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ABSTRACT

A REPORT is presented on three collections of amphipods from Graham Land and the islands of the Scotia arc. A total of 32,000 specimens represents 67 species, of which eight are new to science. Three new genera are erected, two of which are for previously described species. Published records of *Orchomene plebs* and *Orchomene rossi* are reviewed. Distributional and biological data are briefly discussed.

CONTENTS

I. INTRODUCTION

THIS report is based primarily on collections made at various localities off Graham Land and in the Scotia arc by members of Operation Tabarin and the Falkland Islands Dependencies Survey during the years 1944 to 1959. Collections were made systematically during the early part of this period but much more spasmodically in later years. Also described are two much smaller collections, one made off the South Sandwich Islands in 1908 by Capt. C. A. Larsen, and the other by A. G. Bennett, who visited shore-based whaling stations on various islands in the Scotia arc between 1913 and 1922.

The opportunity to make biological collections from 1944 onwards arose from the need for meteorological information for the South Atlantic which led to the establishment of the first of a series of permanently occupied stations at various localities in Graham Land and the Scotia arc. There was also official interest in continuing the survey work and scientific programmes started by the British Graham Land Expedition in 1934–37. The expedition, assembled by the Admiralty on behalf of the Colonial Office, was known under the code name of Operation Tabarin. Stations at Deception Island* and Port Lockroy were established in 1944. Lt-Cdr J. W. S. Marr, who was in overall command of the two stations, wintered at Port Lockroy, and among many other duties he made zoological collections in the vicinity of this station. In January 1945, Marr was forced by ill health to return to England and his job of zoologist fell to Sub-Lt G. J. Lockley. A third station was established at Hope Bay in 1945 and among the complement was Capt. N. B. Marshall, who was responsible for biological matters (Wordie, 1947). During 1945 Operation Tabarin was transferred from Admiralty control to the Colonial Office and was given a new name, the Falkland Islands Dependencies Survey. This change of control led to a change of personnel and a change of emphasis in the research programmes which were concentrated on meteorology, survey and geology. Although biological work continued, less effort was expended on the marine fauna than had been the case in 1944–45. Despite this, significant quantities of material were collected at Stonington Island by B. Stonehouse in 1947–49, at Signy Island by R. M. Laws in 1948 and W. J. L. Sladen in 1950, and at the Argentine Islands in 1948. During the 1957–58 summer season, Flt-Lt D. A. Jones of the Falkland Islands Dependencies Survey was attached to a Royal Navy hydrographic survey party and he collected littoral samples in the vicinity of the Argentine Islands (Bingham, 1947; Fuchs, 1951; Wynne-Edwards, 1959). Several samples were taken by the author at South Georgia and Port Lockroy in November and December 1959. The material collected between 1944 and 1950 was deposited at the British Museum (Nat. Hist.) in 1957 and this together with subsequent samples provided a total of about 31,800 amphipods which form the basis for this report.

One of the most experienced and most influential men involved in the southern whaling industry in the early years of the twentieth century was Capt. C. A. Larsen, a Norwegian, who had, despite much discouragement, initiated whaling operations at South Georgia in 1904. The Ordinance and Letters Patent issued by the British Government in 1908 laid claim to all territories in Graham Land and the Scotia arc, and increased the tax imposed on the whaling companies and on whale products. In an attempt to find an alternative whaling harbour, Larsen visited the South Sandwich Islands later in the same year on board the steam yacht *Undine*. The main object of the voyage was not fulfilled, but seven islands were seen and landings made on several of them, and trawls and dredges used to sample the marine fauna on a number of occasions. Part of the material so obtained, about 50 specimens, was forwarded, via the Governor of the Falkland Islands, to the British Museum (Nat. Hist.) in 1909. The fate of this and the other parts of Larsen's collection is discussed on p. 11–12.

The success of Larsen's first whaling season at South Georgia attracted the attention of other companies and in 1906 the Governor of the Falkland Islands imposed a royalty on all whales landed at South Georgia and areas farther south. From 1907 onwards, a British magistrate travelled south with the whaling fleets, usually to Deception Island, in order to exercise control over the operations (H.M.S.O., 1920). A. G. Bennett occupied this post for some years, and between 1913 and 1922 he collected biological material at Deception Island, the South Orkney Islands and South Georgia (Christie, 1951). The material collected by Bennett, including some 200 amphipod specimens was accessed into the collections of the British Museum (Nat. Hist.) in 1920 and 1923.

* The geographical coordinates of all localities mentioned throughout the text are listed in Appendix D.

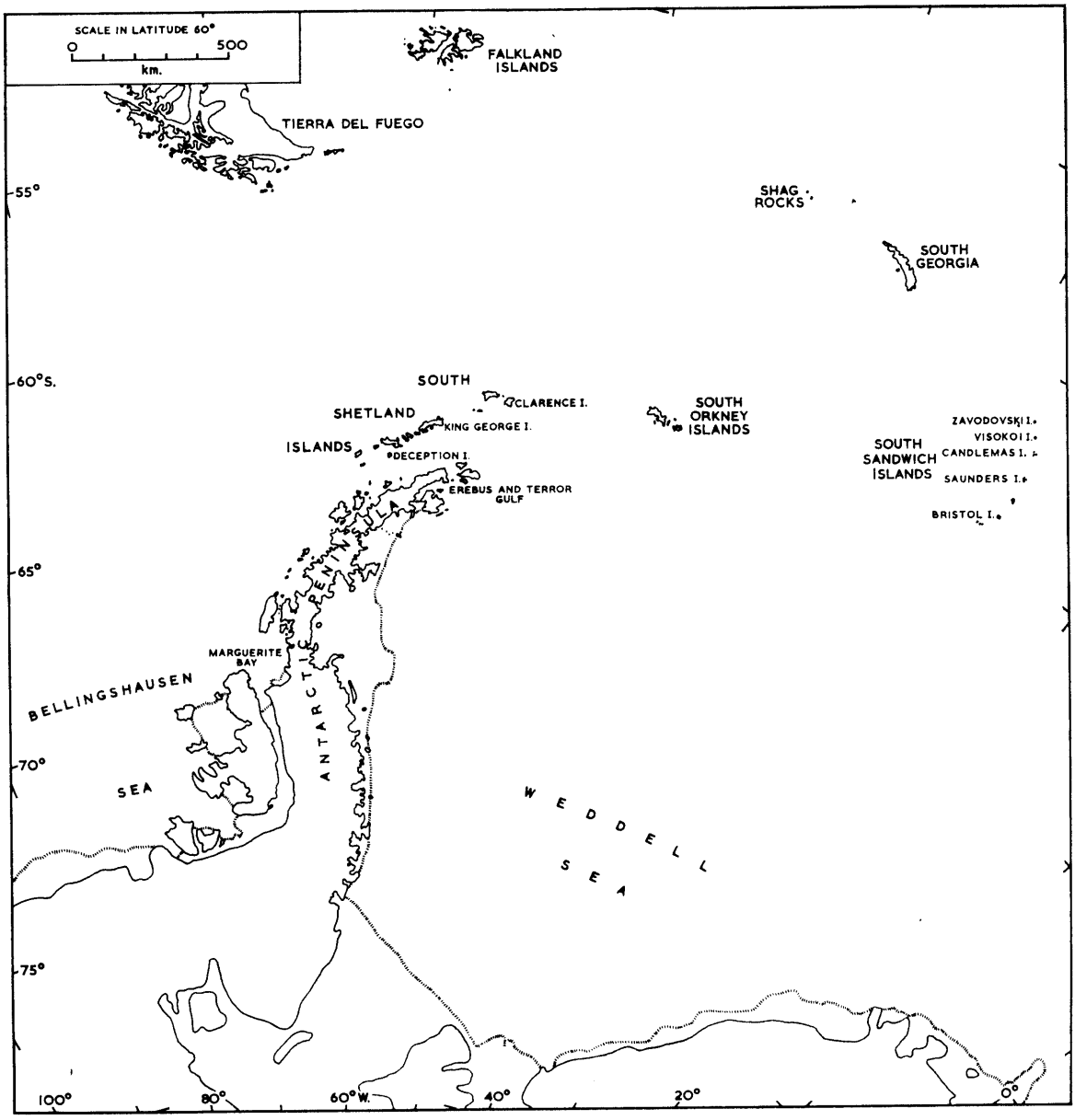

FIGURE 1
The Antarctic Peninsula and Scotia arc.

