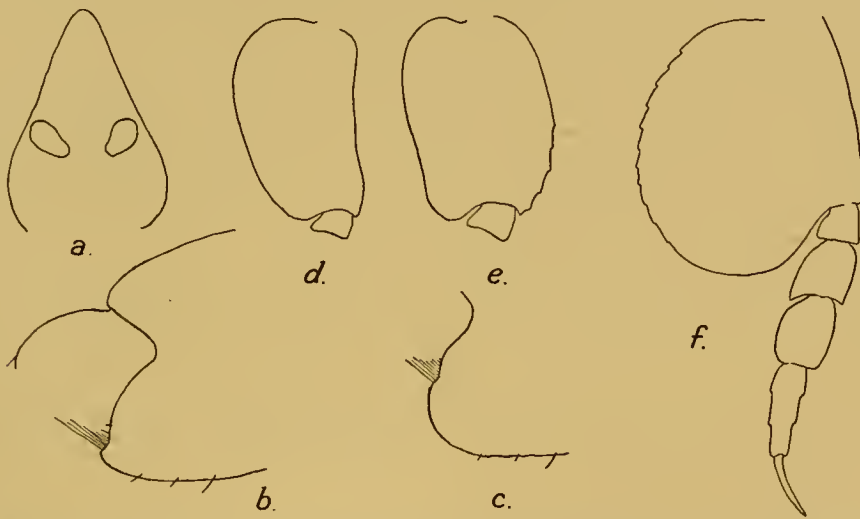


Fig. 52. *Parharpinia sinuata*, n.sp. a. Dorsal view of head. b. Pleon segments 3 and 4 (of type). c. Postero-inferior corner of pleon segment 3 (St. WS 88). d. 2nd joint of peraeopod 3. e. 2nd joint of peraeopod 4. f. Peraeopod 5. (Setae in d, e, f omitted.)

strongly spinose, but with a feeble fringe of plumose setae at apex, or none at all, hind margin straight, not concave, with a larger rounded lobe at hind apex. Peraeopod 5, 3rd and 4th joints with anterior margin straight, not lobed or markedly convex, 4th not produced on hind apex.

*REMARKS*. Like the previous species this differs from *villosa*; in fact considerably more so, because of the greater length of the 5th joint in both gnathopods. In this latter respect it somewhat resembles *Protophoxus australis*, Brnrd., but there the 5th joint is much more slender.

The specific name refers to the slight sinuosity of the hind margin of pleon segment 3. The position of this slight sinus with its group of setae varies; in the type it is low down and the angle of the segment is consequently narrowly rounded; in the other two specimens it is higher up and the angle is broadly rounded. The other characters are identical, so that one must regard this feature as variable.

The description of the postero-inferior angle of pleon segment 3 given by Stebbing (1906, p. 146) for *Pontharpinia rostrata* might perhaps apply here. But I am unwilling to identify the Discovery specimens with the Australian *rostrata*, in spite of Stebbing's record of it from the Falkland Islands, until the Australian forms *pinguis*, *rostrata* and *villosa* have been given an exact status.

*Parharpinia rotundifrons*, n.sp. (Fig. 53).

- Occurrence*: 1. St. 39. South Georgia. 1 ♀ 9 mm. *Type*.  
 2. St. 141. South Georgia. 1 ♀ 8 mm.  
 3. St. WS 25. South Georgia. 1 juv. 4.5 mm.

*DESCRIPTION* ♀. Differing from the preceding species as follows.

Hood broadly rounded in front. Pleon segment 3 with postero-inferior angle produced in a rather narrowly rounded lobe, slightly concave on its upper margin which bears 3-4 minute spinules.

Gnathopods 1 and 2, proportions of 5th joint to 6th intermediate between *obliqua* and *villosa* (as figured by Tattersall), i.e. in gnathopod 1, 5th joint is three-quarters length of 6th, in gnathopod 2 half its length.

Peraeopods 3-5 as in *sinuata*, but anterior margin of peraeopod 4 more strongly convex.



Fig. 53. *Parharpinia rotundifrons*, n.sp.  
 a. Dorsal view of head. b. Pleon segments 3 and 4.

Family AMPHILOCHIDAE

- Barnard, 1916, p. 143; 1930, p. 337.  
 Schellenberg, 1926, p. 301; 1931, p. 92.

Genus *Gitanopsis*, G. O. Sars.

- Stebbing, 1906, p. 153.  
 Barnard, 1916, p. 144.  
 Schellenberg, 1926, p. 301; 1931, p. 95.

*Gitanopsis antarctica*, Chevr.

- Chilton, 1912, p. 479. (*Amphilocheus squamosus*, non Thoms.)  
 Chevreux, 1913, p. 104, figs. 13-15.  
 Schellenberg, 1926, p. 301. (*Amphilocheus squamosus*, non Thoms.)

*Occurrence*: St. MS 67. South Georgia. 1 ovig. ♀ 4 mm.

*REMARKS*. Although Chilton has united *antarctica* with the New Zealand *Amphilocheus squamosus*, and Schellenberg has accepted this, I think it better to suspend judgment for the present. No detailed modern figures of the New Zealand form have been given, and the uniting of the two forms rests on the individual opinion of one author: "I cannot find any character of importance. . ." (Chilton, 1923, *Trans. N.Z. Inst.* LIV, p. 240.) Another reason for not following Chilton is that he also included *marionis*, Stebb., in the synonymy, to which Schellenberg, quite rightly in my opinion, does not subscribe.

Colour (as preserved) pale horn-coloured, with numerous maroon specks over head, peraeon, pleon, side-plates and 2nd joints of peraeopods 3-5, eyes dark brown.

DISTRIBUTION. Petermann Island, 3 m.; South Orkneys; Kerguelen.

### Hoplopleon, n.g.

Close to *Peltocoxa* but with mandibular palp absent, pleon segment 4 very long, telson short, and accessory flagellum of antenna 1 absent.

The finding of a second species closely allied to *Peltocoxa australis*, Brnrd., and exhibiting the same features which distinguish the latter from the true European *Peltocoxa*, renders a new genus necessary. The genotype is *Peltocoxa australis*, Brnrd. 1916.

### Hoplopleon medusarum, n.sp. (Fig. 54).

Occurrence: Hoetjes Bay (Saldanha Bay), South Africa. 5. x. 26. 0 m. from Medusae.



Fig. 54. *Hoplopleon medusarum*, n.sp. a. Gnathopod 1, with spine further enlarged. b. Gnathopod 2. c. Pleon segments 3-6.

DESCRIPTION. Very closely resembling *australis*, except in gnathopods 1 and 2 and peraeopods 4 and 5.

Gnathopod 1, 5th joint with 6-7 strong spine-setae on lower margin and apex, 6th joint ovate, palm ill-defined, with 4 strong spine-setae, finger with spinules along inner margin and a denticle near apex. Gnathopod 2, 5th joint with 6 strong spine-setae on lower apex, 6th widening slightly to the transverse concave palm, defining angle rounded, with 4 strong spine-setae.

Peraeopods 4 and 5, 2nd joint with hind margin convex, not straight or nearly so as in *australis*, the contrast most noticeable in peraeopod 4.

REMARKS. Whereas the specimens of *australis* were found amongst littoral Hydroids, Algae, etc., the present specimens were extracted from a jellyfish.

### Family LEUCOTHOIDAE

Stebbing, 1906, p. 161.

Schellenberg, 1928 (*Tr. Zool. Soc. Lond.*, 1928, pt. 5), p. 635 (new genus).

### Genus Leucothoë Leach.

Stebbing, 1906, pp. 163, 724.

*Leucothoë spinicarpa* (Abildg.).

Pfeffer, 1888, p. 128, pl. ii, fig. 4 (*antarctica*).

Chevreaux, 1913, p. 108.

Barnard, 1916, p. 148.

Chilton, 1923 (*Rec. Austr. Mus.*), p. 88.

Schellenberg, 1926, p. 308; 1931, p. 92.

Monod, 1926, p. 53, fig. 51.

Barnard, 1930, p. 338.

- Occurrence*: 1. St. 2. Ascension. 1 juv. 2.5 mm. from buoy.  
 2. St. 39. South Georgia. 1 ♂ 9 mm., 7 juv. 5-7 mm.  
 3. St. 42. South Georgia. 1 ♂ 11 mm.  
 4. St. 51. Falklands. 6 ♂♂ 7-10 mm., 5 ♀♀ (1 ovig.) 7-9 mm., 1 juv. 3 mm., from sponges.  
 5. St. 149. South Georgia. 3 ♂♂ 11-14 mm., 2 ♀♀ (1 ovig.) 13 mm., from sponge.  
 6. St. 170. South Shetlands. 1 ♂ 20 mm., 1 ♀ 18 mm.  
 7. St. 175. South Shetlands. 1 ♂ 21 mm.  
 8. St. 190. Palmer Archipelago (90-130 m.). 3 ♂♂ 8, 15 and 20 mm.  
 9. St. WS 27. South Georgia. 1 ♀ 10 mm., 2 juv. 4.5-6 mm.  
 10. St. MS 71. South Georgia. 1 ♂ 10 mm.

REMARKS. The minute specimen from Ascension has the postero-inferior angle of pleon segment 3 quadrate, and two small but definite denticles near the hinge on the palm of gnathopod 2 (cf. Chevreaux and Fage, 1925, p. 123, fig. 119).

The colour of no. 3 is given as "yellowish semitransparent; penultimate segment of chela white, with terminal segment yellow; eyes pink"; and Note 145 for St. 190 gives it as "Ivory white with upper part of each thoracic and abdominal segment marbled with carnelian red (Ridgway, 7' R-O), coxopodite of each thoracic leg with 2 longitudinal patches of the same colour. Eyes brown".

DISTRIBUTION. Cosmopolitan. In the Antarctic regions recorded from McMurdo Sound, South Orkneys, South Georgia, Palmer Archipelago and Marguerite Bay, 'Gauss' winter station.

## Family SEBIDAE

Walker, 1907, p. 37.

Chevreaux and Fage, 1925, p. 370.

Genus *Seba*, Bate.

Stebbing, 1906, pp. 162, 724.

Walker, 1907, p. 37.

Chilton, 1921 *a*, p. 56; 1924, p. 269.

Schellenberg, 1926, p. 309; 1931, p. 83.

*Seba saundersii*, Stebb. (Fig. 55).

Stebbing, 1888, p. 783, pl. xlix.

? Schellenberg, 1926, p. 309, fig. 34 (*dubia*).

*Occurrence*: St. 51. Falklands. 1 ♂ 3.5 mm., 3 ♀♀ 2.5-3 mm.

REMARKS. These specimens are clearly identical with the Challenger specimen, although the minute denticulation on the telsonic apex appears to be quite absent. The ♂ has slightly heavier gnathopods 1 and 2, the hand and finger of gnathopod 1 in ♂ shaped as in *antarctica*, and strongly expanded 4th joints of pereopods 3-5. Eyes not visible.

Schellenberg's *dubia* appears very similar, especially as regards the telson, but the 2nd joint of pereopods 3 and 4 is less expanded. His descriptions of the 1st and 2nd side-plates (coxae I and II) would seem to be transposed, as otherwise they apply to Stebbing's figure and to the present specimens. It is the *second* side-plate which has the sharp postero-inferior angle.

In both *typica* (Chilton) and *armata*, Chevr., the telson has a similar narrow oval form as in *saundersii* and *dubia*.

DISTRIBUTION. Off Cape Virgins; ? 'Gauss' winter station; ? South Africa.

### *Seba antarctica*, Wlkr. (Fig. 56).

Walker, 1907, p. 37, pl. xiii, fig. 22.

Barnard, 1930, p. 339.

- Occurrence: 1. St. 39. South Georgia. 6 ♂♂ 2.5-4 mm., 1 ♀ 3.5 mm.  
 2. St. 140. South Georgia. 6 ♂♂, 8 ♀♀ (some ovig.) 4.5-5 mm.  
 3. St. 142. South Georgia. Thirty-four specimens, ♂♂, ♀♀ (some ovig.) and juv. 2-3.5 mm. from sponge.

REMARKS. Walker's statement that the 'Discovery' (1901-4) ♀♀ "agree in the smallest detail" with Stebbing's description and figures of the 'Challenger' *saundersii*—a statement accepted by Chilton (1921) and Schellenberg (1926)—obviously belies his figures of the telson. From Chilton's remarks (*Ann. Mag. Nat. Hist.* (7), xvii, p. 571, 1906) it would seem that Walker at first identified his specimens with *saundersii*, and later changed the name in his note on Chilton's paper.

In this species the telson in both sexes is distinctly broader than in *saundersii*, with a sharper apex, the palp of maxilla 1 is stouter, and the postero-inferior angle of the *third* side-plate is quadrate (cf. Walker's figure, but in the present specimens the *antero*-inferior angle is rounded).

DISTRIBUTION. McMurdo Sound.

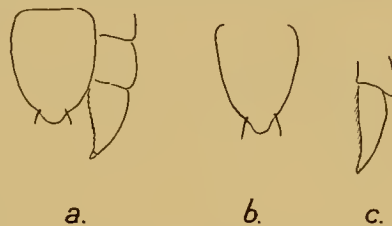


Fig. 55. *Seba saundersii*, Stebb. a. Telson and uropod 3 of ♂. b. Telson of ♀. c. Uropod 3 of ♀.

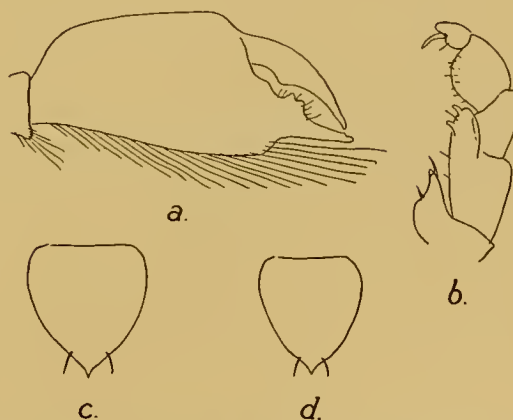


Fig. 56. *Seba antarctica*, Wlkr. a. Gnathopod of ♂. b. Maxilliped. c. Telson of ♂. d. Telson of ♀.

## Family METOPIDAE

Stebbing, 1906, p. 171.

Excluding the genus *Thaumatelson*, the number of Antarctic and sub-Antarctic species of this family is now eighteen, including the two new species described below. A further increase is no doubt to be anticipated, as the family is represented in northern waters by a large number of species. Up to the present no representative of the typical genus *Metopa* has been found in southern waters. See also Schellenberg, 1931.

Genus *Metopella*, Sars.

Stebbing, 1906, p. 182.

Schellenberg, 1926, p. 313; 1931, p. 108.

Stephensen, 1927, p. 309.

*Metopella ovata* (Stebb.).

Stebbing, 1888, p. 764, pl. xlv; 1906, p. 183, figs. 47, 48.

Chilton, 1912, p. 481; 1923 (*Tr. N.Z. Inst.*, LIV), p. 241.

Schellenberg, 1926, p. 313; 1931, p. 108.

Stephensen, 1927, p. 309.

- Occurrence*: 1. St. 39. South Georgia. Five specimens, incl. 1 ovig. ♀, 2.5 mm.  
 2. St. 164. South Orkneys. Eleven specimens, incl. 7 ovig. ♀♀, 2.5-3 mm.  
 3. East Cumberland Bay. 30. xii. 26. 11-36 m. Fourteen specimens, incl. 9 ovig. ♀♀, 2.5-3 mm.

REMARKS. The colour (as preserved) is a pale greenish-grey, with numerous little round deeper greenish specks, chiefly on side-plates 2-4 (but see note on colour of *Kuphocheira setimanus*, *infra*, p. 239).

DISTRIBUTION. Magellan Straits; Falkland Islands; South Orkneys; Kerguelen; New Zealand and Campbell Islands.

Genus *Metopoides*, Della Valle.

Stebbing, 1906, p. 185.

Schellenberg, 1926, p. 318; 1931, p. 96.

*Metopoides parallelocheir* (Stebb.).

Stebbing, 1888, p. 762, pl. xliii; 1906, p. 186.

*Occurrence*: St. MS 67. South Georgia. Sixteen specimens, incl. ovig. ♀♀, 2-3.5 mm.

DISTRIBUTION. Cape Virgins, 100 m.

Genus *Proboloides*, Della Valle.

Stebbing, 1906, pp. 187, 725.

Walker, 1907, p. 18.

Schellenberg, 1926, p. 323.

Barnard, 1930, p. 339.

It seems to be clear that the beaded lower margin of side-plate 3 can be used as a

generic character. It is far more satisfactory than the presence or absence of an accessory flagellum in antenna 1 for separating this genus from *Metopoides*.

The following key to the austral species may be useful.

- I. Postero-inferior angle of pleon segment 3 produced and rounded, 2nd joint of peraeopod 3 not lobed on distal hind corner ... .. *typica*
- II. Postero-inferior angle of pleon segment 3 quadrate, 2nd joint of peraeopod 3 lobed on distal hind corner.
  - A. Hand of gnathopod 2 in ♂ with palm shorter than hind margin.
    - 1. Hand twice as long as broad ... .. *antarcticus*
    - 2. Hand not twice as long as broad ... .. *perlatus*
  - B. Hand of gnathopod 2 in ♂ with palm longer than hind margin.
    - 1. Pleon segment 3 dorsally projecting ... .. *carinata*
    - 2. Pleon segment 3 not projecting.
      - a. 2nd joint of peraeopods 4 and 5 oval ... .. *crenatipalmatus*
      - b. 2nd joint of peraeopods 4 and 5 distally narrowed ... .. *porcellanus*

**Proboloides typica** (Wlkr.) (Fig. 57).

- Walker, 1907, p. 20, pl. vi, fig. 10.
- Schellenberg, 1926, p. 323, fig. 41.
- Barnard, 1930, p. 339.

- Occurrence*: 1. St. 42. South Georgia. 1 ♂ 6 mm., 2 ♀♀ (1 ovig.) 7-7.5 mm., 7 juv. 3.5-6 mm.
- 2. St. 123. South Georgia. 1 ♀ with embryos 9 mm.
  - 3. St. 144. South Georgia. 1 ♀ 7 mm.
  - 4. St. 152. South Georgia. 1 ♀ 7.5 mm.
  - 5. St. 160. South Georgia. 1 ♀ 7 mm.

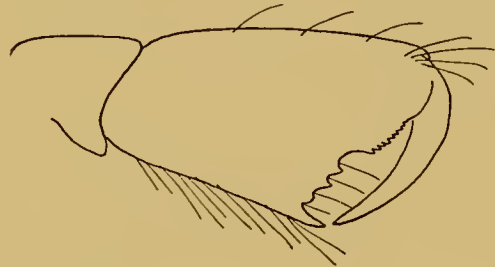


Fig. 57. *Proboloides typica* (Wlkr.).  
Gnathopod 2 of ♂.

REMARKS. Gnathopod 1, 4th joint apically rounded, with long setae, and a thick brush of fine setules on lower margin, 5th elongate, lower margin with long setae, 6th not quite as long as (dorsal) length of 5th, narrower proximally, *swelling distally to form a transverse palm* with rounded angle bearing 3 spines. Gnathopod 2 in ♂, 2nd and 3rd joints strongly channelled on anterior margins as in *antarcticus*, 6th longer than broad, palm shorter than hind margin, with a flattish tooth near hinge, and 3-4 crenulations between the shallow median notch and the defining tooth; in ♀, 4th joint trapezoidal, lower apex acute, 5th lobed below, with several setae and a dense brush of setules, 6th large, subtriangular, palm subequal to or slightly shorter than hind margin, defined by an acute point within which are 2 stout spines, followed by a series of unequal rounded teeth.

Peraeopod 3 with 2nd joint not lobed on distal hind corner.

Postero-inferior angle of pleon segment 3 produced in a rounded lobe.

These specimens are not exactly like Walker's figures, but the differences in the gnathopods are not so great that they may not be ascribed to growth-changes.

DISTRIBUTION. McMurdo Sound, 457 m.; 'Gauss' winter station, 385 m.

**Proboloides antarcticus**, Wlkr. (Fig. 58).

Walker, 1907, p. 18, pl. v, fig. 9 (gn. 2 ♂, labelled in error "gn. 2 ♀").

Occurrence: St. 195. South Shetlands. 1 ♂ 7 mm.

REMARKS. Agrees with Walker's figure of the ♂, except that the hand of gnathopod 2 is longer, equal to the length of the 2nd joint, and the conical tooth is midway in the palmar excavation between the square-topped crenate tooth near hinge and the defining tooth. Anterior margin of 2nd and 3rd joints of gnathopod 2 channelled, with strong distal lobes. Side-plate 3 with beaded margin as in the other species.

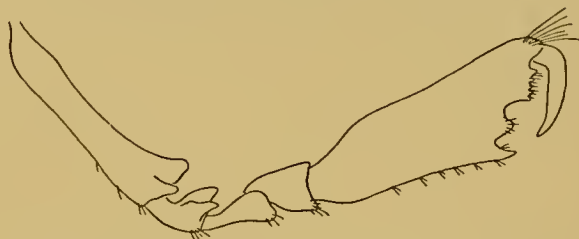


Fig. 58. *Proboloides antarcticus*, Wlkr. Gnathopod 2 of ♂.

Contrary to the opinion expressed in the Terra Nova Report, I now think that *perlatus* will prove to be a form distinct from *antarcticus*, and that both are distinct from *crenatipalmatus*.

DISTRIBUTION. McMurdo Sound.

**Proboloides carinata** (Schell.) (Fig. 59).

Schellenberg, 1931, p. 101, fig. 54.

Occurrence: 1. St. 42. South Georgia. 1 adult ♂ 9 mm., 3 immat. ♂♂ 5-6 mm.  
2. St. 123. South Georgia. 1 ♂ 8 mm.

DESCRIPTION. Deceptively like *crenatipalmatus* on first glance at the 2nd gnathopods, but at once distinguished by the upstanding apex of pleon segment 3. Side-plate 3

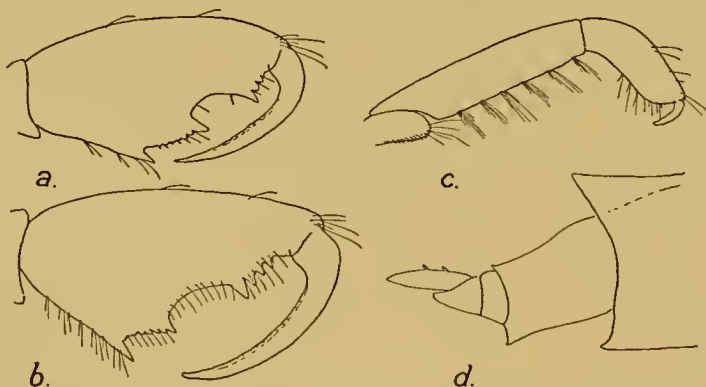


Fig. 59. *Proboloides carinata* (Schell.). a. Gnathopod 2 of immature ♂. b. Gnathopod 2 of adult ♂. c. Gnathopod 1. d. Pleon segments 3-6.

beaded on lower margin. Postero-inferior angle of pleon segment 3 quadrate. Gnathopod 1, 5th joint relatively longer, 6th relatively shorter, the latter parallel-sided, not distally expanded, palm oblique, setose. Gnathopod 2, notch on palm nearly semi-circular in immature ♂, and in adult much more open, i.e. it does not undercut the tooth adjoining the tooth which defines the palm, tooth near the hinge with stronger denticles than in *crenatipalmatus*. Peracopod 3, 2nd joint distally lobed. Telson and upper margin of uropod 3 with fewer spines than in *crenatipalmatus*.



**Proboloides crenatipalmatus** (Stebb.) (Fig. 60).

Stebbing, 1888, p. 759, pl. xlii (♀); 1906, p. 188.

- Occurrence*: 1. St. 42. South Georgia. 3 ♂♂ 11–13 mm., 3 immat. ♂♂ 8–10 mm.  
 2. St. 123. South Georgia. 1 ovig. ♀ 11 mm.  
 3. St. 140. South Georgia. 9 ♂♂ 10–11 mm., 4 ♀♀ (1 ovig.) 10 mm., 2 juv. 6 and 8 mm.  
 4. St. 144. South Georgia. 1 ♂ (anterior half only).  
 5. St. 152. South Georgia. 1 immat. ♂ 7 mm.

**DESCRIPTION** ♂. Resembling ♀, side-plate 3 beaded as in the other species, antenna 1 with flagellum 20-jointed, no accessory flagellum, antenna 2 with flagellum 16-jointed.

Gnathopod 1, 6th joint shorter than 5th, of same shape as in *typica* but stouter, palm with 3–4 spines near lower corner. Gnathopod 2 much stronger than in ♀; in immature

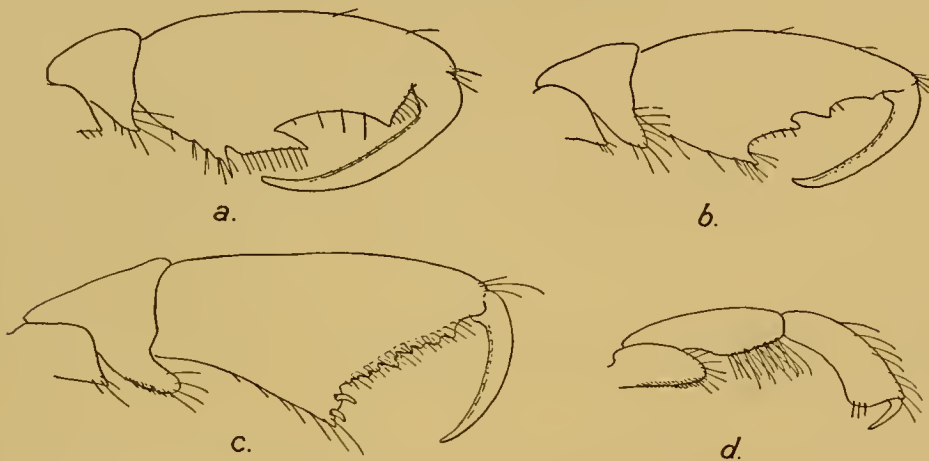


Fig. 60. *Proboloides crenatipalmatus* (Stebb.). a. Gnathopod 2 of adult ♂. b. Gnathopod 2 of immature ♂. c. Gnathopod 2 of adult ♀. d. Gnathopod 1.

♂ 6th joint ovate, palm longer than hind margin, defined by an acute point, with a notch bounded by two teeth in middle, rest of palmar margin smooth or feebly crenulate; in adult ♂ palm still longer relatively to hind margin, defined by an acute tooth, with a large angular notch in the middle separating a proximal tooth or cutting edge and a distal tooth near hinge.

Peraeopod 3 with 2nd joint distally lobed as in ♀.

**REMARKS.** Stebbing's specimen would seem to have been an immature one. The 2nd gnathopod of the present ♀ is here figured for comparison. The 1st gnathopod in ♀ is likewise stronger than in Stebbing's figure, the palm is slightly more transverse, and the joint is definitely wider distally than proximally.

**DISTRIBUTION.** Magellan Strait; Tristan da Cunha.

**Proboloides porcellanus**, n.sp. (Fig. 61).

*Occurrence*: St. 51. Falklands. Fifty-three specimens 5–9 mm., incl. ♂♂, ovig. ♀♀ and juv., from pharynx of large Ascidian.

DESCRIPTION. Side-plate 3 minutely beaded on lower margin. Postero-inferior angle of pleon segment 3 quadrate.

Gnathopod 1, 6th joint not quite as long as 5th, ovate, no distinct palm, lower margin with marginal spines and numerous setae. Gnathopod 2, 2nd and 3rd joints channelled in front, with rounded lobes distally, 5th bluntly lobed below, the lobe not produced, no brush of fine setae, but with a few long setae, and a graduated row of spines on distal margin, 6th ovate, palm longer than hind margin, in ♂ with a flat tooth near hinge followed by a small notch, another notch in front of the shortly produced defining angle, in ♀ minutely crenulate, with a small median notch.

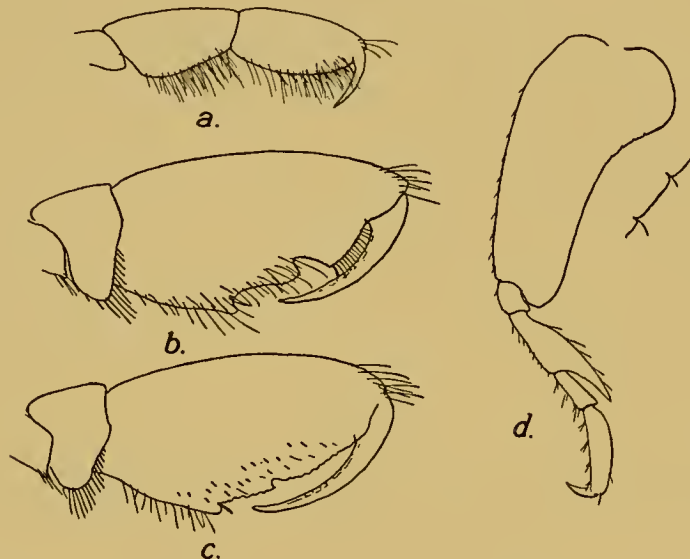


Fig. 61. *Proboloides porcellanus*, n.sp. a. Gnathopod 1. b. Gnathopod 2 of ♂. c. Gnathopod 2 of ♀. d. Peraeopod 5, with portion of hind margin of 2nd joint further enlarged.

Peraeopod 3, 2nd joint narrow linear, but hind distal angle produced in a short rounded lobe. Peraeopods 4 and 5, 2nd joint expanded at base, then rapidly narrowing, somewhat like that of *Metopella neglecta* (Sars, pl. xcvi, fig. 2), but the proximal expansion not extending half-way down the joint, 4th joint moderately expanded.

Telson and uropod 3 unarmed.

REMARKS. This species is at once distinguished by the excavate hind margins of 2nd joints of peraeopods 4 and 5. The beading on side-plate 3 is much finer and more close-set than in the other species. The colour (as preserved) is an opaque creamy white like porcelain.

#### Genus *Thaumatelson*, Wlkr.

Walker, 1907, p. 21.

Chilton, 1912, p. 481.

Chevreaux, 1913, p. 109.

#### *Thaumatelson nasutum*, Chevr.

Chevreaux, 1912, p. 5; 1913, p. 109, figs. 16-18.

Chilton, 1912, p. 483, pl. i, figs. 16, 17 (*inermis*).

- Occurrence*: 1. St. MS 67. South Georgia. Twenty-six specimens, incl. ovig. ♀♀, 2-2.75 mm.  
 2. St. MS 74. South Georgia. Eleven specimens, incl. ovig. ♀♀, 2-2.5 mm.  
 3. East Cumberland Bay, South Georgia. 30. xii. 26. 11-36 m. Twenty-eight specimens, incl. ovig. ♀♀, 2-2.5 mm.

REMARKS. Chilton in a footnote says his species may be the same as Chevreux's, but refers to the difference in the mandibular palp. The difficulty of determining whether the mandibular palp is really degenerate, makes it inadvisable to recognize two species separated by such a minute difference. One of the present specimens was dissected, and one could not be certain that the palp was 3-jointed; even Chevreux's figure shows a little nick on both sides of the palp, indicating the junction of the 1st and 2nd joints.

DISTRIBUTION. Petermann Island, 3 m.; South Orkneys, 9-10 fathoms.

*Thaumatelson cultricauda*, n.sp. (Fig. 62).

*Occurrence*: St. MS 67. South Georgia. 1 ovig. ♀ 3 mm.

DESCRIPTION. Close to *walkeri*, Chilton. Pleon segment 3 with a posterior medio-dorsal tooth, slightly turned up but not up-standing, flanked on each side by a much smaller blunt denticle. Telson elongate, apically slightly upturned, dorsal edge sharp, not thickened.

Antenna 1, 1st joint produced on upper apex.

Gnathopod 1 similar to that of *walkeri*, but 6th joint more slender, twice as long as broad. Gnathopod 2 similar to that of *walkeri*, but 6th joint parallel-sided,  $2\frac{1}{2}$  times as long as wide.

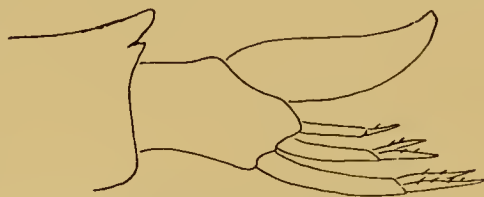


Fig. 62. *Thaumatelson cultricauda*, n.sp.  
Pleon segments 3-6 and telson.

REMARKS. This may prove to be the ♀ of *walkeri*, but Chilton did not state the sex of the specimens he examined. The telson, however, would seem to indicate a separate species.

#### Family STENOTHOIDAE

Stebbing, 1906, pp. 192, 725.

#### Genus *Stenothoë*, Dana.

Stebbing, 1906, pp. 192, 725.

#### *Stenothoë* sp.

*Occurrence*: St. 5. Tristan da Cunha. 2 ♀♀ (1 ovig.) 2-3 mm.

REMARKS. As both specimens are ♀♀ the species is unidentifiable, but a brief résumé of the characters may be given.

Back not carinate. Eyes present. Maxilliped with the 4 joints of the palp together equal to the length of the outer plate, 1-3 broad and stout, 3rd bulbous, 4th rapidly narrowing from a broad base to a fine acute point. Gnathopod 1, 4th joint produced to end of 5th. Palm defined in both gnathopods. Peraeopod 3, 2nd joint narrow. Fourth joints of peraeopods 3-5 widened and produced. Peduncle of uropod 3 subequal to ramus, of which the 2nd joint is straight. Telson with two spines on either side.

## Family COLOMASTIGIDAE

Stebbing, 1906, p. 206.

Genus *Colomastix*, Grube.

Stebbing, 1906, p. 206.

Chilton, 1921 *a*, p. 60.

Barnard, 1925, p. 346.

Chevreux and Fage, 1925, p. 144.

Schellenberg, 1926, p. 324.

When Schellenberg described his new species it seemed justifiable to regard Walker's (1907) record of *pusilla* and Chilton's (1912) record of *brazieri*, from McMurdo Sound and the South Orkneys respectively, as being referable to *fissilingua*, Schell. But the discovery of a further species from Antarctic waters makes it a little uncertain, without re-examination of the specimens, to what species they did really belong. One can, however, feel confident that they are neither *pusilla* nor *brazieri*.

In retracting my opinion (1925) that *brazieri* would eventually be united with *pusilla*, I fully concur with Schellenberg that when abundant material from many localities has been properly examined, *pusilla* itself will be broken up into more than one species. The real shape of the telson of *brazieri* is still unknown.

*Colomastix fissilingua*, Schell. (Fig. 63).

Schellenberg, 1926, p. 324, fig. 42; 1931, p. 114.

? Walker, 1907, p. 38 (*pusilla*, non Grube).? Chilton, 1912, p. 484 (*brazieri*, non Haswell).*Occurrence*: 1. St. 39. South Georgia. 13 ♀♀ (3 ovig.) 2.5-4 mm.

2. St. WS 27. South Georgia. 1 ♂ 3 mm., 1 juv. 2 mm.

REMARKS. In *fissilingua* we have a species undoubtedly distinct from *pusilla*; the telson alone is a sufficient distinction. The present specimens agree with Schellenberg's description. I give some figures, however, including one of gnathopod 2 in ♀. The

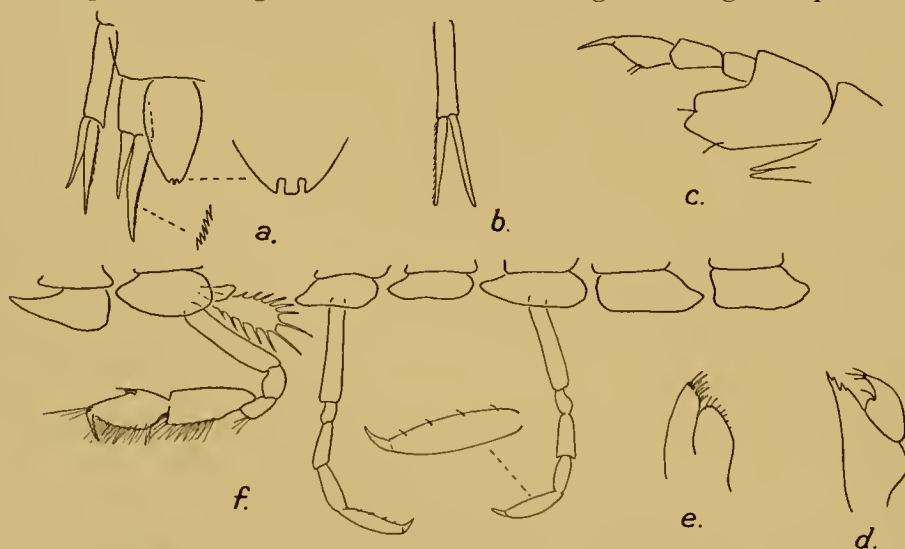


Fig. 63. *Colomastix fissilingua*, Schell. *a*. Telson and uropods 2 and 3, with apex of telson and inner margin of inner ramus of uropod 3 further enlarged. *b*. Uropod 1. *c*. Maxilliped. *d*. Maxilla 1. *e*. Maxilla 2. *f*. Side-plates 1-7, with gnathopod 2 (♀), peraeopods 1 and 3, and 6th joint of peraeopod 3 further enlarged.

lower lip lacks inner lobes. The 2nd joints of peraeopods 1-5 are slender and quite distinct from those of *brazieri*.

DISTRIBUTION. Kerguelen; 'Gauss' winter station. Probably also McMurdo Sound and South Orkney Islands.

*Colomastix castellata*, n.sp. (Fig. 64).

Occurrence: St. 51. Falklands. 1 immat. ♂ 2.5 mm., 1 ovig. ♀ 4 mm. from sponge.

DESCRIPTION. Closely resembling *fissilingua*, but distinguished by the shorter telson with its castellated margin, and the stouter peduncles of the uropods, especially that of uropod 3, which is scarcely longer than wide.

Gnathopod 2 of the ♀ resembles that of *fissilingua* as here figured. Gnathopod 2 of the ♂, which is evidently not fully adult, is stouter, 5th joint triangular, but not so short as in the full-grown *pusilla*, 6th joint oval, palm oblique, distinguished from hind margin only by its armature of setae, finger short and stout. The inner lobes of the maxilliped are apically separate as in *fissilingua*.

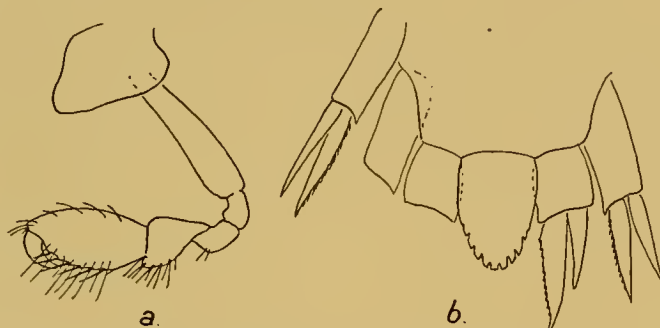


Fig. 64. *Colomastix castellata*, n.sp. a. Gnathopod 2 of ♂.  
b. Telson and uropods 1-3.

REMARKS. There is no need to defend the specific status of this form; its own castellated telson is sufficient. In all the 15 specimens of *fissilingua*, which I have examined, there is no hint of a multiplication of the marginal slits on the telson. Moreover, the telson is different in shape in the two species, and the difference in the peduncle of uropod 3 is quite appreciable.

#### Family ACANTHONOTOZOMATIDAE

Stebbing, 1906, p. 210.

Barnard, 1930, p. 345 (references).

This family is far better represented in the southern hemisphere, especially in the Antarctic and sub-Antarctic regions, than in the northern hemisphere. Every successive Antarctic expedition has brought back additional examples of known forms as well as new forms.

There is evidently a great variety of forms in the Antarctic regions, but it is as yet impossible to say whether this variety is due to variation within specific limits. In the study of the Discovery collection more difficulties have presented themselves than in

the case of the Terra Nova collection. Some of the views on synonyms expressed in that report (1930) have been changed, and I cannot claim that even now the conceptions of the different species have reached a satisfactory finality.

A detailed analysis of the members of this family should prove an interesting study to one favoured with the opportunity of making direct comparisons of all the Antarctic material now available in Europe. One of the essentials of such a study will be the comparison of the mouth-parts.

As regards variation, some details were given in the Terra Nova Report, viz. the anterior side-plates in certain species. The integumentary processes may be divided into primary and secondary armature. For example, the denticles on the peraeon and pleon of *E. echinata* (recorded in the report referred to as *nodosa*) may be termed secondary armature; and this armature is subject to considerable variation.

On the other hand, the paired dorsal processes and the medio-dorsal carinal teeth may be termed primary armature; this appears to be subject to very little variation and to be truly specific in character. It can be safely asserted that the number of paired dorsal processes does not increase with age. I have examined all available embryos (or rather juveniles) in the brood-pouches, and find that the number does not differ from that of the adult, with the one exception of *Acanthonotozomella oatesi*.

The following synopsis based on the paired dorsal processes may facilitate identification:

No paired dorsal processes	...	...	<i>Pariphimedia normani</i> (Cunn.)	
One pair	„	„	<i>Pariphimedia integricauda</i> , Chevr.	
Three pairs	„	„	... {	
				<i>“Iphimedia” pacifica</i> , Stebb.
				<i>Iphimediella bransfieldi</i> , n.sp.
				<i>Gnathiphimedia sexdentata</i> (Schell.)
				<i>G. macrops</i> , n.sp.
				<i>Maxilliphimedia longipes</i> (Wlkr.)
Four pairs	„	„	... {	
				<i>Anchiphimedia dorsalis</i> , Brnrd.
				<i>Panoploea joubini</i> , Chevr.
				<i>P. macrocystidis</i> , n.sp.
				<i>Iphimediella margueritei</i> , Chevr.
				<i>I. cyclogena</i> , Brnrd.
				<i>I. microdentata</i> , Schell. <sup>1</sup>
				<i>I. rigida</i> , Brnrd.
				<i>I. nodosa</i> (Dana)
<i>Gnathiphimedia mandibularis</i> , Brnrd.				
<i>Labriphimedia vespuccii</i> , Brnrd.				
Five pairs	„	„	... {	
				<i>“Iphimedia” serrata</i> , Schell.
				<i>Labriphimedia pulchridentata</i> (Stebb.)
Eleven pairs	„	„	... ..	<i>Acanthonotozomella oatesi</i> , Brnrd.

<sup>1</sup> In the Terra Nova Report I placed *microdentata*, Schell., as a synonym of *margueritei*, Chevr. Dr Schellenberg has informed me, however, that *microdentata* is the same as my *brevispinosa* and thus has dorsal processes quite unlike those of *margueritei*. My mistake was, I think, pardonable, as the description of *microdentata* said that it resembled *margueritei* in habitus and no mention was made of the dorsal processes. *I. brevispinosa*, therefore, on Schellenberg's authority, becomes a synonym of *microdentata*.

The three species of *Echiniphimedia* are omitted from the above list; *Acanthonotozomella alata*, Schell., has only medio-dorsal carinal teeth.

Another point which needs investigation is the imbrication of the lower margins of the peraeon segments over the bases of the respective side-plates, and the consequent formation of a lateral keel. Is this primary or secondary armature; is it specific or varietal?

### Genus *Acanthonotozomella*, Schell.

Schellenberg, 1926, p. 332.

Barnard, 1930, p. 346.

#### *Acanthonotozomella oatesi*, Brnrd. (Fig. 65).

Barnard, 1930, p. 346, figs. 20, 21.

- Occurrence*: 1. St. 39. South Georgia. 1 ♂ 9 mm.  
 2. St. 144. South Georgia. 1 ♀ 7 mm.  
 3. St. 156. South Georgia. 1 ♂ 7 mm.  
 4. St. 190. Palmer Archipelago (90–130 m.). 1 ♂ 6.5 mm.  
 5. St. WS 33. South Georgia. 1 ♀ with embryos 9 mm.

REMARKS. Whereas the specimens from St. 156 and 190 (the latter from a locality nearest to the original locality) are nearly typical examples, the others show some noteworthy variations. Even in those from St. 156 and 190, the 1st peraeon segment is slightly broader than in the Terra Nova specimens, and the dorsal processes have broader bases, occupying the whole extent of the segment. In the other specimens the 1st segment is dorsally lengthened, and the two processes are confluent in front, divergent behind, and thus enclose a concave space which when seen from above is triangular in shape. This development is most marked in no. 2 (Fig. 65 *a*). All the dorsal processes appear to have a tendency to vary in length. Those on peraeon segments 2–4 are often distinctly shorter and more slender than in typical examples; and in no. 1 they are absent altogether, these three segments having merely a transverse ridge on the hind margin, with squarish corners when seen in cross-section (Fig. 65 *b*).

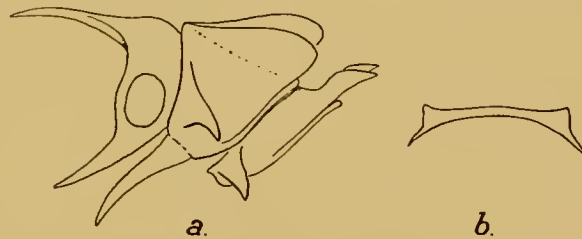


Fig. 65. *Acanthonotozomella oatesi*, Brnrd. *a*. Head of ♀ from St. 144. *b*. Cross-section of peraeon segment 3 of ♂ from St. 39.

The embryos from the brood-pouch, 2.5 mm. in length, possess no spiny armature, except a pair of short adpressed dorsal processes on peraeon segment 7 and pleon segments 1–4.

The label of no. 3 says, "with the Gastropod in which it was found". The mollusc with its operculum, however, is still in the shell, so that the presence of the Amphipod in the mouth of the shell can only be regarded as accidental.

DISTRIBUTION. Ross Sea, 82–92 m.

Genus *Iphimedia*, Rathke.

Stebbing, 1906, p. 214; 1914, p. 584.

Barnard, 1930, p. 346.

*Iphimedia capicola*, n.sp. (Fig. 66).*Occurrence*: St. MS 82. South Africa. 1 ♂ 4.5 mm.

**DESCRIPTION.** Rostrum acute, curved downwards. Eyes oval, reddish. Peraeon segments 1 and 7 much longer than any of the others. Side-plates 1-4 acute below, postero-inferior angles of 5 and 7 rounded, of 6 subquadrate. Peraeon 7 and pleon segments 1-3 each with a pair of procumbent dorsal teeth, pleon segments 1-3 being also medio-dorsally keeled. Postero-inferior angle of pleon segment 1 rounded, of 2 quadrate, of 3 acutely produced; posterior margin of segment 3 with an acute upturned lateral tooth well above the postero-inferior angle. Telson oval, apex incised, a small denticle near apex on outer margin.

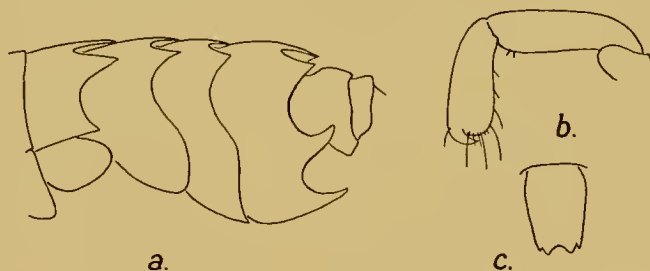


Fig. 66. *Iphimedia capicola*, n.sp. a. Peraeon segment 7 and pleon segments 1-5. b. Gnathopod 2. c. Telson.

Antenna 1, upper apex of 1st joint with one short tooth, lower apex with two teeth, upper and lower apices of 2nd joint both shortly produced, flagellum 12-jointed. Antenna 2, flagellum 16-jointed. Mouth-parts as in *obesa* (Sars, 1895, pl. cxxxii).

Gnathopod 1 slender, chelate, 5th and 6th joints subequal, longer than 3rd. Gnathopod 2 subchelate, 3rd and 6th joints subequal, a little shorter than 5th, 6th widening slightly to the rounded palm.

Peraeopod 3, 2nd joint with upper hind angle quadrate, the lower rounded. Peraeopods 4 and 5, 2nd joints with upper hind angles rounded, lower angle in peraeopod 4 quadrate with a small point, in peraeopod 5 rounded-quadrate.

Uropods unarmed, except inner margin of outer ramus of uropod 3 which is very minutely setulose.

**REMARKS.** This is the first record of this genus in South African waters, as Dana's *Iphimedia capensis* is a *Paramoera*. The species is close to *obesa* and to the Australian *discreta*, Stebb. 1910, but the 6th joint of gnathopod 2, position of the lateral tooth on pleon segment 3, and the telson are distinguishing marks.



Genus *Iphimediella*, Chevr.

Chevreaux, 1913, p. 119.

Barnard, 1930, p. 348.

I am now inclined to place *I. pacifica*, Stebb., in this genus, and also, as shown below, *nodosa*, Dana.

*Iphimediella margueritei*, Chevr.

Chevreaux, 1913, p. 120, figs. 22-24.

Barnard, 1930, p. 348, fig. 22.

*Occurrence*: 1. St. 42. South Georgia. 1 juv. 7.5 mm.

2. St. 175. South Shetlands. 1 ♀ 15 mm.

3. St. MS 71. South Georgia. 1 ♀ 16 mm.

REMARKS. In all these specimens the side-plates 1-3 are of the form figured in the Terra Nova Report. *I. microdentata*, Schell., is not a synonym of this species (see note *supra*, p. 116).

DISTRIBUTION. Graham Land, 200 m.; 'Gauss' winter station, 385 m.; McMurdo Sound, 256-457 m.

*Iphimediella bransfieldi*, n.sp.

*Occurrence*: St. 175. South Shetlands. 2 ovig. ♀♀ 14 and 22 mm.

DESCRIPTION. Very like *rigida*, Brnrd., but with only three pairs of dorsal processes, viz. on peraeon segment 7 and pleon segments 1 and 2; and the dorsal keel on pleon segments much feebler (in the smaller specimen obsolete), especially on segment 4 where there is no upstanding tooth. Lateral margin of head as figured for *brevispinosa* Brnrd., but in the smaller specimen the lower tooth is longer. Side-plate 1 oblong in the larger specimen, apically truncate and concave, the antero-inferior angle rounded; in the smaller specimen narrowing slightly below to an almost bidentate apex.

Antenna 1 with one tooth on anterior margin of the long spinous tooth on 1st joint, which extends only to end of 2nd joint. Mandible with apex bidentate, but there are 3-4 accessory denticles, secondary cutting plate in left mandible clavate. Maxilliped, 2nd joint of palp expanded, but scarcely produced along inner margin of 3rd joint.

REMARKS. The antero-lateral margin of the head with its narrow notch, as well as the mandibles, preclude this form from being by any chance the form described by Schellenberg as *sexdentata*.

From *Maxilliphimedia longipes* (Wlkr.), which it closely resembles in dorsal armature, it is distinguished by the anterior margin of the head and pre-eminently by the mouth-parts.

*Iphimediella nodosa* (Dana) (Fig. 67).

Bate, 1862, p. 125, pl. xxiii, fig. 1 (after Dana).

Della Valle, 1893 (*F. u. Fl. Golf. Neap.*), p. 583, pl. lviii, figs. 89, 90.

Stebbing, 1906, p. 216; 1914, p. 358.

Chevreaux, 1913, p. 118.

Non Barnard, 1930, p. 361 (= *echinata*).

*Occurrence*: St. WS 85. Falklands. 1 ♀ with embryos 7.5 mm.

DESCRIPTION. Head with a small notch between two short subacute points at the antero-inferior angle. Peraeon segments 1-6 dorsally smooth; segment 7 with a pair of short dorsal processes, flanked by a smaller dorso-lateral tooth. Postero-inferior angles of segments 1-4 rounded, of 5 subacute, of 6 and 7 produced backwards in a small (segment 6) or large (segment 7) point. Peraeon segments not imbricate below. Side-plates 1-3 rounded below, 4 subacute below, lower margin not deeply excavate; 5-7 ending behind in small points, largest on 7. Pleon segments 1-3 each with a pair of dorsal processes, flanked on segments 1 and 2 by a smaller tooth, and a strong medio-dorsal carina which ends posteriorly in a more or less acute tooth; segment 4 with a slight dorsal depression; lateral margins of segments 1-3 with a more or less upturned tooth; postero-inferior angles of segments 1 and 2 also with an upturned tooth; dorso-lateral keels on segment 6 ending bluntly. Telson ovate-oblong, slightly incised, lobes rounded.

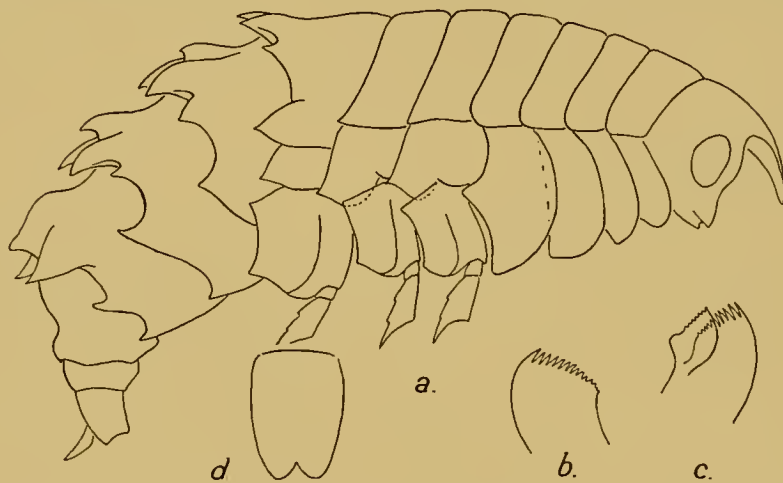


Fig. 67. *Iphimediella nodosa* (Dana). *a.* General view. *b* and *c.* Right and left mandibles respectively. *d.* Telson.

Antenna 1, 1st joint with two very short teeth on inner distal margin, 2nd joint also with one very short tooth on inner upper apex. Upper lip longer than broad, incised, but not deeply (not so deeply as the telson). Mandible, cutting edge with numerous graduated teeth, secondary cutting-plate in left mandible only, broad, multidentate, no spine-row or molar (cf. Della Valle, pl. lviii, fig. 89). Maxilla 1, palp rather strong (cf. Della Valle, pl. lviii, fig. 90). Maxilliped, 2nd joint of palp slightly expanded distally, but scarcely produced (cf. *pacifica*, Stebb., 1888, pl. lxxi, or 1906, fig. 55).

Peraeopods 3-5, 2nd joints broadly expanded, hind margin with a short point at upper angle, and a stronger one at lower angle in peraeopod 5, but only a mere indication in peraeopods 3 and 4.

Uropod 2, outer ramus two-thirds length of inner ramus.

REMARKS. This specimen reopens the question of the identity of *echinata*, Wlkr., *nodosa*, Dana, and *nodosa*, Stebb. In spite of the complete absence of denticles on peraeon segments 4-6, and the absence of a lateral carina (imbrication) even on segments 5-7,

in this specimen, it is obvious that it should be identified with Stebbing's *nodosa*, which also came from the Falkland Islands. The mouth-parts and the absence of the serrate tooth on the 2nd joint of antenna 1, as well as the dorsal armature, absolutely prevent the inclusion of the present specimen with typical *echinata*.

In discussing these forms in the Terra Nova Report, I took the view that the posterior dorsal tooth on pleon segments 1-3 in Dana's figure (copied in Bate) represented a *medio-dorsal carinal* tooth, not one of a pair of teeth, and that therefore *echinata* was merely a more spinose form of *nodosa*, Dana. The present specimen, however, bears such a strong resemblance to Dana's figure, crude as it is, that one's confidence is considerably shaken with regard to the identity of *echinata* with *nodosa*.

Unless Dana's type specimen is still available, the matter can never be satisfactorily settled, and it might be as well to ignore *nodosa*, Dana, completely, recognizing *echinata* and the Falkland Islands form for which a new name would then be necessary. This course may not appeal to all authors and therefore it may be best to follow Stebbing and identify the Falkland Islands form with *nodosa*, Dana, adding Stebbing as *auct. emendans*. As Chevreux quotes Stebbing (1906) one assumes that his specimen corresponded exactly with Stebbing's description.

The structure of the mouth-parts would seem to indicate that this form is more correctly placed in the genus *Iphimediella*. See Schellenberg, 1931, p. 119, pl. 1, fig. a and text-fig. 64.

DISTRIBUTION. Hermite Island; Cape Virgins; Falkland Islands; Magellan Strait.

#### Genus *Gnathiphimedia*, Brnrd.

Barnard, 1930, p. 352.

#### *Gnathiphimedia mandibularis*, Brnrd.

Barnard, 1930, p. 352, fig. 26.

- Occurrence*: 1. St. 27. South Georgia. 1 juv. 4.5 mm.  
 2. St. 123. South Georgia. 1 ♀ 11.5 mm., 2 ovig. ♀♀ 14-15 mm.  
 3. St. 140. South Georgia. 6 ♂♂ 7-10 mm.  
 4. St. 144. South Georgia. 2 ♀♀ 10.5-12.5 mm., 1 ovig. ♀ 11.5 mm.  
 5. St. 145. South Georgia. 1 ♂ 11.5 mm.  
 6. St. 148. South Georgia. 1 ♀ 11.5 mm.  
 7. St. 159. South Georgia. 2 ♀♀ (1 with embryos) 13 mm.  
 8. St. WS 33. South Georgia. 1 ♂ 8 mm., 1 ♀ 10 mm.  
 9. St. MS 71. South Georgia. 1 ♀ with embryos 12 mm.

REMARKS. Though the adults are considerably smaller than the Terra Nova examples, in fact suspiciously like *margueritei*, I see no differences in them except that side-plates 1-3 are more or less narrowed below and bifid, and thus approximate to the form of those of typical *margueritei*; the mandibles are not so heavily chitinized or so blunt apically as in the large Terra Nova specimens, but distinctly heavier than in the specimens here referred to *margueritei*; the characteristic wide notch between the two sharp points on the head is present in all these specimens.

DISTRIBUTION. Oates Land, 329-66 m.; McMurdo Sound, 348-547 m.

**Gnathiphimedia sexdentata**, Schell.

Schellenberg, 1926, p. 331; 1931, p. 116.

Barnard, 1930, pp. 353, 449, fig. 27 (*pacifica*, non Stebb.).

? Walker, 1907, p. 27 (*pacifica*, non Stebb.).

? Chevreux, 1913, p. 118 (*pacifica*, non Stebb.).

- Occurrence*: 1. St. 123. South Georgia. 1 ♂ 10 mm., 1 ♀ 11 mm.  
 2. St. 148. South Georgia. 1 ♀ 11 mm.  
 3. St. 149. South Georgia. 1 ♀ 9 mm., 1 ovig. ♀ 11 mm.  
 4. St. 156. South Georgia. 1 ♂ 10 mm.  
 5. St. 170. South Shetlands. 1 ♀ 11.5 mm.  
 6. St. 175. South Shetlands. 1 ♂ 11.5 mm., 1 ♀ 13 mm.  
 7. St. 190. Palmer Archipelago (90-130 m.). 1 ♂ 11.5 mm.  
 8. St. 190. Palmer Archipelago (315 m.). 1 ♂ 13 mm., 1 ♀ 15 mm.

REMARKS. These specimens are all smaller than those of the Terra Nova collection, but otherwise they are in agreement. In most the side-plates 1 and 2 are as figured (1930), but in some cases side-plate 1 is truncate and slightly concave below, and side-plate 2 is subtruncate. There is no trace of a dorsal keel on pleon segments 1-3.

I am now convinced that neither the Terra Nova nor the Discovery (1925-7) specimens should be identified with *pacifica*, Stebb. There can be little doubt that Walker's specimens, also from McMurdo Sound, are the same as the Terra Nova specimens; and in all probability the Pourquoi Pas specimens from Marguerite Bay should also be referred to *sexdentata*.

DISTRIBUTION. 'Gauss' winter station, 385 m.; McMurdo Sound, 256-547 m. Probably also Marguerite Bay, 50-200 m.

**Gnathiphimedia macrops**, n.sp. (Fig. 68).

*Occurrence*: St. 42. South Georgia. 1 ♂ 11.5 mm.

DESCRIPTION. Resembling *sexdentata* (cf. Barnard, 1930, fig. 27, as *pacifica*) as regards the dorsal armature and gibbous pleon segment 3, and 2nd joints of peraeopods 3-5. Antero-lateral margin of head with a narrow notch separating a rounded tooth above and a long acute tooth below. Eyes very large. Side-plate 1 oblong, lower margin concave, denticulate; side-plates 2-4 serrulate on lower anterior margins. Mandibular apex obtusely conical, strongly chitinized.



Fig. 68. *Gnathiphimedia macrops*, n.sp.  
Head with side-plates 1-4.

REMARKS. Chevreux (1913) found the eyes of *I. margueritei* much larger in ♂ than in ♀. In the same species from the Terra Nova collection I found the eye in the ♂ slightly larger than in the ♀; but in no other species in that collection, nor in any of those in the present collection, is there any appreciable difference in the size of the eyes in the two sexes. I am therefore inclined to regard the large eye in the present form as a specific character, though the specimen happens to be a ♂.

Apart from the size of the eye, the antero-lateral margin of the head forms a good distinguishing character.

The colour is given as "white and semitransparent with a pair of patches of brown chromatophores at base of foremost pair of dorsal spines; other scattered brown chromatophores at base of other dorsal spines and on basal segments of legs and antennae; eyes pink".

#### Genus *Anchiphimedia*, Brnrd.

Barnard, 1930, p. 357.

#### *Anchiphimedia dorsalis*, Brnrd.

Barnard, 1930, p. 357, figs. 29, 30.

*Occurrence*: St. 187. Palmer Archipelago. 1 ♂ 12.5 mm.

REMARKS. The tooth on the postero-lateral margin of pleon segment 3 and that on the postero-inferior angle of the same segment are both longer and more upturned, and the excision between the former and the gibbous dorsal apex of the segment is less angular.

The dorsal processes are markedly thick or even somewhat clavate, not like the evenly tapering processes of other species. In other respects the specimen is quite typical.

DISTRIBUTION. McMurdo Sound, 547 m.

#### Genus *Labriphimedia*, Brnrd.

Barnard, 1931, p. 427.

Epistome short and broad. Upper lip transverse, much broader than long, not incised. Mandible tapering to a smooth, symmetrical, spoon-shaped apex, secondary cutting-plate present or absent, molar rudimentary, no spine-row. Lower lip without inner lobes, outer lobes not apically incised. Maxilla 1 with stout 2-jointed palp which extends beyond apex of outer plate. Maxilliped with inner plate moderately broad, outer plate broad, palp rather slender, 2nd joint neither expanded nor apically produced.

REMARKS. In the Terra Nova Report (p. 358) I assigned *Iphimedia pulchridentata*, Stebb., to the genus *Echiniphimedia* in spite of certain details in the mouth-parts. The discovery of the species described below, which agrees with *pulchridentata* in the general shape of the mandible and maxilliped, as well as in the short broad labrum, clearly indicates that both should be placed in a new genus.

Among several types of mandible found in the members of this family the peculiar scoop-like apices of the present form are quite distinctive and indicate a diet quite different from that of *Gnathiphimedia*, for example.

The transverse upper lip connects this genus with *Maxilliphimedia*, but it is well separated by the other mouth-parts, though the stout maxillary palp shows a tendency to evolve in the direction of the latter genus.

The species described below is designated as the genotype.

*Labriphimedia vespuccii*, Brnrd. (Fig. 69).

Barnard, 1931, p. 427.

*Occurrence*: St. 51. Falklands. 1 ovig. ♀ 16 mm.

**DESCRIPTION.** Integument indurated, sparsely punctate. Rostrum stout, about as long as rest of head. Antero-lateral margin of head with two rather broad subquadrate teeth separated by a narrow notch; the lower tooth in the present specimen is somewhat bent inwards over the bases of the mandibles. Eyes rather larger than in most of the other allied species. Peraeon segment 7 with a pair of dorsal processes. Postero-inferior angles of segments 1-4 rounded, of 5-7 subacute. Side-plates 1-3 rounded below;

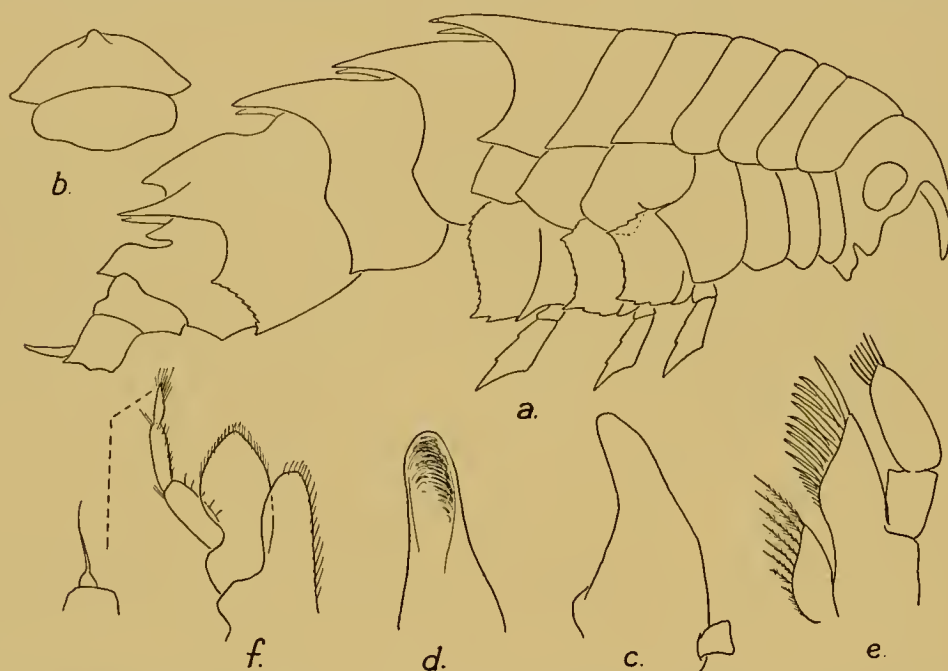


Fig. 69. *Labriphimedia vespuccii*, Brnrd. a. General view. b. Epistome and upper lip. c, d. Ventral and inner views respectively of mandible, 2nd and 3rd joints of palp omitted. e. Maxilla 1. f. Maxilliped, apex of 3rd palpal joint with rudimentary 4th joint further enlarged.

4 rather blunt below, postero-inferior angle quadrate, lower posterior margin not strongly concave. Pleon segments 1-3 each with paired dorsal processes, and a medio-dorsal low keel, as in *L. rigida*, but that on segment 3 ending posteriorly in a sharp tooth; postero-inferior angles of segments 2 and 3 with short points, the hind margin on segment 3 serrate between the lower angle and the short lateral point; segment 4 with a rather high medio-dorsal keel, deeply notched in middle and ending posteriorly in a short tooth; the dorso-lateral keels on segment 6 ending acutely. Telson apically notched, the lobes sharply pointed.

Antenna 1, inner distal margin of 1st joint with a short bidentate tooth not extending beyond end of 2nd joint, with a short tooth at its base on upper inner apex; one strong tubercle in middle of lower surface. Epistome transverse, with a median conical tubercle proximally. Upper lip transverse, twice as broad as long, distal margin not

incised. Mandible tapering to a smooth, narrowly rounded, scoop-like or spoon-like apex, concave on inner surface, no secondary cutting-plate or spine-row, molar rudimentary. Lower lip without inner lobes, outer lobes not apically incised. Maxilla 1, outer lobe obliquely truncate, with about 11 serrate spines and some setae, palp stout, 1st joint a little longer than broad, 2nd ovate, extending beyond apex of outer lobe. Maxilliped, inner plate moderately broad, outer plate broad, apically somewhat pointed, palp slender, 2nd joint not apically enlarged or produced, 4th joint a mere rudiment with one long seta.

Peraeopods 3-5, 2nd joints strongly expanded, lower hind corners produced in short points, a shorter point at upper hind corner in peraeopods 3 and 4, lower and hind margins serrate.

Uropod 2, outer ramus two-thirds length of inner ramus.

REMARKS. Named after Amerigo Vespucci, the Florentine cosmographer, who was probably the first to sight the Falkland Islands (Boyson, *The Falkland Islands*, Oxford, 1924, p. 15).

Genus *Echiniphimedia*, Brnrd.

Barnard, 1930, p. 358.

*Echiniphimedia hodgsoni* (Wlkr.).

Walker, 1907, p. 30, pl. xi, fig. 8.

Barnard, 1930, p. 359, fig. 31.

Schellenberg, 1931, p. 123.

- Occurrence*: 1. St. 140. South Georgia. 1 juv. 10 mm.  
 2. St. 148. South Georgia. 1 ♀ 40 mm.  
 3. St. 149. South Georgia. 2 ♂♂ 11 and 20 mm., 1 ♀ 12 mm.  
 4. St. 158. South Georgia. 1 ♀ 18 mm.  
 5. St. 170. South Shetlands. 1 ♀ 24 mm.  
 6. St. 175. South Shetlands. 1 ♂ 13 mm.  
 7. St. 190. Palmer Archipelago (90-130 m.). 1 ♂ 25 mm.  
 8. St. MS 71. South Georgia. 1 ♀ 23 mm.

REMARKS. The ♀ from St. 170 and the ♂ from St. 175 are conspicuous amongst all the others by their distinctly longer and more slender spines, and thus are more like Walker's figure than the other Discovery or Terra Nova specimens. But the arrangement of the spines does not differ, and they can be regarded as casual variations. The supra-ocular spine is absent in all the specimens except the ♂ from St. 190.

The colour of the specimens from St. 149, 158 and 190 respectively is given as "pale pinkish buff with pink eyes", "creamy white with a close speckling of minute red spots all over body and legs, eyes reddish brown", and "pale buff with pink eyes, tips of mouth-parts dark yellow".

On two occasions, St. 149, 190, it was noted that this species was probably commensal with a sponge. The spiny armature may therefore be a case of mimicry, the length of the spines depending on the species of sponge.

DISTRIBUTION. Coulman Island, 100 fathoms; McMurdo Sound and off Oates Land, 329-547 m.

**Echiniphimedia echinata** (Wlkr.).

Walker, 1907, p. 28, pl. x, fig. 16.

Chevreaux, 1913, p. 118.

Barnard, 1930, p. 361, fig. 23 (*nodosa*, non Dana).

- Occurrence*: 1. St. 140. South Georgia. 1 ♀ with embryos 26 mm.  
 2. St. 148. South Georgia. 1 ♀ 19 mm.  
 3. St. 149. South Georgia. 8 ♂♂ 13-17 mm., 5 ♀♀ 15-20 mm., 1 ♀ with embryos 27 mm., 1 juv. 8.5 mm.  
 4. St. 190. Palmer Archipelago (90-130 m.). 1 ♂ 16 mm., 1 ovig. ♀ 23 mm.

REMARKS. Compared with the Terra Nova specimens, the present lot are remarkably uniform in their armature. Peraeon segments 1-6 and side-plates 1-3 quite smooth. Lateral carina, formed by the overlapping lower margins of the segments, prominent and indicated even in the young taken from the brood-pouch. Denticles on 2nd joints of peraeopods 3-5 increasing in number with age from three to five or seven. The tufts of sensory filaments on antenna 1 are usually better developed and more prominent, in both sexes, than in Walker's figure.

As shown above I have now followed Stebbing in his interpretation of Dana's *nodosa*, and keep *echinata* as a separate species. The essence of the distinction between the two forms is the presence of *paired* dorsal processes in *nodosa*, and their absence in *echinata*; in the latter form consequently the medio-dorsal carination assumes a greater prominence. A profile drawing such as Dana's would apply to both forms; hence the impossibility of an absolutely certain determination of *nodosa* in the absence of Dana's type. Dana's figure shows denticles on the sides of the pleon segments as in *echinata*, but the 2nd joints of peraeopods 3-5 as in the form here called *nodosa*.

The colour of no. 3 is given as "pale yellowish buff with faint red speckling on spines of abdomen, on posterior coxal plates and on last three thoracic legs. Most of the specimens were found in a sponge".

DISTRIBUTION. McMurdo Sound; south of Graham Land.

### Genus *Pariphimedia*, Chevr.

Chevreaux, 1906, p. 38.

Stebbing, 1914, p. 358.

The original diagnosis of this genus has already been slightly modified by Stebbing. His explanation (1910, p. 584) of Chevreaux's figure of the mandible is obviously correct, and is confirmed by the present specimens in which there is not a trace of a secondary cutting-plate in either mandible.

There is also a minute unguiform 4th joint in the palp of the maxilliped, situated on the outer margin and not extending to the apex of the 3rd joint.

The statement in the original diagnosis that "le telson est échancré" was apparently a misprint, but it is literally true; all the present specimens have the telson apically notched, and the same is true of *normani*.

A littoral and shallow-water genus.



*Pariphimedia integricauda*, Chevr. (Fig. 70).

Chevreux, 1906, p. 39, figs. 21-23.

Chilton, 1912, p. 487.

*Occurrence*: St. 179. Palmer Archipelago. 1 ♂ 11.5 mm., 2 ♀♀ 15 mm., 1 juv. 6.5 mm.

REMARKS. The lower margin of the rostrum is continued as a low median keel on to the base of the epistome, rising at its upper end into a triangular pointed tooth. The dorsal tooth on the 3rd pleon segment rises from a low keel. Side-plate 4 fits into a groove near the lower margin of side-plate 5, its acute postero-inferior angle projects somewhat laterally; side-plate 6 is also grooved near the lower margin for the reception of the base of the 4th pereopod when this limb is pushed backwards. The telson is apically notched. Mandibles without a trace of a secondary cutting-plate. Palp of

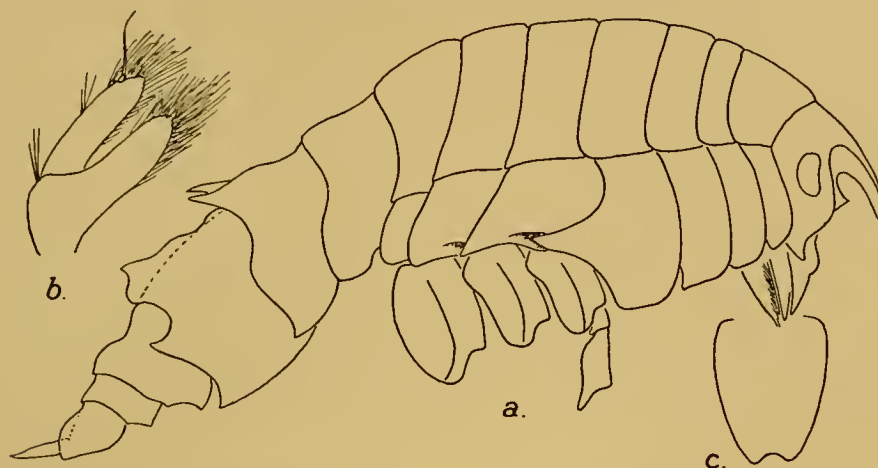


Fig. 70. *Pariphimedia integricauda*, Chevr. a. General view. b. 2nd, 3rd and rudimentary 4th joints of palp of maxilliped. c. Telson.

maxilliped with a minute unguiform rudiment of a 4th joint, not extending to the apex of the 3rd joint, and bearing a single long seta.

The colour as preserved is brownish-orange.

DISTRIBUTION. Palmer Archipelago, littoral; South Orkneys, littoral to 4 fathoms.

*Pariphimedia normani* (Cunn.) (Fig. 71).

Cunningham, 1871, p. 498, pl. lix, fig. 7.

Stebbing, 1906, p. 217; 1914, p. 359, pls. iv, v.

Schellenberg, 1931, p. 119.

*Occurrence*: St. 53. Falklands. 2 ♀♀ 9-10 mm. from kelp root.

REMARKS. Easily distinguished from the previous species by the absence of the paired processes on pleon segment 2 and the toothed keel on segment 3.

The median keel from the base of the rostrum to the epistome is the same as in *integricauda*. Side-

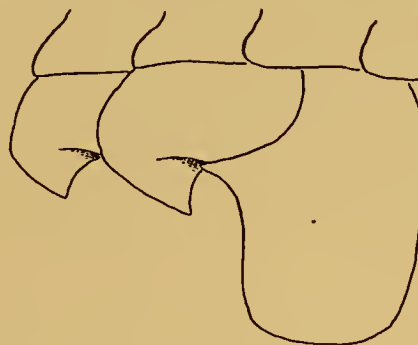


Fig. 71. *Pariphimedia normani* (Cunn.). Side-plates 4-6.

plates 5 and 6 are likewise grooved, but their shape is different, as is also that of side-plate 4. The antero-inferior angle of the head is acute. The rudimentary 4th palpal joint of the maxilliped is present, but very minute.

The colour of the smaller specimen is given as "deep bluish-violet mottled posteriorly with pale spots. Eyes pink. Antennae white; legs white except for basal segments [= joints]". As preserved the specimen is dull orange, eyes darker. The colour of the larger specimen presents a marked contrast, being "pure white with pink eyes". There are no structural differences. Cunningham gave the colour as purplish.

DISTRIBUTION. Elizabeth Island (in Magellan Strait); Falkland Islands.

#### Genus *Panoploea*, Thoms.

Stebbing, 1906, p. 211; 1910, p. 585.

Chevreaux, 1913, p. 114.

Stephensen, 1927, p. 313.

#### *Panoploea joubini*, Chevr.

Chevreaux, 1913, p. 114, figs. 19-21.

*Occurrence*: St. 195. South Shetlands. 1 ♀ 7 mm.

REMARKS. The lower margins of all the peraeon segments are imbricate, forming a lateral keel. No median keel or tooth between base of rostrum and epistome.

The colour is given as "brown and semitransparent. A large milk-white dorsal patch on thoracic segments 3-7, extending on to coxopodites. Abdominal segments 2 and 3 closely dotted with white dorsally and dorso-laterally. Eyes bright scarlet".

DISTRIBUTION. Off Adelaide Island, 250 m.

#### *Panoploea macrocystidis*, n.sp. (Fig. 72).

*Occurrence*: St. 53. Falklands. 1 ovig. ♀ 8 mm. from kelp root.

DESCRIPTION. Rostrum stout, slightly deflexed; a small sharp tooth at its base between bases of 1st antennae. Anterior margin of head slightly angular below eye; antero-inferior angle produced in an acute curved point. Peraeon segments 1-6 dorsally smooth, segment 7 with a pair of pointed processes; postero-inferior angles of segments 1-4 rounded, of segments 5-7 each produced in a pointed process; lower margins of all segments imbricate, forming a lateral keel. Side-plate 1 subtriangular, narrowed below, 2 and 3 oblong, 5-7 each with postero-inferior angle pointed; 5 with a groove, which however scarcely receives the posterior process of side-plate 4, but is for the purpose of allowing movement to the 2nd joint of peraeopod 3; 6 also has a short groove for the reception of the 2nd joint of peraeopod 4. Pleon segments 1 and 2 each with a pair of dorsal processes; segments 1-3 with a medio-dorsal keel which ends in a backwardly directed tooth; on segment 3 its profile is sinuous; segment 4 with a shallow transverse depression; 5 and 6 smooth, the dorso-lateral keels on the latter slight and ending bluntly. Postero-lateral margins of segments 1-3 with a tooth, that on segment 3 longest and upturned; postero-inferior angle of segment 1 rounded, of

segments 2 and 3 produced in a short point. Telson apically notched, the lobes rather sharply pointed.

Antenna 1, 1st joint with two acute processes on inner apex; rest of antenna 1 and whole of antenna 2 lost. Mandible elongate, apically subacute, secondary cutting-plate in right mandible only, elongate, apically bifid, molar reduced to a small tubercle. Maxilla 1, palp 2-jointed, not extending to apex of outer lobe. Maxilliped, 2nd joint of palp produced along inner margin of 3rd.

Gnathopods 1 and 2 as figured for *I. pacifica*, Stebb. (1888, pl. lxxi).

Peraeopods 3-5, 2nd joint strongly expanded, the hind margin produced into three strong teeth. The lateral longitudinal keel also produces a small tooth where it joins the lower hind margin.



Fig. 72. *Panoploea macrocystidis*, n.sp. a. General view, showing only the near-side process of the pair of dorsal processes on pleon segment 2. b. Right mandible. c. Maxilla 1, with spine from outer lobe further enlarged.

Uropod 2, outer ramus three-quarters length of inner ramus. Uropod 3, rami ovate-lanceolate.

REMARKS. The superficial likeness in dorsal armature to *Iphimedia pacifica*, Stebb., and *pulchridentata*, Stebb., and to *Panoploea joubini*, Chevr., is great; but the species really resembles *P. eblanae* even more closely, though the absence of paired dorsal processes on pleon segment 3 and the extra tooth on the 2nd joints of peraeopods 3-5 distinguishes it from the latter. Compare also, *P. multidentata*, Schell. 1931, p. 117, fig. 63.

The specimen was found among kelp roots and its colour was "brown, closely covered with small crimson spots. Legs broadly banded with red. Eyes bright pink".

#### *Panoploea excisa*, n.sp. (Fig. 73).

Occurrence: St. MS 82. Saldanha Bay, South Africa. 1 ovig. ♀ 3.5 mm.

DESCRIPTION. Rostrum acute, not strongly bent downwards. Eyes circular, pale (as preserved). Peraeon segments all rounded dorsally, without teeth except segment 7

which has a pair of very minute and inconspicuous denticles. Side-plates 1-4 oblong, rounded below, only the postero-inferior angles of 1 and 2 quadrate; postero-inferior angle of 5 and 6 rounded, of 7 quadrate, but not produced. Pleon segments 1-3 each with two dorsal procumbent teeth, no medio-dorsal carinal teeth, postero-inferior angle of segment 2 with a small acute point, of three acutely produced, with two to three small serrations and one larger tooth subapically on lower margin. Telson oblong, apex truncate, slightly emarginate.

Antenna 1, 1st and 2nd joints produced in two short denticles on lower apices, flagellum 7-jointed. Maxilla 1, palp slender, not reaching apex of outer lobe. Maxilliped, 2nd palpal joint produced on inner apex.

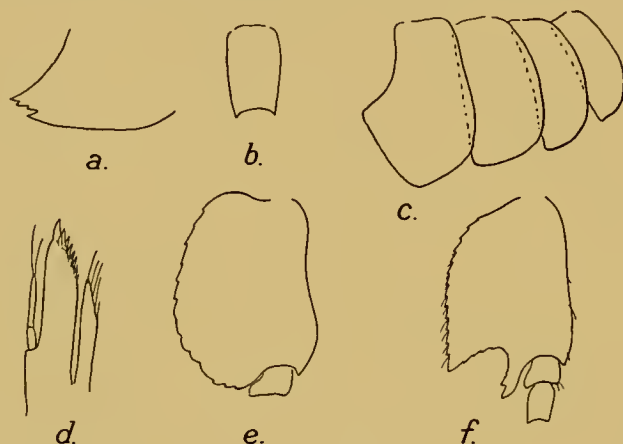


Fig. 73. *Panoploea excisa*, n.sp. a. Pleon segment 3. b. Telson. c. Side-plates 1-4. d. Maxilla 1. e. 2nd joint of peraeopod 3. f. 2nd joint of peraeopod 5.

Gnathopod 1 slender, chelate, 5th and 6th joints subequal, slightly longer than 3rd. Gnathopod 2 slender, subchelate, 5th and 6th joints subequal, 6th slightly widening distally to the rounded palm (as in figure of *Iphimedia capicola*, *supra*).

Peraeopods 3 and 4, 2nd joint with upper and lower hind angles rounded, hind margin feebly serrulate, with a slightly deeper indentation near lower angle, more pronounced in peraeopod 4 than in 3. Peraeopod 5, 2nd joint with a wide semicircular excision distally, hind margin serrate.

Uropods 1 and 2 unarmed, uropod 2 slightly shorter than 1. Uropod 3 as long as uropod 1, inner ramus longer than outer, ensiform, inner margin with a few widely-spaced minute short spinules.

Antenna 2 and distal joints of all peraeopods lost.

REMARKS. The excised 2nd joint of peraeopod 5, and the rounded apices of side-plates 1-4 are the distinguishing features of this species, which as regards the mouth-parts agrees with *minuta* (cf. Sars, 1895, pl. cxxxiii, fig. 1). This is the first record of this genus in South African waters.

## Family PAGETINIDAE

Barnard, 1931, p. 427.

Rostrum absent. Eyes present. Body moderately compressed, dorsally rounded. Pleon segments 5 and 6 coalesced. Side-plates shallow. Telson short, entire. Antennae short, 1st without accessory flagellum. Mandible without molar. Lower lip without inner lobes, outer lobes widely separated, mandibular processes blunt. Maxilla 1, palp reduced, inner lobe ? absent. Maxilliped, outer plate short, inner plates obsolete. Gnathopods 1 and 2 subchelate. Peraeopods 1-5 alike, 3-5 not much longer than the others, 2nd joint in peraeopod 5 moderately expanded. Peduncles of pleopods moderately long. Uropods 1 and 2 biramous; uropod 3 uniramous. Branchial lamellae simple.

REMARKS. The peculiar little Amphipod described below conflicts in one character or another with the definition of every family. The shallow side-plates, lower lip with its widely separated outer lobes and obsolete inner lobes, and the maxilliped recall certain Pardaliscids; the antennae, mandibles and the similarity to one another of the peraeopods recall *Lafystius*. The reduction of the maxillary palp and the uniramous character of uropod 3 are found in various families and are thus without significance. Fusion of the 5th and 6th pleon segments occurs in the Atylidae and certain Podocerids.

The name is taken from Mt Paget in South Georgia.

Genus *Pagetina*, Brnrd.

Barnard, 1931, p. 427.

With the above characters.

*Pagetina* genarum, Brnrd. (Fig. 74).