The area under consideration in this report, i.e. Graham Land and islands of the Scotia arc (Fig. 1), is better known faunistically than any other comparable area of the Antarctic region. Major contributions to the knowledge of the amphipods of this area have been based on the collections of the German International Polar Year Expedition (Pfeffer, 1888), the Swedish South-Polar Expedition (Schellenberg, 1931), the Scottish National Antarctic Expedition (Chilton, 1912), the Expédition Antarctique Française and Deuxième Expédition Antarctique Française (Chevreux, 1906, 1913), the Discovery Committee (Barnard, 1932), the Norwegian Antarctic Expeditions (Stephensen, 1947) and the British Antarctic Survey (Thurston, 1972*b*). Important though less extensive records have been published by Bate (1862), Mayer (1903), Chevreux (1911), Shoemaker (1914, 1945), Chilton (1925), Monod (1926), Stephensen (1938), Ruffo (1949) (virtually all of the Expédition Antarctique Belge material was collected in the Bellingshausen Sea west of long. 80°W.), Oldevig (1961) and Barnard (1972), the last of whom discussed some Antarctic material in connection with allied species from the Australian fauna. Amphipods form an important part of the

marine benthos in waters around Graham Land and the Scotia arc, and in recent years have figured in various syn- and autecological studies, e.g. Castellanos and Perez (1963), Thurston (1968, 1970), Bone (1972), White and Bone (1972) and Bregazzi (1972*a*, *b*, 1973*a*, *b*).

Length measurements quoted for most species represent the distance between the tip of the rostrum and the tip of the telson on the straightened animal. Males have been identified by the presence of the genital papillae and females by oostegites, while specimens possessing neither have been considered to be juvenile. Peraeon appendages are numbered relative to the corresponding segment, i.e. gnathopods 1 and 2, peraeopods 3–7. The term pleon is used to describe the first three abdominal segments, and urus or urosome to describe segments 4–6.

Most of the material in these collections has been deposited at the British Museum (Nat. Hist.) but a few specimens have been retained in the reference collections of the British Antarctic Survey and at the Institute of Oceanographic Sciences.

II. STATION LIST AND SPECIES RECORDS

1. *Port Lockroy*

Hole No. 1. 16.vii.44. On bait in fish trap. *Cheirimedon femoratus* (Pfeffer), *Orchomene plebs* (Hurley).

Hole No. 2. 2.viii.44. 27 m. On bait in fish trap. *Cheirimedon femoratus* (Pfeffer), *Orchomene plebs* (Hurley).

1259. 27.viii.44. 0·5 m. West of boat harbour, Goudier Island, under rocks and boulders. *Gitanopsis squamosa* (Thomson), *Wandelia crassipes* Chevreux, *Gondogeneia antarctica* (Chevreux), *Schraderia dubia* Thurston, *S. gracilis* Pfeffer, *Jassa falcata* (Montagu), *Metopoides sarsi* (Pfeffer), *Probolisca ovata* (Stebbing).

1274. 30.viii.44. From stomach of *Phalacrocorax atriceps*. *Bovallia gigantea* Pfeffer.

1285. 17.ix.44. Boat harbour, Goudier Island, on seal skull immersed for cleaning. *Cheirimedon femoratus* (Pfeffer), *Orchomene plebs* (Hurley).

1335. 19.x.44. 0·6 m. West of boat harbour, Goudier Island, under rocks and boulders. *Gondogeneia antarctica* (Chevreux), *Schraderia gracilis* Pfeffer.

1337. 19.x.44. 0·6 m. West of boat harbour, Goudier Island, under rocks and boulders. *Bovallia gigantea* Pfeffer.

1343. 19.x.44. 0·6 m. West of boat harbour, Goudier Island, under rocks and boulders. *Wandelia crassipes* Chevreux, *Gondogeneia antarctica* (Chevreux), *Oradarea unidentata* Thurston, *Schraderia gracilis* Pfeffer, *Jassa falcata* (Montagu), *Antatelson walkeri* (Chilton).

1357. 19.x.44. 0·6 m. West of boat harbour, Goudier Island, under rocks and boulders. *Wandelia crassipes* Chevreux, *Bovallia gigantea* Pfeffer, *Gondogeneia antarctica* (Chevreux), *Jassa falcata* (Montagu).

1361. 19.x.44. 0·6 m. West of boat harbour, Goudier Island, under rocks and boulders. *Caprellinoides mayeri* (Pfeffer).

1379. 19.x.44. 0·6 m. West of boat harbour, Goudier Island, under rocks and boulders. *Wandelia crassipes* Chevreux, *Gondogeneia antarctica* (Chevreux), *Jassa falcata* (Montagu), *Antatelson walkeri* (Chilton).

1391. 25.x.44. ELWS. Boat harbour, Goudier Island, under large boulder. *Eurymera monticulosa* Pfeffer.

1397. 25.x.44. ELWS. Boat harbour, Goudier Island, under large boulder. *Gondogeneia antarctica* (Chevreux), *Oradarea ocellata* Thurston, *O. walkeri* Shoemaker, *Paramoera edouardi*, Schellenberg, *Schraderia barnardi* Thurston, *S. gracilis* Pfeffer.

1411. 27.x.44. Littoral. Boat harbour, Goudier Island, under stones in shallow pool. *Eurymera monticulosa* Pfeffer, *Jassa falcata* (Montagu).

1412. 27.x.44. Littoral. Boat harbour, Goudier Island, under stones in shallow pool. *Paramoera edouardi* Schellenberg.

1416. 27.x.44. Littoral. Boat harbour, Goudier Island, under stones in shallow pool. *Eurymera monticulosa* Pfeffer, *Paramoera walkeri* (Stebbing), *P. edouardi* Schellenberg.

1456. 30.x.44. Littoral. West of boat harbour, Goudier Island, under stones in shallow pool. *Gondogeneia antarctica* (Chevreux), *Schraderia dubia* Thurston, *S. gracilis* Pfeffer.

1470. 1.xi.44. ELWS. North-west of boat harbour, Goudier Island, under stones in pool. *Bovallia gigantea* Pfeffer.

1475. 1.xi.44. ELWS. North-west of boat harbour, Goudier Island, under stones in pools. *Eurymera monticulosa* Pfeffer.

1477. 1.xi.44. ELWS. North-west of boat harbour, Goudier Island, under stones in pools. *Gitanopsis squamosa* (Thomson), *Eurymera monticulosa* Pfeffer, *Gondogeneia antarctica* (Chevreux), *Oradarea edentata* Barnard, *O. ocellata* Thurston, *O. walkeri* Shoemaker, *Paramoera edouardi* Schellenberg, *Pontogeneiella brevicornis* (Chevreux), *Prostebbingia gracilis* (Chevreux), *Schraderia gracilis* Pfeffer, *Probolisca ovata* (Stebbing).

1508. 1.xi.44. ELWS. North-west of boat harbour, Goudier Island, under stones in pools. *Bovallia gigantea* Pfeffer.

1513. 1.xi.44. ELWS. North-west of boat harbour, Goudier Island, under stones in pools. *Bovallia gigantea* Pfeffer.

1517. 1.xi.44. ELWS. North-west of boat harbour, Goudier Island, under stones in pools. *Waldeckia obesa* (Chevreux).

1550. 1.xi.44. ELWS. North-west of boat harbour, Goudier Island, under stones in pools. *Epimeria monodon* Stephensen.

A120. 11.ii.45. 18 m. Off Lecuyer Point, Peltier Channel, rock. *Atyloella magellanica* (Stebbing), *Gondogeneia antarctica* (Chevreux), *Oradarea unidentata* Thurston, *O. walkeri* Shoemaker.

A122. 11.ii.45. 18–27 m. Off Lecuyer Point, Peltier Channel, rock. *Bovallia gigantea* Pfeffer, *Liouvillea oculata* Chevreux, *Pontogeneiella longicornis* (Chevreux), *Schraderia gracilis* Pfeffer.

A127. 13.ii.45. 18 m. Mud. *Pontogeneiella brevicornis* (Chevreux), *Prostebbingia gracilis* (Chevreux).

A130. 18.iii.45. 18 m. Peltier Channel, rock. *Bovallia gigantea* Pfeffer, *Pontogeneiella longicornis* (Chevreux).

A131. 6.ii.45. 18 m. Peltier Channel, rock. *Paradexamine fissicauda* Chevreux, *Bovallia gigantea* Pfeffer, *Djerboa furcipes* Chevreux, *Liouvillea oculata* Chevreux, *Oradarea ocellata* Thurston, *Pontogeneiella brevicornis* (Chevreux), *P. longicornis* (Chevreux), *Prostebbingia gracilis* (Chevreux), *Schraderia gracilis* Pfeffer.

A134. 9.ii.45. 18 m. Peltier Channel, mud. *Antarctogeneia macrodactyla* sp. nov., *Oradarea edentata* Barnard, *O. walkeri* Shoemaker, *Pontogeneiella longicornis* (Chevreux), *Prostebbingia gracilis* (Chevreux), *Schraderia gracilis* Pfeffer, *Cheirimedon femoratus* (Pfeffer).

A137. 11.ii.45. 18 m. Off Lecuyer Point, Peltier Channel, rock. *Pariphimedia integricauda* Chevreux, *Paradexamine fissicauda* Chevreux, *Bovallia gigantea* Pfeffer, *Liouvillea oculata* Chevreux, *Pontogeneiella longicornis* (Chevreux).

A139. 11.ii.45. 18 m. Off Lecuyer Point, Peltier Channel, rock. *Paradexamine fissicauda* Chevreux, *Antarctogeneia macrodactyla* sp. nov., *Bovallia gigantea* Pfeffer, *Pontogeneiella brevicornis* (Chevreux).

A140. 6.ii.45. 18 m. Off Lecuyer Point, Peltier Channel, rock. *Ampelisca bouvieri* Chevreux, *Paradexamine fissicauda* Chevreux, *Antarctogeneia macrodactyla* sp. nov., *Atylopsis orthodactylus* sp. nov., *Djerboa furcipes* Chevreux, *Methalimedon nordenskjoeldi* Schellenberg, *Andaniotes ingens* Chevreux.

A142. 6.ii.45. 18 m. Off Lecuyer Point, Peltier Channel, rock. *Wandelia crassipes* Chevreux, *Liouvillea oculata* Chevreux, *Oradarea bidentata* Barnard, *Prostebbingia gracilis* (Chevreux), *Schraderia gracilis* Pfeffer.

A152. 11.ii.45. 18–27 m. Off Lecuyer Point, Peltier Channel, rock. *Oradarea walkeri* Shoemaker, *Pontogeneiella longicornis* (Chevreux), *Prostebbingia gracilis* (Chevreux).

A202. 4.vii.45. Beneath sea ice at shoreline. *Gondogeneia antarctica* (Chevreux).

A212. 29.vii.45. 37 m. On fishing line bait from rock substrate. *Waldeckia obesa* (Chevreux).

A319. 23.ix.45. ELWS. Under stones. *Atyloella magellanica* (Stebbing), *Bovallia gigantea* Pfeffer, *Gondogeneia antarctica* (Chevreux), *Oradarea bidentata* Barnard, *O. ocellata* Thurston, *O. tridentata* Barnard, *O. unidentata* Thurston, *Prostebbingia gracilis* (Chevreux).

A334. 23.ix.45. ELWS. Under stones. *Gitanopsis squamosa* (Thomson), *Gondogeneia antarctica*

(Chevreux), *Oradarea unidentata* Thurston, *O. walkeri* Shoemaker, *Jassa falcata* (Montagu), *Antatelson walkeri* (Chilton), *Probolisca ovata* (Stebbing), *Prothaumatelson nasutum* (Chevreux).

A381. 23.ix.45. ELWS. Under stones. *Gondogeneia antarctica* (Chevreux), *Paramoera edouardi* Schellenberg, *Schraderia gracilis* Pfeffer, *Jassa falcata* (Montagu).

A382. 23.ix.45. ELWS. Under stones. *Gondogeneia antarctica* (Chevreux), *Oradarea walkeri* Shoemaker, *Cheirimedon femoratus* (Pfeffer).

A383. 23.ix.45. ELWS. Under stones. *Bovallia gigantea* Pfeffer, *Gondogeneia antarctica* (Chevreux), *Oradarea walkeri* Shoemaker, *Paramoera edouardi* Schellenberg, *Prostebbingia gracilis* (Chevreux), *Schraderia gracilis* Pfeffer, *Cheirimedon femoratus* (Pfeffer), *Epimeria monodon* Stephensen.

A384. 23.ix.45. ELWS. Under stones. *Gondogeneia antarctica* (Chevreux), *Oradarea ocellata* Thurston, *O. unidentata* Thurston, *Schraderia gracilis* Pfeffer, *Cheirimedon femoratus* (Pfeffer).

A385. 23.ix.45. ELWS. Under stones. *Bovallia gigantea* Pfeffer, *Gondogeneia antarctica* (Chevreux), *Liouvillea oculata* Chevreux, *Oradarea unidentata* Thurston, *Prostebbingia gracilis* (Chevreux), *Schraderia gracilis* Pfeffer.

A387. 23.ix.45. ELWS. Under stones. *Atyloella magellanica* (Stebbing), *Gondogeneia antarctica* (Chevreux), *Oradarea ocellata* Thurston, *O. unidentata* Thurston, *O. walkeri* Shoemaker.

A429. 25.ix.45. ELWS. Among clumps of Rhodophyceae. *Gitanopsis squamosa* (Thomson), *Gondogeneia antarctica* (Chevreux), *Oradarea unidentata* Thurston, *Paramoera edouardi* Schellenberg, *Antatelson walkeri* (Chilton), *Caprellinoides mayeri* (Pfeffer).

A430. 25.ix.45. ELWS. Among clumps of Rhodophyceae. *Hippomedon kergueleni* (Miers).

A491. 15.x.45. ELWS. Under stones. *Gondogeneia antarctica* (Chevreux).

A492. 15.x.45. ELWS. Under stones. *Gondogeneia antarctica* (Chevreux), *Oradarea edentata* Barnard, *Paramoera edouardi* Schellenberg, *Lepidepecreum cingulatum* Barnard.

A493. 15.x.45. ELWS. Under stones. *Gondogeneia antarctica* (Chevreux), *Oradarea edentata* Barnard, *Paramoera edouardi* Schellenberg.

LOC1. 15.xii.59. MTL. Boat harbour, Goudier Island, under stones. *Eurymera monticulosa* Pfeffer, *Gondogeneia antarctica* (Chevreux), *Pontogeneiella brevicornis* (Chevreux), *Schraderia gracilis* Pfeffer, *Cheirimedon femoratus* (Pfeffer), *Hippomedon kergueleni* (Miers).

LOC2. 15.xii.59. MTL. Boat harbour, Goudier Island, under boulders. *Gondogeneia antarctica* (Chevreux), *Paramoera edouardi* Schellenberg, *Cheirimedon femoratus* (Pfeffer).

LOC3. 15.xii.59. 0–1 m. Boat harbour, Goudier Island, hand netted. *Bovallia gigantea* Pfeffer, *Gondogeneia antarctica* (Chevreux).

2. *Hope Bay*

6000. 9.iii.45. HWN. Grunden Rocks, rock pools. *Gondogeneia antarctica* (Chevreux), *Paramoera edouardi* Schellenberg, *Monoculodes scabriculosus* Barnard.

6014. 14.vi.45. 9 m. Hut Cove, stomach contents of *Notothenia*. *Paraceradocus miersii* (Pfeffer), *Hippomedon kergueleni* (Miers).

6017. 16–18.vi.45. 9 m. Hut Cove, stomach contents of *Notothenia coriiceps*. *Bovallia gigantea* Pfeffer, *Pontogeneiella brevicornis* (Chevreux), *Hippomedon kergueleni* (Miers).

6023. 29.vi.45. 9 m. Hut Cove, trapped in baited water bottle. *Cheirimedon femoratus* (Pfeffer), *Orchomene plebs* (Hurley), *O. rotundifrons* (Barnard).

6077. 22.ix.45. Littoral. Grunden Rocks, rock pools. *Bovallia gigantea* Pfeffer.

6078. 22.ix.45. Littoral. Grunden Rocks, rock pools. *Gondogeneia antarctica* (Chevreux), *Lepidepecreum cingulatum* Barnard.

6090. 24.ix.45. Littoral. Grunden Rocks, rock pools. *Pariphimedia integricauda* Chevreux, *Gondogeneia antarctica* (Chevreux), *Prostebbingia gracilis* Chevreux, *Jassa falcata* (Montagu), *Probolisca ovata* (Stebbing).

6159. 18.xi.45. HWN. Near old hut, rock pools. *Paramoera edouardi* Schellenberg, *Cheirimedon femoratus* (Pfeffer), *Lepidepecreum cingulatum* Barnard.