Barnard, 1931, p. 427.

*Occurrence*: 1. St. MS 22. South Georgia. 1 immat. ♀ 5.5 mm. *Type* ♀.

2. St. 42. South Georgia. 1 ♂ 5 mm. *Type* ♂.

3. St. 45. South Georgia. 1 ♂ 5 mm.

DESCRIPTION. Rostrum obsolete. Antero-lateral angle of head rounded, forming a deep cheek. Eyes lateral, small, circular. Back rounded, smooth. Side-plates shallow, 1 subtriangular, rounded in front, nearly straight behind, postero-inferior angle acute, 2 and 3 similar but longer, hind margins straight or feebly excavate, postero-inferior angles rounded-quadrangle, 5 and 6 feebly bilobed, 7 shorter than any of the others, ovoid. Postero-inferior angle of pleon segment 2, quadrangle, of 3 slightly produced in an acute point. Segments 5 and 6 fused. Telson oval, entire.

Antenna 1 short, 1st joint stout, flagellum 5-jointed, with sensory filaments, no accessory flagellum. Antenna 2 shorter than antenna 1, slender, flagellum 3-jointed.

Mandible, cutting-edge 4-dentate, secondary cutting-plate feeble, spine-row of three spines, no molar, palp well developed, 2nd and 3rd joints subequal. Lower lip without inner lobes, mandibular processes blunt. Maxilla 1, outer lobe ovate, tipped with about six spine-setae, inner lobe not observed, probably absent, palp short, 1-jointed, tipped

with a single seta. Maxilla 2, outer and inner lobes subequal in size, the outer tipped with 2-3 setae, inner with 4. Maxilliped, inner plates apparently obsolete, outer plate very short, palp well developed, 4th joint unguiform.

Gnathopod 1, 2nd joint somewhat pyriform, 5th joint short, triangular, 6th widening to the slightly oblique palm which is defined by a rounded angle, finger matching palm. Gnathopod 2 similar but 2nd joint more linear and palm more oblique.

Peraeopods 1 and 2, 2nd joint moderately stout, 6th longer than 5th, dactyl about half length of 6th. Peraeopods 3 and 4, 2nd joint oblong, stouter in peraeopod 4 than in 3, 4th-6th joints somewhat more slender than in peraeopods 1 and 2. Peraeopod 5, 2nd joint pyriform, widest proximally, hind margin emarginate, postero-inferior angle rounded.

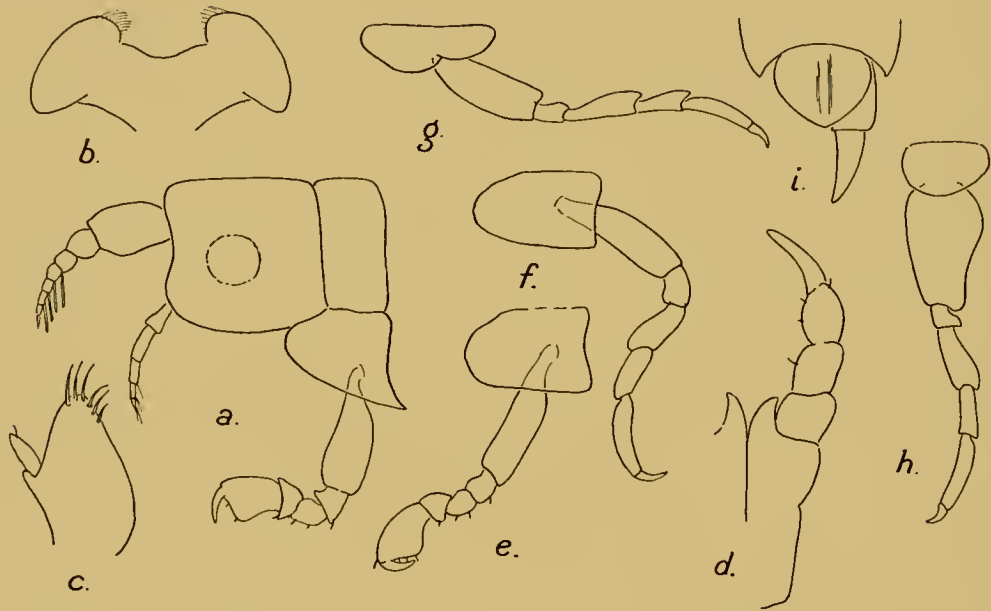


Fig. 74. *Pagetina genarum*, Brncd. a. Head with antennae 1 and 2, side-plate 1 and gnathopod 1. b. Lower lip. c. Maxilla 1. d. Maxilliped. e. Gnathopod 2. f. Peraeopod 1. g. Peraeopod 3. h. Peraeopod 5. i. Telson and uropod 3.

None of the gnathopods or peraeopods are armed with more than a few isolated spinules.

Pleopods with moderately long peduncles.

Uropod 1 extending back about as far as uropods 2 and 3, outer ramus shorter than inner which is slightly shorter than peduncle, both rami terminating in a short stout spine, but otherwise unarmed. Uropod 2 similar to uropod 1. Uropod 3 uniramous, the ramus unguiform, slightly longer than peduncle, unarmed.

Branchial lamellae oval, simple. Brood-lamellae oval, but not fully developed.

REMARKS. Note 26 for St. 45 says: "Translucent and whitish. In middle of each of thoracic segments IV-VIII [*sic*, ? VII] and of abdominal segments I and II a large round scarlet dorsal spot. A thin longitudinal purple line on each side of the abdomen [*sic*, ? peraeon] beneath which on each segment are streaks of purple forming an

irregular oval figure, the lower edge of which extends on to the coxal plates. First three abdominal segments each with a large oval spot of purple on each side and with reddish suffusion near the inferior edges. Eyes black. An ill-defined red patch at base of each thoracic limb and streaks of purple on second segment of last three thoracic limbs. Appendages otherwise colourless”.

The specimens from St. 42 and 45 are now white, with black eyes, and purplish marks along the sides, a patch on each peraeon segment and on pleon segments 1-3, also on basal part of 2nd joints of peraeopods 3-5.

### Family PARDALISCIDAE

Stebbing, 1906, p. 220.

Chevreaux, 1911 (*Bull. Inst. océan. Monaco*, no. 204), p. 7.

Schellenberg, 1926, p. 334.

### Genus *Pardalisca*, Kröy.

Stebbing, 1906, p. 221.

Schellenberg, 1931, p. 127.

### *Pardalisca abyssoides*, n.sp.

*Occurrence*: St. 190. Palmer Archipelago (90-130 m.). 1 ♂ 23 mm.

**DESCRIPTION.** Very close to *abyssi* Boeck. Cutting edge of mandible not strongly dentate, the 4th (posterior) denticle remote from the other three. Apex of outer plate of maxilliped slightly oblique, the outer apical angle further forward than the inner. Distal margin of maxillary palp truncate (not rounded as in Stebbing's figure, 1888, pl. xciii), with not more than ten spines.

Gnathopod 2, 5th joint distinctly more expanded at base than in either Stebbing's (*loc. cit.*) or Sars' (1895, pl. cxliii, fig. 1) figures. The unguiform dactyl in both gnathopods almost as long as 6th joint.

Peraeopods 1 and 2, 4th and 5th joints more expanded, especially in peraeopod 1. Peraeopods 3-5, hind margin of 2nd joints straight, or slightly concave in peraeopods 4 and 5, noticeable proximal to the apical rounded lobe; 2nd joint in peraeopods 3 and 4 certainly narrower than in Sars' figure.

Eyes not visible, but probably represented by a small patch of white tissue beneath the cuticle.

**REMARKS.** This constitutes the first record of *Pardalisca* in Antarctic waters, *P. marionis* being reckoned sub-Antarctic, and is further evidence of the similarity, and in some cases very close similarity, of the Arctic and Antarctic faunas.

### Genus *Nicippe*, Bruz.

Stebbing, 1906, p. 225.

Barnard, 1916, p. 161.

### *Nicippe unidentata*, n.sp.

*Occurrence*: 1. St. 181. Palmer Archipelago. 1 ♀ 14 mm.

2. St. 182. Palmer Archipelago. 1 ♂ 13 mm., 10 ♀♀ (1 ovig.) 10-12 mm. *Types*.

DESCRIPTION. Distinguished from *tumida* by the single tooth on pleon segment 4. The telson is scarcely more than twice as long as broad, the inner margins of the lobes straight, not sinuous. Secondary cutting plate in right mandible represented by a very stout spine (cf. Barnard, 1916). Second joint of peraeopod 5 with two (or three) long plumose setae arising from the submarginal keel on the inner surface. No trace of eyes or ocular pigment.

REMARKS. A very close ally of *tumida*, which is a typical northern form, but has been recorded off the coasts of South Africa and California.

#### Genus *Synopioides*, Stebb.

Stebbing, 1906, p. 226.

Schellenberg, 1926, p. 336.

#### *Synopioides macronyx*, Stebb.

Stebbing, 1888, pp. 1000, 1223, pl. xciv A; 1906, p. 227.

Schellenberg, 1926, p. 336; 1926 b, p. 225, fig. 17.

Barnard, 1930, p. 363, fig. 34.

Occurrence: 1. St. 89. South Africa. 3 ♀♀ 9-11 mm.  
2. St. 256. South-east Atlantic. 1 ♀ 9 mm.

REMARKS. Head and other characters as described by Schellenberg (1926 b). Second joint of peraeopod 3 distally expanded on hind margin, of peraeopod 4 ovate, slightly concave proximally, of peraeopod 5 pyriform.

DISTRIBUTION. Atlantic: 43° N-31° S. Southern Pacific and Indian Oceans.

#### Genus *Halice*, Boeck.

Stebbing, 1906, p. 228.

Chevreaux, 1912 (*Bull. Inst. océan. Monaco*, no. 233), p. 1.

Barnard, 1925, p. 347.

#### *Halice profund*i, n.sp.

Occurrence: 1. St. 41. South Georgia. 1 ♂ 12 mm. *Type* ♂.  
2. St. 45. South Georgia. 3 ♀♀ 8-10 mm. *Type* ♀.  
3. St. 142. South Georgia. 1 ♂ 10 mm., 1 ovig. ♀ 11 mm.  
4. St. 208. South Shetlands. 1 immat. ♀ 11 mm.  
5. St. MS 71. South Georgia. 1 ♂ 8 mm.

DESCRIPTION. Very like *abyssi*, Boeck. Rostrum extending scarcely to midway along 1st joint of antenna 1. The short inferior margin of head projects considerably farther downwards in ♀ than in Sars' figure (1895, pl. cxlv) of *abyssi* and is rounded below. Side-plates 1-5 shallower than in *abyssi*. Postero-inferior angle of pleon segment 3 quadrate, with a minute point. Tooth on pleon segment 4 *double*, that on segment 5 slender, spine-like as in *aculeata*, Chevr., much longer than that on segment 4.

Antenna 1, accessory flagellum in ♂ ovate, about as broad as long, rather abruptly narrowed at the apex where the seta is inserted. The breadth may not be natural, but due to swelling in the preservative, though none of the other appendages show any undue swelling.



Gnathopod 2, 5th joint broader, more convex on lower margin than in Sars' figure of *abyssi*. Peraeopods 1 and 2 as in *abyssi*. Peraeopods 3-5 in ♂ more slender than in *abyssi*.

Telson and uropods as in *abyssi*.

The ♀ from St. 208 has the tooth on pleon segment 4 single.

REMARKS. The depth of the head in ♀, the double tooth on pleon segment 4 (normally), and the spiniform tooth on segment 5 are the distinguishing features of this Antarctic counterpart of the northern *abyssi*. The accessory flagellum in ♂, if natural, is a further mark of distinction.

### Family OEDICEROTIDAE

Stebbing, 1906, pp. 235, 726.

Barnard, 1925, p. 348.

Schellenberg, 1925, p. 145; 1931, p. 139.

As the result of the Discovery Investigations this family, like several others, is shown to be well represented in the southern seas.

#### Genus *Parapericulodes*, Brnrd.

Barnard, 1931, p. 427.

Rostrum short. Eyes completely fused, forming a circular (unpigmented) patch on top of head, not on rostral process, lenses well developed, numerous. First side-plate produced forwards. Telson short, broader than long.

Antenna 1 shorter than antenna 2. Mandible, molar with triturating surface, palp linear, 2nd joint not curved. Lower lip with inner lobes separate. Maxilla 1 with 1-2 setae on inner lobe.

Gnathopods 1 and 2, 5th joint with broad lobe, 6th joint ovate. Peraeopods 1 and 2 without expanded joints.

Uropod 3 not longer than uropods 1 and 2.

REMARKS. Resembling *Periculodes* as regards the fused eyes and the short rostrum, but differing in the well-developed molar of the mandible, and the gnathopods. These same two characters also separate it from *Periculopsis*, Schell.

#### *Parapericulodes brevimanus*, Brnrd. (Fig. 75).

Barnard, 1931, p. 427.

*Occurrence*: 1. St. 144. South Georgia. 1 ovig. ♀ 5.5 mm.

2. St. 154. South Georgia. 7 ovig. ♀♀ 5-6 mm., 6 immat. 4-5 mm.

3. St. WS 62. South Georgia. 1 ovig. ♀ 4 mm.

4. St. MS 68. South Georgia (220-247 m.). 1 ♂ 6 mm., 3 ovig. ♀♀ 5.5 mm., 8 juv. and immat. 2.5-5 mm. *Types*.

DESCRIPTION. Integument smooth. Head, peraeon and pleon dorsally rounded. Rostrum short, only slightly deflexed. Eyes completely fused, forming a circular patch

on top of head, not on rostrum, without pigment (as preserved), but with numerous highly refractive lenses. Postero-inferior angle of pleon segment 3 rounded. Telson short, broader than long, apically emarginate, a spinule on each rounded postero-lateral corner.

Antenna 1 shorter than antenna 2, the latter elongate in ♂. Upper lip ovate, longer than broad. Mandible, molar with well-developed triturating surface, palp linear, well developed, 2nd joint not strongly curved. Lower lip with inner lobes separate. Maxilla 1, inner lobe small, tipped with 1-2 setae.

Gnathopod 1 stronger than gnathopod 2, 5th joint with broad round lobe, 6th joint ovate, slightly longer than 5th, palm longer than hind margin. Gnathopod 2, 5th joint with fairly broad lobe, but not so broad as in gnathopod 1, 6th joint ovate, but narrower than in gnathopod 1.

Uropods with the rami subequal; the 3rd uropod not extending beyond the other two.



Fig. 75. *Paraperioculodes brevimanus*, Brnrd. a. Head with 1st peduncular joint of antenna 1. b. Telson. c. Gnathopod 1. d. Gnathopod 2.

REMARKS. The structure of the eyes invites comparison with *Oedicerooides brevirostris*, Schell., 1931, p. 144, fig. 76.

#### Genus *Monoculodes*, Stmps. n.

Stebbing, 1906, pp. 258, 727.

Although typically the process of 5th joint of gnathopod 2 extends nearly or quite to the end of the hind margin of 6th joint, there are species (e.g. *latimanus*) in which it is shorter. All the species here described have a relatively short process.

#### *Monoculodes antarcticus*, n.sp. (Fig. 76).

? Strauss, 1909, p. 68, figs. 41-43. (*Bathymedon acutifrons*, non Bonnier.)

Occurrence: 1. St. 167. South Orkneys. 8 ♂♂ 16-20 mm., 11 ♀♀ 15-21 mm., 3 immat. 12 mm.  
Types.

2. St. 175. South Shetlands. 1 ♀ 17 mm.
3. St. 181. Palmer Archipelago. 9 ♀♀ (2 ovig.) 13-16 mm.
4. St. 182. Palmer Archipelago. 1 ♂ 15 mm., 2 ♀♀ 17-18 mm.
5. St. 187. Palmer Archipelago. 1 ♂ 14 mm., 1 ♀ 15 mm.

DESCRIPTION. Integument smooth, except when seen under a high magnification, when it has the appearance shown in the figure, viz. extremely minute denticles either singly or in groups. Back rounded, though peraeon segment 7 and the pleon are somewhat imbricate in profile. Rostrum moderate, reaching not quite to end of 1st joint of antenna 1, deflexed, evenly curved. Head not narrowly produced behind eyes. Eyes invisible, probably represented by a patch of white pigment on base of rostrum. Sideplates 1-4 rather deep, 1 subtriangular, expanded in front, as long as deep, 4 also as long as deep, posterior margin shallowly emarginate, postero-inferior margin oblique, straight. Postero-inferior angle of pleon segment 3 broadly rounded. Telson ovoid, longer than broad, distal margin slightly convex, with two spinules set in notches.

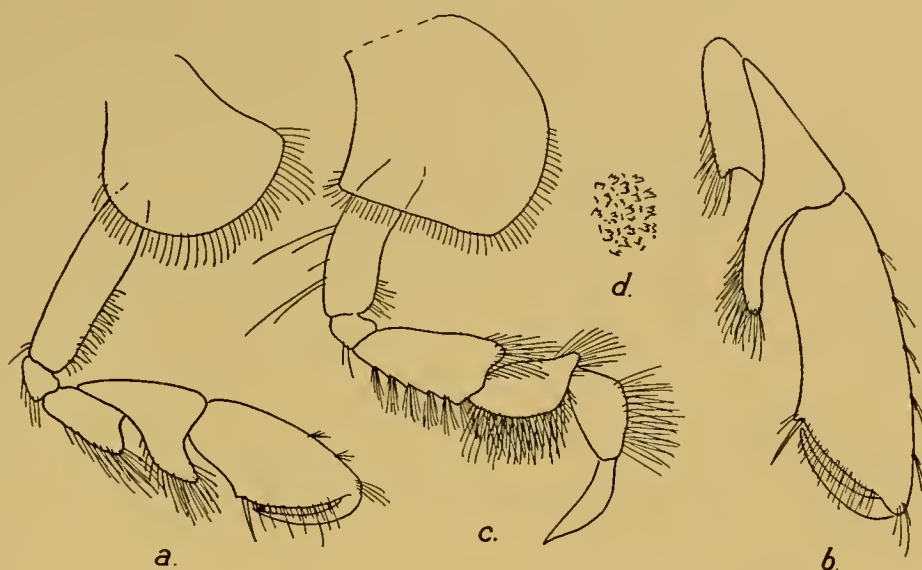


Fig. 76. *Monoculodes antarcticus*, n.sp. a. Gnathopod 1. b. Gnathopod 2. c. Peraeopod 2. d. Integumentary sculpture from dorsal part of pleon.

Antenna 1 reaching a short distance beyond peduncle of antenna 2, 1st and 2nd joints subequal, 3rd shorter, flagellum a little longer than peduncle, 20-jointed. Antenna 2, 4th joint slightly longer than 5th.

Gnathopod 1, 5th joint oblique, distally produced forwards, 6th oblong, longer than 5th, palm a little longer than hind margin, and defined by a long spine, with a small tooth below the spine. Gnathopod 2, the narrow process of 5th joint extending only half-way along lower margin of 6th joint, which is narrow oblong, palm defined by a long spine.

Peraeopods 1 and 2 stout, 4th-7th joints rather strongly expanded, 5th and 6th joints subequal, 7th a trifle longer than 6th, cultrate. Peraeopods 3 and 4, 2nd joint narrow pyriform, posterior margin distally straight or slightly concave, 4th expanded, much wider than 3rd or 5th, 6th longer than 5th, 7th longer than 6th, almost as long as 4th. Peraeopod 5, 2nd joint broadly pyriform, 4th not expanded, 4th and 5th subequal, 6th a little longer.

REMARKS. Unlike the northern representatives of this genus, this species apparently has degenerate or very inconspicuous eyes, though the eyes in *pallidus*, Sars, are feebly developed, and in *tenuirostris* they are described as faint in alcoholic specimens. As further specific characters of this species may be noted the short process of 5th joint of gnathopod 2, and the strongly expanded joints of peraeopods 1 and 2.

It is more likely that the specimens recorded by Strauss (1909) as *Bathymedon acutifrons* are really this species than that they are referable to Bonnier's species.

**Monoculodes scabriculosus, n.sp. (Fig. 77).**

*Occurrence:* 1. St. 140. South Georgia. 4 ovig. ♀♀ 7-8 mm.

2. St. 164. South Orkneys. Many ♂♂, ovig. ♀♀ and juv. up to 10 mm. *Types.*

3. St. 173. South Shetlands. 6 ♀♀ (4 ovig.) 8-9 mm.

4. St. WS 62. South Georgia. 1 ovig. ♀ 6 mm., 2 ♀♀ 7 mm., 8 juv. 3-5 mm.

5. St. MS 65. South Georgia. 6 ovig. ♀♀ 9-10 mm., 1 ♀ with embryos 10 mm., 3 immat. ♀♀ 6-7 mm., 9 juv. 4-6 mm.

6. St. MS 67. South Georgia. 1 ovig. ♀ 10 mm., 3 ♀♀ 8-9 mm., 13 juv. 3.5-7 mm.

7. St. MS 71. South Georgia. 1 ovig. ♀ 10 mm.

8. St. MS 74. South Georgia. 5 ♀♀ 5-9 mm.

DESCRIPTION. Integument smooth anteriorly, but on the pleon segments minutely scabrous; the scabrosity formed by close-set triangular (pyramidal) tubercles, and ex-

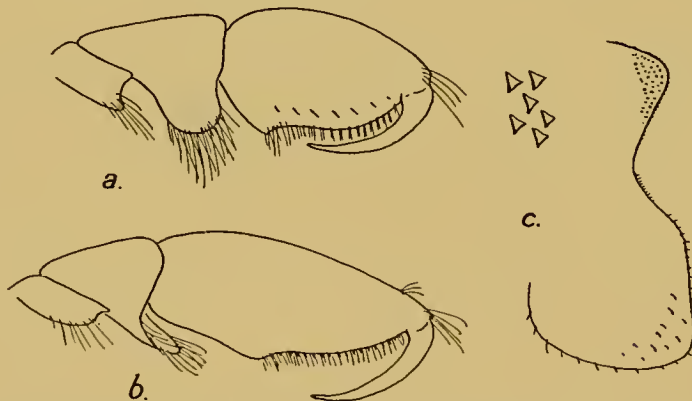


Fig. 77. *Monoculodes scabriculosus*, n.sp. a. Gnathopod 1. b. Gnathopod 2. c. Pleon segment 3, with integumentary sculpture further enlarged.

tending about half-way down the pleura where it gradually disappears. Rostrum rather strongly deflexed, gibbous, but evenly curved. Head not narrowly produced behind eyes. Eyes well developed, dark. Side-plate 1 not strongly expanded in front, 4 slightly deeper than long, posterior margin excavate, lower margin evenly convex. Postero-inferior angle of pleon segment 3 broadly rounded. Telson ovoid, longer than broad, distal margin slightly convex, with two spinules set in notches.

Antenna 1 reaching to about middle of 5th peduncular joint of antenna 2, 1st and 2nd joints subequal, 3rd shorter, flagellum 9-10-jointed. Antenna 2, 4th and 5th joints subequal, flagellum 16-17-jointed.

Gnathopod 1, 5th joint produced in a rounded lobe below, but not produced forwards, 6th longer than 5th, palm longer than hind margin, defined by a blunt tooth. Gnathopod 2, 5th joint with narrow spoon-shaped process extending only half-way along hind margin of 6th, 6th elongate-oval, palm longer than hind margin, defined by a slight emargination, but no tooth.

Peraeopods 1 and 2, joints moderately expanded. Peraeopods 3 and 4, 2nd joint oval, 4th expanded, 7th subequal to 6th. Peraeopod 5, 2nd joint broadly pyriform, 7th subequal to 6th.

REMARKS. The very short process on the 5th joint of gnathopod 2 is distinctive, but whether the scabrosity on the pleon is unique one cannot say, because such features are frequently not recorded.

*Monoculodes vallentini* (Stebb.) (Fig. 78).

Stebbing, 1914, p. 360, pls. vi, vii.

Occurrence: St. 51. Falklands. 3 ♂♂ 10–11 mm., 2 ♀♀ 12–13 mm., 1 juv. 7 mm.

DESCRIPTION. Integument on the pleon covered with minute pointed denticles, much smaller than in *scabriculosus*. Rostrum moderate, reaching to middle of 1st joint of antenna 1, deflexed, evenly curved. Head not narrowly produced behind eyes. Eyes visible as oval white patches, contiguous on top of head. Side-plates 1–4 rather deep, 1 expanded in front, 4 with posterior margin emarginate, lower margin gently convex, i.e. not projecting very much lower than postero-inferior angle, the latter more narrowly rounded than in Stebbing's figure. Postero-inferior angle of pleon segment 3 broadly rounded. Telson quadrangular, slightly longer than broad, apex truncate, straight or very slightly emarginate, angles rounded, with a seta near each.

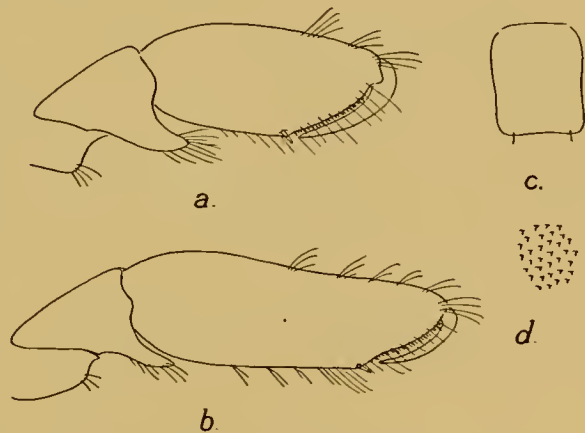


Fig. 78. *Monoculodes vallentini* (Stebb.). a. Gnathopod 1. b. Gnathopod 2. c. Telson. d. Integumentary sculpture from dorsum of pleon.

Antenna 1 reaching only a very short way beyond end of peduncle of antenna 2, 1st and 2nd joints subequal, 3rd much shorter, flagellum 15-jointed. Antenna 2, 5th joint a little, but distinctly, longer than 4th, flagellum mutilated.

Gnathopod 1, 5th joint with process not nearly as narrow as in Stebbing's figure, extending half-way along hind margin of 6th, 6th ovoid, palm subequal to hind margin, defined by a small spine. Gnathopod 2, 5th joint with process narrow, extending not more than one-third length of hind margin of 6th, 6th elongate-ovoid, somewhat tapering distally, palm much shorter than hind margin and defined by a small spine.

Peraeopods 1–5, cf. Stebbing's figures, 2nd joint of peraeopod 5 more broadly ex-

panded, subcircular, hind margin entire as in the figure on plate 7, not serrate as the figure of the whole animal on plate 6 seems to suggest.

REMARKS. It is but reasonable to assume that these specimens are the same as Stebbing's species, although the 5th joint of gnathopod 1 and the antennae are not exactly as Stebbing described them. It would seem that the antennae vary somewhat in relative lengths, though Stebbing even toyed with the idea of a new genus because the antennae in *vallentini* differed in length from those of the typical species *Monoculopsis longicornis*. The present specimens in this respect agree with those of *Monoculodes*.

DISTRIBUTION. Falkland Islands, low water.

#### Genus *Oediceroides*, Stebb.

Stebbing, 1906, p. 267.

Chevreur, 1911, p. 403.

Schellenberg, 1926 *b*, p. 226; 1931, p. 139.

Barnard, 1930, p. 366.

#### *Oediceroides calmani*, Wlkr.

Walker, 1907, p. 22, pl. vi, fig. 12.

Strauss, 1909, p. 6, etc., pl. ii, figs. 6-8 (structure of eye).

Chevreur, 1911, p. 403, figs. 1, 2 (*lahillei*).

Barnard, 1930, p. 366.

- Occurrence*: 1. St. 45. South Georgia. 1 ♂ 17 mm.  
 2. St. 145. South Georgia. 2 ♀♀ 14.5 and 22 mm.  
 3. St. 159. South Georgia. 2 ♀♀ 18-19 mm.  
 4. St. 167. South Orkneys. 1 ♂, 1 ♀ 21 mm.  
 5. St. 180. Palmer Archipelago (160-330 m.). 5 ♀♀ 12-20 mm.  
 6. St. 181. Palmer Archipelago. 2 ♂♂ 16 and 18 mm., 8 ♀♀ (3 ovig.) 16-24 mm., 3 immat. 12-14 mm.  
 7. St. 182. Palmer Archipelago. 1 ♂ 17 mm., 1 ♀ 14 mm.  
 8. St. 190. Palmer Archipelago (315 m.). 2 ovig. ♀♀ 21 mm.  
 9. St. WS 25. South Georgia. 1 ♀ 16 mm.  
 10. St. WS 33. South Georgia. 1 ♀ 19 mm., 1 juv. 10 mm.  
 11. St. MS 66. South Georgia. 1 ♀ 19 mm.  
 12. St. MS 67. South Georgia. 1 ♂ 12 mm.  
 13. St. MS 71. South Georgia. 2 ♀♀ 11 and 13 mm., 2 juv. 7-8 mm.

REMARKS. The eyes are much more gibbous and prominent than in Chevreur's figure.

The two ♀♀ from St. 145 are pale biscuit-colour, with numerous reddish specks, visible chiefly on head, side-plates 1 and 2, and on the pleon. The colour of the ♂ from St. 45 is given as "all body segments closely covered with small maroon chromatophores, appendages pale, eye black".

It would seem that *lahillei* is synonymous, showing an extreme development of the dorsal "wrinkling", which is somewhat variable, as is seen in the present material, and as was remarked upon by Chevreur in 1913 in comparing his specimens of *calmani* with Walker's original description. See also Schellenberg, 1931, p. 140.

DISTRIBUTION. Ross Sea, 100 fathoms and 256-379 m.; Marguerite Bay, 200-254 m.; South Sandwich Group, 30-50 fathoms.

*Oediceroides macrodactylus*, Schell. (Fig. 79).

Schellenberg, 1931, p. 140, fig. 74.

- Occurrence*: 1. St. 42. South Georgia. 3 ♀♀ 9–11 mm.  
 2. St. 45. South Georgia. 1 ♂ 11 mm., 8 ♀♀ 10–15 mm.  
 3. St. 123. South Georgia. 30 ♀♀ 9–13 mm.  
 4. St. 144. South Georgia. 15 ♀♀ 8–12 mm.  
 5. St. 148. South Georgia. 4 ♀♀ 11–12 mm.  
 6. St. 149. South Georgia. 1 ♂ 10 mm., 3 ♀♀ 11–13 mm.  
 7. St. 195. South Shetlands. 4 ♂♂, 5 ♀♀ 8–10 mm.

**DESCRIPTION.** Integument minutely shagreened and pubescent. Head, peraeon and pleon dorsally rounded. Rostrum gibbous, deflexed, extending to end of 1st joint of antenna 1. Antero-lateral angle of head subacute (as in *Paroediceros lynceus*, Sars, 1895, pl. ciii). Eyes apparently well developed, with glistening lenses, but quite white. Side-plate 1 strongly expanded and produced forwards below, 4 moderately excavate on hind margin. Telson subquadrate, distally slightly emarginate.

Antenna 1, 2nd joint nearly as long as 1st.

Gnathopod 1, 5th joint broadly lobed below, posteriorly rounded, anterior angle subquadrate. Gnathopod 2, 5th joint produced downwards in the shape of an oblique oblong or plough-share, somewhat similar to that of *calmani* (see Chevreux, 1913, fig. 30 A), and quite unlike the rounded lobe in *rostratus* or *cinderella*.

**REMARKS.** The characteristic features of this species are the even dorsal profile, the shape of the 5th joints in gnathopods 1 and 2, and the lack of coloured eye-pigment. The rostrum is not more gibbous than in *newnesi* or *calmani*.

The colour of no. 2 is given as "anterior half of body orange-red, remainder and appendages pale yellow, eyes red".

Genus *Methalimedon*, Schell.

Schellenberg, 1931, p. 150.

*Methalimedon nordenskjöldi*, Schell. (Fig. 80).

Schellenberg, 1931, p. 150, fig. 79.

- Occurrence*: 1. St. 27. South Georgia. 1 ovig. ♀ 6 mm.  
 2. St. 140. South Georgia. 2 ♀♀ (1 ovig.) 6 mm.  
 3. St. WS 33. South Georgia. 4 ♀♀ 7 mm.

**REMARKS.** This form is very close to *Parhalimedon turqueti*, Chevr., 1906, with which I at first identified the above specimens. They agree, however, with Schellenberg's description.

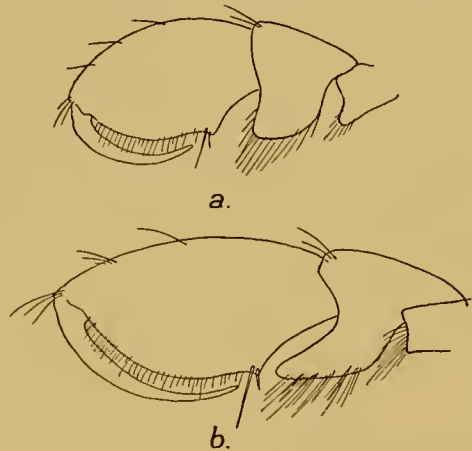


Fig. 79. *Oediceroides macrodactylus*, Schell.  
 a. Gnathopod 1. b. Gnathopod 2.



Fig. 80. *Methalimedon nordenskjöldi*, Schell.  
 a. Head. b. Telson.

## Family LILJEBORGIIDAE

Stebbing, 1906, p. 229.

Genus *Liljeborgia*, Bate.

Stebbing, 1906, p. 230; 1910, p. 588.

Schellenberg, 1925, p. 144; 1931, p. 128.

This genus is in an unsatisfactory state. I have not seen Walker's discussion of the variability of the dorsal denticles (*Tr. Liverp. Biol. Soc.*, XXIII, 102, 1907). The shape of the epistome may prove to be a useful specific character, but up to the present it has not been incorporated in descriptions, though it is more or less clearly indicated in the enlarged drawings of the head in Sars (1895). This defect should be remedied as soon as possible by some student having access to northern and Australasian material.

The South African specimen, identified by Stebbing as *dubia*, another resembling it in dorsal denticulation, and the specimen referred by me to *proxima* (1916, p. 167) are in too poor a condition to give any trustworthy evidence on this point.

It would seem also that the adult ♂ has features of considerable specific importance, namely, gnathopod 2 and peraeopod 5 (cf. Barnard, 1930, p. 365). Very few fully adult ♂♂ seem to have been noticed.

*Liljeborgia kinahani* (Bate) (Fig. 81).

Sars, 1895, p. 532, pl. clxxxviii, fig. 1.

Stebbing, 1906, p. 233.

var. *capensis* n.

Occurrence: St. 90. South Africa. 1 ♂ 10 mm.,  
1 ovig. ♀ 8 mm.

var. *georgensis* n.

Occurrence: St. 145. South Georgia. 1 ovig. ♀  
15 mm.

var. *falklandica* n.

Occurrence: St. 57. Falklands. 1 ♂ 11 mm.

REMARKS. These specimens all agree with Sars' figure and the descriptions of the northern *kinahani* as regards the tridentate pleon segments 1 and 2, and the single short decumbent tooth on both pleon segments 4 and 5. The fingers of gnathopods 1 and 2, however, have 7 and 17 serrations respectively; thus considerably more than in typical *kinahani*. The eyes are well developed, large (as in Chevreux's figure of *consanguinea*, 1913, fig. 25), black.

Epistome with the projecting keel triangular with an obtuse point in var. *capensis*, rounded subtriangular in var. *georgensis*, and oblong in var. *falklandica*.

Postero-inferior angles of side-plates 5 and 6 quadrate or slightly subacute, not toothed as in *mixta* Schell.

Hind margin of 2nd joint of peraeopod 5 with strong, deeply-indented serrations.

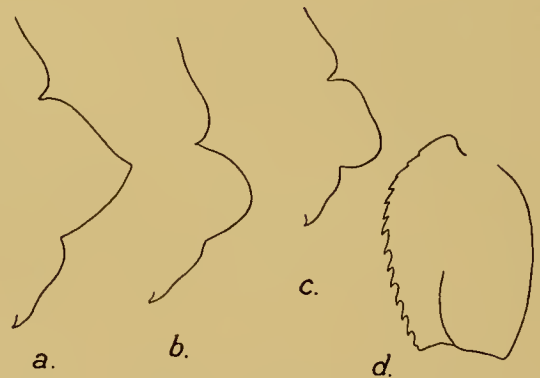


Fig. 81. *Liljeborgia kinahani* (Bate). Profile of epistome and upper lip of: a. Var. *capensis* n. b. Var. *georgensis* n. c. Var. *falklandica* n. d. 2nd joint of peraeopod 5 (♂) of var. *falklandica*.



The difference between the three varieties lies in the epistome. It is admittedly very slight, but it exists, and on the material at hand from three different localities it is impossible to say whether it is a constant or variable feature. In the following species the epistome, while varying slightly as do all parts of an animal when several examples are studied, yet preserves its essential characteristic shape.

The institution of three varietal names will perhaps be excused for this reason.

All the specimens, especially those from the more southerly localities, are larger than typical *kinahani*.

If the dorsal denticles should prove to be variable it may be possible to include Chevreux's specimens under one or other of the above varieties, with which they conform in having large black eyes. For this latter reason I do not agree with Chevreux in assigning them to *consanguinea*, Stebb. Schellenberg has named these specimens *chevreuxi* (1931, p. 128), and has also described five more species (pp. 129-136), without, however, making reference to the epistome.

*Liljeborgia longicornis* (Schell.) (Fig. 82).

Schellenberg, 1931, p. 137, fig. 73.

- Occurrence*: 1. St. 27. South Georgia. 1 ovig. ♀ 10.5 mm.  
 2. St. 51. Falklands. 1 ♂ 18 mm., 3 ♀♀ 10, 11 and 17 mm., 1 juv. 5 mm.  
 3. St. 144. South Georgia. 2 ovig. ♀♀ 13.5 and 15 mm.  
 4. St. 159. South Georgia. 1 mutilated 15 mm.  
 5. St. 160. Shag Rocks. 1 ♂ 13 mm.  
 6. St. 170. South Shetlands. 1 ♀ 16 mm.  
 7. St. 195. South Shetlands. 1 ♂ 9 mm., 1 ♀ 12 mm.

**DESCRIPTION.** In general like *fissicornis* (M. Sars). Eyes absent. Epistome broadly rounded. Pleon segments 1 and 2 in most of the specimens with a single medio-dorsal tooth, which often has a minute denticle on each side near its base; in the largest ♂ and ♀ from St. 51 these two segments are both tridentate. Pleon segment 3 not dentate, the posterior margin dorso-laterally strongly convex, curving anteriorly to form a narrow V-shaped medio-dorsal excision, into which the tooth on segment 4 fits. Segments 4 and 5 each with a strong medio-dorsal carinal tooth, that on segment 4 the larger, the keel arising right from base of segment.

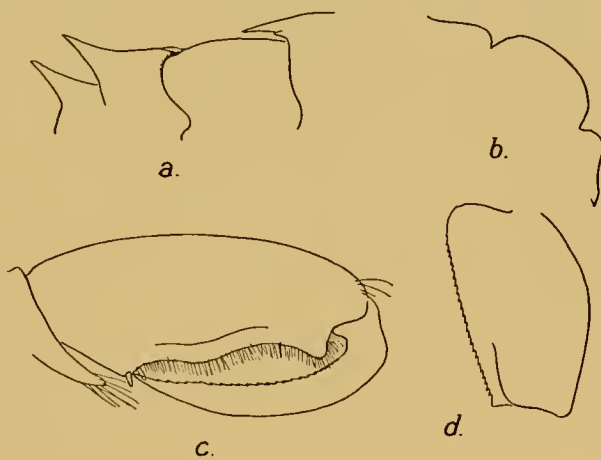


Fig. 82. *Liljeborgia longicornis*, Schell. a. Pleon segments 2-5. b. Profile of epistome and upper lip. c. Gnathopod 2 ♂. d. 2nd joint of peraeopod 5 ♂.

Gnathopods 1 and 2 in ♀ and immature examples normal, the number of serrations on the fingers increasing apparently with age from 3 to 5 in gnathopod 1, and from 8 to 12 or more in gnathopod 2. Gnathopod 2 in adult ♂ with elongate-ovate hand, palm three-quarters length of whole joint, sinuous,

ending in a narrowly rounded lobe near hinge, a group of four spines surrounding a shallow excavation into which the tip of finger fits, finger serrate for nearly its entire margin.

Peraeopods 3-5, 2nd joints all broader than in *fissicornis*, the postero-inferior angle quadrate; dactyls short as in *fissicornis*.

REMARKS. Although closely allied to *fissicornis*, the differences are well marked. The 3rd pleon segment not merely lacks the tooth found in *fissicornis*, but is dorsally incised for the reception of the keel on segment 4. This is an important specific character, and not to be regarded as in the same category as the number of dorsal denticles, which may be only varietal.

It is possible that the mutilated specimen from the South Orkneys, ascribed by Chilton (1912, p. 485) to *dubia*, belongs to the above described species.

*Liljeborgia epistomata*, n.sp. (Fig. 83).

Occurrence: Hoetjes Bay, Saldanha Bay, South Africa. 5. x. 26. 4 ♀♀ 11-15 mm. from stomach of *Trigla capensis*.

DESCRIPTION. Eyes apparently absent. Rostrum short, extending about one-third length of 1st joint of antenna 1. Antero-lateral angle of head rounded. Side-plate 1 distally expanded, lower margin of 1 and 2 setose, no denticle on postero-inferior corner of side-plates 1-3. Pleon segments 2, 4 and 5 each with a medio-dorsal tooth, those on segments 4 and 5 being the termination of medio-dorsal keels, that on 4 larger than that on 5, arising from base of segment and fitting into a narrow dorsal excision in the margin of segment 3, as in *longicornis* (*supra*). Postero-inferior angle of pleon segment 3 acutely produced, with a sinus above the point. Telson cleft to base, lobes oblong, apically truncate, with a prominent tooth on inner apex, the distal margin with three to four little denticles with long spine-setae arising between them.

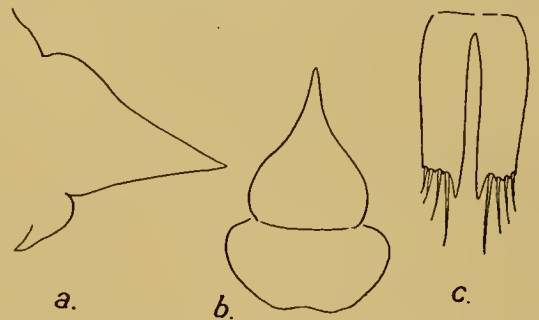


Fig. 83. *Liljeborgia epistomata*, n.sp. a, b. Profile and frontal view of epistome and upper lip. c. Telson.

Antenna 1 extending to middle of last peduncular joint of antenna 2, flagellum 16-20-jointed, accessory flagellum 7-8-jointed. Antenna 2, flagellum 18-22-jointed.

Epistome projecting as a prominent compressed acute tooth. Upper lip scarcely emarginate on distal margin. Mouth-parts normal.

Gnathopod 1, 6th joint ovate, finger with four teeth proximally on inner margin. Gnathopod 2 similar but larger, finger with eight teeth.

Peraeopods 1 and 2 slender, finger two-thirds length of 6th joint. Peraeopods 3-5, 2nd joints with hind margin almost straight, lower hind angle rounded-quadrate, margin serrate, finger one-third length of the setose 6th joint.

Uropod 3 with rami lanceolate.

REMARKS. The absence of a dorsal tooth on pleon segment 1, the truncate telsonic apices, and the projecting epistome are the distinctive marks of this species.

### Family ARGISSIDAE

Walker, 1904, pp. 246, 248.

Stebbing, 1906, p. 722.

Walker instituted this family to include *Platyischnopus* alongside of *Argissa* on the grounds of the similar development of the 1st antenna of ♂, and the posterior peraeopods. To this opinion I cannot subscribe. The posterior peraeopods of *Platyischnopus* appear to me to be far more in conformity with those of the Haustoriidae, in which family Stebbing placed his genus (1906, p. 122). Secondly, the 1st antenna of ♂ of *Argissa* bears far more resemblance to that of e.g. *Pardalisca* than it does to that of *Platyischnopus*. I therefore suggest that *Platyischnopus* be left in the Haustoriidae. The following genus which agrees with *Argissa* in a number of characters may be included in the Argissidae, or alternatively both may find a place in the Tironidae where Stebbing placed *Argissa*.

#### *Phylluopus*, n.g.

Body compressed. Rostrum small. Eyes well developed. Side-plates 1-4 deep, but 3 much smaller than the others, 4 largest, feebly excavate on hind margin, 5-7 longer than deep, 5 feebly bilobed. Telson ?.

Antenna 1 with accessory flagellum. Upper lip feebly incised. Lower lip with inner lobes distinct. Mandible normal, palp strong. Maxilla 1 with few setae on inner lobe, palp well developed. Maxilla 2, inner lobe slightly broader than outer, with an oblique row of setae. Maxilliped normal.

Gnathopods 1 and 2 simple. Peraeopods 1 and 2, 2nd joint slender and elongate, 4th elongate. Peraeopods 3-5, 2nd joint expanded on both anterior and posterior margins, 4th long, 5th and 6th (at least in peraeopod 3) slender.

Uropods 1 and 2 with slender rami. Uropod 3 enormously developed, the rami lamellate, set in a vertical plane.

REMARKS. The remarkable Amphipod for which this genus is created is unfortunately represented by a single ♀, with a mutilated telson. The 3rd uropod of the right side is also abnormal, but in other respects the specimen is in good condition, though the 2nd antennae and the distal joints of peraeopods 4 and 5 have been lost after capture.

The deep anterior side-plates, the 3rd smaller than the 4th, give an appearance very like *Argissa*, though on close examination the 2nd side-plate is seen to be a little larger than the 1st, instead of obviously smaller. The gnathopods are comparable with those of *Argissa*, but peraeopods 1 and 2 have the 2nd and 4th joints distinctive. The 2nd joints of peraeopods 3-5 are certainly more akin to those of the Haustoriidae or some Tironidae than to those of *Argissa*. The mouth-parts afford no decisive argument as to the systematic position of this form.

The most remarkable feature is the 3rd uropod, which gives the hind end of the animal the appearance of, e.g., a Pronoid Amphipod or even a Cirolanid Isopod. Though

the foliaceous rami appear to be set in a vertical plane, it may be assumed that in life they are capable of considerable lateral movement, and even in the preserved state the inner ramus can be pushed down so as to fit into the infolded outer margin of the outer ramus.

The discovery of the ♂ will be awaited with great interest. During the winter cruise of the 'Discovery II' in South Africa in 1930 Dr Kemp instituted a special search for this interesting little Amphipod, but without any success.

*Phylluropus capensis*, n.sp. (Figs. 84, 85).

*Occurrence*: St. 91. South Africa. 1 ovig. ♀ 5.5 mm.

*DESCRIPTION*. Integument smooth. Head with short, scarcely deflexed rostrum and acute antero-lateral angles. Eyes well developed, reniform, lateral, near the anterior

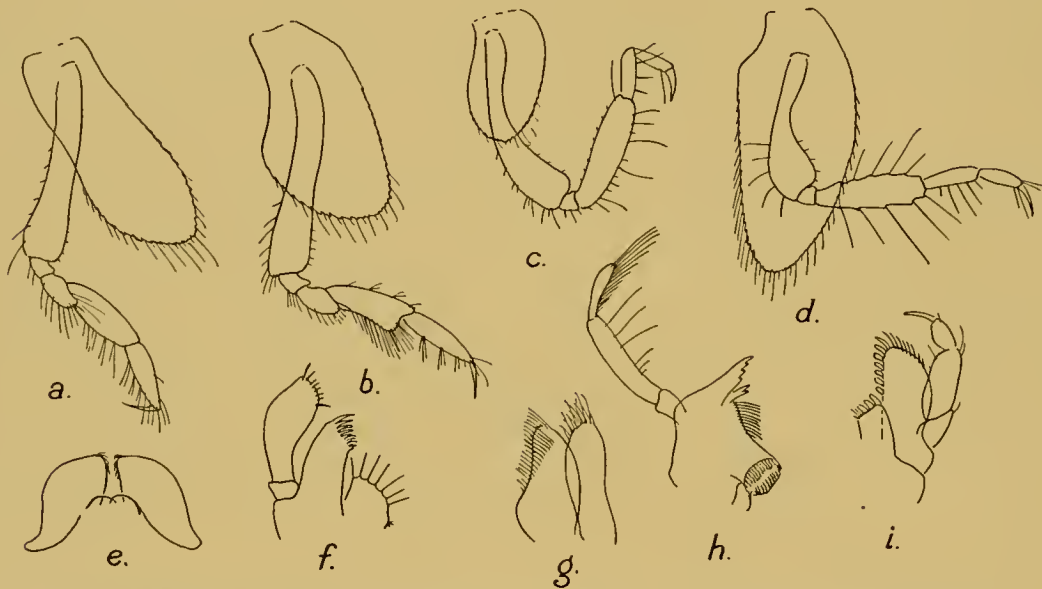


Fig. 84. *Phylluropus capensis*, n.g., n.sp. a. Gnathopod 1. b. Gnathopod 2. c. Peraeopod 1. d. Peraeopod 2. e. Lower lip. f. Maxilla 1. g. Maxilla 2. h. Mandible. i. Maxilliped.

margin, pale (as preserved). Side-plates 1-4 deeper than long, serrulate and setose on their lower margins, 3 much smaller than 2 or 4, the latter larger than either 1 or 2, ovate, shallowly excavate on hind margin proximally; side-plates 5-7 longer than deep, 5 feebly bilobed, the lobes subequal, 6 with slightly concave lower margin. Pleon segments 4 and 5 slightly gibbous posteriorly, but not dentiferous, the posterior margin minutely denticulate. Postero-inferior angles of pleon segments 1-3 rounded, the angle in segments 2 and 3 feebly crenulate. Telson as here figured, in course of regeneration.

Antenna 1 slender, 2nd joint longer and more slender than 1st, 3rd shorter than 1st, flagellum longer than peduncle, 11-jointed, accessory flagellum subequal to 1st flagellar joint, 2-jointed. Antenna 2 lost. Upper lip apically incised, slightly asymmetrical. Lower lip, inner lobes distinct, mandibular processes short, blunt. Mandible, cutting

edge dentate (about 7), secondary cutting plate in both mandibles bidentate, spine-row and molar well developed, palp strong, the 2nd joint itself almost as long as trunk of mandible, 3rd shorter, setose. Maxilla 1, inner lobe with about eight spaced setae, outer lobe with about 11 spines, palp well developed, extending beyond apex of outer lobe, with about seven apical spinules and a few setules. Maxilla 2, inner lobe a little broader than outer, with apical setae, and an oblique row of setae extending on to inner margin proximally. Maxilliped, inner plate with three stout apical spines, outer plate with eight stout, clavate spines on inner margin, the distal ones becoming more elongate and transforming gradually into the spine-setae on distal margin, palp 4-jointed.

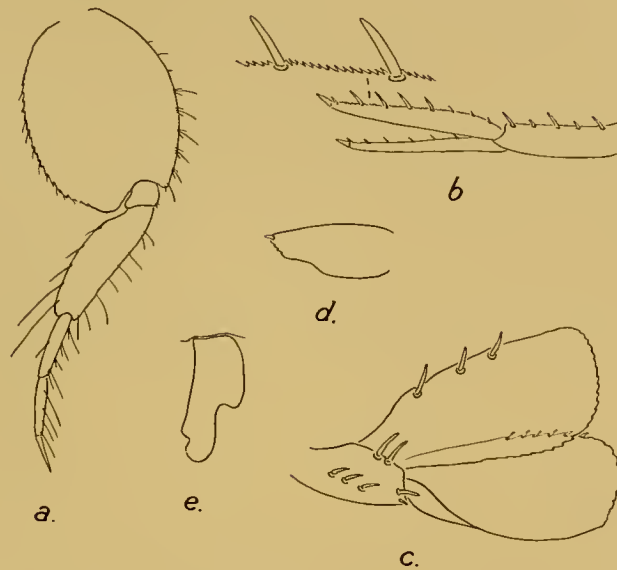


Fig. 85. *Phylluopus capensis*, n.g., n.sp. a. Peraeopod 3. b. Uropod 1, with upper margin of inner ramus further enlarged. c. Uropod 3 of left side. d. Mutilated uropod 3 of right side. e. Mutilated telson attached to pleon segment 6.

Gnathopod 1 simple, 2nd joint elongate, slender, 5th fusiform, 6th similar but shorter, 4th–6th, especially 5th, with long setae, dactyl slender, half length of 6th. Gnathopod 2 simple, 2nd joint elongate, slender, 5th narrow triangular, expanding to the distal truncate margin, 6th abruptly narrower and a little shorter than 5th, 4th–6th especially 5th with long setae, dactyl half length of 6th.

Peraeopods 1 and 2, 2nd joint elongate, slender, longer in peraeopod 1 than in peraeopod 2 (absolutely, as well as relatively to the side-plate), narrowest in the middle, thence tapering distally, the anterior margin consequently strongly sinuous, 4th fusiform, considerably shorter than 2nd in peraeopod 1, a little shorter than 2nd in peraeopod 2, with long outstanding setae, especially in peraeopod 2, 5th and 6th joints much more slender, 6th shorter than 5th, dactyls slender, a little shorter than 6th. Peraeopod 3, 2nd joint ovately expanded, anterior margin with spines and spinules, hind margin feebly serrate, postero-inferior lobe short, rounded, 4th joint long, cylindrical, slightly curved, 5th much narrower, 6th subequal to 5th but narrower, dactyl slender, half

length of 6th. Peraeopods 4 and 5, 2nd joint similar to that of peraeopod 3 but anterior margin more convex and spinulose, and hind margin less convex, nearly straight in peraeopod 5, with larger postero-inferior lobe, 4th similar but longer, other joints lost.

Uropod 1, outer ramus subequal to peduncle, inner a little longer, both rami slender, spinose, the inner slightly wider than outer, its upper margin minutely serrulate. Uropod 2 not extending quite as far back as uropod 1, similar, but rami longer than peduncle. Uropod 3, peduncle comparatively short and stout with two spines on upper apex, a large and a small spine on lower apex, and three spines in middle of outer surface, rami enormously expanded into two lamellae extending much beyond the other uropods, set in a vertical plane, both obovate, with the distal margin crenulate, upper margin of outer ramus with five spinules, that of inner ramus with three spines. This description applies to the left uropod only; the right appears to have been injured like the telson, and is composed only of a laminate, vertically set, plate, ovate, apically feebly serrulate and with a spinule, apparently representing the peduncle.

Branchial lamellae large, simple. Oostegites narrow.

REMARKS. As just stated the right uropod 3, as well as the telson, appear to have suffered injury during the life of the animal, and to be in process of regeneration. It is quite impossible to say what the normal shape of the telson is. Such as it is, it is here figured; it was articulated in the centre of the distal margin of the 5th segment.

### Family TIRONIDAE

Stebbing, 1906, p. 273.

Chevreaux, 1913, p. 133.

Barnard, 1925, p. 353.

To this family is to be added a new genus created for the reception of a very curious pelagic Amphipod taken off the coast of Portuguese West Africa.

### Genus *Tiron*, Liljeb.

Stebbing, 1906, pp. 275, 727; 1908 (*Ann. S. Afr. Mus.*, vi), p. 79.

Walker, 1904, p. 263.

### *Tiron antarcticus*, n.sp. (Fig. 86).

*Occurrence*: 1. St. 175. South Shetlands. 1 immat. ♀ 6.5 mm.

2. St. WS 33. South Georgia. 1 ♀ 7.5 mm. *Type*.

DESCRIPTION. Integument very minutely scabrous with little scale-like setules, best seen on the dorsal profile under a high magnification. Head carinate. Upper eyes faintly traceable, closely adjacent to top of head, lower eyes not traceable. Anterior peraeon segments feebly carinate; segments 6 and 7 distinctly carinate. Hind margin of posterior lobes of side-plates 5 and 6 crenulate, each notch with a setule. Pleon segments 1-5 carinate, the



Fig. 86. *Tiron antarcticus*, n.sp.  
Peraeopod 5.

carina produced posteriorly into a tooth, which increases in size posteriorly, that on segment 5 being the largest; segment 6 feebly carinate, ending in a very small median tooth at base of telson. Postero-inferior angle of pleon segment 3 quadrate, with a very slightly produced point; a few widely-spaced setules on hind margin above the angle. Telson with a minute setule in a notch on apex of each lobe, and four to five setules on upper surface.

Antenna 1, flagellum 10-jointed, accessory flagellum 4-jointed. Antenna 2, flagellum 10-11-jointed. Maxillary palp not much widened. Maxilliped, outer plate with margin convex.

Gnathopods 1 and 2 and peraeopods 1 and 2 as in *acanthurus*. Peraeopods 3 and 4, 2nd joint obovate, wider distally, hind margin with a few crenulations, each notch with a setule. Peraeopod 5, 2nd joint broadly expanded, subcircular, hind margin crenulate, 4th joint strongly expanded on hind margin.

REMARKS. A species resembling *thompsoni* in the unidentate pleon segments, *acanthurus* in the telson and general features, but distinguished from all the three species of the genus by the 5th peraeopod.

#### Genus *Syrrhoë*, Goes.

Stebbing, 1906, p. 281.

Sexton, 1911, p. 202.

Monod, 1926, p. 54.

#### *Syrrhoë psychrophila*, Monod (Fig. 87).

Monod, 1926, p. 54, fig. 52 (*crenulata*, var.).

Schellenberg, 1931, p. 159, fig. 83.

- Occurrence*: 1. St. 45. South Georgia. 2 ♀♀ 12 mm.  
 2. St. 140. South Georgia. 2 ♂♂ 9 mm., 2 ♀♀ 8-9 mm.  
 3. St. 144. South Georgia. 1 ♂ 10 mm., 5 ♀♀ 8-10 mm.  
 4. St. 156. South Georgia. 1 ♀ 10 mm., 1 juv. 7 mm.

REMARKS. Monod distinguishes the Antarctic variety mainly by the gap in the denticulation on the posterior margin of pleon segment 3; the other two characteristics seem likely to be inconstant.

The present specimens have no denticulation on peraeon segment 7 or on pleon segment 4. The denticulation on pleon segment 3 is interrupted laterally. Typical *crenulata* has the 7th peraeon segment denticulate on the posterior margin. Presumably *psychrophila* resembled *crenulata* in this respect. Moreover, since Monod does not mention it among the differences separating the northern and southern forms, the hind margin of the 2nd joints of peraeopods 3-5 was presumably serrate as in Sars' figure (1895, pl. cxxxvi) of *crenulata*. In the present specimens these serrations are much smaller and more widely spaced, thus approaching *semiserrata*.

Side-plate 2 narrowing below to a rounded apex, not truncate as in *crenulata* and

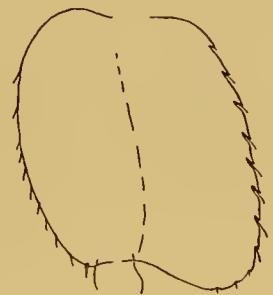


Fig. 87. *Syrrhoë psychrophila*, Monod. Second joint of peraeopod 5.

*semiserrata*. Antenna 1 with uncinat tooth on inner apex of 1st joint. Gnathopod 1 with 6th joint slightly widening distally.

I think it more than likely that these specimens are specifically the same as the Belgica specimens, but if so I consider that they deserve specific rather than varietal rank.

DISTRIBUTION.  $70^{\circ} 48' S$ ,  $91^{\circ} 51' W$  and  $71^{\circ} 19' S$ ,  $87^{\circ} 37' W$ , 400 m.

*Syrrhoë nodulosa*, n.sp. (Fig. 88).

Occurrence: 1. St. 170. South Shetlands. 5 ♀♀ (2 ovig.) 13–14 mm.

2. St. 181. Palmer Archipelago. 1 ♂ 14 mm., 1 ♀ 11 mm., 1 ovig. ♀ 14 mm. *Types*.

3. St. 182. Palmer Archipelago. 1 ♀ 12 mm.

4. St. 195. South Shetlands. 3 ♀♀ (2 ovig.) 11–13 mm.

DESCRIPTION. Integument not indurated, but firm, minutely shagreened. Head vaulted, rostrum reaching to just beyond middle of 1st antennal joint. Eyes prominent,

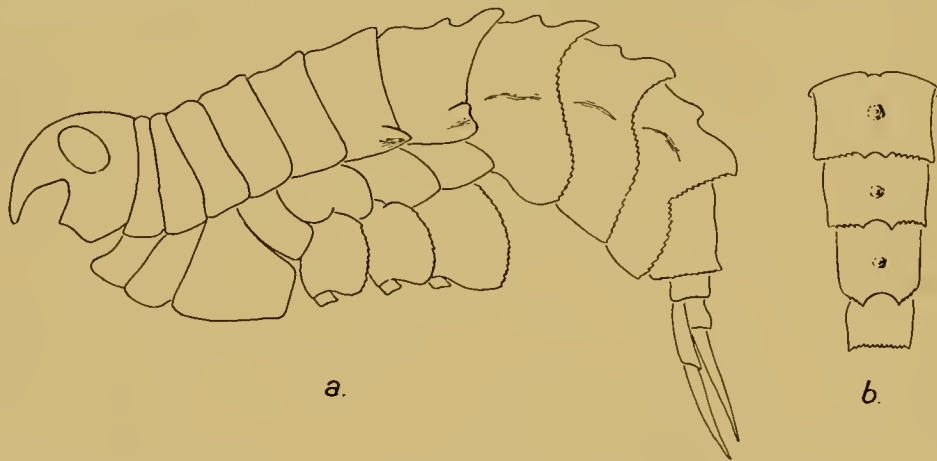


Fig. 88. *Syrrhoë nodulosa*, n.sp. a. General view. b. Dorsal view of pleon segments 1–4.

ovoid, dorsally not quite contiguous. Peraeon segments 1 and 2 very short dorsally, together equal to 3rd segment, following segments increasing in length. Back rounded. Posterior margins of segments 4–7 more or less raised, prominent and, on segments 6 and 7, produced in a short medio-dorsal tooth, that on segment 7 with a tubercle in front of it. Segments 6 and 7 each with a blunt but well-marked horizontal keel just above junctions of side-plates; a similar keel or swelling also on segments 4 and 5 in some specimens. Side-plates as in *crenulata*. Pleon segments 1–3 each with a medio-dorsal blunt tubercle, followed by a projecting tooth on the hind margin, which seen in dorsal view is notched; whole posterior margin denticulate; a blunt horizontal keel on each segment continuing the line of those on peraeon segments 6 and 7; postero-inferior angle of segment 3 quadrate. Pleon segments 4–6 dorsally rounded, posterior margin of 4 denticulate. Telson elongate, cleft almost to base, lobes contiguous, tapering to acute, minutely notched apices.

Antenna 1, 1st and 2nd joints subequal, upper margin of 1st sharply keeled, setose, distal margin on inside with upcurved tooth, 2nd more slender, 3rd just over half



length of 2nd, flagellum 18-19-jointed, 1st joint long, accessory flagellum apparently 1-jointed, equal to first two flagellar joints. Antenna 2 a little longer than antenna 1, 5th joint shorter than 4th, both setose, especially dorsally, flagellum 13-14-jointed. Mouth-parts as in *crenulata*.

Gnathopods 1 and 2 as in *crenulata*, but 5th and 6th joints, especially in gnathopod 2, not so slender, strongly setose, with the same large serrate spine at angle of palms.

Peraeopods as in *crenulata*; 4th joints in peraeopods 3-5, and to a lesser extent, the 5th and 6th also, rather stouter than in Sars' figure (1895, pl. cxxxvi), and considerably stouter than in *semiserrata* (Stebbing, 1888, pl. li).

Uropod 1 extending not quite as far as the apices of telson, uropod 2 extending as far as, and uropod 3 only a very little beyond.

The colour of no. 1 (as preserved) is greyish, with numerous darker specks extending also over the 2nd joints of peraeopods 3-5, eyes bright salmon or orange; other specimens are dull yellowish with dark red specks, eyes yellowish. The colour in life is given in Note 142 for no. 2 as "ground colour creamy white, thorax and abdomen closely covered with small maroon spots, posterior legs broadly banded with red, eyes salmon-pink".

#### Genus *Syrrhoites*, Sars.

Stebbing, 1906, p. 279.

Barnard, 1925, p. 353; 1930, p. 367.

*Syrrhoites anaticauda*, Brnrd. (Fig. 89).

Barnard, 1930, p. 367, fig. 37.

*Occurrence*: 1. St. 170. South Shetlands. 5 ♂♂ 12-13 mm., 9 ♀♀ (4 ovig.) 11-13 mm.

2. St. 175. South Shetlands. 2 ♂♂ 12-13 mm., 1 ovig. ♀ 11.5 mm.

REMARKS. These specimens show some slight differences from the original Terra Nova specimen.

More robust. Integument indurated and covered with numerous rather large and deep pits which extend also on to the telson and the 2nd joints of peraeopods 3-5. Dorsal carination usually less pronounced than in the original specimen, even in ♂, the peculiar reflexed hook on pleon segment 3 being reduced to an almost obsolete point; the keel on pleon segment 4 is more rounded, not as high even in ♂, and in ♀ much lower; the teeth on pleon segments 5 and 6 are well marked in ♂, that on 6 being larger than that on 5, but in ♀ almost obsolete.

On the other hand, the low rounded ridges flanking the dorsal carina are here more prominently nodose, both on the peraeon and pleon; and all the peraeon segments just above the junctions with the side-plates are nodose, as well as side-plates 5-7. Side-

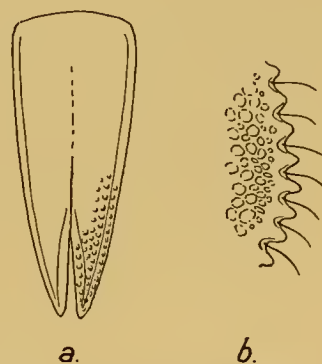


Fig. 89. *Syrrhoites anaticauda*, Brnrd. *a*. Ventral view of telson, showing bevelling of the edges, and pitted sculpturing. *b*. Portion of margin of 2nd joint of peraeopod 5 showing sculpture and simple marginal teeth.

plate 4 often not so sharply acute below. Telson cleft for a little more than one-third of its length, apices acute, not notched; it is thick, and around the lateral margin and on either side of the cleft is bevelled on the under surface.

Antenna 1 as in *serrata* Sars, 1st joint scarcely enlarged basally, flagellum in ♂ 8-jointed, 1st joint elongate, strongly setose, accessory flagellum elongate. Antenna 2 elongate in adult ♂, extending to end of pleon segment 1, upper margin of peduncle setose. Epistome and upper lip not projecting below lateral angles of head.

Peraeopods 3-5, 2nd joints usually with simple marginal teeth.

Uropod 3, inner margins of both rami with long plumose setae in ♂.

The above slight differences in these specimens as compared with the Terra Nova ♀ may be ascribed to local variation, and perhaps to the effect of the preservative on the latter. The Terra Nova specimen was soft, and consequently the foveolate sculpturing, if present, was not detected. The ♂ is usually more strongly nodulose and carinate than the ♀.

DISTRIBUTION. McMurdo Sound, 205 m.

#### Genus *Liouvillea*, Chevr.

Chevreaux, 1913, p. 138.

#### *Liouvillea oculata*, Chevr.

Chevreaux, 1913, p. 139, figs. 34-36.

Occurrence: 1. St. 164. South Orkneys. 3 ♂♂ 11 mm., 2 ♀♀ 13 mm.

2. St. 175. South Shetlands. 2 ♀♀ 15-16 mm.

REMARKS. Considerably larger than Chevreaux's specimens, one of which was an ovigerous ♀ 9 mm. in length.

The dorsal tooth on peraeon segment 7 is nearly obsolete in no. 1 and quite obsolete in no. 2; and in the latter the tooth on pleon segment 1 is also obsolete. All the specimens, especially the largest two (no. 2), show a dorso-lateral longitudinal groove on peraeon segment 7 and pleon segments 1-3; and the dorsum of pleon segment 3 is very shallowly indented on either side of a low medio-dorsal ridge.

Note 130 for St. 175 gives the colour as follows: "Thorax and abdomen mainly dark liver colour, due to close speckling of minute chromatophores. Thorax anteriorly with a large patch of pale greenish yellow on either side, involving coxal plates of segments 3-5 and joining dorsally on 4th segment. Posterior thoracic legs with reddish bands. Eyes dark brown".

DISTRIBUTION. Petermann Island, 3-60 m.

#### Genus *Cacao*, Brnrd.

Barnard, 1931, p. 427.

Rostrum minute. Eyes very large and prominent. Side-plate 1 large, as deep as side-plate 2, triangularly produced forwards; side-plate 3 shallower than 2, 4 shallower than any of the preceding; side-plates 5-7 feebly bilobed. Telson entire, apically emarginate.

Antenna 1 without accessory flagellum. Upper lip bilobed. Mandible with smooth

cutting edge, large dentate secondary cutting plate in left only, no spine row or molar, palp 3-jointed, 3rd joint shorter than 2nd. Lower lip without inner lobes, outer lobes acuminate. Maxilla 1, inner lobe horizontally projecting inwards, much smaller than outer lobe, which has 15 spines on inner margin, palp with 2nd joint enormously enlarged to form a curved plate. Maxilla 2, both lobes projecting inwards. Maxilliped, outer plate not greatly exceeding inner plate, and placed laterally to it, not overlapping it, palp well developed, extending beyond apex of outer plate.

Gnathopods 1 and 2 simple, 5th and 6th joints broad.

Peraeopods 3-5, 2nd joint not strongly expanded.

REMARKS. This genus seems closely allied to *Alexandrella*, Chevr., but deserves to be kept separate on account of the presence of eyes, the shape of the maxilliped, and other less important differences.

The mandibles and enormous maxillary palp are reminiscent of *Pardalisca*, but no doubt the similarity of these features is due to similar habits of life.

*Alexandrella dentata*, Chevr., was found in a sponge in the Antarctic regions, but there are no data with the present specimens as to how they occurred, except that they were caught in the young-fish trawl; they were, however, accompanied by typical pelagic Hyperiidids and other pelagic organisms, and are therefore presumably also pelagic or bathypelagic.

The very complete protection of the mouth-parts seems to imply some special habitat. The maxillary palps fold over the mandibles, and the 1st side-plates fold over the maxillary palps. Farther back the buccal chamber is closed in by the maxillipeds and especially by the gnathopods; the thick fringes on the margins of these appendages, especially that on the hind margin of the 2nd joint of gnathopod 2, being obviously intended to strain off particles of foreign matter. Finally the 1st and 2nd peraeopods complete the protective arrangement. The nature of the bottom at the neighbouring station 274 is recorded as being muddy.

The large eyes indicate a mobile mode of life and the oar-like dactyl of peraeopod 5 seems to point also to a free-swimming mode of life.

Whether both *Alexandrella* and *Cacao* are rightly placed in the Tironidae may be debated. There is a certain superficial likeness between *Chagosia*, Wlkr. 1909, and these two genera. Walker placed his genus in the Calliopiidae provisionally, without examining the mouth-parts, and until these are examined the genus has really only a nominal status.

#### *Cacao lacteus*, Brnrd. (Fig. 90).

Barnard, 1931, p. 428.

Occurrence: St. 273. East mid-Atlantic. 8 ♂♂ 12-13 mm., 5 ovig. ♀♀ 14-15 mm., 6 immat. 9-10 mm.

DESCRIPTION. Body plump, especially anteriorly. Integument not indurated. Back rounded. Head longer than any of the peraeon segments, rounded in front, rostrum minute; inferior margin of head rounded, anterior margin occupied by the very large, subcircular, prominent eyes. Peraeon segment 1 equal to segment 2, the following

segments gradually increasing in length. First 4 side-plates deeper than their segments; 1st largest, triangularly produced forwards, 2 a trifle deeper than 1, 3 narrow like the 2nd but a little shallower, 4 shallower than 3, inferior margin oblique, almost straight, posterior margin shallowly concave; side-plates 5-7 shallow, feebly bilobed. Pleon segments 1-3 longer than any of the peraeon segments, dorsally rounded, postero-inferior angle of 2 quadrate, of 3 somewhat produced backwards, but the actual angle quadrate, not acute. Pleon segment 4 dorsally with basal notch, followed by a medio-dorsal keel which ends abruptly. Telson longer than broad, narrowing slightly distally, apex emarginate between the subacute postero-lateral angles.

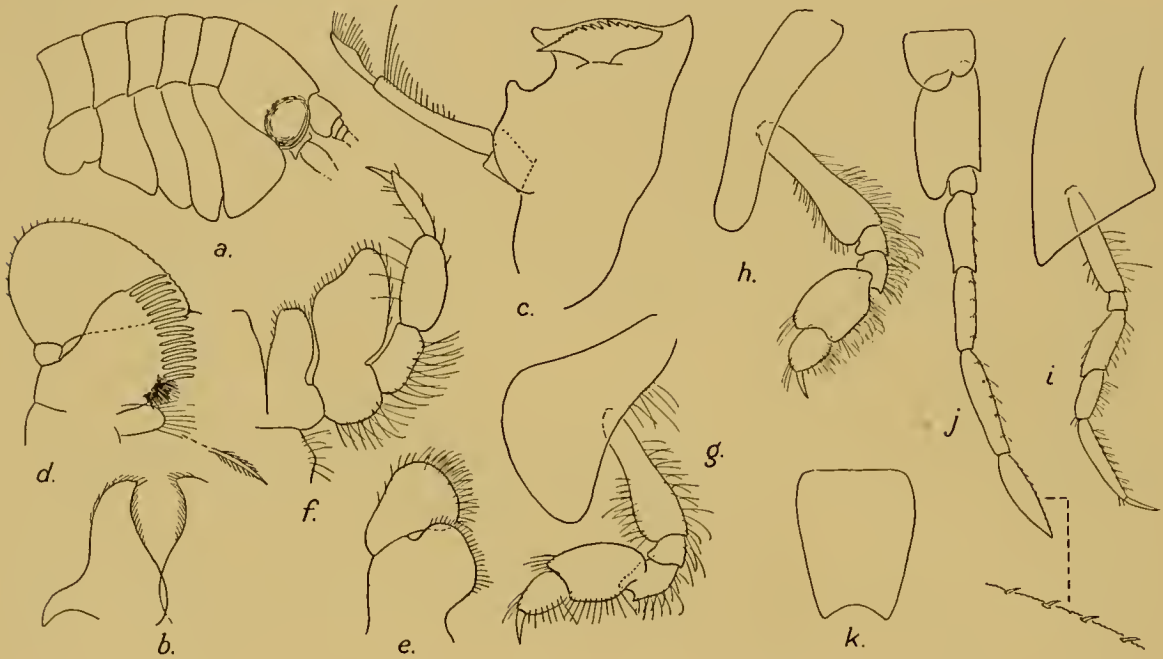


Fig. 90. *Cacao lacteus*, Brnrd. a. Head and peraeon segments 1-5 with side-plates and bases of antennae 1 and 2. b. Lower lip. c. Left mandible. d. Maxilla 1. e. Maxilla 2. f. Maxilliped. g. Gnathopod 1. h. Gnathopod 2. i. Peracopod 2. j. Peraeopod 5, with anterior margin of 6th joint further enlarged. k. Telson.

Antenna 1 reaching back to about end of peraeon, 1st joint moderately stout, flagellum about 48-jointed, no accessory flagellum, lower margin of peduncle and basal joints of flagellum rather densely setose, especially in ♂. Antenna 2 a little longer than antenna 1, flagellum about 58-jointed, upper margins of 3rd-5th peduncular joints setose, the setae shorter than in antenna 1, and in the ♂ arranged in numerous fascicles.

Upper lip asymmetrically bilobed. Mandible broad, thin, cutting edge smooth, secondary cutting plate in left mandible only, large, transversely elongate, its margin dentate, palp with 3rd joint shorter than 2nd, no spine row or molar. Lower lip, inner lobes obsolete or quite rudimentary, outer lobes acuminate. Maxilla 1, both lobes projecting inwards, inner lobe much smaller than outer, which has a series of 15 evenly spaced spines on its inner margin and a dense brush of short spine-setae at the inner proximal corner, palp with 1st joint small, 2nd joint enormously expanded into a sub-

triangular curved lamina, its outer margin with a few spinules, its distal margin smooth, with one small spinule at rounded inner apex. Maxilla 2, both lobes large, rounded and projecting inwards. Maxilliped, outer plates set in same plane as inner plates, i.e. not overlapping the latter and therefore widely separated, not very much larger than the inner plates, palp well developed, extending beyond apex of outer plate.

Gnathopod 1, 2nd joint slightly expanding distally, 5th inserted near base of upper margin and on outer side of 4th, moderately expanded, 6th considerably shorter than 5th, broadly ovate, simple, margins of all joints, especially on hinder and lower margins, with long setae. Gnathopod 2 similar, but longer and more slender.

Peraeopods 1 and 2, 5th joint shorter than 4th and 6th, which are subequal, hind margin of 6th with fascicles of spinules. Peraeopod 2 more slender than peraeopod 1. Peraeopods 3-5 slender, 2nd joint not strongly expanded, narrow ovate, hind margin smooth.

Peraeopods 3 and 4, 4th and 5th joints subequal, shorter than 2nd, 6th elongate, longer than 2nd and nearly twice as long as 5th, anterior margin with groups of spinules, 7th one-quarter length of 6th. Peraeopod 5 as long as peraeopods 3 and 4, 6th joint only a little longer than 4th or 5th, but 7th almost as long as 6th, and slightly expanded into a narrow lanceolate form resembling the blade of an oar, its anterior margin set with spaced spinules, unguis not distinct from the joint.

Uropods 1 and 3 extending about equally far back, uropod 2 shorter; rami of uropod 1 subequal, outer ramus in uropod 2 shorter than inner, in both uropods narrow, acuminate; in uropod 3 rami subequal, narrow lanceolate, outer ramus with minute unguiform terminal joint.

The colour is recorded as "thoracic segments and legs chocolate, abdominal segments white, eyes pink". As preserved, the brown colour affects the head and peraeon segments 1-4 or 5 (though paler and seemingly bleached in the more dorsal portions), the side-plates 1-4, mouth-parts, gnathopods, peraeopods 1 and 2, together with the branchiae on gnathopod 2 and peraeopods 1 and 2. The posterior half of the peraeon, with peraeopods 3-5, and the pleon with its appendages, and the antennae are milk-white. The eyes are a pale glistening yellow. The generic and specific names have been suggested by this "chocolate and milk" coloration

### Family CALLIOPIIDAE

Stebbing, 1906, pp. 285, 727.

Schellenberg, 1925, p. 147.

Barnard, 1930, p. 369.

### Genus *Clarencia*, Brnrd.

Barnard, 1931, p. 428.

No rostrum. No eyes. Peraeon segments becoming imbricate posteriorly. Pleon segments 1-3 carinate; segment 4 long. No accessory flagellum. Upper lip rounded. Lower lip with inconspicuous, apparently fused, inner lobes. Other mouth-parts normal. Gnathopod 1 subchelate. Gnathopod 2 very large, chelate. Peraeopods 1-5 subsimilar, stout. Telson and uropods ?.

REMARKS. Although the character of the telson is unknown, the form for which this genus is proposed seems satisfactorily placed in the family Calliopiidae. The mouth-parts, side-plates and subsimilar peraeopods fit in well with most of the other genera. There is, however, a certain resemblance to the Pleustids (cf. *Parapleustes latipes*, Sars, 1895, pl. cxxvii) and the long 4th pleon segment recalls *Lafystius*.

The name is from the locality, Clarence Island.

*Clarencia chelata*, Brnrd. (Fig. 91).

Barnard, 1931, p. 428.

Occurrence: St. 170. South Shetlands. 1 immat. about 13 mm.

DESCRIPTION. Integument not strongly indurated, smooth. No rostrum. No trace of eyes or ocular pigment. Antero-lateral angle of head rounded. Peraeon segments

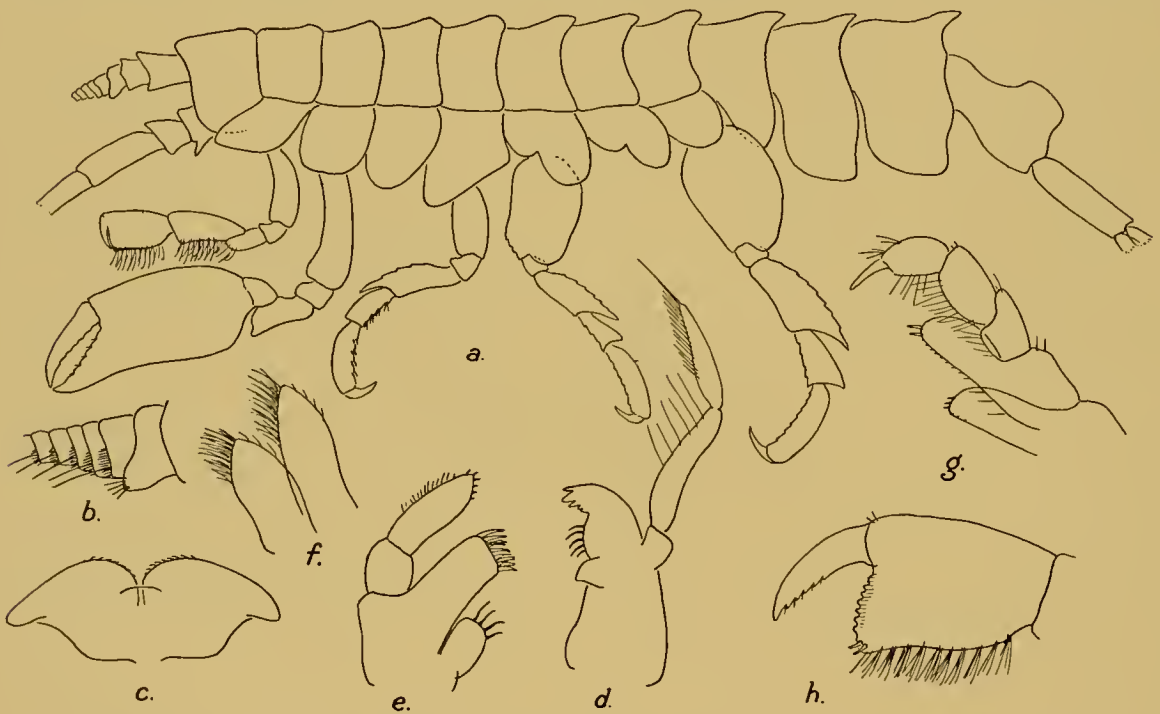


Fig. 91. *Clarencia chelata*, Brnrd. a. General view. b. 3rd peduncular joint and portion of flagellum of antenna 1. c. Lower lip. d. Mandible. e. Maxilla 1. f. Maxilla 2. g. Maxilliped. h. Gnathopod 1.

slightly raised on posterior margins, becoming increasingly imbricate posteriorly, segments 6 and 7 ending in a blunt medio-dorsal projection. Side-plates 1-4 moderately deep, 1 subquadrate, slightly produced forwards, 2 and 3 rounded below, 4 with lower angle narrowly rounded, and the oblique posterior margin nearly straight, 5 and 6 with posterior lobes deeper than the anterior lobes. Pleon segments 1-3 carinate, the carina on each segment ending in a sharp tooth; postero-inferior angles of segments 2 and 3 rounded-quadrate; segment 4 long, with dorsal depression between a slight basal hump and a posterior blunt dorsal ridge. Segments 5 and 6 and telson lost.

Antenna 1 stout, 1st joint with apices somewhat produced, 3rd with lower apex produced, flagellum with very short, broad joints, with rows of short spine-setae on lower distal margin, no accessory flagellum. Antenna 2 stout, broken. Upper lip apically rounded. Lower lip, outer lobes broad, transverse, inner lobes inconspicuous, apparently fused. Mandible, cutting edge dentate, spine row of five spines, molar moderate, palp large, 3rd joint a little shorter than 2nd, with a regular series of marginal setae. Maxilla 1, inner lobe with two setae, outer lobe with four large spines and one or two smaller ones, palp 2-jointed, apex with several spinules. Maxilla 2, outer lobe longer than inner, both equally broad, inner with distal setae, but proximal half of inner margin with fine setules only. Maxilliped, inner plate with three apical spinules, outer plate with setules on inner margin, and two apical spines.

Gnathopod 1, 5th and 6th joints subequal in length, 6th slightly broader than 5th, oblong, palm transverse, with rounded denticles and defined by two spines, finger matching palm, inner margin serrate. Gnathopod 2, 5th joint very small, 6th very large, oblong, lower apex produced to form a thumb, with its upper margin crenulate, finger matching thumb, its inner margin only very faintly crenulate.

Peraeopods stout, subsimilar; in peraeopods 1 and 2 anterior margin of 4th and posterior margins of 5th and 6th joints notched at insertions of the spinules; in peraeopods 3-5, 2nd joint ovate, postero-inferior angle rounded, posterior margin entire or only very faintly notched, posterior margin of 4th joint and anterior margins of 5th and 6th notched at insertions of the spinules.

Uropods lost. Branchial lamellae simple.

REMARKS. It is a great pity that the single specimen of this remarkable form should be mutilated. The ends of the antennae, the 5th and 6th pleon segments and the telson and uropods are missing; the head has also been slightly injured, and only one (right) of the 2nd gnathopods is present. There will be, however, no difficulty in recognizing the species.

#### Genus *Chosroës*, Stebb.

Stebbing, 1888, p. 1208; 1906, p. 287.

Barnard, 1930, p. 369.

To this hitherto monotypic genus can now be added a second species, which agrees with the Challenger species in essentials, and also in possessing processes on the 2nd joints of peraeopods 1 and 2, and excised margins of 2nd joints of peraeopods 3-5, but is distinguished by an extraordinary development of dorsal keels which, on five of the segments, end in forked teeth.