6160. 19.xi.45. LWN. Grunden Rocks, rock pools. *Eurymera monticulosa* Pfeffer.

6164. 20.xi.45. LWN. Jagged Rocks, rock pool. *Tryphosella marri* sp. nov.

6168. 20.xi.45. LWN. Jagged Rocks, rock pool. *Eurymera monticulosa* Pfeffer.

6176. 21.xi.45. LWN. Grunden Rocks, under rocks. *Paraceradocus miersii* (Pfeffer).

6177. 21.xi.45. LWN. Grunden Rocks, under rocks. *Bovallia gigantea* Pfeffer.
6178. 21.xi.45. LWN. Grunden Rocks, under rocks. *Eurymera monticulosa* Pfeffer.
6179. 21.xi.45. LWN. Grunden Rocks, under rocks. *Oradarea ocellata* Thurston, *Jassa falcata* (Montagu), *Metopoides sarsi* (Pfeffer).
6201. 23.xi.45. HW–LW. Hut Cove, in pools. *Paramoera edouardi* Schellenberg.
6207. 4.xii.45. 55–37 m. Hope Bay, glacial mud at 55 m., some sand and small rocks at 37 m. *Ampelisca bouvieri* Chevreux, *Paradexamine fissicauda* Chevreux, *Paramoera edouardi* Schellenberg.
6217. 4.xii.45. 55–37 m. Hope Bay, glacial mud at 55 m., some sand and small rocks at 37 m. *Paramoera edouardi* Schellenberg, *Jassa falcata* (Montagu), *Tryphosella marri* sp. nov., *Metopoides sarsi* (Pfeffer).
6240. 5.xii.45. 73–55 m. Hope Bay, mostly muddy but becoming rocky towards shore. *Paradexamine fissicauda* Chevreux, *Orchomene tabarini* Thurston.
6246. 7.xii.45. Littoral. Grunden Rocks, in pools. *Pariphimedia integricauda* Chevreux.
6262. 8.xii.45. Littoral. Grunden Rocks, in pools. *Gondogeneia antarctica* (Chevreux).
6267. 17.xii.45. 91–73 m. Hope Bay, associated with large white colonial ascidian. *Polycheria antarctica* f. *acanthopoda* f. nov., *Eusirus bouvieri* Chevreux.
6300. 31.xii.45. LWS. Hut Cove, on seal skull immersed for cleaning. *Cheirimedon femoratus* (Pfeffer).

3. *Stonington Island*
E1022. 14.v.47. Littoral. Specimens stranded during storm. *Gondogeneia antarctica* (Chevreux), *Paramoera walkeri* (Stebbing), *P. edouardi* Schellenberg, *Cyllopus lucasii* Bate, *Hyperia macrocephala* (Dana).
E1029. 7.viii.47. Surface. Attracted to seal blow hole by discarded seal viscera. *Cheirimedon similis* sp. nov.
E1030. 7.viii.47. Surface. Attracted to seal blow hole by discarded seal viscera. *Cheirimedon similis* sp. nov.
E495. 8.vi.48. Surface. Seal blow hole. *Gondogeneia antarctica* (Chevreux), *Paramoera edouardi* Schellenberg, *Cheirimedon similis* sp. nov.
E502. 7.ii.49. 64 m. Off Stonington Island, dredged. *Prostebbingia serrata* Schellenberg, *Schraderia gracilis* Pfeffer, *Orchomene acanthurus* (Schellenberg), *Andaniotes ingens* Chevreux.
E506. 10.ii.49. 16 m. Back Bay, dredged. *Prostebbingia gracilis* (Chevreux), *Monoculodes scabriculosus* Barnard.
E507. 10.ii.49. 4 m. North side of Trepassey Island, dredged. *Oradarea walkeri* Shoemaker, *Pontogeneiella longicornis* (Chevreux), *Prostebbingia gracilis* (Chevreux).
E514. 11.ii.49. 31 m. Pebble bottom, dredged. *Gnathiphimedia sexdentata* (Schellenberg), *Schraderia gracilis* (Pfeffer), *Heterophoxus videns* Barnard.
E516. 12.ii.49. 18 m. Rock and grey mud, dredged. *Schraderia gracilis* Pfeffer.
E517. 13.ii.49. 64 m. Fauna associated with large sponge dredged from mud bottom. *Antarctogeneia macrodactyla* sp. nov., *Schraderia gracilis* Pfeffer, *Seba stoningtonensis* sp. nov.
E519. 18.v.49. Surface. Attracted to seal blow hole by discarded seal viscera. *Orchomene rossi* (Walker).
E556. 18.xii.49. 9 m. Dion Islands, from fish stomach. *Paraceradocus miersii* (Pfeffer), *Cheirimedon femoratus* (Pfeffer), *Hippomedon kergueleni* (Miers).

4. *Argentine Islands*
F13. 22.xii.47. Littoral. West side of Skua Island, in pools. *Gondogeneia antarctica* (Chevreux).
F14. 23.xii.47. Littoral. North side of Galindez Island, in pools. *Bovallia gigantea* Pfeffer, *Gondogeneia antarctica* (Chevreux).
RNHS2. Littoral. Rasmussen Island, in pool. *Gondogeneia antarctica* (Chevreux).
RNHS6. 13.i.58. Littoral. Cape Tuxen, in pool. *Eusirus antarcticus* (Thomson), *Gondogeneia antarctica* (Chevreux).
RNHS7. 15.i.58. Littoral. Shelter Islands, in pool. *Jassa falcata* (Montagu).

RNHS9. 6.iii.58. Littoral. Unnamed island, west of Chavez Island, in pool. *Gondogeneia antarctica* (Chevreux).

5. *Signy Island*

H124. 21.iv.48. 0·6 m. Berntsen Point, on algae. *Jassa ingens* (Pfeffer).
H125. 22.iv.48. Littoral. Berntsen Point, on red algae in pool. *Bovallia gigantea* Pfeffer.
H126. 22.iv.48. Littoral. Berntsen Point, rock. *Gondogeneia antarctica* (Chevreux).
H136. 28.v.48. 7 m. Berntsen Point, stomach contents of *Notothenia coriiceps*. *Bovallia gigantea* Pfeffer.
H159. 1.xi.48. Littoral. North of Elephant Flats, in pools. *Echiniphimedia echinata* (Walker), *Probolisca ovata* (Stebbing).
H359. 5.i.50. Stomach contents of *Mirounga leonina*. *Hippomedon kergueleni* (Miers).

6. *South Georgia*

HUS1. 8.xi.59. Husvik, from large medusa stranded on beach. *Hyperia macrocephala* (Dana).
HUS2. 8.xi.59. MTL. Husvik, rock pool 800 m. south-south-east of whaling station. *Paramoera husvikensis* sp. nov., *P. pfefferi* Schellenberg.
HUS3. 8.xi.59. EHWS. Husvik, among high-water debris 800 m. south-south-east of whaling station. *Orchestia scutigerula* Dana.

7. *C. A. Larsen collection (see below)*

CAL1. 13.xi.08. 55–91 m. Visokoi Island. *Ampelisca eschrichtii* Krøyer, *Bovallia gigantea* Pfeffer, *Eusirus bouvieri* Chevreux, *Pontogeneiella brevicornis* (Chevreux), *Paraceradocus miersii* (Pfeffer), *Oediceroides lahillei* f. *lahillei* Chevreux.
CAL2. 15.xi.08. Candlemas Island. *Bovallia gigantea* Pfeffer, *Jassa ingens* (Pfeffer), *Oediceroides lahillei* f. *lahillei* Chevreux.
CAL3. 15.xi.08. Saunders Island. *Hippomedon kergueleni* (Miers).
CAL4. 17.xi.08. 46–64 m. Bristol Island. *Pontogeneiella brevicornis* (Chevreux).

8. *A. G. Bennett collection*

AGB1. 31.i.15. 11 m. South Orkney Islands, among weeds. *Pariphimedia integricauda* Chevreux, *Bovallia gigantea* Pfeffer, *Gondogeneia antarctica* (Chevreux).
AGB2. 31.i.15. 11 m. Signy Island. *Cheirimedon femoratus* (Pfeffer).
AGB3. 1918. Deception Island, stomach contents of nototheniid fish. *Gammaropsis bennetti* sp. nov., *Jassa falcata* (Montagu).
AGB4. 1915. Scotia Bay, Laurie Island. *Aeginoides gaussi* Schellenberg.
AGB5. 1915. Scotia Bay, Laurie Island. *Bovallia gigantea* Pfeffer, *Metaleptamphopus pectinatus* Chevreux, *Oradarea bidentata* Barnard.
AGB6. 18.xii.13. Deception Island, stomach contents of nototheniid fish. *Pontogeneiella brevicornis* (Chevreux), *Cheirimedon femoratus* (Pfeffer), *Hippomedon kergueleni* (Miers).
AGB7. 20.i.18. 9–13 m. Deception Island, stomach contents of nototheniid fish. *Pontogeneiella brevicornis* (Chevreux), *Liljeborgia eurycradus* sp. nov., *Oediceroides lahillei* f. *lahillei* Chevreux.
AGB8. 18.ii.18. 5–18 m. Deception Island. *Pontogeneiella brevicornis* (Chevreux), *Schraderia gracilis* Pfeffer.
AGB9. Deception Island, stomach contents of *Trematomus* sp. *Pariphimedia integricauda* Chevreux, *Djerboa furcipes* Chevreux, *Gondogeneia antarctica* (Chevreux), *G. redfearni* (Thurston), *Oradarea bidentata* Barnard, *Pontogeneiella brevicornis* (Chevreux), *P. longicornis* (Chevreux), *Cardenio paurodactylus* Stebbing, *Cheirimedon femoratus* (Pfeffer), *Hippomedon kergueleni* (Miers).
AGB10. 11.i.19. 9–27 m. Bransfield Strait, lat. 63°S., stomach contents of *Notothenia* sp. *Bovallia gigantea* Pfeffer, *Eurymera monticulosa* Pfeffer.
AGB11. 1922. South Georgia. *Bovallia gigantea* Pfeffer, *Pontogeneiella brevicornis* (Chevreux), *P. longicornis* (Chevreux), *Jassa ingens* (Pfeffer), *Liljeborgia eurycradus* sp. nov., *Hippomedon kergueleni* (Miers), *Cyllopus magellanicus* Dana.

The station data listed here for the Larsen collection (CAL1–CAL4) require some explanation in view of the information which has been quoted by Stephensen (1947) and Oldevig (1961).

The specimens from the South Sandwich Islands which are described in this report form only part of the collection made by Larsen in 1908. The history of the whole collection is complex and several errors in previously published station data have occurred.

Larsen's cruise to the South Sandwich Islands in 1908 has received scant attention from Antarctic historians and geographers as the report written during the voyage was never published. A translation of this report was prepared in South Georgia or the Falkland Islands at some time prior to 19 April 1909 and was forwarded to the Colonial Office. The translation, which is now held by the Public Record Office (Ref. CO/78/114, Reg. No. 16550) and a copy of which has been deposited in the library of the Institute of Oceanographic Sciences, was mentioned in a footnote by Kemp and Nelson (1931, p. 140) and used by Christie (1951) for his brief account of Larsen's voyage.

The sequence of events following the return of the expedition to South Georgia is not clear, but the biological collections made during the voyage must have been split into at least three parts shortly afterwards as that part which is covered in this report reached the British Museum (Nat. Hist.) in or before June 1909.

The first-published mention of any of Larsen's material was by Chevreux (1911), who reported four species in a small collection of about 50 specimens which he had received from Dr. Lahille of the Buenos Aires Museum. Two of the species, *Oediceroides lahillei* and *Eusirus bouvieri* were described as new.

The main bulk of the collection, somewhere in the region of 700 or 800 specimens, was taken back to Norway and eventually worked up by Stephensen (1947) in conjunction with the material from the Norwegian Antarctic Expeditions. Stephensen found 18 species present, all of which had been described previously.

In 1961, Oldevig described a new species, *Gulbarentsia larseni*, based on material from the Larsen expedition which had been deposited at the Stockholm Museum. This species has since been shown to be synonymous with *O. lahillei* (Thurston, 1972*b*).

In view of the discrepancies in the station data quoted by these authors, a brief account of information from Larsen's report will be given. After a false start due to bad weather, the yacht *Undine* with Larsen on board sailed from Grytviken on 6 November 1908. 2 days were spent in surveying and sounding various harbours and inlets on the north-west and south coasts of South Georgia during which time the American brig *Daisy* engaged in sealing operations was encountered in the Bay of Isles. On 8 November the south-east point of South Georgia was rounded and a course laid for the northern part of the South Sandwich Islands. Leskov Island was sighted on 10 November but an attempt at landing was frustrated by a heavy swell. A trawl was fished in 75 fathoms [137 m.]. Later on the same day two landings were made on Zavodovski Island despite the pram being overturned in the surf and Larsen being overcome by the sulphurous fumes. Some trawling was done in the evening without much success, Larsen remarking ". . . the bottom of the sea around these islands is very deficient in fauna . . .". The bad weather which had curtailed operations on 11 November continued for the next 2 days and *Undine* lay hove to in the lee of the island. The weather moderated, and another haul was made with the trawl, but again the catch was very small. During the afternoon Visokoi Island was reached, and a trawl fished in 30–50 fathoms [55–91 m.] ". . . made an abundant capture of many interesting marine animals". Candlemas Island was visited on 14–15 November and at least three trawls were fished close to the shore, but the catch was small in all cases. A landing was made after which Larsen proceeded to Saunders Island. A landing was made on Saunders Island on 16 November during which time *Undine* circumnavigated the island and hauled a trawl. Montagu Island was visited briefly and a landing made before proceeding to Bristol Island. A trawl was fished off Bristol Island early on 17 November in 25–35 fathoms [46–64 m.], the catch consisting of ". . . numerous small fishes and flat crustaceous animals, of the latter an enormous multitude". The "flat crustaceous animals" would have been *Serolis polita* Pfeffer which Stephensen (1947) noted as being numerous at this locality. Photographs of Southern Thule were taken but a close approach was prevented by extensive pack ice. Larsen was still suffering from the ill-effects of the sulphurous fumes which he had inhaled on Zavodovski Island. His condition deteriorated and the report ended on 19 November, the day after *Undine* left Southern Thule for South Georgia. The north coast of South Georgia was briefly surveyed before the expedition returned to Grytviken on the afternoon of 21 November.

Chevreux (1911) stated only that his material came from the South Sandwich Islands and was "capturées

par 30 à 50 brasses de profondeur". Stephensen (1947) mentioned five localities in connection with the Larsen material: Saunders 5 November 1908, Zavodowski [*sic*] 10 November 1908, Visikoi [*sic*] 3 and 13 November 1908, Candlemas Isles 15 November 1908, and Bristol Isles 17 November 1908. Depths were mentioned only in respect to material from Visokoi Island and are variously given as 10–15 m., 15 m. and 10–17 m. Information given by Oldevig (1961) consisted of a locality, Wisokoi [*sic*], a date, 3 November 1908, and a depth, 10–17 m.

The dates in Larsen's report and original labels with those Larsen specimens which are reported on here indicate that some of the published data is erroneous. As Larsen was at the South Sandwich Islands between 10 and 18 November 1908, he could not have taken samples close to Visokoi Island on 3 November nor from Saunders Island on 5 November. Labels indicate that these dates should be 13 and 15 November, respectively. The depth given for the Visokoi Island material by Chevreux is at variance with that quoted by Stephensen and Oldevig. An original label in Norwegian with the material at the British Museum (Nat. Hist.) gives the depth as "30–50 Fav.", i.e. 30–50 fathoms [55–91 m.], which agrees with the depth given in Larsen's report. It must be assumed that the discrepancies noted above arose when the collection was originally split.

III. SYSTEMATIC ACCOUNT

SUB-ORDER GAMMARIDEA

FAMILY ACANTHONOTOZOMATIDAE

Genus *Echiniphimedia* Barnard

Barnard, 1930, p. 358.
Barnard, 1967, p. 1–15, 1969*b*, p. 124.

Echiniphimedia echinata (Walker)

Iphimedia echinata Walker, 1906*b*, p. 151–52, 1907, p. 28–29, pl. 10, fig. 16; Chevreux, 1913, p. 119.
Echiniphimedia nodosa Barnard, 1930, p. 361–63, fig. 33.
Echiniphimedia echinata Barnard, 1932, p. 126; Nicholls, 1938, p. 80–82, fig. 42; Barnard, 1967, p. 9–13, figs. 4–5; Bellan-Santini, 1972*a*, p. 167, 169.
Pariphimediella echinata Barnard, 1964*b*, p. 51.