#### *Chosroës incisus*, Stebb.

Stebbing, 1888, p. 1209, pls. cxxxiv, cxxxv; 1906, p. 287.

Barnard, 1930, p. 369, fig. 38.

Schellenberg, 1931, p. 175.

*Occurrence*: 1. St. 51. Falklands. 3 ♂♂ 6-10 mm.

2. St. WS 72. Falklands. Many ♂♂, ovig. ♀♀ and juv. up to 11 mm. from sponges.

3. St. WS 92. Between Falklands and South America. 4 ♂♂, 16 ♀♀, 8 juv. up to 8 mm. from sponge.

REMARKS. The colour appears to have been a uniform creamy white, the eyes pale brown. This species would seem to be common in the deeper water area around the Falkland Islands and between these and the mainland of South America.

DISTRIBUTION. Off Cape Virgins, 55-70 fathoms; west of Falkland Islands, 229 m.

*Chosroës decoratus*, n.sp. (Fig. 92).

Occurrence: St. 170. South Shetlands. 1 ♂ 20 mm., 1 ovig. ♀ 22 mm.

DESCRIPTION. Integument moderately indurated, with numerous minute ridge-like granules causing a granulate appearance; these granules are arranged mostly transversely, and are more distinct and prominent on the pleon segments, but extend also over the 2nd joints of peraeopods 3-5. Head with short median point, ocular angles

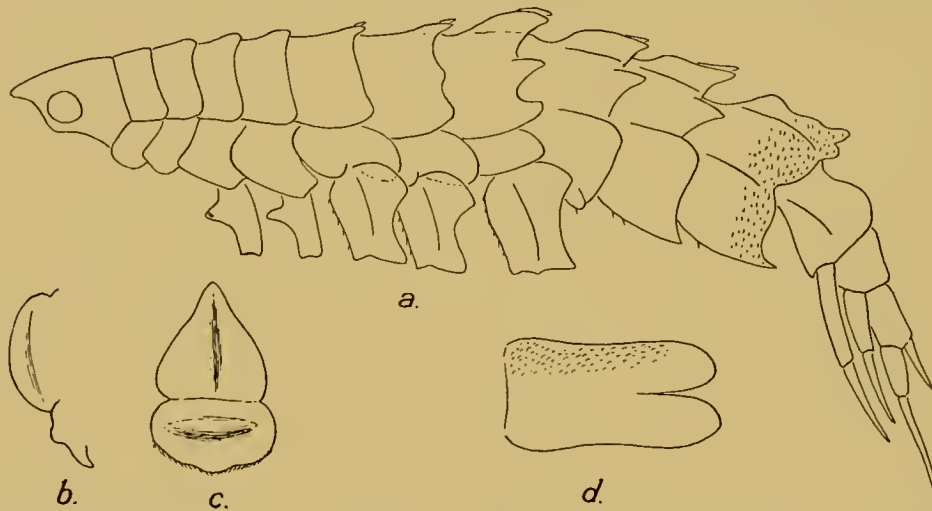


Fig. 92. *Chosroës decoratus*, n.sp. a. General view, sculpturing indicated on pleon segment 3. b, c. Profile and frontal views of epistome and upper lip. d. Telson, with sculpturing indicated.

rounded, post-antennal angles quadrate, hidden under 1st side-plates. Eyes large, subrotund. Peraeon broadly rounded in anterior portion, the posterior margins of segments 1-4 slightly thickened; segments 5-7 with medio-dorsal keel, which is largest on segment 7, and on all three segments ends posteriorly in a forked tooth; postero-inferior angles of segments 5-7 becoming increasingly prominent and produced; posterior margins of segments 6 and 7 with a lateral tooth between the dorsal one and the postero-inferior angle. Side-plates shallow, 1 and 2 rounded, 3 subquadrate, 4 trapezoidal, excavate behind, 5 and 6 with the anterior and posterior lobes subequal, 7 oblong. In the ♀ the lateral tooth on segment 6, the postero-inferior angles of segments 6 and 7 and the posterior angle of side-plate 7 are shortly bifid.

Pleon segments 1-3 carinate, carina forming a forked tooth on segments 1 and 2, and a simple tooth on segment 3; a lateral tooth on hind margin in segments 1 and 2; postero-inferior angle of pleon segment 1 quadrate, of segments 2 and 3 produced in a sharp point; segment 4 with a low rounded dorsal keel, which is notched below the posterior apex; segments 5 and 6 smooth. There is also a slight lateral ridge or fold on



segments 1-3, and a more faintly marked one on segment 4 also. Telson nearly twice as long as broad, cleft nearly to half-way, each lobe with broadly rounded apex.

Antenna 1 extending to end of pleon segment 3 in ♂, shorter in ♀, flagellum calceoliferous, no accessory flagellum. Antenna 2 extending to end of uropods in ♂, shorter in ♀, flagellum calceoliferous. Epistome with a median keel, rounded in profile. Upper lip with low transverse ridge, margin rounded. Lower lip with rudimentary inner lobes. Other mouth-parts as in *incisus*. Inner lobe of maxilla 1 has two setae on *inner* apex (cf. Stebbing's figure on pl. cxxxv). Palp of mandible stout, 2nd joint angular on inner margin near base, 3rd joint falcate.

Gnathopods 1 and 2 similar to those of *incisus*, but the palm more oblique. Peraeopods 1 and 2 as in *incisus*, with a similar but narrower and sharper process on middle of anterior margin of 2nd joint. In the ♀ these processes are broader than in the ♂, and are slightly serrulate on lower margin. Peraeopods 3-5 also similar to those of *incisus*, but the hind margin of 2nd joint is excavate to a much greater extent, margin entire, postero-inferior angle quadrate.

Uropods as in *incisus*. Branchial lamellae simple, oostegites large.

REMARKS. As preserved both specimens are pale yellowish, with brown eyes; the eggs orange.

#### Genus *Halirages*, Boeck.

Stebbing, 1906, p. 290.

Schellenberg, 1929 *a*, p. 275.

Schellenberg has shown that *Bovallia regis*, Stebb., should be transferred to this genus.

#### *Halirages huxleyanus* (Bate) (Fig. 93).

Bate, 1862, p. 135, pl. xxv, fig. 4 (♂).

? Cunningham, 1871, p. 498, pl. lix, fig. 9 (*Atylus batei*) and p. 498 (*huxleyanus*).

Non Stebbing, 1888, p. 902, pl. lxxiii and 1906, p. 291.

*Occurrence*: 1. St. 53. Falklands. 1 ovig. ♀ 13 mm.

2. St. 55. Falklands. 1 ♀ 11.5 mm.

3. St. 56. Falklands. 1 ♂ 11 mm., 2 ♀♀ 21 mm.

REMARKS. The integument is covered with minute scattered punctae, and in some lights, especially when the specimens are semi-dried, the appearance of markings resembling, as Bate says, a flying bird is seen.

The antero-lateral angle of the head is acutely produced in no. 3, but quadrate in nos. 1 and 2. The eye varies both in size and shape, being either round or horizontally oval, always with a pale margin. In the ♂ the ocular pigment forms an irregular strip along the anterior margin of the head on the right side, but on the left side there is no trace of an eye at all.

The 1st antennae are usually shorter than the 2nd, but may be subequal. Filamentous sensory setae on about every third joint in antenna 2 in both sexes. Inner lobes of lower lip indicated only by a row of setae (cf. Stebbing, 1888, pl. lxxiii). The plumose setae on the margin of the inner lobe of maxilla 1 vary from 4 to 7.

The peraeon segments are produced over the side-plates in no. 2, slightly so in no. 1, but scarcely at all in no. 3. Postero-inferior angles of peraeon segments all quadrate in nos. 1 and 3, those on segments 5-7 acutely produced in no. 2. Side-plates 1-4 not or scarcely narrowed below, rounded, slightly overlapping (cf. Bate's figure), normally deeper than long. In no. 1 side-plates 1 and 2 are about as long as deep, 3 and 4 longer than deep. Side-plate 5 with anterior lobe shallower than posterior lobe, rounded below.

In no. 1 only pleon segments 1 and 2 are produced into dorsal teeth. In all the other specimens the tooth on segment 3 is pointed like the others.

Peraeopods 3-5, 2nd joint broadly expanded; in peraeopod 3 broadly oval, with rounded postero-inferior corner; in peraeopod 4 also broadly ovoid, postero-inferior corner quadrate; in peraeopod 5 oblong narrowing below, hind margin slightly concave distally, postero-inferior corner quadrate.

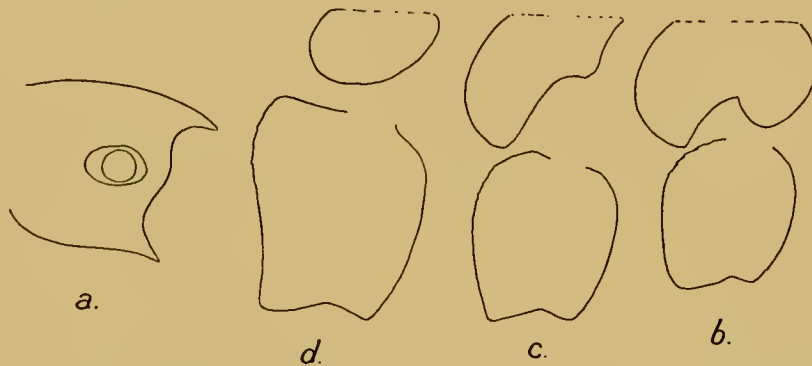


Fig. 93. *Halirages huxleyanus* (Bate). a. Head, with two forms of eye shown. b, c, d. Side-plates 5-7 and 2nd joints of peraeopods 3-5 respectively.

The variations in the few specimens in the present collection are set out with a view to diagnosing a little more stringently the species described by Bate. I have no hesitation in assigning them to his species.

On the other hand, I am of opinion that Stebbing's identification of the Challenger specimen as *huxleyanus* was erroneous, but that he relied more on Bate's figure than on the Challenger figure when he described *Bovallia regis* in 1914, in spite of the figure of the latter appearing to bear much more resemblance to the Challenger figure of *huxleyanus* than to Bate's figure, which is proved to be accurate by the present specimens. If the Challenger specimen is regarded as the same as Bate's species (as Stebbing does in 1914, p. 362) surely *regis* must be synonymous. This solution of the confusion, however, does not commend itself after a careful comparison of Bate's and Stebbing's figures, and especially when one places the actual specimens alongside one another. It is certainly strange that Stebbing distinguished both forms without, however, commenting on their extraordinary resemblances (telson, etc.).

A certain amount of doubt attaches to Cunningham's specimens, but that is immaterial both from a nomenclatorial and a geographical point of view.

The colour of no. 3 is given as "pale olive-brown with pink eyes".

DISTRIBUTION. Hermite Island; ? Magellan Strait.

*Halirages regis* (Stebb.) (Fig. 94).

Stebbing, 1888, p. 902, pl. lxxiii (*huxleyanus*, non Bate); 1906, p. 291 (*huxleyanus*, non Bate); 1914, p. 362, pl. viii (*Bovallia* r.).

Occurrence: St. 56. Falklands. 1 ovig. ♀ 14 mm.

REMARKS. Very close to *huxleyanus* but at once distinguished by the strong imbrication of the peraeon segments over the side-plates, by side-plates 1-5, and by the 2nd joints of peraeopods 3-5, especially peraeopod 3.

Side-plates 1-4 subtriangular, narrowing below, not overlapping, but separated almost from their bases. Anterior lobe of side-plate 5 as deep as, and diverging rather strongly from the posterior lobe, subacute below. In this respect Stebbing's 1914 figure of the whole animal does not conform, but he gives no detailed figure.

Eye much larger than in any of the specimens of *huxleyanus*, obliquely oval.

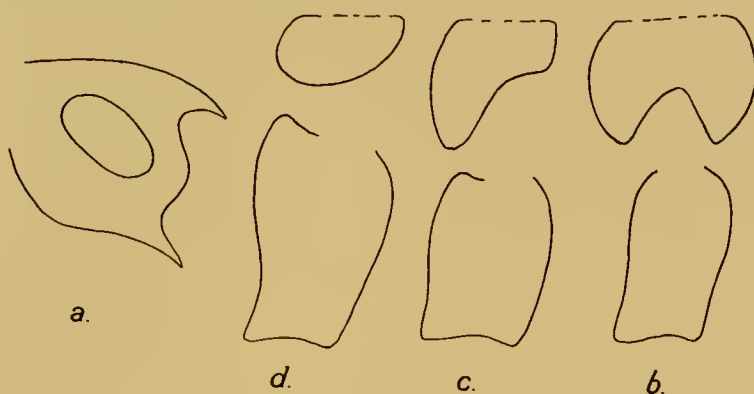


Fig. 94. *Halirages regis* (Stebb.). a. Head. b, c, d. Side-plates 5-7 and 2nd joints of peraeopods 3-5 respectively.

Peraeopod 3, 2nd joint comparatively narrow, oblong, hind margin straight. Peraeopod 4, 2nd joint also oblong but broader. Peraeopod 5, 2nd joint oblong, but narrowing distally, hind margin distally concave. Postero-inferior corners in all three peraeopods quadrate.

The colour is given as "white very heavily mottled with deep crimson".

There is no question but that for the present these two forms should be kept separate. Stebbing (1914, p. 362) says that Mr Vallentin "on March 11th...found the sea teeming with it [*huxleyanus*]". If a few hundreds of specimens could be captured and examined, the status of *huxleyanus* and *regis* might be satisfactorily determined.

DISTRIBUTION. Falkland Islands.

Genus *Stenopleura*, Stebb.

Stebbing, 1906, p. 302.

*Stenopleura atlantica*, Stebb.

Stebbing, 1888, p. 950, pl. lxxxiv.

Stephensen, 1915, p. 45, fig. 27.

Schellenberg, 1926, p. 353; 1926 b, p. 227.

- Occurrence*: 1. St. 87. South-east Atlantic. 4 ♂♂ 6.5–7 mm., 8 ♀♀ (2 ovig.) 6.5–7 mm.  
 2. St. 89. South Africa. 5 ♂♂ 5–8 mm., 1 ovig. ♀ 6.5 mm.  
 3. St. 250. South Atlantic. 1 ♂ 6 mm.  
 4. St. 256. South-east Atlantic. 1 ♂ 7 mm., 1 ♀ 8 mm.  
 5. St. 257. South-east Atlantic. 3 ♀♀ 6.5–7 mm.  
 6. St. 266. South Africa. 1 ♂ 6.5 mm., 2 ♀♀ 6–7 mm.

REMARKS. As preserved the eye is red, and the whole head and mouth-parts are tinged with a paler but brighter shade of red; the animals are consequently rather distinctive and easily picked out from amongst a mixed lot.

The telson varies considerably, even in specimens from the same haul. The apex between the lateral points may be convex, irregularly crenulate, or emarginate. In the latter case the apex might be described as truncate with four short points separated by notches. The lateral points themselves may be minutely notched or bifid.

Except that the antennae are rather longer in the ♂, there appear to be no constant sexual differences in the size of the eyes or the slenderness of the peraeopods.

Nos. 3, 5, 6 from the lesser depths of 300–0 m. are night captures, so that there appears to be a nocturnal upward migration.

The 'Discovery' has taken ovigerous ♀♀ in mid-winter (South Atlantic); this is in contrast with the findings of other expeditions in which the breeding season seems to be summer: September to February (cf. Schellenberg).

DISTRIBUTION. Atlantic, 36° N–36° S; Indian Ocean; Antarctic ('Gauss' winter station).

#### Genus *Oradarea*, Wlkr.

Walker, 1903, pp. 40, 56.

Shoemaker, 1930 (*Studies Biol. St. Canada*, N.S. v, no. 10), p. 81.

After having written the account of the Discovery material and suggested the resurrection of Walker's genus to receive the Antarctic species which are quite distinct from the New Zealand *Leptamphopus*, I saw Shoemaker's paper. I am glad to see that, even without actual New Zealand specimens, he has come to the same conclusion.

I have to thank Miss Herriott of Canterbury College, Christchurch, for some specimens of *Leptamphopus novae-zealandiae* from the collection of the late Dr Chilton. While leaving the full description of the species to some New Zealand carcinologist, I give a few details and

figures (Fig. 95) in order to substantiate my contention that, contrary to Chilton's opinion (1912, p. 489), the wide distribution of the New Zealand species has yet to be proved. In my view it is strictly a New Zealand species.

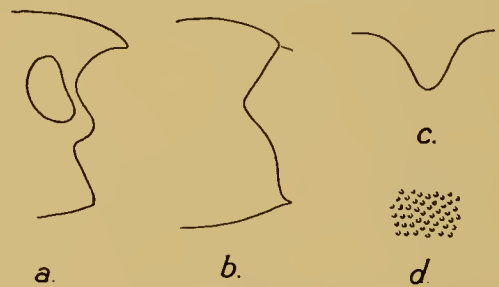


Fig. 95. *Leptamphopus novae-zealandiae* (Thoms.). a. Head. b. Pleon segment 3. c. Dorsal view of tooth on pleon segment 1. d. Integumentary sculpture.

The dorsal processes in *novae-zealandiae*, when seen in dorsal view, are not acute, scarcely subacute, but merely rounded. Pleon segment 3 is feebly carinate, and the carina not at all raised. Postero-inferior angles of pleon segments 1-3 ending in small acute points, that on segment 1 very small. Side-plate 1 oblong (cf. Chilton, 1920, fig. 1); none of the side-plates serrulate, or only very obscurely so. Hind margin of 2nd joint in peraeopods 3-5 feebly serrulate. Gnathopod 1, 6th joint subequal to 5th, tapering slightly distally, palm oblique, convex. Peduncle of uropod 3 produced on lower inner apex in a short process for the reception and support of the inner ramus (cf. ventral view given by Chilton, 1920, fig. 5). The inner ramus is not at all flattened, but triquetral in cross-section. The whole integument is covered with an exceedingly fine and regular pitting.

The last character decisively separates *novae-zealandiae* as a species from the Antarctic species here described.

On the other hand, these latter species all agree with the New Zealand species in the character of the peduncle and inner ramus of uropod 3. The triquetral shape of the inner ramus appears also in *O. longimanus*, Boeck (cf. Shoemaker, 1930, p. 88, fig. 37 e), but the prolongation of the peduncle seems to be very slight or even absent (cf. the same figure). These features are not utilized by Shoemaker in his discussion of the generic characters of *Leptamphopus* and *Oradarea*. Both appear to be absent in *Leptamphopus longimanus*, Sars (= *sarsi* Vanhöff.), judging from Sars' pl. clxii (1895).

Shoemaker includes in the genus the northern *longimanus*, Boeck, non Sars, and thus proposes the name *walkeri* for Walker's preoccupied "*longimana*". He also suggests that *novae-zealandiae* might be placed temporarily in *Halirages*. With the qualification "temporarily" I agree; a new genus would be more suitable.

*Oradarea tridentata*, n.sp. (Figs. 96 a, 97).

? Chilton, 1912, p. 488 (*Leptamphopus novae-zealandiae*, non Thoms.).

? Chevreux, 1913, p. 143 (part, *Leptamphopus novae-zealandiae*, non Thoms.).

- Occurrence*: 1. St. 123. South Georgia. 1 ♂ 10 mm.  
 2. St. 141. South Georgia. 11 ovig. ♀♀ 10-11 mm.  
 3. St. 142. South Georgia. Many ♂♂, ovig. ♀♀ and immat. up to 11 mm. from cup sponge.  
 4. St. 145. South Georgia. 2 ♂♂ 6 and 8 mm., 16 ♀♀ (12 ovig.) 10-12 mm. *Types*.  
 5. St. 149. South Georgia. 1 ♀ 10 mm., 1 ovig. ♀ 11 mm.  
 6. St. WS 25. South Georgia. 1 ♀ 10 mm.

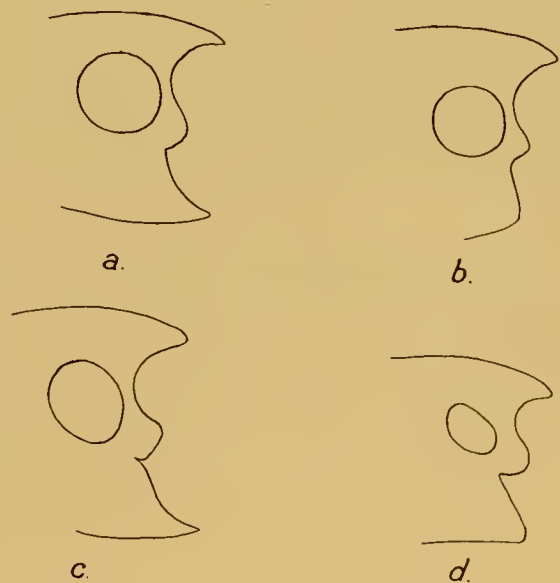


Fig. 96. Heads of *Oradarea*. a. *tridentata* and *tricarinata*. b. *bidentata*. c. *impressicauda*. d. *edentata*.

7. St. MS 6. South Georgia. 1 ♀ 11.5 mm.  
 8. St. MS 68. South Georgia. Many, incl. ovig. ♀♀ from roots of giant sponge.  
 9. St. MS 74. South Georgia. 4 ♂♂ 6-8 mm., 2 juv. 4-5 mm.

DESCRIPTION. Integument with elongate or scale-like pits, arranged horizontally in front part of body, gradually becoming oblique and then transverse on the pleon segments; still finer scale-like markings between the major pits.

Eyes subcircular, rather large, reddish (as preserved). Post-antennal angle of head acutely produced. Side-plate 1 widening below; all the side-plates serrulate on lower margins. Peraeon segment 7 and pleon segments 1 and 2 each with a dorsal tooth,

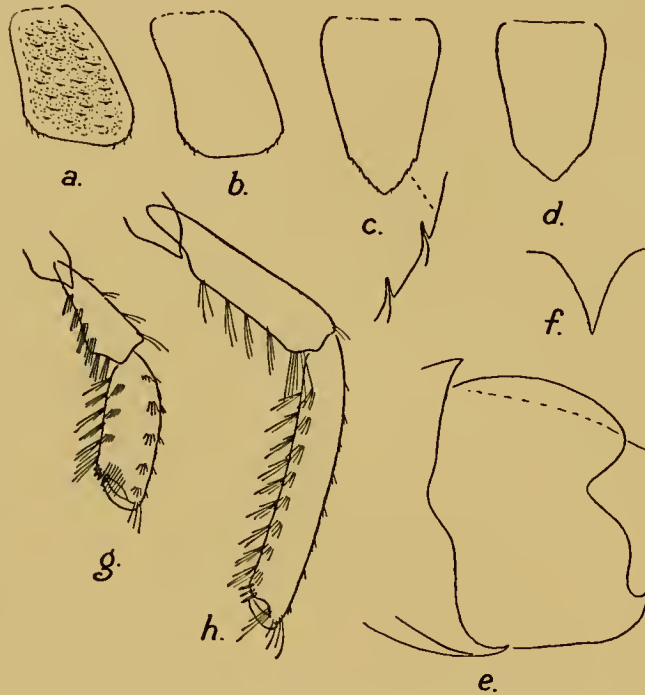


Fig. 97. *Oradarea tridentata*, n.sp. a. Side-plate 1 with sculpture. b. Side-plate 2. c. Telson with margin further enlarged. d. Telson of feebly notched variety. e. Pleon segments 2 and 3. f. Dorsal view of tooth on pleon segment 1. g. Gnathopod 1. h. Gnathopod 2.

which is acute when seen in dorsal view. Pleon segment 3 with a raised carina, rounded in profile. Postero-inferior angle of pleon segment 1 with a short acute point, of segment 2 with a strong, slightly curved point, of segment 3 with an upturned acute point some little distance above the lower margin, with a deep semicircular notch above it. Telson subtriangular, the lateral margins narrowing rather abruptly at about two-thirds the length, the apical margin entire or feebly notched, each notch with a setule.

Epistome and upper lip gibbous, subcarinate medially.

Antenna 1 with a minute 1-jointed accessory flagellum.

Gnathopod 1, 6th joint broader than in *novae-zealandiae*, slightly though distinctly longer than 5th, not narrowing distally, palm slightly oblique, concave, defined by a blunt angle and about six spines (four on one side, two on the other). Gnathopod 2,

6th joint obviously longer than 5th, palm slightly oblique and concave, defining angle with three spines.

Peraeopods 3-5, 2nd joint with hind margin distinctly serrate.

Uropod 3, peduncle and rami as described above for *novae-zealandia*.

REMARKS. The tooth of peraeon segment 7 is often absent in juvenile examples. The notching on the telson is variable, but the general shape of the telson is constant and easily distinguished from that of the other species.

It is probable that some at least of Chevreux's specimens were the same as these. He records that the specimens before him had either three, or two, or no dorsal teeth; but the postero-inferior angle of pleon segment 3 does not seem to have been examined.

I must confess that in studying the Terra Nova collection the current opinion as to a "widely distributed" species probably allayed the critical faculties. A re-examination of the two specimens from the Antarctic recorded in that report would, I expect, prove them to be distinct from the New Zealand species, and either this or the next species.

*Oradarea bidentata*, n.sp. (Figs. 96 b, 98).

? Walker, 1903, p. 56, pl. x, figs. 77-89 (*O. longimana*).

? Barnard, 1930, p. 369 (part, *Leptamphopus novae-zealandiae*, non Thoms.).

Occurrence: 1. St. MS 67. South Georgia. 4 ♂♂ 8-10 mm., 2 ♀♀ 10-11 mm., 3 ovig. ♀♀ 9-10 mm.

Types.

2. St. MS 71. South Georgia. 9 ♀♀ 6-8 mm.

3. St. MS 74. South Georgia. 7 ♂♂ 9-10 mm., 1 ♀ 11 mm., 1 ovig. ♀ 9 mm.

DESCRIPTION. Integument as in *tridentata*. Only pleon segments 1 and 2 with dorsal teeth, which are acute when viewed dorsally.

Post-antennal angle of head rounded-quadrate. Eyes subcircular, rather large, pale. Postero-inferior angle of pleon segment 2 with a short point, of segment 3 broadly rounded, with a small notch on posterior margin. Side-plate 1 slightly widened below. All side-plates obscurely serrulate. Telson oblong but tapering distally to the bluntly rounded apex.

Epistome and upper lip gibbous, subcarinate. Antenna 1 with 1-jointed accessory flagellum.

Gnathopod 1, 6th joint subequal to 5th, somewhat tapering distally, palm oblique, not concave. Gnathopod 2, 6th joint slightly longer than 5th, palm slightly convex.

Peraeopods 3-5, 2nd joint with hind margin obscurely serrulate.

REMARKS. I do not really think these specimens are the same as Walker's; his figure of the postero-inferior angle of pleon segment 3 does not fit any of the specimens in the Discovery collection, though perhaps it is nearest to that of *impressicauda* (*infra*). The Southern Cross material should be re-examined.

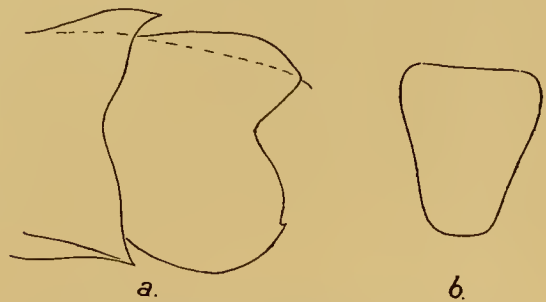


Fig. 98. *Oradarea bidentata*, n.sp. a. Pleon segments 2 and 3. b. Telson.

*Oradarea tricarinata*, n.sp. (Figs. 96 a, 99).

- Occurrence*: 1. St. 144. South Georgia. 1 ovig. ♀ 11 mm.  
 2. St. 172. South Shetlands. 2 ♀♀ (1 ovig.) 17 mm.  
 3. St. 175. South Shetlands. 1 ♂ 12 mm., 6 ♀♀ 13-15 mm. *Types*.

**DESCRIPTION.** Integument with major sculpturing as in *tridentata*, but the interspaces between the elongate pits or ridges filled with exceedingly minute and regular pitting. Post-antennal angle of head acutely produced. Eyes subcircular, rather large, pale. Peraeon segment 7 with a strong dorsal tooth. Pleon segments 1-3 strongly carinate, the carina ending in a sharp tooth on segments 1 and 2, rounded at each end on segment 3. A lateral keel on peraeon segments 6 and 7 and pleon segments 1 and 2, ending in a sharp tooth, smallest on peraeon segment 6. Postero-inferior angle of pleon segment 1 rounded, of 2 ending in a short point, of segment 3 broadly rounded with a small notch on the lower margin. Side-plate 1 widening below. All side-plates with lower



Fig. 99. *Oradarea tricarinata*, n.sp. a. Peraeon segments 6 and 7 and pleon segments 1-3. b. Telson.

margin serrulate. Telson subquadrangular, broad, apex truncate, with some minute irregular crenulations.

Epistome and upper lip gibbous and subcarinate. Antenna 1 with 1-jointed accessory flagellum.

Gnathopods 1 and 2, 6th joint as in *tridentata*. Peracopods 3-5, 2nd joint with hind margin feebly serrulate.

The single specimen from St. 144 has a dorsal tooth and a lateral tooth on each side on peraeon segment 6 as well as on segment 7, but is otherwise exactly similar to those from St. 175. Both specimens from St. 172 show a short obtuse dorsal point on peraeon segment 6 and the lateral teeth are not so well developed as in the other specimens.

*Oradarea impressicauda*, n.sp. (Figs. 96 c, 100).

- Occurrence*: St. 170. South Shetlands. 1 ♀ 15 mm.

**DESCRIPTION.** Integument sculptured as in *tridentata*, rather strongly so, the pits tending to form transverse lines on the pleon, the pitting extending on to 2nd joints of peracopods 3-5. Post-antennal angle of head acutely produced. Eyes subcircular, rather



large, pale. Peraeon segments dorsally rounded; segment 7 with a very feeble medio-dorsal denticle on posterior margin. All the side-plates serrulate on lower margin. Pleon segments 1-3 carinate, the carina on segments 1 and 2 ending in a sharp tooth, on segment 3 rounded. Postero-inferior angle of pleon segment 3 rounded with a small tooth

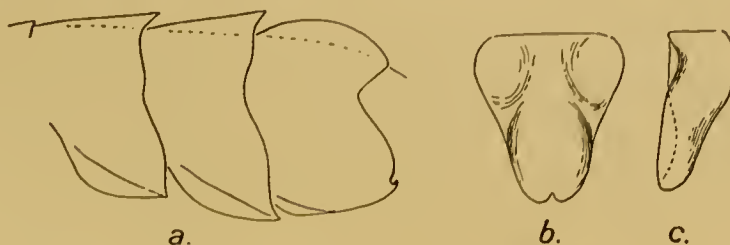


Fig. 100. *Oradarea impressicauda*, n.sp. a. Pleon segments 1-3. b, c. Dorsal and lateral views of telson.

and a notch above it. Telson triangular, laterally produced at base into a rounded lobe, apex rounded, feebly notched, dorsal surface with two shallow impressions basally, and a deeper concavity distally.

Epistome and upper lip gibbous, subcarinate medially.

Gnathopods 1 and 2 as in *tridentata*.

*Oradarea edentata*, n.sp. (Figs. 96 d, 101).

? Chevreux, 1913, p. 143 (part, *Leptamphopus novae-zealandiae*, non Thoms.).

Occurrence: St. 173. South Shetlands. Many incl. ovig. ♀♀ up to 6 mm.

DESCRIPTION. Integument as in *tridentata*, but with the major sculpturing not forming such prominent transverse lines on the pleon segments as in the preceding species. Post-antennal angle of head quadrate, slightly produced forwards. Eyes broadly oval, reddish. Peraeon and pleon dorsally rounded, without any teeth or carination. Side-plate 1 scarcely widened distally. Lower margins of side-plates very obscurely serrulate. Postero-inferior angle of pleon segment 2 quadrate, with a very minute tooth, of segment 3 rounded with a small tooth or notch at the junction of lower and hind margins. Telson oblong, narrowing distally, apex truncate, with or without obscure crenulations. It is narrower than in *bidentata*, and without the distinct triangular apex of *tridentata*.

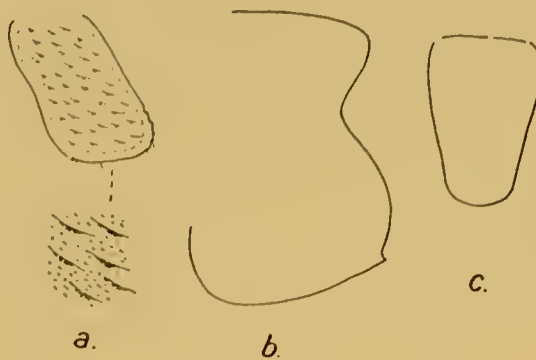


Fig. 101. *Oradarea edentata*, n.sp. a. Side-plate 1 with integumentary sculpture further enlarged. b. Pleon segment 3. c. Telson.

Epistome and upper lip much less gibbous than in the other species. Antenna 1 with 1-jointed accessory flagellum.

Gnathopod 1, 6th joint slender and cylindrical, approaching in shape, though not in length, the 6th joint of gnathopod 2. Peraeopods 3-5, 2nd joint with hind margin obscurely serrulate.

Colour (as preserved) orange-brown, formed by numerous close-set stellate chromatophores; eyes darker, reddish-brown.

REMARKS. It is probable that some of Chevreux' specimens from Petermann Island belong to this species. He refers to an ovigerous ♀, 6 mm. in length, without any dorsal teeth. He also mentions that some examples had a punctuated coloration, with brick-red eyes. The respective localities are not very far distant from one another.

### Family PLEUSTIDAE

Stebbing, 1906, pp. 309, 728.

The only Pleustid hitherto recorded from the southern hemisphere is *Mesopleustes abyssorum* (Stebb.) from Marion Island.

### Genus *Austropleustes*, Brnrd.

Barnard, 1931, p. 428.

Rostrum short. Side-plates moderate. Antennae slender, elongate. Upper lip incised. Outer lobes of lower lip widely separated. Mandible with molar feeble, conical, setulose; 3rd joint of palp shorter than 2nd. Palp of maxilliped with 3rd joint apically produced as in *Stenopleustes* (Fig. 103 f). Gnathopods 1 and 2 subchelate, rather slender. Dactyls of peraeopods 1-5 with a denticle at base of unguis. Uropod 3 with peduncle apically produced on lower margin to support the rami, of which inner is much longer than outer, and triquetral in cross-section. Telson more or less boat-shaped, apically more or less notched. Genotype: *A. cuspidatus* n.sp.

REMARKS. The mouth-parts of the species described below are in agreement with those of *Stenopleustes*, except the molar of the mandible, which is rather feeble but not as feeble as in *Pleustes* and *Neopleustes*. This feature, in conjunction with the peduncle of uropod 3, warrants generic separation. The structure of the peduncle of uropod 3 may be compared with that of *Oradarea* described above, or that of *Liouvillea*.

### *Austropleustes cuspidatus*, Brnrd. (Fig. 102).

Barnard, 1931, p. 428.

Occurrence: St. 170. South Shetlands. 2 ♀♀ (1 ovig.) 15 mm.

DESCRIPTION. Integument (as preserved) moderately firm, with minute, transversely elongate granules, chiefly on the hinder half of body. Rostrum extending to just half-way along 1st joint of antenna 1. Eyes large, round-oval, yellowish. Head and peraeon segments 1-5 feebly carinate. Peraeon segments 6 and 7 each with a pair of dorsal cusps; segment 7 with a lateral tooth on posterior margin, nearer the side-plate than the dorsal cusps. Side-plates, as in *S. nodifer* (Sars, 1895, pl. cxxv, fig. 2). Pleon segments

1-3 carinate, the carina on segments 1 and 2 raised posteriorly into a strong pointed tooth, on segment 3 rounded. Postero-inferior angle of segment 3 shortly pointed. Telson boat-shaped, apex slightly incised, a small subterminal notch on lateral margin.

Both antennae elongate, slender, flagella multiarticulate. Mouth-parts as in *S. malmgreni* (Sars, 1895, pl. cxxv, fig. 1), except that the mandible has a rather feeble conical molar, minutely setulose at apex; cutting edge with about 10 teeth, secondary cutting plate in left mandible with about eight teeth, in right mandible bidentate.

Gnathopods 1 and 2, 2nd joint shallowly channelled in front, outer margin slightly lobed at distal end, 4th with a short sharp spine at lower distal angle, 5th and 6th subequal, rather elongate, both setose along lower margins, 5th with two rather stronger spine-setae distally, 6th cylindrical, palm oblique, not defined except by three stout submarginal spines, finger overlapping palm.



Fig. 102. *Austropleustes cuspidatus*, Brnrd. a. Gnathopod 1. b. Pereopod segments 6 and 7, and pleon segments 1-4. c, d. Dorsal and lateral views of telson. e. Dorsal view of uropod 3 (inner ramus missing).

Pereopods 1 and 2, 5th and 6th joints rather strongly spinose on hind margin, dactyls with a small denticle at base of unguis. Pereopods 3-5, 2nd joint ovately expanded, hind margin shallowly notched, 5th and 6th joints rather strongly spinose on anterior margins, dactyls with denticle as in pereopods 1 and 2.

Uropods 1 and 2, peduncle longer than rami in uropod 1, shorter than the rami in uropod 2. Uropod 3, peduncle with upper margin keeled and ending in a short tooth, produced below into a channelled process for the reception of the inner ramus, which is lost in both specimens, but is presumably elongate.

REMARKS. Distinguished from all other Pleustids by the dorsal armature.

#### *Austropleustes simplex*, n.sp. (Fig. 103).

Occurrence: St. 123. South Georgia. One specimen 8 mm.

DESCRIPTION. Integument (as preserved) not firm, minutely and regularly shagreened. Rostrum extending scarcely to half-way along 1st joint of antenna 1. Eyes rather large, reniform, yellowish. Postantennal angle of head shortly produced in an acute point.

Peraeon and pleon without any carinae or processes. Side-plate 1 widened below, feebly serrulate; side-plates 5 and 6 more evenly bilobed than in *cuspidatus* or *Stenopleustes nodifer*. Postero-inferior angle of pleon segment 3 quadrate, the hind margin nearly straight, and obscurely crenulate. Telson not so strongly boat-shaped as in *cuspidatus*, apex more deeply incised, each lobe with 3-4 denticles, with fine setules in the notches.

Mouth-parts as in *S. malmgreni* (Sars, pl. cxxv, fig. 1) except that the molar agrees with that of *cuspidatus* (*supra*) in being rather feeble and conical.

Gnathopods 1 and 2 in general like those of *cuspidatus*, but 5th and 6th joints not so elongate. Peraeopods 1-5 all have the denticle on the dactyl. Hind margin of 2nd joints of peraeopods 3-5 serrate.

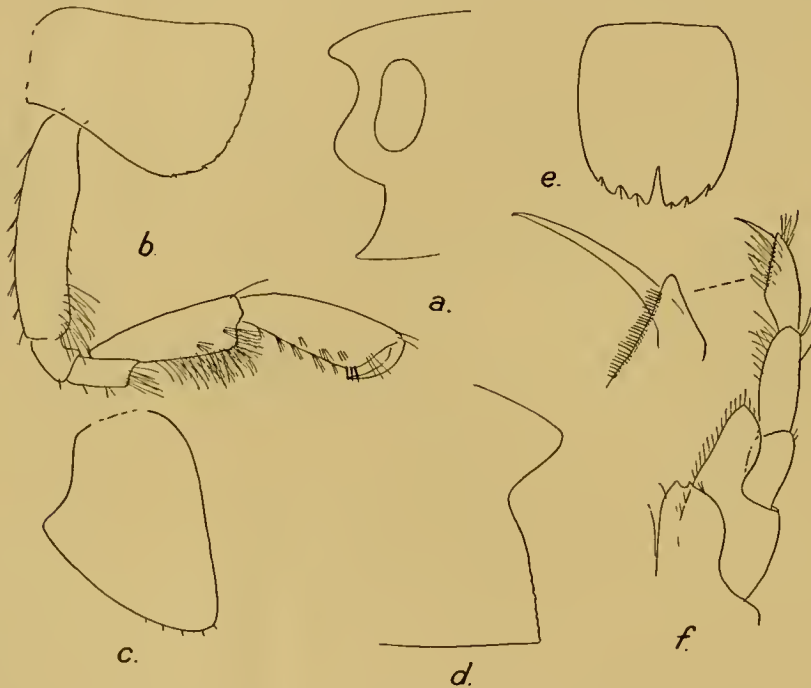


Fig. 103. *Austropleustes simplex*, n.sp. a. Head. b. Side-plate 1 and gnathopod 1. c. Side-plate 4. d. Pleon segment 3. e. Telson. f. Maxilliped, with 3rd and 4th palpal joints further enlarged.

Uropod 3, peduncle apically produced as in *cuspidatus*, inner ramus twice as long as outer, triquetral in cross-section, margins spinulose.

REMARKS. Although so unlike the preceding species in having no dorsal armature, this species agrees with the former in the mouth-parts, uropod 3, and the dactyls of peraeopods 3-5.

#### Family PARAMPHITHOIDAE

Stebbing, 1906, p. 320.

Barnard, 1930, p. 372.

#### Genus *Epimeria*, Costa

Stebbing, 1906, p. 321.

Barnard, 1916, p. 170; 1930, p. 372.

This genus contains a number of species which can be separated into two more or less distinct groups, characterized by the tendency of the integumentary projections to be on the one hand spiniform and on the other hand tuberculiform. Admittedly there is no hard and fast division, but taking the Antarctic examples one would at first sight be inclined to doubt whether *macrodonta* and *robusta* belonged to the same genus.

In the Antarctic fauna the *macrodonta* group causes no trouble. But in what may be termed the *inermis-robusta* group we find a number of very closely allied forms which illustrate in varying degrees the tendency among so many polar forms to develop integumentary processes.

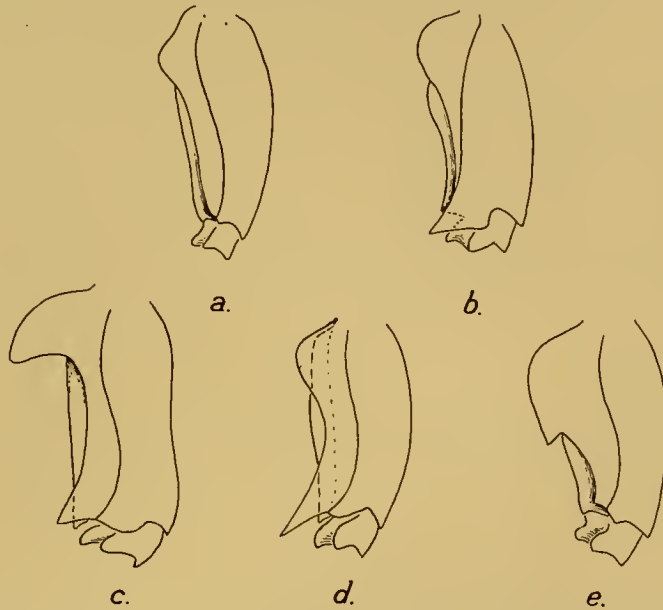


Fig. 104. 2nd and 3rd joints of peraeopod 3 of *Epimeria* viewed obliquely from behind: *a. inermis*, Wlkr. *b. acanthurus*, Schell. *c. intermedia*, Schell. *d. puncticulata*, Brnrd. *e. excisipes*, n.sp. (In *d* the faintly dotted line indicates the bottom of the channel formed by the inner and outer keels.)

These are mostly large forms and hence are amenable to a somewhat closer scrutiny than many smaller forms. Thus in the study of the Discovery material I have become aware of one feature which would seem to be of considerable value in diagnosing the species. Unfortunately the three species in the Terra Nova collection were so clearly differentiated on the more obvious features that the detail to which I am here drawing attention did not obtrude itself. That, however, is of little consequence as two of those species occur in the Discovery collection, and it is only *robusta* that I am not able to include in the following comparison.

The 2nd joints of peraeopods 3-5 have participated to a greater or lesser degree in the general induration of the integument in these forms, for the purpose of closing the gap between the 4th and 5th side-plates and the pleura of the pleon segments when the animal is curled up. They thus become available for the development of rib-like strengthening keels, marginal flanges and spiniform projections.

The simplest development is seen in the northern *cornigera*, where the hind margin of the 2nd joint in peraeopods 3 and 4 is channelled, the channel being bounded by a keel or flange on the outer and inner sides. These keels diverge right from the base of the joint, and continue separate to the end, where the outer one is expanded into a lobe. On peraeopod 4 the inner keel is slightly expanded. On peraeopod 5 it is always the outer keel which is variously expanded, and we need not consider this peraeopod any further.

All three peraeopods have a longitudinal keel in the middle of the outer surface of the 2nd joint, and the 3rd joint also possesses an outer and inner flange on the hind margin for the reception of the 4th joint when the limb is flexed.

In the Antarctic forms we find several modifications of the simple channel of *cornigera*. In explanation of the figures here given (Fig. 104) of all the species in the present collection, it will suffice to point out how important it is in descriptions to distinguish the point of divergence of the outer and inner keels, which keel is expanded, and the course of the lateral longitudinal keel.

*Epimeria macrodonta*, Wlkr. (Fig. 105).

Walker, 1907, p. 24, pl. viii, fig. 14.

Chevreaux, 1913, p. 148 and p. 149, figs. 41-43 (*similis*).

Schellenberg, 1926, p. 343.

Barnard, 1930, p. 372.

forma *macrodonta*, Wlkr.

*Occurrence*: St. 181. Palmer Archipelago. 1 juv. 10 mm.

forma *similis*, Chevr.

*Occurrence*: 1. St. 170. South Shetlands. 19 ♂♂ 12-22 mm., 16 ♀♀ 15-34 mm., 8 ovig. ♀♀ 28-32 mm., 2 ♀♀ with embryos 33 mm.

2. St. 175. South Shetlands. 2 ♂♂ 12 and 30 mm.

3. St. 181. Palmer Archipelago. 1 ? ♀ 14 mm.

4. St. 182. Palmer Archipelago. 1 ♂ 18 mm., 1 juv. 6.5 mm.



Fig. 105. *Epimeria macrodonta*, Wlkr. Photograph taken on board (St. 175).

REMARKS. The large ♂ (no. 2) is larger than any other known ♂, and the spiny armature in both specimens of no. 2 is unusually well developed. Peraeon segment 1 has a medio-dorsal subacute tooth, and a dorso-lateral short pointed tubercle. Segment 2 is unarmed, and dorsally is only half the length of segment 1. The dorsal processes on peraeon segment 3 to pleon segment 3 are high, shaped more as in *similis* than *macro-donta* in the larger ♂, *vice versa* in the smaller ♂; in the former especially those on peraeon segment 7 and pleon segments 1 and 2. The processes on segment 7 and pleon segment 2 in the larger ♂ (broken off in the smaller) are sub-bifid, the posterior point on pleon segment 2 being very narrow and acute. Side-plate 2 scarcely wider than 1. The horizontal tooth in middle of side-plate 4, which is usually short, or as in most specimens in no. 1 nearly obsolete, is here very strong, projecting laterally almost as much as does the tooth on side-plate 5.

No further evidence is required to demonstrate that *macrodonta* and *similis* are forms of the same species. The extreme forms are easily distinguished, but intergradations may occur. Many of the specimens of no. 1, especially the smaller ones, have the dorsal processes approximating to the slender *macrodonta* type.

The inter-antennal area bears two short acute median tubercles, one just below the bases of 1st antennae, the other just above the base of the epistome. These tubercles are not mentioned by other authors, and were not looked for in the Terra Nova specimens.

The colour of the no. 1 specimens is given as: "Thoracic and abdominal segments white blotched and striped with yellowish buff, antennae, antennules, distal segments of three posterior legs, and uropods suffused with same colour. Eyes shining salmon pink". Note 128 for St. 175, and Note 141 for St. 181 give the colour as: "Carapace and abdomen golden yellow, with numerous spots and streaks of bright red. Eyes salmon red", and "Pale creamy buff with faint chestnut mottling. Eyes pink", respectively.

DISTRIBUTION. McMurdo Sound; Coats Land; Graham Land; South Shetlands; 'Gauss' winter station.

#### *Epimeria inermis*, Wlkr. (Fig. 104 a).

Walker, 1903, p. 54, pl. x, fig. 69.

Barnard, 1930, p. 374, fig. 40 b.

Occurrence: 1. St. 170. South Shetlands. 6 ♀♀ 10–23 mm., 5 ovig. ♀♀ 20–28 mm., 1 juv. 6 mm.  
2. St. 175. South Shetlands. 1 ♂ 13.5 mm., 2 ♀♀ 19 and 21 mm.

REMARKS. These specimens confirm the remarks made on the Terra Nova specimens. The description of the 2nd joint of peraeopods 3 and 4 can be improved, viz. hind margin forming in basal third a rounded triangular tooth or projection, then diverging into the outer and inner keels, neither of which is expanded or lobed distally, longitudinal keel distinct from base to apex.

One inter-antennal tubercle below bases of 1st antennae.

The colour of no. 1 is given as: "Cream-coloured, closely dotted all over with terracotta, 5th and 8th [*sic*] thoracic segments much darker than rest. Antennae, antennules and last five thoracic legs narrowly banded with same colour. Eyes salmon pink". When

this and the following species (*excisipes*) were caught in the same haul, they were distinguished in the field and separate colour notes were made.

DISTRIBUTION. Cape Adare, 28 fathoms; McMurdo Sound, 256-379 m.; west of Falkland Islands, 229 m.

*Epimeria excisipes*, n.sp. (Figs. 104 e, 106, 107).

*Occurrence*: 1. St. 27. South Georgia. 1 ♀ 30 mm.

2. St. 42. South Georgia. 1 ♂ 22 mm., 1 ♀ 30 mm.

3. St. 123. South Georgia. 1 ♂ 14 mm., 1 ♀ 30 mm.

4. St. 140. South Georgia. 3 ♂♂ 10, 11 and 20 mm., 4 juv. 7.5-11 mm.

5. St. 144. South Georgia. 1 ♂ 15 mm., 1 ♀ 30 mm.

6. St. 148. South Georgia. 2 ♂♂ 11-12 mm.

7. St. 156. South Georgia. 1 ♂ 17 mm.

8. St. 159. South Georgia. 3 ♂♂ 16-19 mm., 11 ♀♀ 20-31 mm., 9 ovig. ♀♀ 30-33 mm. *Types*.

9. St. 170. South Shetlands. 16 ♂♂ 16-23 mm., 6 ♀♀ 22-27 mm., 5 ovig. ♀♀ 34-39 mm., 1 ♀ with embryos 29 mm.

10. St. 175. South Shetlands. 2 ♂♂ 15-16 mm., 5 ♀♀ 14-38 mm.

11. St. 190. Palmer Archipelago (315 m.). 1 ♂ 21 mm.

12. St. 195. South Shetlands. 1 ♂ 21 mm., 1 ♀ 15 mm.

13. St. WS 33. South Georgia. 1 ovig. ♀ 31 mm.



Fig. 106. *Epimeria excisipes*, n.sp. Photograph taken on board (St. 175).

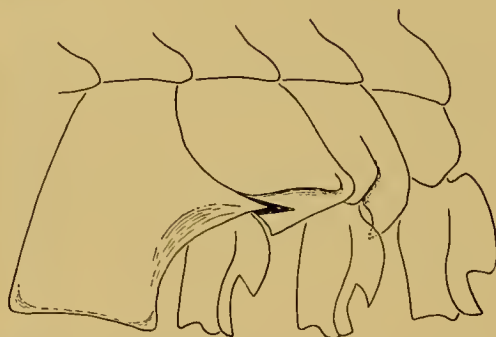


Fig. 107. *Epimeria excisipes*, n.sp. Side-plates 4-7 and 2nd joints of peraeopods 3-5.

DESCRIPTION. Integument, rostrum, peraeon and pleon as in *inermis* Wlkr., but side-plates 4-6 thicker and more strongly gibbose. Side-plate 4 concave on lower hind margin, lower margin straight or slightly concave, antero- and postero-inferior angles quadrate, almost sharp in some specimens. Side-plate 6 pointed below (rounded in *inermis*). The lower margins of the peraeon segments are not at all tuberculate or gibbose. Some specimens are almost foveolate on the pleura of pleon segments 1-3.

Peraeopods 3-5, 2nd joints closely resembling those of *robusta* Brnrd., but that of peraeopod 5 distinctively expanded in its proximal two-thirds into a broad lamina, bounded below by an acute re-entrant angle. In some of the smaller ♂♂ this re-entrant angle or excision on all three peraeopods is more a right angle than an acute angle.



Uropod 2, outer ramus a little over half length of inner.

One inter-antennal tubercle.

The embryos (no. 9) are 5.5 mm. in length, and the 2nd joints of peraeopods 3-5 are of the *inermis* or *tuberculata* shape. The back is feebly carinate.

REMARKS. Although closely related to *inermis* and *robusta*, this species is easily distinguished by the diagnostic characters here described and figured. Though size is not distinctive, it seems to be a larger species than *inermis*. When the animal is curled up, the manner in which the overlapping 2nd joints of peraeopods 3-5 fill in and protect the space between the 4th side-plate and the pleura of the pleon segments is very neat.

The embryos of no. 9, and the young individuals of no. 4 are interesting as showing the progressive enlargement of the basal tooth on the 2nd joints of peraeopods 3 and 4, the shifting of the point of divergence of the outer and inner keels further towards the apex of the joint, the expansion on the same joint of peraeopod 5 and its extension distalwards. As regards the shape of these joints, *excisipes* when first hatched resembles *inermis* but diverges more and more as it grows. The 4th side-plate is distinctive right from the earliest stage.

The colour of nos. 1, 2 and 9 respectively are given as: "Rose-red with red eyes", "heavily mottled with red on a creamy ground. Eyes bright pink", and "Variously mottled with milk-white on a bright red or crimson background. Some specimens mainly white, others mainly red. Eyes shining red". Note 131 for St. 175 says: "Thorax and abdomen heavily blotched and mottled with deep carmine on a pure white ground, the amount of carmine pigment varying greatly in different specimens. Last three thoracic legs dotted with carmine. Eyes shining salmon pink".

This species is very likely a synonym of *E. georgiana*, Schell. 1931, p. 160.

*Epimeria puncticulata*, Brnrd. (Fig. 104 d).

Barnard, 1930, p. 376, fig. 42.

- Occurrence*: 1. St. 45. South Georgia. 1 ♀ 13 mm.  
 2. St. 123. South Georgia. 3 ♀♀ 11-13 mm.  
 3. St. 140. South Georgia. 8 ♀♀ 10-13 mm.  
 4. St. 148. South Georgia. 1 ♂ 10.5 mm.  
 5. St. WS 33. South Georgia. 1 ♂ 7 mm.  
 6. St. MS 71. South Georgia. 1 juv. 5.5 mm.

REMARKS. The 7th peraeon segment ends in a short medio-dorsal point, the keels on pleon segments 1 and 2 end in slightly more prominent points, and the triangular projection on segment 4 is more sharply pointed than in the Terra Nova specimens. The hind margin of 2nd joint of peraeopod 5 is usually slightly indented distally, but the lobe has a small point at the postero-inferior corner.

The figure here given of the 2nd joint of peraeopod 3 shows the point of divergence of the outer and inner keels right at the base, the strong sinuous expansion of the outer keel, ending in a sharp point, into which the lateral longitudinal keel does not enter, and the feeble expansion of the inner keel, which ends below in a small subacute lobe. In a true external side-view the inner keel is scarcely visible below the concavity of the outer

keel (cf. fig. 42, 1930). In peraeopod 4 the inner keel is completely concealed in external view, and an apical lobe is scarcely developed.

One inter-antennal tubercle.

The colour of no. 1 is given as follows: "Pale yellow. Each of first 7 segments with a transverse pale brown band dorsally along both anterior and posterior margins. Large side-plate of 4th segment largely red-brown. Posterior segments yellow mottled with brown. Caudal appendages and legs pale yellow. Eyes red".

DISTRIBUTION. McMurdo Sound, 92-175 m.

*Epimeria acanthurus*, Schell. (Figs. 104 *b*, 108, and Plate I, fig. 2).

Schellenberg, 1931, p. 162, fig. 85, and pl. i, fig. *g*.

- Occurrence*: 1. St. WS 81. Falklands. 1 ovig. ♀ 22 mm.  
 2. St. WS 85. Falklands. 1 ♀ 11.5 mm.  
 3. St. WS 86. Falklands. 1 ovig. ♀ 21 mm.

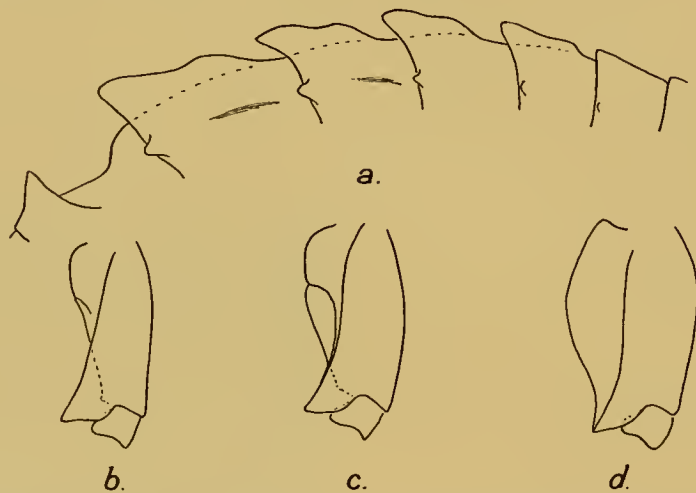


Fig. 108. *Epimeria acanthurus*, Schell. *a*. Dorsal profile of peraeon segments 6 and 7 and pleon segments 1-4. *b*, *c*, *d*. 2nd (and 3rd) joints of peraeopods 3-5.

DESCRIPTION. Like *puncticulata*, Brnrd., but peraeon segments 5 and 6 slightly keeled and ending posteriorly in a short point. Peraeon segment 7 and pleon segments 1-3 strongly keeled, the keels beginning near bases of segments, slightly indented in middle of dorsal profile, and ending in prominent subacute apices. Pleon segment 4 with sharp-pointed upstanding triangular process. A series of dorso-lateral tubercular processes on peraeon segment 7 to pleon segment 3, faint on peraeon segment 7 (sometimes also one on segment 6) and on pleon segments 2 and 3, consisting of a short ridge or keel near base of segment and a conical tubercle on hind margin.

Peraeopods 3 and 4, 2nd joint with the point of divergence of the outer and inner keels distal to the rounded basal lobe, inner keel not expanded, lateral longitudinal keel confluent in distal third with the outer keel and forming the subacute apex of the distal lobe, which does not quite extend to apex of 3rd joint. Peraeopod 5, 2nd joint similar

to that of *puncticulata* but distal hind margin lobe ending in a subacute point, to which the lateral longitudinal keel runs out.

One inter-antennal tubercle.

REMARKS. There is very strong temptation to regard this form as a more strongly tuberculate variety of *puncticulata*, especially as a somewhat similar colour pattern is found in both. The differences in the dorsal armature, however, are considerable; *puncticulata* is much broader across the middle of the peraeon than *acanthurus*; and finally the structure of the 2nd joints of peraeopods 3 and 4 is decisive. Schellenberg (1931, p. 162) has proposed the genus *Metepimeria* for this species.

The distinctly striped coloration of no. 1 offers an interesting contrast with the blotched coloration of nos. 2 and 3. The type (no. 1) still exhibits the pairs of faint salmon bands on peraeon segment 1 to pleon segment 4; the pleon segments have an additional band right at the base; side-plates 4 and 5 show two bands, and side-plate 6 one band, being the direct continuation of those on the peraeon segments. Note WS 12 for St. WS 86 says: "Colour and markings. . . with a more universal distribution of red pigment. . . [than in Note WS 9, which is the coloured sketch here reproduced] i. Red pigment extends to posterior border of head. ii. Coxopodites of 2nd, 3rd and 4th thoracic legs are pigmented, of the 4th completely. iii. Terga of the 6th and 7th free thoracic segments and the coxopodites of their appendages are fully pigmented. iv. Terga of all abdominal segments completely pigmented. v. Basipodites of the last three peraeopods bear colour at base of their hinder margins".

*Epimeria intermedia*, Schell. (Figs. 104 c, 109).

Schellenberg, 1931, p. 161, fig. 84, and pl. i, fig. f.

- Occurrence: 1. St. 39. South Georgia. 1 ♀ 15 mm.  
 2. St. 140. South Georgia. 2 ♀♀ 10 and 12 mm.  
 3. St. 142. South Georgia. 1 juv. 5.5 mm.

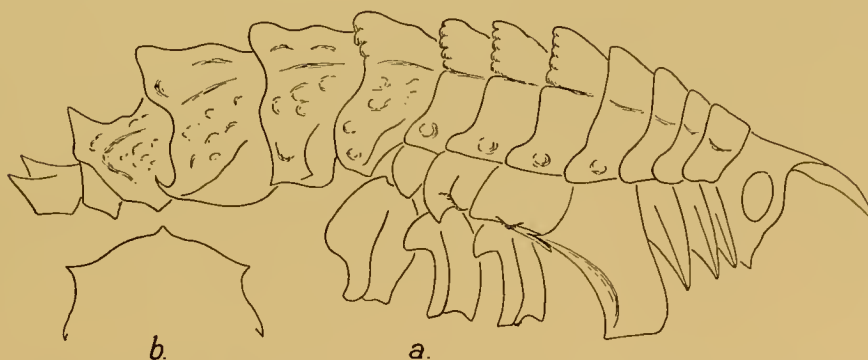


Fig. 109. *Epimeria intermedia*, Schell. a. General view b. Cross-section of peraeon segment 2.

DESCRIPTION. Integument strongly punctate. Rostrum as long as rest of head or even a little longer (no. 2). Two inter-antennal tubercles. Peraeon segments 1-7 dorsally carinate, the carinae becoming successively stronger and more imbricate posteriorly; dorso-laterally a slight ridge projecting horizontally and giving a very

characteristic appearance; posterior margins of segments 5-7 faintly beaded between the dorso-lateral and medio-dorsal keels. Lower margins of segments feebly nodulose (obsolete in no. 1). Side-plate 4 deeper than long, antero-inferior angle rounded, postero-inferior angle quadrate; side-plates 5 and 6 nodose. Pleon segments 1-4 dorsally carinate, like the peraeon with a dorso-lateral ridge, and laterally somewhat irregularly and feebly nodulose; carina on segment 4 acutely triangular; segment 5 very short; segment 6 with a medio-dorsal upstanding triangular tooth, and the lateral margins produced backwards in acute lobes. Postero-inferior angle of pleon segment 3 produced in an acute upcurved hook; no angular projections on lateral margins above the postero-inferior angles.

Peraeopods 3 and 4, 2nd joints with an uncinat process on basal hind margin, beyond which the outer and inner keels diverge, the former expanded and ending in a slightly produced quadrate lobe, the latter scarcely expanded, lateral longitudinal keel running to the lower margin of lobe of outer keel. Peraeopod 5, 2nd joint with hind margin strongly expanded, the distal one-third semicircularly excised.

Uropod 2, outer ramus two-thirds length of inner.

REMARKS. The larger specimen, no. 1, is less nodose than the two smaller ones (no. 2) and but for the latter several of the less noticeable features would have been overlooked or ignored.

#### Genus *Epimeriella*, Wlkr.

Walker, 1907, p. 26.

Barnard, 1930, p. 377.

#### *Epimeriella macronyx*, Wlkr. (Plate I, fig. 3).

Walker, 1907, p. 26, pl. ix, fig. 15.

Schellenberg, 1926, p. 344.

Barnard, 1930, p. 378.

*Occurrence*: St. 162. South Orkneys. 1 ♂ 21 mm.

REMARKS. Side-plates 1-3 narrowly rounded or subacute below. The remarks on the Terra Nova specimens apply here also. Sixth joint of peraeopods 3 and 4 equal to the 2nd-4th joints together; dactyl two-thirds length of 6th joint. (The 6th joint is drawn a little too short in the coloured figure here reproduced.)

DISTRIBUTION. McMurdo Sound, 5-10 fathoms and 0-350 m.; 'Gauss' winter station, 385 m.

#### *Epimeriella walkeri*, Brnrd. (Fig. 110).

Barnard, 1930, p. 380, figs. 40 c and 44.

*Occurrence*: 1. St. 170. South Shetlands. 3 ♂♂ 11-13 mm., 25 ♀♀ 14-18 mm.

2. St. 182. Palmer Archipelago. 1 ♀ 17 mm.

REMARKS. None of the specimens are fully mature, but they agree with the original description except as regards gnathopods 1 and 2. The 6th joint has a distinct rounded palm as in the embryo figured in fig. 44 c (1930), and is finely pectinate as in *scabrosa*

(1930, fig. 43 *c*); the dactyl bears a series of slender spines separated by short spaces. The postero-inferior angles of the 2nd joints of peraeopods 3 and 4 are more rounded-quadrate, especially in peraeopod 3. There is one inter-antennal tubercle.

Specimen no. 2 has pleon segment 3 terminating in a more prominent blunt process, the posterior prominence on segment 4 is higher and symmetrically rounded, and the

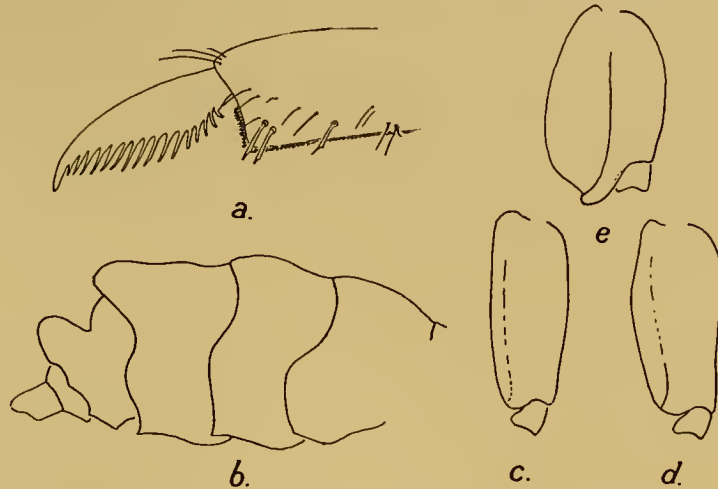


Fig. 110. *Epimeriella walkeri*, Brnrd. *a*. Gnathopod 1. *b*. Pleon segments 1-6. *c, d, e*. 2nd (and 3rd) joints of peraeopods 3-5. (*b-e* are from the specimen from St. 182.)

postero-inferior angles of the 2nd joints of peraeopods 3 and 4 are quite rounded; but in other respects it resembles the other specimens. This specimen is recorded as being "pure white with pink eyes".

DISTRIBUTION. McMurdo Sound, 256-379 m.

#### Genus *Parepimeria*, Chevr.

Chevreaux, 1913, p. 158.

Schellenberg, 1931, p. 164.

All the present specimens have a normal 4-jointed palp in the maxilliped, and the original generic definition must therefore be altered. The 4th joint is often difficult to see on account of the thick brush of setae on the 3rd joint.

#### *Parepimeria crenulata*, Chevr.

Chevreaux, 1913, p. 158, figs. 47-49.

#### *Typical form*

- Occurrence*: 1. St. 42. South Georgia. 1 ♂ 7 mm., 10 ♀♀ 6-12 mm., 2 ovig. ♀♀ 10-11 mm.<sup>1</sup>  
 2. St. 123. South Georgia. 6 ♀♀ 8-12 mm.  
 3. St. 140. South Georgia. 3 ♂♂ 7-9.5 mm., 7 ♀♀ 8-11 mm.  
 4. St. 144. South Georgia. 1 ♂ 8 mm., 3 ♀♀ 8-10 mm., 1 juv. 5 mm.  
 5. St. 152. South Georgia. 1 ovig. ♀ 11 mm.  
 6. St. 175. South Shetlands. 1 ♀ 12 mm.  
 7. St. MS 63. South Georgia. 1 ♀ 9 mm., 1 ♀ with embryos 13 mm.  
 8. St. MS 71. South Georgia. 1 ovig. ♀ 12 mm.

<sup>1</sup> In all measurements of this species the rostrum is excluded

*Aberration*

*Occurrence*: St. 170. South Shetlands. 1 ♂ 12 mm.

REMARKS. The specimen from St. 170 found in conjunction with two specimens of the variety described below constitutes an interesting aberration; were it not for this aberrant specimen the new variety would have been accorded specific rank.

The rostrum is short, extending barely half-way along the 1st joint of the 1st antenna. Dorsal processes as in the typical form, except that pleon segment 3 has no tooth, only a rounded medio-dorsal keel, which is higher than in the variety. Lateral tubercles on peraeon segments obsolete.

DISTRIBUTION. Palmer Archipelago, 129 m.

var. *miothele*, n.

*Occurrence*: 1. St. 170. South Shetlands. 2 mutilated ♀♀ (1 ovig.).

2. St. 195. South Shetlands. 2 ♂♂ 7.5 mm., 2 ovig. ♀♀ 9-10 mm., 1 juv. 5.5 mm. *Types*.

DESCRIPTION. Less spinose and tuberculate than the typical form. Head carinate, produced in a short rostrum extending half-way along 1st joint of antenna 1. Antero-lateral angle rounded-quadrate. Eyes large, circular, pale. Peraeon segments 1-4 smooth, dorsally rounded; segments 5-7 each with a pair of dorsal, adpressed, short processes, those on segment 5 apically subacute (in dorsal view), the others acute. No tubercles on lower margins of the segments. Side-plates 1-3 ovate, 1 narrowing to a subacute apex, somewhat curved forwards, 2 and 3 rounded below; 4 broadly rounded below. Pleon segments 1 and 2 each with a single medio-dorsal acute, decumbent process, not upstanding as in *crenulata*; segment 3 with a low rounded medio-dorsal keel. Postero-inferior margins of pleon segments 2 and 3 serrate as in *crenulata*. Telson as in *crenulata*.

Antennae, mouth-parts, and other appendages as in *crenulata*. The 2nd joints of gnathopods 1 and 2 have the same regular row of short spinules on the hind margins (on outer surface) as I find in the present examples of *crenulata*. Hind margins of 2nd joints of peraeopods 3-5 feebly serrate.

*Parepimeria major*, n.sp. (Fig. 111).

*Occurrence*: St. 177. South Shetlands. One specimen 17 mm.

DESCRIPTION. In general habitus like *crenulata* var. *miothele*. Head carinate, with short deflexed rostrum. Eyes broadly oval, quite white as preserved. A sinuous oblique ridge from upper hind margin of eye to middle of hind margin of head. Peraeon segments 1-4 rounded dorsally; 1 with a transverse groove, 2-4 each with the posterior margin gibbous; segments 5-7 each with a pair of long acute processes; no tubercles on lower margins of segments. Side-plate 1 acutely produced forwards; 2 and 3 ovate, subacute below; lower hind margin of 4 concave. Pleon segments 1 and 2 each with a strong projecting acute medio-dorsal tooth; segment 3 with a rounded keel posteriorly; postero-inferior angle of segment 1 quadrate, of 2 shortly pointed, of 3 quadrate with a short tooth; lateral margins of segments 1 and 2 slightly angular, of 3 with a small up-

turned tooth. Telson short, broad, apically rounded, dorsally concave, lateral margins raised, with a spine a little beyond the middle.

Antennae and mouth-parts as in *crenulata*. Palp of maxilliped with a strong spini-form 4th joint surrounded by the numerous setae of the 3rd joint.

Gnathopods 1 and 2 stouter than in *crenulata*, no regular row of spinules on hind margin of 2nd joint, but a few distally, 5th joint strong, broadly expanded, 6th also broader than in *crenulata*. Peraeopods 3-5, 2nd joint oblong, successively more expanded on hind margin proximally, hind margin very obscurely serrulate, a longitudinal keel from base to apex and an oblique one antero-proximally.

REMARKS. Unlike the form described above as var. *miothele*, this form does not labour under the suspicion of being a variety of *crenulata*. The gnathopods are much

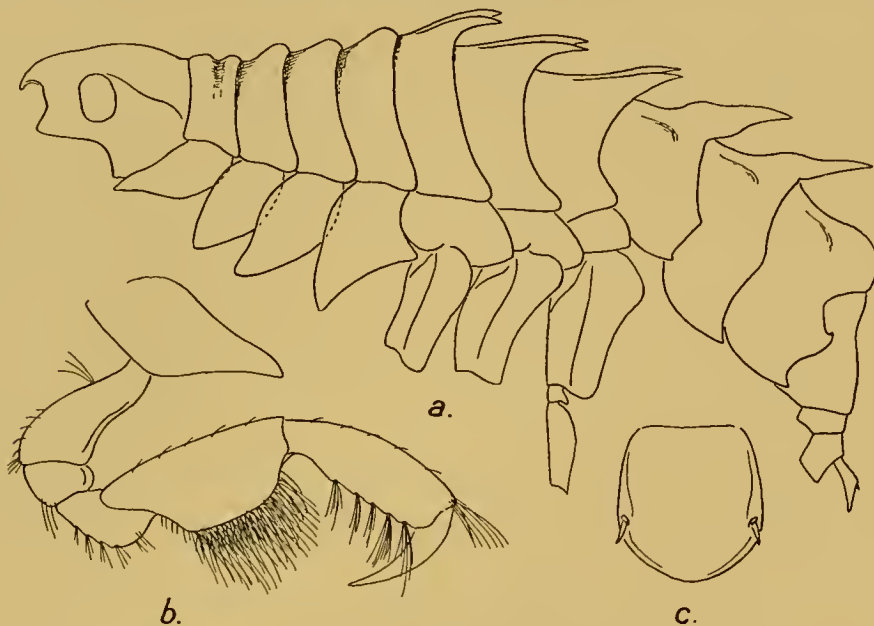


Fig. 111. *Parepimeria major*, n.sp. a. General view. b. Gnathopod 1. c. Telson.

stronger, and bear a remarkable resemblance to those of *Melphidippa macrura*. The specimen shows no sign of either penes or developing brood lamellae, and is thus immature. The adult must be considerably larger than *crenulata*.

#### Eclysis, n.g.

Body carinate. Rostrum short. Eyes absent. Side-plate 1 truncate or rounded below, 2 and 3 rather broader than in typical *Epimeria*, 4 not strongly produced behind and not fitting into a groove on 5. Epistome and upper lip prominent, gibbose. Mandible with a strongly dentate cutting edge, no secondary cutting plate in either mandible, and a thin tapering setose lamina in place of the grinding molar, as in *Epimeriella*. Maxillary palp large, 2nd joint laminate. Maxilliped with inner plate truncate, outer plate very large, palp relatively short.

Gnathopods 1 and 2, 5th joint triangular, distally widened, 6th with ill-defined palm. Peraeopod 5 longer than, or at least as long as, peraeopod 4. Telson apically incised or deeply notched.

REMARKS. The diagnosis of *Epimeriopsis* (Barnard, 1931, p. 428) based on a specimen erroneously identified as *australis*, Chilton, together with the designation of this species as the genotype, constitutes a composite diagnosis, and the name is therefore void *ab initio*.

*Eclysis similis*, n.sp. (Fig. 112).

Occurrence: St. 123. South Georgia. 1 ♀ 12 mm.

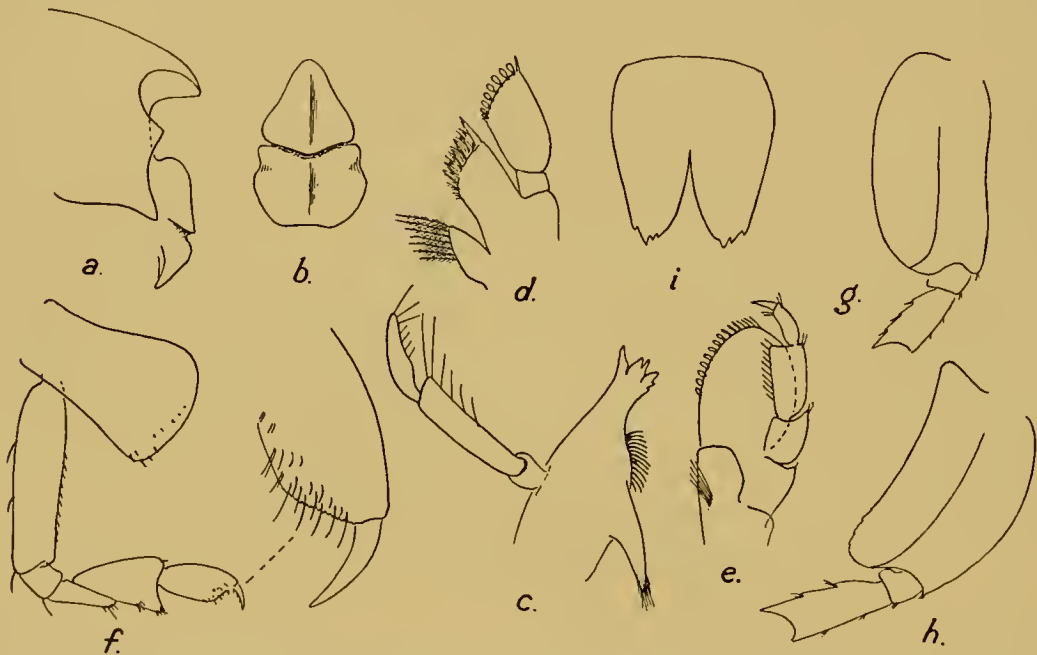


Fig. 112. *Eclysis similis*, n.g., n.sp. a. Head, with profile of epistome and upper lip. b. Frontal view of epistome and upper lip. c. Mandible. d. Maxilla 1. e. Maxilliped. f. Gnathopod 1, with palm further enlarged. g. Peraeopod 3. h. Peraeopod 5. i. Telson.

DESCRIPTION. Agreeing in general with Chilton's description and figure of *A. australis*, 1912, but with the following differences and additions.

Head with antero-inferior corner produced in a short subacute point. Side-plate 1 widening below, lower margin slightly convex, not straight as in Chilton's figure. Side-plate 5, postero-inferior angle rounded as in the 6th side-plate. Dorsal teeth not quite so high as in Chilton's figure; that on pleon segment 4 more evenly rounded and not so strongly lobed just above the notch. Telson apically incised, lobes subacute, with four denticles (asymmetrical).

Antenna 1, the teeth on 1st and 2nd joints are all short, not at all prominent, accessory flagellum absent. Epistome and upper lip gibbous, with a low median keel, separated by a groove; upper lip broader than long, apically rounded-truncate.



Mandible, cutting edge divided into three teeth, bifid or with accessory denticles, separated by deep incisions, no secondary cutting plate in either mandible, spine row well developed, molar a thin tapering setose lamina, palp strong, 3rd joint abruptly narrower than distal end of 2nd. Lower lip, inner lobes absent, outer lobes as in *Epimeria cornigera*. Maxilla 1 as in *cornigera*, but palp stronger, 2nd joint ovate-oblong, with eight clavate spines, and a slender spinule at each end on distal margin. Maxilla 2 as in *cornigera*. Maxilliped, inner plate short, apically truncate, with a few setules, outer plate very large, lamellate, inner margin with clavate spines which pass gradually into slender spines distally, 2nd joint of palp with straight inner margin and quadrate inner apical angle.

Gnathopods 1 and 2, 2nd joint with some fine setules on anterior margin and a few longer setae on hind margin, 5th joint triangular, distally widened, 6th much narrower than distal width of 5th and slightly shorter, palm oblique, ill-defined, except by very fine pectination, dactyl with setules on inner margin.

Peraeopods 3 and 4, 2nd joint evenly oval. Peraeopod 5, 2nd joint oblong, anterior margin convex, hind margin slightly concave between the upper narrowly rounded angle and the lower, more broadly rounded angle which is obscurely serrulate.

Uropods somewhat mutilated but corresponding with Chilton's description. Peduncle of uropod 3 keeled on both outer and inner upper margins, each keel ending behind in a short acute tooth.

REMARKS. This specimen was at first thought to be a small example of *A. australis*, Chilton, 1912. A specimen of what is undoubtedly the true *australis*, however, has been studied by Schellenberg, who finds that it is an Iphimediid, and for it has instituted the genus *Iphimediopsis* (1931, pp. 126, 127, pl. i, fig. c).

The dorsal armature, except for a very slight difference in the shape of the hinder part of the keel on pleon segment 4 is the same in both species; and in other respects there is great similarity. The main differences as noted above are the shapes of the 5th joints of the gnathopods, and the 2nd joints of peraeopods 3-5, and the telson. Chilton figures the hind margin of the 2nd joint of the gnathopods as markedly spinose, and the 5th joint as cylindrical; his description of the telson as "...emarginate posteriorly" scarcely fits the present specimen. The palp of the maxilliped appears to be longer; the figure here given is drawn from the mounted flattened preparation.

It should be remembered that the Scotia specimen of *australis* was 35 mm. in length and Schellenberg's ovig. ♀ 45 mm., whereas the present one is much smaller. It is preparing for ecdysis, as the new skin can be seen within the old in the mandibles and other parts. The brood lamellae are well developed though without marginal setae.

### Family ATYLIDAE

Stebbing, 1906, p. 327.

### Genus *Nototropis*, Costa.

Stebbing, 1906, pp. 329, 728.

Schellenberg, 1925, p. 148; 1931, p. 167.

Barnard, 1930, p. 382.

**Nototropis villosus** (Bate) (Fig. 113).

Bate, 1862, p. 135, pl. xxvi, fig. 1.

Stebbing, 1906, p. 334 (*species obscura*).*Typical form**Occurrence*: St. WS 89. Tierra del Fuego. 1 ♀ 19 mm.

DESCRIPTION. Rostrum extending to half length of 1st joint of antenna 1. Head dorsally carinate, antero-lateral angle rounded, post-antennal angle rounded-quadrate. Eyes oval dark. Peraeon segments 1-7 all carinate, but not posteriorly toothed. Side-plates 1-4 deep, oblong, 1 and 2 rounded below, margin serrulate and spinulose, 3 and

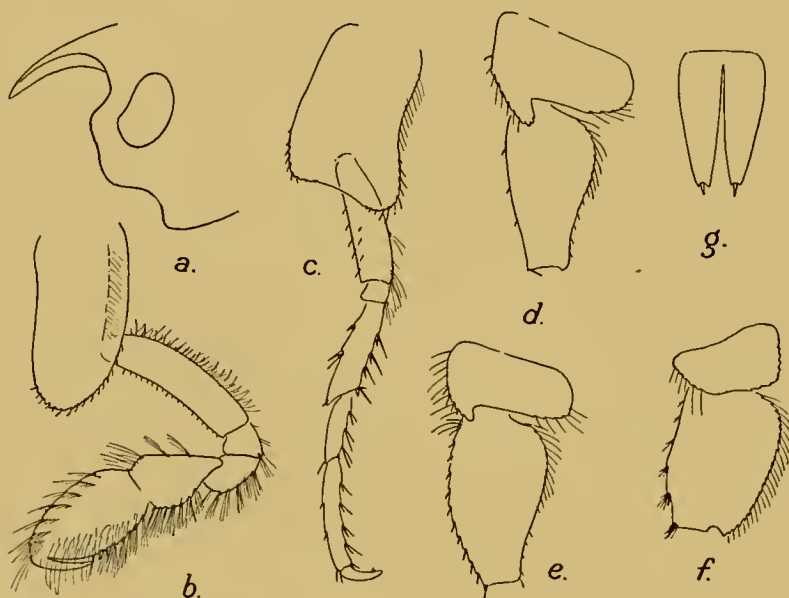


Fig. 113. *Nototropis villosus* (Bate). a. Head. b. Gnathopod 1. c. Peraeopod 2. d. Peraeopod 3. e. Peraeopod 4. f. Peraeopod 5. g. Telson.

4 subquadrangular below, lower margin of 4 slightly concave, antero- and postero-inferior angles serrulate and spinulose. Side-plates 5-7 shallow, anterior lobe of 5 and 6 very small, anterior and posterior corners serrulate and spinulose. Pleon segments 1-5 + 6 carinate, the carina produced to a tooth only on segment 4, which has the usual little notch. Postero-inferior angles of segments 1-3 quadrate, each with an oblique keel running out to the short acute point, lower margin of segment 1 setose, of segments 2 and 3 spinulose, the spinules set in little groups of 2-3 just within the margin. Telson, lobes tapering to subacute apices, each with a spinule in the apical notch.

Antenna 1, 2nd joint longer than 1st, 3rd considerably shorter, flagellum 31-32-jointed, peduncle and flagellum with setae on lower margin. Antenna 2 about as long as antenna 1, 4th joint slightly longer than 5th, flagellum about 20-jointed, peduncle and flagellum setose, but not densely. The villose pads described by Bate in the ♂ are absent in ♀.

Mouth-parts normal. Mandibular palp with 2nd and 3rd joints subequal.

Gnathopod 1, 2nd joint setulose on front margin, setose on hind margin, 5th triangular, 6th ovate, longer than 5th, palm oblique, not defined except by two spines, front margin with transverse rows of setae, lower margins of 4th–6th joints strongly setose. Gnathopod 2 resembling gnathopod 1, but more slender.

Peraeopods 1 and 2, 2nd joint linear, 6th longer than 4th and nearly equal to 2nd. Peraeopod 3, 2nd joint basally expanded, tapering distally, hind margin serrulate and setose basally, concave distally with a few setules. Peraeopod 4 similar to peraeopod 3, but longer, 2nd joint similar but anterior margin more convex and rather strongly spinulose. Peraeopod 5 slightly longer than 4th, 2nd joint ovate, hind margin convex and serrulate throughout. Dactyls of peraeopods 3–5 pointing forwards.