Occurrence

1. Sta. H159 1 ♂ 17 mm.

Remarks. The specimen dissected and illustrated by Walker (1907) is in a fragmentary condition, but it was probably about 15 to 18 mm. long. This specimen is atypical among the type series in that it lacks the profusion of small spines and teeth on pleon, urosome and the posterior two, three or four peraeon segments. A similar variation in dorsal armature and that of coxae 1–3 has been reported by Barnard (1930) and Nicholls (1938). With the exception of one individual collected in Marguerite Bay (Chevreux, 1913), all of the material obtained from Graham Land and the Weddell Sea (Chevreux, 1913; Barnard, 1932; Barnard, 1967; and hitherto unreported specimens in the collection of the British Museum (Nat. Hist.)) is of the weakly spinose form figured by Walker.

The inclusion of *Iphimedia nodosa* Dana in the synonymy of the present species by Barnard (1967) seems premature in view of the poorly understood nature of Antarctic members of this family.

A note on the label gave the colour as light orange with red chromatophores.

Distribution. Graham Land (Marguerite Bay, Jenny Island, Bismarck Strait, Astrolabe Island) 73–230 m.; South Georgia (Cumberland Bay, Stromness Bay) 122–234 m.; Davis Sea 110–325 m.; Terre Adélie (Commonwealth Bay, Archipel de Pointe Géologie) 10–732 m.; Ross Sea (McMurdo Sound) 27–547 m.

Genus *Gnathiphimedia* Barnard

Barnard, 1930, p. 352.
Barnard, 1969*b*, p. 124.

KEY TO THE SPECIES OF *Gnathiphimedia*

1. Pleon segment 3 without dorsal teeth 2
   Pleon segment 3 with well-developed pair of dorsal teeth 3

2. Lateral sinus of head broadly rounded; gnathopod 1 coxa tapering, minutely bidentate distally ***sexdentata*** (Schellenberg)
   Lateral sinus very narrow; gnathopod 1 coxa rectangular, broadly truncate distally ***macrops*** Barnard
3. Gnathopod 1 coxa distally truncate 4
   Gnathopod 1 coxa distally acute . . . . . ***fuchsi*** Thurston
4. Lateral sinus sub-acute, not very wide; peraeopods 5–7 coxae with posterior distal corner sharp ***mandibularis*** Barnard
   Lateral sinus broadly rounded; peraeopods 5–7 coxae with posterior distal corner rounded ***barnardi*** **sp. nov.**

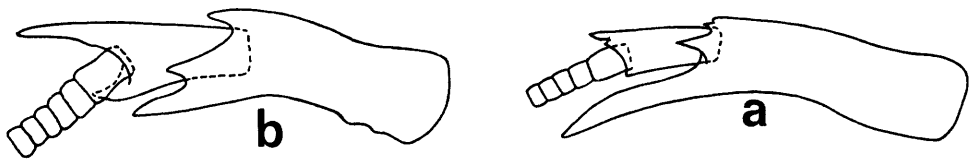

FIGURE 2

Gnathiphimedia sexdentata (Schellenberg). *a*, antenna 1 peduncle, 13 mm. ♂, sta. E514. *Gnathiphimedia macrops* Barnard. *b*, antenna 1 peduncle, 11 mm. ♀.

Gnathiphimedia sexdentata (Schellenberg)
Fig. 2a

Iphimedia pacifica Walker, 1907, p. 27–28 (part); Chevreux, 1913, p. 118.
Iphimediella sexdentata Schellenberg, 1926*b*, p. 331–32.
Gnathiphimedia pacifica Barnard, 1930, p. 353–55, 449, fig. 27.
Gnathiphimedia sexdentata Barnard, 1932, p. 122 (part, part = *G. macrops*); Nicholls, 1938, p. 77–78, fig. 40; Stephensen, 1947, p. 50.

Occurrence

1. Sta. E514 1 ♂ 13 mm.

Remarks. The profusion of morphologically similar acanthonotozomatid genera and species in Antarctica has given difficulty to most workers.

The *Challenger* material of *Iphimedia pacifica* has been re-examined. One specimen is headless, but the other has a relatively high and narrow epistome thus precluding it from *Gnathiphimedia*. The condition of upper lip, maxilla 1, maxilliped and gnathopod 1 suggest that it belongs to the genus *Iphimedia* where it was originally placed by Stebbing.

All of the *Terra Nova* specimens (Barnard, 1930) are *G. sexdentata* but three species are represented in material assigned to this species by Walker (1907). Specimens dated 14 July 1903 and 30 September 1903 are *G. sexdentata*, but that dated 20 February 1902 has been re-identified as *Iphimediella margueritei* Chevreux and the small specimen collected on 14 January 1903 belongs to the genus *Iphimedia* but cannot be identified with any known species.

Material from South Georgia referred to *G. sexdentata* by Barnard (1932) belongs to *Gnathiphimedia macrops* Barnard.

The characteristic long ventral tooth on the first peduncular article of antenna 1 is figured.

Distribution. Graham Land (Marguerite Bay, Petermann Island, Bismarck Strait, Port Lockroy, north of Tower Island) 9–315 m.; South Shetland Islands (Clarence Island) 342 m.; Davis Sea (*Gauss* winter station) 110–385 m.; Terre Adélie (Commonwealth Bay) 46–732 m.; Ross Sea (McMurdo Sound) 110–547 m.

Gnathiphimedia macrops Barnard
Fig. 2b

Gnathiphimedia macrops Barnard, 1932, p. 122–23, fig. 68; Nicholls, 1938, p. 78–80, fig. 41.
Gnathiphimedia sexdentata Barnard, 1932, p. 122 (part).

Remarks. Material from *Discovery* sta. 123, 148, 149 and 156 described as *G. sexdentata* Schellenberg by Barnard belongs here. All of these stations were worked around South Georgia so that the range of *G.*

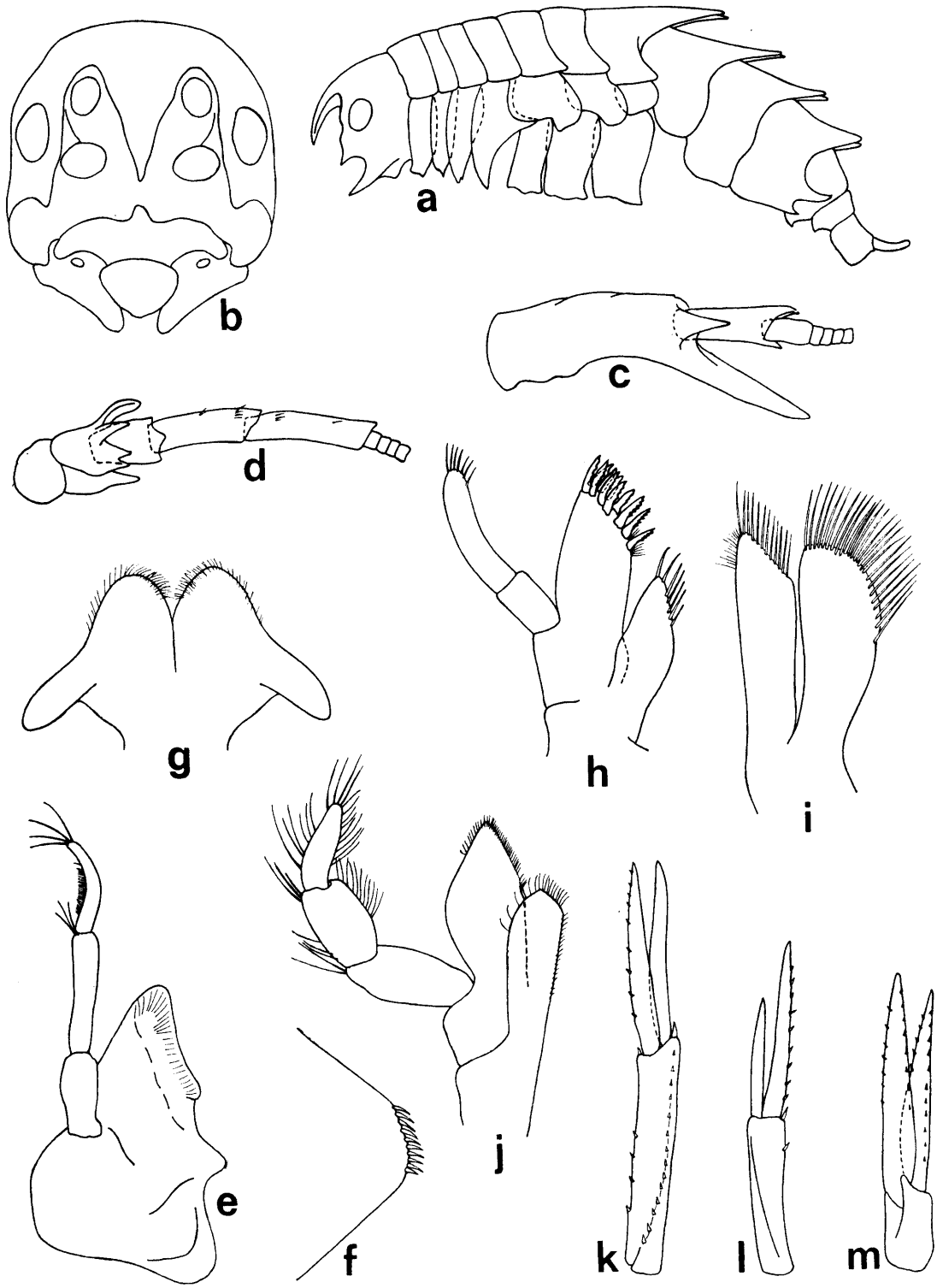

FIGURE 3

Gnathiphimedia barnardi sp. nov., holotype, 13 mm. ♀ with embryos, *Discovery* sta. 159. *a*, habitus; *b*, head, anterior surface; *c*, antenna 1; *d*, antenna 2; *e*, left mandible; *f*, left mandible, molar; *g*, lower lip; *h*, maxilla 1; *i*, maxilla 2; *j*, maxilliped; *k–m*, uropods 1–3.

macrops is not extended beyond that island. *G. sexdentata*, however, appears to be a more southerly form, not extending as far north as South Georgia.

The peduncle of antenna 1 is figured for comparison with that of *G. sexdentata*.

Distribution. South Georgia (Cumberland Bay, off Cape Saunders, 33 km. north-north-east of Jason Island) 120–250 m.; Terre Adélie (Commonwealth Bay) 527–549 m.

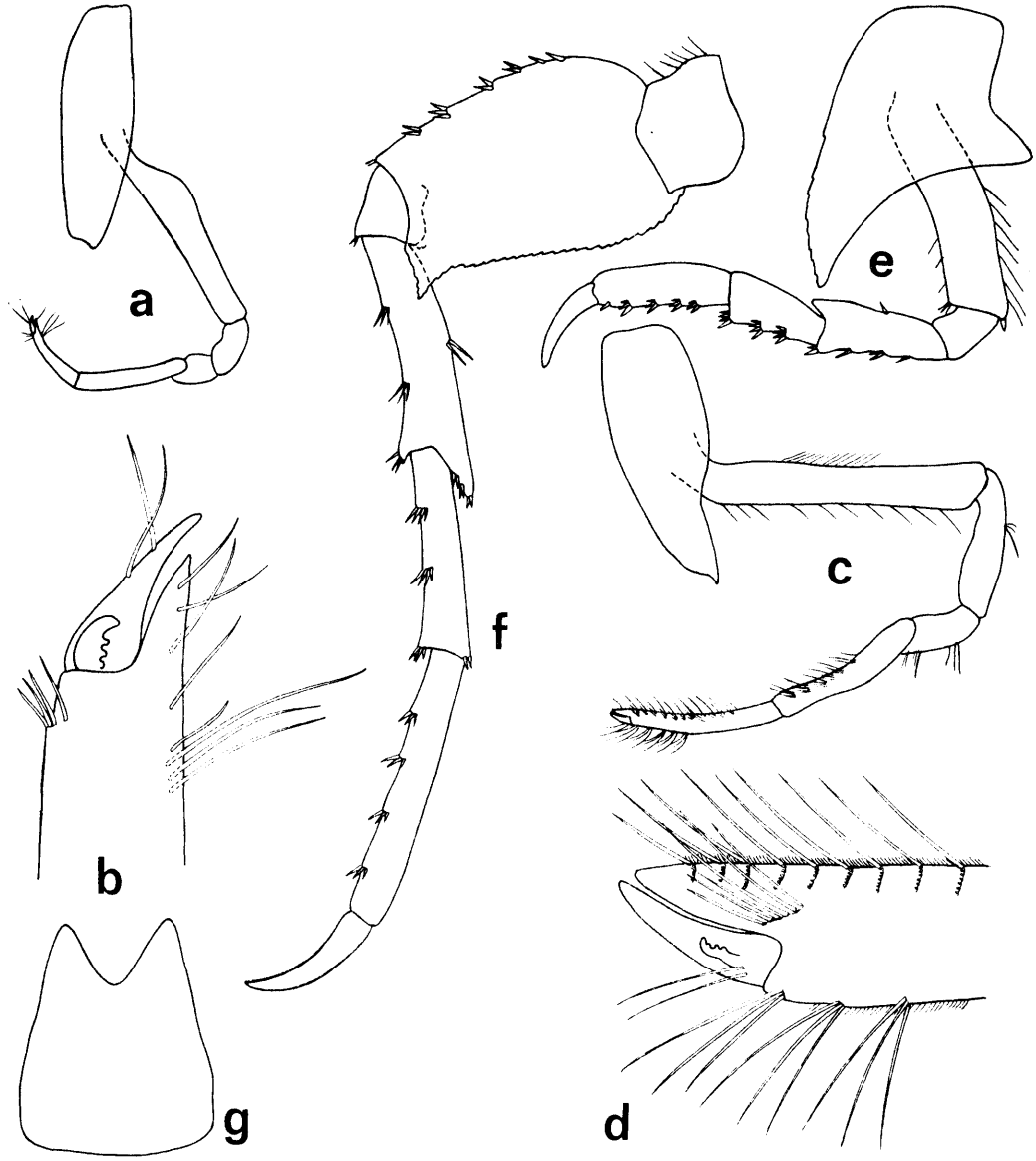

FIGURE 4

Gnathiphimedia barnardi sp. nov., holotype, 13 mm. ♀ with embryos, *Discovery* sta. 159. *a*, gnathopod 1; *b*, gnathopod 1, chela; *c*, gnathopod 2; *d*, gnathopod 2, chela; *e*, peraeopod 4; *f*, peraeopod 7; *g*, telson.

Gnathiphimedia barnardi sp. nov.
Figs. 3 and 4

Gnathiphimedia mandibularis Barnard, 1932, p. 121.

Type material is registered in the collection of the British Museum (Nat. Hist.): holotype (13 mm. ♀ with embryos) Reg. No. 1972:158:1; paratypes, Reg. No. 1972:159:1–1972:166:1 inclusive.

Type locality. Discovery sta. 159, lat. 53°48′S., long. 35°57′W., ca. 35 km. north-east of Larsen Point, South Georgia. Collected with large dredge on rocky bottom on 21 January 1927.

Material examined

1. A total of 20 specimens from *Discovery* sta. 27, 123, 140, 144, 145, 148, 159, WS33 and MS71 listed by Barnard (1932) under *Gnathiphimedia mandibularis*.

Description. Body moderately stout, pairs of dorsal processes on peraeon segment 7 and pleon segments 1–3. *Integument* indurated. *Head*, lateral margin with two acutely projecting processes separated by a very wide, rounded notch. *Eyes* moderately small, protruding from sides of head. *Epistome* very wide and very shallow.

Antennae sub-equal, multi-articulate flagella. *Antenna 1* major tooth on peduncle article 1 rather longer than articles 2 and 3 combined. *Mouth parts*, projecting, but less so than most genera in the family. *Upper lip*, sub-triangular, rounded at apex, not wide. *Mandible* stout and very short, cutting surface rather elongate, accessory lamella on right mandible only. *Lower lip* without inner lobes. *Maxilla 1*, outer plate quite broad, palp of two articles, reaching beyond apex of outer plate. *Maxilliped*, outer plates broad, with angled apex; palp article 2 not projecting alongside article 3, article 4 absent.

Gnathopod 1, chelate, short and slender; coxa distally truncate with acute tooth at posterior-distal angle; basal very narrow proximally. *Gnathopod 2* longer and rather stouter than gnathopod 1; coxa acute, with or without concavity or irregularity in anterior margin close to apex; dactyl and palm sub-equal. *Peraeopod 3*, coxa apically bifid. *Peraeopod 4*, coxa serrate on anterior-distal margin. *Peraeopods 5–7*, basals expanded, posterior margins serrate, posterior-distal angles somewhat produced.