Uropod 1, upper margin of peduncle spinulose, rami subequal to peduncle. Uropod 2 shorter than uropod 1, peduncle shorter than that of uropod 1, outer ramus defective on both sides. Uropod 3 extending as far back as uropod 1, peduncle short, half the length of that of uropod 2, both rami narrow, tapering, subequal, with spinules on both margins, and in addition plumose setae on inner margins.

Branchial lamellae simple, with slight indications of pleating near bases.

#### *Dentate form*

*Occurrence:* St. 222. Cape Horn. 1 ♂ 15 mm., 2 ♀♀ 15–16 mm.

**DESCRIPTION.** This form does not differ from the typical form except in having the dorsal carina produced in pointed teeth on pleon segments 1–3 and 6, as well as on pleon segment 4; all the peraeopods shorter and stouter; and the branchiae slightly more pleated basally.

**REMARKS.** This is a very interesting rediscovery of a species described from a single ♂, and apparently not since observed. Bate's description proves to be good and his figure shows moderately well the features which distinguish this species.

It will be noted that the shape of side-plates 4–6, especially of the dentate form, bring this species near to *smitti* (cf. Sars, 1895, pl. clxv, fig. 1), from which it is distinguished by the anterior margin of head, 2nd joint of peraeopod 5, and the telson.

The lower margins of pleon segments 1–3 in these specimens are not actually serrate as Bate describes them, but the submarginal groups of spinules produce the same appearance (under a low magnification) as is shown in Bate's figure.

The variable development of the dorsal teeth and of the pleating on the branchiae indicates that a revision of the northern species might result in the reduction of species.

**DISTRIBUTION.** Hermite Island.

## Family LEPECHINELLIDAE

Schellenberg, 1926, p. 344.

Genus *Lepechinella*, Stebb.

Stebbing, 1908 (*Journ. Linn. Soc. Lond.*, xxx), p. 191.

Chevreur, 1914 (*Bull. Inst. océan. Monaco*, no. 296), p. 1 (*Dorbanella*).

Schellenberg, 1925 (*Mitt. Zool. Mus. Berlin*, xi), p. 205 (*Dorbanella*).

Barnard, 1925, p. 355.

Schellenberg, 1926, p. 344.

In February 1925 Schellenberg instituted the family Dorbanellidae for this genus, placing it in the neighbourhood of the Atylidae. The priority of Stebbing's name was independently pointed out in December 1925 (Barnard) and in 1926 Schellenberg changed the family name in conformity.

The affinity to the Atylidae is shown in the fused 5th and 6th pleon segments. This point escaped Stebbing's notice; he figures a well-marked suture between the two segments. I have re-examined the Cape specimens and find, both in them as well as in the Antarctic specimen described below, that while the line of junction between the two segments is quite well marked, especially at the sides, the 6th segment is immovably united with the 5th.

The juxtaposition of this family and the Atylidae thus seems well established. A further likeness is found in the pleated branchiae, which are often found in *Nototropis*, though in *Atylus* itself they are simple. The presence of well-developed inner lobes in the lower lip is, however, in conflict with the characters of the Atylidae.

Three species of this genus are known: *chrysotheras*, Stebb., from off the Orkney Islands and off the Cape of Good Hope [Schellenberg's *Dorbanella* sp. (1925) from the Arctic Sea seems to be this species]; *echinata*, Chevr., from the Bay of Biscay; and *drygalskii*, Schell., from the 'Gauss' winter station in the Antarctic. A fourth species is described below.

*Lepechinella cetrata*, n.sp. (Fig. 114).

*Occurrence*: St. 170. South Shetlands. 1 ♂ 9 mm.

**DESCRIPTION.** Head with two spines on anterior margin (between bases of the antennae), antero-inferior angle produced in a short sharp point. No trace of eyes. Peraeon and pleon carinate. The carinae on the peraeon segments not produced into teeth, though that on segment 7 approximates to the dentate form; on the anterior segments the profile shows merely rounded humps, two on segment 1 and one on each of the following segments. Segment 1 with the antero-inferior corner produced in a short tooth; segment 2 somewhat rounded below. Side-plate 1 slipper-shaped, strongly produced forwards, lower margin serrate, anterior and lower margins setose, side-plate 2 oblong, lower margin slightly indented, hind angle with 1-2 serrations and setae; 3 oblong, lower margin angularly indented; 4 similar but shorter and not so deeply indented; 5 and 6 with narrow pointed anterior lobes. Pleon segments 1-3 with the

dorsal carina raised into a tooth posteriorly; segment 4 with an upstanding tooth; segment 6 with a small median tooth at base of telson, and a smaller lateral one at base of uropod 3; segments 5 and 6 united, but with the suture visible, at least laterally, and marked by a line of setules. Postero-inferior angle of segment 1 quadrate, of 2 and 3 produced in a short point. Telson cleft nearly to base, lateral margins straight, acute apex of each lobe bearing a stout spine or seta (broken, length therefore uncertain).

Antennae without particular features, similar to those of *chrysotheras*, the accessory flagellum very minute; none of the flagella preserved intact. Mouth-parts in general as in the other species; armature of outer plate of maxilliped as in *drygalskii*, inner lobes of lower lip well developed.

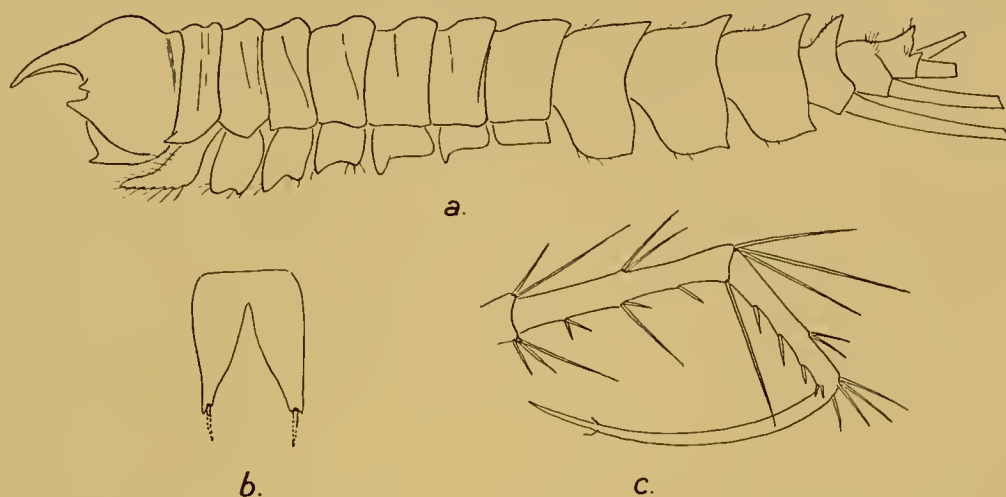


Fig. 114. *Lepechinella cetrata*, n.sp. a. General view. b. Telson (spines broken). c. 5th-7th joints of pereopod 1.

Gnathopod 1 very similar to that of *drygalskii*, the 5th joint being distally more expanded and the 6th joint more ovate than in *chrysotheras*. Gnathopod 2 similar to that of *chrysotheras*. Pereopods 1 and 2 are remarkable for the elongate dactyls, which equal the 2nd joint in length; and the 4th-6th joints have even longer spines than in *chrysotheras*. Pereopods 3-5, 4th-6th joints also with long spines, but the dactyls do not exceed the 6th joint in length.

Uropods as in *chrysotheras*, but more spinose.

Branchiae strongly pleated basally.

REMARKS. Easily distinguished by the lack of spinous projections in comparison with the other species, which are heavily armed; a character to which the specific name refers. Other points of note are the deeply cleft telson and the very long dactyls of pereopods 1 and 2. The side-plates are not very different from those of *drygalskii*.

## Family MELPHIDIPPIDAE

Stebbing, 1906, pp. 334, 728.

Genus *Melphidippa*, Boeck.

Stebbing, 1906, p. 335.

Schellenberg, 1926, p. 347.

*Melphidippa antarctica*, Schell.

Walker, 1907, p. 34 (*macrura*, non Sars).

Schellenberg, 1926, p. 347; 1931, p. 170, fig. 89.

Barnard, 1930, p. 383.

- Occurrence*: 1. St. 42. South Georgia. 3 ♀♀ 9–10 mm.  
 2. St. 45. South Georgia. Three mutilated specimens 10–14 mm.  
 3. St. 123. South Georgia. 2 ♀♀ 12 and 15 mm., 12 immat. 7–11 mm.  
 4. St. 140. South Georgia. 11 immat. and mutilated, up to 12 mm.  
 5. St. 148. South Georgia. 1 ♂ 8 mm.  
 6. St. 149. South Georgia. 1 ovig. ♀ 14 mm., 1 immat. 11 mm., 1 juv. 8 mm.  
 7. St. 152. South Georgia. 1 ♀ 12 mm.  
 8. St. 175. South Shetlands. 2 ♀♀ 18–19 mm.

REMARKS. Unlike the Terra Nova specimen, the medio-dorsal tooth on pleon segment 1 is distinctly larger than any of the other denticles on that segment; those on segments 2, 3 and 4 increasing in size, that on segment 5 being rather smaller and more slender than that on segment 4. In other respects agreeing with the Terra Nova specimen.

Although there seems to be considerable variation in the dorsal denticles, the shape of the 5th and 6th joints of gnathopods 1 and 2 precludes this species from being confused with *serrata* from Kerguelen.

DISTRIBUTION: McMurdo Sound, 300 fathoms, and 10 m.; 'Gauss' winter station, 385 m.

## Family EUSIRIDAE

Stebbing, 1906, pp. 338, 728.

Genus *Eusirus*, Kröy

Stebbing, 1906, pp. 338, 729.

Chilton, 1912, p. 489.

*Eusirus antarcticus*, Thoms.

Stebbing, 1906, p. 340.

Walker, 1907, p. 30 (*propinquus*, non Sars).

Chevreaux, 1911, p. 405, fig. 3 (*bouvieri*).

Chilton, 1912, p. 490.

Schellenberg, 1926, p. 348; 1931, p. 171.

Barnard, 1930, p. 384, fig. 46 a, b.

? Chevreaux, 1906, p. 49, figs. 27–30 (*laticarpus*).

- Occurrence*: 1. St. 27. South Georgia. 1 ♀ 15 mm.  
 2. St. 123. South Georgia. 5 ♀♀ 11–12 mm.  
 3. St. 140. South Georgia. 1 ♂ 12 mm., 3 ♀♀ 11–12 mm.  
 4. St. 144. South Georgia. 2 ♀♀ 11 and 18 mm.  
 5. St. 149. South Georgia. 3 ♀♀ about 13 mm. (mutilated).  
 6. St. 167. South Orkneys. 1 ♀ about 15 mm. (head missing).  
 7. St. 175. South Shetlands. 1 ♀ 24 mm.  
 8. St. 181. Palmer Archipelago. 1 ♂ 19 mm., 1 ovig. ♀ 24 mm.  
 9. St. 182. Palmer Archipelago. 1 ♀ 19 mm.  
 10. St. 195. South Shetlands. 4 ♀♀ 15–29 mm.  
 11. St. WS 88. South America. 1 ♂ 10 mm.

REMARKS. The eye, as preserved, is brown, surrounded by a paler ring.

In the above material, nos. 1–7 and 11, i.e. those from South Georgia, South Orkneys, point of South America and Bransfield Strait (59° W), have only pleon segments 1 and 2 dentate; nos. 8–10, i.e. those from the Palmer Archipelago and Bransfield Strait (58° W), have peraeon segment 7, and sometimes also segment 6, dentate as well as pleon segments 1–3 (no. 10 has no tooth on segment 3). Thus there seems to be some evidence of a more easterly bidentate race, and a more westerly quadridentate (sometimes tri-, sometimes quinque-dentate) race. Nos. 7 and 10, however, overlap; and the evidence for geographical races is cancelled if we include the bidentate *laticarpus* from the still more westerly region of Marguerite Bay in the synonymy of *antarcticus*.

With more abundant material, the doubt expressed in the Terra Nova Report (1930, p. 385) as to the synonymy of *laticarpus* may prove justified. It may be noted also that two of Chevreux's records (1913, p. 167) of this species are from sponges and may thus indicate that this is more of a bottom dweller than the other species seem to be.

DISTRIBUTION. Sub-antarctic and Antarctic regions.

*Eusirus perdentatus*, Chevr. (Fig. 115).

Chilton, 1912, p. 492, pl. ii, fig. 20 (*splendidus*).

Chevreux, 1913, p. 163, figs. 50–52.

Barnard, 1930, p. 386, fig. 46 c (references).

- Occurrence*: 1. St. 167. South Orkneys. Many ♂♂ up to 40 mm., ♀♀ up to 52 mm.  
 2. St. 170. South Shetlands. 2 ♂♂ 38, 40 mm.  
 3. St. 180. Palmer Archipelago (160 m.). 1 ♂ 38 mm.  
 4. St. 181. Palmer Archipelago. 1 ♂, 1 ♀ both 47 mm.  
 5. St. 186. Palmer Archipelago. 1 ♀ 40 mm.  
 6. St. 190. Palmer Archipelago (90–130 m.). 3 immat. ♂♂ 26–28 mm., 2 immat. ♀♀ 25–26 mm.  
 7. St. 190. Palmer Archipelago (315 m.). 1 immat. ♂ 26 mm.  
 8. St. 195. South Shetlands. 1 ovig. ♀ 50 mm.

REMARKS. As preserved the eye is dark brown, surrounded by a paler ring.

There is only one actually ovigerous ♀; the largest ♀♀ from St. 167 have the brood pouches fully developed and extended but empty, and are thus either spent or have lost their eggs during capture and preservation. The dates of these captures were in February and March. The Terra Nova fully-developed ♀♀ were caught in January and February.

Colour notes made from fresh specimens are as follows: Note 127 for St. 170: "Ground colour of thorax and body ochraceous buff, darkest dorsally and palest laterally, with conspicuous red blotches and mottling. Between the eyes 4 red spots, 2 median and 1 pair lateral. Second and third [*sic* = 1st and 2nd] thoracic segments wholly red. Fourth to eighth [*sic* = 3rd-7th] segments faintly mottled with red, but with more conspicuous mottling on the coxal plates. First 3 abdominal segments blotched with red, with a specially dark patch mid-laterally on 1st and 2nd segments.



Fig. 115. *Eusirus perdentatus*, Chevr. Photographs taken on board (Notes 127 and 146).

Remaining abdominal segments and telson marked with red dorsally. Antennules suffused with red; antennae blotched with crimson. Mouth-parts and both gnathopods deep crimson, with a suffusion of the same colour on the coxal plates. The 5 thoracic legs milk-white, the first 2 red at the tips, the remainder heavily blotched with red. First 3 pleopods white, the remainder and uropods [*sic* = uropods 1-3] suffused with red. Eyes grey black". Note 146 for St. 190 (no. 6): "Creamy buff, mottled and marbled with bright scarlet. Thoracic legs with scarlet bands. Eyes dark brown".

DISTRIBUTION. Palmer Archipelago, 60-70 m.; South Orkneys, 54 fathoms; 'Gauss' winter station, 385 m.; Ross Sea and McMurdo Sound, 329-547 m.



*Eusirus microps*, Wlkr.

Walker, 1907, p. 31, pl. xi, fig. 19.

Barnard, 1930, p. 385, fig. 47 (references).

*Occurrence*: 1. St. 116. Bouvet Island. 1 juv. 8.5 mm.

2. St. 202. South Shetlands. 1 ♀ 34 mm.

REMARKS. The eyes as preserved are black. The juvenile from St. 116 is interesting. Small as it is, there is no doubt that it belongs to this species. The eye is subcircular and the side-plates are characteristically shallow. The hands in both gnathopods are oval, though the anterior margin is slightly shorter than the anterior margin of the 5th joint. Only pleon segments 1 and 2 are dentate.

In contrast to both the preceding species, this species seems to inhabit the upper layers, though maybe it ascends at night time, as both the present captures were made at night. From previous records it would seem to be a frequent food of penguins.

DISTRIBUTION. McMurdo Sound; Petermann Island; 'Gauss' winter station.

Genus *Eusiroides*, Stebb.

Stebbing, 1906, pp. 345, 729; 1910, p. 594.

Pirlot, 1929 a, p. 10.

Schellenberg, 1929 a, p. 282.

For further reasons against Chilton's suggestion of sinking this genus in *Bovallia*, see under the latter genus (p. 196). One may refer here to the importance of examining the integumentary sculpture. The present specimens, and the South African ones referred to *monoculoides* (Barnard, 1916, p. 174), exhibit a type of sculpture entirely different from that of *Bovallia*.

*Eusiroides georgianus*, n.sp. (Fig. 116).

*Occurrence*: 1. St. 141. South Georgia. 1 ovig. ♀ 15 mm.

2. St. 159. South Georgia. 1 ovig. ♀ 16 mm.

3. St. 170. South Shetlands. 3 ♀♀ (2 ovig. 1 with embryos) 16-17 mm.

4. St. 175. South Shetlands. 1 ♀ 16 mm.

5. St. WS 25. South Georgia. 2 ♀♀ 16 and 20 mm., 1 ovig. ♀ 20 mm.

6. St. MS 25. South Georgia. 1 ♂ 15 mm., 1 ovig. ♀ 18 mm. *Types*.

7. St. MS 71. South Georgia. 1 ♀ 20 mm.

DESCRIPTION. Agreeing in almost every particular with Stebbing's original description and figures of *crassi*. Whole peraeon and pleon dorsally rounded, without any suggestions of teeth. Postero-inferior angle of pleon segment 3 rather more produced than in Stebbing's figure, rounded, but with a tiny tooth and a *rounded sinus*. Side-plate 1 strongly widened below and produced forwards.

Gnathopods 1 and 2, 6th joint more ovate, palm more oblique and longer than in Stebbing's figures of *crassi*, thus approximating to those of *caesaris*; the palmar spines also like those of the latter species, not so stout as in *crassi*.

Maxilla 1, 3-4 setae on inner lobe. Maxilla 2, inner lobe broader than outer, without any submarginal oblique row of setae.

Telson twice as long as basal width, cleft for just over half its length, the lobes tapering evenly to acute entire apices, one or two long upstanding simple setae on lateral margin at about two-thirds or three-quarters the length (absent in no. 5). Under a high magnification the surface appears covered with very fine transverse lines. In the embryo from the brood-pouch the telson resembles that of the adult in shape and extent of the cleft.

Integument very minutely shagreened, with scattered pits; under a high magnification by transmitted light very fine more or less parallel lines are visible as in the enlarged portion of the telson figured here.

Eyes reniform, nearly contiguous dorsally.

REMARKS. It would be easy to regard this form as a variety of *crassi*, which was taken farther north off Monte Video in 600 fathoms; or perhaps to regard the combination of a pleon segment 3 with only one notch, together with the palm of gnathopods as in *crassi*, as an argument for uniting the "triumvirate" *caesaris*, *pompeii* and *crassi*. Between a sinus and a serration there would seem to be but little difference; yet there is a difference and it would not be quite correct terminologically to describe the sinus of pleon segment 3 in the present specimens as a single serration (cf. the figure here given with Stebbing's figure of the pleon segment 3 in *caesaris* or *pompeii*, 1888, pls. lxxxviii, lxxxix). Typical *crassi* has no suggestion of either a sinus or a serration (cf. Stebbing, 1888, pl. xc). The telson is much more deeply cleft than in typical *crassi*.

In the above comparison I have referred throughout to typical *crassi*, i.e. the Challenger specimen from off Monte Video. This is necessary because Stebbing himself has recorded *crassi* from South-east Australia and expressed doubt as to whether *crassi* can be maintained as a species distinct from *monoculoides*. The presence of two serrations on pleon segment 3 in the Australian specimen seems to imply that it should have been referred to *monoculoides*. I do not consider the Australian "*crassi*" to be synonymous with the true Atlantic *crassi*. Whether *georgianus* will prove to be really distinct from *crassi* is a different matter.

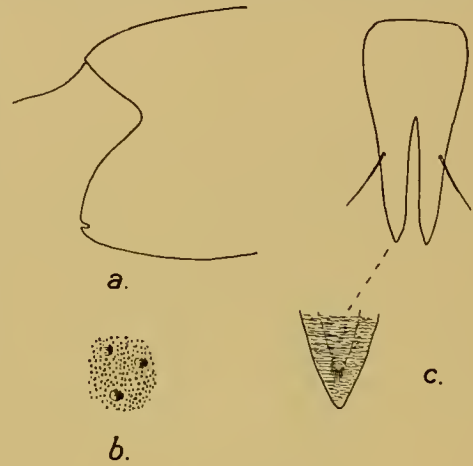


Fig. 116. *Eusiroides georgianus*, n.sp. a. Pleon segment 3. b. Portion of integument highly magnified. c. Telson, with apex of one lobe highly magnified to show sculpture.

*Eusiroides stenopleura*, n.sp. (Fig. 117 and Pl. I, fig. 4).

- Occurrence: 1. St. 71. South-west Atlantic. 1 ♂ 15 mm., 1 juv. 13 mm.  
 2. St. 114. Bouvet Island. 1 ovig. ♀ 24 mm.  
 3. St. 239. South-west Atlantic. 2 ♀♀ 19 and 25 mm. Types.

DESCRIPTION. Close to *crassi*, Stebb. All side-plates considerably shallower than their segments; 1-4 longer than deep; 1 subquadrangular, not projecting below inferior margin of head, scarcely produced forwards, but antero-inferior angle quadrate. All peraeon segments rounded dorsally. Postero-inferior angle of pleon segment 3 quadrate, margin entire. Telson cleft for a little more than half its length, apices acute.

Antenna 1, accessory flagellum obsolete. Lower margin of flagellum of antenna 1, and upper margin of flagellum and 5th peduncular joint of antenna 2 calceoliferous. Mandible with 2nd palpal joint very broad.

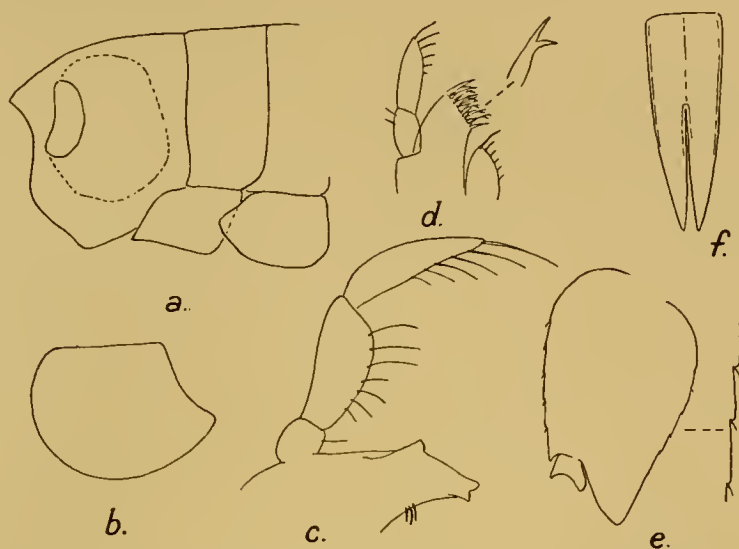


Fig. 117. *Eusiroides stenopleura*, n.sp. a. Head, peraeon segments 1 and 2, with side-plates; the dotted line indicates the extent of the reddish pigment. b. Side-plate 4. c. Mandible. d. Maxilla 1, with spine from outer lobe further enlarged. e. 2nd joint of peraeopod 5 with hind margin further enlarged. f. Telson.

Gnathopods 1 and 2, palm of hand evenly convex as in *crassi*, defined by one spine proximally. Peraeopods 3-5, 2nd joint with hind margin entire, or, in peraeopod 5, very feebly indented.

Otherwise resembling *crassi*.

REMARKS. These specimens certainly represent a distinct species; the shallow side-plates separate it from all the others.

The faceted eyes are reniform and, as preserved, reddish; but lying within the cuticle and occupying nearly the whole of the side of the head is a round patch of reddish pigment, dorsally almost contiguous with its fellow. Compare Strauss' figures of the form he calls *Rhachotropis diploöps*, n.sp., captured by the 'Valdivia' at St. 54 in the Atlantic ( $1^{\circ} 51' N$ ,  $0^{\circ} 31' E$ ). Strauss (1909, p. 38, pl. iv, figs. 24, 25) gives no description, except of the eye, by which the species can be identified and Schellenberg (1926 b) makes no mention of it. Strauss' fig. 24 would fit the present specimens as regards the rostrum (for this reason his specimen was certainly not a *Rhachotropis*), the mandibular palp, and the antennae, but not the 1st side-plate. The anterior margin of the latter is just indicated by Strauss and shows a rounded antero-inferior angle projecting considerably below the

inferior margin of head. This is possibly not to be taken too seriously, as Strauss was concerned with the eye-structure only, and, as mentioned elsewhere, was not a systematist. Nevertheless, in spite of the evident similarity in the eye-structure, I do not think the present specimens should be identified with "*Rhachotropis diploöps*", which remains in any case a *nomen nudum*.

Genus *Eusirella*, Chevr.

Chevreaux, 1908 (*Bull. Inst. océan. Monaco*, no. 121), p. 12.

Schellenberg, 1926 *b*, p. 228.

*Eusirella elegans*, Chevr.

Chevreaux, 1908 (*loc. cit.*), p. 12, figs. 7, 8.

Schellenberg, 1926 *b*, p. 228, fig. 19 (*valdiviae*).

*Occurrence*: St. 87. South-east Atlantic. 1 ♂ 8.5 mm.

REMARKS. This specimen shows that both the Princess Alice and the Valdivia specimens were but immature forms of the same species, the former possibly ♀, the latter probably ♂.

No trace of eyes. Telson with the lobes only distally dehiscent, apices acute, each with a very minute notch and setule (only seen under high magnification).

Antenna 1, 1st peduncular joint with a small point on upper apex and a strong tooth bearing two setae on lower apex; this tooth in lateral view is acute, but in ventral view is chisel-shaped; 2nd joint with an apical point above, and two setae below, densely calceoliferous on lower and inner surfaces, flagellum 18-jointed, calceoliferous, accessory flagellum not visible. Antenna 2, 4th joint on upper and inner surfaces, and 5th joint on upper, lower, and inner surfaces densely calceoliferous, flagellum plump, 8-jointed, calceoliferous.

Gnathopods 1 and 2, palm with a row of spines and defined by two to three spines.

Uropods, rami sparsely spinulose, with the margins very minutely serrulate.

The locality of the 'Discovery' is close to that of the 'Valdivia'.

DISTRIBUTION. Azores, 38° N, 26° W, 0-2500 m.; South-east Atlantic, 31° 21' S, 9° 46' E, 3000-0 m.

Genus *Rhachotropis*, S. I. Smith.

Stebbing, 1906, p. 347.

Barnard, 1916, p. 178.

As mentioned above (p. 193) *Rhachotropis diploöps*, Strauss, 1909, besides being a *nomen nudum*, is not to be reckoned as belonging to this genus.

*Rhachotropis antarctica*, n.sp.

*Occurrence*: 1. St. 51. Falklands. 3 ♂♂ 7-10 mm., 6 ♀♀ (2 ovig. 1 with embryos) 7-9 mm.

2. St. 144. South Georgia. 11 ♀♀ (1 ovig. with embryos) 11-13 mm., 2 immat. 8 mm.

3. St. 167. South Orkneys. 2 ♂♂ 10-11 mm., 5 ♀♀ 13-14 mm., 2 immat. ♀♀ 9 and 11 mm. *Types*.

4. St. 170. South Shetlands. Fourteen specimens, mostly mutilated, incl. ovig. ♀♀, 14-20 mm.

5. St. 175. South Shetlands. 1 ♂ 18 mm., 19 ♀♀ 16-18 mm., 1 ovig. ♀ 20 mm. Four mutilated specimens.
6. St. 181. Palmer Archipelago. 10 ♀♀ 12-20 mm.
7. St. 182. Palmer Archipelago. 1 ♀ 16 mm.
8. St. 187. Palmer Archipelago. 1 ♂ 11 mm., 1 ovig. ♀ 15 mm.
9. St. 190. Palmer Archipelago (315 m.). 2 ♂♂ 17 mm., 1 ♀ 15 mm. (somewhat mutilated).

DESCRIPTION. Close to *inflata* (Sars) but: pleon segments 1-4 tricarinate, all the carinae produced into small acute teeth except the medio-dorsal one on segment 3, and the dorso-lateral ones on segment 4; and telson cleft for not more than, or scarcely more than (St. 51), one-third its length.

REMARKS. The much larger size and the fact that pleon segment 4 is tricarinate as well as the preceding three segments distinguishes this species from its northern counterpart *inflata*. From *rostrata* (Bonn.) it differs in having dorso-lateral keels on pleon segment 1 as well as on the three following segments, and well-developed eyes.

The smaller specimens from St. 51 do not appear to differ in any way from the others except in the slightly deeper telsonic cleft.

#### Family PONTOGENEIIDAE

Stebbing, 1906, pp. 356, 729.

Schellenberg, 1929 a, p. 273 (revision, with key to genera).

The representatives of this family have hitherto been involved in considerable confusion, and we have to thank Schellenberg for a most useful revision with sharp delimitations of the various genera. But, needless to add, many of the earlier species are still obscure, and only an examination of material collected in the original localities, and a re-examination of the material collected by previous expeditions, will extricate and stabilise the synonymy.

Chilton, relying apparently too implicitly on the assumption of "widely distributed species", did much to confuse our knowledge of the distribution of the species of this family by erroneous identifications. It is greatly to be regretted that, e.g., the Scotia material must be entirely re-examined before the localities there recorded can be available for working out the distribution of the species.

In suggesting the use of one character which has only been employed previously in a few cases, no generic value is claimed for it, though it would seem to have considerable specific value. This character is the surface sculpturing of the integument. From the figures here given for all the species contained in the Discovery collection, it will be seen that the differences are of no mean order and may well be used to separate species, or *per contra* as an indication of affinity.

It is in fact rather extraordinary that so little attention has been paid to the surface of the integument, apart from major features such as knobs, teeth, spinous processes and the like. The surface sculpture has been used to differentiate the species of *Hippomedon* (cf. Sars, 1895, pls. xx, xxi and Stephensen, 1923) and has been mentioned casually

in a few instances in the present family, e.g. Stebbing, 1888, pl. lxxv. (*Paramoera australis*), Chilton, 1912, p. 500 (*Djerboa furcipes*), and Monod, 1926, fig. 54 (*Paramoera austrina?*). A few other examples could be added, as for instance Bate's description of the surface sculpture of *Halirages huxleyanus*.

The figures given by Stebbing and Monod are very useful, because apart from other characters they show conclusively that Stebbing's *australis* and Monod's *austrina* cannot possibly be united with *capensis*. Whether Monod's *austrina* is the same as *austrina* Bate must remain undecided until Bate's type, or material from the original locality, can be examined.

Although it necessitates the re-examination of much previous material, I think this is a character which should be adopted, not only in the present family, but throughout the Amphipoda and Crustacea generally. Every description of a species must be regarded as not fully complete which does not contain a mention of this "superficial" feature. The present writer fully admits his own deficiencies in this respect. This feature would have been mentioned throughout this report had not the present family, being a difficult one, been left until last, and the importance of the character not fully realized until the rest of the work had been completed.

I would suggest that difficult genera like *Orchomene*, *Orchomenella* and *Tryphosa* among the Lysianassidae be tested for this purpose. As regards technique, I need scarcely say that the integument must be carefully cleaned of all foreign matter adhering to it, and examined dry by reflected light; if not actually desiccated, there must at least be no free water or moisture on the surface.

#### Genus *Bovallia*, Pfr.

Pfeffer, 1888, p. 95.

Stebbing, 1906, p. 357.

Schellenberg, 1926, p. 354; 1929 a, p. 277.

In Schellenberg's revision this genus is now monotypic, the other species formerly included in it having been transferred as follows: *walkeri* (Stebb.) to *Paramoera calliopioides*, Schell., to *Pontogeneia*, and *regis*, Stebb., to *Halirages*.

#### *Bovallia gigantea*, Pfr. (Fig. 118 a).

Pfeffer, 1888, p. 96, pl. i, figs. 2 and 5.

Chevreux, 1906, p. 54, figs. 31-33; 1913, p. 169.

Chilton, 1912, p. 494 (*monoculoides*, non Hasw.); 1925, p. 177 (*monoculoides*, non Hasw.).

Shoemaker, 1914, p. 74 (part, *monoculoides*, non Hasw.).

- Occurrence*: 1. St. 174. South Shetlands. 1 ♀ 40 mm.  
 2. St. 179. Palmer Archipelago. 1 ♀ 45 mm., 3 ♀♀ 20-24 mm., 2 juv. 10-11 mm.  
 3. St. WS 56. South Georgia. 5 ♂♂ 23-33 mm., 6 ♀♀ 24-40 mm., kelp roots.  
 4. St. MS 10. South Georgia. 1 immat. ♀ 28 mm.  
 5. East Cumberland Bay, South Georgia. 1 ♀ 39 mm.

REMARKS. The integument is covered with scattered circular punctae anteriorly, passing gradually into the elongate depressions which posteriorly are arranged in more or less transverse rows, producing an imbricate appearance.

Now that Schellenberg has pointed out the differential characters of the lower lip, 2nd maxillae, and 1st side-plate in *Bovallia* and *Eusiroides*, which characters were not utilized by Chilton, or even by Chevreux in his "seven points" (1913), both of Pfeffer's names are vindicated. Also we are no longer under the obligation, when recording "*Bovallia monoculoides*", of specifying whether we mean Haswell's form, or Pfeffer's form, or any of Stebbing's triumvirate. In fact, it is difficult to understand how the species of *Eusiroides* can ever have been confused with *Bovallia*. To Chevreux's seven points, Schellenberg has added three more; there is also the 4th side-plate, and if the character of the integument should prove to be similar in all the species of *Eusiroides* (cf. p. 191), twelve points of difference can be found.

Consequently all records of "*Bovallia monoculoides*" should be omitted from geographical considerations, until the specimens on which they were based have been re-examined. We may perhaps except Chilton's records (1912 and 1925) from the South

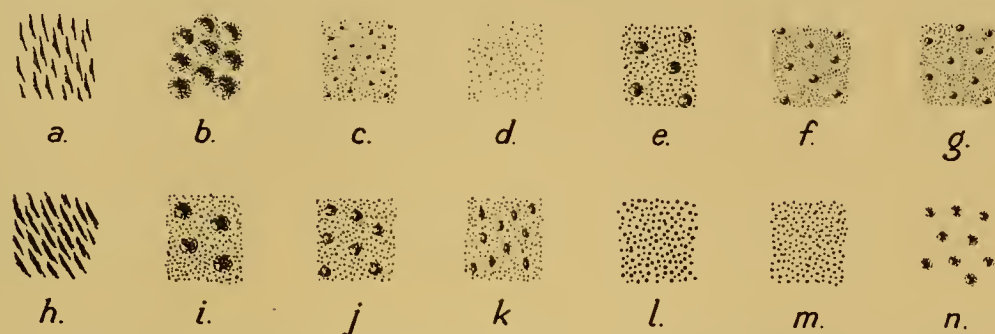


Fig. 118. Portions of the integuments, highly magnified, of various *Pontogeneiidae*: a. *Bovallia gigas* and *Djerboa furcipes*. b. *Eurymera monticulosa*. c. *Schraderia gracilis*. d. *Prostebbingia gracilis*. e. *Atyloella dentata*. f. *Pontogeneiella brevicornis* and *longicornis*. g. *Pontogeneia simplex* and *Atyloella magellanica*. h. *Pontogeneia antarctica* and *georgiana*. i. *Paramoera gregaria*. j. *Paramoera obliquimanus*. k. *Paramoera tristanensis*. l. *Paramoera walkeri* and *hermitensis*. m. *Pontogeneia tristanensis* and *Paramoera edouardi* and *bidentata*. n. *Paramoera capensis*.

Orkneys, as he specifically refers to the dorsal teeth and absence of serration on the postero-inferior margin of pleon segment 3. Pending re-examination, one may hazard the opinion that all Australasian examples will be referred to *Eusiroides* (*monoculoides* Hasw.), but not to *Bovallia*.

*Bovallia gigantea* is a perfectly well-defined species with a definite distribution.

Pfeffer recorded specimens of 45 mm. length, and orange- to purple-red in colour. Chevreux (1913) records his specimens as being greenish brown, reddish above, eyes brick-red. The colour of no. 1 is given as: "Dragons-blood red (Ridgway 5' OO-R) darkest on back, palest laterally and on appendages. Eyes dark grey".

DISTRIBUTION. South Georgia; South Orkneys, shore and shallow water; South Shetlands, littoral; Palmer Archipelago, 0-5 m.

#### Genus *Eurymera*, Pfr.

Pfeffer, 1888, p. 102.

Stebbing, 1906, p. 356.

Schellenberg, 1929 a, p. 277.

**Eurymera monticulosa**, Pfr. (Fig. 118 b).

Pfeffer, 1888, p. 103, pl. i, fig. 3.

Chevreaux, 1906, p. 59, figs. 34-36; 1913, p. 167.

Chilton, 1912, p. 493.

Shoemaker, 1914, p. 74.

*Occurrence*: 1. St. 174. South Shetlands. 1 ♀ 23 mm.

2. St. 179. Palmer Archipelago. 46 ♂♂ and ♀♀ up to 20 mm., 3 juv. 6-7 mm.

REMARKS. Integument coarsely pitted all over.

DISTRIBUTION. South Georgia; Graham Land, littoral; South Orkneys, 4 fathoms.

**Genus Pontogeneia**, Boeck.

Schellenberg, 1929 a, p. 277; 1931, p. 181.

The number of simple unexpanded flagellar joints on antenna 1 separating every two of the dilated joints which bear sensory filaments appears to be a good specific character, but only in adult animals. Compare the adult and young of *tristanensis* (*infra*). Other characters should of course be utilized in conjunction.

**Pontogeneia simplex** (Dana) (Fig. 118 g).

Dana, 1853/55, p. 926, pl. lxiii, fig. 2.

Bate, 1862, p. 140, pl. xxvii, fig. 2 (after Dana).

Chilton, 1912, p. 495 (*danai*, non Thoms.).

Schellenberg, 1931, p. 182, fig. 93.

*Occurrence*: St. 56. Falklands. 1 immat. ♀ 11 mm., 1 ovig. ♀ 14 mm.

REMARKS. Integument minutely shagreened, with scattered pits. Every 5th or 6th flagellar joint on antenna 1 enlarged and bearing sensory filamentous setae. Flagella of both antennae more thickly spinulose than in *antarctica*, Chevr.

In the present state of our knowledge I prefer to identify these specimens with Dana's species originally collected at Hermite Island than with a New Zealand species. They are in all probability adults of the same form as Chilton examined.

DISTRIBUTION. Hermite Island, Cape Horn; Falkland Islands.

**Pontogeneia georgiana** (Pfr.) (Figs. 118 h, 119).

Pfeffer, 1888, p. 116, pl. ii, fig. 6 (*Calliopiis g.*).

Stebbing, 1906, p. 308 (*Apherusa g.*).

Schellenberg, 1929 a, p. 278; 1931, p. 184, fig. 94.

*Occurrence*: East Cumberland Bay, South Georgia. 1 ♀ 13 mm., 2 mutilated ♀♀.

REMARKS. Although Pfeffer said that, next to *Schraderia gracilis*, this was the commonest Amphipod in South Georgia, there are only these three specimens in the present collection.

They entirely conform with Pfeffer's description. The postero-inferior angle of pleon segment 3 is not mentioned in the description



Fig. 119. *Pontogeneia georgiana* (Pfr.). Head.



but the figure shows it as rounded-quadrate; in these specimens it is broadly rounded exactly as in *antarctica*, Chevr. Every alternate flagellar joint of antenna 1 is enlarged and bears sensory setae. The integument is covered with close-set lenticular impressions (or scale-like imbrications, if preferred), more or less horizontal anteriorly, becoming vertical (transverse) on the posterior segments. Pfeffer's description of the telson is correct, except that it really is cleft; a very slight pressure of the dissecting needle is enough to separate the two lobes.

DISTRIBUTION. South Georgia.

*Pontogeneia antarctica*, Chevr. (Fig. 118 h).

Chevreaux, 1906, p. 69, figs. 40, 41; 1913, p. 177, fig. 59.

Chilton, 1912, p. 496; 1925, p. 178.

? *Non* Stebbing, 1914, p. 364.

*Non* Stephensen, 1927, p. 319, figs. 10, 11.

Schellenberg, 1931, p. 185.

*Occurrence*: 1. St. 166. South Orkneys. Many ♂♂, ♀♀ and juv. 6–16 mm.

2. St. 179. Palmer Archipelago. 7 ♂♂ 11–12 mm., 24 ♀♀ 11–17 mm.

REMARKS. Integument with close-set elongate lenticular impressions, exactly as in *georgiana*. Every 3rd flagellar joint of antenna 1 enlarged.

I fail to find any characters separating this species from *georgiana* except the number of joints separating every pair of enlarged joints on antenna 1. The anterior margin of the head is the same in the actual specimens, though Chevreaux's figure of this in *antarctica* differs slightly, but not essentially, from that here given for *georgiana*.

The straight line forming the junctions of the side-plates with the peraeon segments in Chevreaux's figure appears diagrammatic when compared with the actual specimens; Pfeffer's description and figure fit these specimens perfectly. It is of course only a phenomenon of preservation, but many of these specimens exhibit the same loosely articulated segments as described by Pfeffer in *georgiana*.

DISTRIBUTION. Graham Land; Petermann Island; South Shetlands; South Orkneys, 0–6 m.

*Pontogeneia tristanensis*, n.sp. (Figs. 118 m, 120).

*Occurrence*: St. 5. Tristan da Cunha. 3 ♂♂ 6–7 mm., 2 ♀♀ 7–9 mm., several juv. 3–5 mm.

DESCRIPTION. Integument minutely shagreened, without pits. Postantennal angle of head quadrate, the actual angle rounded. Eyes subcircular. None of the peraeon or pleon segments dorsally dentate. Side-plates 1–4 shallow, 4 subtriangular, feebly excavate on hind margin. Pleon segment 3 narrowing below on the pleural portion, which is completely rounded on lower and hind margin. Telson twice as long as broad, of nearly equal width throughout, cleft for one-quarter its length, lobes dehiscent, apices narrowly rounded, no setules or spines.

Antenna 1, flagellum with every 3rd or 4th joint in ♂, every 4th joint in ♀, enlarged. In the young every alternate joint is enlarged.

Gnathopods 1 and 2 as in *antarctica*, Chevr. Peraeopods 3-5, 2nd joint in peraeopods 3 and 4 oval, in peraeopod 5 oblong, the hind margin straight or even inclined to be very slightly concave, lower hind angle rounded.

REMARKS. This, the first example of the genus to be recorded from this island, appears to be a good species characterized by the 4th side-plate, 3rd pleon segment, post-antennal angle of head, and eye, in combination with the flagellum of antenna 1.

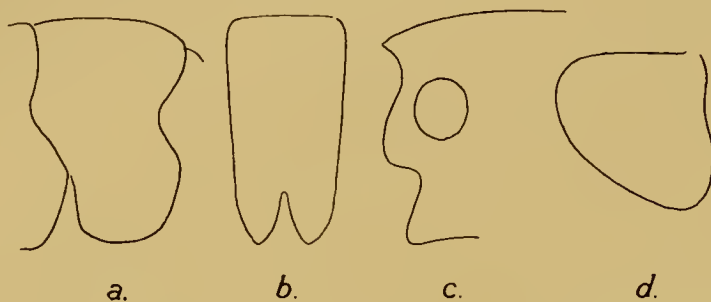


Fig. 120. *Pontogeneia tristanensis*, n.sp. a. Pleon segment 3. b. Telson. c. Head. d. Side-plate 4.

### Genus *Pontogeneiella*, Schell.

Schellenberg, 1929 *a*, p. 278.

In explanation of the terms "schuppen-förmig" (key, p. 276) and "flache lamella" (p. 278) used by Schellenberg in describing the rudimentary accessory flagellum, it may be stated that they refer merely to the distal margin of the 3rd peduncular joint. There is no *articulated* accessory flagellum or rudiment thereof.

#### *Pontogeneiella brevicornis* (Chevr.) (Fig. 118 *f*).

Chevreaux, 1906, p. 79, figs. 45-47; 1911, p. 403.

Chilton, 1925, p. 178.

Schellenberg, 1929 *a*, p. 278.

- Occurrence*: 1. St. 165. South Orkneys. 1 ♀ 22 mm. (antennae lost) from stomach of *Notothenia*.  
 2. St. 173. South Shetlands. 5 ♂♂ 12-13 mm., 11 ♀♀ 12-15 mm.  
 3. St. WS 56. South Georgia. 3 immat. ♀♀ 18 mm.

REMARKS. Integument minutely shagreened, with scattered pits.

DISTRIBUTION. Palmer Archipelago; South Orkneys; South Sandwich Islands.

#### *Pontogeneiella longicornis* (Chevr.) (Fig. 118 *f*).

Chevreaux, 1906, p. 84, figs. 48-50; 1913, p. 179.

Schellenberg, 1929 *a*, p. 278; 1931, p. 190.

- Occurrence*: 1. St. 190. Palmer Archipelago (315 m.). 1 immat. ♀ 26 mm.  
 2. St. WS 25. South Georgia. 1 ♀ 18 mm.  
 3. St. MS 10. South Georgia. 3 ♀♀ 15-21 mm.  
 4. St. MS 67. South Georgia. 1 ♀ 15 mm.

REMARKS. Integument as in *brevicornis*. There would seem to be considerable likelihood of this species being merged in *brevicornis*. The serration of the hind margin of

the 2nd joint of peracopods 4 and 5, the length of the antennae, and the size of the eye, would not appear from an examination of the present specimens to be clear-cut differential features.

DISTRIBUTION. Palmer Archipelago, 25–129 m.; Petermann Island, 40–60 m.

### Genus *Prostebbingia*, Schell.

Schellenberg, 1926, p. 357; 1929 *a*, p. 278.

#### *Prostebbingia gracilis* (Chevr.) (Figs. 118 *d*, 121).

Chevreaux, 1913, p. 173, figs. 56–58.

Schellenberg, 1926, p. 358.

- Occurrence*: 1. St. 173. South Shetlands. Many ♂♂ and ♀♀ 5–10 mm.  
 2. St. 175. South Shetlands. 7 ♀♀ 10–13 mm.  
 3. St. 179. Palmer Archipelago. 4 ♀♀ 9–12 mm., 2 juv. 6 mm.  
 4. St. MS 67. South Georgia. Many ♂♂ and ♀♀ 5–10 mm.  
 5. St. MS 71. South Georgia. 6 ♀♀ 6–10 mm.  
 6. St. MS 74. South Georgia. 3 ♂♂ 5–6 mm., 4 ♀♀ 6–7 mm.

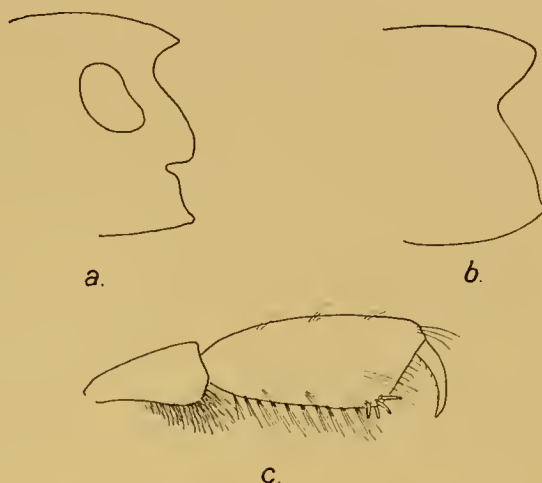


Fig. 121. *Prostebbingia gracilis* (Chevr.). *a*. Head. *b*. Pleon segment 3. *c*. Gnathopod 2.

REMARKS. The integument is so minutely shagreened as to appear almost nitidulous.

The larger specimens, especially those from St. 175, have heavier gnathopods, a rather more prominent post-antennal angle on head, and a small though distinct point on the postero-inferior angle of pleon segment 3. These features are here figured, but I do not propose even a varietal name as there appears to be no clear-cut demarcation between the forms.

DISTRIBUTION. Petermann Island and Marguerite Bay, 5–254 m.; ‘Gauss’ winter station, 170 m.

### Genus *Atyloella*, Schell.

Schellenberg, 1929 *a*, p. 279.

The discovery of a dentate species confirms Schellenberg’s words, “Körper glatt oder gezähnt” in the generic diagnosis.

*Atylopsis quadridens*, Brnrd. 1930, may belong here, but at the time the Terra Nova Report was written Schellenberg’s 1929 paper had not reached me, and I was not clear as to the limits of the various genera.

#### *Atyloella magellanica* (Stebb.) (Fig. 118 *g*).

Stebbing, 1888, p. 925, pl. lxxix; 1914, p. 365.

? Shoemaker, 1914, p. 75.

*Non* Chevreaux, 1906, p. 64; 1913, p. 178 (= *Paramoera edouardi*).

*Non* Walker, 1907, p. 33, pl. xii, fig. 20 (= *Prostebbingia serrata*).

- Occurrence*: 1. St. 56. Falklands. 1 ovig. ♀ 8 mm.  
2. St. 58. Falklands. 2 ♂♂ 7.5 mm.

REMARKS. Integument minutely shagreened, with scattered pits. Antero-lateral margin and post-antennal angle of head as in the following species *dentata*.

Stephensen (1927, p. 325) queries Stebbing's Falkland Island record. In view of the present records I think we may accept Stebbing's identification, even though he does include Chevreux's *magellanica* (= *edouardi*), which has no epistomal process, in his synonymy.

The impression given by Stebbing's small figure that the post-antennal angle of the head is acute, is here confirmed. I therefore exclude Schellenberg's 1926 record, which represents a different species with rounded post-antennal angle, unless his description refers only to the projecting antero-lateral margin. In any case the depth of the Gauss capture, 385 m., seems a little anomalous for the present species.

DISTRIBUTION. Cape Virgins, 55 fathoms; Falkland Islands; ? South Georgia.

*Atyloella dentata*, n.sp. (Figs. 118 e, 122).

- Occurrence*: 1. St. 51. Falklands. 3 ♀♀ 8-12 mm., the largest ovigerous. *Types*.  
2. St. WS 79. Between Falklands and South America. 1 ♀ 9 mm.

DESCRIPTION. Integument minutely shagreened, stronger than in *magellanica*, with scattered pits, some of which on the posterior segments are often replaced by elongate

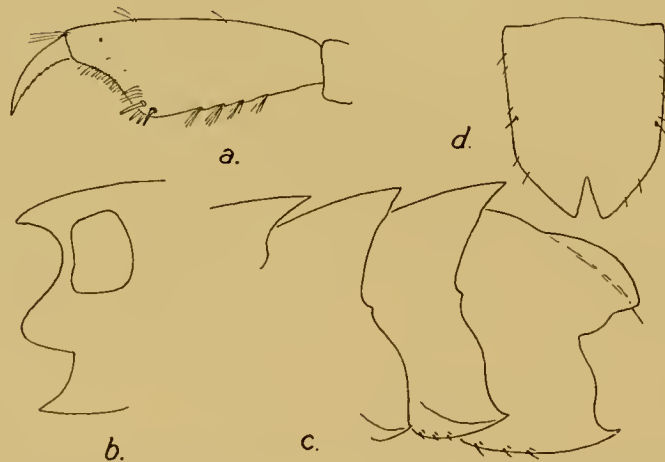


Fig. 122. *Atyloella dentata*, n.sp. a. Gnathopod 2 ♀. b. Head.  
c. Peraeon segment 7 and pleon segments 1-3. d. Telson.

lines. Rostrum short. Antero-lateral margin of head produced in a narrowly rounded lobe, post-antennal angle acutely produced. Eyes large rounded-oblong. Peraeon segment 7 and pleon segments 1-3 dorsally carinate, the carinae on peraeon segment 7 and pleon segments 1 and 2 forming an acute tooth, that on segment 3 rounded. Side-plate 1 widening slightly below as in *magellanica*. Pleon segments 1 and 2 each with a small denticle in middle of lateral margin; postero-inferior angle of segment 1 with a very small point, of 2 and 3 acutely produced. Telson concave above, oblong, apically incised

for about one-quarter its length, lobes dehiscent, broad, several setules and one spine along lateral margin.

Epistome with an acute spiniform process, longer and more prominent than in *magellanica*. Antenna 1 with a minute 1-jointed accessory flagellum, and a sensory filament on every alternate joint of the flagellum.

Gnathopods 1 and 2 as in *magellanica*, but palm in gnathopod 2 more oblique and distinctly concave, with rounded defining angle bearing four spines.

REMARKS. An interesting addition to the genus, and quite distinct from *magellanica*.

#### Genus *Djerboa*, Chevr.

Chevreaux, 1906, pp. 74.

Schellenberg, 1929 a, p. 279.

#### *Djerboa furcipes*, Chevr. (Fig. 118 a).

Chevreaux, 1906, p. 74, figs. 42-44; 1913, p. 179, fig. 60.

Chilton, 1912, p. 500.

Shoemaker, 1914, p. 75.

Schellenberg, 1926, p. 363.

- Occurrence: 1. St. 141. South Georgia. 6 ovig. ♀♀ 16-18 mm.  
 2. St. 145. South Georgia. Many ♂♂, ♀♀ and juv. 10-21 mm., mostly ovig. ♀♀ 17-20 mm.  
 3. St. 179. Palmer Archipelago. 2 ♂♂ 10 and 12 mm.  
 4. St. WS 25. South Georgia. 2 ♀♀ 21-22 mm.  
 5. St. WS 62. South Georgia. 2 ♀♀, 1 ovig. ♀, 17-18 mm.  
 6. St. MS 10. South Georgia. 1 ♂ 12 mm., 7 ♀♀ (3 ovig.) 16-20 mm. (mutilated).  
 7. St. MS 32. South Georgia. 1 ♂ 13 mm., 3 ♀♀ 15-16 mm., 6 ovig. ♀♀ 16-18 mm.  
 8. St. MS 65. South Georgia. 5 ♂♂ 10-11 mm., 6 ♀♀ 9-17 mm., 1 ovig. ♀ 17 mm.  
 9. St. MS 67. South Georgia. A lot ♂♂, ♀♀ and juv. 3-18 mm., incl. ovig. ♀♀.  
 10. St. MS 71. South Georgia. Fifteen specimens 6.5-12 mm.  
 11. St. MS 74. South Georgia. Forty-three specimens 8-13 mm.

REMARKS. Chilton has noted the impressions in the integument. They are more or less horizontal on the anterior part of the body, becoming oblique and then transverse posteriorly. So far from helping to distinguish *Djerboa* from *Oradarea*, they accentuate the likeness between these two genera.

The eye of the ♂ is not reniform, but similar to that of the ♀. The ♂♂ from St. MS 65 have long coiled masses of spermatozoa issuing from the penes (cf. *Chosroës*, Barnard, 1930, p. 370, fig. 38 b).

DISTRIBUTION. Graham Land, 3-5 m.; South Orkneys, 10-15 m.; South Georgia; Kerguelen.

#### Genus *Schraderia*, Pfr.

Pfeffer, 1888, p. 141 and pl. ii, fig. 5.

Stebbing, 1888, p. 913 (*Atyloides*); 1906, p. 362 (*Atyloides*).

Schellenberg, 1929 a, p. 280 (*Atyloides*).

REMARKS. Firstly, Chilton has examined specimens labelled "*Schraderia gracilis*" (1912, p. 497) which he said were referable to *A. serraticauda*, Stebb. Though Chilton

was perhaps right in saying that a general habitus figure was not good enough to determine a species in a group where so many species bear a close superficial likeness, one might maintain that Pfeffer has figured the characteristic gnathopods rather well, yet it is to be presumed that the specimens he examined were part of Pfeffer's type material. Therefore Chilton was justified when he presumed the identity of Stebbing's and Pfeffer's species. I say presumed, because I am sure that if Chilton had really subjected his material to a critical examination he would have noticed the distinctions between the two forms.

Secondly, as to the validity of Pfeffer's names. According to the Zoological Rules and Opinions, a figure is good enough to determine a *species*, and in the case of monotypic genera the species confirms the genus. Therefore both of Pfeffer's names are valid and as they antedate Stebbing's names<sup>1</sup> we should have to suppress the latter even if the conclusions set out below, as to *serraticauda* being a separate species, be not accepted.

Moreover it rather seems as if *Atyloides*, proposed by Stebbing for specimens which he referred to *Paramoera australis*, and to which he added two new species of his own, should become a synonym of *Paramoera* rather than of *Schraderia*. But this is a minor point, compared with the vindication of Pfeffer's names.

*Schraderia gracilis*, Pfr. (Figs. 118 c, 123).

Pfeffer, 1888, p. 141 and pl. ii, fig. 5 (habitus figure only).

? Walker, 1903, p. 58, pl. xi, fig. 90 (*serraticauda*, non Stebb.).

? Chilton, 1912, p. 497 (*serraticauda*, non Stebb.) and p. 497, pl. ii, figs. 21-23 (*calceolata* ♂); 1921, p. 224 (part).

? Chevreux, 1906, p. 87; 1913, p. 179.

? Schellenberg, 1929 a, p. 280 (*Atyloides* g.).

? Barnard, 1930, p. 388 (*P. serraticauda*, non Stebb.).

- Occurrence*: 1. St. 27. South Georgia. 2 ♂♂ 8-9 mm., 1 ♀ 11 mm.  
 2. St. 141. South Georgia. Many 6-16 mm., mostly ovig. ♀♀ 10-16 mm.  
 3. St. 144. South Georgia. 2 ♂♂ 8-10 mm., 1 ovig. ♀ 12 mm.  
 4. St. 145. South Georgia. 40 ♀♀, incl. ovig., 11-14 mm.  
 5. St. 159. South Georgia. 2 ♀♀ 11-12 mm.  
 6. St. WS 25. South Georgia. 1 ovig. ♀ 10 mm., 2 ovig. ♀♀ 13 mm.  
 7. St. WS 56. South Georgia. 1 immat. ♀ 16 mm.  
 8. St. MS 6. South Georgia. 7 ♀♀ (5 ovig.) 10-12 mm.  
 9. St. MS 10. South Georgia. 1 immat. ♀ 11 mm.  
 10. St. MS 67. South Georgia. 1 ♀ 12.5 mm.

REMARKS. In the form known as *serraticauda*, auctorum, it has been alleged by Walker, Chilton and Chevreux that considerable variation occurs in the number of serrations on the postero-inferior margin of pleon segment 3. This variation is said by Chilton and more definitely by Chevreux (1913) to vary according to the size of the

<sup>1</sup> Though the month of publication of the respective papers is not apparent, Stebbing (1888, vol. 11, p. 1653) includes a précis of Pfeffer's paper, and on p. 1654 definitely states that *Stebbingia*, Pfr., would have priority over *Atyloides*, Stebb., if the two were considered identical. This proves that Pfeffer's paper was published before the Challenger Report.

animal, small specimens having two teeth as in the Challenger type, larger ones 7–10 teeth. On this account no doubt has hitherto been expressed as to the identity of the Australasian and Antarctic specimens, and the "species" has been credited with a wide distribution. It should be noted that not a single large or small specimen with numerous teeth has yet been recorded from the Australasian region.

The examination of the Discovery collection has led me to doubt both the variability and the wide distribution, and to believe that two distinct species have been united.

Stebbing (1888, pl. lxxviii) gives a general habitus figure of the Australian *serraticauda* showing on the head below the antero-lateral rounded projection, and separated from it by a slight indent, a very shallow "cheek" with a rounded post-antennal corner. Stephensen (1927, p. 339) in commenting on Auckland Island specimens says "the outline of the face is as shown by Stebbing... thus there is no projecting post-antennal corner". This is a very welcome corroboration of Stebbing's accuracy. No other author has referred to this point. Chilton's fig. 21 (1912) stops just short of including the decisive feature.

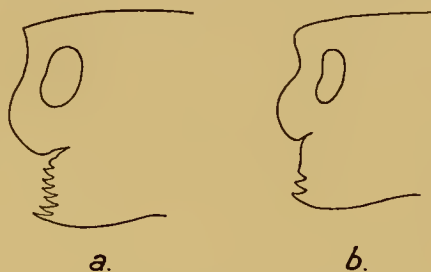


Fig. 123. *Schraderia gracilis* (Pfr.). Head of: a. Adult. b. Young (6 mm.).

But if Stebbing's and Pfeffer's figures are compared it will be seen that they do not agree. Pfeffer shows a deep cheek with a quadrate though not projecting post-antennal corner. As I have elsewhere remarked Pfeffer had a very accurate draughtsman, though in the case of *S. gracilis* he has omitted the serrations on the pleon segment 3 and on the anterior margin of the cheek. But it is quite evident that the specimens here examined, from the type locality, conform with those Pfeffer had.

I am thus led to conclude that there is an Antarctic form with deep, serrated cheeks and numerous serrations on the margin of pleon segment 3; and an Australasian form with shallow, entire cheek and a bidentate postero-inferior corner on pleon segment 3. These two forms ought certainly to be recorded separately, and I am of opinion that both should be given specific rank. Stebbing's *serraticauda* thus becomes the second species of *Schraderia*.

Owing to the unfortunate overlooking of this diagnostic character all the Antarctic records are open to doubt, though one feels fairly safe in assuming that those given above, with query marks against them, will on re-examination be found to apply to *gracilis*.

The references to *serraticauda* are as follows:

Stebbing, 1888, p. 920, pl. lxxviii; 1906, p. 362.

? Chilton, 1909, p. 627.

Stephensen, 1927, p. 339.

The integument in *gracilis* is minutely shagreened, with minute scattered pits, from which an occasional seta arises.

DISTRIBUTION. South Georgia. Probable but requiring confirmation: Graham Land; South Orkneys; Ross Sea area.

Genus *Paramoera*, Miers.

- Pfeffer, 1888, p. 110 (*Stebbingia*).  
 Stebbing, 1888, p. 913 (*Atyloides*); 1906, p. 363.  
 Schellenberg, 1929 *a*, p. 280; 1931, p. 194.

*Paramoera walkeri* (Stebb.) (Fig. 118 l).

- Walker, 1903, p. 58, pl. xi, figs. 91-97.  
 Chevreux, 1913, p. 169, figs. 53-55.  
 Schellenberg, 1929 *a*, p. 281.  
 Barnard, 1930, p. 388.

*Occurrence*: St. 173. South Shetlands. 2 immat. ♀♀ 10 and 12 mm.

REMARKS. Integument finely shagreened, without larger pits.

DISTRIBUTION. Ross Sea area, 0-10 fathoms; South Shetlands, littoral. Collected also at South Georgia by Major Barrett-Hamilton, see Appendix, p. 315.

*Paramoera gregaria* (Pfr.) (Figs. 118 i, 124).

- Pfeffer, 1888, p. 110, pl. ii, figs. 7 and 7 *a-d* (*Stebbingia g.*).  
 Stebbing, 1906, p. 358.  
 Chilton, 1913, p. 58 (*austrina*, non Bate).  
 ? Shoemaker, 1914, p. 75 (*austrina*, non Bate).  
 ? Pesta, 1928 (*Ann. Nat. Mus. Wien*, XLII), p. 78 (*capensis* f. *austrina*, non Dana, Bate).  
 Non Walker, 1907, p. 33.

*Occurrence*: 1. New Fortuna Bay, South Georgia. Many ♂♂, ♀♀ and juv. 6-17 mm. (beach).  
 2. St. 222. Cape Horn. Many ♂♂, ♀♀ and juv. 8-17 mm. (beach).

REMARKS. Integument minutely shagreened, with rather large and numerous pits.

From the figures here given I think there will be no doubt as to the identity of these specimens with Pfeffer's species. Though Pfeffer says it is the commonest Amphipod in South Georgia, there is only the one lot from that locality.

Pfeffer did not mention or figure any accessory flagellum; it is present as a 1-jointed articulated rudiment on the present specimens. I do not consider this an insuperable difficulty, in view of the agreement in other features. If the accessory flagellum were absent in Pfeffer's specimens, they would be referable to *Pontogeneiella*, both species of which have long telsons, but the shape of the head and the postero-inferior corner of pleon segment 3, and the gnathopods, especially gnathopod 1, are conclusive against this assumption. Moreover Chilton when examining Pfeffer's material found the accessory flagellum was present (1912, p. 499) though he did not state this fact in his 1913 paper (p. 58).

These specimens show no resemblance to *australis*, Miers, or the Challenger specimens referred by Stebbing to Miers' species (which identification I think may be taken as correct, contrary to Walker's opinion 1907, p. 33). Whether *australis*, Miers, should be put into the synonymy of *austrina*, Bate, need not concern us here. The shape of the gnathopods of *austrina* (Bate, 1862, pl. xxvi, fig. 4) is distinctly more like those of the



present specimens than are Miers' and Stebbing's figures of those of *australis*. But there are points in Bate's description and figures which preclude our identifying the present specimens with his species (e.g. the shape of head and pleon segment 3).

Schellenberg (1929 *a*, p. 280) refers *austrina* to Dana's *fissicauda* from Valparaiso. Dana's description and figures are quite useless in such a critical case as this.

I am not willing to identify these specimens with any Australasian species, nor with *fissicauda*, until specimens from the original localities have been subjected to a modern critical examination. It is better not to go farther back than Pfeffer's description, with which the Discovery specimens agree. It will at least be seen that a confusion with *capensis* is impossible.

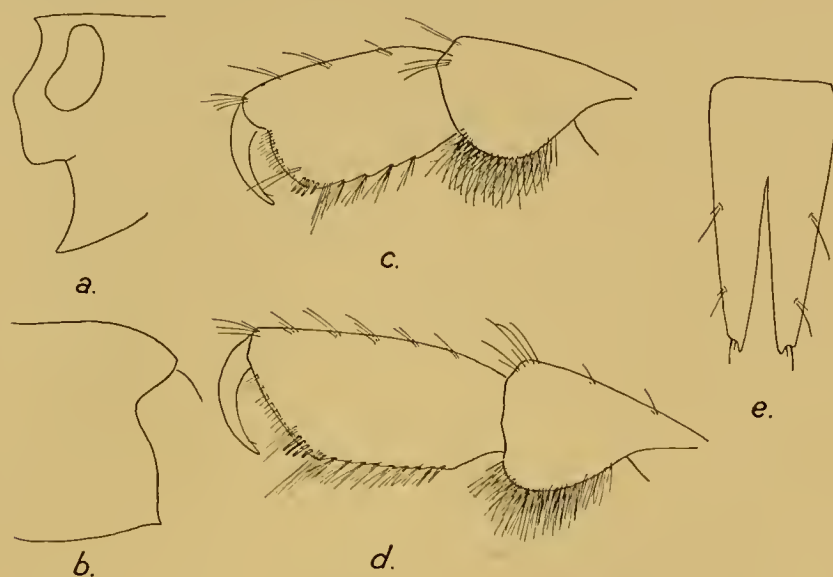


Fig. 124. *Paramoera gregaria* (Pfr.). a. Head. b. Pleon segment 3. c. Gnathopod 1. d. Gnathopod 2. e. Telson.

Schellenberg's remarks (1926, p. 357) on the genus *Stebbingia* hold good, and Pfeffer's species is merely transferred to *Paramoera*.

DISTRIBUTION. South Georgia.

*Paramoera edouardi* (Schell.) (Fig. 118 *m*).

Chevreaux, 1906, p. 64, figs. 37-39 (*Pontogeneia magellanica*, non Stebb.); 1913, p. 178 (*Atyloides magellanicus*, non Stebb.).

Schellenberg, 1929 *a*, p. 281.

? Chilton, 1912, p. 496 (*Atyloides magellanicus*, non Stebb.).

Occurrence: St. 173. South Shetlands. 1 ovig. ♀ 11 mm.

REMARKS. Integument very minutely shagreened, without larger pits.

DISTRIBUTION. Graham Land, littoral; South Shetlands, low tide. ? South Orkneys.

*Paramoera obliquimanus*, n.sp. (Figs. 118 j, 125).

*Occurrence*: St. 54. Falklands. 2 ♀♀ 14-15 mm., 1 ♂ and 1 immat. ♀ 11 mm.

**DESCRIPTION.** Integument minutely shagreened, with scattered pits, which are not so large or so close together as in *gregaria*. No dorsal teeth. Post-antennal angle of head acutely produced. Side-plate 1 rounded below, with a rather strong spine postero-inferiorly. Pleon segment 3 with a small point at postero-inferior angle. Telson cleft for half its length, lateral margin convex, lobes apically notched, with one spine, two pairs of lateral spine-setae.

Antenna 1 with a calceolus on every alternate flagellar joint proximally; on the distal joints the calceoli are replaced by sensory filaments.

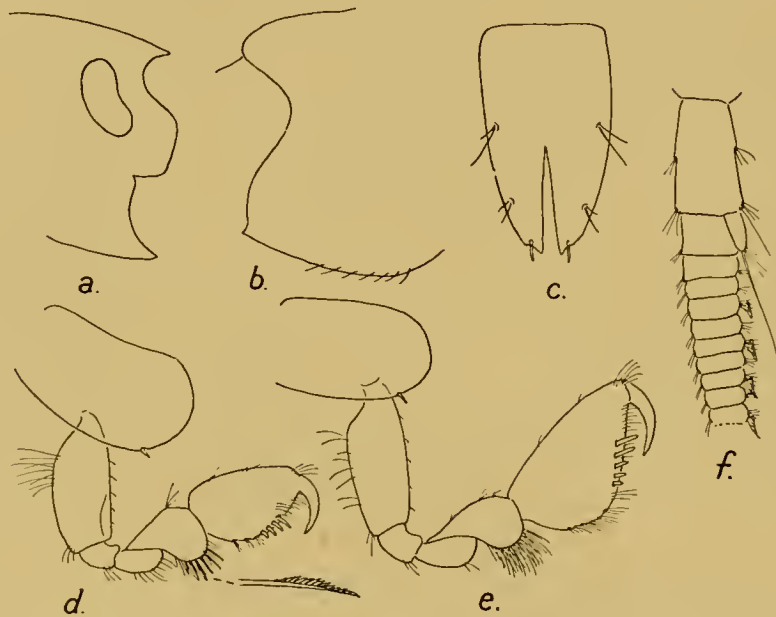


Fig. 125. *Paramoera obliquimanus*, n.sp. a. Head. b. Pleon segment 3. c. Telson. d. Gnathopod 1 ♀. e. Gnathopod 2 ♀. f. Portion of antenna 1.

Gnathopod 1, 5th joint rather strongly expanded in a rounded lobe inferiorly, 6th ovate, palm and hind margin forming a continuous curve, with four stout spines. Gnathopod 2, 5th joint as in gnathopod 1, 6th obliquely ovate, widest proximally, narrowing distally, palm not defined except by four to five stout spines.

Neither the ♂ nor the immature ♀ have the peculiarly shaped hands of the gnathopods found in the large ♀♀; they resemble more those of *fasciculata*, Thoms., as figured by Stephensen (1927, fig. 15), but have the 5th joint more strongly expanded inferiorly and lack the "rounded projection" or scarios edge mentioned by Stephensen.

*Paramoera hermitensis*, n.sp. (Figs. 118 l, 126).

*Occurrence*: St. 222. Cape Horn. 1 ♂ 8 mm., 6 ♀♀ 8-10 mm.

**DESCRIPTION.** Very like *edouardi*. Integumentary shagreen rather coarser, but still very fine. Eyes broadly reniform, large, dark. Post-antennal angle of head quadrate,

but slightly produced. Pleon segment 3 with postero-inferior angle broadly rounded, obscurely serrulate. Telson, lateral margins slightly concave beyond the basal convexity, cleft for almost half its length, lobes apically subacute with a single spine in a notch.

Antenna 1, flagellum with sensory filaments on every alternate joint.

Gnathopods 1 and 2, 5th joint shorter than 6th, not strongly lobed below, 6th widening to the nearly transverse palm, which has three to four spines on the rounded defining angle.

REMARKS. The integument, gnathopods and telson prevent this form from being regarded as the same as the young specimen hesitatingly identified by Monod (1926) as *P. austriana*.

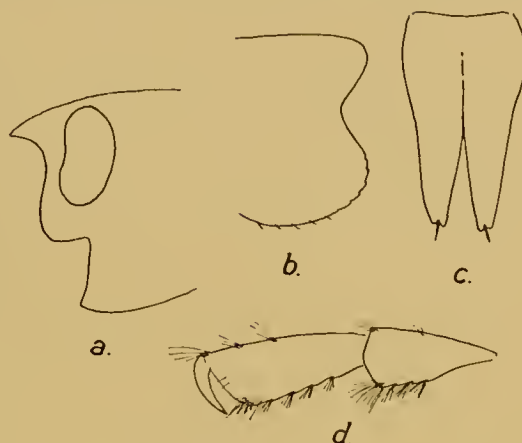


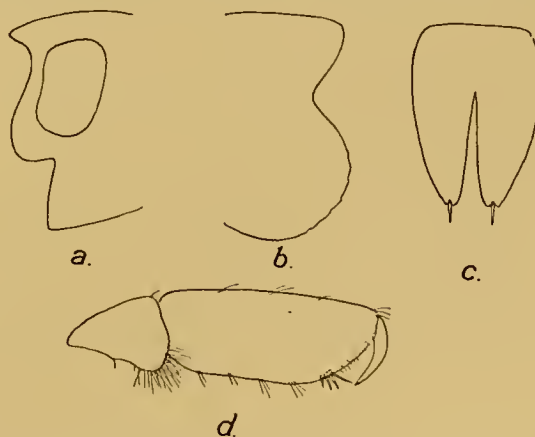
Fig. 126. *Paramoera hermitensis*, n.sp. a. Head. b. Pleon segment 3. c. Telson. d. Gnathopod 2.

*Paramoera tristanensis*, n.sp. (Figs. 118 k, 127).

Occurrence: 1. St. 6. Tristan da Cunha. 6 ♂♂ and 4 ovig. ♀♀ 6–7 mm. Types.

2. St. WS 123. Gough Island. 5 ovig. ♀♀ 7–9 mm. (shore).

DESCRIPTION. Integument minutely shagreened, with rather numerous pits, closer together than in *obliquimanus* and not as large as in *gregaria*. No dorsal teeth. Post-antennal angle of head quadrate. Eyes oblong, slightly larger in ♂ than in ♀. Side-plates 1 and 2 rounded below. Pleon segment 3 with postero-inferior angle broadly rounded, margin obscurely crenulate or serrulate. Telson half as long again as wide, cleft for about three-quarters its length, lateral margins convex, lobes slightly dehiscent, apices subacute, each with a single spine.



Antenna 1, flagellum with sensory filaments on every alternate joint.

Gnathopods 1 and 2, 5th joint rather short, subtriangular, 6th considerably longer than 5th, oblong-ovate, palm oblique, defined only by four spines.

*Paramoera capensis* (Dana) (Figs. 118 n, 128).

Dana, 1853/55, p. 931, pl. lxiii, figs. 5 a–g.

Bate, 1862, p. 141, pl. xxvii, fig. 4.

Stebbing, 1888, p. 918, pl. lxxvii (*Atyloides assimilis*).

Chilton, 1912, p. 499 (*austriana* "special variety").

Barnard, 1916, p. 183.

Schellenberg, 1925, p. 149; 1926, p. 363 (f. *capensis*); 1929 a, p. 280 (*fissicauda*, Dana, var. *capensis*).

Fig. 127. *Paramoera tristanensis*, n.sp. a. Head. b. Pleon segment 3. c. Telson. d. Gnathopod 2.

*Occurrence*: St. MS 82. Saldanha Bay, South Africa. 20 ♀♀ 5-9 mm., the larger ovig.

**REMARKS.** Integument nitidulous, with numerous pits which in the posterior segments sometimes tend to become elongate so as to produce the appearance of short lines. This is especially noticeable in specimens from the more easterly localities (Port Elizabeth, East London and Natal), in which also the pits tend to be slightly stronger and closer together. Post-antennal angle of head rounded-quadrate.

Schellenberg (1925) has shown that the inclusion of *magellanica*, Stebb. (= *Atyloella m.*) in the synonymy which I gave in 1916 was wrong. I agree. On the other hand, I still maintain that *austrina*, excluded by me in 1916, is rightly excluded.

I see no possibility of including a species with a telson like that in Bate's figure (pl. xxvi, fig. 4) with *capensis*. The same applies to *australis*, Miers. The normal telson of the adult should be used as a criterion, and in *capensis* it is comparatively short and broad, with multidentate apices.

Moreover, the integument of *austrina* has yet to be recorded. In *australis* Stebbing describes it as scabrous on the posterior segments. In the two to three hundred specimens from various South African localities which I have examined, I have not found a trace of scabrous ornamentation.

There would appear to be no difficulty in finding differences (integument, shape of head, pleon segment 3, telson, etc.) if one looks for them, instead of endeavouring to find points of agreement with a view to recording one "widely distributed species."

**DISTRIBUTION.** South Africa, west coast as far north as Swakopmund, south coast as far east as Port Shepstone in Natal; St Helena (Schellenberg, 1926).

*Paramoera bidentata*, n.sp. (Figs. 118 m, 129).

*Occurrence*: South Africa, Kalk Bay (False Bay). 1 ♀ 15 mm. (S.A.M. Reg. no. 1294).

**DESCRIPTION.** Integument very minutely shagreened, without pits. Rostral point small, acute. Antero-lateral margin of head somewhat angular, post-antennal angle acutely produced. Eyes reniform, nearly meeting on top of head. Side-plates 1-4 moderate, lower margins not setose or serrate. Pleon segments 1 and 2 with the posterior margin produced in a medio-dorsal subacute triangular tooth, which is not carinal but lies flat; postero-inferior angle of segment 1 quadrate, of 2 quadrate with a very small point, the margin above slightly sinuate, of 3 quadrate with a small point, the margin above rather convex but not serrate; segment 4 with an unusually well-marked dorsal transverse depression. Telson twice as long as broad; cleft two-thirds its length, lateral margins nearly straight, apices acute with two unequal spiniferous notches, the outer being the larger and bearing the larger spine, two submarginal unequal spines near base.

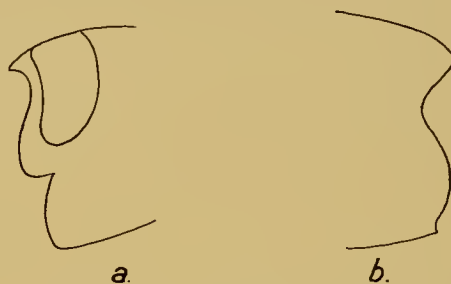


Fig. 128. *Paramoera capensis* (Dana).  
a. Head. b. Pleon segment 3.

Antenna 1, flagellum about 55-jointed, every alternate joint expanded and bearing sensory filaments.

Gnathopods 1 and 2 nearly similar, 5th joint shorter than 6th, not wider and not cup-shaped, 6th oblong, longer in gnathopod 2, palm oblique, straight, defined by two stout spines, hind margin setose.

Peraeopods 3-5, 2nd joint oblong, hind margin nearly straight in peraeopod 3, straight in peraeopod 4 and slightly concave in peraeopod 5, finely serrulate, postero-inferior corners rounded, 6th with five groups of spines on anterior margin, four on posterior margin.

Uropod 3, rami longer than peduncle, subequal, lanceolate, apically acute, margins with fairly closely set spinules, outer margin of outer ramus with six pairs of stouter spinules.

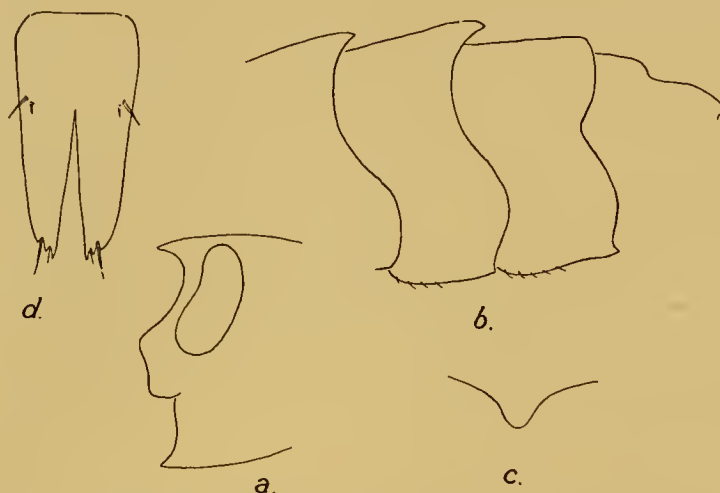


Fig. 129. *Paramoera bidentata*, n.sp. a. Head. b. Pleon segments 1-4. c. Dorsal view of tooth on segment 2. d. Telson.

REMARKS. Similar to *edouardi* as regards integument, telson, and pleon segment 3, but separated by the head, dentate pleon segments 1 and 2, broader gnathopods, and oblong 2nd joints of peraeopods 3-5.

Although not represented in the Discovery collection, it is convenient to describe this species alongside other species of the genus.

#### Family GAMMARIDAE

Stebbing, 1906, pp. 364, 729.

Schellenberg, 1926, p. 363.

#### Genus *Melita*, Leach.

Stebbing, 1906, pp. 421, 732.

Barnard, 1916, p. 189.

*Melita subchelata*, Schell. (Fig. 130).

Schellenberg, 1925, p. 153 (*fresnelii*, var. *subchelata*).

Occurrence: St. WS Walvis Bay. 10 ♂♂ 7-10 mm., from stomach of *Trigla capensis*.

REMARKS. This form, to my mind, certainly deserves specific rank. In addition to the form of the hand of gnathopod 2 and the slight denticulation of the pleon segments, mentioned by Schellenberg, it may be stated that the 2nd joint of peraeopod 4 is produced at the distal corner (in *fresnelii* rounded-quadrate, not produced), and the 2nd joint of peraeopod 5 is wider distally than proximally (in *fresnelii*, *vice versa*). The inner ramus of uropod 3 is present as a small rudiment.

Of the present specimens six are left-handed, four right-handed.

DISTRIBUTION. South-west Africa, Luderitzbucht.

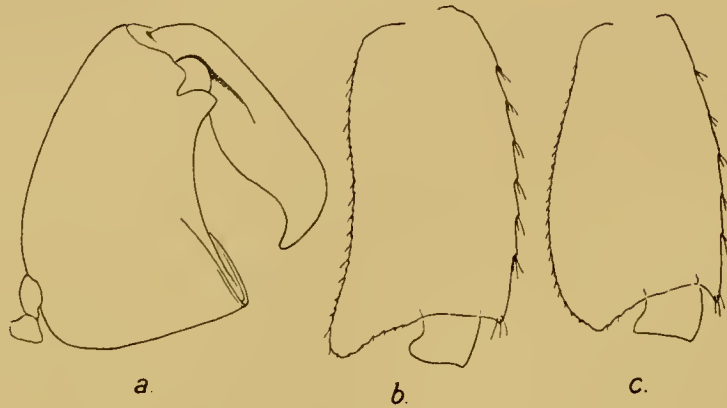


Fig. 130. *Melita subchelata*, Schell. a. Gnathopod 2 ♂. b, c. 2nd joints of peraeopods 4 and 5.

#### *Melita inaequistylis* (Dana).

Stebbing, 1914, p. 366.

Barnard, 1916, p. 191 (references).

Stephensen, 1927, p. 345.

Occurrence: St. 90. South Africa. 2 ♂♂ 9 and 12 mm., 1 juv. 8 mm.

DISTRIBUTION. New Zealand and neighbouring islands; Falkland Islands; Ceylon and India; South Africa.

#### Genus *Maera*, Leach.

Stebbing, 1906, pp. 433, 732.

Stephensen, 1925, p. 48.

#### *Maera pfefferi*, n.sp. (Fig. 131).

Occurrence: 1. St. 123. South Georgia. 1 ♂ 22 mm., 1 juv. 11 mm.

2. St. 144. South Georgia. 2 ♂♂ 14 and 21 mm., 2 immat. ♀♀ 19–20 mm.

3. St. 152. South Georgia. 1 ♂ 25 mm. *Type* ♀.

4. St. 156. South Georgia. 1 ♂ 25 mm. *Type* ♂.

5. St. 159. South Georgia. 1 ♀ 20 mm.

DESCRIPTION. Body elongate and slender. Rostrum obsolete. Eyes invisible. None of the peraeon and pleon segments dorsally dentate. Side-plates shallow, 1 quadrangular, antero-inferior angle slightly produced forwards in a sharp point, 4 not quite as deep as anterior lobe of 5, hind margin not emarginate. Pleon segment 3 with postero-inferior

angle quadrate with a small sharp point. Telson longer than wide, cleft nearly half-way, lobes dehiscent, each apically notched, with a setule in the notch, the inner point slightly longer than the outer point.

Antenna 1 ( $\delta$ ) extending to end of 1st pleon segment, 1st and 2nd joints subequal, 3rd one-third length of 2nd, flagellum rather shorter than peduncle, 32-jointed, accessory flagellum 12-jointed. Antenna 2 shorter and more slender than antenna 1, 5th joint shorter than 4th, flagellum subequal to 5th peduncular joint, 12-14-jointed. Mouth-parts normal.

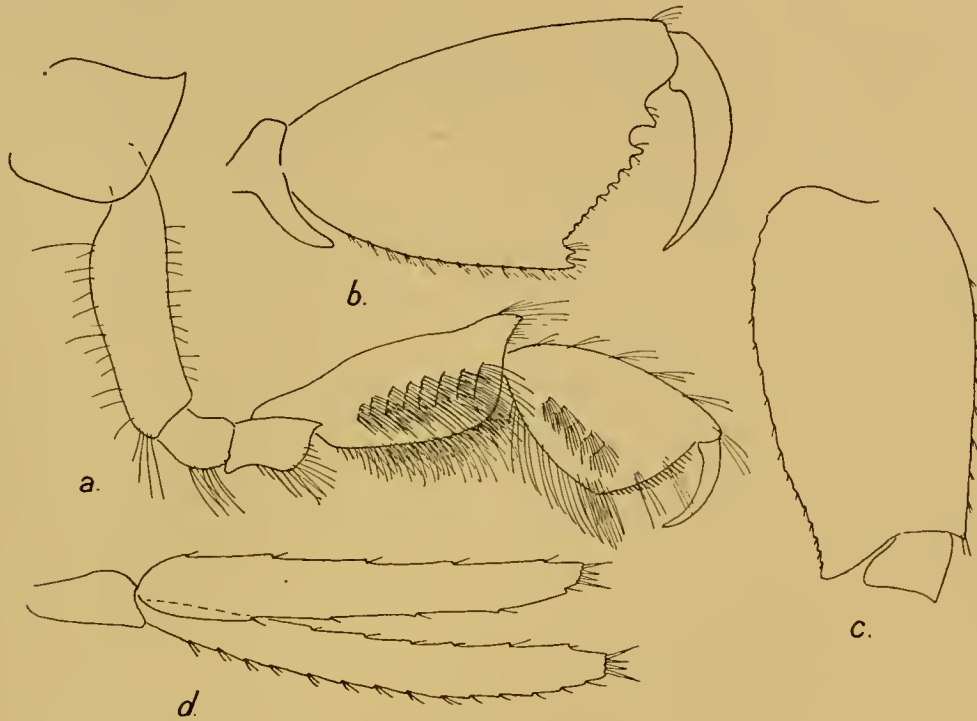


Fig. 131. *Maera pfefferi*, n.sp. a. Side-plate 1 and gnathopod 1. b. Gnathopod 2 ♀. c. 2nd joint of pereopod 5. d. Left uropod 3 ♂, dorsal view.

Gnathopod 1, 5th joint subequal to 2nd, its upper apex produced as a short point overhanging base of 6th, in the juvenile as well as the adult, 6th shorter than 5th, ovate-triangular, palm somewhat oblique, with rounded defining angle and no spine, palmar margin spinulose, lower margins of 5th and 6th joints densely setose, and outer surfaces with several fascicles of setae arranged in rows. No sexual differences.

Gnathopod 2, 6th joint broadly ovate, hind margin with fascicles of short setae, rather longer than palm which is slightly oblique, defined by a strong, apically bifid tooth, two teeth near hinge, with a semicircular notch between them, margin between lower tooth and defining angle crenulate, a spinule in each notch. No sexual differences, except that in the  $\delta$  the tooth nearest the hinge is broader and stronger. In the no. 1  $\delta$  the right hand is slightly larger than the left. In no. 1 juv. the palm is entire or only faintly crenulate.

Peraeopods 1 and 2 moderately slender. Peraeopods 3-5 moderately slender, 2nd joints expanded, oblong, about twice as long as broad, anterior and posterior margins subparallel in peraeopods 3 and 4, in peraeopod 5 posterior margin more convex, the width of the joint consequently more than half its length, postero-inferior angles in peraeopods 3 and 4 subquadrate, scarcely produced, in peraeopod 5 also subquadrate but produced in a lobe extending to end of 3rd joint, hind margin in all three peraeopods feebly serrate, 4th and 5th joints subequal.

Uropods 1 and 2, rami extending about equally far back, to a little beyond end of telson or end of peduncle of uropod 3. Uropod 3 in both sexes, rami very elongate, especially in ♂, longer than 2nd joint of peraeopod 5, nearly five times as long as peduncle, narrow, outer slightly longer than inner, apices truncate, with strong spines, margins, especially outer margin of outer ramus, spinulose. In no. 1 juv. the rami do not extend beyond rami of uropod 1, but in the young ♂ of no. 2 they are elongate.

REMARKS. In naming this species, the first true *Maera* to be recorded from the Antarctic, after Dr Georg Pfeffer, I return the compliment he paid to the English carcinologist E. J. Miers when he described "*Megamoera*" *miersii*, the first known Antarctic member of the family Gammaridae.

This species forms the counterpart to *M. loveni* (Bruz.) from the Arctic Ocean. In its slender body it bears a close resemblance both to *loveni* and also to *hirondellei*, Chevr. (1900, p. 84, pl. xi, fig. 1); with the latter it has in common the peculiar apical projection on the 5th joint of gnathopod 1<sup>1</sup>; and also the same type of hand in gnathopod 2, at least in the ♂. It is, however, easily distinguished by the enormously elongate rami of uropod 3 in ♂, a feature it has in common with *Paraceradocus miersii* (Pfr.)

*Maera ascensionis*, n.sp. (Fig. 132).

*Occurrence*: St. 1. Ascension. 4 ♂♂ 4.5 mm., 4 immat. ♂♂ 3.5 mm., 1 ovig. ♀ 4 mm.

DESCRIPTION. Eyes oval or subcircular. Peraeon and pleon not dorsally dentate. Side-plates entire on lower margins. Postero-inferior angle of pleon segment 3 quadrate, with a small point.

Antenna 1, accessory flagellum 7-8-jointed.

Gnathopod 1, 5th joint in ♂ with slight subapical depression on upper margin, apex slightly produced over base of 6th joint (cf. *pfefferi*, and footnote, *infra*). Gnathopod 2 in ♂, 6th joint oblong, nearly twice as long as broad, palm a little oblique, defined by two spiniform teeth, two small spines within the angle, one broad semicircular excision separated from a narrower excision nearer the hinge by a bifid tooth bearing two spines, a subtruncate spiniferous tooth near hinge, finger sinuate on inner margin. In immature ♂ the hand is narrower, palm more oblique, and the excisions not so deep. In ♀ the hand widens slightly to the oblique, convex, crenulate palm, which is defined from the hind margin by an obtuse angle, but no projecting tooth or spine.

Peraeopods 1 and 2 slender. Peraeopod 3, 2nd joint ovate, produced behind to end

<sup>1</sup> This occurs also in Kunkel's (1910) figures of *M. rathbunae*, and also to a less extent in his figure of *inaequipes*, as well as in Chevreux and Fage's (1925) figure of *inaequipes*.



of 3rd joint, hind margin convex, serrulate, 4th strongly expanded, almost as wide as 2nd, 5th and 6th narrow, finger with accessory denticle on outside of unguis. Peraeopods 4 and 5, 2nd joints resembling that of peraeopod 3, 4th joint not expanded, twice as long as wide.

Uropod 3, rami not extending beyond apices of rami of uropod 1, apices truncate.

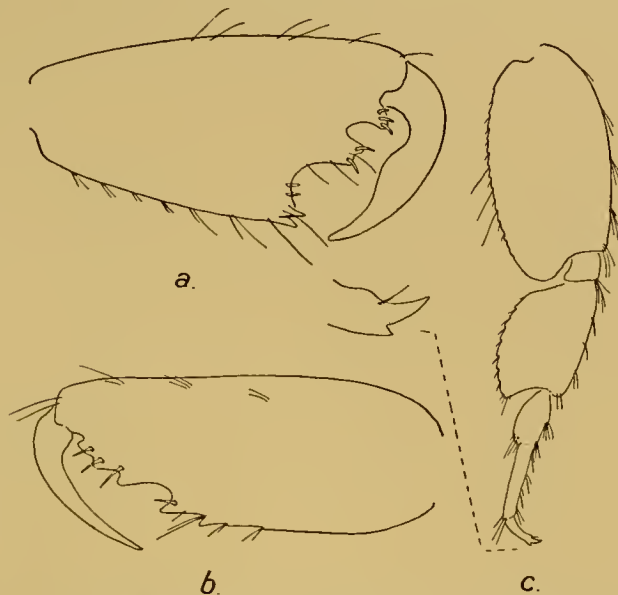


Fig. 132. *Maera ascensionis*, n.sp. a. Gnathopod 2 ♂. b. Gnathopod 2 of young ♂. c. Peraeopod 3, with dactyl further enlarged.

REMARKS. The chief characteristic of this species is the expansion of the 4th joint of peraeopod 3, which isolates it from all the other species. The palm of gnathopod 2 in the ♂ might be regarded as a variant of that of *inaequipes*, but the hand is considerably longer in proportion to its breadth.

#### Genus *Paraceradocus*, Stebb.

Stebbing, 1906, p. 429; 1910, p. 597.

To complete the generic diagnosis it may be stated that the inner lobes of the lower lip are present (see also Stebbing, 1910, pl. li).

#### *Paraceradocus miersii* (Pfr.) (Fig. 133).

Pfeffer, 1888, p. 121, pl. iii, figs. 3 a-e.

Chevreaux, 1906, p. 93; 1913, p. 180.

Chilton, 1912, p. 500; 1913, p. 59; 1925, p. 179.

*Occurrence*: 1. St. 45. South Georgia. 2 ♂♂ 31 and 42 mm.

2. St. 123. South Georgia. 1 juv. 16 mm.

3. St. 167. South Orkneys. 8 ♂♂ 55-66 mm., 4 ♀♀ 46-65 mm., 1 ♀ with embryos 60 mm., 4 ovig. ♀♀ 57-70 mm., 1 juv. ♂ 25 mm., 3 juv. ♀♀ 23-26 mm., 1 juv. 13 mm.

REMARKS. This fine animal is unmistakable. Nevertheless one or two points in which the present specimens do not quite conform with Pfeffer's description may be noted.

As in the Scotia specimens the dorsal keel on pleon segments 1-3 is scarcely marked in the no. 3 specimens, though it is in both specimens of no. 1. The first side-plate is not as deep as its segment and is in fact slightly smaller than the 2nd. The telson is not longer than the 6th pleon segment. It is not so in Pfeffer's figure, and it seems possible that Pfeffer by a slip wrote "um ein Drittel länger" (p. 123) instead of "... kürzer".

The antennae are proportionately not so stout as in Pfeffer's figure. In gnathopod 2 the 6th joint is not as long as the 2nd; in the middle of the palm there is a short stout spine, followed by a step, the defining angle bearing a long slender spine as described by Pfeffer. The step in the palm is scarcely indicated in immature specimens of 23-26 mm. length. The 2nd joints of peraeopods 3-5 are quite different in lot no. 3, being much more elongate, and having the front and hind margins nearly straight and parallel, though converging slightly distally; the greatest breadth goes at least twice into the length in peraeopod 3, and  $2\frac{1}{2}$ -3 times in peraeopod 5. These three peraeopods are altogether longer than in Pfeffer's figure.

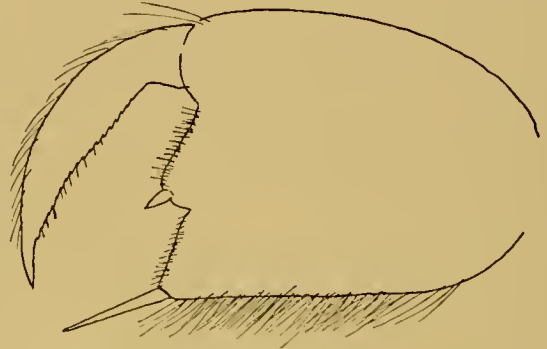


Fig. 133. *Paraceradocus miersi* (Pfr.). Gnathopod 2.

Comparing, however, the ♂ of no. 1 (42 mm.) with a 46 mm. ♀ of no. 3, we find that peraeopods 3-5 are all much shorter proportionately, peraeopod 5 of the ♂ only equalling peraeopod 3 of the ♀. The 2nd joints also are stouter, especially proximally. These specimens therefore approximate to the typical form.

The peduncle of uropod 1 has a well-marked tooth bearing a spine about midway on lower margin; Pfeffer's figure shows a spine nearer the base. The rami of uropod 3 are represented in Pfeffer's figure as much too broad, even for Pfeffer's description (here again a slip occurs: "Breite beim ♂ noch nicht  $\frac{1}{4}$  der Breite", the last word should obviously be "Länge").

Lastly, the eye is not dark as in Pfeffer's figure, but shows through the cuticle as a whitish patch. The cuticle over the eyes is perfectly smooth, not in the least convex, and in no way different from the cuticle over the rest of the head. When dissected out, the eye is found to consist of a mass of whitish pigment-tissue with irregularly scattered, and not too closely aggregated, crystal-cones. The optic nerve is stout and apparently well developed. I have not had the time necessary for sectioning this eye, but the material seems to be in good condition for histological investigation, and the size of the animal would make it very convenient for study.

The no. 3 lot are far and away the largest yet recorded; they also come from much deeper water.

**DISTRIBUTION.** South Georgia; South Orkneys; Graham Land; South Shetlands. Low tide to 70 m.

## Family DEXAMINIDAE

Stebbing, 1906, p. 514.

Schellenberg, 1928 (*Trans. Zool. Soc.*, pt. v), p. 652. (New genus and redefinition of *Dexaminooides* Spandl.)

Genus *Paradexamine*, Stebb.

Stebbing, 1906, p. 518; 1910, p. 602.

Chevreur, 1906, p. 88.

Barnard, 1930, p. 389.

*Paradexamine fissicauda*, Chevr.

Chevreur, 1906, p. 88, figs. 51-53; 1913, p. 181.

Chilton, 1912, p. 501 (*pacifica*, non Thoms.).

- Occurrence*: 1. St. 141. South Georgia. 1 ♂ 15 mm.  
 2. St. MS 63. South Georgia. 1 ♂ 11 mm.  
 3. St. MS 65. South Georgia. 1 ♂ 13 mm.  
 4. St. MS 66. South Georgia. 1 ♂ 14 mm.  
 5. St. MS 74. South Georgia. 1 ♂ 10 mm.  
 6. East Cumberland Bay, South Georgia. 1 ♀ 16 mm.

REMARKS. I see every reason for considering this species distinct from *pacifica*, and as noted in the Terra Nova Report the characters which separate the two species are the lateral angle of the head, the 2nd joint of peraeopod 5, and the telson. The 2nd joint of peraeopod 5 has a perfectly smooth and straight hind margin, devoid of setae except one large and one to two small ones at the distal corner.

Contrary to the opinion expressed in the Terra Nova Report, neither the 3rd uropods nor the antennae appear to exhibit sexual differences. All these appendages agree with Chevreur's account and figures. The absence of dense fascicles of setae on the antennae in *fissicauda* is therefore an additional distinction from *pacifica*.

DISTRIBUTION. Palmer Archipelago, 25-129 m.; South Orkneys, 2-10 fathoms.

Genus *Polycheria*, Hasw.

Stebbing, 1906, pp. 519, 735.

Schellenberg, 1931, p. 212.

*Polycheria antarctica* (Stebb.).

Chilton, 1912, p. 502 (literature and discussion).

Schellenberg, 1926, p. 370, fig. 58; 1931, pp. 214 *sqq.*, figs. 107-112.

Barnard, 1930, p. 390, fig. 49 *d.*

Non Barnard, 1916, p. 211 (= *atolli*).

- Occurrence*: 1. St. 39. South Georgia. Two specimens 3-3.5 mm.  
 2. St. 51. Falklands. Fourteen specimens 3-5 mm., apparently all ♀♀, from sponge.  
 3. St. 142. South Georgia. 1 ♂ 7 mm., 9 ♀♀ 6-8 mm., 3 juv. 3-4 mm.  
 4. St. 144. South Georgia. 1 ♀ 7 mm.  
 5. St. WS 27. South Georgia. 1 ♂ 4.5 mm.  
 6. St. MS 64. South Georgia. 4 ovig. ♀♀ 5 mm.  
 7. St. MS 71. South Georgia. One specimen 5 mm.

REMARKS. Maxillary palp and telson as in the *kerqueleni* form. In uropod 3 both margins of the inner ramus and the inner margin of the outer ramus in the ♂ bear plumose setae; the inner margins of both rami of uropod 1 are also plumose.

DISTRIBUTION. Antarctic and sub-Antarctic regions.

#### Family TALITRIDAE

Stebbing, 1906, pp. 523, 735.

Kunkel, 1910 (*Trans. Conn. Ac.*, xvi), p. 61.

#### Genus *Orchestia*, Leach.

Stebbing, 1906, pp. 530, 735.

Chilton, 1909, p. 632; 1916 (*Trans. N.Z. Inst.*, XLVIII), p. 354.

#### *Orchestia platensis*, Kröy.

White, 1847 (*List Crust. Brit. Mus.*) (*tristensis*, Leach MSS.).

Bate, 1862, p. 19, pl. iii, fig. 3.

Stebbing, 1900 (*Fauna Hawaii*), p. 527, pl. xxi A; 1906, p. 540.

Walker, 1905 (*F. Geogr. Mald. Lacc.*, 11, Suppl.), p. 924, fig. 2.

Kunkel, 1910 (*loc. cit.*), p. 63, fig. 24.

Shoemaker, 1920 (*Bull. Amer. Mus.*, XLIII), p. 377.

Chilton, 1921 (*Mem. Ind. Mus.*, v), p. 538, fig. 7.

Schellenberg, 1926, p. 371.

*Occurrence*: 1. St. 5. Tristan da Cunha. 9 ♂♂ 11–13 mm., 13 ♀♀ 9–14 mm. (shore).

2. Ditto. 2 immat. ♂♂ 7 mm., 1 ♀ 10 mm. (from stream through settlement).

REMARKS. Only the fully adult ♂♂ show the indented palm as figured by Chilton, younger specimens have an even palm as figured by Stebbing.

Some specimens from Tristan da Cunha have been for some years in the South African Museum (Reg. no. A 2941, coll. Benomi, 1904), and I identified them with *platensis*. They were, however, too mutilated to make the identification certain. The present specimens confirm the presence of this species (which does seem to be widely distributed) on this island where it was first collected by Capt. Carmichael.

Chilton (1921) suggests that there was probably an error in the label (20 fathoms) attached to the specimens from the Maldivé Archipelago (Walker, 1905).

DISTRIBUTION. Rio de la Plata; Atlantic coast of North America; Bermuda and West Indies; Mediterranean; Azores; Tristan da Cunha; Belgian Congo and Angola; Chilka Lake, Bengal; St Paul Island; Hawaii Islands. ? Maldivé Archipelago, 20 fathoms.

#### Genus *Talorchestia*, Dana.

Stebbing, 1906, p. 543.

Barnard, 1916, p. 215.

Chilton, 1917 (*Trans. N.Z. Inst.*, XLIX), p. 292.

Schellenberg, 1925, p. 159.

#### *Talorchestia scutigerula* (Dana).

Bate, 1862, p. 26, pl. iv, fig. 7.

Stebbing, 1906, p. 544; 1914, p. 367.

Chilton, 1912, p. 508.

*Occurrence*: 1. St. 122. South Georgia. 2 ♂♂ 16–17 mm. (shore).

2. Undine Harbour, South Georgia. March 1926. Shore. 1 ♂ 17 mm., 2 ♀♀ 14–15 mm., 1 juv. 10 mm.

REMARKS. This species has not previously been recorded from South Georgia.

Note MS 7 states: "Specimens of Crustacea, Oligochaetes, Coleoptera, Dipterous larvae and puparia, and apterous Diptera found living together under stones at the upper edge of the beach at Undine Harbour, March 1926". (L. H. Matthews.)

DISTRIBUTION. Tierra del Fuego; Hermite Island; Falkland Islands.

#### Genus *Hyale*, Rathke.

Stebbing, 1906, pp. 559, 735.

Barnard, 1916, p. 229.

#### *Hyale* sp.

*Occurrence*: St. 2. Ascension. 1 ♂ and 1 ovig. ♀ 5.5 mm., nine other juv. and immat. specimens.

REMARKS. As the genus *Hyale* is a somewhat difficult one, and the present material so small, I prefer not to attach a specific name to these specimens.

The 2nd gnathopod in the ♂ is of the *hirtipalma* type, the palm not distinct from the hind margin, the finger about two-thirds the length of the hand; the palm bears a few setae and spinules.

Schellenberg (1926, p. 371) has recorded *camptonyx* from St Helena, but this species has an entirely different 2nd gnathopod.

#### Genus *Hyalella*, Smith.

Stebbing, 1906, pp. 574, 736.

#### *Hyalella patagonica*, Ortm. (Fig. 134).

Ortmann, 1911 (*Rep. Princet. Univ. Exp. Patag.*, III), p. 650, pl. xlviii, figs. 3 a–h.

Stebbing, 1914, p. 368.

Monod, 1926, p. 58, fig. 56 (*Hyalella* sp. juv.).

*Occurrence*: 1. St. 222. Hermite Island. 2 ♂♂ 10 mm., 1 immat. ♂ 6 mm., 6 ♀♀ 9–11 mm. (shore, fresh-water stream).

2. Ditto. 8 ♂♂ 9–10 mm., 2 immat. ♂♂ 6 mm., 10 ♀♀ 7–9 mm., 10 juv. 4–5 mm. (lakes, 300–350 ft. alt.).

REMARKS. The maxilliped in both sets of specimens agrees with Monod's figure in having the palpal joints broad and stout. Possibly Ortmann's figure was drawn from a specimen not fully flattened out, which would account for the narrowness of these joints. In other respects the coastal specimens agree with Ortmann's figures.

On the other hand, the specimens from the lakes at a higher altitude, while agreeing in most respects with the coastal specimens, differ in two respects. The 3rd uropod is slightly longer and less robust, the outer margin of the peduncle being straight instead of

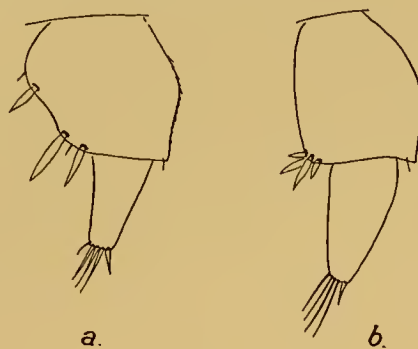


Fig. 134. *Hyalella patagonica*, Ortm. Dorsal view of left uropod 3 of: a. Specimen from shore. b. Specimen from lakes.

convex, and having a group of spines aggregated at the inner apex instead of three large ones distributed along the margin. The 1st gnathopod of the ♂ is not strongly expanded distally, and thus resembles more the 1st gnathopod of the ♀ of the coastal form.

In the absence of more abundant material, the best course is to regard these two sets of specimens as forms of the same species, and to identify them with Ortmann's species.

DISTRIBUTION. Patagonia, 47°–50° S, from coast up to 2000 ft. in the Cordilleras; Magellan Strait; Falkland Islands.

#### Genus *Allorchestes*, Dana.

Stebbing, 1906, p. 581.

Chilton, 1926, p. 515.

*Allorchestes patagonicus*, Cunningham (1871), remains obscure. It may be the same as *Hyaella patagonica*, Ortm., *supra*, but unless Cunningham's type can be found, it would be better to ignore his species.

#### *Allorchestes* sp.

Occurrence: St. WS 123. Gough Island. 1 immat. ♀ 11 mm. (shore).

REMARKS. It is unfortunate that there is only this single ♀ specimen, as no member of this genus has hitherto been recorded from either Tristan da Cunha or Gough Island.

Maxillary palp extending to apex of outer lobe. Gnathopod 2 a little longer than gnathopod 1, 2nd joint in both rather strongly keeled on anterior margin, 5th comparable with that figured for gnathopod 1 of *plumicornis* (Stebbing, 1899, *Trans. Linn. Soc. Lond.* (2), VII, pl. xxxiii C), equally strong in gnathopod 2, 6th broadly oval, especially in gnathopod 2.

#### Family AORIDAE

Stebbing, 1906, pp. 585, 736.

Schellenberg, 1925, p. 164.

Members of this family, though recorded from the sub-Antarctic (Kerguelen and South America) appear to be rare in the Antarctic regions. Some specimens were collected by the 'Gauss' but Schellenberg (1926, p. 374, fig. 60) was unable to refer them to any particular genus or species on account of the absence of the ♂. All the Discovery examples of this family were obtained in South African waters with the exception of two specimens from the Falkland Islands.

#### Genus *Aora*, Kröy.

Stebbing, 1906, p. 587.

#### *Aora typica*, Kröy.

Stebbing, 1906, p. 587, fig. 101.

Barnard, 1916, p. 236 (literature).

Schellenberg, 1926, p. 372 (fig. 59, forma *anomala*).

#### forma *gibbula*, n. (Fig. 135).

Schellenberg, 1926, p. 372.

Occurrence: St. 91. South Africa. 9 ♂♂ (adult and immat.) 3.5–5 mm.

REMARKS. The form here figured has already been reported by Schellenberg from South Africa. It is at least as distinctive as the other form recorded and figured by Schellenberg as forma *anomala*, and may also be designated by a name. For the present it may rank as a variety.

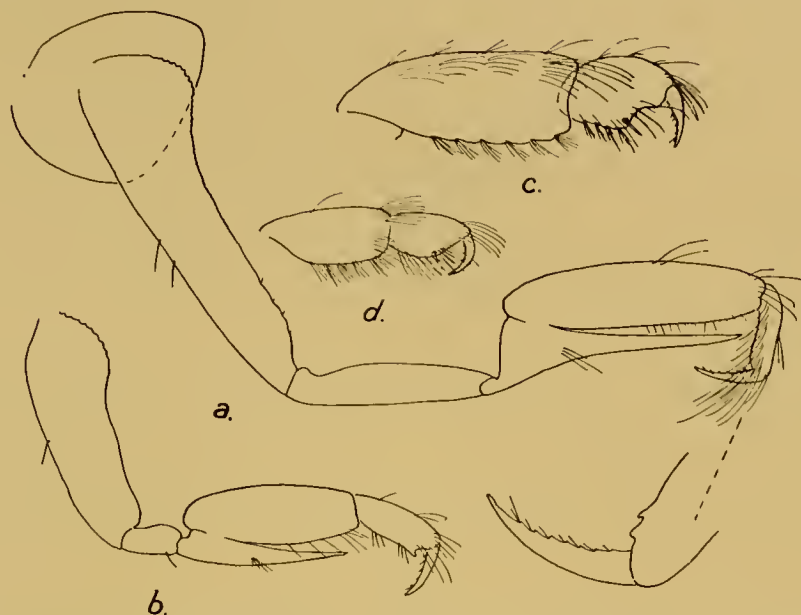


Fig. 135. *Aora typica*, Kroy. forma *gibbula* n. a. Side-plate 1 and gnathopod 1, with 6th and 7th joints further enlarged. b. Gnathopod 1, immature. c. Gnathopod 2. d. Gnathopod 2, immature.

In addition to the expanded base of the 2nd joint of gnathopod 1, the short 6th joint (relatively to the 5th) of gnathopod 2 with its excavate palm also seems distinctive. The 1st side-plate is very large and extends forwards over the side of the head.

DISTRIBUTION. (forma *gibbula*) Simon's Bay, South Africa.

#### Genus *Lembos*, Bate.

Stebbing, 1906, pp. 594, 737.

Barnard, 1916, p. 237.

#### *Lembos hypacanthus*, Brnrd.

Barnard, 1916, p. 237, pl. xxviii, figs. 5, 6.

Schellenberg, 1925, p. 166.

*Occurrence*: St. WS Walvis Bay. 3 ♂♂ 3.5-4.5 mm., 1 ♀ 4.5 mm., from stomach of *Trigla capensis*.

DISTRIBUTION. South Africa, Table Bay and False Bay; South-west Africa, Swakopmund.

#### *Lembos fuegiensis* (Dana) (Fig. 136).

Stebbing, 1914, p. 369, pl. ix.

Schellenberg, 1931, p. 231, fig. 117.

*Occurrence*: St. 51. Falklands. 1 immat. ♂ 8 mm., 1 ♀ 10 mm.

REMARKS. It is highly probable that these specimens are specifically identical with those that Stebbing has already recorded from the Falkland Islands and referred to Dana's species. Whether it is really Dana's species is a question impossible to settle unless Dana's type is forthcoming. At any rate it would be safer to compare any

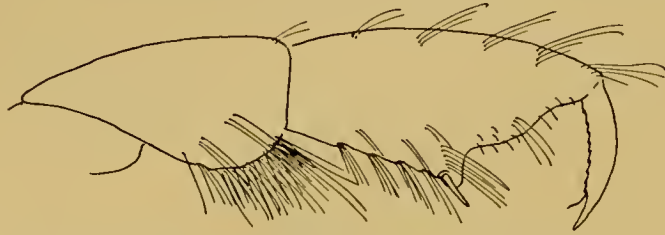


Fig. 136. *Lembos fuegiensis* (Dana). Gnathopod 1 ♀.

Australasian or Indo-Pacific material with Stebbing's figures before claiming for this species a wide distribution. *L. kergueleni*, Stebb., may also prove to be distinct from the Falkland Islands species.

Colour (as preserved), whitish, head with grey vermiculations, eyes black, a greyish transverse band across each segment from peraeon segment 1 to pleon segment 3.

DISTRIBUTION. Falkland Islands, 2-4 fathoms.

#### Genus *Lemboides*, Stebb.

Stebbing, 1906, p. 600.

Barnard, 1916, p. 239.

#### *Lemboides afer*, Stebb. (Fig. 137).

Stebbing, 1906, p. 600.

Schellenberg, 1926, p. 374.

Occurrence: St. 91. South Africa. 5 ♂♂ 5.5 mm., 9 ovig. ♀♀ 5 mm.

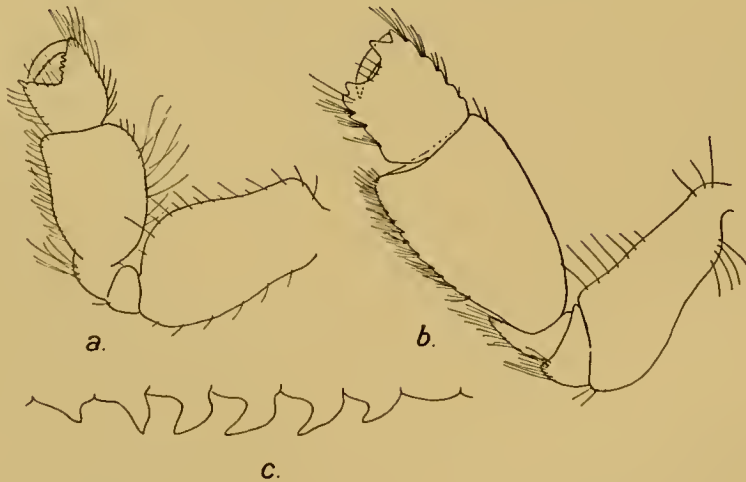


Fig. 137. *Lemboides afer*, Stebb. a. Gnathopod 2 ♂. b. Gnathopod 1 ♂ (both a and b viewed from outside). c. Ventral processes of ♂ (peraeon segment 1 on left).



REMARKS. This species has only been reported once since its original description in 1895. The present specimens are so like Stebbing's figures as to leave no doubt of the identification. There is, however, a noticeable difference in the shape of the 6th joint of gnathopod 2 in the ♂. There is no mention in Stebbing's description of the ventral processes in the ♂. If they were indeed present in the specimen dissected, they could scarcely have escaped being observed. These processes are present on peraeon segments 2-6 inclusive, and there is a blunt tubercle-like process on peraeon segment 1.

In this latter respect there is thus a strong likeness between *afer* and *acanthiger*, Brnrd., though the two species are quite distinct in the gnathopods.

The gnathopods in the ♀ also resemble Stebbing's figures; the flask-like shape of the 5th joint in gnathopod 2 being very noticeable.

DISTRIBUTION. Cape of Good Hope (Stebbing); Simons Bay.

### Family PHOTIDAE

Stebbing, 1906, pp. 603, 737; 1910, p. 608.

### Genus *Photis*, Kröy.

Stebbing, 1906, pp. 605, 738; 1910, p. 608.

Schellenberg, 1925, p. 170.

### *Photis uncinata*, n.sp. (Fig. 138).

Barnard, 1916, p. 243, pl. xxviii, fig. 26 (*longicaudata*, non Bate and Westw.).

Occurrence: St. 91. South Africa. Many mostly ovig. ♀♀, 6-7 mm.

DESCRIPTION. The description of this South African form is given in the above reference, where I identified it with *longicaudata*, B. and W. I now think it would be advisable to separate it as a distinct species. The present specimens show very well the curved acute process on the antero-distal angle of the 2nd joint of gnathopods 1 and 2; a feature which I overlooked in 1916.

Gnathopod 1, the palm is feebly defined and has a spine near the angle, the margin feebly crenulate. Gnathopod 2, the palm has a series of tiny nodulose points, otherwise as in the original description.

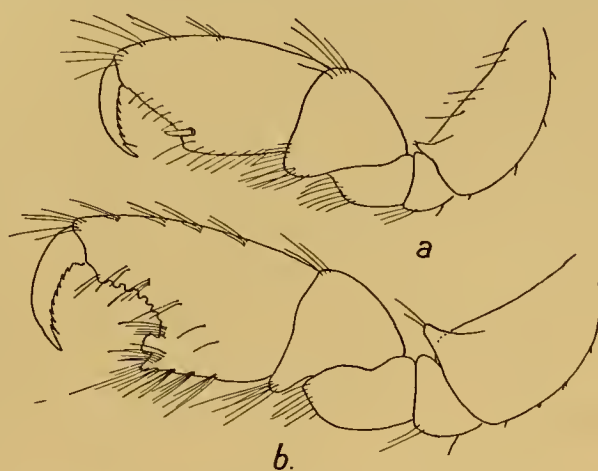


Fig. 138. *Photis uncinata*, n.sp. a. Gnathopod 1 ♂.  
b. Gnathopod 2 ♂.

REMARKS. The character of the palm of gnathopods 1 and 2 in conjunction with the unciform projection on lower angle of 2nd joint certainly seem to warrant specific rank, though the relationship with *reinhardi* (to which the Ceylon form seems referable) is

obviously close. The 1st gnathopod resembles most nearly that of *africana*, Schell., but apparently in the latter the 2nd joint of both gnathopods has neither process nor lobe, and the hand of gnathopod 2 is different.

DISTRIBUTION. Southern coast of South Africa to Natal, 25-47 fathoms.

Genus *Eurystheus*, Bate.

Stebbing, 1906, pp. 610, 738; 1910, p. 613.

Barnard, 1916, p. 249; 1925, p. 361; 1930, p. 391.

Tattersall, 1922, p. 10.

Schellenberg, 1925, p. 176; 1926, p. 375; 1931, p. 236.

There seems to be a never-ending influx of forms in this genus as each fresh expedition brings home its captures. Undoubtedly the simplest way to deal with these forms is to give specific names to each, rather than to assume local variability on the part of one and the same "species".

*Eurystheus dimorphus*, n.sp. (Fig. 139).

*Occurrence*: 1. St. 45. South Georgia. 1 immat. ♂ 13 mm., 1 immat. ♀ 15 mm., 1 ovig. ♀ 22 mm.

2. St. 123. South Georgia. 7 ♀♀ 16-19 mm.

3. St. 140. South Georgia. 4 immat. ♂♂ 14-15 mm., 11 ♀♀ 14-18 mm.

4. St. 144. South Georgia. 1 ♀ 15 mm.

5. St. 148. South Georgia. 1 immat. ♂ 15 mm., 4 ♀♀ 12-15 mm.

6. St. 149. South Georgia. 4 ♂♂ 18-24 mm., 4 ♀♀ 18-24 mm. *Types*.

7. St. 154. South Georgia. 1 ♀ 18 mm.

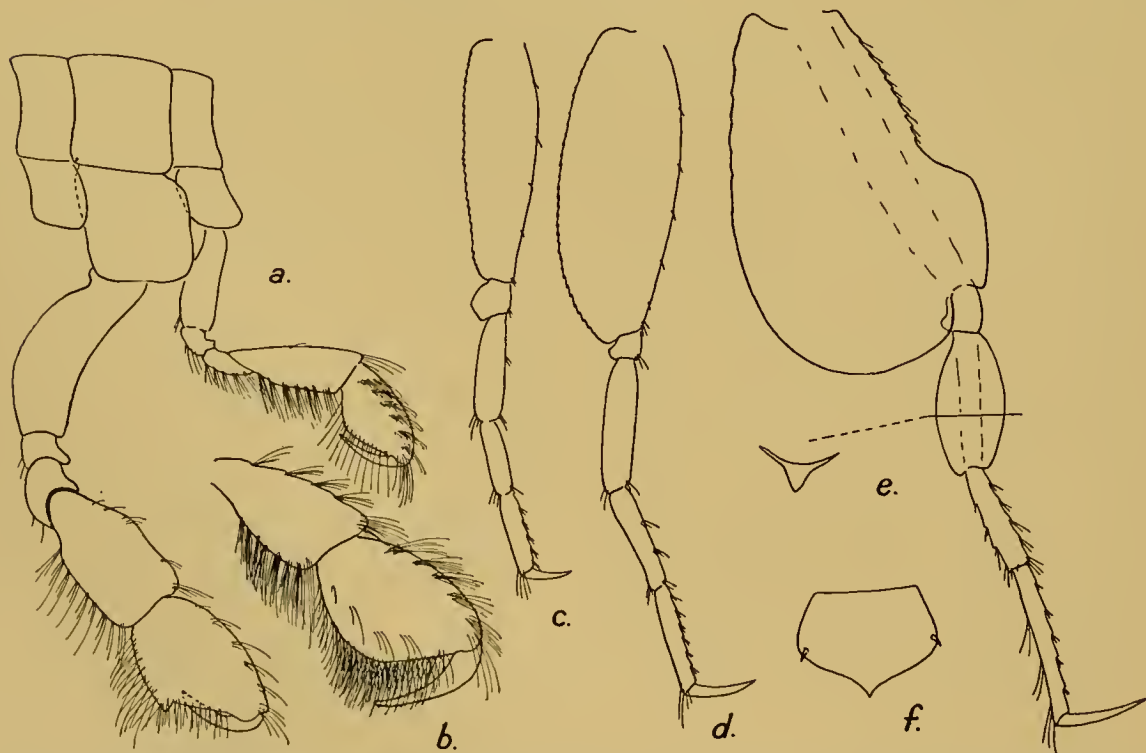


Fig. 139. *Eurystheus dimorphus*, n.sp. a. Peraeon segments 1-3, with side-plates and gnathopods 1 and 2 ♂. b. Gnathopod 2 ♀. c, d, e. Peraeopods 3, 4, 5 respectively, ♂, with cross-section of 4th joint of peraeopod 5. f. Telson.

DESCRIPTION. Rostrum obsolete. Ocular angle of head subacute, post-antennal angle acute but not prominent. Eyes obliquely oval. Peraeon segment 2 in ♂ twice as long as segment 1, and equal to segment 6. Peraeon and pleon dorsally smooth, except for three to four denticles on hind margin of pleon segments 4 and 5 dorso-laterally. Side-plate 1 quadrangular, not produced forwards, 2 larger than either 1, 3 or 4, especially in ♂, 3 and 4 quadrangular, scarcely deeper than long, shallower than 2 in both sexes. Postero-inferior angle of pleon segment 2 narrowly, of segment 3 broadly, rounded, both feebly crenulate. Telson subtriangular, broader than long, apex subacute, a spine on each lateral angle, which is rounded.

Antenna 1 extending back to end of peraeon or 1st pleon segment, 1st and 3rd joints subequal and longer than 2nd, flagellum at least as long as peduncle, 27–32-jointed, accessory flagellum 7–8-jointed. Antenna 2 shorter than antenna 1, 4th joint longest, flagellum subequal to 5th peduncular joint, 12–14-jointed.

Epistome with a long slender spine extending forward almost to apex of 3rd peduncular joint of antenna 2. Mouth-parts normal.

Gnathopod 1, 6th joint oval, shorter than 5th, palm oblique, smooth, not defined from lower margin, both joints setose, especially on lower margins, finger closing against margin of palm; no sexual differences. Gnathopod 2 in ♂ very strong and robust, 2nd joint not or only feebly channelled in front, distal anterior angles not produced in lobes, 6th subequal to 5th, palm oblique, smooth, defined by a notch which is formed by the bending inwards of the distal part of lower margin to form a flange, finger shorter than palm, stout, closing on to inner surface of hand, 5th and 6th joints setose, especially on lower margins. In ♀ considerably less stout than in ♂, similar to gnathopod 1, but longer and stronger, finger closing against margin of palm which is not defined from lower margin. In both sexes the distal half (i.e. from 4th joint onwards) of gnathopod 2 is curved inwards across the body.

Peraeopods 1 and 2 slender, feebly setose, finger just under half length of 6th joint. Peraeopods 3–5 increasing in length; peraeopod 3 similar in both sexes, 2nd joint slender, tapering distally, hind margin serrulate, postero-inferior angle rounded, dactyl half length of 6th joint. Peraeopod 4 in ♂, 2nd joint narrow, oval, greater width in centre, hind margin serrulate, postero-inferior angle rounded, dactyl half length of 6th joint; in ♀, 2nd joint similar in shape to that of peraeopod 3, though longer.

Peraeopod 5 in ♂, 2nd and 4th joints laminately expanded, 2nd joint expanded on distal half of anterior margin, proximal half spinulose, distal half smooth, hind margin strongly expanded, greatest width in distal half, feebly serrulate, lower margin broadly rounded, 4th joint ovate, expanded on both anterior and posterior margins, in cross-section triquetral, dactyl slightly more than half length of 6th; in ♀, 2nd joint similar to those of peraeopods 3 and 4, though longer, i.e. tapering distally, the greatest width being proximally, 4th joint linear as in the other peraeopods. In immature ♂ the 2nd joint is elongate-oval, like that of the 4th peraeopod, but slightly longer.

Uropods 2 and 3 extending slightly beyond uropod 1, no sexual differences in any of them. Uropod 1, upper margin of peduncle strongly spinulose, a strong spine on

lower margin of apex between the rami, rami acuminate, spinulose on upper margins. Uropods 2 and 3 similar to uropod 1, but without the strong spine on apex of peduncle; rami subequal to peduncle.

Colour (as preserved); ground colour whitish, with purple patches on head, peraeon and pleon, side-plates, and 2nd joints of peraeopods 3-5, the patches on the body more or less in the form of transverse bands. Colour of no. 1 is given as "very pale yellow blotched and mottled with brown, eyes pale grey".

REMARKS. This extraordinary species may remain in the genus *Eurystheus*. Its general appearance is that of a species of this genus, though sexual dimorphism has been carried to an extent found in no other species. The 2nd side-plate resembles that of *Megamphopus cornutus* (Sars, 1895, pl. xx).

***Eurystheus purpurescens*, n.sp. (Fig. 140).**

*Occurrence*: 1. St. 39. South Georgia. 1 ♂ 9 mm., 1 ♀ 11 mm., 1 immat. ♀ 8 mm.

2. St. 167. South Orkneys. 2 ♂♂ 20 mm. *Type* ♂.

3. St. 190. Palmer Archipelago (90-130 m.). 1 ovig. ♀ 8 mm. *Type* ♀.

DESCRIPTION. In general appearance and coloration similar to *dimorphus*, but eye slightly larger, post-antennal angle of head quadrate, 2nd peraeon segment only half as

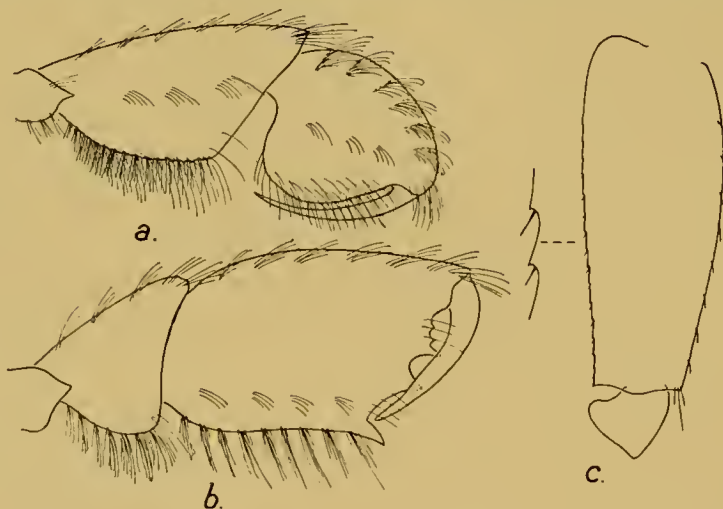


Fig. 140. *Eurystheus purpurescens*, n.sp. *a, b*. Gnathopods 1 and 2 (both viewed from inside). *c*. 2nd joint of peraeopod 5, with hind margin further enlarged.

long again as segment 1, and no denticles on any of the pleon segments. Telson with an apical spinule as well as one on each lateral corner in ♂, only the lateral ones in ♀.

Epistomial spine strong, moderately long.

Antenna 1, flagellum in ♂ 39-jointed, accessory flagellum 8-jointed. Antenna 2, flagellum in ♂ 27-jointed. In ♀ flagella of both antennae 15-jointed, accessory flagellum 6-jointed. In ♂ of no. 1 flagellum of antenna 1 16-17-jointed, accessory flagellum 5-jointed, of antenna 2 15-jointed; in the ♀ of no. 1 the numbers are respectively 14, 4 and 14.

Gnathopod 1, 6th joint subcircular, shorter than 5th, palm forming a prominent rounded angle with hind margin; alike in both sexes. Gnathopod 2, 2nd joint shallowly channelled, distal angles not produced in lobes, 5th subtriangular, shorter in ♂ than in ♀, 6th in ♂ oblong, widening slightly distally, its breadth subequal to length of 5th, palm slightly oblique, shorter than hind margin, defined by a strong tooth which is not bent inwards, with two strong teeth, the lower triangular, the upper more quadrate, with a subsidiary denticle nearer the hinge, finger strong, closing on to palmar margin but on the inside of the two teeth; in ♀ less robust, palm more oblique and the palmar teeth less strong.

Peraeopods 3-5, 2nd joint elongate, narrow-oblong, front and hind margins subparallel, but converging slightly distally, hind margin serrulate, postero-inferior angle quadrate. Peraeopods 4 and 5 subequal in length.

REMARKS. Although in the form of the hand of gnathopod 2 this species approaches *longicornis*, Wlkr., *triodon*, Schell., and *trigonurus*, Schell., the length of the 5th joint at once distinguishes it, apart from other characters. The 2nd joint of peraeopod 3 also distinguishes it from *longicornis*. The similarity of the gnathopods in all the specimens induces me to consider them the same species, in spite of the difference in size between the ♂♂ and the ♀♀. The large ♂♂ of no. 2 look at first sight very like immature ♂♂ of *dimorphus*.

*Eurystheus distichon*, Brnrd. (Fig. 141).

Barnard, 1930, p. 391, fig. 50 (♂).

- Occurrence: 1. St. 42. South Georgia. 2 ♀♀ 10-11 mm.  
 2. St. 45. South Georgia. 20 ♂♂ 9-12 mm., 27 ♀♀ 8-10 mm., 6 immat. 6-8 mm.  
 3. St. 123. South Georgia. 5 ♂♂ 8-10 mm., 4 ♀♀ 9-10 mm.  
 4. St. 144. South Georgia. 1 ♂ 11 mm.  
 5. St. 159. South Georgia. 2 ♂♂ 11-12 mm., 2 ♀♀ 12 mm.  
 6. St. 160. Shag Rocks. 1 ♀ 12 mm.

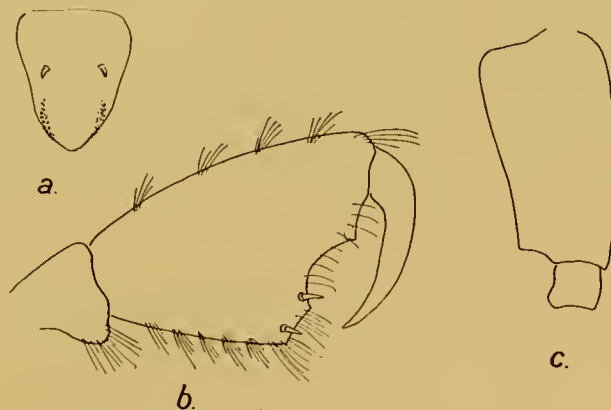


Fig. 141. *Eurystheus distichon*, Brnrd. a. Telson. b. Gnathopod 2 ♀. c. 2nd joint of peraeopod 5.

DESCRIPTION OF ♀. Resembling the ♂ except that the notch on the palm of gnathopod 2 is shallower, and the 2nd joint of peraeopod 3 is less concave on the hind margin and

lacks the marginal corrugations; the telson has two spines as well as the two bands of spinules.

REMARKS. The two spines on the telson are also present in the ♂; I find on re-examination of the slide of the type specimen that they were there, but being much smaller than in the present specimens were overlooked. The postero-inferior angle of pleon segment 3 is more rounded-quadrate than merely rounded. The 2nd joint of gnathopod 2 is shallowly channelled in front, and the keels not prominently lobed distally.

The colour of no. 1 was noted as being "deep canary-yellow above, paler at the sides", and that of no. 2 as "entire body very bright canary-yellow, appendages pale yellow, eyes black".

DISTRIBUTION. Off Cape Adare, 82-92 m.

*Eurystheus serricrus*, n.sp. (Fig. 142).

Occurrence: 1. St. 123. South Georgia. 1 ♂ 10 mm.

2. St. 140. South Georgia. 2 ♀♀ 8 and 11.5 mm., the larger ovig. Type ♀.

3. St. 170. South Shetlands. 3 ♂♂ 12 mm. Type ♂.

DESCRIPTION. Rostrum obsolete. Eyes oval-reniform. Ocular angle of head shortly acute, post-antennal angle quadrate. Peraeon and pleon smooth, except for a small sub-dorsal denticle on either side on pleon segments 4 and 5, better developed in ♂ than in

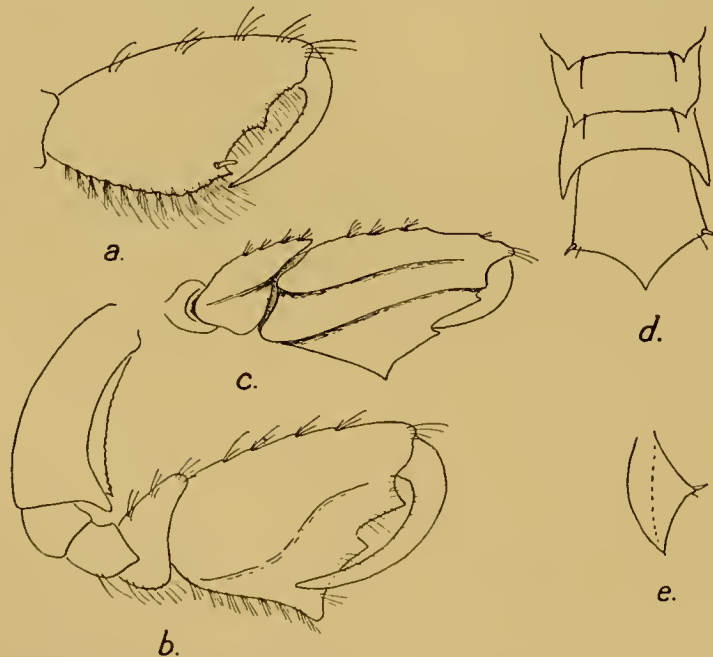


Fig. 142. *Eurystheus serricrus*, n.sp. a. Gnathopod 2 ♀. b. Gnathopod 2 ♂ (inner view). c. Gnathopod 2 ♂ (outer side, viewed obliquely from above). d. Pleon segments 4-6 and telson. e. Lateral view of telson (dotted line indicates level of median line).

♀; on inner side of each denticle a small seta. Side-plates 1-4 not serrate, 2 longer than deep in ♂, about as deep as long in ♀. Postero-inferior angle of pleon segment 2 rounded-quadrate, of 3 rounded with a slight indent above the corner (cf. Schellenberg, 1926, fig. 62). Telson pentagonal, dorsal surface concave, lateral angles strongly raised

above the level of the middle line, each with a spine and a setule, distal margins concave, sloping to the sharply acute apex.

Antenna 1, 3rd joint longer than 1st, flagellum about 18-jointed, accessory flagellum 6-jointed. Antenna 2 subequal to antenna 1, flagellum 12-16-jointed. Epistome with a strong spiniform projection. Third joint of mandibular palp large, oval, laminate, longer and broader than 2nd joint.

Gnathopod 1, 6th joint slightly shorter than 5th, both broadly expanded (cf. *purpurescens*, but 6th not so strongly expanded). Gnathopod 2, stout, especially in ♂, 2nd joint strongly channelled in front, both keels ending distally in projecting lobes, especially the inner one, the outer one in ♂ irregularly serrate, in ♀ very obscurely serrulate, 5th joint short, triangular, cup-shaped, 5th and 6th very heavy in ♂, broad dorsally (anteriorly) with the surface distinctly flattened, the inner and outer margins forming low ridges, the inner with groups of spinules, the outer smooth, 6th joint broad, widening distally to the somewhat oblique palm which is subequal to the hind margin, defined by a strong tooth with two triangular teeth separated by a notch, the tooth nearer the hinge being the larger, finger closing on to inner surface; in ♀ 5th and 6th joints rounded not flattened on dorsal margin, palm oblique, minutely crenulate, with one small tooth about in middle, and another, with a stout spine, forming a defining angle, below which the margin curves downwards before passing into hind margin.

Peraeopods 3-5, 2nd joint elongate oblong (cf. *purpurescens*), hind margin serrulate, lower hind angle rounded in peraeopod 3, quadrate in peraeopods 4 and 5.

Uropod 3, upper outer margin of peduncle spinose, three stout spines on distal margin at bases of rami.

Colour (as preserved), pale yellowish-white, eyes brownish. In the ♀♀ and in the ♂ from St. 123 there are indications of a series of brownish spots laterally at the junctions of each pair of peraeon and pleon segments.

REMARKS. At first sight somewhat resembling *distichon*, which is also uniformly pale-coloured; but easily distinguished by the telson and other features. The flattened upper surface of the 5th and 6th joints of gnathopod 2 is noteworthy.

Although the two sexes were not found together, the complete agreement, except in the secondary sexual characters, makes it certain that they are conspecific. Moreover, nos. 1 and 2 are both from the South Georgia area.

*Eurystheus remipes*, n.sp. (Fig. 143).

Chilton, 1912, p. 510, pl. ii, figs. 30-34 (*afer*, non Stebb.); 1920, p. 7 (*dentatus*, non Chevr.).

Occurrence: St. 51. Falklands. 1 ♂ 6 mm.

DESCRIPTION OF ♂. Eyes broadly oval, oblique. Ocular angle of head rounded, post-antennal angle acute but not prominent. Peraeon and pleon dorsally smooth. Side-plate 1 oblong, not produced forwards, setulose but not dentate, 2 much larger. Postero-inferior angle of pleon segment 3 rounded, with a small subapical notch on lower margin. Telson transverse, apex rounded, a strong spine on each lateral angle.

Antenna 1, 3rd joint longer than 1st, flagellum 10-11-jointed, accessory flagellum 4-jointed. Antenna 2, flagellum 10-11-jointed. Epistomial spine strong.

Gnathopod 1, 6th joint shorter than 5th, oval, longer than broad, palm oblique, not defined from hind margin, 5th and 6th joints both setose. Gnathopod 2 long, carried transversely across the body, 2nd joint linear, 6th shorter than 5th, ovate, palm very oblique, defined by a small tooth from the short hind margin, with three small rounded denticles, finger shorter than palm, 5th and 6th joints setose.

Peraeopods 1 and 2 slender, feebly setose, dactyl half length of 6th joint. Peraeopod 3, 2nd joint large, oblong, expanded behind, hind margin very slightly concave, serrulate, lower hind angle rounded, 4th strongly expanded, almost circular, 5th and 6th slender. Peraeopod 4 resembling peraeopod 3, but hind margin of 2nd joint gently convex and 4th joint oval, not quite so strongly expanded. Peraeopod 5, 2nd joints slender, widest proximally, tapering distally, hind margin undulate, entire, with only a few setules, 4th linear.

Uropod 3 slender, peduncle with two stout spines on distal margin.

REMARKS. Chilton (1912) has described and figured a ♂ and a ♀ from Gough Island which resemble the present specimen very closely. The 2nd gnathopod in the two ♂♂ is similar, and both specimens have the expanded 4th joint in the posterior peraeopods; but whereas in Chilton's specimen the expansion occurred on peraeopods 3 and 5, here it occurs on 3 and 4.

In 1920 Chilton came to the conclusion that the Gough Island specimens were more properly identified as *dentatus*, Chevr., than as *afer*, Stebb. He states that specimens from New Zealand are the same as those from Gough Island and that the 1st side-plate and the pleon segments in the New Zealand specimens are dentate as in *dentatus*; but the gnathopods are more elongate and slender. Other examples, however, from the Kermadec Islands resembled Chevreux's figures in this respect. The following five characters are tabulated for *dentatus* and the specimens from the respective localities.

	<i>E. dentatus</i>	Gough Island	New Zealand	Kermadec Islands	Falkland Islands
Pleon segments	Dentate	? Dentate	Dentate	Dentate	Smooth
Side-plate 1	Dentate	? Dentate	Dentate	Dentate	Smooth
Gn. 2 ♂ hand	{ Not very slender	Slender	Slender	{ Not very slender	Slender
Palm	{ Oblique, bidentate	{ Very oblique, bidentate (? tridentate)	?	?	{ Very oblique, tridentate
Gn. 2 ♂ 5th joint	Short	Elongate	?	?	Elongate

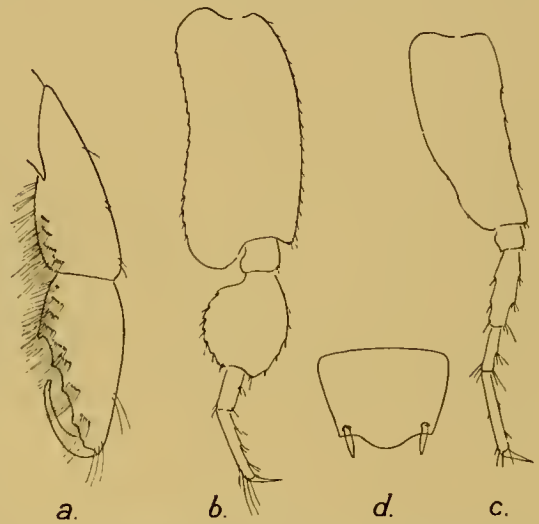


Fig. 143. *Eurystheus renipes*, n.sp. a. Gnathopod 2 ♂. b, c. Peraeopods 3 and 5. d. Telson.



The position is obviously unsatisfactory and Chilton's arguments inconclusive. One may, however, with some degree of certainty claim that the Gough Island and Falkland Islands specimens are the same species, and that they are not the same as *dentatus*. I think that in all probability there were three denticles, excluding the one at the defining angle, on the palm of gnathopod 2 in the Gough Island specimen, though Chilton described and figured only two. Chilton in 1912 made no mention of side-plate 1 or the pleon segments being dentate, and in fact referred the specimens (with hesitation) to *afes* in which these parts are not dentate. Therefore I feel justified in assuming that in 1920 the Gough Island specimens were not actually re-examined by Chilton, and that his statement of their similarity to the New Zealand form was based on the gnathopods. There still remains, however, the unaccountable difference in the 5th joint of gnathopod 2 in ♂.

A new name for the Scotia and Discovery specimens seems desirable.

DISTRIBUTION. Gough Island.

**Eurystheus palmoides**, n.sp. (Fig. 144).

*Occurrence*: St. 91. South Africa. 3 ♂♂ 3.5 mm.

**DESCRIPTION**. Closely resembling *palmatus*, but differing in the 2nd gnathopod, viz. 2nd joint channelled in front, each keel ending distally in a small projecting lobe, 6th joint ovate, palm evenly convex, extending almost to base of joint where it is defined by two small spines, finger much shorter than palm, strongly curved and closing against inner surface of hand. Epistomial spine well developed.

Second joints of peraeopods 3-5 as in *palmatus*, that of peraeopod 3 the most, that of peraeopod 5 the least expanded.

No dorsal denticles. Eyes obliquely oval. Postero-inferior angle of pleon segment 3 rounded-quadrangle.



Fig. 144. *Eurystheus palmoides*, n.sp.  
Gnathopod 2 ♂.

**Eurystheus eurypodii**, n.sp. (Fig. 145).

Monod, 1926, p. 60, fig. 57 (figures only).

*Occurrence*: St. 55. Falklands. 3 ♂♂ 3 mm., 2 ovig. ♀♀ 3.5 mm. from *Eurypodius*.

**DESCRIPTION**. Eyes broadly oval. Antero-lateral angle of head acute. Side-plates 1-4 as deep as, or even slightly deeper than, their segments; 1 not produced forwards, 1 and 2 rounded below. Pleon dorsally smooth. Postero-inferior angle of pleon segment 3 rounded-quadrangle. Telson rounded-triangular, with two setae on upper surface.

Antenna 1, flagellum 7-jointed, accessory flagellum 2-jointed. Antenna 2, flagellum 7-8-jointed. Epistomial spine well developed.

Gnathopod 1, 5th joint moderately long, its width equal to width of 2nd joint, 6th scarcely as long as 5th, wider, oval, palm oblique, continuous with hind margin, but defined by a spine, finger overlapping palm. Gnathopod 2 in ♂, 2nd joint stout and

rather short, 5th triangular, 6th a little wider and much longer than 5th, oblong, palm transverse, divided into two portions by a step, the lower portion minutely crenulate or castellate, defining angle rounded, finger equal to palm, inner margin minutely crenulate; in ♀ similar but weaker.

Peraeopod 3, 2nd joint broadly expanded, anterior margin strongly convex. Peraeopods 4 and 5, 2nd joint pyriform, narrower in peraeopod 4 than in 5.

Colour (as preserved), white with greyish mottling, eyes black.

REMARKS. This little species approaches *Megamphopus* in the reduced accessory flagellum, but is a typical *Eurystheus* in the epistomial spine and 2nd gnathopod. There is no doubt that this is the same species

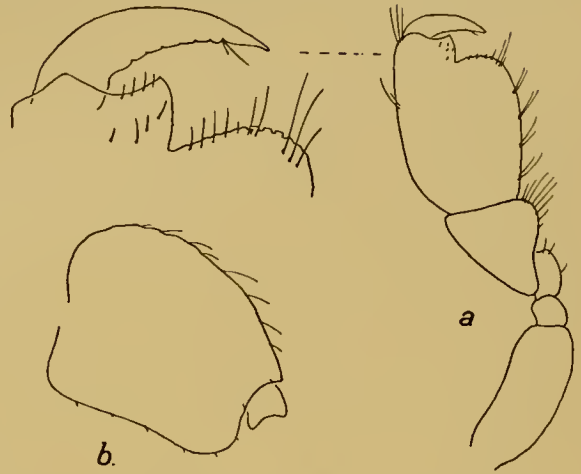


Fig. 145. *Eurystheus eurypodii*, n.sp. a. Gnathopod 2 ♂, with palm and finger further enlarged. b. 2nd joint of peraeopod 3.

which Monod partly figured. The Belgica specimens were also taken on the carapace of *Eurypodius*.

DISTRIBUTION. Magellan Strait.

#### Genus *Megamphopus*, Norm.

Stebbing, 1906, p. 621.

Chevreaux and Fage, 1925, p. 318.

Schellenberg, 1925, p. 182.

It is a little difficult to define the exact differences between *Eurystheus* and this genus. The epistomial spine is characteristic of many species of *Eurystheus*, though apparently not so strongly developed in the type species, *maculatus*, as in other species. It is not developed at all in *Megamphopus*. The accessory flagellum of antenna 1 in *Eurystheus* is usually multiarticulate (four to ten joints), but in *palmatus* is reduced to two to three joints, and forms a transition to *Megamphopus* where it has only a single joint.

In the species of *Eurystheus* the 5th joint of gnathopod 2 in the ♂ shows all stages from the triangular or cup-shaped form to the elongate form where the joint is as long as or even longer than the 6th joint, thus also connecting with *Megamphopus*. The hand of gnathopod 2 in the ♂ is, however, usually strong in *Eurystheus*, and the palm always better developed than in *Megamphopus*.

The species described below is placed in *Megamphopus* on account of the reduced accessory flagellum, the absence of an epistomial spine, and the feebly developed palm of gnathopod 2 in the ♂.

Two species of this genus are known, one from Northern Europe, the other from the coast of Algeria.

*Megamphopus blaisus*, n.sp. (Fig. 146).

- Occurrence*: 1. St. 123. South Georgia. 3 immat. ♂♂ 5.5–6 mm., 1 ♀ 6 mm.  
 2. St. 140. South Georgia. 2 ♂♂ 6.5–7 mm., 1 ♀ 7 mm.  
 3. St. 141. South Georgia. 1 immat. ♂ 6.5 mm., 1 ovig. ♀ 7 mm.  
 4. St. 144. South Georgia. 2 ♀♀ 6–7 mm., 2 immat. ♂♂ 4.5–6 mm., 1 ♀ 6 mm.  
*Types*.

*DESCRIPTION*. Antero-lateral angles of head acute, occupied by the well-developed oval eyes. Side-plate 1 slightly produced forwards, but antero-inferior angle rounded; 2 larger than the others in ♂, longer than deep; 3 and 4 deeper than long, about as deep as their segments; 5 with anterior lobe much deeper than posterior lobe. Pleon dorsally smooth; postero-inferior angle of segment 3 rounded. Telson rounded-triangular, about as broad as long, with two spinules on dorsal surface, each flanked on outside by a seta.

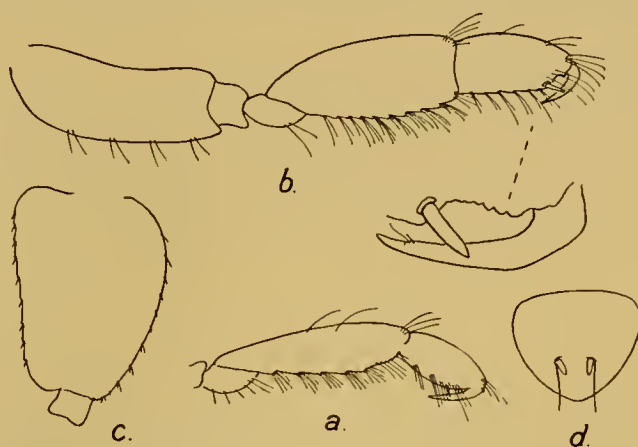


Fig. 146. *Megamphopus blaisus*, n.sp. a. Gnathopod 1 ♂. b. Gnathopod 2 ♂, with palm and finger further enlarged. c. 2nd joint of pereopod 3. d. Telson.

Antenna 1, 3rd joint subequal to 1st, flagellum 12–14-jointed, accessory flagellum as long as 1st flagellar joint, 1–2-jointed, with a minute terminal joint. Antenna 2 about as long as antenna 1, flagellum 12-jointed. Epistome without spinous projection. Third joint of mandibular palp shorter than 2nd, but not so shortened as in *cornutus* (Sars, pl. cc).

Gnathopod 1, 5th joint elongate, lower margin undulate, with oblique marginal rows of long setae, 6th shorter than 5th, ovate, palm shorter than hind margin but undefined except by a slender spine, finger overlapping palm. Gnathopod 2 in the ♂ strongly developed, folded transversely across the body, 2nd joint stout, 5th nearly as long as 2nd, with fascicles of long setae on lower margin, 6th shorter than 5th, oblong, lower margin with fascicles of long setae, palm very short, oblique, concave, defined by a strong spine, margin adjoining hinge minutely crenulate, finger overlapping palm; in ♀ similar but much feebler and not folded inwards across the body.

Pereopods 3–5 increasing in length, 2nd joint pyriform, broadest in pereopod 3, narrowest in pereopod 5, anterior margin spinulose, posterior margins feebly notched and spinulose.

Uropod 3, peduncle stout, one spine on upper inner apex and two spines on upper surface between bases of rami, outer ramus almost as long as peduncle, inner ramus shorter.

Colour (as preserved), white with greyish markings, the most conspicuous of which form a row of spots on the side-plates and on the pleura of pleon segments 1-3, an ocellate mark laterally on each peraeon segment, and a medio-dorsal spot from peraeon segment 3 or 4 to pleon segment 4, eyes grey or pinkish.

REMARKS. This species is distinguished from *cornutus* and *longicornis* by the size of the 5th joint of gnathopod 2 in the ♂. The specific name refers to the infolding of the 2nd gnathopods across the body in the ♂, a feature which is also found in e.g. *Eurystheus dimorphus* and *Aora typica*.

#### Genus *Podoceropsis*, Boeck.

Stebbing, 1906, p. 618.

Schellenberg, 1925, p. 181.

#### *Podoceropsis elephantis*, n.sp. (Fig. 147).

Occurrence: St. 170. South Shetlands. 1 ♂ 8 mm.

DESCRIPTION OF ♂. Eyes oval, pale reddish. Ocular angle of head acute, post-antennal angle quadrate. Peraeon and pleon smooth. Side-plate 1 oblong, deeper than long,

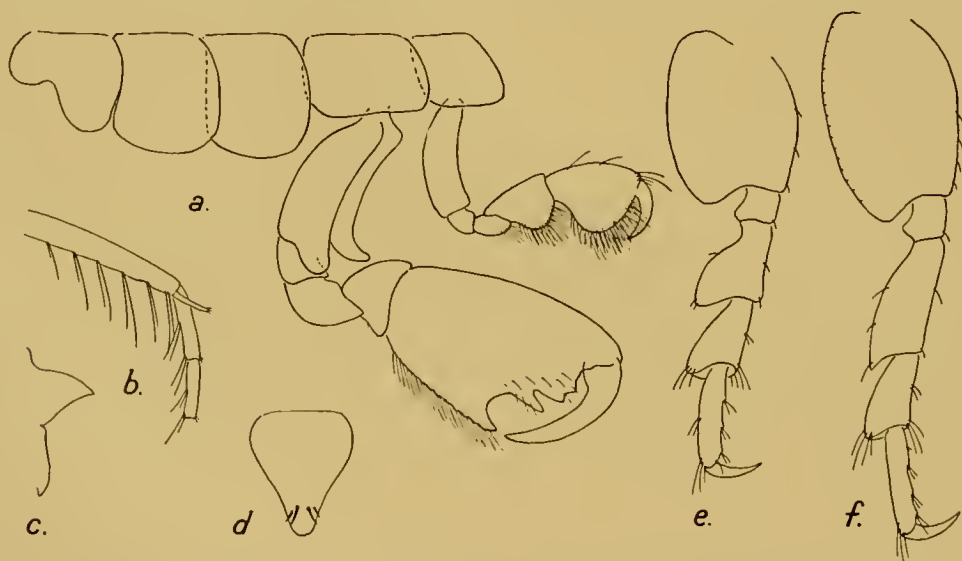


Fig. 147. *Podoceropsis elephantis*, n.sp. a. Side-plates 1-5, with gnathopods 1 and 2 ♂. b. Portion of antenna 1. c. Profile of epistome and upper lip. d. Telson. e, f. Peraeopods 3 and 5.

2 longer than deep, 3 and 4 deeper than 2. Postero-inferior angle of pleon segments 2 and 3 rounded. Telson triangular, longer than basal width, apex subacute, a subapical group of four setae.

Antenna 1, 3rd joint slightly longer than 1st, flagellum scarcely longer than 3rd joint, 8-jointed, a minute slender 1-jointed accessory flagellum tipped with two setules. Antenna 2 a little longer than antenna 1, flagellum slightly shorter than 5th peduncular joint, 4-5-jointed.

Epistome with a projecting triangular lamina (not spiniform).

Gnathopod 1, 6th joint longer than 5th, both strongly lobed on lower margin. Gnathopod 2, 2nd joint very stout, deeply channelled in front, both keels distally forming prominent lobes, the outer broader than inner, 5th short, cup-shaped, 6th large, oblong, palm slightly oblique, defined by a strong tooth, followed by a deep notch, and then two teeth close together, one narrow, the other squarish, notched, finger stout.

Peraeopods 1 and 2 stout. Peraeopods 3-5 stout, 2nd joint oval, longer and narrower in peraeopod 5 than in peraeopod 3, intermediate in peraeopod 4, hind margin entire, with indications of crenulation in peraeopod 5, lower hind angle rounded, 4th and 5th joints expanded, stout, especially in peraeopod 3.

REMARKS. The specific name refers to the stout limbs, especially the 2nd joint of gnathopod 2, and also to the locality, Elephant Island, near which the specimen was caught.

### Genus *Haplocheira*, Hasw.

Stebbing, 1906, p. 609.

#### *Haplocheira barbimanus* (Thoms.).

Stebbing, 1906, p. 609, figs. 104, 105.

Walker, 1907, p. 35.

Chilton, 1912, p. 510.

Barnard, 1930, p. 391.

- Occurrence*: 1. St. 140. South Georgia. 2 ♂♂ 5.5 mm., 4 ♀♀ 5.5-6 mm.  
 2. St. 141. South Georgia. 1 ovig. ♀ 8.5 mm.  
 3. St. 144. South Georgia. 5 ♀♀ 6-8 mm.  
 4. St. WS 25. South Georgia. 6 ♀♀ 7-9 mm.  
 5. St. WS 33. South Georgia. 5 ♀♀ 5.5-6 mm.

REMARKS. Head with antero-lateral angle angular, but not sharply pointed as in Stebbing's figure of *plumosa* (1888, pl. cxxvi). Pleon segment 4 with two small dorso-lateral denticles on hind margin as noted by Walker (1907). Peduncles of pleopods with small projection on inner apex.

At the present time one cannot do otherwise than refer these specimens to Thomson's species. A thorough critical comparison with Australasian specimens may show that there are differences of specific value (cf. Stephensen, 1927, p. 352).

DISTRIBUTION (Antarctic). McMurdo Sound; South Orkneys. ? Falkland Islands.

#### *Haplocheira robusta*, n.sp. (Fig. 148).

? Stebbing, 1914, p. 370 (*barbimanus*, ? *non* Thoms.).

- Occurrence*: 1. St. 53. Falklands. 1 ♂ 8.5 mm., 5 ♀♀ (2 ovig.) 8-10 mm., 8 juv. 4.5-5.5 mm.  
*Types*.  
 2. St. 54. Falklands. 3 ♀♀ (2 ovig.) 6.5 mm.  
 3. St. 58. Falklands. 3 ♀♀ (2 ovig.) 7 mm.  
 4. St. WS 71. Falklands. 1 ♀ 6 mm.  
 5. St. WS 85. Falklands. 1 ♂ 8 mm., 4 ♀♀ 6-10 mm. (one of the largest ovig.).  
 6. St. WS 86. Between Falklands and South America. 1 ovig. ♀ 8.5 mm.

DESCRIPTION. More robust than *barbimanus*, the antennae, gnathopods, peraeopods and uropods all much more robust than in *barbimanus*. Antero-lateral angle of head rounded, or at most very obtusely angular. Denticles on pleon segment 4 obsolete.

Antenna 1 extending back to end of peraeon segment 2 or very slightly beyond (in *barbimanus* as far as end of 4th segment). Antenna 2 stout, *Corophium*-like, scarcely as long as antenna 1.

Gnathopod 1, 6th joint with a very short but distinct transverse palm with a spine at its angle; cf. Chilton's figure of *lendenfeldi*, but finger is here proportionately shorter. Gnathopod 2, as in Chilton's figure of *lendenfeldi* (1884, *Trans. N.Z. Inst.*, XVI, p. 262, pl. xx, figs. 1 a-e).

Peraeopods 1 and 2, also as in *lendenfeldi*. The 4th joint is more strongly expanded than in Stebbing's figure of *plumosa* (1888, pl. cxxvi). Peraeopod 3, 2nd joint broadly

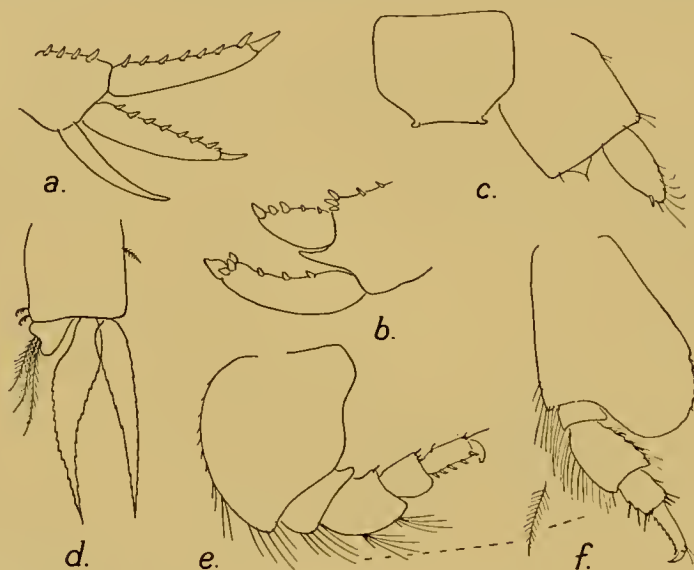


Fig. 148. *Haplocheira robusta*, n.sp. a. Uropod 1. b. Uropod 2. c. Telson and uropod 3. d. Pleopod (setae on rami omitted). e, f. Peraeopods 3 and 5.

expanded, basal width as great as length, 3rd very wide and very short, 4th very robust, likewise the 5th and 6th, the latter with a series of 4-5 strong spines on anterior margin; thus differing markedly from Stebbing's figures of *plumosa*. Peraeopod 4 also stout, but a little longer than peraeopod 3, 2nd joint regularly oval, otherwise similar to peraeopod 3. Peraeopod 5 a little longer than peraeopod 4, 2nd joint strongly expanded on hind margin, forming a rounded lobe extending to middle of 4th joint, 5th and 6th joints with strong spines on anterior margin.

Anterior margins of 2nd joints distally and of 3rd and 4th joints in peraeopods 3-5 with plumose setae, especially in peraeopod 5.

Pleopods with the projection on inner distal angle of peduncle much more developed than in *barbimanus*, with several plumose setae.

Uropod 1 with stronger spines than in *barbimanus*. Uropod 2, the spine at end of peduncle stout but relatively shorter than in *barbimanus*, the spines on each ramus much

stouter, especially the terminal one. Uropod 3, inner ramus reduced to a minute conical projection, which does not appear to be articulated with the peduncle, tipped with one spinule.

Colour (as preserved), white speckled with greyish, the head darker, a dark medio-dorsal spot on each peraeon and pleon segment, the posterior ones more prominent than the anterior ones.

REMARKS. The above description points out the differential features between this form and the form referred to *barbimanus*. They may seem to be trivial. They may prove to be merely varietal. But in practice the two forms are easily distinguished and they may be separated without any reference to the respective localities.

I suspect that this species may be very closely allied to, but not identical with, Chilton's *Corophium lendenfeldi* (*loc. cit.*) which has been united with *barbimanus*, albeit without any really critical examination.

The difference between *lendenfeldi* and *robusta* lies in the 3rd to 5th peraeopods, which in the latter are even stouter than in Chilton's figure, and the 2nd joints are differently shaped. Chilton says the 3rd-5th peraeopods are "similar in form . . . , the basa much expanded". It is a task for some New Zealand carcinologist to rediscover *lendenfeldi* and give a more detailed description of it, and contrast it with the true *barbimanus* from which I feel sure it is distinct.

#### Genus *Kuphocheira*, Brnrd.

Barnard, 1931, p. 429.

Ocular angle of head not prominent, post-antennal angle obsolete. Side-plates moderate, 1st much smaller than 2nd, 4th with hind margin not excavate. Telson rounded, broader than long.

Antennae 1 and 2 short, 1st longer than 2nd, flagella shorter than peduncles, no accessory flagellum. Upper lip rounded. Lower lip broad, inner lobes almost as large as outer lobes, mandibular processes blunt. Third joint of mandibular palp shorter than 2nd. Maxilla 1, inner lobe with six setae, outer with nine spines, 2nd joint of palp moderately long. Inner lobe of maxilla 2 fringed on inner margin. Maxilliped, inner plate well developed, outer narrow, palp long.

Gnathopod 1 simple. Gnathopod 2 simple, 5th and 6th joints enlarged, more so in ♂ than ♀, very setose, finger reduced.

Peraeopods 1 and 2, 2nd joint ovate, glandular, dactyl long. Peraeopods 3-5 increasing in length, 5 much the longest, 2nd joint oval, dactyl short. Uropods 1 and 2 spinose, a strong spine on lower apex of peduncle. Uropod 3 uniramous, the ramus spinose.

Peduncle of pleopods short, stout. Branchial lamellae narrow, elongate, simple.

REMARKS. Close to *Haplocheira*, but without accessory flagellum, with reduced finger on gnathopod 2, uropod 3 uniramous, and without hooks on telson.

*Kuphocheira setimanus*, Brnrd. (Fig. 149).

Barnard, 1931, p. 429.

Occurrence: St. 164. South Orkneys. 15 ♂♂ 3.75-4 mm., 9 ♀♀ 4 mm.

DESCRIPTION. Body rather depressed, the back broadly rounded. Rostral point minute, ocular angle rounded, almost truncate. Eyes well developed, small, oval, dark. Side-plate 1 small, shallow, produced forwards, with three setae on rounded apex; 2 much larger, also produced forwards, with setae on lower margin; 3 and 4 a trifle deeper than long, setose on lower margin; anterior lobe of 5 as deep as side-plate 4.

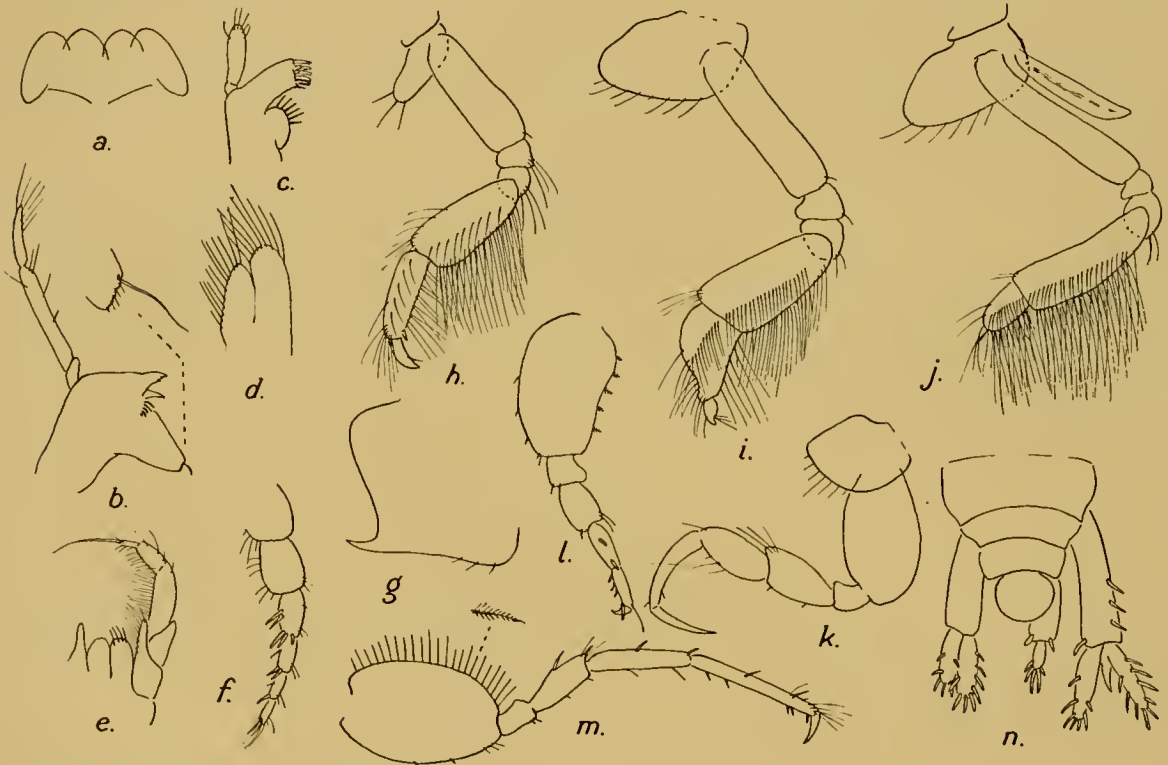


Fig. 149. *Kuphocheira setimanus*, Brnrd. a. Lower lip. b. Mandible with molar further enlarged. c. Maxilla 1. d. Maxilla 2. e. Maxilliped. f. 3rd-5th peduncular joints and flagellum of antenna 2 ♂. g. Pleon segment 3. h. Gnathopod 1. i. Gnathopod 2 ♂. j. Gnathopod 2 ♀ (h, i, j all viewed from inside). k. Peraeopod 1. l, m. Peraeopods 3 and 5. n. Pleon segments 4-6 and telson, with uropods 1-3.

Postero-inferior angle of segment 1 rounded, of 2 quadrate, the actual corner rounded, of 3 produced backwards in an acute point. Telson a little broader than long, evenly rounded, without hooks.

Antenna 1, flagellum 6-jointed in ♂, 5 in ♀. Antenna 2 shorter but stouter than antenna 1, especially in ♂, flagellum 3-jointed in both sexes; in ♂ stout spines on lower margin of 5th peduncular joint and first two flagellar joints; these spines absent in ♀.

Secondary cutting plate and spine row in both mandibles, molar tubercle long, apically with a few setules and one long seta, 2nd joint of palp considerably longer than 3rd. Maxilliped, palp setose, a long seta at apex of terminal joint.



Gnathopod 1 simple, alike in both sexes, 5th joint longer than 6th, both densely setose, especially in ♂, a small spine at lower distal apex of 6th, finger not quite half length of 6th joint. Gnathopod 2 simple, unlike in the two sexes; in ♂ stout, 5th joint expanded, upper and lower margins straight, diverging, 6th much shorter, subtriangular, gibbous on upper margin at base, narrowing rapidly, 5th and 6th joints densely setose, finger reduced, the unguis very short and blunt; in ♀ more slender, 5th joint slightly expanded, the lower margin gently convex, 6th short, oval, both joints densely setose, more so than in ♂ and the setae longer, finger very small.

Peraeopods 1 and 2, 2nd joint broadly oval, glandular, 4th and 5th subequal, the latter slightly narrower, oval, 6th longer, slender, dactyl two-thirds length of 6th, very slender. Peraeopods 3 and 4, 4 somewhat longer than 3, 2nd joint oval, hind margin slightly convex, with spaced, short plumose setae, 4th and 5th subequal, 6th longer, 5th with two stout spinules, 6th with 4 (-5), dactyl short, stout, unguis slightly hooked. Peraeopod 5 much longer than peraeopod 4, with more numerous setae on hind margin of 2nd joint, 5th and 6th joints more slender, otherwise similar.

Uropod 1 extending slightly beyond uropod 2; both with a stout spine on lower apex of peduncle, rami strongly spinose. Uropod 3 slightly shorter than uropod 2, uniramous, the ramus shorter than the peduncle, strongly spinose.

Colour (as preserved), pale greenish, but this may be due to the preservative, as the other specimens in the same tube, belonging to several species, were all more or less of the same tint.

### Family AMPITHOIDAE

Stebbing, 1906, pp. 631, 738.

#### Genus *Ampithoë*, Leach.

Stebbing, 1906, pp. 631, 738.

Barnard, 1916, p. 253.

#### *Ampithoë brevipes* (Dana) (Fig. 150).

Stebbing, 1906, p. 637; 1914, p. 371.

*Non* Barnard, 1916, p. 255 (= *falsa*, n.sp.).

*Occurrence*: 1. St. 4. Tristan da Cunha. 1 ♂ 9 mm., from *Macrocystis*.

2. St. 53. Falklands. 4 ♂♂ 15-17 mm., 2 ♀♀ 16 and 19 mm., from kelp root.

3. St. 55. Falklands. 2 ♂♂ 13 and 17 mm., 1 ♀ 15 mm.

4. St. 56. Falklands. 2 ♂♂ 15 and 18 mm., 1 ovig. ♀ 19 mm.

REMARKS. The Tristan da Cunha specimen fits Bate's figure (1862) pl. xli, fig. 6 (*falklandi*) well, but being a ♂ has the 2nd gnathopod as in his figure pl. xliii, fig. 2.

Stebbing (1914) having only a ♀ specimen, was able to add nothing which might help towards a more exact definition of this species. He states that his ♀ specimen agreed with Dana's figures of *brevipes*. Dana's *peregrina* and Bate's *falklandi* were founded on ♀♀ (or juv.). Bate's figures of *brevipes* (pl. xliii, fig. 2 *i*, after Dana) and of *chilensis* (pl. xlii, fig. 5, after Nicolet) might both be considered applicable to the present specimens without undue violence to the imagination.

I give the following notes on the present specimens.

Gnathopod 1, 2nd joint distally lobed in both sexes. Gnathopod 2, 2nd joint distally lobed in both sexes. Lower margin of 6th joint in ♂ forming with the palmar ridge an even curve, but separated from it by a rounded notch; the hind margin and the palmar ridge (but not the notch) is minutely crenulate. The setae are mostly arranged in fascicles and are simple. In the younger ♂♂ there is a distinct step between the palm and the hind margin, both of which are crenulate; in other words, the long flat tooth on the palm has attained its full development. In a 17 mm. ♂ from no. 2 the palmar ridge or rectangular tooth is much shorter, not reaching the hinge, and therefore projects as a prominent flat tooth or tubercle.

Uropod 3, peduncle with three stout spines on distal margin medianly, and two near inner angle; inner ramus with a stout apical spine, and a row of four to five smaller ones nearer the outer margin.

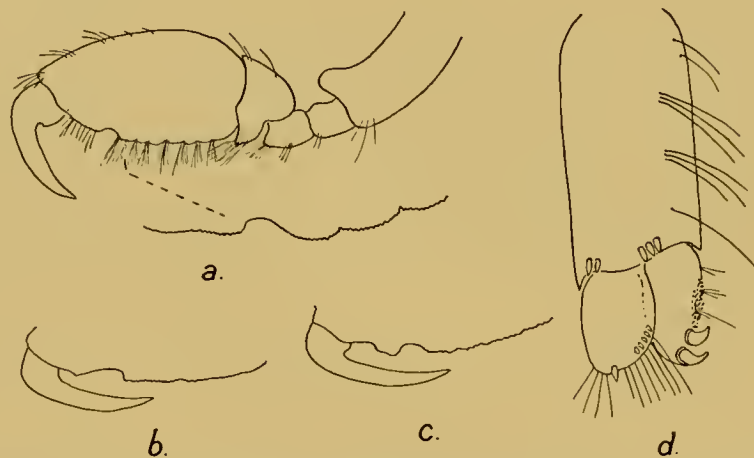


Fig. 150. *Ampithoë brevipes* (Dana). a. Gnathopod 2 ♂, with palm further enlarged (St. 56). b. Palm of gnathopod 2 of young ♂ (St. 56). c. Palm of gnathopod 2 of ♂ (St. 53). d. Uropod 3.

The colour of no. 2 is given as: "Pale green throughout, with pink eyes".

Stebbing (1906) remarks that *brevipes* is very near to *femorata*.

Comparison of these specimens with the South African ones which I identified as *brevipes* (1916) shows that they are not the same species. The absence of apical lobes on the 2nd joints of the gnathopods, the perfectly smooth lower margin of the 6th joint in gnathopod 2 of the ♂, with its plumose setae, as well as the details of the 3rd uropods serve to distinguish the South African form, which I therefore call *Ampithoë falsa*, n.sp. (Barnard, 1916, p. 255, pl. xxviii, fig. 34, *brevipes*, non Dana).

DISTRIBUTION. Tierra del Fuego; Falkland Islands. ? Valparaiso (*peregrina*).

#### *Ampithoë?* *brasiliensis* (Dana).

Bate, 1862, p. 248, pl. xliii, fig. 3.

Stebbing, 1906, p. 637.

*Occurrence*: 1. St. 1. Ascension. Three specimens 4-4.5 mm.

2. St. 2. Ascension. Four specimens 3-5 mm.

REMARKS. These small specimens belong to the genus *Ampithoë*, but it would be unwise to identify them definitely with Dana's species, which apparently is still awaiting precise diagnosis.

The 2nd gnathopod resembles that figured by Kunkel (1910, *Trans. Conn. Ac.*, xvi, p. 90, fig. 35) for *rubricata* from Bermuda. The inner lobe of maxilla 1, however, has four setae and thus conflicts with typical *rubricata*. The mandibular palp, moreover, is slender, the 3rd joint not apically expanded.

### Family JASSIDAE

Stebbing, 1906, p. 647.

#### Genus *Jassa*, Leach.

Stebbing, 1906, pp. 652, 739.

Sexton, 1911, p. 212.

REMARKS. That *falcata* is an almost cosmopolitan form, and also that the ♂♂ are dimorphic, appears to be true. Sexton's investigations formed the basis for this conclusion. But there is no reason why several other "species" should be included under *falcata* without at least as thorough an investigation, as e.g. *ingens*, *goniamera* and *wandeli*, and a protest against what seems rather indiscriminate lumping is not inopportune.

Chevreur has pointed out features separating *wandeli* from *falcata*, and the constancy of these features seems to be confirmed by the present material. The straight hind margin of the 2nd joints of peraeopods 3-5 was a feature specially mentioned by Pfeffer, Walker and Chevreux. This apparently was one of the differences which Chilton (1912) dismissed as being merely what one might "expect to meet in such a very large form". I do not quite see why it should be expected, and in any case I hold that it is better to keep the *ingens* form separate from the *falcata* form for the present.

The presence of small specimens, with adult ♂♂ and ovigerous ♀♀, in the Discovery collection, which are apparently typical *falcata*, leads to the question as to what are the characters of typical *falcata*. Without attempting an answer, owing to lack of material from northern waters, attention may be directed here to one character which seems to have been ignored, namely the epistome.

Sars (1895, pl. ccxii), Chevreux (1906, fig. 55), and Chevreux and Fage (1925, fig. 352) give frontal views of the epistome and upper lip, but no profiles. This defect should be remedied, and the value of the character tested for specific purposes. The forms here identified as *ingens* and *falcata*, and also South African examples attributed to *falcata*, have a rounded epistomial projection, very different from the pointed triangular process in the Tristan da Cunha specimens here referred to *pusillus*.

#### *Jassa falcata* (Mont.).

Sars, 1895, p. 594, pl. ccxii.

Stebbing, 1906, p. 654 (*pulchella*); 1914, p. 371.

Sexton, 1911, p. 212, pl. iii, fig. 10.

Schellenberg, 1926, p. 383 (part).

Barnard, 1930, p. 392.

? Monod, 1926, p. 61, fig. 58.

- Occurrence*: 1. St. 164. South Orkneys. 8 ♂♂ 5-7.5 mm., 7 ♀♀ (some ovig.) 5.5-7 mm., 8 juv. 4-5 mm.  
 2. East Cumberland Bay, South Georgia. Several ♂♂ and ♀♀ (incl. ovig. ♀♀ but no adult ♂♂) up to 8 mm.

REMARKS. Epistome as figured here for *ingens*. Antero-inferior angle of 2nd joint of peraeopods 1 and 2 rounded or bevelled. Hind margin of 2nd joints of peraeopods 3-5 convex.

Colour (as preserved): the pigment is more or less evenly distributed in distinctly separated specks, and seems better developed, or more lasting in the preservative, in the ♀ than in the ♂.

DISTRIBUTION. Almost cosmopolitan.

*Jassa ingens* (Pfr.) (Fig. 151 c).

Pfeffer, 1888, p. 131, pl. iii, fig. 1.

Walker, 1903, p. 61, pl. xi, figs. 98-107 (*goniamera*); 1907, p. 38.

Chevreaux, 1906, p. 94, figs. 54-56 (*wandeli*); 1913, p. 181, fig. 61.

? Chilton, 1912, p. 511.

? Schellenberg, 1926, p. 383 (part).

- Occurrence*: 1. St. 170. South Shetlands. 3 ♂♂ 15-17 mm., 10 ♀♀ 17-19 mm.  
 2. St. 175. South Shetlands. 1 ♂ 18 mm.  
 3. St. 179. Palmer Archipelago. 3 ♂♂ 10-11 mm., 4 ovig. ♀♀ 9-10 mm., 1 juv. 5 mm.

REMARKS. Epistome forming proximally a projecting lamina, rounded in profile, and separated from the front part of the head by a narrow indent. Antero-inferior angle of the 2nd joint in peraeopods 1 and 2 sharply quadrate. Hind margin of 2nd joints of peraeopods 3-5 straight or almost so, the lower hind angle sharply quadrate.

Colour: pigment forming definitely localized patches, the component chromatophores not distinctly separated.

DISTRIBUTION. South Georgia; Cape Adare and McMurdo Sound; Palmer Archipelago.

*Jassa pusilla* (Sars) (Fig. 151 a, b).

Sars, 1895, p. 596, pl. cexiii, fig. 1.

Stebbing, 1906, p. 655.

Sexton, 1911, p. 214, p. xiii, fig. 11.

- Occurrence*: St. 4. Tristan da Cunha. 5 ♂♂ 4-5 mm., 2 ovig. ♀♀ 3.75 mm.

REMARKS. Epistome with a triangular sharply pointed projection. Antero-inferior angle of side-plate 1 rounded-quadrate, not acute. Lower margin of side-plate 2 forming an even curve with those of side-plates 1 and 3.

Gnathopod 2 in the ♂ with thumb subacute and with the *outer* distal margin obliquely

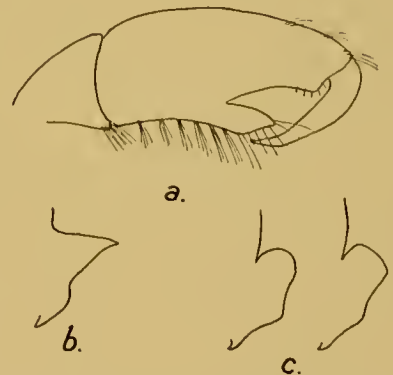


Fig. 151. *Jassa pusilla* (Sars). a. Gnathopod 2 ♂. b. Profile of epistome and upper lip. *Jassa ingens* (Pfr.). c. Profile of epistome and upper lip.

bevelled. Peraeopod 3 with 2nd–5th joints very broad (cf. *frequens*, Chilton, 1921, p. 227, fig. 4D).

The identification of these specimens with Sars' species is only provisional, pending comparison of more specimens with material from northern waters.

#### Genus *Ischyrocerus*, Kröy.

Stebbing, 1906, pp. 657, 739.

Barnard, 1916, p. 264.

#### *Ischyrocerus anguipes*, Kröy., var. *longimanus*, Hasw.

Barnard, 1930, p. 393.

*Occurrence*: St. 5. Tristan da Cunha. 2 ♂♂ 3.5 mm., 3 immat. ♂♂ 3 mm., 2 ovig. ♀♀ 2.75 mm.

REMARKS. These appear to be typical examples of the var. *longimanus*, with the tooth at base of the 6th joint in gnathopod 2 in the ♂; in the adult ♂ the tooth is well developed and projects backwards. No epistomial projection.

Colour, pale, mottled with greyish, especially on head and first five peraeon segments.

DISTRIBUTION (of var. *longimanus*). South-east Australia; New Zealand; Auckland Islands. The distribution is curious and needs confirmation.

#### Genus *Parajassa*, Stebb.

Stebbing, 1906, p. 649.

#### *Parajassa tristanensis* (Stebb.).

Stebbing, 1888, p. 1141, pl. cxxi; 1906, p. 650.

*Occurrence*: St. 4. Tristan da Cunha. Fifteen specimens ♂♂ and ovig. ♀♀ 3–3.5 mm.

REMARKS. For colour see under next species.

DISTRIBUTION. Tristan da Cunha, 110 fathoms.

#### *Parajassa georgiana*, Schell. (Fig. 152).

Schellenberg, 1931, p. 247, fig. 128.

*Occurrence*: St. MS 10. South Georgia. 2 ♂♂ 4.5 mm.

DESCRIPTION. Closely allied to, but larger and more robust than *tristanensis*. The epistomial projection more strongly developed than in the latter species, laminate. Antenna 2 longer and stouter than antenna 1, as in *pelagica*, but without the dense fascicles of setae found in that species.

Gnathopod 1, 5th joint oblong, relatively broader than in *tristanensis*, 6th sub-triangular, the palm longer than hind margin, defined by a spine. Gnathopod 2 very strong, 2nd joint broadly expanded on front and hind margins, 3rd with front margin produced in a subacute tooth, 5th proximally gibbous as in *tristanensis*, 6th almost as broad (distally) as long, palm slightly oblique, with a blunt somewhat crenulate tooth near hinge, followed by a shallow excavation, defining tooth subacute. Peraeopods 1 and 2, 2nd joint stout, especially in peraeopod 2.

REMARKS. Future research may prove that this is only a form of *tristanensis*. But the

differences are very striking when the two forms are placed side by side, and for the present they should be kept separate in the same way as should *Jassa falcata* and *ingens*.

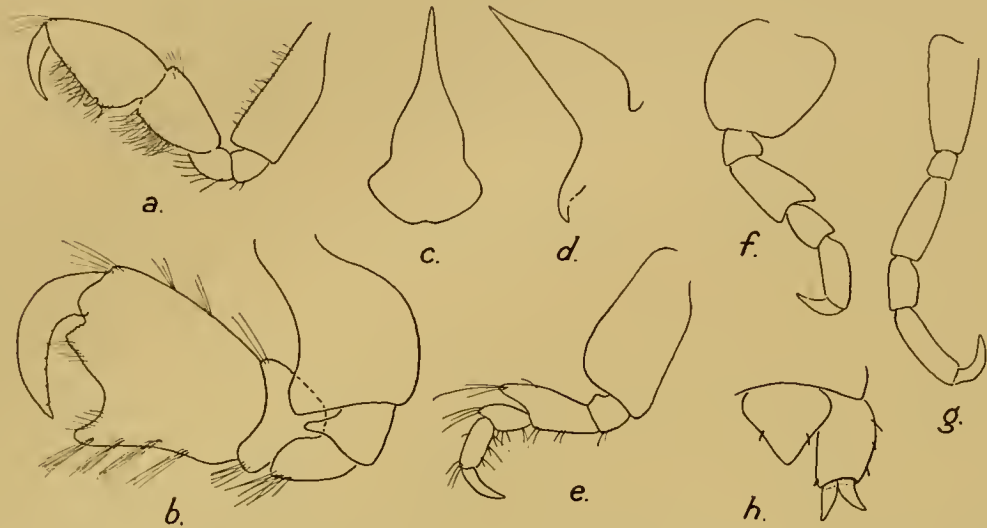


Fig. 152. *Parajassa georgiana*, Schell. a. Gnathopod 1. b. Gnathopod 2 ♂. c, d. Frontal and profile views of epistome and upper lip. e, f, g. Peraeopods 2, 3, 5 respectively. h. Telson and uropod 3.

The coloration, as preserved, is the same as in the above specimens of *tristanensis*, viz. dark greyish bands on the head and anterior peraeon segments, with a darker, almost black spot on each of side-plates 1-5.

#### Family COROPHIIDAE

Stebbing, 1906, pp. 662, 739.

#### Genus *Corophium*, Latr.

Stebbing, 1906, pp. 685, 740.

Stephensen, 1915, p. 52.

Chevreux and Fage, 1925, p. 363.

#### *Corophium bonellii* (M. Edw.).

Chevreux and Fage, 1925, p. 369, fig. 377.

Barnard, 1930, p. 393.

*Occurrence*: 34° 23' N, 14° 32' W. 14. x. 25. 0 m. (9 a.m.). 5 ♂♂ 3-4 mm., 2 ♀♀ 3.5 mm.

*DISTRIBUTION*. North Atlantic; Alaska.

#### *Corophium cylindricum* (Say).

Stebbing, 1914, p. 372.

*Occurrence*: St. 54. Falklands. 6 ♀♀ (1 ovig.) 3.5-4.5 mm.

*REMARKS*. I have seen neither Holmes' nor Paulmier's papers, quoted by Stebbing, and therefore accept Stebbing's identification, though I cannot find any points of difference which would separate the present specimens from *bonellii*.

Colour (as preserved), pale, with a grey band across top of head between eyes, and a grey band across each segment, eyes black.

DISTRIBUTION. East coast of North America; Falkland Islands.

### Genus *Cerapus*, Say.

Stebbing, 1906, pp. 665, 740; 1910, p. 616.

#### *Cerapus oppositus*, n.sp. (Fig. 153).

*Occurrence*: 1. St. 190. Palmer Archipelago (90–130 m.). 1 ovig. ♀ 3 mm., with tube.  
2. St. MS 71. South Georgia. 3 ♂♂ 2.5 mm., 3 ♀♀ 2 mm., with tubes. *Types*.

*DESCRIPTION*. Closely resembling *crassicornis* (cf. Sars, pl. ccxvii). Rostrum projecting only a little distance beyond the level of the acute antero-lateral angles of head. Antennae 1 and 2, flagellum in both sexes 2-jointed.

Gnathopods 1 and 2 in ♀, and gnathopod 1 in ♂ as figured by Sars. Gnathopod 2 in ♂, 5th joint shorter and more triangular in shape, without tooth on lower margin, 6th notched near base on lower margin, finger shorter than 6th.

Peraeopods 1–5 as figured by Sars, but 2nd joint in peraeopod 1 broadly oval, and dactyls of peraeopods 1 and 2, especially the latter, shorter.

The tubes are of a leathery texture, without sand grains, cylindrical and open at both ends.

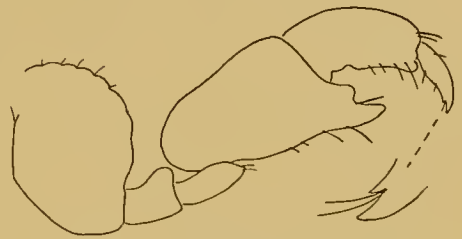


Fig. 153. *Cerapus oppositus*, n.sp.  
Gnathopod 2 ♂.

### Genus *Pseuderichthonius*, Schell.

Schellenberg, 1926, p. 385.

#### *Pseuderichthonius gaussi*, Schell.

Schellenberg, 1926, p. 385, fig. 66.

*Occurrence*: 1. St. 170. South Shetlands. 1 ♀ 16 mm.  
2. St. 175. South Shetlands. 1 immat. ♀ 14 mm., 1 ♀ (anterior half only).

*REMARKS*. Except in size, I see no differences between these specimens and Schellenberg's description and figures.

Antenna 1, 3rd joint longer than 1st and almost as long as 2nd, flagellum about equal to 2nd and 3rd peduncular joints together, about 16-jointed, peduncle and flagellum with long setae, no accessory flagellum. Antenna 2, flagellum 18-jointed. Inner lobe of maxilla 1 with seven setae.

Gnathopods 1 and 2, palm defined by a spine, and hind margin slightly convex. The long setae bordering the palm are very definitely grouped in slightly oblique rows; those on the anterior margin of the hand also are arranged in transverse rows and are far more abundant on gnathopod 1 than on gnathopod 2. The inner surface of 5th and 6th joints, especially in gnathopod 1, bear a number of long setae arranged in transverse rows.

The ramus of uropod 3 bears four spines on its upper margin in addition to the terminal unguis or point, before which is a short seta.

The Gauss collection contained an ovigerous ♀ 8 mm. long, but no males.

DISTRIBUTION. 'Gauss' winter station, 385 m.

### Family PODOCERIDAE

Stebbing, 1906, p. 694.

#### Genus *Podocerus*, Leach.

Stebbing, 1906, pp. 700, 741.

Barnard, 1916, p. 276; 1925, p. 366.

Chilton, 1926, p. 513.

#### *Podocerus*? *brasiliensis* (Dana).

Stebbing, 1914, p. 373.

*Occurrence*: St. 51. Falklands. 1 immat. ♂, 3 ♀♀ (2 ovig.) 4–5 mm.

REMARKS. All the peraeon segments tend to develop corrugations or humps, not keels, especially segments 3 and 4 in the ♂; pleon segments 1–3 also gibbous, especially segment 1 in the ♂ (cf. Bate, 1862, pl. xlvi, fig. 8, *darwini* = *variegatus*). Second joints of peraeopods 1 and 2 linear. Sixth joint of gnathopod 2 in ♀ broader than in Dana's figure.

The identification is not at all certain. The corrugated dorsal profile would seem to exclude it from *brasiliensis*, and I would have suggested *variegatus* had not Stebbing already recorded Dana's species from the Falkland Islands.

#### *Podocerus septemcarinatus*, Schell. (Fig. 154).

Schellenberg, 1926, p. 388, fig. 68 (paper received at Brit. Mus. June 18).

Monod, 1926, p. 61, figs. 59, 60 (*hystricoides*) (publ. August 20).

*Occurrence*: 1. St. 182. Palmer Archipelago. 1 immat. ♂ 5 mm.

2. St. 190. Palmer Archipelago (90–130 m.). 3 ♂♂ 7 mm., 2 juv. 3.5 mm.

REMARKS. A figure is here given of the hand of gnathopod 2 of a more fully grown ♂ than the Gauss specimens appear to have been.

The Belgica and Gauss specimens are undoubtedly the same species, and I have to thank Dr Calman of the British Museum for informing me of the date when Schellenberg's paper, which bears no date of publication other than the year, was received at the British Museum library.

The colour of no. 2, which were found crawling on a colony of *Cephalodiscus hodgsoni*, was "Pale yellowish buff, vaguely banded with orange. Eyes pink".

DISTRIBUTION. 'Gauss' winter station, 385 m.; 70° 15' S, 84° 06' W, 569 m.



Fig. 154. *Podocerus septemcarinatus*, Schell. Gnathopod 2 ♂.



*Podocerus*, sp. (Fig. 155).

*Occurrence*: St. 42. South Georgia. 1 immat. 4 mm.

REMARKS. Dorsal profile somewhat resembling that of *danae*, Stebb. (1888, pl. cxxviii), but the projections are not keels so much as corrugations or transverse ridges on the hind margins of the segments. The ridges are slightly more raised medio-dorsally into tubercles on peraeon segments 4-7 and pleon segment 1, and there are very faint indications of a smaller dorso-lateral tubercle on each side.



Fig. 155. *Podocerus*, sp. St. 42. Dorsal profile.

Gnathopod 2, 6th joint subcircular, palm defined from hind margin only by a small tooth. Peraeopods 1 and 2, 2nd joint slender, linear. Peraeopods 3-5, 2nd joints feebly pyriform, slightly wider proximally than distally.

With only one immature specimen (probably ♂) it is not advisable to assign a specific name in this case.

#### GAMMARIDEORUM INCERTAE SEDIS

##### *Didymochelia*, Brnrd.

Barnard, 1931, p. 429.

No rostrum. No eyes. Side-plates well developed, 4 feebly emarginate behind, 5 bilobed. Pleon segments 5 and 6 very short. Telson transversely oblong, entire. Antenna 1 stout, with a short accessory flagellum. Mouth-parts prominently projecting. Upper lip elongate, narrow. Lower lip with acuminate outer lobes and very small mandibular processes, without inner lobes. Maxilla 1, inner lobe setose along whole inner margin, palp obscurely 2-jointed. Maxilla 2, inner lobe with oblique row of setae as well as the marginal row. Gnathopods 1 and 2 not strong, chelate. Peraeopods 1-5 alike, stout. Uropods 1 and 2 stout, biramous. Uropod 3 rudimentary, consisting of a small ovate peduncle only.

REMARKS. It is difficult to decide on the affinities of this Amphipod. Several of its features, such as the projecting and somewhat pointed mouth-parts, the similarity of the peraeopods, and the reduction of uropod 3, would seem to be due to its habitat and mode of life in the galleries of sponges. There is some resemblance in general body form to the aberrant Lysianassid *Pachychelium*, but the only features which may really be said to be Lysianassid are the 1st antenna and the lower lip. Gnathopods 1 and 2 bear a remarkable resemblance to those of *Pariphimedia integricauda*, Chevr.; and in some respects the mouth-parts also are not unlike. In fact it would perhaps not be inconsistent to include this Amphipod in the Acantonotozomatidae, but for the presence of the accessory flagellum. This latter feature also militates against placing it in the somewhat heterogeneous group of genera comprising the Calliopiidae. On the whole I am rather inclined to include it among the Lysianassidae.

*Didymochelia spongicola*, Brnrd. (Fig. 156).

Barnard, 1931, p. 429.

Occurrence: St. 142. South Georgia. 1 ♂ 4 mm., from sponge.

DESCRIPTION. Head with scarcely any median point, but anterior margin rather deeply sinuous around base of antenna 1, antero-inferior angle rounded. No trace of eyes. Peraeon dorsally rounded; postero-inferior angles of segments 5-7 slightly produced, subacute. Side-plates 1-4 quadrangular, lower margins rounded, 4 not deeply excavate; 5 bilobed, the anterior lobe slightly deeper than the posterior; 6 and 7 posteriorly produced in acute points. Pleon segments 1 and 2 dorsally rounded, 3 with



Fig. 156. *Didymochelia spongicola*, Brnrd. a. General view. b. Upper lip. c. Lower lip. d. Mandible, with cutting edge and secondary cutting plate further enlarged. e. Maxilla 1. f. Maxilla 2. g. Maxilliped. h. Side-plate 1 and gnathopod 1. i. Gnathopod 2. j. Peraeopod 5. k. Uropod 2. l. Telson and uropod 3.

a small upturned triangular carinal tooth on hind margin; 4 with slight transverse depression, posterior margin raised into a transverse tooth; segments 5 and 6 very short; postero-inferior angles of segments 1-3 ending in short acute points. Telson transverse, broader than long, rounded posteriorly, a short stout spine on each side of the feebly concave distal margin.

Antenna 1, 1st joint stout, flagellum 8-jointed, 1st joint longest and bearing a brush of setae, accessory flagellum 4-jointed. Antenna 2 slender, flagellum 8-jointed.

Mouth-parts prominently projecting, though not styliform. Upper lip elongate-triangular, apically narrowly rounded. Lower lip without inner lobes, outer lobes apically subacute, mandibular processes very small. Mandible, cutting edge obscurely

dentate, secondary cutting plate in both mandibles, spine row of three to four very short setules, molar tuberculiform, palp with 3rd joint nearly as long as 2nd. Maxilla 1, inner lobe rather long but narrow, setose along whole inner margin, outer lobe obliquely truncate, palp strong, ovate, obscurely 2-jointed, apically setose. (The figure shows the appendage flattened out; normally the plane of the palp is at right angles to that of the outer lobe.) Maxilla 2, both lobes apically rounded, subequal, inner lobe with oblique row of setae as well as marginal row. Maxilliped, outer plate not greatly larger than inner plate, both with plumose setae, palp slender, 4-jointed, 1st joint shorter than either 2nd or 3rd.

Gnathopod 1, 2nd joint stout, 4th and 5th short, triangular, 6th subequal to 2nd, nearly cylindrical, tapering slightly distally, chelate, finger matching thumb. Gnathopod 2 similar to gnathopod 1, but rather more slender, 3rd and 5th joints longer.

Peraeopods 1-5, stout, alike, though 2nd joint in peraeopod 5 is wider proximally, 4th joint scarcely produced apically.

Uropods 1 and 2 stout, outer rami slightly shorter than inner rami, margins with a few stout spinules. Uropod 3 rudimentary, consisting of a short ovate peduncle only.

## HYPERIIDEA

In 1909 Woltereck on the basis of his studies of material from various deep-sea expeditions introduced a new classification of certain groups of the Hyperiid Amphipods. These studies were admittedly preliminary, but up to the present no fuller investigations have been published. In 1929 Pirlot made some criticisms of Woltereck's views and suggested a different arrangement. The two schemes may be set out side by side to show their respective points of difference and agreement (see p. 480).

In the Terra Nova Report (1930) I pointed out that the name "Pygmaeidae" was inadmissible and suggested the name Archaeoscinidae, having overlooked the fact that Stebbing had already foreseen the possibility of its being introduced later.

Pirlot makes *Archaeoscina*, the type of the family Archaeoscinidae, separate from the other genera of Woltereck. For these latter he uses the inadmissible name "*Pygmaeidae*", though suggesting that the family name ought more properly to be Micromimonectidae.

It is obvious that if we separate *Archaeoscina*, each of the other genera is worthy of its own family. For the present we know far too little about these curious forms to make it worth while increasing family names. I am, however, following Pirlot in separating the Archaeoscinidae, and I adopt the name Micromimonectidae after the earliest of the three remaining genera.

Such terms as "Primitiva", "Recticornia", etc., are not employed here as it is not the purpose of this report to discuss the major aspects of the classification of the Hyperiid Amphipods.

WOLTERECK, 1909 and 1927		PIRLOT, 1929
Suborder <i>Hyperiiidea</i> <i>Gammarioidea</i>		Tribe <i>Hyperiiidea</i> <i>Physosomata</i>
Tribe <i>Primitiva</i>		
Subtribe <i>Completa</i>		
<i>Lanceolidae</i>		<i>Lanceolidae</i>
“ <i>Pygmaeidae</i> ”	$\left. \begin{array}{l} \textit{Micromimonectes} \\ \textit{Mimonecteola} \\ \textit{Microphasma} \\ \textit{Archaeoscina} \end{array} \right\}$	<i>Pygmaeidae</i>
		<i>Archaeoscinae</i>
Subtribe <i>Incompleta</i>		
<i>Chuneolidae</i>		<i>Chuneolidae</i>
<i>Eumimonectidae</i>	$\left. \begin{array}{l} \textit{Mimonectes} \\ \textit{Sphaeromimonectes} \\ \textit{Parascina}^1 \end{array} \right\}$	<i>Mimonectidae</i>
		<i>Scinidae</i>
Tribe <i>Derivata</i>		
<i>Scinidae</i>		
		Tribe <i>Hyperiiidea</i> <i>Eugenuina</i>
		<i>Recticornia</i>
<i>Vibiliidae</i>		<i>Vibiliidae</i> , etc.
Suborder <i>Hyperiiidea</i> <i>Genuina</i>		
<i>Recticornia</i>		
<i>Filicornia</i>		<i>Filicornia</i>
<i>Curvicornia</i>		<i>Curvicornia</i>

Family MICROMIMONECTIDAE

Woltereck, 1909, p. 147 (“Pygmaeidae” part).  
 Pirlot, 1929, p. 51.  
 Barnard, 1930, p. 394 (Archaeoscinae part).

Genus *Micromimonectes*, Wolt.

Woltereck, 1906, p. 189; 1909, p. 154.

No specimens of this genus have been reported since its inception by Woltereck for two ♀♀ and one “Physosoma” larva captured by the ‘Valdivia’.

*Micromimonectes irene*, Wolt. (Fig. 157).

Woltereck, 1906, pp. 189, 190, figs. 1, 2; 1909, pl. v, fig. 12.

Occurrence: St. 71. South-west Atlantic. One specimen 4 mm.

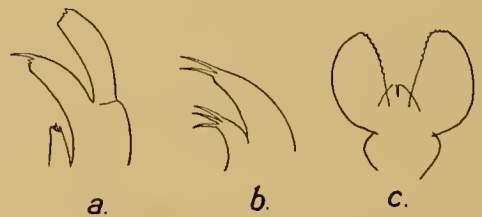


Fig. 157. *Micromimonectes irene*, Wolt.  
 a. Maxilla 1. b. Maxilla 2. c. Maxilliped.

<sup>1</sup> Pirlot (p. 171) makes Woltereck place this genus in the Scinidae, but Woltereck did not include it in his grouping on p. 147, and in fact did not actually place it anywhere; but he regarded it and *Sphaeromimonectes* as so closely related (p. 149) that one might conclude he wished to place it with the latter genus in the Eumimonectidae, as above. In 1927 he definitely makes it a synonym of *Sphaeromimonectes*. There is no question that Woltereck’s name antedates Stebbing’s name (Barnard, 1930, p. 394).

REMARKS. This specimen does not appear to differ from *irene* as far as one can judge from the figures given by Woltereck for the ovigerous ♀. It has the body filled with a very fine granular mass which may possibly be developing ova, but there are no brood lamellae.

The mandibular palp was evidently 3-jointed, but the terminal joint on both mandibles is now missing. Maxillae 1 and 2 are as figured; the latter has two very strong spines on the outer lobe and three on the inner lobe. The maxilliped resembles that of a *Vibilia*, but has the inner plates separate.

DISTRIBUTION. Indian Ocean (off Sumatra).

#### Genus *Mimonecteola*, Wolt.

Woltereck, 1909, p. 153.

#### *Mimonecteola macronyx*, n.sp. (Fig. 158).

Occurrence: St. 287. East mid-Atlantic. 1 (? ♂) 9 mm.

DESCRIPTION. Anterior peraeon segments swollen. First peraeon segment short. Eyes invisible. Side-plates on segments 3 and 4 anteriorly acute. Telson lanceolate,

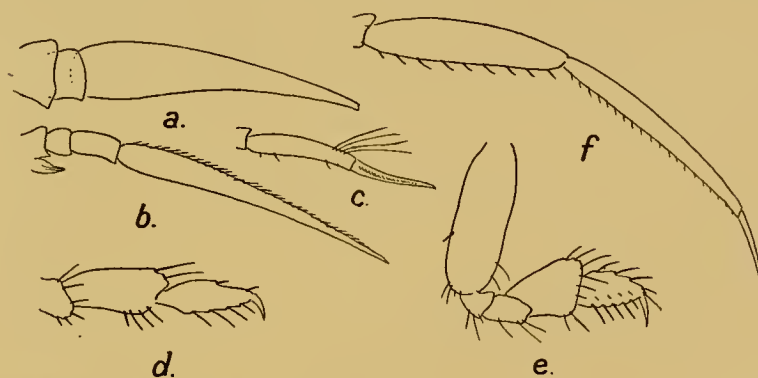


Fig. 158. *Mimonecteola macronyx*, n.sp. a. Antenna 1. b. Antenna 2. c. Mandibular palp. d. Gnathopod 2. e. Gnathopod 1. f. Peraeopod 5.

apex acute, reaching to half length of peduncle of uropod 3. Posterior portion of alimentary canal opaque.

Antenna 1, terminal joint ensiform, smooth. Antenna 2 about as long as antenna 1, 5th (4th free) joint elongate, ensiform, upper margin finely setose. Mandibular palp with a few long setae at apex of 2nd joint, 3rd joint shorter than 2nd, slender, curved.

Gnathopod 1, 5th joint triangular, distal width equal to length, 6th ovate, dactyl half length of 6th. Gnathopod 2, 5th joint cylindrical, 6th narrow-ovate.

Peraeopods 1-5 similar, elongate, peraeopod 5 shorter than peraeopod 4, 5th joint narrow-ovate, scarcely swollen, 6th elongate, slender, longer than 5th, dactyl very slender, about two-fifths length of 6th joint.

Uropods all slender, rami, including those of uropod 3, shorter than their peduncles, margins minutely serrate.

REMARKS. This specimen resembles *M. diomedae* in general shape, the pointed side-plates on segments 3 and 4, elongate terminal joint of antenna 2, and mandibular palp; but differs sharply in the very large dactyls of peraeopods 1-5.

*M. diomedae* was found in the Pacific by the 'Albatross', and since Woltereck's very brief description of it in 1909, no further specimens of the genus have been reported.

### Family MIMONECTIDAE

Bovallius, 1889, p. 59.

Woltereck, 1909, p. 147 (Eumimonectidae).

Stephensen, 1923, p. 5; 1925 *a*, p. 244 (Eumimonectidae).

Pirlot, 1929, pp. 46, 53 (Mimonectidae + Scinidae part).

Barnard, 1930, p. 394.

Here again family delimitations are uncertain owing to the varying importance attached to the character of the maxilliped by different authors. Stephensen and Pirlot place *Parascina* (with separate inner plates in the maxilliped) alongside *Scina* (with fused inner plates); Woltereck separates them. If general appearance has any value, the former authors are certainly correct, for the globular *Mimonectes* is very different from the more normally shaped *Parascina* and *Scina*. In pelagic forms, however, external appearance is liable to be very misleading (cf. also *Katius* and *Eurythenes*, *supra*, p. 56). Eventually a separate family will probably be instituted for *Parascina* and *Sphaeromimonectes*.

### Genus *Parascina*, Stebb.

Stebbing, 1904, p. 20 (♀).

Woltereck, 1909, p. 151.

Stephensen, 1918, p. 17 (♂).

Pirlot, 1929, p. 53 (incl. *Sphaeromimonectes*).

Barnard, 1930, p. 395.

I am not prepared to accept, as yet, Pirlot's suggestion to include all Woltereck's *Sphaeromimonectes* species in this genus.

### *Parascina fowleri*, Stebb.

Stebbing, 1904, p. 21, pl. ii, fig. B (♀).

Chevreaux, 1919, p. 9 (part).

? Woltereck, 1909, p. 150, fig. 8.

*Non* Stephensen, 1918, p. 17.

*Occurrence*: St. 87. South-east Atlantic. 1 ♀ 8 mm. (mutilated).

REMARKS. This ♀ specimen agrees with Stebbing's description and figures, but the upper margin of antenna 1 appears to lack setae. The pointed process above the base of the dactyl in gnathopods 1 and 2 is broader than in Stebbing's figures. The brood lamellae are not developed. The specimen is not in very good condition.

The great resemblance between this species and *Sphaeromimonectes diomedae* has already been mentioned by Woltereck (1909, p. 151) and I have advocated transferring the latter species to the genus *Parascina* (1930, p. 395). Having seen examples of both

the supposed ♀ and ♂ forms, I am inclined to regard *S. diomedae* as synonymous with the *P. fowleri* of Stebbing, and to agree with Pirlot that the form described and figured by Chevreux and Stephensen represents a different species. The differences between Stebbing's form and *diomedae*, as detailed by Woltereck (1909, p. 151), seem to me of very minor importance.

The present specimen considerably extends the known distribution of this species southwards. *S. diomedae* was captured in the Pacific.

DISTRIBUTION. North Atlantic, southwards to 31° N.

#### *Parascina chevreusi*, Pirlot.

Chevreux, 1905, p. 1 (♂) (*fowleri*, non Stebb.); 1919, p. 9 (part) (*fowleri*, non Stebb.).

Stephensen, 1918, p. 17, figs. 5, 6 (♂) (*fowleri*, non Stebb.).

Pirlot, 1929, p. 56.

Occurrence: 1. St. 287. East mid-Atlantic. 1 ♂ 9 mm.

2. St. 288. East mid-Atlantic. 1 ♂ 12 mm.

REMARKS. The specimens agree with Stephensen's description and figures, but the upper margin of antenna 1 in no. 1 is densely beset with fine setae instead of somewhat coarse filamentous setae.

DISTRIBUTION. North Atlantic.

### Family LANCEOLIDAE

Bovallius, 1887, p. 5.

Stephensen, 1918, p. 8.

Woltereck, 1927, p. 59.

Barnard, 1930, p. 397.

#### Genus *Lanceola*, Say.

Bovallius, 1887, p. 28 (key to species).

Stebbing, 1904, p. 28 (key to species).

Woltereck, 1905, pp. 413, 416 (*Physosoma* larva); 1927, pp. 60, 68.

Stephensen, 1918, p. 8.

Chevreux, 1920, p. 1.

These Amphipods are typically bathypelagic, and even at night rarely rise nearer the surface than about 100 m. They reach a large size (Woltereck, 1905, p. 414: 61 mm.), but the great majority of specimens captured are considerably smaller and represent immature stages (Stephensen, 1918, p. 12). The largest specimens in the Discovery collection are two ♂♂ of 40 mm. and a ♀ of 42 mm.; the latter is not ovigerous.

The fact that descriptions of the species have often been based on immature specimens makes the systematics of this genus somewhat difficult (cf. Woltereck, 1905, p. 414), and in practice it will be found that the use of Bovallius' and Stebbing's keys lead to conflicting results.

In the present material the separation of the four species has been comparatively easy and the following synopsis may be given to facilitate future identification in the field.

I. Pleon serrate. Peduncle of all uropods slender, rami narrow lanceolate ... .. *serrata*

II. Pleon not serrate.

A. 5th joint of gnathopod 1 broad, 4th joints of peraeopods 1-3 narrow.

1. Peduncles of uropods 1 and 2 stout, rami ovate lanceolate. Telson as long as peduncle of uropod 3.

a. Rostrum distinct ... .. *sayana*

b. Rostrum obsolete ... .. *pacifica*

2. Peduncles of all uropods slender, rami narrow lanceolate. Telson much shorter than peduncle of uropod 3 ... .. *aestiva*

B. 5th joints of gnathopod 1 narrow, 4th joint of peraeopods 1-3 broadly expanded ... .. *remipes*

Both Stebbing (1904) and Stephensen (1923, p. 3) consider that *murrayi* should be relegated as a synonym of *felina*, and it seems possible that *aestiva* may also be synonymous, though both Chevreux (1920) and Stephensen (1918 and 1923) retain the latter as a distinct species.

Chevreux's species *stephenseni* (1920) seems to be a young form (12 mm.) with the 3rd-5th peraeopods nearly the same length. Compare the young specimens of *pacifica* (*infra*) in which also the anterior peraeon segments are swollen, and the 3rd and 4th peraeopods have not attained their full elongation.

#### Lanceola sayana, Bov.

Bovallius, 1887, p. 30, pl. iv and pl. v, fig. 1.

Stephensen, 1918, p. 8, figs. 1-3; 1923, p. 3.

Chevreux, 1920, p. 1.

Woltereck, 1927, p. 60, figs. 1 a, 1 b, 2, 3, 4 a, 4 c.

*Occurrence*: 1. St. 284. East mid-Atlantic. 2 immat. 15 and 17 mm.

2. St. 285. East mid-Atlantic. 3 immat. 15-17 mm. (largest perhaps ♂).

3. St. 286. East mid-Atlantic (102-0 m.). 1 ♂ 19 mm.

4. *ditto* (125-0 m.). 1 ♂ 22 mm., 2 juv. 12 and 14 mm.

5. St. 288. East mid-Atlantic. Three specimens 19-22 mm., 1 juv. 15 mm.

6. St. 294. East mid-Atlantic. 1 ♂ 22 mm.

REMARKS. This species seems to be rather less bathypelagic than the other species. Tattersall (1906, p. 16) records it from the surface.

DISTRIBUTION. Atlantic, 56° N-32½° S; Indian and Pacific Oceans.

#### Lanceola serrata, Bov.

Bovallius, 1887, p. 34, pl. v, figs. 2-13.

Stebbing, 1904, p. 29.

Tattersall, 1906, p. 17.

Stephensen, 1918, p. 15; 1923, p. 4.

Chevreux, 1920, p. 2.

*Occurrence*: 1. St. 9. South Atlantic (0-3500 m.). 1 ♂ 27 mm.

2. St. 71. South-west Atlantic. 1 juv. 18 mm.

3. St. 78. South Atlantic. 1 ♂ 28 mm.

4. St. 86. South-east Atlantic. 1 immat. (? ♀) 27 mm.

5. St. 89. South-east Atlantic. 1 ♂ 40 mm.

6. St. 101. South-east Atlantic (1310-1410 m.). 1 ♂ 32 mm. (poor condition).

7. St. 107. South-east Atlantic. 2 ♀♀ 42 and 27 mm.



8. St. 114. Bouvet Island. 1 ♂ 37 mm., 2 juv. 23 mm.  
 9. St. 239. South-west Atlantic. 1 juv. 20 mm. (poor condition).  
 10. St. 253. South-east Atlantic. 1 immat. 23 mm. (poor condition).  
 11. St. 256. South-east Atlantic. 2 juv. 10 and 16 mm.

REMARKS. The colour of nos. 2, 3 and 5, respectively, are given as: "Transparent with red thoracic legs and red mouth-parts", "Port-wine colour", and "Deep port-wine colour".

The discovery of this species in the South Atlantic, between 33° and 52° S, forms a notable extension of the known distribution.

*L. suhmi*, Stebb., has already been regarded as synonymous with *serrata*, and it is probable that *australis* also should be added.

DISTRIBUTION. Davis Strait and North Atlantic as far south as 41° N.

#### *Lanceola pacifica*, Stebb.

Stebbing, 1888, p. 1302, pls. cli, clii.

Woltereck, 1909, p. 160 (var. *robusta*); 1927, p. 64, figs. 1 c, 4 b.

Stephensen, 1918, p. 14, fig. 4; 1923, p. 4.

Chevreaux, 1920, p. 2.

- Occurrence*: 1. St. 76. South-west Atlantic. 1 ♂ 28 mm.  
 2. St. 81. South Atlantic. 1 ♂ 26 mm.  
 3. St. 86. South-east Atlantic. 1 ♀ 38 mm.  
 4. St. 101. South-east Atlantic (850-950 m.). 1 ♂ 24 mm.  
 5. St. 245. South Atlantic. 1 ♀ 22 mm.  
 6. St. 256. South-east Atlantic. 1 juv. 16 mm.  
 7. St. 281. East mid-Atlantic. 1 ♂ 30 mm., 1 ♀ 30 mm., 4 juv. 9, 10, 14 and 17 mm.  
 8. St. 287. East mid-Atlantic. 1 immat. 23 mm., 2 juv. 6 and 11 mm.

REMARKS. The colour of no. 1 is given as "Deep port-wine colour". The young of nos. 7 (9 mm.) and 8 (6 mm.) have the anterior peraeon segments somewhat swollen, the 3rd-5th peraeopods nearly subequal in length, and the latter (no. 8) has the 5th joint of gnathopod 1 not much wider than the 6th; thus closely resembling the 12 mm. specimen described by Chevreaux as *stephenseni*.

This species also has not hitherto been found in the South Atlantic.

DISTRIBUTION. North Atlantic; Pacific.

#### *Lanceola aestiva*, Stebb.

Stebbing, 1888, p. 1309, pl. cliii.

Woltereck, 1909, p. 160 (bottom of page); 1927, p. 64.

Stephensen, 1918, p. 15; 1923, p. 5.

Chevreaux, 1920, p. 3.

- Occurrence*: St. 298. East mid-Atlantic. 1 (? ♂) 15 mm.

DISTRIBUTION. Atlantic from 53° N to 8½° S.

#### *Lanceola remipes*, n.sp. (Fig. 159).

- Occurrence*: St. 72. South-west Atlantic. 1 ♂ 40 mm.

DESCRIPTION. Integument moderately firm, covered all over, including appendages, with fine reticulation. Head dorsally carinate, the carina bifurcating anteriorly on the

rostrum. Eyes feebly developed, no corneal lenses, ocular pigment (as preserved) whitish.

Peraeon medio-dorsally carinate. The course of the lateral keels can be seen from the figure. Side-plates without prominent anterior corners; 5th longest; horizontal keels on 2, 3, 4 and 6.

Pleon medio-dorsally carinate, but not serrate; a lateral keel on segments 1-4. Telson lanceolate, rather sharply pointed, as long as peduncle of 3rd uropod.

Antenna 1, terminal joint ensiform, triquetral in cross-section, upper margin curved, sharp, lower margin straight, keeled on outer and inner sides, no minute apical joints. Antenna 2 incomplete but very large, 3rd (2nd free) joint with distal spine on inner side (dotted in figure), 4th elongate ensiform, upper margin sharp, lower margin keeled on outer and inner sides, apex lost.

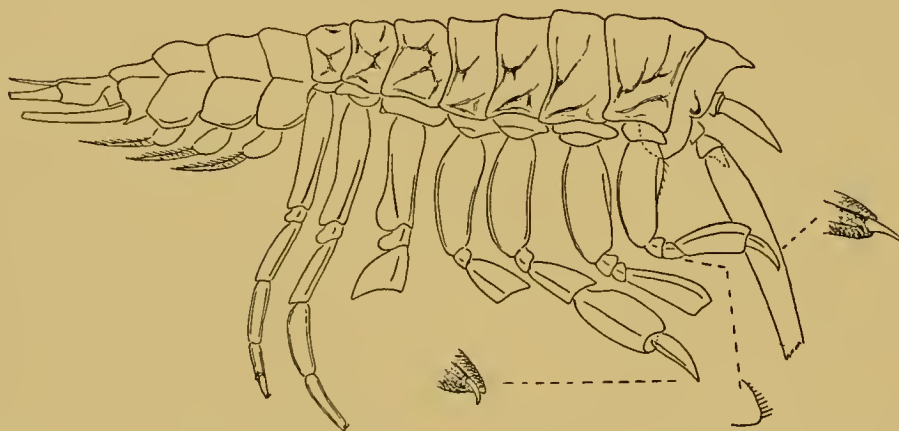


Fig. 159. *Lanceola remipes*, n.sp. General view, with apices of 4th and 6th joints of gnathopod 1, and 6th joint of pereopod 1 further enlarged.

Gnathopod 1, 5th joint nearly  $2\frac{1}{2}$  times as long as broad, 6th half breadth of 5th, with minute 7th joint; a few setae on anterior margin of 2nd joint and lower distal margin of 4th, the joints otherwise smooth; 2nd joint keeled near anterior margin, and 3rd and 4th on middle of outer surface. Gnathopod 2 similar, but 5th joint more slender, 6th lost.

Pereopod 1, 4th joint distally expanded, 5th expanded, ovate, the lower distal corner forming a rounded flange on inner side, 6th lanceolate, 7th minute; 2nd joint keeled near front and hind margins, 3rd-6th keeled on middle of outer surface. Pereopod 2 similar, 5th and 6th joints lost. Pereopod 3, 2nd joint with lower hind corner forming a rounded flange on outside, 3rd with rounded flanges both inside and outside, 4th broadly expanded, following joints lost. Pereopod 4, 2nd joint with small flange distally, 3rd with two flanges as in pereopod 3, 4th and 5th subequal, 6th slightly shorter, with terminal retractile claw. Pereopod 5 similar to, but slightly shorter than, 4th.

Uropod 1, peduncle about four times as long as wide, with median longitudinal keel on lower surface, rami lost. Uropod 2 lost. Uropod 3, peduncle about twice as long as wide, with median longitudinal keel on upper surface, rami lost.

REMARKS. Although shorn of many of the joints of its appendages, this specimen is otherwise in good condition, and clearly represents a species hitherto undescribed. *L. pacifica* var. *robusta* has been figured by Stephensen (1918, fig. 4), but the legs in the present specimen are even more robust, as well as possessing several peculiar features. The narrow 5th and 6th joints of gnathopods 1 and 2 are not found among the other species of the genus, and the expanded 4th joints of peraeopods 1–3 and 5th joint of peraeopod 1 are also distinctive.

The colour is recorded as “salmon-pink”.

#### Genus *Scypholanceola*, Wolt.

Woltereck, 1905, p. 415; 1909, p. 161; 1927, p. 65.

Chevreur, 1920, p. 7.

Distinguished from *Lanceola* by the two concave “reflectors” on the side of the head.

#### *Scypholanceola vanhoeffeni*, Wolt.

Woltereck, 1909, pp. 161, 167, pl. vii, figs. 24 *a, b*; 1927, p. 65, figs. 5, 8, 9.

Barnard, 1916, p. 290.

Chevreur, 1920, p. 8, figs. 4–6 (*richardi*).

Pirlot, 1929, p. 45 (*richardi*).

- Occurrence*: 1. St. 85. South-east Atlantic. 2 ♂♂ 30 and 33 mm.  
 2. St. 86. South-east Atlantic. 1 ♂ 23 mm.  
 3. St. 87. South-east Atlantic. 1 ♂ 27 mm., 1 juv. 15 mm.  
 4. St. 89. South-east Atlantic. 1 juv. 13 mm.  
 5. St. 256. South-east Atlantic. 1 ♂ 20 mm.  
 6. St. 281. East mid-Atlantic. 1 ♂ 28 mm., 1 immat. 19 mm. and 1 juv. 8 mm.  
 7. St. 287. East mid-Atlantic. 1 immat. (? ♂) 21 mm.

REMARKS. The figure of the head of *richardi* does not seem essentially different from that of *vanhoeffeni*; other characters are not available for comparison as Woltereck only described the head and eyes. Chevreur's description corresponds with my description of the Cape specimen, and I agree with Woltereck (1927) in seeing no reason for the retention of *richardi* as a separate species.

Whether *chuni* should not also be regarded as a synonym of *vanhoeffeni* is another question<sup>1</sup>. Chevreur refers to the variability of the ocular band in *richardi*; and owing to the delicacy of these animals it is more than probable that the shape and extent of the band is altered and damaged by capture and preservation, though Woltereck (1927, p. 66) thinks not. Nos. 6 and 7 in the present collection are from the tropical Atlantic, whence *chuni* was obtained.

Most of the specimens show traces of the internal purplish-brown colour noted in the Cape specimen.

DISTRIBUTION. Atlantic, 30°–46° N, 35° S and off Cape Point; Indian Ocean; Antarctic (64½° S, 85½° E).

<sup>1</sup> If so, the name *vanhoeffeni* should have preference, as it is mentioned on p. 161 (1909) together with reference to the figure, whereas the name *chuni* first appears on p. 162. Moreover the figure given in Woltereck's 1905 paper (p. 415, fig. 2) is clearly referable to *vanhoeffeni*.

## Family SCINIDAE

Stebbing, 1904, p. 18.

Wagler, 1926 (revision of family); 1927.

Besides *Scina* there are two other genera in this family: *Acanthoscina* and *Ctenoscina*, but neither of these is represented in the Discovery collection.

Genus *Scina*, Prest.

Stebbing, 1904, p. 22 (key to species).

Stephensen, 1918, p. 19.

Wagler, 1926 (revision and key to species).

Of the twenty-seven species described and figured in Wagler's useful monograph the 'Discovery' has taken twelve. Amongst them there are representatives of all six groups except the *latifrons* group.

It is to be noted that not a single specimen of this genus was taken by the 'Discovery' in the Drake Strait or South Georgia regions. The only existing record of a *Scina* from these regions seems to be Bovallius' record of *Scina tullbergi* from off Cape Horn. On the other hand, the 'Valdivia' took numerous examples of *S. antarctica* Wagl. from the area between Bouvet Island and Enderby Land (cf. also Wagler, 1927, p. 105).

*Scina crassicornis* (Fabr.).

Stebbing, 1904, p. 24.

Stephensen, 1918, p. 19, chart 2; 1923, p. 9.

Chevreaux, 1919, p. 10.

Wagler, 1926, p. 324, figs. 2, 3; 1927, p. 90, fig. 1.

Barnard, 1930, p. 401.

- Occurrence*: 1. St. 29° 26' N, 15° 07' W. 1 ♀ 6 mm., 1 juv. 4 mm.  
 2. St. 80. South Atlantic. 1 ♀ 8 mm.  
 3. St. 81. South Atlantic. 1 ♂ 12 mm., 4 ♀♀ 10-12 mm.  
 4. St. 83. South-east Atlantic. 1 ♂ 10 mm., 2 ♀♀ 9 and 11 mm.  
 5. St. 86. South-east Atlantic. 1 ♀ 12 mm.  
 6. St. 87. South-east Atlantic. 1 ♀ 14 mm.  
 7. St. 89. South-east Atlantic. 1 ♂ 9 mm.  
 8. St. 254. South-east Atlantic. 1 ♀ 18 mm.  
 9. St. 259. South-east Atlantic. 2 ♀♀ 15 and 18 mm.  
 10. St. 268. South-east Atlantic. 1 ♂ 10 mm., 1 ♀ 12 mm.  
 11. St. 273. East mid-Atlantic. 2 ♀♀ 11 and 13 mm., 1 ovig. ♀ 14 mm.  
 12. St. 276. East mid-Atlantic. 1 ♀ 13 mm.  
 13. St. 281. East mid-Atlantic. 2 ♀♀ 14 and 18 mm., 1 ovig. ♀ 13 mm.  
 14. St. 285. East mid-Atlantic. 1 ♂ 13 mm., 2 ♀♀ 11 mm., 4 ♀♀ 16-21 mm.  
 15. St. 286. East mid-Atlantic. 1 ♂ 16 mm., 1 ♀ 15 mm.  
 16. St. 287. East mid-Atlantic. 2 ♀♀ 9 mm. (1 with parasitic Isopod).  
 17. St. 288. East mid-Atlantic. 3 ♀♀ 8-10 mm., 1 ovig. ♀ 12 mm.  
 18. St. 296. East mid-Atlantic. 1 ♀ 10 mm.

REMARKS. The ♀♀ in nos. 6 and 9 combine the typical *crassicornis* maxilliped with a 4th peraeopod which is more like that of *curvidactyla*, in that the 6th joint is shorter

than the 5th, the latter shorter than the 4th and more slender, and the dactylus midway in length between that of *crassicornis* and *curvidactyla*.

The colour of fresh specimens has been noted on two occasions: no. 2 was "cephalothoracic segments dull vermilion, last three abdominal segments pale crimson; eyes, numerous chromatophores on antennae and a few on body bright vermilion"; and no. 4 was "carapace transparent, stomach and liver visible as a pink reddish mass, gonads pale yellow; last 2 abd. somites with a faint but broad red dorsal stripe; antennae spotted with red in middle, pale at either end; eyes scarlet; legs, pleopods and telson transparent". Chevreux (1919, p. 10) records a similar rosy colour for this species; likewise Stephensen (1923, p. 9).

This species appears to inhabit a shallow zone in summer and a deeper zone in winter (Stephensen, 1918, p. 24) and appears to breed chiefly in April to August in the Mediterranean (*ibid*, p. 25) and in March to June and July in the Atlantic (*ibid*, p. 26). The 'Discovery' took ovigerous ♀♀ in the months of July and August.

DISTRIBUTION. Mediterranean; usually at depths over 500 m.; Atlantic from 58° N to 35° S; Indian Ocean from 2° N to 32° S; southern Pacific Ocean. 0-4000 m.

#### *Scina curvidactyla*, Chevr.

Stephensen, 1918, p. 31.

Wagler, 1926, p. 328, fig. 4; 1927, p. 92, fig. 2.

Barnard, 1930, p. 401.

- Occurrence*: 1. St. 13° 25' N, 18° 22' W. 2 ♀♀ 13 and 19 mm.  
 2. St. 71. South-west Atlantic. 1 ♀ 14 mm. (damaged).  
 3. St. 76. South-west Atlantic. 1 ♀ 14 mm.  
 4. St. 78. South Atlantic. 1 ♀ 17 mm.  
 5. St. 85. South-east Atlantic. 1 ♀ 11 mm.  
 6. St. 250. South Atlantic. 1 ♀ 15 mm.  
 7. St. 256. South-east Atlantic. 1 ♂ 14 mm., 2 ♀♀ 14 and 20 mm.  
 8. St. 267. South-east Atlantic (117-0 m.). 3 ♀♀ 12-13 mm., 1 ovig. ♀ 13 mm.  
 9. *ditto* (450-550-0 m.). 1 ♂ 13 mm.  
 10. St. 270. East mid-Atlantic. 1 ♀ 13 mm.  
 11. *ditto* (200-0 m.). 1 ♂ 11 mm.  
 12. St. 276. East mid-Atlantic. 1 ovig. ♀ 14 mm., 1 juv. 8 mm.  
 13. St. 281. East mid-Atlantic. 1 ♂ 12 mm., 1 ♀ 10 mm.

REMARKS. Far too few individuals of this species have been captured to allow of any conclusions as to breeding times; in the above list of occurrences one ovigerous ♀ was taken in July and another in August. The 19 mm. ♀ is the largest specimen yet recorded. None of the specimens show such a *very* short hook-like dactyl on pereopod 4 as Wagler figured.

The colour of no. 4 is noted as: "Body and carapace [*sic*] rose-red; legs pale rose; antennae, pleopods and tail-fan white". The internal mass of the peraeon still shows salmon-pink, and the eyes are a rather deeper shade.

DISTRIBUTION. Mediterranean; Atlantic from 49° N to 28° S; northern Indian Ocean; southern Pacific Ocean. 0-3000 m.

*Scina incerta*, Chevr.

Chevreur, 1900, p. 123, pl. xiv, figs. 9 *a-i*; 1914, p. 1, fig. 1.

Wagler, 1926, p. 331, fig. 5; 1927, p. 93, fig. 3.

- Occurrence*: 1. St. 78. South Atlantic. 6 ♀♀ 6-10 mm.  
 2. St. 87. South-east Atlantic. 5 ♂♂ 5-9 mm., 4 ♀♀ 5-8 mm.  
 3. St. 89. South-east Atlantic. 2 ♂♂ 8 and 9 mm., 2 ♀♀ 9 mm.  
 4. St. 256. South-east Atlantic. 2 ♂♂ 8 and 9 mm., 4 ♀♀ 8-10 mm.

REMARKS. This species has been taken previously only by the Prince of Monaco's expeditions and the 'Valdivia'. Chevreur's coloured figure shows the animal to be a bright carmine.

DISTRIBUTION. Atlantic 45° N-30° S; Indian Ocean from about 7° N-7° S.

*Scina langhansi*, Wagl.

Wagler, 1926, p. 335, fig. 8.

- Occurrence*: St. 89. South-east Atlantic. 1 ♀ 4.5 mm.

REMARKS. Peraeopods 1, 2, 4 and 5, and the uropods, are somewhat stouter than in Wagler's figures; and the inner margin of uropod 1 is smooth.

DISTRIBUTION. Atlantic, 6° N-3° S.

*Scina borealis* (G. O. Sars).

Stephensen, 1918, p. 30, chart 3.

Wagler, 1926, p. 335, figs. 9-11; 1927, p. 94, fig. 4.

Barnard, 1930, p. 401.

- Occurrence*: 1. St. 78. South Atlantic. 1 ♂ 6.5 mm., 1 ♀ 8 mm.  
 2. St. 87. South-east Atlantic. 1 ♂ 6 mm.  
 3. St. 89. South-east Atlantic. 2 ♂♂ 4 mm., 7 ♀♀ 4.5-5 mm.  
 4. St. 120. South Atlantic. 2 ♂♂ 4 and 6 mm.  
 5. St. 256. South-east Atlantic. 1 ♀ 5 mm.  
 6. St. 281. East mid-Atlantic. 1 ♂ 8 mm.

DISTRIBUTION. Mediterranean; Arctic Ocean; Atlantic, south to 49° S; Antarctic Ocean; Indo-Pacific. 0-5000 m.

*Scina uncipes*, Stebb., forma *spinosa*, Voss.

Wagler, 1926, p. 350, figs. 13 *c*, 15; 1927, p. 96.

- Occurrence*: St. 87. South-east Atlantic. 2 ♂♂ 6 mm., 1 ♀ 7 mm.

DISTRIBUTION. South Atlantic from 0° to 55° S; Indian Ocean.

forma *affinis*, Wagl.

Wagler, 1926, p. 352, figs. 13 *d*, 16; 1927, p. 96.

- Occurrence*: St. 89. South-east Atlantic. 1 ♀ 8 mm.

DISTRIBUTION. Indian Ocean.

REMARKS. Although it is fairly obvious that *uncipes*, *lamperti*, *spinosa* and *affinis* are merely forms of one species, they should be distinguished and recorded separately.

**Scina marginata**, Bov.

Stephensen, 1918, p. 27, chart 3.

Wagler, 1926, p. 361, figs. 19-21; 1927, p. 97.

*Occurrence*: St. 290. East mid-Atlantic. 1 ovig. ♀ 8 mm.

REMARKS. Peraeopods 3 and 4 stout, with broadened joints, uropods also broad, but with the gnathopods characteristic of this species.

DISTRIBUTION. Mediterranean; Atlantic, 57°-30° N, and 2°-5° S.

**Scina submarginata**, Tattersall.

Stephensen, 1918, p. 32, fig. 7 (*latipes*).

Wagler, 1926, p. 367, figs. 22-24; 1927, p. 98.

Pirlot, 1929, p. 68, fig. 5 (*crassipes*).

*Occurrence*: St. 81. South Atlantic. 1 ♀ 5 mm.

REMARKS. The single specimen has the 2nd joint of peraeopods 3 and 4, and the uropods broadened as in the ♂, yet it seems to be undoubtedly a ♀. Wagler suspects that the differences between *submarginata* and *marginata* will eventually be shown to be due to sex and age changes. Chevreux (1919) has already reduced *submarginata* to a synonym.

DISTRIBUTION. Mediterranean; North Atlantic, 53°-26° N; South Atlantic, about 4°-55° S; Indian Ocean.

**Scina oedicarpus**, Stebb.

Wagler, 1926, p. 369, figs. 25, 26; 1927, p. 99, fig. 5.

*Occurrence*: 1. St. 89. South-east Atlantic. 1 ♀ 6.5 mm.

2. St. 266. South-east Atlantic. 1 ♀ 6 mm.

DISTRIBUTION. Atlantic, 7° N-33° S; Indian Ocean.

**Scina wolterecki**, Wagl.

Wagler, 1926, p. 372, figs. 27, 28; 1927, p. 100.

*Occurrence*: St. 256. South-east Atlantic. 1 ♀ 7 mm.

REMARKS. The inner margin of uropod 1 has three large spines on the left side, two on the right, instead of the single one opposite the outer ramus; otherwise the specimen is in agreement with Wagler's description and figures.

DISTRIBUTION. Atlantic, 2° N-33° S; Indian Ocean.

**Scina rattrayi**, Stebb.

Stebbing, 1904, p. 26.

Stephensen, 1918, p. 29; 1923, p. 9.

Wagler, 1926, p. 375, figs. 29-32.

*Occurrence*: St. 295. East mid-Atlantic. 1 ♂ 4.5 mm.

DISTRIBUTION. Mediterranean; Atlantic, 63° N-33° S; Indian Ocean.

**Scina tullbergi** (Bov.).

Stephensen, 1918, p. 29 (*pacifica*).

Wagler, 1926, p. 384, figs. 34, 35 (synonymy); 1927, p. 101, fig. 6.

*Occurrence*: St. 87. South-east Atlantic. 1 ♀ 5.5 mm.

DISTRIBUTION. Mediterranean; Atlantic, about  $54^{\circ}$  N– $31^{\circ}$  S; Pacific (Nicaragua, and Cape Horn); Indian Ocean.

*Scina vosseleri*, Tattersall.

Chevreaux, 1919, p. 11.

Wagler, 1926, p. 416, figs. 48, 49.

Occurrence: St.  $6^{\circ} 55' N$ ,  $15^{\circ} 54' W$ . 1 ♀ 10 mm.

REMARKS. The 6th joint of peraeopods 3 and 4 is not longer than the 5th joint (contrary to Wagler's figure).

DISTRIBUTION. Atlantic,  $53^{\circ}$  N– $31^{\circ}$  S; Indian Ocean. 0–2500 m.

### Family VIBILIIDAE

Behning, 1913, p. 211 (revision of family).

Stephensen, 1918, p. 32.

Barnard, 1930, p. 402.

### Genus *Vibilia*, M. Edw.

Vosseler, 1901, p. 118.

Behning, 1913, p. 212 (key to species); 1925, p. 479.

Stewart, 1913, p. 246.

Stephensen, 1918, p. 33.

With reference to Miss Stewart's paper it may be noted that *V. serrata* is undoubtedly a species of *Cylopus*, and that *V. hodgsoni* is apparently not a ♂ as stated, but a ♀, or rather a young specimen, and the species is possibly not a valid one.

Behning's revision is useful, but his key to the species is not altogether satisfactory and creates the impression that a further reduction in the number of species may take place in the future. For example, the separation of *longipes*, Bov., from *edwardsii*, Bate, seems very doubtful. Moreover, I think it very probable that *antarctica*, or at least the form here referred to *antarctica*, is really the same as *edwardsii*.

*Vibilia viatrix*, Bov.

Behning, 1913, p. 217; 1925, p. 482, fig. 12; 1927, p. 117.

Stewart, 1913, p. 247.

Stephensen, 1918, p. 41, fig. 13.

Barnard, 1930, p. 403.

Occurrence: 1. St.  $2^{\circ} 20' S$ ,  $12^{\circ} 45' W$ . 2 ♀♀ 7 and 8 mm  
 2. St. 69. South-west Atlantic. 1 ♂ 8.5 mm.  
 3. St. 76. South-west Atlantic. 1 ♀ 8 mm.  
 4. St. 84. South-east Atlantic. 1 ♀ 7 mm.  
 5. St. 87. South-east Atlantic. 1 ♂ 6.5 mm.  
 6. St. 268. South-east Atlantic. 2 ♀♀ 8–8.5 mm.  
 7. St. 270. South-east Atlantic. 1 ovig. ♀ 8 mm.

REMARKS. Breeding ♀♀ have been found in the North Atlantic in March and October (Stephensen).



DISTRIBUTION. Mediterranean; Atlantic, 45° N–35° S; Indian Ocean; Pacific Ocean. 0–4000 m.

*Vibilia propinqua*, Stebb.

Behning, 1913, p. 218; 1925, p. 484, figs. 23–25; 1927, p. 118.

Stewart, 1913, p. 246.

Stephensen, 1918, p. 43, fig. 14.

Barnard, 1930, p. 404.

*Non* Walker, 1907, p. 6 (= *antarctica*).

*Occurrence*: 1. St. 87. South-east Atlantic. 1 ♀ 7 mm.

2. St. 89. South-east Atlantic. 1 ♂ 8 mm., 2 ♀♀ 7.5–8.5 mm., 3 juv. 5 mm.

DISTRIBUTION. Mediterranean; Atlantic, 50° N–34° S; Indian Ocean; Eastern Pacific.

*Vibilia antarctica* Stebb.

Walker, 1907, p. 6 (*propinqua*, *non* Stebb.).

Behning, 1913, p. 219; 1925, p. 486, figs. 26–31; 1927, p. 118.

Chilton, 1912, p. 514.

Barnard, 1930, p. 404.

*Occurrence*: 1. St. MS 30. South Georgia. 1 ♀ 13 mm.

2. St. 36. South Georgia (50–0 m.). 1 ♂ 11 mm.

3. *ditto* (90–0 m.). 2 ♂♂ 11–12 mm., 1 ♀ 8 mm., 1 juv. 6.5 mm.

4. St. 46. South-west Atlantic. 1 ♀ 8.5 mm.

5. St. 47. Falklands. 10 ♀♀ and juv. 5–9 mm.

6. St. 49. Falklands. 1 ♀ 8.5 mm.

7. St. 62. South-west Atlantic. 1 ♂ 9 mm., 1 ♀ 8 mm., 1 ovig. ♀ 8 mm.

8. St. 71. South-west Atlantic. 2 ♀♀ 7 and 9 mm.

9. St. 116. Bouvet Island. 3 ♂♂ 12–13 mm., 8 ♀♀ 10–12 mm., 9 juv. 5–6 mm.

10. St. 120. South Atlantic. 1 juv. 7 mm.

11. St. 125. South Georgia. 2 ♀♀ 11 mm.

12. St. 129. South Georgia (84–0 m.). 2 ♂♂, 3 ♀♀ 9–12 mm. (1 ovig. ♀ 12 mm.).

13. *ditto* (0–5 m.). 6 ♂♂, 15 ♀♀ 11–13 mm., 1 juv. 6 mm. (2 ♀♀ ovig.).

14. St. 133. South Georgia (0–5 m.). 1 ♀ 10 mm.

15. *ditto* (100 m.). 3 ♂♂, 12 ♀♀ 10–13 mm.

16. St. 136. South Georgia (0–5 m.). 3 ♀♀ 10–13 mm., 2 juv. 6–7 mm.

17. *ditto* (90–0 m.). 2 ♀♀ 12 mm.

18. St. 137. South Georgia. 4 ♂♂, 24 ♀♀ 10–13 mm.

19. St. 138. South Georgia. 7 ♀♀ 11–13 mm. (2 ovig.).

20. St. 151. South Georgia. 9 ♂♂ 12–14 mm., 2 ♀♀ 11 and 12 mm.

21. St. 169. South Orkneys. 7 ♂♂ 13–14 mm., 5 ovig. ♀♀ 12–14 mm.

22. St. 208. South Shetlands. 11 ovig. ♀♀ 12–14 mm.

23. St. WS 38. South Georgia. 4 ♂♂, 82 ♀♀ (many ovig.) 12–14 mm.

REMARKS. In this collection there are 195 ♀♀ and only 42 ♂♂. Ovigerous ♀♀ were caught to the number of 22 (nos. 7, 12, 13, 19, 21 and 22), but in addition quite a lot at St. WS 38 (no. 23). They were caught in the following months: December (South Georgia area), February (South Orkneys), April (South Shetlands), and May (South-west Atlantic).

Although the material is not very large, it serves to indicate that this species ascends to the upper layers during the night. On only two occasions (nos. 1 and 19) has it been found during the day at a depth less than 100 m.; but it occurs frequently in this upper zone between the hours of (approx.) 8 p.m. and 6 a.m. The negative evidence, though derived from only three stations, confirms this: at St. 71 six other hauls between 1000-0 m. and at St. 120 one other haul at 340-360 (-0) m. were made, but no specimens obtained; at St. 151, 15 hauls were made between 1275-0 m., and specimens were only taken at 500-625 m.

The carpal process of gnathopod 2 does not always reach quite to the end of the metacarpus, but is often not more than two-thirds the length of the latter. The eyes according to Behning are poorly developed, the individual ocelli discernible only with difficulty or not at all. In all the present specimens, as in those of the Terra Nova collection, the eyes are quite well developed and the ocelli easily discernible; they only differ from those of most other species in being of a paler reddish-brown instead of a dark brown or blackish colour.

As already stated I think it very probable that the true name for these specimens should be *edwardsii*, Bate (1861, *Ann. Mag. Nat. Hist.* (3), VIII, redescribed as a n.sp. in 1862, p. 300, pl. xlix, figs. 6, 7), the original locality of which was the Powell Islands (South Orkneys). There is, however, no specimen actually comparable as regards the length of pereopods 3 and 4 with Bate's figure, or even with *longipes*. A re-examination of Bate's type, if still extant, especially the details of the serrations of the uropods, might be interesting in comparison with the specimens referred to *antarctica* by Behning.

DISTRIBUTION. This typical Antarctic and sub-Antarctic species extends northwards up the west coasts of Africa and South America in the cold Benguella and Chilean currents. The Scotia record is the only previous record anywhere in the neighbourhood of the present localities, the most northerly of which is St. 71 (43° S, 46° W).

#### *Vibilia australis*, Stebb.

Stebbing, 1888, p. 1287, pl. cxlix.

Behning, 1913, p. 219; 1925, p. 488, figs. 32-34; and var. *pelagica*, p. 488, figs. 35-41; 1927, p. 119.

Spandl., 1924, p. 21.

*Occurrence*: St. 67. South-west Atlantic. 6 ♀♀ 4 mm., 1 ovig. ♀ 5 mm.

DISTRIBUTION. Atlantic, 0°-2½° N; Red Sea; Indian Ocean, 6° N, 73° E; South of Australia, 48° 18' S, 130° 4' E.

#### *Vibilia armata*, Bov.

Behning, 1913, p. 220; 1925, p. 491, figs. 52-61 (synonymy); 1927, p. 119.

Stephensen, 1918, p. 46, figs. 15, 16, chart 6.

Barnard, 1930, p. 404.

*Occurrence*: 1. St. 4. Tristan da Cunha. 1 ♀ 8 mm., 7 juv. 3-6 mm., from stomach of Blue Fish, "*Perca antarctica*".

2. St. 71. South-west Atlantic. 1 ♂ 8 mm.

3. St. 78. South Atlantic. 6 ♂♂ 7-8 mm., 28 ♀♀ 7-8 mm., 3 juv. 5-6 mm.

4. St. 81. South Atlantic. 1 ♂ 8 mm.
5. St. 87. South-east Atlantic. 10 ♂♂ 6-7 mm., 5 ♀♀ 6-7 mm., 4 juv. 4-6 mm. (1 ♀ ovig., 1 ♀ with embryos).
6. St. 88. South-east Atlantic. 4 ♂♂ 6-7 mm., 1 ♀ 7 mm., 5 juv. 5-6 mm.
7. St. 89. South-east Atlantic. 13 ♂♂, 16 ♀♀ 6-7 mm.
8. St. 268. East mid-Atlantic. 2 ♂♂ 7-7.5 mm., 1 ♀ 6 mm.

REMARKS. Stephensen records breeding ♀♀ in January, February, and June to September; and young at all seasons.

DISTRIBUTION. Mediterranean; Atlantic, 53° N-43° S; Indian Ocean; Eastern Pacific.

#### *Vibilia pyripes*, Bov.

Behning, 1913, p. 221; 1925, p. 494, fig. 62.

Stephensen, 1918, p. 52, fig. 17, chart 5, and p. 53 (*grandicornis*).

Barnard, 1930, p. 405.

*Occurrence*: St. 71. South-west Atlantic. 5 ♂♂ 7-8 mm.

REMARKS. The maintenance of *grandicornis* (Chevreux, 1900, p. 131, pl. xvi, fig. 2) as a separate species seems very doubtful.

DISTRIBUTION. Tropical and sub-tropical Atlantic; Indian Ocean; Pacific.

#### *Vibilia cultripes*, Voss.

Vosseler, 1901, p. 121, pl. xi, figs. 6-18.

Behning, 1913, p. 222; 1925, p. 495, figs. 63-67; 1927, p. 119.

Stephensen, 1918, p. 53, fig. 18, chart 7.

*Occurrence*: 1. St. 6° 55' N, 15° 54' W. 1 ♂ 14 mm.

2. St. 81. South Atlantic. 1 ♀ 16 mm.

3. St. 256. South-east Atlantic. 2 ♂♂ 15 and 16 mm.

4. St. 268. East mid-Atlantic. 2 ovig. ♀♀ 11-12 mm.

5. St. 281. East mid-Atlantic. 1 ♂ 13 mm.

6. St. 285. East mid-Atlantic. 1 ♂ 14 mm.

7. St. 298. East mid-Atlantic. 1 ♀ 11 mm.

REMARKS. The eyes in the ♂♂ are unusually well developed, being almost contiguous on the top of the head. This development is even greater than in *macropis* and diminishes still further the value of one of the characters which is quoted as distinguishing the "Cyllopodidae" from the Vibiliidae.

DISTRIBUTION. Mediterranean; Atlantic, 49° N-6° S; Indian Ocean; Pacific.

#### *Vibilia* sp.

*Occurrence*: St. 268. East mid-Atlantic. 1 ♀ 10 mm. (damaged).

REMARKS. The identification of this damaged specimen is not at all certain. It is clearly distinct from the specimen of *viatrix*, with which it was caught, in the sub-rounded telson, the uropods, the somewhat gibbous forehead and the dactyls of peraeopods 1-4. It is larger than previous records of *gibbosa*, but may possibly be this species, which is known from the Atlantic between 30° N and 20° S (cf. Behning, 1927, p. 115).

Genus *Cylopus*, Dana.

Barnard, 1930, p. 405.

*Cylopus magellanicus*, Dana.

Barnard, 1930, p. 408 (references).

- Occurrence*: 1. St. 4. Tristan da Cunha. 1 ♂ 9 mm., 1 ♀ 6 mm., 1 juv. 4 mm., from stomach of Blue Fish, "*Perca antarctica*".
2. St. 32. South Georgia. 1 ♀ 10 mm.
  3. St. 35. South Georgia. 1 ♀ with embryos 13 mm.
  4. St. 36. South Georgia. 4 ♀♀ 14-15 mm. (2 ovig., 2 with embryos).
  5. St. 37. South Georgia. 2 ♀♀ 10 mm.
  6. St. 47. Falklands. 3 ♀♀ 8-10 mm.
  7. St. 66. South-west Atlantic. 1 ♀ 9 mm.
  8. St. 67. South-west Atlantic. 1 ♂ 9 mm., 1 ovig. ♀ 8 mm., 1 ♀ with embryos 9 mm., 1 juv. 4.5 mm.
  9. St. 71. South-west Atlantic. 1 ♀ 7.5 mm.
  10. St. 81. South Atlantic. 1 ♀ 6 mm.
  11. St. 89. South-east Atlantic. 1 ♀ 7 mm.
  12. St. 116. Bouvet Island. 1 ♀ with embryos 16 mm.
  13. St. 208. South Shetlands. 2 ♂♂ 15 mm.
  14. St. 239. South-west Atlantic. 2 ♀♀ 7 and 9 mm.
  15. St. WS 38. South Georgia. 1 ♀ 16 mm.
  16. St. WS 95. Between Falklands and South America. 10 ovig. ♀♀ 8-9 mm.

REMARKS. The material is not very abundant, but there is a well-marked migration from the deeper waters to the upper layers during the night. Examples were caught in day hauls between the depths of 30 m. (8 a.m.; one example) and 45 m. (1 p.m.; four examples), and at 2000 m. During the night all examples were captured between 0 and 55 m., and none below that depth, though at several of the stations hauls from deeper water were made with suitable gear.

In size ♂♂ vary from 9-15 mm. and ovigerous ♀♀ from 8-16 mm., in both cases the larger sizes coming from higher latitudes. The ♂♂ are much rarer than the ♀♀. Females with ova and embryos were captured in March, April, May and November.

Only the ♂♂ (nos. 1, 8, 13) show the green or greenish-blue colour, all the ♀♀ being (as preserved) yellowish with red or red-brown eyes.

DISTRIBUTION. South Atlantic from lat. 30° S; southern Indian and Pacific Oceans.

*Cylopus lucasii*, Bate.

Bate, 1862, p. 306, pl. 1, fig. 2.

Spandl, 1927, p. 175, fig. 12 (*antarcticus*).

Barnard, 1930, p. 409.

- Occurrence*: 1. St. 25. South Georgia. 17 ♀♀ 15-20 mm. (half sample).
2. St. 26. South Georgia. 3 ♀♀ 14-16 mm.
  3. St. 32. South Georgia. 8 ♀♀ 15-18 mm.
  4. St. 36. South Georgia (0-5 m.). 4 ♀♀ 14-16 mm.
  5. *ditto* (90-0 m.). 6 ♀♀ 15-18 mm. (2 with uterine ova) (half sample).
  6. St. 37. South Georgia. 4 ♀♀ 14-16 mm.

7. St. 38. South Georgia. 3 ♀♀ 15–18 mm.
8. St. 44. South Georgia. 8 ♀♀ 14–18 mm.
9. St. 169. South Orkneys. 1 ♀ 13 mm.
10. St. 208. South Shetlands. 1 ♀ 11 mm., 2 ♀♀ (with uterine ova) 16–17 mm.

REMARKS. In addition to the marked difference in shape between the 2nd joints of pereiopod 5 of this species and *magellanicus*, there is a submarginal keel running from the articulation of the 2nd joint with the body parallel with the front margin to the insertion of the 3rd joint; in *magellanicus* the outer surface of the 2nd joint is quite smooth.

Like *magellanicus* this species migrates to the upper layers during the night. There are no actually ovigerous ♀♀, and no ♂♂ in the collection; but several ♀♀ contain what seem to be uterine ova, and it would seem that the breeding season starts towards the end of April or in May.

This is a more southerly form than *magellanicus*, not being found north of lat.  $53\frac{1}{2}^{\circ}$  S.

DISTRIBUTION. South Georgia;  $65^{\circ}$  S,  $80^{\circ}$  E.

### Family PARAPHRONIMIDAE

- Bovallius, 1889, p. 22.  
 Vosseler, 1901, p. 94.  
 Stephensen, 1925 *a*, p. 246.

### Genus *Paraphronima*, Claus.

- Stebbing, 1888, p. 1335.  
 Bovallius, 1889, p. 23 (key to species).  
 Stephensen, 1924, p. 75.  
 Spandl, 1927, p. 165 (key to the two species nowadays recognized).

Stewart's paragraph (1913, pp. 253–254), stating that the ♂ has a longer mandibular palp than the ♀, is evidently misplaced as neither sex in this genus has a mandibular palp.

### *Paraphronima gracilis*, Claus.

- Stebbing, 1888, p. 1337, pl. clvii (*cnivis*).  
 Bovallius, 1889, p. 27, pl. ii, figs. 1–10.  
 Stewart, 1913, p. 253.  
 Stephensen, 1924, p. 75, chart 10.  
 Spandl, 1927, p. 165, fig. 6.

- Occurrence*: 1. St.  $2^{\circ} 20'$  S,  $12^{\circ} 45'$  W. 1 ♂ 5.5 mm.  
 2. St. 84. South-east Atlantic. 1 ♀ 6 mm.  
 3. St. 266. South-east Atlantic. 1 ♀ 7.5 mm.

DISTRIBUTION. Mediterranean; Atlantic,  $42^{\circ}$  N– $35^{\circ}$  S; Indo-Pacific.

### *Paraphronima crassipes*, Claus.

- Bovallius, 1889, p. 30, pl. ii, figs. 11–15; p. 33, pl. ii, figs. 16–40 (*clypeata*).  
 Stewart, 1913, p. 253.  
 Stephensen, 1924, p. 77, chart 10.  
 Spandl, 1927, p. 166.  
 Barnard, 1930, p. 409.

- Occurrence*: 1. St. 2° 20' S, 12° 45' W. 1 ♂ 6.5 mm.  
 2. St. 69. South-west Atlantic. 1 ♂ 10 mm.  
 3. St. 78. South Atlantic. 1 ♀ 10 mm.  
 4. St. 87. South-east Atlantic. 3 ♂♂ 8-9 mm., 2 ♂♂ (penult. instar) 8 mm., 3 ♀♀ 8-9 mm., 2 juv. 6 mm.  
 5. St. 89. South-east Atlantic. 3 ♂♂ 6-9 mm., 2 ♀♀ 7-8 mm.  
 6. St. 103. South-east Atlantic. 1 ♀ 17 mm.  
 7. St. 259. South-east Atlantic. 1 ♀ 14 mm. with embryos.  
 8. St. 268. South-east Atlantic. 1 ♂ 8 mm. (penult. instar).  
 9. St. 273. East mid-Atlantic. 1 ♂ 7 mm., 1 ♀ 12 mm. (ovigerous, but all ova lost out of pouch).  
 10. St. 287. East mid-Atlantic. 1 ovig. ♀ 11 mm.  
 11. St. 296. East mid-Atlantic. 1 ovig. ♀ 12 mm.

REMARKS. The colour of no. 3 is given as "Of a glassy transparency, with, on either side of head along lower edge, 12 vertical spindle-shaped scarlet spots, separating proximal ends of ommatidia. A few red chromatophores at bases of last three legs and between them".

The ♀ no. 6 appears to be a record for size; Bovallius gives 15 mm. as the largest size of ♀ *clypeata*, but the majority of recorded specimens are much smaller. It happens to come from the most southerly of the localities, but the material is scarcely extensive enough to suggest that the largest specimens are always to be found in the highest latitudes.

DISTRIBUTION. Mediterranean; Atlantic, 42° N-37° S; Pacific Ocean.

### Family CYSTISOMATIDAE

- Stebbing, 1888, p. 1317.  
 Bovallius, 1889, p. 39.  
 Woltereck, 1903, p. 447; 1904, p. 553.  
 Stephensen, 1918, p. 56.  
 Spandl, 1927, p. 170.

### Genus *Cystisoma*, Guér.

- Woltereck, 1903, p. 447; 1904 *b*, p. 553.  
 Barnard, 1916, p. 286.  
 Stephensen, 1918, p. 56 (key to species, and discussion of characters).  
 Spandl, 1927, p. 170.

According to the Nomenclatorial Rules, Stebbing's contention that *Cystisoma* must be retained in its original spelling, and is therefore distinct from *Cysteosoma* and *Cystosoma*, is perfectly just. Guérin's name stands as against *Thaumops*, W. Suhm, emend. *Thaumtops*, von Mrtns. (cf. also Spath, *Mem. Geol. Surv. India*, IX, pt. 3, p. 163, footnote, 1928).

Of this genus it may well be said that we describe specimens, not species. There are some ten or eleven nominal species, but the latest writers agree on the difficulty of finding suitable diagnostic characters to define the species.

The present collection contains 22 specimens, of which six are ♀♀, one is a ♂, and the rest are more or less immature. Valuable as this collection is, nevertheless it unfortunately helps us very little forward. Two forms are easily recognized and referred to already known forms. But with the hope of bringing a little more definiteness into the definitions of the species of this genus, I have subjected the descriptions of all known specimens to tabular analysis. The result scarcely justifies the time expended, but for what they may be worth I add a few notes and comments.

Firstly, as regards *C. longipes* (Bov.), which Bovallius instituted (1886) on one specimen, later (1889) called Specimen A (Indian Ocean) (Stephensen, 1918, p. 60). The fact that Bovallius later (1889) referred another specimen (B) to this same species, incorrectly as later authors have recognised, is no reason why he should be deprived of the authorship of the species. Woltereck (1903) clearly did not mean his *bovallii* to supersede *longipes*, to which he does not refer except under a different heading, and to state (p. 459) that he suspects *parkinsoni* to be a synonym of it. Later Stephensen discovered the type and paratype (specimens A and B) of Bovallius' *longipes* and found them to be different species; but he incorrectly used (1918, pp. 59, 60) Woltereck's name for the type (specimen A) of *longipes* "to avoid further complication". He has, however, accomplished exactly what he wished to avoid; clearly *longipes*, Bov., must stand, whatever happens to *bovallii*, Wolt.

*C. bovallii* is in fact a species insufficiently described by its original author, for the number of ventral spines is not stated. Unless Stephensen has examined the type specimen of *bovallii* (and he does not state that he has done so), the identification of the Thor specimens from Stations 61, 73, 76 with Woltereck's species is risky. On the other hand, if there are the same number of ventral spines as in *longipes*, then it would seem that *bovallii* is really only the female of *longipes*. The 'Valdivia' took 2 ♀♀ *bovallii* in the Atlantic, and the 'Thor' took 2 ♂♂ *longipes* in the Atlantic; with the exception of Bovallius' type specimen A neither *longipes* nor *bovallii* is recorded from the Indian Ocean.

I am unable to pronounce definitely on the status of *bovallii*, but wish to vindicate Bovallius' name *longipes*.

Secondly, *C. coalitum* (Wolt.) is another species which, as regards the number of mandibular spines, is inadequately described. If there is only one spine the resemblance to *fabricii*, Stebb., becomes remarkably close. The coalescence of the peraeon segments seems to be a character on which too much reliance should not be placed. I entirely agree with Stebbing's remarks (1888, p. 1319). It is certainly not always easy to determine beyond cavil the presence or absence of a suture. Bovallius found a suture between peraeon segments 1 and 2 in both the specimens he assigned to *longipes*, whereas Stephensen (1918, p. 60) says there are no sutures. Spandl (1927) has recorded a specimen of *magnum* in which he finds a faint but distinct line of articulation between the first two segments. In the 52 mm. long specimen from Discovery Station 81 the first two segments seem to be quite distinct. Probably it was some such (aberrant) specimen on which Bovallius founded *loveni*, but as the type specimen is apparently

lost, and there is a discrepancy as regards the mandible (Stephensen, 1918, pp. 59, 60, footnote) we cannot correlate any of the more adequately known species with it.

Further, we may note that all four specimens with the antennae considerably longer than the head are males ("longipes" B; parkinsoni 'Challenger' F, and 'Thor' 72; and latipes), and that the linear outer rami of the uropods, which are longer than the inner rami, have only been found in fully adult females of pellucidum, with the exception of somewhat similar rami in the male "longipes" B.

In the character of the mandibular spines and the ventral spines we find an almost perfect sequence of numbers, thus:

Mandibular spines:

? 1 or 2 or rudimentary	...	...	...	...	...	...	...	...	...	loveni	
1	...	...	...	...	...	...	fabricii,	pellucidum,	magnum,	parkinsoni	
2	...	...	...	...	...	...	...	...	longipes,	bovallii,	latipes
3	...	...	...	...	...	...	...	...	...	africanum	
Number unknown	...	...	...	...	...	...	coalitum,	"spinosum",	neptunus		

Ventral spines:

? 1 pair	...	...	...	...	...	...	...	...	...	loveni	
2 pairs	...	...	...	...	...	...	...	...	...	fabricii,	coalitum
3 "	...	...	...	...	...	...	...	...	...	no specimen known	
4 "	...	...	...	...	...	...	...	...	...	two Discovery specimens	
5 "	...	...	...	...	magnum	(Woltereck's specimens),	"longipes" B				
5-6 "	...	...	...	...	...	...	...	...	...	longipes,	latipes
6 "	...	...	...	...	...	africanum,	parkinsoni ('Thor')	magnum	(Spandl)		
5-7 "	...	...	...	...	...	...	...	...	...	pellucidum	
8 "	...	...	...	...	...	...	...	...	...	neptunus	
Number unknown	...	...	...	...	...	bovallii,	parkinsoni ('Challenger' F)				

One can thus realize how difficult it is to define the species, especially when one remembers that scarcely a dozen specimens of pellucidum have been adequately described, and of the other "species" considerably fewer.

Lastly, we may note that on one occasion the 'Valdivia' took 1 ♂, 1 ♀ magnum and 1 ♀ fabricii in one and the same haul. The 'Gauss' took 1 ♀ magnum, 1 ♀ pellucidum and 1 immature specimen in one haul. The 'Discovery' has taken 1 ♀ pellucidum together with 5 fabricii (2 ♀♀, 3 juv.); on another occasion 1 immature pellucidum together with 2 immature fabricii; and on another occasion 1 ♀ fabricii together with 1 immature pellucidum. In one small area in the North Atlantic, measuring 10° of latitude by 5° of longitude, the 'Thor' took three specimens of one species together with one each of four other species.

We may perhaps define the following species:

*fabricii*, Stebb. 1 mand. spine; 2 pairs ventr. spines; antennae arising close together, about equal to length of head.

*coalitum* (Wolt.). Mand. spine ?; 2 pairs ventr. spines; antennae close together, about equal to length of head; segments 1-4 fused. (Possibly to be united with *fabricii*.)

*pellucidum* (W. Suhm). 1 mand. spine; (4) 5-6 (7) pairs ventr. spines; antennae arising far apart, about equal to head.



*parkinsoni*, Stebb. 1 mand. spine; ? ventr. spines; antennae moderately far apart, longer than head.

*magnum* (Wolt.). 1 mand. spine; 5 pairs ventr. spines; antennae far apart (Woltereck's figure), shorter than head.

*longipes* (Bov.). 2 mand. spines; (5-) 6 pairs ventr. spines; antennae far apart, about length of head ('Thor', in type broken off short).

*bovallii* (Wolt.). 2 mand. spines; ? ventr. spines; antennae more or less equal to head. (Possibly = *longipes*.)

*latipes* (Steph.). 2 mand. spines; 5-6 pairs ventr. spines; antennae close together, longer than head; 2nd (1st free) joint of peraeopod 7 markedly pyriform.

*africanum*, Brnrd. 3 mand. spines; 6 pairs ventr. spines; antennae far apart, length ?.

Species insufficiently described: *loveni*, *neptunus*, "*spinusum*".

Cystisomids appear to be inhabitants of the deeper layers, as they are only captured when the apparatus is sunk to considerable depths (except the earliest known specimens, Woltereck, 1904, p. 562). But the exact depth is known only for a very few specimens. The 'Challenger' used no closing nets; we are uncertain about the Valdivia (Woltereck, 1904, p. 561) and the Gauss specimens. The 'Thor' (Stephensen, 1918, p. 70) obtained the majority (nine) of her specimens at 1000-2000 m., two at 2000-3000 m. and one at over 4000 m.

The 'Discovery' only obtained two specimens in closing nets, viz. at Stations 216 and 219 in 750-500 and 750-535 m.

As regards life-history various larval forms have been described (Woltereck, 1904; Senna, 1904; Stephensen, 1918; Spandl, 1927) and Woltereck, 1904, p. 526, inclines to the view that the adults rise to higher levels at certain seasons; but our data are yet far too meagre to determine whether there is any particular breeding season.

It may be interesting to note that fully adult females are recorded during the following months (latitude approximate):

<i>magnum</i>	'Valdivia'	4° S, Indian Ocean	9 March <sup>1</sup>
"	'Gauss'	35° S, Atlantic Ocean	16 November
<i>pellucidum</i>	'Challenger'	35° N, "	28 January
"	Plankton Exp.	North Sargasso Sea	19 October
"	'Gauss'	35° S, Atlantic Ocean	16 November
"	'Discovery'	41° N, "	10 October
"	"	13° N, "	28 October
"	"	5° N, "	25 August
<i>fabricii</i>	"	0° 46' S, "	12 August
<i>africanum</i>	'Pieter Faure'	33° S, Indian Ocean	22 April

The collection of the 'Thor' was made during the months of February (one larva) and May, June and September, but no adult female was taken.

Our knowledge of the geographical distribution of the genus has been considerably extended by the Discovery captures. The most southerly records hitherto known were:

<sup>1</sup> This is the only ♀ that Woltereck *explicitly* states (and figures) to be "ripe", i.e. with enlarged 6th joint to peraeopod 5.

33° S, 17° E (*coalitum*, 'Valdivia'); 33 $\frac{1}{3}$ ° S, 28° E (*africanum*, 'Pieter Faure'); and 35 $\frac{1}{2}$ ° S, 8° E (*magnum* and *pellucidum*, 'Gauss'). The 'Discovery' has extended the known southerly limit to 57–58° S (Drake Strait) for the species *fabricii*.

*Cystisoma pellucidum* (W. Suhm).

Stephensen, 1918, p. 64, figs. 19, 24–27.

- Occurrence*: 1. St. 41° 37' N, 12° 30' W. 1 adult ♀ 66 mm. (incl. uropods 75 mm.).  
 2. St. 13° 25' N, 18° 22' W. 1 ♀ probably about 70 mm. (pleon and uropods missing).  
 3. St. 6° 55' N, 15° 54' W. 1 immat. 40 mm.  
 4. St. 78. South Atlantic. 1 juv. 11 mm.  
 5. St. 281. East mid-Atlantic. 1 immat. 30 mm.  
 6. St. 295. East mid-Atlantic. 1 adult ♀ 70 mm. (incl. uropods 85 mm.).

REMARKS. There are five pairs of ventral spines, except in no. 1 where there are five spines on the left side, six on the right, and in nos. 2 and 4 where there are only four pairs. Nos. 1 and 6 have the elongate outer rami to the uropods and the enlarged antennae and 6th joint to pereopod 5. The antennae are about the same length as the head, except in no. 2 where they are distinctly shorter (13 : 20); they are 6 mm. apart, except in no. 3 where they are only 3 mm., the antennae and head of the latter both measuring 11 mm., and in no. 4 where they are 2 mm. long and 1 mm. apart.

A remarkable feature of nos. 1 and 6 is the presence of numerous minute Copepods within the body; they occur in all parts of the body, in no. 1 even within the peduncles of the pleopods and the basal (2nd) joints of pereopods 4 and 7. Their presence has not been noticed by other authors, and they are not present in *africanum* (which I have re-examined), or the other large Discovery ♀ no. 2. The only explanation I have to suggest is that nos. 1 and 4 were "spent" ♀♀ and were mere dead skins when captured, the minute Copepods having entered the bodies in the rôle of scavengers.

Whether W. Suhm's species should be identified with "*spinosum*" of Fabricius and/or Guérin is impossible to say, and it seems best to drop the name "*spinosum*" altogether.

DISTRIBUTION. North Atlantic, 48°–35° N; Indian Ocean, 0° 58'–4 $\frac{1}{2}$ ° S. 1280–4000 m.

*Cystisoma fabricii*, Stebb.

Stephensen, 1918, p. 63, figs. 22, 23.

- Occurrence*: 1. St. 13° 25' N, 18° 22' W. 2 ♀♀ 65 and 66 mm. (incl. uropods 72 and 76 mm.), 3 immat. 34, 40, and 48 mm.  
 2. St. 6° 55' N, 15° 54' W. 2 immat. 25 and 40 mm.  
 3. St. 71. South-west Atlantic. 1 immat. 35 mm.  
 4. St. 81. South Atlantic. 1 ♂ 52 mm. (no genital papillae or median ventral spine).  
 5. St. 216. Drake Strait. 1 juv. 21 mm.  
 6. St. 219. Drake Strait. 1 juv. 23 mm.  
 7. St. 276. East mid-Atlantic. 1 juv. 17 mm.  
 8. St. 281. East mid-Atlantic. 1 ♀ 70 mm.  
 9. St. 287. East mid-Atlantic. 1 immat. 38 mm.  
 10. St. 297. East mid-Atlantic. 1 immat. 31 mm., 1 juv. 13 mm.

REMARKS. In all these specimens the antennae are about as long as the head, sometimes a little less, sometimes a little more; except in one specimen of no. 1 where they are considerably longer (head 11 mm., antennae 20 mm., total length 48 mm.); they always arise close together, never more than 1.5 mm. apart in the largest specimens. The number of ventral spines is constant (two pairs).

No. 5 is noted as being "completely transparent". Woltereck (1903, p. 452) found rows of regularly spaced chromatophores on the edges of the peraeopods and the dorsal keels.

Nos. 3, 4, and especially 5 and 6, extend the known distribution far to the south.

DISTRIBUTION. North Atlantic, 50° N; Indo-Pacific (Zanzibar and East Indies), 4° N–10° S. 900–2200 m.

### Family HYPERIIDAE

Bovallius, 1889, p. 74 (key to genera).

Stephensen, 1924, p. 78.

Spandl, 1927, p. 151 (key to genera).

### Genus *Hyperia*, Latr.

Bovallius, 1889, p. 129 (key to species).

Vosseler, 1901, p. 56.

Spandl, 1927, p. 153.

### *Hyperia galba*, Mont.

Barnard, 1916, p. 285 (*gaudichaudii*) (literature); 1930, p. 411.

Stephensen, 1924, p. 81, chart 11.

Spandl, 1927, p. 153.

- Occurrence*: 1. St. WS Hoetjes Bay, South Africa. 1 adult ♂ 12 mm., 2 ♂♂ (penult. instar) 11 mm., 4 ♀♀ 8–11 mm., from Medusae.  
2. St. WS 95. Between Falklands and South America. 1 ♂ (penult. instar) 9 mm., 12 ♀♀ 8–10 mm. (the larger ovig.).

REMARKS. In the Terra Nova Report I maintained that *gaudichaudii* was not separable from *galba*, and further that *spinigera* and *antarctica* were also synonymous. Since, however, I have seen the specimens in the present collection which are obviously referable to the form *spinigera*, I am of opinion that *spinigera* ought to be kept separate from *galba*.

DISTRIBUTION. Mediterranean; North Atlantic, southwards to 17° N; South Atlantic, northwards to 26½° S; Arctic and Antarctic Oceans; Indo-Pacific.

### *Hyperia spinigera*, Bov. (Fig. 160).

Bovallius, 1889, p. 191, pl. x, figs. 33–39.

Norman, 1900, p. 128 (*galba* part).

Tattersall, 1906, p. 22.

Stephensen, 1924, p. 81 (*galba* part).

Spandl, 1927, p. 153, fig. 2 (*antarctica*).

- Occurrence*: 1. St. 36. South Georgia. 1 ♂ 22 mm. (mutilated).  
2. St. 298. East mid-Atlantic. 1 ♂ 20 mm., 1 ovig. ♀ 15 mm.

REMARKS. Firstly, it seems reasonable to assume that the ♀ and ♂ of no. 2 are conspecific, though it is not certain. The most striking feature of both is the very broad peduncles and inner rami of uropods 2 and 3; that of the ♂ agrees with Bovallius' figure of a ♂. Both specimens further agree with one another in the 2nd gnathopods, though the spines are rather stronger in the ♂, and in having the postero-inferior angle of pleon segment 3 rounded.

Apparently the only known ♀ specimens are those reported by Norman (1900) who says that according to the 1st and 2nd gnathopods both sexes belong to the *spinigera* form. The present ♂ of no. 2 has the 1st gnathopod as in Bovallius' fig. 34; but the ♀ has the antero-inferior angle of the 5th joint more rectangular, and with fewer and weaker spines on the 4th–6th joints, in fact quite like that of *latreillei* as figured by Bovallius (pl. x, fig. 4).

With these specimens before me, I see no other course than to follow Tattersall in maintaining Bovallius' species as distinct from *galba*.

Bovallius regarded *spinigera* as an Arctic form, and the most southerly locality yet recorded is the south coast of England. The present specimens extend the known distribution very far to the south.

It would seem that *antarctica* is synonymous with *spinigera* rather than with *galba*, although one cannot be sure because Spandl merely said the uropods were completely unarmed and showed "keinerlei charakteristische Form". It is just the characteristic form of the uropods which induces me to maintain the distinctness of *spinigera*.

DISTRIBUTION. Spitsbergen; Labrador; West of Ireland; South coast of England; Antarctic (*antarctica*).

#### Genus *Hyperielliella*, Bov.

Stebbing, 1888, p. 1403.

Bovallius, 1889, p. 241.

Spandl, 1927, p. 161.

#### *Hyperielliella dilatata*, Stebb.

Stebbing, 1888, p. 1403, pl. clxxi (♀).

Spandl, 1927, p. 162, fig. 5 (♂).

Barnard, 1930, p. 413.

Occurrence: St. 116. Bouvet Island. 11 ♀♀ 4–6 mm.

REMARKS. In the Terra Nova Report it was stated that this species appeared to be a more Antarctic species than *antarctica*, as only one of the recorded localities lay north

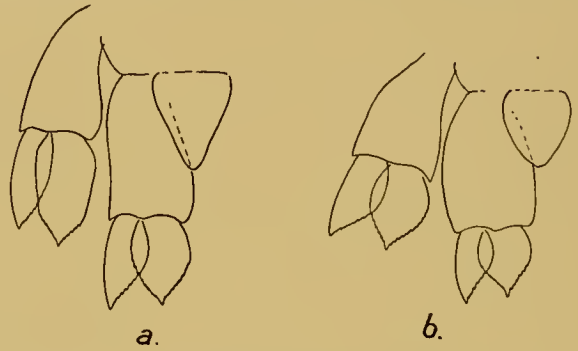


Fig. 160. *Hyperia spinigera*, Bov. Uropods 2 and 3, and telson of a ♂, b ♀.

of lat.  $60^{\circ}$  S. The present record constitutes a further exception. The accompanying chart shows the recorded distribution of the two species, including the present records.

DISTRIBUTION. See chart, Fig. 161.

### *Hyperielliella antarctica*, Bov.

Bovallius, 1889, p. 242, pl. xi, figs. 42-51.

Stewart, 1913, p. 256.

Barnard, 1930, p. 414.

- Occurrence: 1. St. MS 2. South Georgia. 1 ♂ 6 mm.  
 2. St. MS 22. South Georgia. 1 ♀ 5.5 mm.  
 3. St. MS 25. South Georgia. 1 ♀ 5 mm.  
 4. St. MS 26. South Georgia. 1 ♀ with embryos 7 mm.  
 5. St. MS 40. South Georgia. 1 ovig. ♀ 7 mm.



Fig. 161. Chart of the South Polar region to show distribution of *Hyperielliella*:  
 A = *antarctica*, D = *dilatata*.

REMARKS. As noted by Stewart and Barnard the points on the pleon segments 1-3, and on the distal front angle of the 2nd, 3rd and 4th joints in peraeopods 3-5 are sometimes present in this species, though not as well developed as in *dilatata*.

DISTRIBUTION. See chart, Fig. 161.

### Genus *Hyperioides*, Chevr.

Chevreaux, 1900, p. 143.

Vosseler, 1901, p. 56 (*Parahyperia*).

Stebbing, 1904, p. 34.

**Hyperioides longipes**, Chevr.

Chevreux, 1900, p. 143, pl. xvii, fig. 2.

Stebbing, 1904, p. 35.

Stewart, 1913, p. 256.

Chevreux and Fage, 1925, p. 407, fig. 405.

Barnard, 1930, p. 414.

- Occurrence*: 1. St. 84. South-east Atlantic. 1 ♀ 4.5 mm.  
 2. St. 87. South-east Atlantic. 1 ovig. ♀ 6 mm., 2 ♀♀ 5-6 mm.  
 3. St. 88. South-east Atlantic. 2 ♀♀ 5.5 mm.  
 4. St. 89. South-east Atlantic. 1 ♂ (ante-penult. instar) 4.5 mm., 1 ♂ (penult. instar) 5 mm., 6 ♀♀ 5-6 mm.

DISTRIBUTION. Mediterranean; Atlantic, 51° N-37½° S; New Zealand Seas.

**Genus Hyperoche**, Bov.

Bovallius, 1889, p. 83.

Senna, 1908, p. 154.

Barnard, 1930, p. 415.

**Hyperoche medusarum** (Kröy.).

Stephensen, 1924, p. 79.

- Occurrence*: 1. St. 125. South Georgia. 2 ♂♂ 10 and 13 mm.  
 2. St. 130. South Georgia. 1 ♀ 9 mm.  
 3. St. MS 30. South Georgia. 1 juv. ♀ 7 mm.

REMARKS. A species which seems to keep to the upper layers, rarely being found below 250 m. (Stephensen, p. 79). Stephensen erroneously quotes Tattersall (1906) to the effect that it is rarely "encountered at depths greater than 1000 fathoms", whereas Tattersall really says "It would appear to be a wholly littoral and sublittoral form rarely extending outside the 1000-fathoms line".

It is extremely interesting to find this boreo-Arctic species appearing in the South Georgia area, and likewise in the upper layers not far from land. The only other species of the genus hitherto found in Antarctic and sub-Antarctic waters are:

<i>luetkenides</i> , Wlkr.	South of Australia
<i>capucinus</i> , Brnrd.	South-west of Cape Horn and in Ross Sea
<i>cryptodactylus</i> , Stebb.	Off Cape of Good Hope

DISTRIBUTION. North Atlantic and adjacent seas, about 50°-77° N; North of Alaska.

**Genus Pegohyperia**, Brnrd.

Barnard, 1931, p. 429.

Integument indurated, firm (πηγος). Eyes apparently without ocelli or facets. Side-plates uneven, 1, 2, 6 and 7 shallow, 3-5 much deeper. Pleon not abruptly narrower than peraeon (in ♀).

Antenna 1 with large laminate flagellum. Antenna 2 well developed (♀). Mandible with "molar" projection laminate as in *Hyperoche*, and well-developed palp. Maxilla 1 with large laminate palp.

Gnathopods 1 and 2 with 5th joint apically produced, compressed, knife-like. Peraeopods 3-5 with 2nd joint rather broadly expanded.

Peduncles of uropods 1-3 stout, not elongate.

REMARKS. The very striking specimen for which this genus is proposed evidently has relationships with *Hyperoche*, as for instance in the mouth-parts and gnathopods.

Without sectioning it is impossible to say whether the "eyes" are normal functioning eyes or not; it seems possible that they may be composed only of the receptive elements and serve to reflect or intensify light rays from other sources, though no pearly reflector seems to be present (cf. Woltereck, 1909, p. 164 *sqq.*).

The enlargement of the flagellum of antenna 1 may be correlated with the simplification (if any) of the eyes.

Dr Kemp informs me that during the cruise of 'Discovery II' a second specimen of this interesting form was captured, but the specimen has not been submitted to me as yet.

*Pegohyperia princeps*, Brnrd. (Figs. 162-164 and Plate I, figs. 5, 5 a).

Barnard, 1931, p. 430.

Occurrence: St. 85. South-east Atlantic. 1 ♀ with embryos 28 mm.

DESCRIPTION OF ♀. Integument firm and indurated, shagreened and minutely punctate all over. Head moderately enlarged, the lower anterior margin produced into

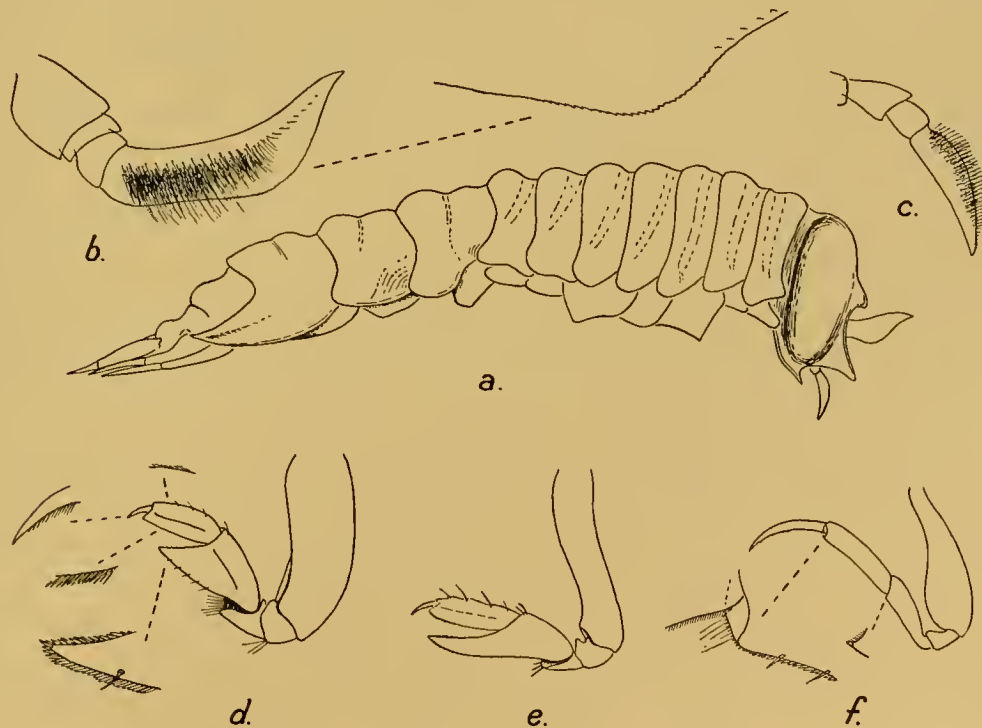


Fig. 162. *Pegohyperia princeps*, Brnrd. a. General view. b. Antenna 1 with lower margin of flagellum further enlarged. c. Antenna 2. d. Gnathopod 1, with portions of margins further enlarged. e. Gnathopod 2. f. Peraeopod 1, with portions of margins further enlarged.

two points, the anterior one larger than the other; a prominent rounded knob projecting between the "eyes", hollow beneath, and arching over the bases of 1st antennae; a distinct though shallow neck behind the "eyes"; free margin of the head costate, the costa more prominent on the postero-inferior margin, and on the anterior margin of the larger projecting point and the lower margin of the frontal knob.

The surface of the "eyes" is shagreened like the rest of the body, and no trace of ocelli or facets is visible. The front portion of the ocular lobes is dull reddish-brown, darker in colour than the rest of head (cf. coloured reproduction of sketch taken from life).



Fig. 163. *Pegohyperia princeps*, Brnrd. *a, b*. Two views of left mandible (palp omitted in *b*). *c*. Maxilla 2. *d, e*. Two views of maxilla 1, with distal margin of palp further enlarged. *f*. Maxilliped, with apex of outer plate further enlarged.

Peraeon segments subequal, each with a transverse dorsal and dorso-lateral shallow groove and raised rounded ridge; on segment 1 the ridge precedes the groove, on the other segments the groove is in front of the ridge, which is specially prominent on segments 5-7; the dorsal profile is therefore undulate. Postero-inferior angles on all segments rounded; antero-inferior angles on segment 1 slightly, on segments 6 and 7 more prominently produced forwards, but not acute. Side-plates 1 and 2 shallow, slightly produced forwards as rounded lobes, both with a horizontal keel above and overhanging the insertions of the gnathopods. Side-plates 3-5 considerably deeper, 3 projecting outwards, 3 and 4 quadrangular, 5 triangular. Side-plates 6 and 7 shallow.

Pleon broad, not abruptly narrower than peraeon, dorsal profile undulating; pleural



portions of segments 1-3 each with an oblique keel which forms the lower margin of the posterior half of each pleuron; segment 4 (in dorsal view) wider than long; segments 5 and 6 completely fused, with a notch on lateral margin. Telson longer than wide, extending to three-quarters of peduncle of uropod 3, ovate-lanceolate, tapering rather rapidly to the acute apex.

Antenna 1, flagellum very large, thin, laminate, apex acute and upturned, lower margin arcuate and very minutely serrulate, inner surface with a band of dense, very fine setae. Antenna 2, flagellum ensiform, upper margin with numerous fascicles of setae.

Epistome gibbous. Upper lip bilobed (somewhat asymmetrically). Mandible, cutting edge with rounded denticles, and ending in a tooth at posterior corner; secondary cutting plate in left mandible only, subcircular, also with rounded denticles; the "molar" projection thin, laminate, its margin with spinules and setae; palp with 3rd joint sub-

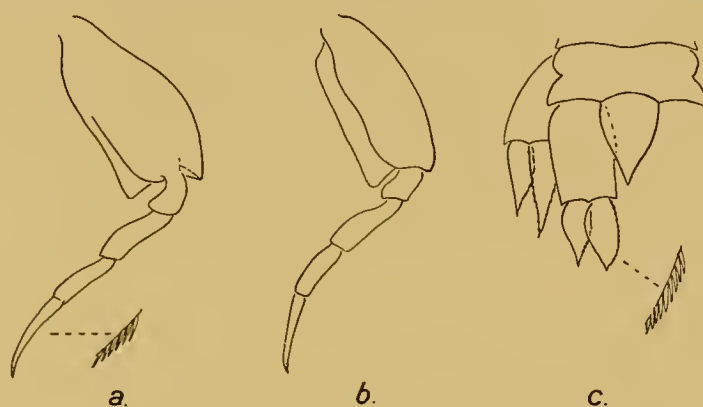


Fig. 164. *Pegohyperia princeps*, Brnrd. a, b. Peraeopods 3 and 5. c. Uropods 2, 3 and telson.

equal to 2nd, all the joints smooth. Maxilla 1, inner lobe wanting, outer lobe strong, twisted, its distal margin with two strong teeth, then a small one, then a moderately large one, followed by two small ones, setae arranged as in figure, palp large, laminate, curved, ovate, its distal margin minutely denticulate. Maxilla 2, inner lobe with a single apical spine, and a subapical dense whorl of setae, outer lobe with three strong apical spines, and some setae on inner and outer margins. Maxilliped, inner plates completely fused into a conical projection tipped with two spinules, and a subapical patch of setae; outer plates ovate, inner margin minutely serrulate.

Gnathopod 1, 5th joint triangularly expanded, laminate, apex reaching three-quarters along 6th joint, upper and lower margins finely pectinate, 6th narrow ovate, lower margin pectinate, a low longitudinal ridge on outer surface. Gnathopod 2 similar to gnathopod 1, but more slender, the produced apex of 5th joint reaching to end of 6th.

Peraeopods 1 and 2 similar to one another, but the 2nd joint in the 2nd not so markedly flask-shaped as in the 1st, 4th and 5th joints subequal, 6th longer, lower margins of 5th and 6th minutely pectinate. Peraeopods 3 and 4 a little longer than peraeopods 1 and 2,

similar to one another, but 2nd joint in 4th not so wide distally, 4th and 5th joints subequal, 6th longer, lower margin of 6th minutely pectinate, and a few similar pectinations on lower apical angle of 5th joint in peraeopod 4. Peraeopod 5 shorter than peraeopods 3 and 4, subequal to peraeopods 1 and 2, 2nd joint similar to that of peraeopods 3 and 4 but more ovate, being wider at base, and the longitudinal keel extends right to base, 5th shorter than 4th, 6th longer than 4th, lower margin of 6th minutely pectinate, and a few pectinations on lower apical angle of 5th. Dactyls of peraeopods 1-5 all slender, and there appear to have been a few pectinations on their inner margins near base, but most of them are broken or rubbed off.

Pleopods, peduncles very stout, quadrangular in cross-section.

Uropods 1 and 2, peduncle stout, extending about one-third length of peduncle of uropod 3, rami narrow lanceolate, the inner subequal to peduncle, the outer a little shorter, outer margin of peduncle of uropod 1 minutely serrulate, of uropod 2 smooth. Uropod 3, peduncle stout, about twice as long as broad, upper surface with a low longitudinal ridge, margins smooth, rami ovate-lanceolate, the inner a trifle longer than outer. Margins of all rami of all uropods minutely serrulate, except outer margin of outer ramus of uropod 2 and outer margins of both rami of uropod 3.

REMARKS. The beautiful and remarkable violet coloration of this species is well shown in the figures on Plate I, reproduced from sketches made immediately after capture.

#### Genus *Parthemisto*, Boeck.

Stebbing, 1888, p. 1407 (*Euthemisto*) and p. 1419.

Bovallius, 1889, p. 248 (key to species) and p. 275 (*Euthemisto*, key to species).

Stephensen, 1923, p. 19 (*Themisto*, key to European species); 1924, p. 95 (*Themisto*).

Mogk, 1926, p. 65 (*Themisto*, analysis of *compressa*-*bispinosa* differences).

Barnard, 1930, p. 419 (synopsis of species).

#### *Parthemisto* (*Euthemisto*) *gaudichaudii* (Guér.).

Cunningham, 1871, p. 498 (*Themisto antarctica* Dana).

Bovallius, 1889, p. 229, text-figs. 1-5; pl. xiii, figs. 44-46.

Vosseler, 1901, p. 81, fig. 2; pl. viii, figs. 11-17 (*compressa*) and p. 84, fig. 3; pl. viii, figs. 3-10 (*bispinosa*).

Stewart, 1913, pp. 256, 257.

Stephensen, 1923, p. 27, chart 6 (*compressa*); 1924, p. 103, figs. 43-49 (*compressa* and *bispinosa*).

Barnard, 1925, p. 374; 1930, p. 420.

Chilton, 1925, p. 180; 1926, p. 512.

Mogk, 1926, p. 65 (*compressa* and *bispinosa*).

Spandl, 1927, p. 165 (*bispinosa*).

- Occurrence*: 1. St. 8. South Atlantic. 23 ♀♀ 14-16 mm. (half sample).  
 2. St. 9. South Atlantic (0-1250 m.). 23 ♀♀ 10-17 mm.  
 3. St. 24. South Georgia. 24 ♀♀ 11-19 mm. (half sample).  
 4. St. 26. South Georgia. 1 juv. 8 mm., 12 ♀♀ 13-16 mm.  
 5. St. 33. South Georgia. 14 ♀♀ 14-19 mm.  
 6. St. 35. South Georgia. 7 ♀♀ 14-17 mm.

7. St. 36. South Georgia (0-5 m.). 21 ♀♀ 14-16 mm. (half sample).
8. *ditto* (90-0 m.). Many ♀♀ 13-17 mm.
9. St. 41. South Georgia (100-50 m.). 17 ♀♀ 15-17 mm. (half sample).
10. *ditto* (250-150 m.). 10 ♀♀ 13-17 mm. (half sample).
11. St. 47. Falklands. 4 ♀♀ 17-20 mm., 6 ♀♀ 11-14 mm.
12. St. 49. Falklands. 1 ♀ 20 mm.
13. St. 51. Falklands. 8 ♀♀ 10-13 mm., 1 ♀ 19 mm., many juv. 2.5-4.5 mm.
14. St. 71. South-west Atlantic. 9 ♀♀ 12-15 mm., 1 ♀ 20 mm.
15. St. 72. South-west Atlantic. 2 ♀♀ 14 and 15 mm.
16. St. 78. South Atlantic. 2 ♂♂ 15 and 17 mm.
17. St. 101. South-east Atlantic (1310-1410 m.). 1 ♂ 11 mm.
18. St. 116. Bouvet Island. 2 ♀♀ 16 mm. (1 ovig.).
19. St. 120. South Atlantic. 3 ♂♂ 13-14 mm.
20. St. 125. South Georgia. Many juv. 3-6 mm.
21. St. 128. South Georgia. 4 juv. 4-5 mm.
22. St. 132. South Georgia. 1 ♀ 17 mm., 1 juv. 10 mm.
23. St. 136. South Georgia. Many juv. 5-9 mm.
24. St. 137. South Georgia. 2 ♀♀ 16 mm., 1 ovig. ♀ 20 mm., a lot juv. 6-9 mm.
25. St. 151. South Georgia. 7 ♀♀ 8-12 mm.
26. St. 180. Palmer Archipelago (160-330 m.). 19 ♀♀ 14-16 mm.
27. St. 208. South Shetlands. 10 ♀♀ 16-17 mm.
28. St. 239. South-west Atlantic. 20 ♀♀ 17-25 mm.
29. St. WS 38. South Georgia. 1 ovig. ♀ 16 mm., 33 juv. 6.5-10 mm.
30. St. WS 69. Falklands. 1 ovig. ♀ 25 mm.
31. St. WS 72. Falklands. 1 ♀ 9 mm.
32. St. WS 89. South America. 16 ♀♀ 11-16 mm.
33. St. WS 95. Between Falklands and South America. Many ♀♀ 14-17 mm.
34. St. WS 99. Falklands. Many, more or less damaged, from stomach of *Merluccius* sp.
35. St. MS 36. South Georgia. 2 ♀♀ 16 mm. (1 with embryos).
36. St. MS 39. South Georgia. 2 ♀♀ 16 mm. (1 with embryos).

REMARKS. There are about 300 ♀♀ and only 6 ♂♂ in the present collection (cf. Vosseler, p. 87). Both forms *compressa* and *bispinosa* occur together, but the latter seems to be slightly more abundant, and also to prefer higher latitudes, not being found north of 41° S, whereas the former was found about 34° S (off Cape Town). This points to the same conclusion as Vosseler drew (p. 86), based on a single specimen found at 7° S, that f. *compressa* is more eurythermous than f. *bispinosa*.

Both sexes of both forms are present. On no occasion were the two sexes taken together. The ♂♂ measure 11-17 mm.; ovigerous ♀♀ 16-20 mm.; the largest ♀ is 25 mm.

The largest specimens are mostly f. *compressa* with the dorsal teeth and the lateral projections on epimera 5 and 6 in ♀ very well developed.

Breeding takes place in the southern spring and summer, ovigerous ♀♀ being caught in November, December and February, and on two occasions (nos. 1 and 2) ♀♀ with embryos in October.

The present collection affords no evidence of a day-night bathymetrical migration. Specimens were obtained at night only in the upper layers (about 100-0 m.); but this is negative evidence, because on these occasions no deep hauls were made, or only vertical hauls, and vertical hauls are not productive. On the other hand, specimens

occurred abundantly in the upper layers, even to quite near the surface, during the day.

The form *thomsoni*, with the apex of the peduncle of the 1st uropod not extending to the apex of the peduncle of the 2nd, occurred amongst both *compressa* and *bispinosa*, noticeably in nos. 17 and 30 (St. 72 and 239, on the track between the Falkland Islands and Tristan da Cunha). Also at two stations (St. 9 and 239: between Tristan da Cunha and South Georgia, and north-east of the Falkland Islands) the *bispinosa* specimens were noticeable for the length of the 6th joint of the 3rd peraeopod and of the 3rd uropods, being exact counterparts of Guérin's figure and Dana's figure of *antarctica* (cf. facsimiles in Bovallius, 1889, pp. 299 and 294 resp.).

As regards the synonymy it seems that the union of *gaudichaudii*, *antarctica*, *thomsoni*, *compressa* and *bispinosa* under the one name is undoubtedly right. Vosseler stated that the name *gaudichaudii* should be used, but Stephensen ignores Guérin's right of priority. Strictly speaking *bispinosa* should give place to *antarctica* as a designation for one of the two forms. Perhaps this latter is too drastic a change for northern naturalists; certainly the use of a geographical appellation is not very desirable, though the terms *compressa* and *bispinosa* do not express the real contrast between the two forms.

DISTRIBUTION. North Atlantic about 40°–76° N (the Plankton Expedition obtained one *compressa* at 7° S and one *bispinosa* at 31½° N); South Atlantic, 35°–68° S; southern Indian Ocean, 40°–50° S; Australasian Region, 48°–63° S. The occurrence in lower latitudes off Cape Town (34° S) is evidently due to the cold west drift current.

#### Family DAIRELLIDAE

Bovallius, 1889, p. 331.

Vosseler, 1901, p. 50.

#### Genus *Dairella*, Bov.

Bovallius, 1889, p. 332 (key to the two species).

Stephensen, 1924, p. 112.

#### *Dairella latissima*, Bov.

Stebbing, 1888, p. 1343, pl. clviii.

Bovallius, 1889, p. 336, pl. xv, figs. 1–20.

Stewart, 1913, p. 254.

Stephensen, 1924, p. 112.

Occurrence: St. 89. South-east Atlantic. 2 ♂♂ 6 mm. (penult. instar).

DISTRIBUTION. Mediterranean; Atlantic, 57° N–37½° S.

#### Family PHRONIMIDAE

#### Genus *Phronima*, Latr.

Stebbing, 1888, p. 1346.

Vosseler, 1901, p. 1.

Stephensen, 1924, p. 113 (key to species and note on vertical migrations).

Mogk, 1926, p. 160 sqq.

Dudich, 1926, p. 117.

*Phronima sedentaria* (Forsk.).

Vosseler, 1901, p. 14; pl. i, figs. 1-11.

Stephensen, 1924, p. 114, figs. 50, 51, chart 15.

Mogk, 1927, p. 127, chart 1.

Barnard, 1930, p. 422.

- Occurrence*: 1. St. 29° 26' N, 15° 07' W. 3 ♀♀ 10-14 mm.
2. St. 17° 45' N, 18° 15' W. 4 mutilated ♀♀, about 15-18 mm., from stomach of *Thynnus pelamys*.
3. St. 13° 25' N, 18° 22' W. 1 ♀ 28 mm. in house, with juv. in 3rd instar; 1 ♀ 33 mm. in house, with juv. in 3rd and 4th instars.
4. St. 2° 20' S, 12° 45' W. 1 ♂ 7 mm., 8 ♀♀ 9-18 mm.
5. St. 3° 50' S, 12° 54' W. 1 ovig. ♀ 17 mm.
6. St. 3. South Atlantic. 1 ♀ 29 mm. in house.
7. St. 4. Tristan da Cunha (0-10 m.). 1 ♀ 31 mm.
8. *ditto*. 1 ♀ 21 mm. from stomach of "*Perca antarctica*".
9. St. 62. South-west Atlantic. 1 ♀ 17 mm.
10. St. 71. South-west Atlantic. 1 ♀ 25 mm. in house.
11. St. 72. South-west Atlantic. 3 ♀♀ 22-25 mm. with three houses.
12. St. 76. South-west Atlantic. 1 ♀ 26 mm. in house, with juv. in 2nd instar.
13. St. 81. South Atlantic. 3 ♀♀ 20-32 mm. in houses; numerous juv. in 4th and 5th instars loose in bottle.
14. St. 85. South-east Atlantic. 3 ♀♀ 21-23 mm., two in houses, one loose.
15. St. 86. South-east Atlantic. 1 ♀ 18 mm.
16. St. 88. South-east Atlantic. 1 ♀ 28 mm. in house.
17. St. 101. South-east Atlantic (2480-2580 m.). 2 ♀♀ 17 and 25 mm.
18. *ditto* (350-400-0 m.). 1 ovig. ♀ 31 mm., 1 ♀ 29 mm. with juv. in 1st instar in brood pouch; 7 ♀♀ 17-30 mm.
19. *ditto* (850-900 m.). 4 ♀♀ 15-17 mm.
20. St. 239. South-west Atlantic. 7 ♀♀ 16-26 mm. and four houses. In one house juv. in 3rd instar, in another juv. in 2nd instar.
21. St. 250. South Atlantic. 4 ♀♀ 22-27 mm. with houses; 1 ♀ 26 mm. with juv. in 1st instar in brood pouch. One house with juv. in 3rd instar, another with juv. in 4th instar.
22. St. 254. South-east Atlantic. 5 ♀♀ 20-30 mm. and five houses. In one house juv. in 3rd and 4th instars.
23. St. 256. South-east Atlantic. 1 ♂ 9 mm.
24. St. 268. Portuguese West Africa. 6 ♂♂ 8-10 mm., 8 ♀♀ 9-12 mm., 9 ♀♀ 20-24 mm. One house with juv. in 1st instar.
25. St. 273. Portuguese West Africa. 2 ♀♀ 16 and 22 mm.
26. St. 281. East mid-Atlantic. 2 ♀♀ 20 and 22 mm.
27. St. 285. East mid-Atlantic. 48 ♀♀ 20-30 mm. with houses; 1 ovig. ♀ 27 mm., 2 ♀♀ 12 and 18 mm., two houses with juv. in 2nd instar.
28. St. 297. East mid-Atlantic. 2 ♀♀ 26 mm. with houses, and one 20 mm. loose.
29. St. WS 95. Between Falklands and South America. 1 ♀ 23 mm. in house.
30. St. WS 105. Between Falklands and South America. 1 ♀ 22 mm. in house with juv. in 3rd instar.

REMARKS. The adults of both sexes appear to be found mostly in the deeper layers, but the young rise to the surface (Stephensen, 1924, p. 119). Propagation takes place in winter and early spring (November to April) or in the more northerly parts of

the area of distribution in summer and autumn (Stephensen, 1924, p. 119). The young up to and including the 4th instar remain within the house (Mogk, 1927, p. 130).

These observations are borne out by the present collection. Females with ova were found in October ( $33^{\circ}$ – $34^{\circ}$  S) and November ( $3^{\circ}$  S), with young in the 1st instar in November ( $33^{\circ}$ – $34^{\circ}$  S). Young in the 2nd instar were found in June ( $40^{\circ}$  S), in the 3rd and 4th instars in both June ( $35^{\circ}$ – $46^{\circ}$  S) and October ( $13^{\circ}$  N), in the 5th instar in June ( $32^{\circ}$  S) (latitudes approximate).

Dudich (1926, p. 130) does not admit Stephensen's views, and states that in the Mediterranean there are two "swarms". The autumn swarm rises to the surface and propagates in November to December. The young sink in January and grow in the deeper layers until October, when they rise again. The spring swarm rises in February, propagates in March to April; the young sink and remain below until February. Thus at the surface from October to May there are two maxima or swarms, while in the deeper layers from May to October there are all stages of both swarms, those of the autumn swarm being more advanced. The times of appearance and bathymetrical distribution are similar to those of *Pyrosoma* (p. 133).

The 1st instar is passed within the brood pouch of the mother (cf. no. 18); the 2nd to 4th instars are attached to the wall of the house. Stephensen (1924, p. 119) says that the young are attached in two groups and refers to a figure in Minkiewicz (1909, fig. 22 on p. 2). Minkiewicz does not specifically state the position of the larvae, and his figure may be misleading as it may represent a schematic sagittal section of the animal in its house, after removal of one side of the house on which there may have been a further batch of larvae connecting the two batches drawn in the figure. Stephensen's observations, if they are his own first-hand observations, are in conflict with what I find to be the case in the Discovery material. Here there are twelve houses containing young, and in every case there is only one group. The young are arranged in a radiating manner, their heads pointing in a centrifugal direction. Dudich (pp. 123, 124) says that the larvae feed on the substance of the house, and as they seek for new pastures the "Brutgürtel" spreads and resolves itself into two girdles.

In two cases, no. 3 (October) and no. 22 (June), the group of larvae is composed of individuals in two stages of growth, namely the 3rd and 4th instars. Where the group is composed of individuals all of the same instar, it forms a compact more or less circular patch; but where two instars are present the number of individuals is much greater and they spread out over the whole inside of the house, though they are just as closely packed as in the groups containing only one instar.

The question arises where two instars are present, whether they all belong to one brood or to two broods. Appearances certainly seem to suggest two broods, but one may doubt the possibility of a single female producing two broods in such rapid succession. Further observations on more abundant material might lead to a definite conclusion. Dudich (p. 124) states that the eggs are laid in three batches at three-day intervals.

DISTRIBUTION. Mediterranean; North and South Atlantic,  $60^{\circ}$  N– $36^{\circ}$  S; Indo-Pacific.

**Phronima atlantica**, Guér.

Vosseler, 1901, p. 21, pl. ii, figs. 1-10.

Stephensen, 1924, p. 121, chart 16.

Mogk, 1927, p. 131, chart 2.

Barnard, 1930, p. 422.

- Occurrence*: 1. St. 39° 05' N, 13° 04' W. 1 ♂ 8 mm., 1 ♀ 10 mm.  
 2. St. 2° 20' S, 12° 45' W. 1 ♂ 7 mm., 1 ♀ 8 mm.  
 3. St. 87. South-east Atlantic. 5 ♂♂ 5-10 mm., 8 ♀♀ and juv. 4-10 mm.  
 4. St. 89. South-east Atlantic. 9 ♂♂ 6-10 mm., 9 ♀♀ and juv. 4-14 mm.

REMARKS. Propagation appears to take place during both summer and winter, but chiefly in summer (Vosseler, p. 26; Stephensen, p. 124). Mogk (p. 131) records ♂♂ in the penultimate stage in August to October. Vosseler (p. 26) refers to the possibility of there being two broods a year, which is interesting in comparison with the remarks made under *sedentaria*.

None of the present ♂♂ are fully adult, even the largest from St. 87 and 89, which are even larger than the normal size recorded, although only in the penultimate stage.

DISTRIBUTION. Mediterranean; North and South Atlantic, 41° N-40° S; Indian Ocean, 28°-39° S; Pacific Ocean, 37° N-30° S and Chilean coast; Antarctic, 65° S, 88° E.

**Phronima curvipes**, Voss.

Vosseler, 1901, p. 27, pl. iii, figs. 1-3.

Stephensen, 1924, p. 126, fig. 52, chart 17.

Mogk, 1927, p. 137, chart 6.

- Occurrence*: 1. St. 3° 50' S, 12° 54' W. 1 ovig. ♀ 13 mm.  
 2. St. 81. South Atlantic. 1 ♀ 13 mm.  
 3. St. 285. East mid-Atlantic. 1 ♀ 14 mm.  
 4. St. 288. East mid-Atlantic. 1 ovig. ♀ 12 mm.  
 5. St. 296. East mid-Atlantic. 1 ♀ 11 mm.

REMARKS. The ♂ of this species is known only from the Gauss expedition, and Mogk expresses a certain hesitation in the identification. Ovigerous ♀♀ are known varying from 11 mm. (Stephensen), 14-16 mm. (Mogk), to 17 mm. (Vosseler); they have been found in June to September (Stephensen) and September (Mogk).

DISTRIBUTION. Mediterranean; North and South Atlantic, 35° N-34° S; Indian Ocean (one record only from 5° S).

**Phronima pacifica**, Streets.

Vosseler, 1901, p. 29; pl. iii, figs. 4-7.

Stephensen, 1924, p. 130.

Mogk, 1927, p. 140, chart 8.

Barnard, 1930, p. 423.

- Occurrence*: 1. St. 87. South-east Atlantic. 1 ♀ 9 mm.  
 2. St. 266. South-east Atlantic. 1 ♀ 7.5 mm.  
 3. St. 287. East mid-Atlantic. 1 ♀ 7.5 mm., 1 ovig. ♀ 9 mm.

REMARKS. The separation of *colletti*, Bov., from this species will probably prove impossible when more material has been examined on the lines pursued by Mogk (1926). Mogk (1927, p. 125) refers to certain transitional specimens, and the present specimens have the dentition on the lower margin of the hand of peraeopod 3 more like that of *colletti*, though the proportions of the 4th and 5th joints and of the whole limb are those of *pacifica*.

DISTRIBUTION. Mediterranean; North and South Atlantic, 53° N–9° S; Indo-Pacific.

*Phronima colletti*, Bov.

Vosseler, 1901, p. 32; pl. iii, figs. 8–10; pl. iv, figs. 1–3.

Stephensen, 1924, p. 127, chart 18.

Mogk, 1927, p. 139, chart 7.

Occurrence: St. 290. East mid-Atlantic. 1 ♂ 7 mm.

DISTRIBUTION. Mediterranean; North and South Atlantic, 41° N–35° S; Indo-Pacific.

Genus *Phronimella*, Claus.

Stephensen, 1924, p. 130.

*Phronimella elongata* (Claus).

Vosseler, 1901, p. 40, text-fig.

Stephensen, 1924, p. 130, chart 19.

Mogk, 1927, p. 141, charts 9–11.

Barnard, 1930, p. 423.

Occurrence: 1. St. 2° 20' S, 12° 45' W. 1 ♂ 6 mm. in penult. instar, 2 adult ♂♂ 7 mm., 10 ♀♀ 5–11 mm.

2. St. 296. East mid-Atlantic. 1 adult ♂ 7 mm., 4 ♀♀ 9–10 mm.

REMARKS. Mogk has mentioned the changes in the antennae of the ♂ at different stages of growth, but has not mentioned a difference in the pleopods. The peduncles of the adult ♂ have the very broad ovoid, almost subcircular, shape, which is characteristic of the adult ♂ in the genus *Phronima*. In the penultimate stage, as represented by the 6 mm. specimen recorded above, the peduncles are elongate oval, twice as long as wide; in cross-section they are thin, whereas in the adult they are thick and heart-shaped (Vosseler, p. 42).

The breeding period appears to be August to November in the Mediterranean (Lo Bianco, quoted in Stephensen, p. 133). Stephensen records adult ♂♂ in January to April, June to August, and October and November; Mogk records adult ♂♂ in August to October and a preponderance of large-sized (not the largest) ♀♀ in September.

DISTRIBUTION. Mediterranean; North and South Atlantic, 43° N–37° S; Indo-Pacific; Antarctic, 63° S, 82° E.



## Family PHROSINIDAE

Stebbing, 1888, p. 1423.

Bovallius, 1889, p. 396 (*Anchylomeridae*) (key to genera).

Spandl, 1927, p. 167 (*Anchylomeridae*) (key to genera).

Genus *Phrosina*, Risso.

Stebbing, 1888, p. 1424.

Bovallius, 1889, p. 421.

*Phrosina semilunata*, Risso.

Bovallius, 1889, p. 426, pl. xviii, figs. 3-30.

Stewart, 1913, p. 257.

Stephensen, 1924, p. 138, chart 21.

Chevreaux and Fage, 1925, p. 413, fig. 409.

Spandl, 1927, p. 168 and p. 282, figs. 60, 61.

Barnard, 1930, p. 424.

- Occurrence*: 1. St. 2° 20' S, 12° 45' W. 1 ♂ 4 mm.  
 2. St. 89. South-east Atlantic. 1 ♂ 5 mm., 4 ♀♀ 6-9 mm.  
 3. St. 101. South-east Atlantic (350-400-0 m.). 1 ovig. ♀ 23 mm., 1 ♀ 13 mm.,  
 1 juv. 10 mm.  
 4. St. 254. South-east Atlantic. 1 ♀ with embryos 25 mm.  
 5. St. 266. South-east Atlantic. 1 ♂ 7.5 mm.  
 6. St. 267. South-east Atlantic (117-0 m.). 1 ovig. ♀ 19 mm.  
 7. St. 273. Portuguese West Africa. 2 ♀♀ 22 mm.  
 8. St. 283. East mid-Atlantic. 1 ovig. ♀ 23 mm.  
 9. St. 284. East mid-Atlantic. 1 ovig. ♀ 19 mm.  
 10. St. 285. East mid-Atlantic. 2 ♀♀ 12 and 22 mm.  
 11. St. 286. East mid-Atlantic. 2 ♀♀ 14 and 19 mm.  
 12. St. 287. East mid-Atlantic. 1 ♀ 15 mm., 1 ovig. ♀ 24 mm.  
 13. St. 297. East mid-Atlantic. 1 ♀ 21 mm.

REMARKS. At St. 101 other hauls, both day and night, between 850 and 2580 m were made but specimens were only taken at the depth of 350-400-0 m.

DISTRIBUTION. Mediterranean; North and South Atlantic, 47° N-35° S; Indo-Pacific; Antarctic, 64°-65° S, 80°-85° E.

Genus *Primno*, Guér.

Stebbing, 1904, p. 38.

*Primno macropa*, Guér. (Pl. I, fig. 8).

Vosseler, 1901, p. 87, pl. viii, fig. 21 (1st antenna of adult ♂) (*Euprimno macropus*).

Stebbing, 1904, p. 38, figs. 1, 2 (uropod of juv.).

Stewart, 1913, p. 258.

Stephensen, 1924, p. 143, chart 22 (*Euprimno macropus*).

Chevreaux and Fage, 1925, p. 416, fig. 411 (*Euprimno macropus*).

Monod, 1926, p. 50, fig. 49.

Spandl, 1927, p. 168.

Barnard, 1930, p. 424.

- Occurrence*: 1. St. MS 32. South Georgia. 2 juv. 3.5-4 mm.  
 2. St. 9. South Atlantic (0 m.). 1 ♀ 11 mm.  
 3. St. 33. South Georgia. 4 ♀♀ (1 with embryos) 10-13 mm.  
 4. St. 35. South Georgia. 2 ♀♀ 11 and 13 mm., 1 juv. 7 mm.  
 5. St. 38. South Georgia. 1 ♀ 11 mm.  
 6. St. 71. South-west Atlantic. 3 ♀♀ 14-15 mm., 2 juv. 7-8 mm.  
 7. St. 78. South Atlantic. 3 ♂♂ 6.5-7 mm., 1 ♀ 10 mm.  
 8. St. 89. South-east Atlantic. 2 juv. ♂♂ 4-4.5 mm., 7 ♀♀ 4.5-10 mm., 2 ovig. ♀♀ 7-8.5 mm.  
 9. St. 105. South-east Atlantic. 4 ♀♀ 11-14 mm., 2 ovig. ♀♀ 11-12 mm.  
 10. St. 120. South Atlantic. 1 ♂ 7 mm.  
 11. St. 151. South Georgia. 2 ♀♀ 8-9 mm.  
 12. St. 239. South-west Atlantic. 2 ovig. ♀♀ 14 mm.  
 13. St. 257. South-east Atlantic. 1 ♂ 8 mm.  
 14. St. 266. South-east Atlantic. 5 ovig. ♀♀ 7-9 mm.  
 15. St. 297. East mid-Atlantic. 1 ovig. ♀ 6 mm.

REMARKS. In no. 7 the smallest ♂ is in the penultimate stage, the largest is adult. The process of antenna 1 is considerably longer than in the figures given by Vosseler, and by Chevreux and Fage.

At St. 89 and St. 151 other (day) hauls were made in 1275-0 m., including horizontal hauls 0-132 m., and vertical hauls at several levels down to 1000 m., but with negative results as far as this species was concerned.

Note 70 for St. 105 states that the blue colouring is due to eggs which are cobalt-blue. The distal joints of peraeopod 3 were missing in the specimen figured. This coloured sketch is reproduced here on Pl. I, fig. 8.

This appears to be principally a rather deep-water species (500-1000 m. or more) and propagates throughout the year (Stephensen, 1924, p. 145). Ovigerous ♀♀ were found in June and July (29°-46° S), August (12° N) and November (44° S) by the 'Discovery'. The present material also appears to afford some evidence that the larger specimens come from the higher latitudes (cf. nos. 3, 8, 9, 12, 14 and 15).

DISTRIBUTION. Mediterranean; Atlantic, 47° N-36° S; Indo-Pacific; Antarctic, 58°-66° S, 85°-89° E.

#### Genus *Anchylomera*, M. Edw.

Stebbing, 1888, p. 1432.

Bovallius, 1889, p. 408.

#### *Anchylomera blossevillei*, M. Edw.

Barnard, 1930, p. 425 (references).

*Occurrence*: 1. St. 101. South-east Atlantic (350-400-0 m.). 1 ♀ 9 mm.

2. St. 257. South-east Atlantic. 2 ♂♂ 9 mm.

REMARKS. The ♂♂ show no traces of the metallic sheen. It is curious that there should be so few specimens in the present collection.

DISTRIBUTION. Mediterranean; Atlantic, 43° N-38° S; Indo-Pacific.

## Family PRONOIDAE

Stephensen, 1925 *a*, p. 155.

Spandl, 1927, p. 216 (key to genera<sup>1</sup>).

Genus *Pronoë*, Guér.

Stebbing, 1888, p. 1507.

*Pronoë capito*, Guér.

Claus, 1887, p. 50, pl. xii, figs. 1-14.

Stebbing, 1888, p. 1508, pl. clxxxvi.

Spandl, 1924, p. 34, fig.; 1927, p. 217.

Pirlot, 1929, p. 147.

- Occurrence*: 1. St. 276. East mid-Atlantic. 4 ♀♀ 7-10 mm.  
 2. St. 288. East mid-Atlantic. 2 ♀♀ 12 mm.  
 3. St. 294. East mid-Atlantic. 1 ♀ 10 mm.  
 4. St. 295. East mid-Atlantic. 1 ♂ 9 mm.  
 5. St. 296. East mid-Atlantic. 2 ♀♀ 9-10 mm. (the larger with uterine ova).

DISTRIBUTION. Mediterranean; North Atlantic, 0°-32° N; Red Sea and Indian Ocean; South Pacific.

Genus *Eupronoë*, Claus.

Stephensen, 1925 *a*, p. 156.

Spandl, 1927, p. 222.

*Eupronoë minuta*, Claus. (Pl. I, fig. 6).

Stebbing, 1888, p. 1513 (*pacifica* juv. ♂) and p. 1516.

Chevreaux and Fage, 1925, p. 425, fig. 417.

Stephensen, 1925 *a*, p. 160, figs. 55, 56.

Spandl, 1927, p. 223, fig. 41.

- Occurrence*: 1. St. 89. South-east Atlantic. 2 ♀♀ 6 mm.  
 2. St. 266. South-east Atlantic. 6 ♂♂ and 2 ♀♀ 6 mm. (1 ♀ with embryos).

REMARKS. Although recorded from the South Pacific (south of Australia) this species does not seem to have been caught hitherto in the South Atlantic.

DISTRIBUTION. Mediterranean; North Atlantic about 36°-31° N.; Canaries and Azores; South Pacific.

*Eupronoë maculata*, Claus.

Stebbing, 1888, p. 1510, pl. clxxxvii (*inscripta*).

Stephensen, 1925 *a*, p. 156, figs. 53, 54, chart 24.

Spandl, 1927, p. 222.

Barnard, 1930, p. 426.

- Occurrence*: St. 297. East mid-Atlantic. 1 ♂ 8 mm.

DISTRIBUTION. Mediterranean; Atlantic, 40° N-29° S; Indo-Pacific.

<sup>1</sup> *Paralycaea* omitted. Under 2*b*<sub>2</sub> "das Telson..." refers to *Sympronoë*, not to *Parapronoë*; and under 1*b*<sub>1</sub> and 1*b*<sub>2</sub> the word "ersten" seems to have been omitted before "Pereiopodenpaare".

Genus *Parapronoë*, Claus.

Claus, 1887, p. 53.

Stephensen, 1925 *a*, p. 165.

Spandl, 1927, p. 219.

Barnard, 1930, p. 427.

*Parapronoë clausoides*, Stebb. (Fig. 165).

Stebbing, 1888, p. 1529, pl. cxci.

Walker, 1909, p. 54.

Stephensen, 1925 *a*, p. 165 (united with *crustulum*).

*Occurrence*: St. 296. East mid-Atlantic. 3 ♀♀ with embryos 17 mm.

REMARKS. Identified with *clausoides* on account of the very conspicuous serration of the 2nd joint of peraeopod 4, as shown in Stebbing's figure; but this serration is stronger and all the denticles except those on the proximal third of the row point towards the base of the joint; also on account of the elongate process of the 4th joint of same peraeopod, and the two terminal joints of peraeopod 5. The sides of the telson, however, are evenly convex as in *clausi* and *crustulum*, and the lower margin of the 5th joint of gnathopod 1 is smooth. All these characters may later be shown to be subject to variation.

DISTRIBUTION. Australia; Indian Ocean.

*Parapronoë crustulum*, Claus.

Claus, 1887, p. 55, pl. xv.

Stebbing, 1888, p. 1530, pl. cxcii, fig. *A*.

Stephensen, 1925 *a*, p. 165.

Spandl, 1927, p. 220, fig. 39 (*stebbingi*) and p. 221, fig. 40.

*Occurrence*: 1. St. 276. East mid-Atlantic. 3 ♀♀ 10–12 mm.

2. St. 285. East mid-Atlantic. 1 ♀ 13 mm., 3 ♀♀ with embryos 17–18 mm.

3. St. 286. East mid-Atlantic. 1 ♀ 13 mm.

4. St. 287. East mid-Atlantic. 2 ♀♀ (1 ovig.) 13 mm., 1 ♀ 18 mm.

5. St. 290. East mid-Atlantic. 2 ♀♀ with embryos 16 and 18 mm.

DISTRIBUTION. Atlantic, 47°–17° N; Indo-Pacific.

*Parapronoë campbelli*, Stebb.

Stebbing, 1888, p. 1522, pl. clxxxix.

Chevreaux, 1900, p. 152.

Barnard, 1930, p. 427.

*Occurrence*: St. 87. South-east Atlantic. 1 ♀ 10.5 mm.

REMARKS. This forms the first record of this species from the South Atlantic.

DISTRIBUTION. North Atlantic (Azores); Pacific, 35° N and New Zealand Sea.

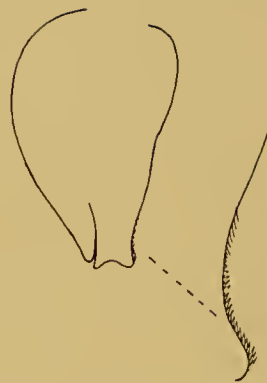


Fig. 165. *Parapronoë clausoides*, Stebb. Second joint of peraeopod 4, with margin further enlarged.

Genus *Sympronoë*, Stebb.

Stebbing, 1888, p. 1533.

*Sympronoë parva* (Claus).

Claus, 1887, p. 55, pl. xiv, figs. 13-18.

Stebbing, 1888, p. 1533, pl. cxcii and p. 1537, pl. cxciii, fig. *B* (*propinqua*).

Shoemaker, 1925, p. 42, figs. 14, 15 (*anomala*).

Stephensen, 1925 *a*, p. 162, fig. 58; and var. *7-articulata*, p. 162, figs. 59, 60.

Spandl, 1927, p. 225, fig. 43.

*Occurrence*: St. 286. East mid-Atlantic. 1 ♂ 6 mm., 1 ♀ 6.5 mm.

REMARKS. There seems to me no reason for regarding *propinqua* and *anomala* as separate species. Shoemaker's species has three terminal joints in peraeopod 5; Stephensen's var. *7-articulata* has the full number of joints. Spandl refers to the variability of *parva*. The present ♂ has the triangular telson of *propinqua* and two terminal joints in peraeopod 5.

DISTRIBUTION. Mediterranean; Atlantic, 10° N-10° S; Indo-Pacific.

## Family LYCAEIDAE

Chevreaux and Fage, 1925, p. 426 (part).

Stephensen, 1925 *a*, p. 167.

Spandl, 1927, p. 211 (part).

Genus *Lycaea*, Dana.

Chevreaux and Fage, 1925, p. 429.

Barnard, 1930, p. 428.

*Lycaea nasuta*, Claus.

Claus, 1887, p. 62, pl. xviii, figs. 1-7.

Barnard, 1930, p. 430, fig. 59.

*Occurrence*: 1. St. 89. South-east Atlantic. 1 ♂ 8 mm.

2. St. 286. East mid-Atlantic. 1 ovig. ♀ 8 mm.

REMARKS. This species has not hitherto been reported from the Atlantic.

The ♀ is more like a *Thamneus* in shape, having the head and peraeon twice as broad as in the ♂. The projection of the lower distal corner of the 6th joint in gnathopods 1 and 2 is very small, i.e. the distal width is scarcely twice the basal width of the dactylus, which is very short. Dactyls of peraeopods 1-4 very short.

DISTRIBUTION. Zanzibar; New Zealand.

## Family BRACHYSCELIDAE

Stephensen, 1925 *a*, p. 171.

Genus *Brachyscelus*, Bate.

Stephensen, 1925 *a*, p. 172.

*Brachyscelus crusculum*, Bate.

Stewart, 1913, p. 262.

Chevreaux and Fage, 1925, p. 427, fig. 418.

Stephensen, 1925 *a*, p. 172, chart 26.

Spandl, 1927, p. 210.

- Occurrence*: 1. St. 83. South-east Atlantic. 1 ovig. ♀ 17 mm.  
 2. St. 89. South-east Atlantic. 3 ovig. ♀♀ 15-16 mm.  
 3. St. 101. South-east Atlantic (350-400-0 m.). 1 ♀ 17 mm.  
 4. St. 257. South-east Atlantic. 1 ♂ 14 mm.  
 5. St. 267. South-east Atlantic (450-550-0 m.). 1 ♂ 17 mm.  
 6. St. 273. Portuguese West Africa. 4 ♂♂ 13-14 mm., 5 ♀♀ 14-16 mm. (ovig. and with embryos).  
 7. St. 276. East mid-Atlantic. 2 ♂♂ 13 mm., 4 ♀♀ 9-14 mm., 1 ovig. ♀ 16 mm.  
 8. St. 286. East mid-Atlantic. 1 ♂ 15 mm.  
 9. St. 296. East mid-Atlantic. 1 ♂ 15 mm., 1 ♀ 14 mm., 1 ♀ 20 mm.

DISTRIBUTION. Mediterranean; Atlantic, 51° N-32° S; North Pacific.

*Brachyscelus rapax*, Claus (Pl. I, fig. 7).

Claus, 1887, p. 59, pl. xvii, figs. 1-8.

*Occurrence*: St. 25° 47' S, 14° 48' W. 3 ♀♀ 6.5 mm.

DESCRIPTION. Telson apically rounded.

Gnathopods 1 and 2, 5th joint without projection overhanging base of 6th joint, distal margin with one tooth, lower margin with three teeth, not including the apical tooth, lower margin in gnathopod 1 in addition finely serrulate, 6th joint with three teeth on inner margin.

Peraeopods 1-3, margins of all joints smooth. Peraeopod 4, anterior margin of 4th joint smooth, of 5th and 6th pectinate. Peraeopod 5, 2nd joint pyriform, subequal to the following joints together.

Uropod 1, rami longer than peduncle, inner ramus lanceolate, broader than outer ramus. Uropod 2, outer ramus about as long as peduncle, inner ramus considerably longer, ovate lanceolate. Uropod 3, inner ramus considerably longer than outer, ovate lanceolate.

REMARKS. Note 12 accompanying a coloured sketch from life says: "The brilliant iridescent colouring, produced by the physical properties of the surface, is backed by deeply pigmented chromatophores".

DISTRIBUTION. Cape of Good Hope (Claus).

**Brachyscelus globiceps (Claus).**

Claus, 1887, p. 59, pl. xvi, figs. 1, 2, 4-10.

Stephensen, 1925 *a*, p. 176, fig. 65.

? Stebbing, 1888, p. 1555, pl. cxcvii, fig. *C* (*latipes*).

*Occurrence*: St. 273. Portuguese West Africa. 1 ♀ 13 mm. (breadth of head 4.5 mm., of peraeon 5 mm.).

REMARKS. As regards the telson and uropods this specimen agrees better with Stebbing's figure than with Stephensen's, the telson being apically rounded, and the outer ramus of uropod 3 four-fifths the length of the inner ramus.

The conspicuous scale markings mentioned by Stebbing are not visible, but the integument of the peraeon and pleon is minutely scabrous.

I am not quite satisfied that this specimen is correctly identified with Claus' species. Neither Stebbing nor Stephensen make any special mention of the breadth of the head and peraeon, which is particularly noticeable in comparison with *crusculum*. In fact at a first glance it appears to be a *Thamneus*, but the 4th-6th joints of peraeopod 4 are regularly pectinate on their margins, and are without the additional setae found in *T. platyrhynchus*.

DISTRIBUTION. Mediterranean; Zanzibar; South Pacific (*latipes*).

#### Genus *Thamneus*, Bov.

Stebbing, 1888, p. 1558.

Stephensen, 1925 *a*, p. 180 (*Euthamneus*).

Pirlot, 1929, pp. 152, 153 (*Euthamneus*).

I cannot follow Pirlot in separating *Thamneus* and *Brachyscelus* into different families. They appear to me to be intimately related, and Stebbing (1888, p. 1555) considered *B. bovallii* as in some respects a connecting link between the two genera. With a series of forms like *bovallii*, *globiceps*, *rapacoides*, the difficulty is to find a distinctive character separating the two genera. At first sight it appears that the very regular pectination of the margins of the 4th-6th joints of peraeopod 4 is absent in *Thamneus* (it is not shown in Stephensen's fig. 70, and only indistinctly in Stebbing's figure, pl. cxcviii), but it is present in the specimen here examined, though nearly obsolete on the 4th joint.

The articulation of the telson with the last pleon segment is not a distinguishing feature, as the telson is just as movably articulated in *Brachyscelus* as in *Thamneus*.

Under the International Nomenclatorial Rules the original name must stand.

***Thamneus platyrhynchus*, Stebb.**

Stebbing, 1888, p. 1558, pl. cxcviii.

Stephensen, 1925 *a*, p. 180, figs. 69, 70 (*Euthamneus p.*).

Spandl, 1927, p. 210 (*Euthamneus p.*).

*Occurrence*: St. 281. East mid-Atlantic. 1 ♀ 7.5 mm.

REMARKS. Though the types of *rostratus* are no longer extant, Stephensen thinks that in all probability this species is the same as Bovallius' species.

DISTRIBUTION. Mediterranean; Atlantic, about 51° N-5° S; Indo-Pacific; Cape of Good Hope (*rostratus*).

## Family OXYCEPHALIDAE

Bovallius, 1890.

Stephensen, 1925 *a*, p. 182.

Spandl, 1927, p. 178.

Stephensen makes *Dorycephalus* synonymous with *Leptocotis*; he retains *Rhabdosoma* (*Xiphocephalus*) within the family, and also *Simorhynchotus*, though the latter, together with *Metalycaea* and *Glossocephalus*, form a transition to the Lycaeidae as regards the shape of the head. Spandl, without giving critical reasons, excludes *Simorhynchotus* from this family and assigns it to the Lycaeidae.

Genus *Oxycephalus*, M. Edw.

Bovallius, 1890, p. 54 (key to species).

Spandl, 1927, p. 179.

Cecchini, 1929, p. 5 (two n.spp.).

*Oxycephalus clausi*, Bov.

Bovallius, 1890, p. 60, figs. 4, 7, 8, 22, 54, 65; pl. i, figs. 19-24; pl. ii, fig. 1.

Stephensen, 1925 *a*, p. 188, chart 27.

Spandl, 1927, p. 180.

Barnard, 1930, p. 433.

- Occurrence*: 1. St. 33° 37' N, 14° 39' W. 1 ♂ about 21 mm. (telson and uropods missing).  
 2. St. 34° 23' N, 14° 32' W. 2 juv. 12 mm.  
 3. St. 101. South-east Atlantic (350-400-0 m.). 1 ♀ 36 mm.  
 4. St. 268. Portuguese West Africa (73-0 m.). 1 ♂ 17 mm., 1 ♀ with embryos 34 mm.  
 5. *ditto* (100-150-0 m.). 1 ♀ 30 mm.  
 6. St. 284. East mid-Atlantic. 1 ♂ 23 mm., 1 ♀ (spent) 29 mm.  
 7. St. 285. East mid-Atlantic. 3 ♀♀ 15, 23, 24 mm., 2 ovig. ♀♀ 22 and 29 mm.  
 8. St. 286. East mid-Atlantic. 1 ♀ 21 mm.  
 9. St. 287. East mid-Atlantic (124-0 m.). 1 ♀ 20 mm., 1 ovig. ♀ 28 mm., 1 ♀ (spent) 30 mm.  
 10. *ditto* (800-1000-0 m.). 4 ♂♂ 12-16 mm., 4 ♀♀ 16-24 mm.  
 11. St. 288. East mid-Atlantic. 1 ovig. ♀ 28 mm.  
 12. St. 290. East mid-Atlantic. 1 ♀ 20 mm. (mutilated), 1 ovig. ♀ 25 mm.  
 13. St. 294. East mid-Atlantic. 1 ♀ 19 mm.  
 14. St. 296. East mid-Atlantic. 2 ♀♀ 15-16 mm.

DISTRIBUTION. Mediterranean; Atlantic, 43° N-29° S; Indo-Pacific.

*Oxycephalus piscator*, M. Edw.

Bovallius, 1890, p. 56, figs. 33, 35, 36, 37, 41, 42, 66, 68, 69, 75 and pl. i, figs. 8-16.

Stephensen, 1925 *a*, p. 186, chart 27.

Spandl, 1927, p. 180, figs. 13 *a-d*.

Barnard, 1930, p. 433.

- Occurrence*: 1. St. 270. East mid-Atlantic (200-0 m.). 1 ♂ 19 mm.  
 2. St. 281. East mid-Atlantic. 1 ♀ 19 mm.

REMARKS. Stephensen does not refer to the specific differences between *piscator* and *clausi* or to any variability in the two gnathopods. Spandl figures gnathopods 1 and 2



for this species with a projecting keel on the anterior margin of the 5th joint, which is in conflict with Bovallius' statements. The present specimens agree with Bovallius' figures.

DISTRIBUTION. Mediterranean; Atlantic, 41° N–29° S; Indo-Pacific.

#### Genus *Streetsia*, Stebb.

Bovallius, 1890, p. 80 (key to species).

Senna, 1902, p. 19 (key to species).

Colosi, 1918, p. 218.

Stephensen, 1925 *a*, p. 192.

Spandl, 1927, p. 184 (key to species).

#### *Streetsia challenger*, Stebb.

Stephensen, 1925 *a*, p. 194, fig. 75, chart 29 (synonymy and growth changes).

Barnard, 1930, p. 435.

- Occurrence*: 1. St. 86. South-east Atlantic. 1 ♂ 29 mm.  
 2. St. 87. South-east Atlantic. 1 juv. 9 mm.  
 3. St. 250. South Atlantic. 1 ♂ 25 mm.  
 4. St. 254. South-east Atlantic. 1 ♂ 32 mm.  
 5. St. 266. South-east Atlantic. 1 ♀ with embryos 13 mm.  
 6. St. 273. Portuguese West Africa. 1 ♀ 30 mm.  
 7. St. 281. East mid-Atlantic. 1 ♀ with embryos 38 mm.  
 8. St. 285. East mid-Atlantic. 1 ♀ with embryos 44 mm.  
 9. St. 288. East mid-Atlantic. 1 ♂ 27 mm., 2 ♀♀ 16 and 22 mm.  
 10. St. 295. East mid-Atlantic. 1 ♂ 31 mm.  
 11. St. 296. East mid-Atlantic. 1 ovig. ♀ 40 mm.

REMARKS. Stephensen has traced the growth changes in a series of 230 specimens from the Thor expedition. It appears to live at depths of 500–3000 m., but rises towards the surface layers at night. Nos. 3–6, 8, 9 and 11 of the present captures are from night hauls in 500–0 m., the others from day hauls in much greater depths. The very small size of the ♀ with embryos, no. 5, compared with the sizes given by Stephensen, viz. 21–27 mm., and with that of the present nos. 7, 8 and 11, is remarkable. It corresponds with the 12 mm. stage of the ♀ described by Stephensen, and lacks the "femoral process" on gnathopod 2, the 5th joint of which has no spinous teeth on the front or lower margin (except the apical tooth). The large ♀♀ of nos. 8 and 11 constitute records as far as size is concerned.

DISTRIBUTION. Mediterranean; Atlantic, 41° N–19° S; Indo-Pacific.

#### *Streetsia porcellus* (Claus).

Stebbing, 1888, p. 1587, pl. cciii.

Stephensen, 1925 *a*, p. 192, chart 28.

Spandl, 1927, p. 188, figs. 20, 21 (*intermedia*).

Barnard, 1930, p. 435.

- Occurrence*: St. 290. East mid-Atlantic. 1 ovig. ♀ 15 mm.

REMARKS. The present ♀ has no notch on the hinder part of the head, as in the ♂♂ figured by Stebbing and Spandl.

DISTRIBUTION. Mediterranean; Atlantic, 37° N–0°; Indo-Pacific.

**Streetsia steenstrupi**, Bov.

Bovallius, 1890, p. 89, figs. 20, 38, 52, 55, and pl. iii, figs. 2-6.

*Occurrence*: St. 286. East mid-Atlantic. 1 ♂ 10 mm.

REMARKS. Agrees with Bovallius' description and figures. This species has not apparently been reported since the publication of Bovallius' work.

DISTRIBUTION. Tropical Atlantic.

Genus **Leptocotis**, Streets.

Stephensen, 1925 *a*, p. 191.

Spandl, 1927, p. 204 and p. 203 (*Dorycephalus*).

Barnard, 1930, p. 434.

**Leptocotis tenuirostris** (Claus).

Stewart, 1913, p. 264 (*Dorycephalus lindströmi*).

Stephensen, 1925 *a*, p. 191, fig. 74.

Barnard, 1930, p. 435.

*Occurrence*: St. 296. East mid-Atlantic. 1 ♀ 9.5 mm.

DISTRIBUTION. Atlantic, 43° N-32° S; Indo-Pacific.

Genus **Rhabdosoma**, Ad. and White.

Stebbing, 1895, p. 367.

Stephensen, 1925 *a*, p. 203.

Spandl, 1927, p. 207 (key to four species).

Cecchini, 1929, p. 11.

The measurements of all specimens given below are taken from the anterior margin of the eye to the base of the telson, because the rostral point and the telson are so frequently mutilated.

**Rhabdosoma whitei**, Bate.

Stephensen, 1925 *a*, p. 207.

Spandl, 1927, p. 208, figs. 31 *a-f* (typo. err. "*withe*").

Cecchini, 1929, p. 11, pl. v.

Barnard, 1930, p. 436.

- Occurrence*:
1. St. 29° 26' N, 15° 07' W. 1 ♂ 35 mm.
  2. St. 282. East mid-Atlantic. 1 ♀ with embryos 27 mm.
  3. St. 285. East mid-Atlantic. 1 ♂ 32 mm.
  4. St. 287. East mid-Atlantic (800-1000-0 m.). 1 ♂ 32 mm.
  5. St. 288. East mid-Atlantic (73-0 m.). 1 ♂ 26 mm., 1 ♀ 30 mm., 1 ♀ with embryos 30 mm.
  6. *ditto* (250-0 m.). 1 ♂ 29 mm., 3 ♀♀ 18, 30 and 32 mm., 1 ♀ with embryos 28 mm.
  7. St. 289. East mid-Atlantic. 3 ♂♂, 1 ovig. ♀, 1 ♀ with embryos 25-30 mm.
  8. St. 290. East mid-Atlantic. 6 ♂♂ 29-32 mm., 1 ♀ 32 mm., 2 ♀♀ with embryos 28 and 32 mm.
  9. St. 292. East mid-Atlantic. 2 ♂♂ 25 and 30 mm.
  10. St. 294. East mid-Atlantic. 1 damaged ♀ about 30 mm.
  11. St. 296. East mid-Atlantic. 6 ♀♀ 21-31 mm., 2 ♀♀ with embryos 28 and 32 mm.
  12. St. 297. East mid-Atlantic (163-0 m.). 1 ♂ 28 mm., 1 ♀ with embryos 32 mm.
  13. *ditto* (200-300-0 m.). 1 ♂ 29 mm.

REMARKS. No comment is necessary on the present specimens. Spandl's remarks *re* Bovallius' figures are uncalled for; he has failed to realize that the figures in question are not Bovallius' own figures but facsimiles from Bate and Streets. There are several misprints in Spandl's own paragraph, and he persistently writes *withei* instead of *whitei*.

DISTRIBUTION. Atlantic, 37° N–21° S; Indo-Pacific.

*Rhabdosoma armatum* (M. Edw.).

Bovallius, 1890, p. 119, figs. 2, 57, 80 and pl. vi, figs. 1–20.

Spandl, 1927, p. 210.

Barnard, 1930, p. 436.

Occurrence: 1. St. 288. East mid-Atlantic (73–0 m.). 1 ♀ 33 mm.

2. Ditto (250–0 m.). 1 ♀ 36 mm., 1 ♀ with embryos 42 mm.

DISTRIBUTION. Tropical Atlantic; Indian and Pacific Oceans.

### Family PLATYSCELIDAE

Claus, 1887, p. 30.

Stephensen, 1925 *a*, p. 212.

Spandl, 1924, p. 34; 1927, p. 227 (key to genera).

#### Genus *Platyscelus*, Bate.

Stephensen, 1925 *a*, p. 213.

Spandl, 1927, p. 227 (key to species).

*Platyscelus ovoides* (Claus).

Chevreaux and Fage, 1925, p. 420, fig. 413.

Stephensen, 1925 *a*, p. 213, chart 30.

Spandl, 1927, p. 228, fig. 44.

Occurrence: 1. St. 29° 26' N, 15° 07' W. 3 ♀♀ (1 ovig.) 17–18 mm., and other mutilated fragments, from stomach of *Naucrates ductor*.

2. St. 64. South-west Atlantic. 2 juv. 9 and 11 mm.

3. St. 83. South-east Atlantic. 1 ovig. ♀ 20 mm.

4. St. 85. South-east Atlantic. 1 ♀ with embryos 18 mm.

5. St. 89. South-east Atlantic. 2 ♀♀ 12 and 15 mm. (the larger with embryos).

6. St. 268. South-east Atlantic. 21 ♀♀ 12–18 mm. (the larger ones with embryos).

7. St. 285. East mid-Atlantic. Seventeen specimens 9–20 mm., incl. some ♀♀ with embryos 15–20 mm.

8. St. 288. East mid-Atlantic. Many, mostly ♀♀, 10–20 mm.

9. St. 294. East mid-Atlantic. 2 ♀♀ 17 and 20 mm. (the larger one ovig.).

10. St. 298. East mid-Atlantic. 3 ♀♀ 13–15 mm.

REMARKS. The southward distribution is extended to lat. 48° S by these captures. There seems to be some evidence of a day-night migration, the three day hauls being in greater depths than the night hauls (except no. 3), though none of the captures were made in closing nets. Breeding takes place in June in the South Atlantic, and in July, August and October in the northern Atlantic.

The colour of no. 3 is given as: "Pale horn colour, thoracic tergites outlined in a

deeper shade of the same colour. Gastric and hepatic organs faintly visible as a brownish mass. A red-brown patch near postero-inferior angle of eyes”.

DISTRIBUTION. Mediterranean; Atlantic,  $51\frac{1}{2}^{\circ}$  N– $31^{\circ}$  N and  $35^{\circ}$  S; Indo-Pacific.

**Platyscelus armatus** (Claus).

Claus, 1887, p. 36, pl. ii, figs. 3–15.

Stewart, 1913, p. 258.

Spandl, 1927, p. 229, fig. 45.

Occurrence: 1. St. 268. South-east Atlantic. 1 ovig. ♀ 14 mm.

2. St. 285. East mid-Atlantic. 2 ♀♀ 13 and 16 mm., the larger with embryos.

DISTRIBUTION. Warm seas (Spandl);  $15^{\circ} 45\frac{1}{2}'$  S,  $33^{\circ} 11\frac{1}{2}'$  W (Stewart).

**Platyscelus inermis** (Claus).

Claus, 1887, p. 37.

Stewart, 1913, p. 258.

Stephensen, 1925 a, p. 252.

Spandl, 1927, p. 232.

Occurrence: 1. St. 276. East mid-Atlantic. 5 ♀♀ 7–10 mm., the largest one ovig.

2. St. 297. East mid-Atlantic. 5 ♀♀ 10–11 mm., some with embryos.

REMARKS. These specimens may belong to this species, which has not been recognized since it was described by Claus. Both Stephensen and Spandl follow Claus in thinking it may be merely an unarmed variety of *armatus*.

The present specimens agree with *armatus* except in lacking the sharp epimeral projections; though these parts are rather more bulging than in *ovoides*. The specimens are smaller than *armatus*, but larger than *serratulus*, with which latter species also they are in close agreement.

Pleon segments 1–3 are dorsally somewhat gibbous, when viewed laterally, thus further agreeing with *armatus*; in *ovoides* and *serratulus* the dorsal profile is quite even.

DISTRIBUTION. Atlantic. Mozambique.

**Platyscelus serratulus**, Stebb.

Claus, 1887, p. 37, pl. iii, figs. 5–14 (*serratus*, non Bate).

Chevreaux and Fage, 1925, p. 422, fig. 414.

Shoemaker, 1925, p. 51, figs. 20, 21 (*dubius*).

Barnard, 1930, p. 437.

Occurrence: St. 268. South-east Atlantic. 1 ♂ 6 mm.

DISTRIBUTION. Mediterranean; Atlantic  $42^{\circ}$  N– $37^{\circ}$  S; Indo-Pacific.

Genus **Hemityphis**, Claus.

Stephensen, 1925 a, p. 219.

Spandl, 1927, p. 233 (key to the two species).

**Hemityphis rapax** (M. Edw.).

Stebbing, 1888, p. 1472, pl. clxxxiii (*tenuimanus*).

Stewart, 1913, p. 259 (*tenuimanus*).

Stephensen, 1925 a, p. 219 (*tenuimanus*).

Spandl, 1927, p. 233, fig. 46 (*tenuimanus*).

Barnard, 1930, p. 437.

- Occurrence*: 1. St. 66. South-west Atlantic. 1 ♀ 5 mm.  
 2. St. 87. South-east Atlantic. 4 ♀♀ 5-6 mm.  
 3. St. 89. South-east Atlantic. 3 ♂♂ 5.5 mm.

DISTRIBUTION. Mediterranean; Atlantic, 41° N-38° S, but not between 15° N and 15° S; Indo-Pacific.

Family THYROPIDAE

- Stephensen, 1925 *a*, p. 207 (Parascelidae).  
 Spandl, 1927, p. 250 (Parascelidae, key to genera).  
 Barnard, 1930, p. 436.

Genus *Thyropus*, Dana.

- Stebbing, 1888, p. 1492.  
 Spandl, 1927, p. 258.

*Thyropus sphaeroma*, Claus.

- Stebbing, 1888, p. 1492, pl. ccx, fig. *C* (*danae* ♂) and p. 1495.  
 Spandl, 1927, p. 259, figs. 53, 54 and p. 284, fig. 63.  
 Barnard, 1930, p. 437.

*Occurrence*: St. 2° 20' S, 12° 45' W. 1 ♂ 7 mm.

DISTRIBUTION. Tropical Atlantic.

Genus *Parascelus*, Claus.

- Stephensen, 1925 *a*, p. 208.  
 Spandl, 1927, p. 262 (key to species).  
 Barnard, 1930, p. 436.

*Parascelus typhoides*, Claus.

- Claus, 1887, p. 46, pl. ix, figs. 12-16, pl. x, figs. 12, 13.  
 Chevreux and Fage, 1925, p. 424, fig. 416.  
 Stephensen, 1925 *a*, p. 211.  
 Spandl, 1927, p. 262, fig. 55.

*Occurrence*: St. 81. South Atlantic. 1 ovig. ♀ 5 mm.

REMARKS. This seems to be the first record of this species in the South Atlantic.

DISTRIBUTION. Mediterranean; Atlantic, 42°-17° N; Red Sea

CYAMIDEA

- Stebbing, 1910 *a*, p. 464.

Family CAPRELLIDAE

- Mayer, 1882, 1890 and 1903 (the latter with tabular synopsis and key to genera).  
 Schellenberg, 1926 *a*, p. 465.  
 Raj, 1927 (*Bull. Madras Govt. Mus.*, n.s. 1), p. 125.

Genus *Caprella*, Lam.

Mayer, 1903, pp. 14, 72.

*Caprella equilibra*, Say.

Mayer, 1903, p. 89, pl. iii, figs. 29-34; pl. vii, figs. 66-69 (*aequilibra*).

*Occurrence*: St. 34° 23' N, 14° 32' W. 3 ♂♂ 5-8 mm., 1 ♀ with embryos 7 mm., 1 immat. ♀ 6 mm.

DISTRIBUTION. Widely distributed.

*Caprella acutifrons*, Latr.

Mayer, 1903, p. 79, pl. iii, figs. 4-28; pl. vii, figs. 62-65 (references).

Stebbing, 1910 a, p. 465 (*penantis*).

*Occurrence*: St. 4. Tristan da Cunha. Many, ♂♂ up to 11 mm., ♀♀ up to 6 mm., incl. many ovig., with embryos, and juv.

REMARKS. The ♂♂ have the "poison tooth" of gnathopod 2 proximal and resemble vars. *natalensis* and *porcellio*. The tooth varies in size and may be straight or crooked, so there seems little use in keeping the two varieties separate.

DISTRIBUTION. Widely distributed, including Magellan Strait and the Brazilian coast.

Genus *Pseudaeginella*, Mayer.

Mayer, 1890, p. 37.

Hitherto regarded as a monotypic genus recorded from Tristan da Cunha and Antigua, W.I. For the form from the latter locality, however, a new name is here proposed.

*Pseudaeginella tristanensis* (Stebb.) (Fig. 166).

Stebbing, 1888, p. 1249, pl. cxliii.

Mayer, 1890, p. 37, pl. v, fig. 51; pl. vi, fig. 14.

Non Stebbing, 1895 (*Ann. Mag. Nat. Hist.* (6), xv), p. 397.

Non Mayer, 1903, p. 59.

*Occurrence*: St. 4. Tristan da Cunha. 1 ♂ 4.5 mm., 1 ♀ (brood pouch empty) 4.5 mm.

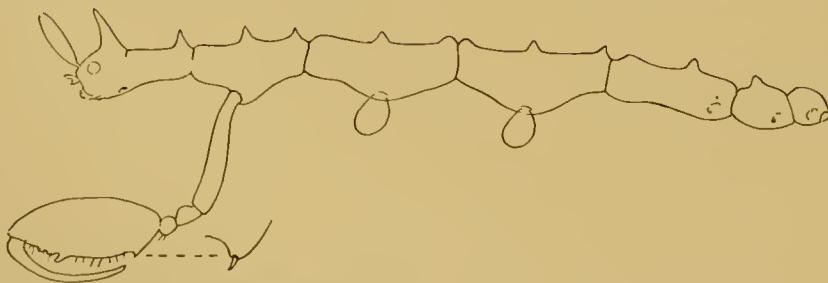


Fig. 166. *Pseudaeginella tristanensis* (Stebb.). General view of ♂.

REMARKS. These two specimens taken in the same locality as Stebbing's original specimen may with good reason be assumed to represent the adult form. Possibly the present ♂ is not fully adult, as it is no bigger than the ♀, and the hand of gnathopod 2 might be expected to show a more pronounced difference from that of the ♀.

Both sexes are alike in the number and arrangement of the dorsal tubercles or spines, which are all single and medio-dorsal.

Antenna 1, flagellum 11-jointed in both sexes. Antenna 2, flagellum 2-jointed. It might even be called 1-jointed, because the junction between the two joints is almost obsolete and difficult to trace. The mandibular palp has three spinules between the two larger ones on the apex of the 3rd joint.

Gnathopod 2 alike in the two sexes, the "poison tooth" small, acute, slightly beyond the centre of the palm, followed by two small rounded denticles. Peraeopods 3-5 lost in both specimens.

In view of these specimens it becomes very unlikely that the specimens (Stebbing says one; Mayer says two) from Antigua are conspecific. The ♀ according to Mayer (1903, p. 59) has the head spine and single medio-dorsal spines on segments 1-3, but also *paired* rounded tubercles in the middle of segments 3 and 4. For this species I therefore propose the name *antiguae*.

#### Genus *Caprellinoides*, Stebb.

Stebbing, 1888, p. 1237.

Mayer, 1890, p. 87; 1903, p. 57.

Schellenberg, 1926 *a*, p. 467.

Barnard, 1930, p. 440.

The very oblique junction between segments 4 and 5, especially noticeable in the ♂, might be incorporated in the generic diagnosis. It is not well shown in Schellenberg's figure of *antarctica* ♂, but probably exists as in the other species.

#### *Caprellinoides tristanensis*, Stebb.

Stebbing, 1888, p. 1238, pl. cxli.

Mayer, 1890, p. 87.

*Occurrence*: St. MS 14. South Georgia. 1 ♂ 8 mm.

**DESCRIPTION OF ♂.** Head rounded. Eye composed of nine ocelli. A small medio-dorsal conical tubercle near anterior margin on segment 2, and on middle and posterior margin of segments 3 and 4. Peraeon segment 7 and pleon missing.

Antenna 1, flagellum 11-jointed. Antenna 2, flagellum 3-jointed.

Gnathopod 2 as in Stebbing's figure of the ♂. Peraeopod 3 (on segment 5) 3-jointed as in ♂. Peraeopods 4 and 5 lost.

Branchiae on segments 3 and 4, rounded ovate.

Colour reddish, the ocelli darker red.

**REMARKS.** The original type was a ♀ which was re-examined by Mayer. In assigning *C. mayeri* to the same genus as *tristanensis*, Mayer (1890, p. 88) states that some doubt still remains because the ♂ of the latter is unknown. It is therefore very disappointing to find that the present ♂ lacks the very parts which would resolve this doubt.

**DISTRIBUTION.** Tristan da Cunha, 110 fathoms.

*Caprellinoides mayeri* (Pfr.) (Fig. 167).

Pfeffer, 1888, p. 137, pl. iii, fig. 4 (immat.).

Mayer, 1890, p. 88, pl. v, figs. 57, 58; pl. vi, figs. 15, 26; pl. vii, fig. 48.

Chilton, 1913, p. 61.

? Mayer, 1903, p. 59 (*Piperella grata*).

*Occurrence*: 1. St. 39. South Georgia. 1 ♂ 12 mm.

2. St. 42. South Georgia. 4 ♂♂ 11-14 mm., 6 immat. ♀♀ 8-11 mm., 1 ovig. ♀ 9 mm., 3 juv. 6-7 mm.

3. St. WS 33. South Georgia. 1 ovig. ♀ 10.5 mm., 1 juv. 4 mm.

**DESCRIPTION.** Eyes recognizable only by the lenses. Medio-dorsal spines in middle (or just behind middle) and on hind margins of segments 2, 3 and 4. No spines on head or on segment 5. A fine sparse pilosity on segments 2-6, chiefly dorsally, often apparently obsolete ventrally. In the juveniles the dorsal spines are represented by mere tubercles, and very young specimens are probably quite smooth.

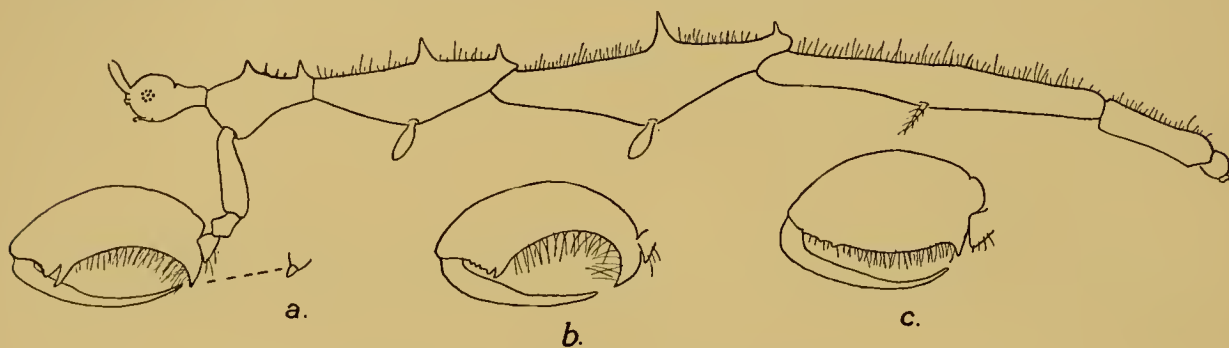


Fig. 167. *Caprellinoides mayeri* (Pfr.). a. General view of ♂ (St. 42).  
b. Gnathopod 2 ♂ (St. 39). c. Gnathopod 2 ♀ (St. 42).

Antenna 1, flagellum 13-14-jointed in ♂, 11-jointed in ♀. Antenna 2, flagellum 6-jointed in ♂, 5-jointed in ♀. In juveniles the number of joints is less.

Gnathopod 2, 6th joint with palmar margin concave, parallel with dorsal margin, setose, one pointed and one truncate tooth near hinge; in ♀ 6th joint ovate, palm slightly convex, setose, with one or two small teeth near hinge.

**REMARKS.** I think there can be no doubt that these specimens are the adults of Pfeffer's species described from South Georgia, though none of them are as robust as shown in Pfeffer's figure, and the dorsal spines are better developed.

The 2nd gnathopod in the ♀ has an evenly convex palm, without or with only small teeth near the hinge; that of the young ♂ is like Mayer's figure; that of the adult ♂ has a concave palm.

The ♂ from St. 39 is very slender and has no trace of dorsal spines or tubercles; the hand of gnathopod 2 (Fig. 167 b) shows a variant of the form found in the specimen from St. 42. This specimen has the further peculiarity of only six joints in the flagellum of antenna 1, and two joints in that of antenna 2. Thus it seems to have preserved its juvenile characters while developing the adult form of gnathopod 2 earlier than usual.



Colour (as preserved), whitish, with grey or purplish specks, distal half of hand of gnathopod 2 in both sexes also speckled; eyes unpigmented.

With due respect to Mayer, I cannot help suspecting that *Piperella grata*, Mayer, 1903, from South Georgia, and in fact from the same collection whence Pfeffer obtained his species, is only the young of this species.

DISTRIBUTION. South Georgia.

#### Genus *Dodecas*, Stebb.

Stebbing, 1888, p. 1232; 1910, p. 629.

Mayer, 1890, p. 15; 1903, p. 29.

Briggs, 1914 (*Proc. Roy. Soc. Tasmania*), p. 76.

The genus is austral in distribution, the three hitherto known species being reported from Kerguelen (*elongata*) and South-east Australia (*hexacentrum* and *deacentrum*).

*Dodecas reducta*, n.sp. (Fig. 169 *b*).

*Occurrence*: St. 39. South Georgia. 1 ♂ 16 mm.

DESCRIPTION. Forehead rounded. Eyes rather large, circular, distinct. Peraeon segment 2 equal to head plus 1st segment; segments 3, 4, 5 successively increasing a little, segment 6 subequal to segment 3. A forwardly curving horizontal spine over base of gnathopod 2, and a subdorsal pair of similar spines in middle of segment 3.

Antenna 1, flagellum at least 8-jointed, but broken. Antenna 2, flagellum 5-jointed.

Gnathopod 2 inserted in middle of segment, 2nd joint reaching to front of head (= 4th-6th joints together), 5th about one-third length of 2nd, and half length of 6th (but owing to fusion with 6th, its distal end difficult to define), 6th ovate, palm with basal spinigerous tooth, followed by two small spinigerous tubercles, then obscurely serrulate and ending in a low truncate tooth near hinge.

Peraeopod 1 about one-third length of segment 3, very slender, but with full complement of joints. Peraeopod 3, 4th joint as in the other species of the genus. Peraeopods 4 and 5 slender, 2nd and 4th joints slightly bulbous distally, 5th with 3-4 spines on inner margin, 6th stouter than any of the other joints, widest proximally, inner margin with two pairs of spines proximally, one spine near middle and one spine near apex, both 6th and 7th joints stouter than in *elongata*.

Branchiae on segment 2 very small and easily overlooked, scarcely larger than the size of the eye; on segment 3 narrow ovate, about as long as peraeopod 1; on segment 4 slightly smaller.

REMARKS. This species is obviously close to both *elongata* and *hexacentrum*. From the former it differs in possessing spines on the body, the position of insertion of gnathopod 2, the much shorter 5th joint of the 2nd gnathopod, the shorter peraeopod 1, the stouter 6th and 7th joints of peraeopods 4 and 5, and the reduced branchiae on segment 2. From the latter it differs in having only four spines on the body, the shorter 5th joints of gnathopod 2 and the reduced peraeopod 1 and branchiae on segment 2.

Genus *Dodecasella*, Brnrd.

Barnard, 1931, p. 430.

Mandibular palp 3-jointed, 3rd joint with one long spine at beginning and one at end of a row of short spinules. Flagellum of antenna 2, 6-jointed in ♂, 5-jointed in ♀, without long setae.

Gnathopod 2 inserted anteriorly. Peraeopod 1 (3) about two-thirds to three-quarters length of segment, slender, but with normal number of joints. Peraeopod 2 (4) absent. Peraeopod 3 (5) reduced to four joints. Peraeopods 4 and 5 (6 and 7) long, slender, 6th joint slender, dactyl long, curved.

Branchiae on segments 3 and 4, cylindrical, on segment 3 short, on segment 4 very elongate, especially in ♂.

Pleon as in *Dodecas*, with two pairs of slender, 2-jointed appendages.

REMARKS. Very close to *Dodecas*, Stebb., differing only in the absence of branchiae on segment 2 and the very long branchiae on segment 4; and in having the 2nd gnathopod inserted anteriorly, with the 5th joint normal, i.e. short.

*Dodecasella elegans*, Brnrd. (Figs. 168, 169 a).

Barnard, 1931, p. 430.

- Occurrence*: 1. St. 42. South Georgia. 2 ♂♂ 24 and 38 mm.  
 2. St. 45. South Georgia. 2 ♂♂ 24 and 33 mm., 1 juv. 14 mm.  
 3. St. 123. South Georgia. 2 ♂♂ 30 and 42 mm., 1 incomplete ♂, 1 ♀ with 1 ovum in pouch 22 mm. *Types*.  
 4. St. 140. South Georgia. 13 ♂♂ 16-30 mm., 2 ♀♀ 14 and 16 mm., 1 immat. ♀ 11 mm.  
 5. St. 144. South Georgia. 22 ♂♂ 14-36 mm., 15 ♀♀ 14-19 mm. (some ovig.).

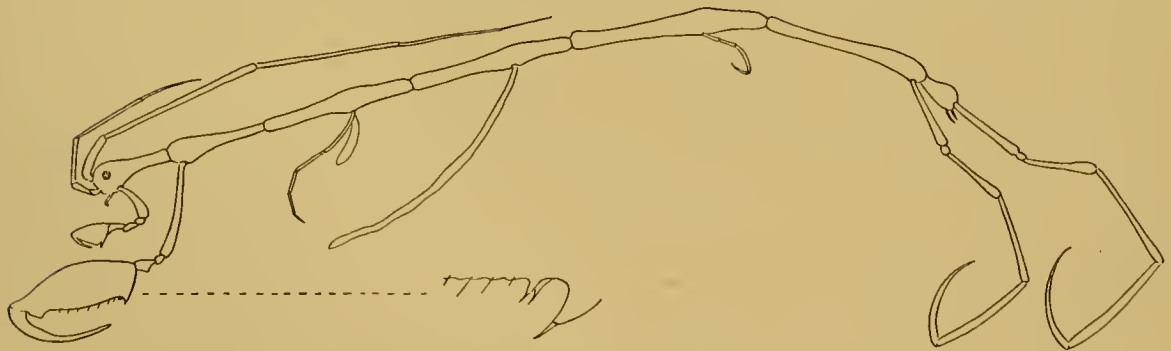


Fig. 168. *Dodecasella elegans*, Brnrd. General view.

DESCRIPTION. Body very elongate and slender, smooth in both sexes, and slightly enlarged at the junctions of segments and insertions of limbs and branchiae. Forehead rounded. Eyes circular but pale and indistinct.

In ♂ segment 2 a little longer than head plus segment 1, segments 3, 4 and 6 each equal to head plus segments 1 and 2; segment 5 a little longer than 4; in ♀ segments 3 and 4 each subequal to segment 2; 5 and 6 subequal to one another and to segments 3 plus 4.

Antenna 1 elongate, reaching back to about middle of segment 4, relatively longer in ♂ than in ♀ owing to greater length of segments 3 and 4 in ♂, flagellum 13-jointed in ♂, in ♀ 5 + ? Antenna 2, flagellum 6 (-7)-jointed in ♂, 5-jointed in ♀, without long setae.

Mouth-parts as figured by Stebbing for *Dodecas elongata* (1888, pl. cxi).

Gnathopod 2 inserted at anterior end of segment, 2nd joint as long as hand (i.e. fused 5th and 6th joints), 6th ovate, palm with basal spinigerous tooth, followed by a pair of small spinigerous tubercles, then obscurely serrulate and setulose, ending in a low truncate tooth near hinge; similar in both sexes but rather smaller in ♀.

Peraeopod 1 a little longer than 2nd joint of gnathopod 2, at least two-thirds length of segment 3. Peraeopod 3 short, 4-jointed, the 4th joint forming a curved claw. Peraeopods 4 and 5 elongate, very slender, 2nd and 4th joints somewhat bulbous distally, 5th slender with two spinules on inner margin, 6th slender, cylindrical, very slightly curved, inner margin with two to three spinules proximally, 7th long, slender and rather strongly curved.

Branchia on segment 3 about two-fifths length of segment; that on segment 4 in ♂ as long as segments 3 and 4 together; in immature ♂ shorter, and in ♀ equal in length to that on segment 3.

Pleon with two pairs of slender, 2-jointed appendages.

Brood lamellae on segment 3 with posterior margin setose, anterior margin of those on segment 4 smooth.

#### Genus *Aeginoides*, Schell.

Schellenberg, 1926 *a*, p. 465.

Barnard, 1930, p. 441.

#### *Aeginoides gaussi*, Schell. (Fig. 169 *d*).

Schellenberg, 1926 *a*, p. 465, fig. 1 (immat.).

Barnard, 1930, p. 442, fig. 63 (adult ♀).

- Occurrence*: 1. St. 30. South Georgia. 2 ovig. ♀♀ 23, 24 mm.  
 2. St. 39. South Georgia. 1 immat. ♀ 13 mm.  
 3. St. 42. South Georgia. 1 ♂ 18 mm., 1 immat. ♀ 15 mm., 1 ovig. ♀ 19 mm.  
 4. St. 123. South Georgia. 3 ♂♂ 17, 24, 28 mm., 2 ♀♀ 20, 21 mm.  
 5. St. 152. South Georgia. 1 ovig. ♀ 21 mm.  
 6. St. 175. South Shetlands. 1 ♂ 23 mm., 1 ovig. ♀ 25 mm.  
 7. St. 195. South Shetlands. 3 ♂♂ 23, 28, 33 mm., 2 ovig. ♀♀ 26, 28 mm., 10 juv. 6-12 mm.

**DESCRIPTION.** Forehead rounded. Eyes distinct, round. Peraeon segment 2 subequal to head plus segment 1. Segments 3, 4 and 5 successively longer; segment 6 equal to segment 4.

In young specimens up to 12 mm. the body is smooth. The adult ♂ has a small lateral tubercle over the base of gnathopod 2 and of the branchiae on segments 3 and 4, a medio-dorsal tubercle on segment 2, and a pair of dorso-lateral tubercles vertically above the lateral ones on segments 3 and 4; the medio-dorsal tubercle on segment 2 absent in ♀ and sometimes in ♂; the dorso-lateral tubercles on segments 3 and 4 also are

sometimes feeble or obsolete. The dorso-lateral tubercles on the hind margins of segments 2 and 3, present in the Terra Nova ♀, are here only very feebly developed or quite obsolete. Segment 5 is smooth. A short fine pubescence dorsally on segments 3 and 4 in ♀.

Antenna 1, flagellum 17-18-jointed in ♂, 15-16-jointed in ♀. Antenna 2, flagellum 8-jointed in ♂, 5-jointed in ♀.

Gnathopod 2 similar to that of *Dodecasella elegans*.

The rudiment of peraeopod 1 tipped with two setules. Peraeopods 4 and 5 of the type found in *Dodecas reducta*, i.e. with the 6th joint stouter than in *D. elongata*, but cylindrical, with two pairs of spines proximally and one to two single spines in middle of inner margin.

Branchiae on segments 3 and 4 elongate ovate, two-fifths to one-third length of their segments. Brood lamellae with posterior margin of the anterior pair setose.

Colour (as preserved) yellowish white, with scattered reddish or purplish stellate specks, eyes reddish-brown.

REMARKS. The discovery of adult ♂♂ and ♀♀ and juveniles in the same haul (no. 7) confirms the identification of the Terra Nova ♂ and ♀, and enables one to complete the diagnosis of the species.

The tubercles or spines on the adults are evidently subject to variation. It would seem that the lamella on segment 4, which Schellenberg interpreted as the rudiment of peraeopod 2, is really the developing lateral tubercle of the adult.

DISTRIBUTION. 65° 59' S, 89° 33' E, 350 m.; off Cape Adare and Oates Land, 82-366 m.

*Aeginoides gaussi*, Schell. (Fig. 169 c, aberration).

*Occurrence*: With other specimens from St. 195 as above.

REMARKS. A single immature ♀, 20 mm. in length, found among the above-mentioned adult and young specimens of the typical form, is very interesting because it shows on what slender grounds some of the genera of this family are based.

In form, tubercles and other features it is indistinguishable from the typical specimens, but peraeopod 1 is composed of  $3\frac{1}{2}$  joints. The terminal joint is minute. One can only regard this specimen as a casual aberration, a reversion to the ancestral form where the limb was composed of the normal number of joints. It helps to bridge a gap, and one can form a series from *Proto*, through *Dodecas* (*elongata* and *hexacentrum*), *Dodecas reducta* and this specimen, to the typical *Aeginoides* and *Caprellinoides*, in which latter all trace even of a rudiment of peraeopod 1 has disappeared.

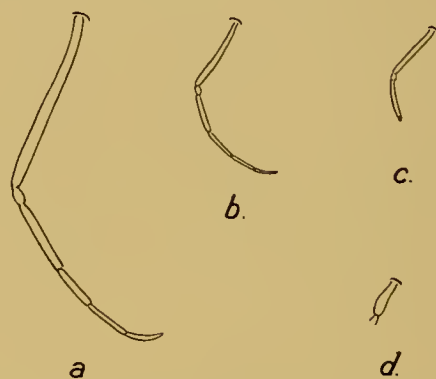


Fig. 169. Peraeopod 1 of: a. *Dodecas elongata*, *hexacentrum*, and *Dodecasella elegans*. b. *Dodecas reducta*. c. *Aeginoides gaussi*, aberration. d. *Aeginoides gaussi*, normal.

## Family CYAMIDAE

Lütken, 1873, p. 231; 1887, p. 317; 1893, p. 421.

Stebbing, 1888, pp. 155, 419 and 1647-1648.

Sars, 1895, p. 668.

Stebbing, 1910 *a*, p. 471.

Chevreaux, 1913, p. 183.

Chevreaux and Fage, 1925, p. 461.

The present collection is small, but important, because it contains the first recorded specimens of Whale-lice from a *Balaenoptera*. Lütken (1873) notes that no Whale-louse was known from a true Fin-whale (*Balaenoptera*); and the previous statements as to the presence of a species on the Cachalot remained unconfirmed until Pouchet in 1892 described *C. physeteris* (syn. *fascicularis*, Verrill, 1903). Moreover *P. boöpis*, the common louse on the Humpback, has now been found on a Sperm Whale.

As the Discovery Investigations deal primarily with whales, and Lütken's papers are not readily accessible in many libraries, no excuse is needed for introducing here descriptions and figures of the species represented in the collection.

The family contains four genera: *Cyamus*, with type *mysticeti*, Lütk. (= *ceti*, Linn., which, however, is better rejected as it is a composite species) from the Northern Right Whale; *Platycyamus*, Lütk. 1873, with type *thompsoni*, Gosse, from the Bottlenose (*Hyperoödon*); *Paracyamus*, Sars 1895, with type *boöpis*, Lütk.; and *Isocyamus*, Gerv. and Bened., with type *delphi*, Guér.

Mayer (1890, p. 146) has shown that the embryo of *nodosus* has a well-developed palp on the maxilliped, whereas in the adult the palp is rudimentary. Chevreaux (1913, p. 183) has determined the same phenomenon in *erraticus*, and for this reason does not accept Sars' genus *Paracyamus*. Chevreaux's argument if pushed to an extreme, i.e. attaching greater importance to juvenile, larval, or ultimately ovarian, characters, leads *ad absurdum*, and it seems legitimate and much more convenient to take the characters of the adult as of greater importance in determining the limits of genera. The genus *Paracyamus* is therefore retained here.

Genus *Cyamus*, Latr.

Stebbing, 1910 *a*, p. 471 (references).

Gnathopods 1 and 2 unequal. Antenna 2, 4-jointed. Maxilla 2 with outer lobes. Maxilliped, palp fully developed in adult. Dactylus and unguis of gnathopod 1 evenly tapering, the latter not distinct. Branchiae on segments 3 and 4, single or double, or fasciculate (*physeteris*—for figure of latter see Lütken, 1893), straight or spirally coiled.

*Cyamus ovalis*, R. de Vauz. (Fig. 170).

R. de Vauzème, 1834, p. 259, pl. viii, figs. 1-21.

Lütken, 1873, p. 267, pl. ii, fig. 4.

Stebbing, 1910 *a*, p. 472.

- Occurrence:* 1. Whale no. 503. South Georgia. Southern Right Whale. 8 ♂♂, 7 ♀♀ (some ovig., some with embryos), 3 juv.  
 2. Whale no. 1020. Saldanha Bay. Southern Right Whale. 1 ♂, 2 ♀♀ with embryos, 1 juv.

**DESCRIPTION.** General outline of peraeon in dorsal view rather broadly ovate. Head with oblique lateral groove indicating line of fusion with 1st peraeon segment, with a gibbous projection posteriorly, which is sharper in ♀ than in ♂ and fits in between the two gibbous processes on segment 2. Segment 2 massive, rather gibbous in front, with

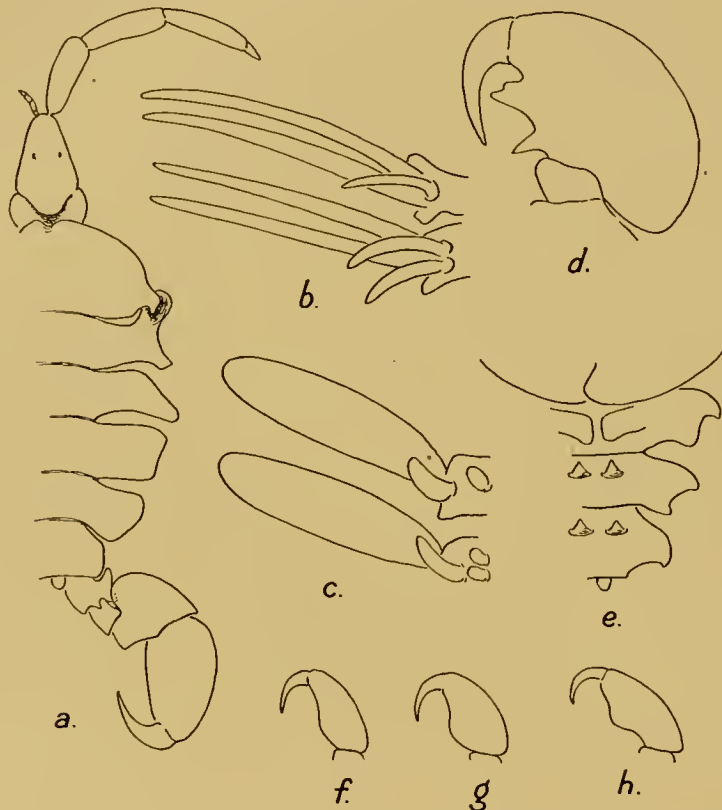


Fig. 170. *Cyamus ovalis*, R. de V. a. Dorsal view of ♂. b. Ventral view of branchiae of adult ♂. c. Ventral view of branchiae of juv. 4 mm. d. Gnathopod 2 ♂. e. Ventral view of peraeon segments 5-7 ♀. f. Gnathopod 1 juv. 4 mm. g. Gnathopod 1 immature ♂. h. Gnathopod 1 adult ♂.

two small rounded dorsal protuberances, laterally with a backwardly directed hooked process. Segment 3 with anterior and posterior angles produced into lobes, the anterior larger than the posterior and somewhat hollowed dorsally for the reception of the process on segment 2. Segment 4 with postero-lateral angle subacutely produced. Segment 7 subtriangular, broader than long, hind margin straight.

On ventral surface faint indications of a pair of tubercles on both segments 6 and 7 in ♂; in ♀ a pair of conical tubercles on both segments 6 and 7, and on segment 5 a pair of oblong inwardly directed blunt processes.

Antenna 1, 1st-3rd joints subequal, slightly shorter than length of head plus 1st segment. Antenna 2 much shorter than 1st joint of antenna 1.

Gnathopod 1, 5th joint ovate with rounded bulge on inner margin, similar in both sexes. Gnathopod 2, 5th joint very massive, outer margin semicircularly convex, inner margin short, with two large teeth fairly close together, the one near the hinge obscurely bifid, similar in the two sexes, but the teeth closer together in the ♀.

Peraeopods 5-7 very strong and broadly expanded, 2nd joint with distal anterior corner not forming a pointed tubercle ventrally, 3rd feebly expanded, postero-inferior angle of 4th rounded-quadrate.

Branchiae double on both segments 3 and 4, about equal in length to peraeon segments 2-6 together, accessory appendages in ♂ about equal to head plus 1st segment, single on segment 3, double on segment 4; absent in ♀. In a juvenile ♂ 4 mm. long, there is a single stout, fairly long branchia on both segments 3 and 4, and a smaller one developing at its base, with very small accessory appendages; in a juvenile ♂ 2.5 mm. long, there is only a single short branchia on each segment. In the latter specimen the 2nd gnathopod already has the characteristic teeth developed.

Length: ♂ up to 16 mm., ♀ up to 12 mm.

REMARKS. This species, with which *P. gracilis* seems invariably to occur, is recorded from the head region of the Southern Right Whale (*Balaena australis*), and by Lütken also from the North Pacific Whale (*B. japonica* ?).

#### *Cyamus balaenopterae*, Brnrd. (Fig. 171).

Barnard, 1931, p. 430.

- Occurrence*: 1. Whale no. 867. Saldanha Bay. Blue Whale. 2 ♂♂, 7 immat. ♀♀, 1 juv.  
 2. Whale no. 948. Saldanha Bay. Fin Whale. 2 ♂♂, 5 ♀♀ (2 with embryos), 1 juv.  
 3. Whale no. 961. Saldanha Bay. Blue Whale. 1 ♂, 5 immat. ♀♀.  
 4. Whale no. 1096. Saldanha Bay. Fin Whale. 6 ♂♂, 3 ♀♀ (1 ovig.), 1 immat. ♀, 1 juv. *Types*.  
 5. Whale no. D 19. Durban. Fin Whale. 11 ♂♂, 8 ♀♀ (mostly immat.).

DESCRIPTION. General outline of peraeon in dorsal view narrow, parallel-sided in ♂, ovate in ♀. Head parallel-sided, completely fused with 1st segment, which is rounded laterally. Segment 2 with prominent neck in front, posterior margin sloping. Segments 3 and 4 lozenge-shaped in ♂, not much broader than long; in ♀ considerably broader than long, the antero-lateral angle of segment 4 produced in a rounded lobe. Segments 5 and 6 triangular or chevron-shaped. Segment 7 subcordate. Pleon with an unusually well-developed pair of oval processes.

On ventral surface in ♀ a pair of oblong, inwardly directed processes on segment 5, and a pair of pointed tubercles on both segments 6 and 7; in ♂ only the paired tubercles on segments 6 and 7, smaller than in ♀.

Antenna 1 nearly as long as head plus segments 1 and 2, shorter in ♀, 1st joint subequal to head, the other joints successively shorter. Antenna 2 extending about half length of 1st joint of antenna 1.

Maxilliped with fully-developed palp in adult.

Gnathopod 1, 5th joint ovate, with prominent rounded tooth on inner margin.

Gnathopod 2, 5th joint ovate, with a pointed tooth near base and an obliquely truncate broader tooth near hinge on inner margin. In ♀ both gnathopods are similar to those of ♂ but not quite so strong.

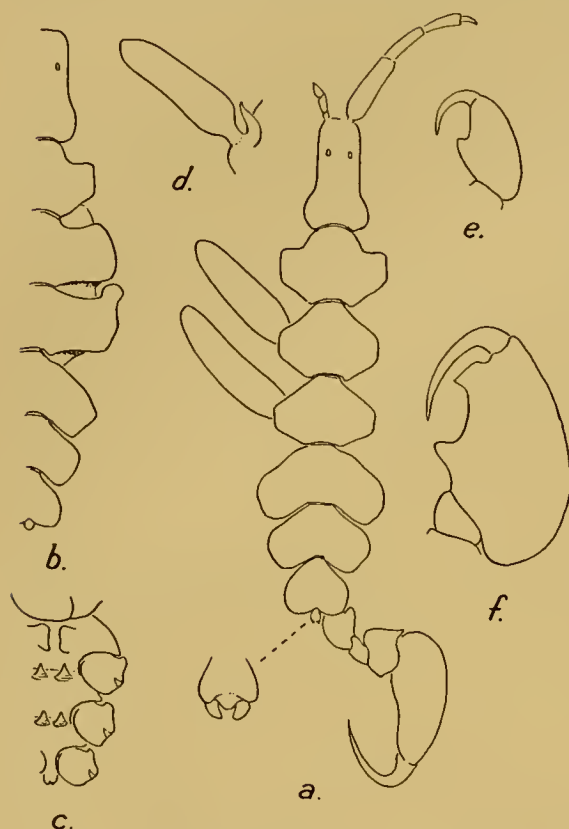


Fig. 171. *Cyamus balaenopterae*, Brnrd. a. Dorsal view of ♂, with pleon further enlarged. b. Dorsal view of ♀. c. Ventral view of peraeon segments 5-7 ♀, with proximal joints of peraeopods 5-7. d. Branchia ♂. e. Gnathopod 1 ♂. f. Gnathopod 2 ♂.

Peraeopods 5-7 not very strongly expanded, distal anterior corner of 2nd joint produced ventrally as a sharp tubercle, stronger in ♀ than ♂, 3rd joint feebly expanded, 4th with antero-distal angle sharp and turned outwards, 6th narrow-ovate, inner margin very slightly sinuous, dactyl strongly curved.

Branchiae single on both segments 3 and 4, short, about as long as segments 2 and 3 together, stout, accessory appendage in ♂ a short pointed process, single on both segments; in ♀ absent.

Length: ♂ 8.5 mm., ♀ 8 mm.

Colour (as preserved) dull pinkish brown, eyes black.

REMARKS. A very distinct species. In having unusually well-developed processes on the rudimentary pleon it resembles *physeteris*. The dactyls of peraeopods 5-7 also somewhat resemble those of the species just mentioned in their strongly drepaniform curvature.

### Genus *Paracyamus*, G. O. Sars.

Sars, 1895, p. 669.

Gnathopods 1 and 2 unequal. Antenna 2, 4-jointed. Maxilla 2 with outer lobes. Maxilliped, palp well-developed in young, but rudimentary in adult. Dactylus and unguis of gnathopod 1 evenly tapering, the latter not distinct. Branchiae single on both segments 3 and 4.

#### *Paracyamus erraticus* (R. de Vauz.) (Fig. 172).

R. de Vauzème, 1834, p. 259, pl. viii, figs. 22, 23.

Lütken, 1873, p. 260, pl. iii, fig. 5.

Stebbing, 1910 a, p. 472.

Chevreaux, 1913, p. 183, fig. 62 (maxilliped).

Occurrence: Whale no. 1020. Saldanha Bay. Southern Right Whale. 8 ♂♂, 10 ♀♀ (ovig. and with embryos), several juv.



DESCRIPTION. General outline of peraeon in dorsal view ovate. Head frequently with a distinct notch or groove where it is joined with 1st segment, tapering anteriorly in ♂, in ♀ more parallel-sided. Segment 1 gibbous laterally, more so in ♂ than in ♀, the antero-inferior angle pointed, more prominent in ♀ than in ♂. Segment 2 with postero-lateral angle forming a forwardly directed hooked process in both sexes. Segments 3 and 4 bluntly produced at postero-lateral angles. Segment 7 subtriangular, broader than long, hind margin straight.

On ventral surface in ♀ a pair of blunt inwardly directed processes on segment 5 and also behind them a pair of pointed tubercles, on segment 6 two pairs of pointed tubercles, and on segment 7 one pair of pointed tubercles; in ♂ only one pair of tubercles, much smaller than in ♀, on each of segments 5, 6 and 7.

Antenna 1, 1st-3rd joints subequal, and subequal to head (excluding segment 1). Antenna 2 much shorter than 1st joint of antenna 2. Maxilliped in a juvenile 5 mm. long with fully-developed palp.

Gnathopod 1, 5th joint subquadrangular in ♂, with a rounded tooth followed by a notch near hinge; in ♀ ovate, the inner margin only slightly undulate. Gnathopod 2, 5th joint in ♂ with two large teeth on inner margin, one near base, the



Fig. 172. *Paracyamus erraticus* (R. de V.). a. Dorsal view of ♂. b. Branchia adult ♂. c. Branchia juv. 4-5 mm. d. Branchia ♀. e. Gnathopod 2 ♂. f. Gnathopod 2 ♀. g. Ventral view of peraeon segments 5-7 ♀, with proximal joints of peraeopods 5-7. h. Gnathopod 1 ♂. i. Gnathopod 1 ♀.

other near hinge, the latter obscurely bifid; in ♀ the two teeth are only feebly developed, the basal one more prominent than the distal one.

Peraeopods 5-7, distal anterior corner of 2nd joint produced ventrally to form a pointed tubercle, more prominent in ♀ than in ♂, 3rd moderately expanded, not as wide as 2nd or 4th joints, postero-inferior angle of 4th acute.

Branchiae very long, nearly (♀) or quite (♂) as long as peraeon segments 2-7 together, single on both segments 3 and 4, accessory appendages in ♂ double on both segments, in length about equal to head (excluding 1st segment); in ♀ only a single short sub-bifid lobe; in juveniles (4-5 mm.) the branchiae are relatively much stouter.

Length: ♂ up to 15 mm., ♀ up to 10 mm.

REMARKS. This species was recorded by Lütken from the Southern Right Whale, and by Stebbing from the tail region of the same species of whale. Stebbing also recorded it from the Humpback.

*Paracyamus boöpis* (Lütk.).

Lütken, 1873, p. 262, pl. iii, fig. 6 and p. 264, pl. iii, fig. 7 (*pacificus*).

Sars, 1895, p. 669, pl. ccxl.

Stebbing, 1910 a, p. 473.

Pesta, 1928 (*Ann. Nat. Mus. Wien*, XLII), pp. 79, 82, fig. 1 h, i.

- Occurrence*: 1. Whale no. 355. South Georgia. Humpback. 1 ♂, 2 ♀♀ (all immat.).  
 2. Whale no. 373. South Georgia. Humpback. 6 ♂♂, 1 ovig. ♀.  
 3. Whale no. 387. South Georgia. Humpback. 2 ♂♂, 2 ovig. ♀♀, 3 immat. ♀♀, 2 juv.  
 4. South Shetlands. Humpback. 3 ♂♂, 3 ♀♀ (1 ovig.), several juv.  
 5. Whale no. 918. Saldanha Bay. Humpback. 10 ♂♂, 7 ♀♀ (none quite mature), 2 juv.  
 6. Whale no. 1125. Saldanha Bay. Humpback. 6 ♂♂, 4 ♀♀ (1 with embryos), several juv.  
 7. Whale no. D 3. Durban. Humpback. 11 ♂♂, 1 immat. ♀, 1 juv.  
 8. Whale no. D 21. Durban. Sperm Whale. 2 ♂♂, 3 ovig. ♀♀, 1 ♀ with embryos.

REMARKS. The only difference between this species and *erraticus* lies in the ventral tubercles on segments 5-7. In the ♀ there is only one pair on each of the segments, and in the ♂ only one pair on each of segments 6 and 7 (the blunt processes on segment 5 are present in the ♀, as in *erraticus* and other species). It does not appear to reach so large a size as *erraticus*; the body also tends to be more slender, and the branchiae not so elongate. *C. pacificus* Lütk. is certainly synonymous.

This species has been recorded from the Humpback, and a var. *physeteris* from the Cachalot. Lütken (1893) says that the latter record is based on the statement of a whaler. It is therefore interesting to find a sample in the present collection taken from the Sperm Whale.

*Paracyamus gracilis* (R. de Vauz.) (Fig. 173).

R. de Vauzème, 1834, p. 259, pl. viii, figs. 24, 25.

Lütken, 1873, p. 278, pl. iv, fig. 10.

Stebbing, 1910 a, p. 473.

*Occurrence*: Whale no. 503. South Georgia. Southern Right Whale. 1 ♂, 6 juv.

DESCRIPTION. General outline of peraeon in dorsal view nearly parallel-sided. Head plus segment 1 triangular, with only a slight lateral groove marking the line of fusion. Segment 2 with antero-lateral angle rounded, postero-lateral angle quadrate. Segments 3 and 4 with a shallow notch on lateral margins. Segments 5 and 6 with a notch on lateral margin near anterior corner, slightly concave farther posteriorly. Segment 7 subtriangular, slightly broader than long, postero-lateral margin with a notch, hind margin concave.

On ventral surface in ♀ a pair of blunt inwardly directed processes on segment 5; no pointed tubercles either in ♂ or ♀.

Antenna 1, 1st–3rd joints subequal or 3rd slightly shorter, 1st about half length of head plus 1st segment. Antenna 2 extending almost as far as apex of 1st joint of antenna 1. Maxilliped, palp rudimentary even in a juvenile of 4 mm., but fully developed in one of 2 mm.

Gnathopod 1, 5th joint in ♂ ovate with prominent rounded tooth on inner margin; in ♀ narrow ovate, margin even. Gnathopod 2, 5th joint in ♂ with prominent pointed tooth on inner margin near hinge; in ♀ inner margin nearly straight, without tooth.

Peraeopods 5–7 not very strongly expanded, no ventral point on antero-distal corner of 2nd joint, 3rd joint as broad as 2nd, and only a little less broad than 4th, which has antero-distal corner rounded or at most subacute (not acute) and postero-inferior angle rounded, not prominent, 5th joint narrow ovate.

Branchiae single on both segments 3 and 4, rather thick, equal in length to peraeon segments 3–5 together, shorter in ♀; accessory appendages in ♂ short, double on both segments, absent in ♀.

Length: ♂ up to 10 mm., ♀ up to 8 mm.

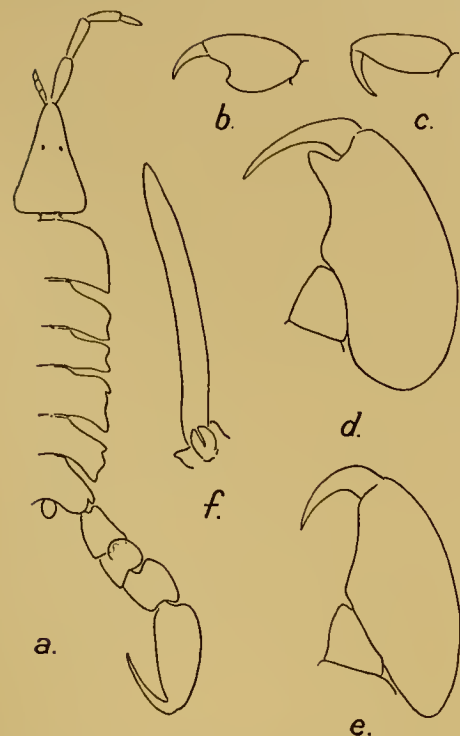


Fig. 173. *Paracyamus gracilis* (R. de V.). a. Dorsal view of ♂. b. Gnathopod 1 ♂. c. Gnathopod 1 ♀. d. Gnathopod 2 ♂. e. Gnathopod 2 ♀. f. Branchia ♂.

REMARKS. The above description is based on South African specimens in the South African Museum. This species seems to be always inextricably mixed up with the individuals of *Cyamus ovalis*. They appear to be confined to the head region of the whale.

#### Genus *Isocyamus*, Gerv. and Bened.

Gervais and Beneden, 1859 (*Exp. Meth. Règne Anim.*, 1), quoted from Stebbing, 1888, p. 316.

Gnathopods 1 and 2 unequal. Antenna 2 reduced to three joints. Maxilla 2 without outer lobes. Maxilliped, lobes fused, without trace of palp. Unguis of gnathopod 1 distinct from the dactylus. Branchiae single on both segments 3 and 4.

REMARKS. Although the characters of this genus were not stated by the original authors, the type, *delphini*, was designated. The genus may well be resuscitated on the above characters.

#### *Isocyamus delphini* (Guér.) (Fig. 174).

Guérin-Méneville, 1836 (*Iconogr.*, III), p. 25, pl. 28, fig. 5.

Stebbing, 1888, p. 163.

Milne Edwards, 1840 (*Hist. Nat. Crust.*, III), p. 114.

Brandt, 1872 (quoted from Stebbing, 1888).

Lütken, 1873, p. 276, pl. iv, fig. 9.

Mayer, 1882, pp. 186, 187, text-figs. 37, 38; 1890, pp. 147, 150, pl. vi, figs. 43, 44; pl. vii, fig. 19 (*globicipitis*).

Chevreaux, 1913 a, p. 15 (*globicipitis*).

Chevreaux and Fage, 1925, p. 462, fig. 438 (*globicipitis*).

*Occurrence*: 1. St. 14° 45' N, 18° 24' W. 27. x. 25. On Dolphin A. 4 ♂♂, 5 ♀♀ (some with embryos), 4 immat. ♂♂, 2 immat. ♀♀.

2. Same station. On Dolphin B. 1 ♂, 1 ovig. ♀, 3 immat. ♀♀, 8 juv.

**DESCRIPTION.** General outline of peraeon in dorsal view ovate in both sexes, the ♀ not broader than the ♂. Head and segment 1 completely fused, short, strongly bent downwards. Eyes present (as in other species). Peraeon segment 2 embracing base of segment 1. Segments 3 and 4 broader than segment 2 (no specimens with these narrower, as in Chevreaux and Fage's figure).

On ventral surface in ♀ a pair of blunt inwardly directed processes on segment 5, and a pair of pointed tubercles on both segments 6 and 7; in ♂ a pair of tubercles on each of segments 5-7; more strongly developed than in ♀.

Antenna 1, 1st and 2nd joints obovate, widening distally. Antenna 2 very small.

Gnathopod 1, 5th joint ovate, 6th distally pectinate, unguis distinct. Gnathopod 2, 4th joint prominently projecting on inner (lower) side, apically rounded, 5th with a single strong pointed tooth on inner margin near hinge.

Peraeopods 5-7, 2nd joint without projecting apical tubercle on lower surface, 3rd with anterior margin acutely produced, 4th broadly pyriform, distal angles not prominent.



Fig. 174. *Isocyamus delphini* (Guér.).  
a. Dorsal view of ♂. b. Gnathopod 1 ♂, with dactyl and unguis further enlarged.  
c. Branchia ♂.

Branchiae single on both segments 3 and 4, short and stout, accessory appendages in ♂ similar to and almost as long as the branchiae themselves, single on each segment, absent in ♀; at the base of each branchia is a pointed process, directed outwards, in both sexes.

Length: ♂ 6.5 mm., ♀ 6 mm.

**REMARKS.** Both Brandt and Lütken were inclined to regard *globicipitis* and *delphini* as synonymous. *C. chelipes*, Costa, 1866 (*Ann. Mus. Napoli.*, III, p. 82, pl. iv, fig. 2), also found on a dolphin, appears to be distinct from the present species; but whether it belongs to the genus *Isocyamus* is impossible to tell, as the description is inadequate.

The present species has been recorded from Dolphins and the Black Fish (*Globicephalus melas*); also from *Grampus griseus* and *Pseudorca crassidens* near the Azores (Chevreaux, 1913 a).

## APPENDIX

The following species are included in a small collection made at South Georgia by Major Barrett-Hamilton (P. Stammwitz, collector), and submitted to me by Dr Calman of the British Museum.

The species are all well known but this is the first record of *Paramoera walkeri* from South Georgia.

*Cheirimedon femoratus* (Pfr.).

*Supra*, p. 48.

*Occurrence*: Cumberland Bay, 10-15 fathoms. Dec. 1913. Six specimens, 8 mm.

*Oradarea tridentata*, Brnrd.

*Supra*, p. 163.

*Occurrence*: King Edward Cove. 12. xi. 13. Four specimens, 8-11 mm., incl. 2 ovig. ♀♀.

*Bovallia gigantea*, Pfr.

*Supra*, p. 196.

*Occurrence*: King Edward Cove. 12. xi. 13. 3 ♂♂ 20-24 mm., 15 ♀♀ 20-45 mm.  
Cumberland Bay. Dec. 1913. 4 ♀♀ 27-30 mm.  
Leith Harbour. 1 ♂ 25 mm., 1 ♀ 28 mm.

*Eurymera monticulosa*, Pfr.

*Supra*, p. 198.

*Occurrence*: Cumberland Bay, 10-15 fathoms. Dec. 1913. 1 ♀ 21 mm.

*Djerboa furcipes*, Chevr.

*Supra*, p. 203.

*Occurrence*: Cumberland Bay. Dec. 1913. 2 ♀♀ (1 ovig.) 16 mm.

*Paramoera walkeri* (Stebb.).

*Supra*, p. 206.

*Occurrence*: Cumberland Bay. Dec. 1913. Four specimens, incl. 2 ♀♀ with embryos 11-12 mm., in poor condition.  
King Edward Cove. 12. xi. 13. 1 ♀ 17 mm.

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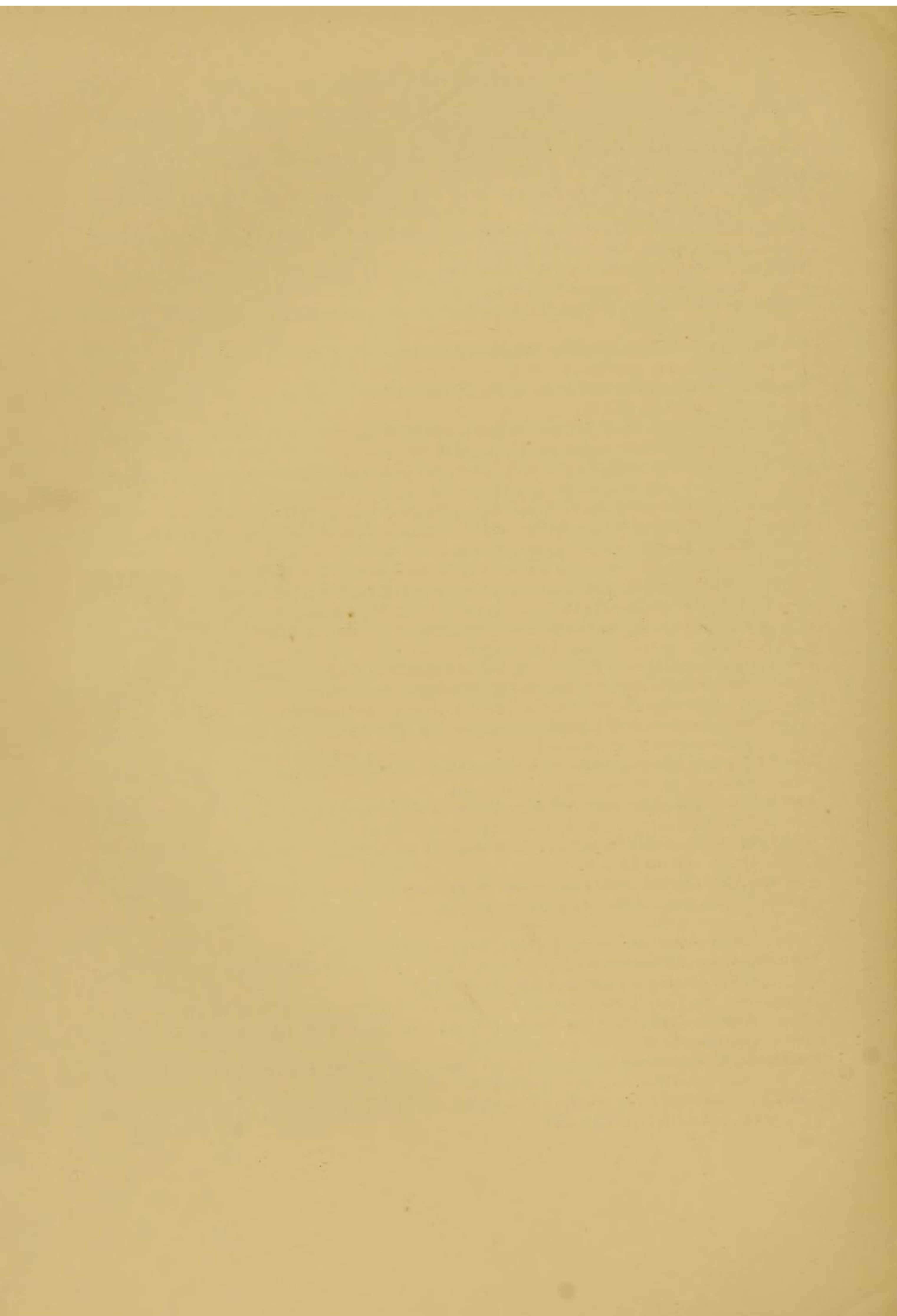
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PLATE I

Coloured figures of Amphipoda made from living specimens on board the R.S. 'Discovery' and R.S. 'William Scoresby'.

Fig. 1-8, A. C. Hardy pinx; Fig. 9, E. R. Gunter pinx.

Fig. 1. *Kana obesa*, Chev., from St. 101: x 3.

Fig. 2. *Spinaria canaliculata*, Schell., from St. WS 82: x 8.

Fig. 3. *Spinarella maculosa*, Wikl., from St. 102: x 4.

Fig. 4. *Eusiridae atropicea*, n. sp., from St. 114: x 3.

Fig. 5. *Pegomyia princeps*, Brand., from St. 82: x 3.

Fig. 5a. *Pegomyia princeps*, Brand., from St. 82: front view of head x 3.

Fig. 6. *Exopoda minuta*, Claus, from St. 266: x 10.

Fig. 7. *Exopoda rarer*, Claus, from St. 147, 148, WS 82: x 10.

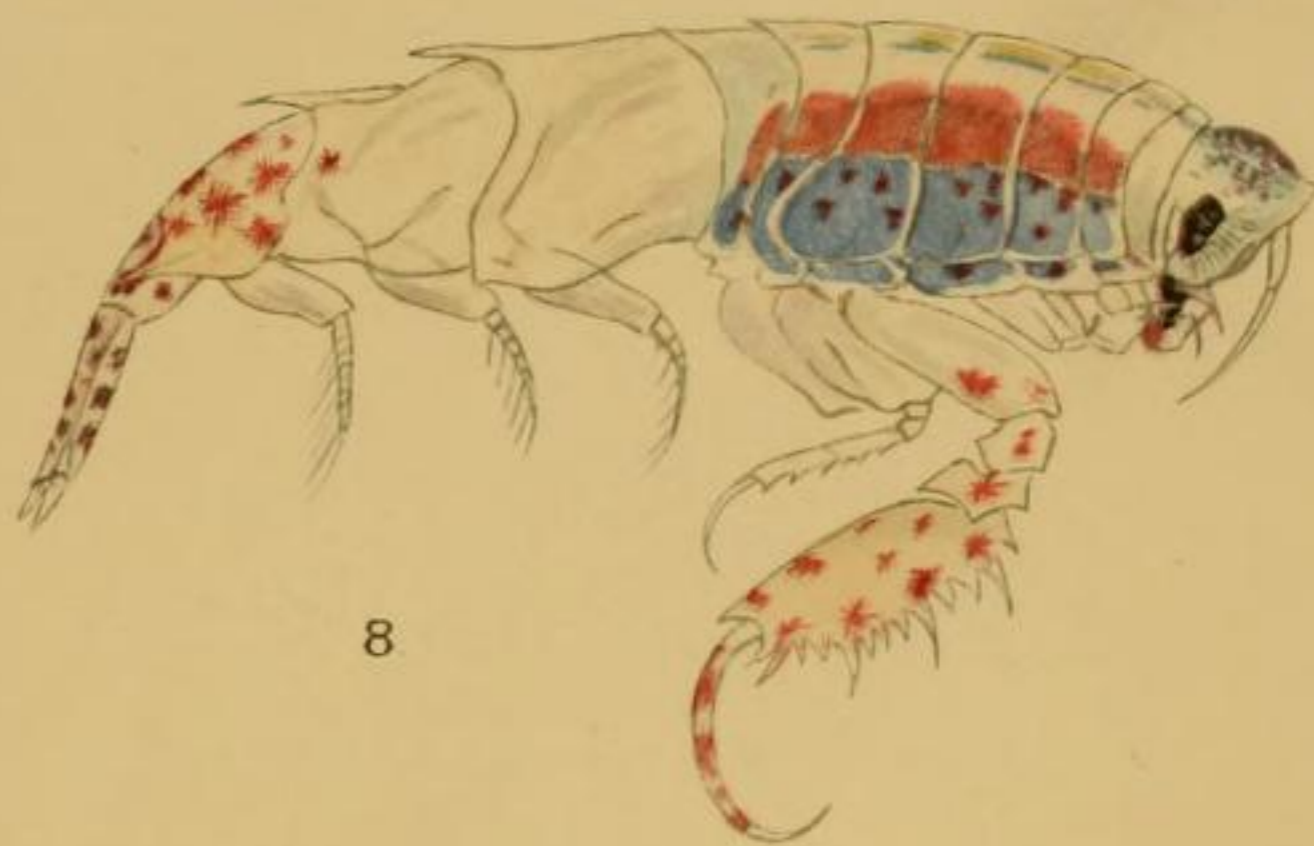
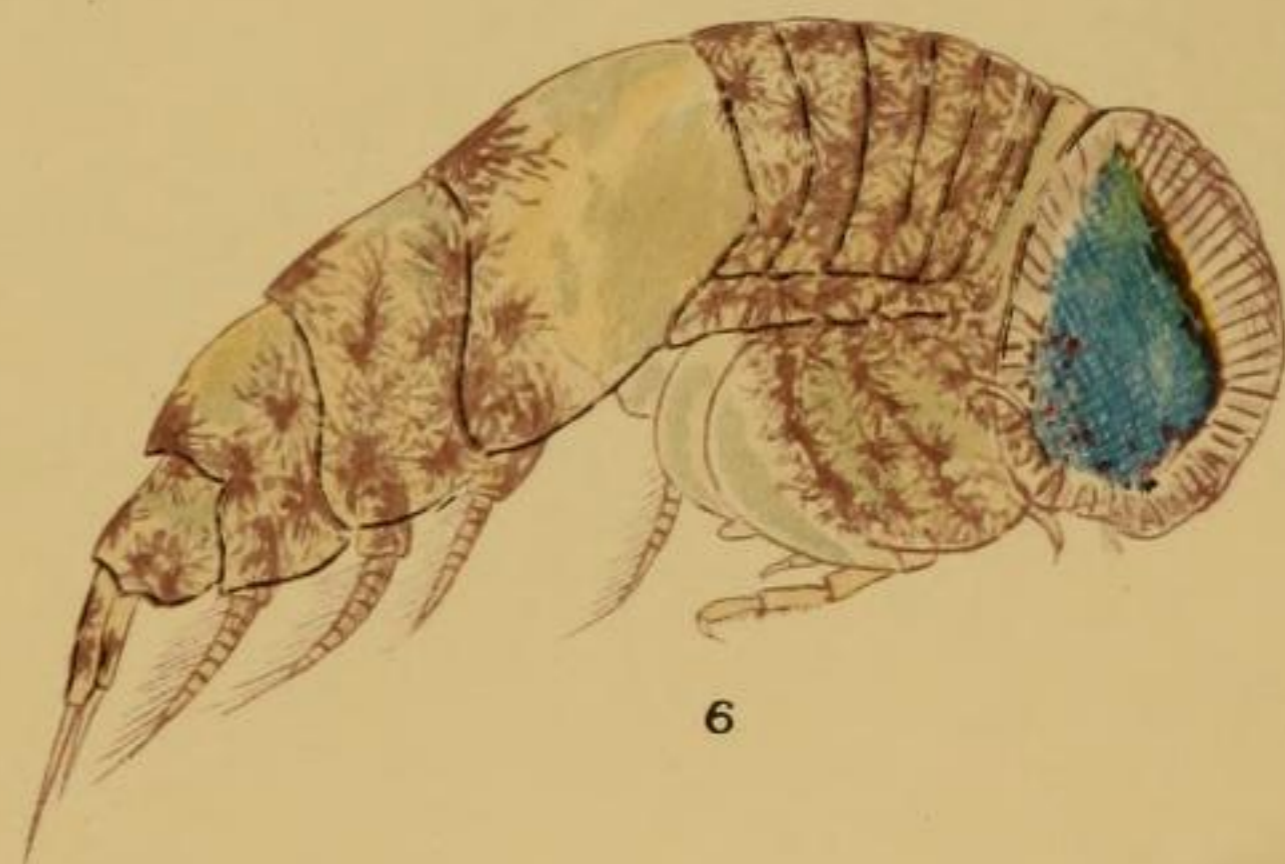
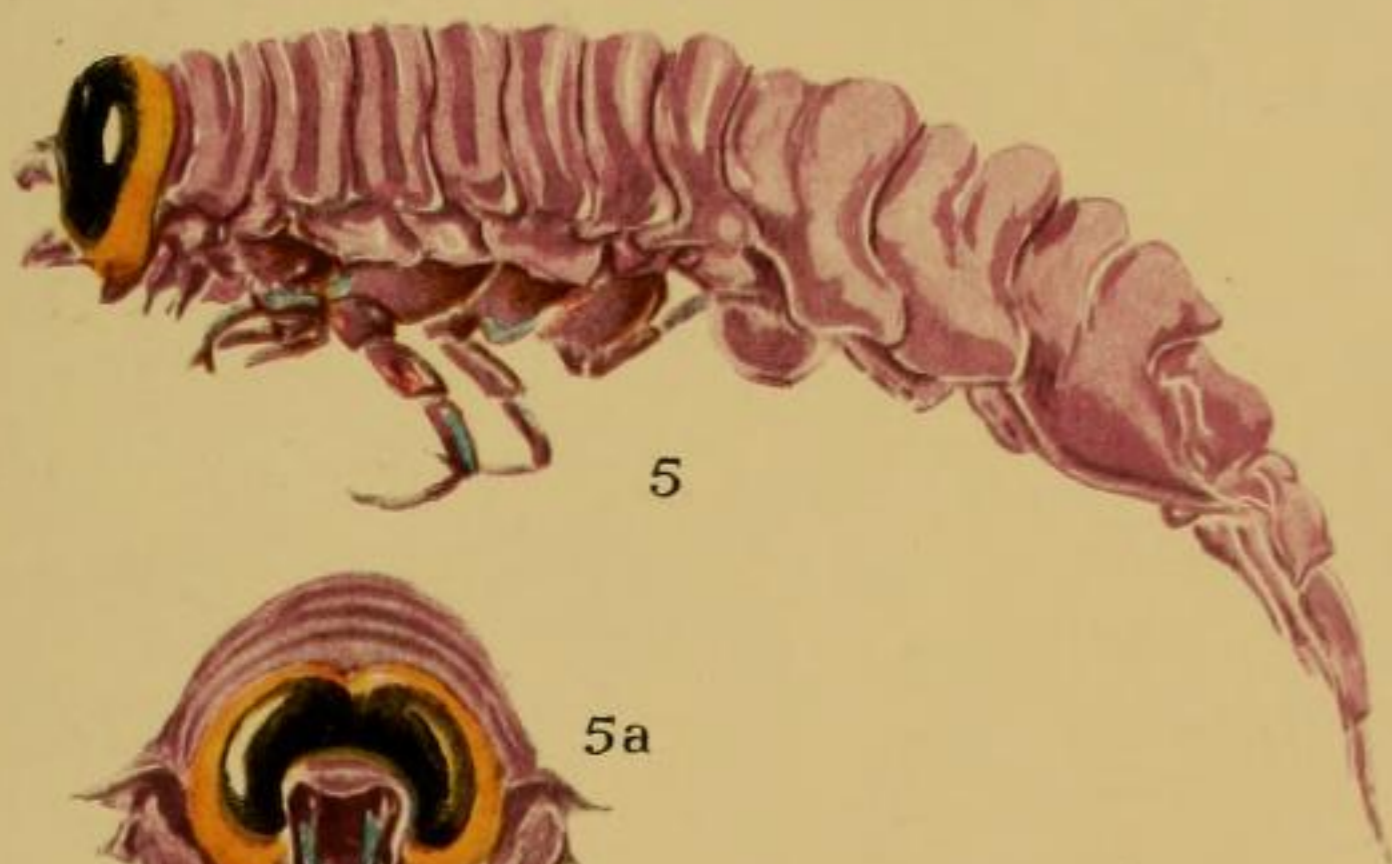
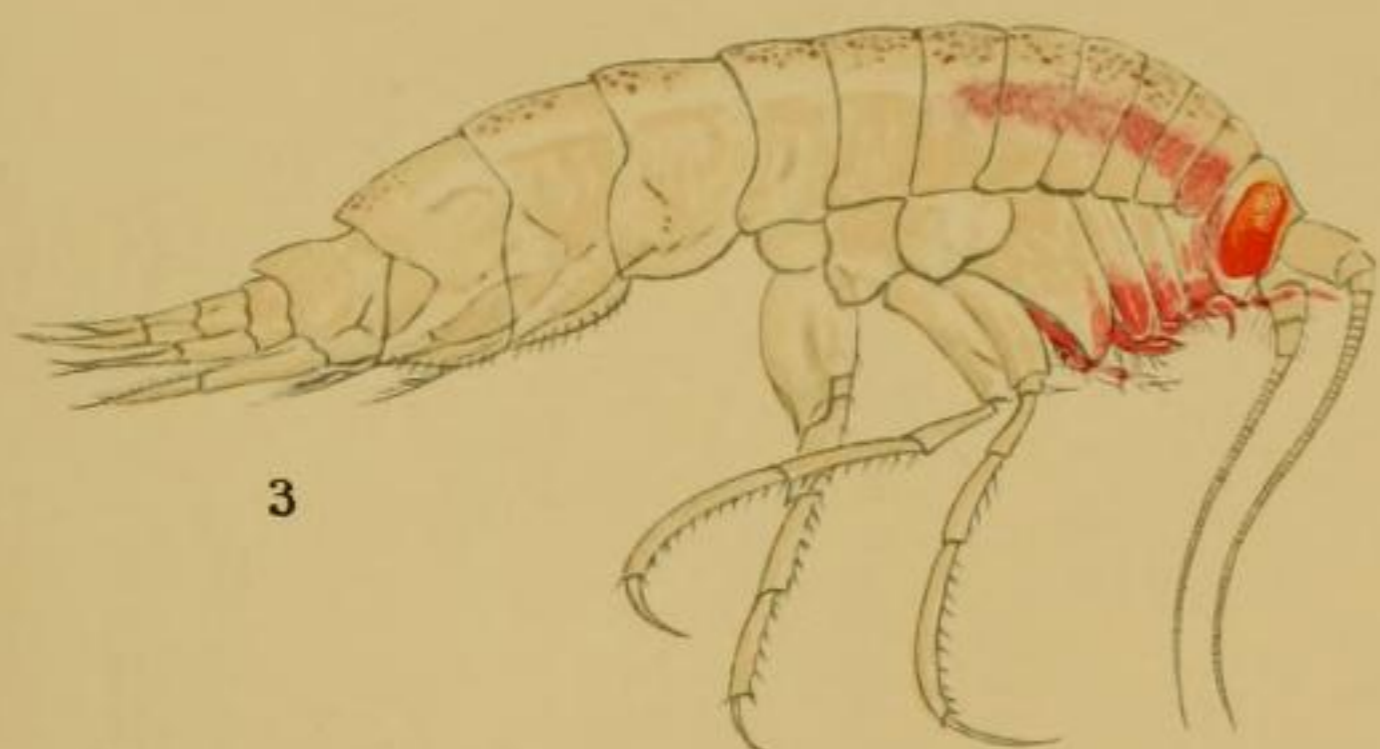
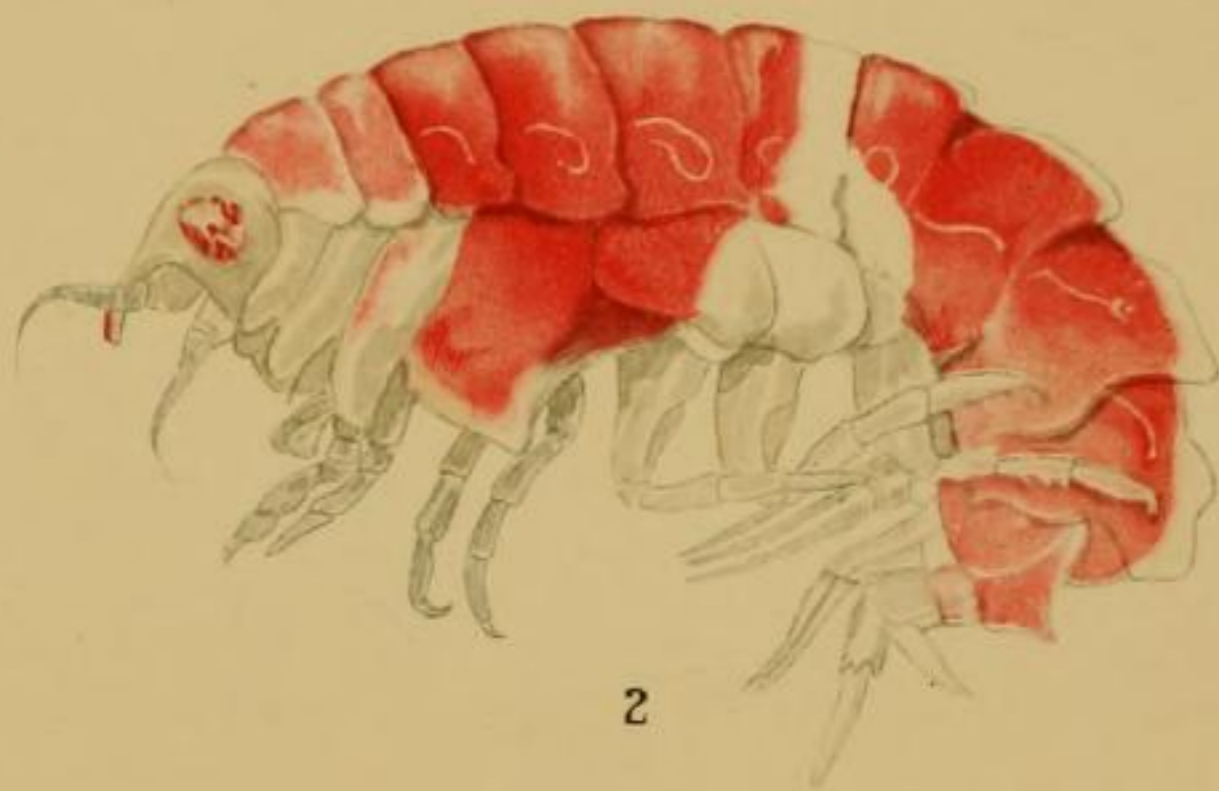
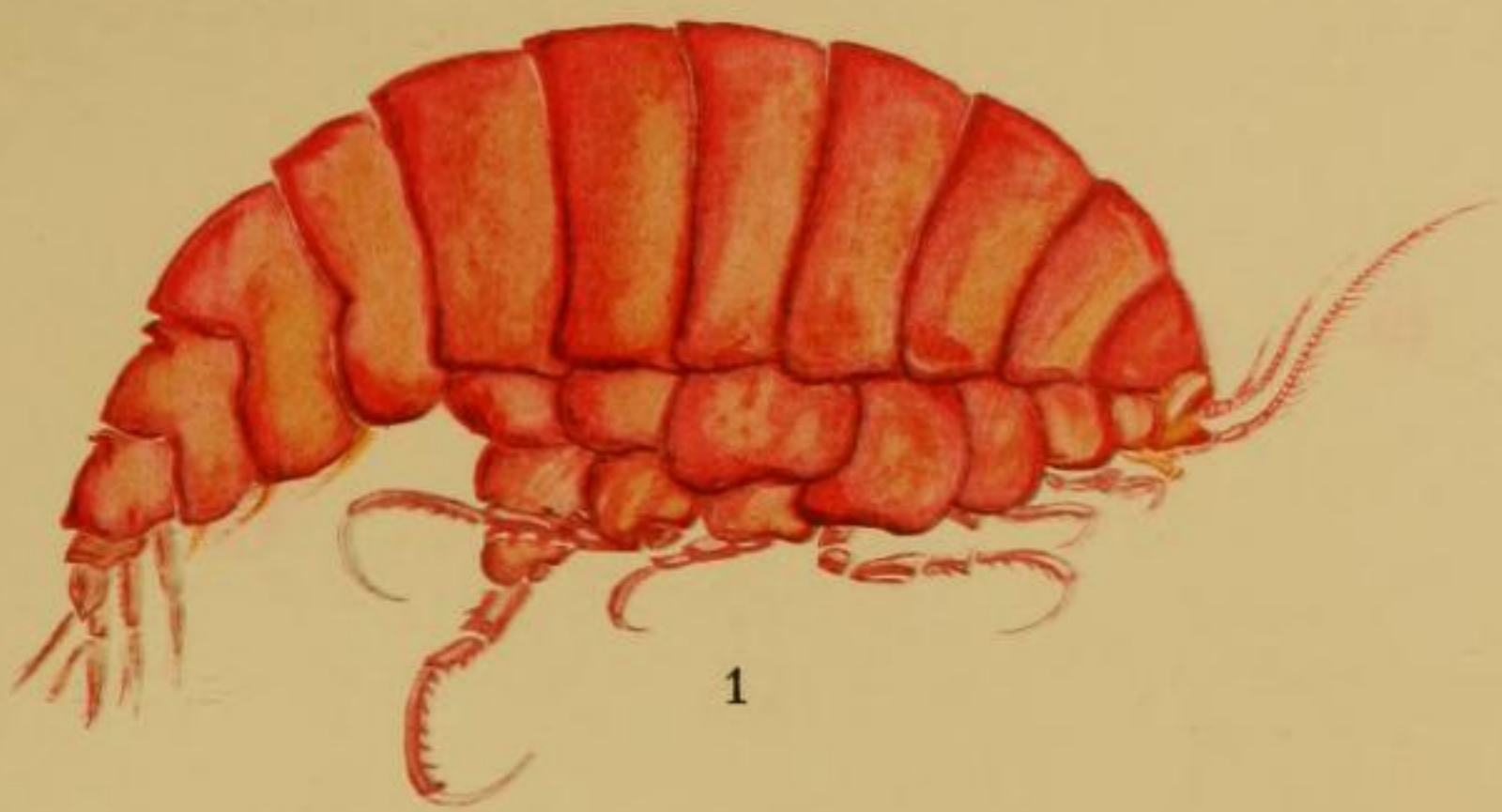
Fig. 8. *Exopoda maculosa*, Goebl., from St. 102: x 5.

PLATE I

Coloured figures of Amphipoda made from living specimens on board the R.R.S. 'Discovery' and R.R.S. 'William Scoresby'.

Figs. 1, 3-8, A. C. Hardy pinx.; Fig. 2, E. R. Gunther pinx.

- Fig. 1. *Katius obesus*, Chevr., from St. 101: × 3.
- Fig. 2. *Epimeria acanthurus*, Schell., from St. WS 85: × 8.
- Fig. 3. *Epimeriella macronyx*, Wlkr., from St. 162: × 4.
- Fig. 4. *Eusiroides stenopleura*, n.sp., from St. 114: × 3.
- Fig. 5. *Pegohyperia princeps*, Brnrd., from St. 85: × 3.
- Fig. 5a. *Pegohyperia princeps*, Brnrd., from St. 85: front view of head × 3.
- Fig. 6. *Eupronoë minuta*, Claus, from St. 266: × 16.
- Fig. 7. *Brachyscelus rapax*, Claus, from 25° 47' S, 14° 48' W: × 12.5.
- Fig. 8. *Primno macropa*, Guér., from St. 105: × 7.



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