Uropod 2, outer ramus unarmed, much shorter than inner. *Uropod 3*, peduncle produced distally in prominent dorso-lateral tooth; rami sub-equal, narrowly lanceolate. *Telson* apically emarginate.

Remarks. G. barnardi is easily distinguished from *G. sexdentata* (Schellenberg) and *G. macrops* Barnard which have only three pairs of dorsal processes. From the type species of the genus *G. mandibularis* Barnard, *G. barnardi* differs in size, the wide sinus in lateral margin of head, the elongate cutting region and more slender palp of the mandible, the accessory lamella on right mandible only, and the bifid apex of the coxa of peraeopod 3. The present species differs from *G. fuchsi* Thurston in the longer peduncular tooth on antenna 1, the narrower, triangular upper lip, the accessory lamella on right mandible only, and the bifid condition of the apices of the coxae of gnathopod 1 and peraeopod 3.

This species is named in honour of the late K. H. Barnard, who made such an important contribution to the knowledge of Antarctic Amphipoda.

Distribution. South Georgia (27 km. south-east of Cooper Island, 35 km. north-east of Jason Island, Cumberland Bay, Stromness Bay, off Cape Saunders) 26–250 m.

Genus *Pariphimedia* Chevreux

Pariphimedia integricauda Chevreux

Pariphimedia integricauda Thurston, 1972*b*, p. 29 (synonymy and distribution).

Occurrence. (♂♂ 8–13 mm., ♀♀ 9–16 mm., juv. 5–7 mm.).

1. Sta. A137 1 ♀; 2. Sta. 6090 1 ♂, 4 juv.; 3. Sta. 6246 1 ♂, 2 ♀♀, 3 juv.; 4. Sta. AGB1 1♂; 5. Sta. AGB9 1 ovig. ♀, 1 juv.

Remarks. The dorsal carina on pleon segment 3 is, in juvenile specimens, capped by a prominent rounded lobe on the posterior half of the segment. It is only after maturity is reached that the projection of the carina assumes the size and form shown by Chevreux (1906).

In life this species is light or dark brown, with white, yellow or cream-coloured rostrum and transverse dorsal band on peraeon segments 5 and 6. Although the pigment fades in preservative, the darker areas are still distinguishable after many years in alcohol.

The depth range given for this species at the South Sandwich Islands by Thurston (1972*b*) is erroneous, and should be 55–91 m. (see p. 12).

Family Ampeliscidae

Genus *Ampelisca* Krøyer

Krøyer, 1842, p. 154–55.
Stebbing, 1906, p. 98–100 (key to species).
Barnard, 1960, p. 4–23 (key to species), 1969*b*, p. 130.

Ampelisca bouvieri Chevreux

Ampelisca bouvieri Chevreux, 1912, p. 210, 1913, p. 96–99, figs. 7–9; Schellenberg, 1931, p. 55–56; Barnard, 1932, p. 82–83.

Occurrence. (♀♀ 13–19 mm., juv. 5 mm.).

1. Sta. A140 1 ♀, 1 juv.; 2. Sta. 6207 1 ♀.

Remarks. The outer rami of the third uropods are setose on both margins, whereas setae are present only on the outer margin of the inner ramus. The inner margin of the inner ramus is armed with spines set in notches.

The female from sta. 6207 was orange-brown in colour.

Distribution. Graham Land (Port Lockroy, Snow Hill Island) 60–125 m.; South Georgia (Cumberland Bay, Stromness Bay) 64–136 m.

Ampelisca eschrichtii Krøyer

Ampelisca eschrichtii Chevreux, 1906, p. 20–22, fig. 11, 1913, p. 96; Stephensen, 1925, p. 139–41; Barnard, 1932, p. 81, fig. 37a; Dahl, 1954, p. 285; Bellan-Santini, 1972*a*, p. 183–84.

Occurrence

1. Sta. CAL1 1 ovig. ♀ 22 mm.

Remarks. Chevreux (1906) described specimens from Graham Land under the name *Ampelisca eschrichtii* but he noted differences between them and the illustrations of Sars (1891). Specimens conspecific with those of Chevreux have since been reported by a number of authors (Chevreux, 1913; Barnard, 1932; Dahl, 1954; Bellan-Santini, 1972*a*). Chilton (1917) suggested wholesale lumping of several Australasian species together with all material described under *A. eschrichtii* and *A. macrocephala* Lilljeborg, a line of thought repudiated by subsequent authors. Stephensen (1925) and Barnard (1932) argued against Chilton's sweeping synonymies, believing that the differences between northern and southern forms warranted specific rank, but Bellan-Santini (1972*a*) has maintained that representatives from the two hemispheres are not separable.

In view of the subtle differences which distinguish species within this large and complex genus, it seems probable that Southern Hemisphere material ascribed to *A. eschrichtii* represents a distinct species. A formal description must, however, await more and better material than the single, somewhat damaged specimen available in this collection.

Distribution. Graham Land (Marguerite Bay, Port Lockroy, Neumeyer Channel, Anvers Island, Schollaert Channel) 60–259 m.; South Georgia (Cumberland Bay, Stromness Bay) 120–204 m.; Terre Adélie (Cap Géodésie) 180–200 m.; Ross Sea (Discovery Inlet) 550 m.

Family Amphilochidae

Genus *Gitanopsis* Sars

Gitanopsis squamosa (Thomson)

Gitanopsis squamosa Thurston, 1972*b*, p. 23–24 (synonymy and distribution).

Occurrence. (♂♂ 2 mm., ♀♀ 2·5–3·75 mm.).

1. Sta. 1259 1 ovig. ♀; 2. Sta. 1477 1 ovig. ♀; 3. Sta. A334 3 ♂♂, 3 ♀♀ (2 ovig.); 4. Sta. A429 1 ovig. ♀.

Family Dexaminidae

Genus *Paradexamine* Stebbing

Paradexamine fissicauda Chevreux

Paradexamine fissicauda Barnard, 1972, p. 75–79, figs. 34–36; Thurston, 1972*b*, p. 88–90, fig. 35a–i (synonymy and distribution).

Occurrence. (♂♂ 12–15 mm., ♀♀ 17–23 mm.).

1. Sta. A131 1 ♂; 2. Sta. A137 1 ♂; 3. Sta. A139 1 ♀; 4. Sta. A140 1 ♀; 5. Sta. 6207 1 ♀; 6. Sta. 6240 2 ♀♀.

Remarks. These specimens vary somewhat in the condition of the dorsal armature and depth of the cleft in the telson, thus confirming the observations of Barnard (1972) made on material from Arthur Harbour.

The male from sta. A137 has no tooth on either of the last two peraeon segments, although in segment 7 the carina is fairly distinct, and the telson is cleft for about 80 per cent of its length. In contrast, the female from sta. A139 has distinct teeth dorsally on peraeon segments 6 and 7, a small tooth on segment 5, and the telson is cleft for over 90 per cent of its length. Other specimens are intermediate.

There appears to be a tendency for specimens with well-developed dorsal armature to have a more deeply cleft telson than those with relatively poorly developed dorsal teeth and carinae.

In all these specimens the length of antenna 1 is about 75 per cent of the body length.

The specimen from sta. 6207 was reddish pink in colour when alive.

Genus *Polycheria* Haswell

Haswell, 1880, p. 345.
Stebbing, 1906, p. 519.
Chilton, 1912, p. 220–25.
Schellenberg, 1931, p. 212–13.
Barnard, 1969*b*, p. 206.

KEY TO THE FORMS OF *Polycheria antarctica* (Stebbing) *sens. lat.*

1. Peraeopod 4, coxa with posterior-ventral angle rounded (Schellenberg Group I) . . . 2
   Peraeopod 4, coxa with posterior-ventral angle sharp (Schellenberg Group II) . . . 8
2. Peraeopods 3 and 4 stout, merus much longer than propod 3
   Peraeopods 3 and 4 slender, merus and propod sub-equal . . . . . ***gracilis***
3. Peraeopods 3 and 4, coxae with strong tooth at anterior-ventral angle (tooth about as long as height of coxa) 4
   Peraeopods 3 and 4, coxa not strongly produced . . . . . ***similis***
4. Gnathopod 1, coxa not produced anterior-ventrally 5
   Gnathopod 1, coxa produced anterior-ventrally . . . . . ***kergueleni***
5. Urosome segment 3, dorsolateral teeth rounded 6
   Urosome segment 3, dorsolateral teeth acute . . . . . ***dentata***
6. Uropod 3, inner ramus not longer than 2·5 times length of peduncle 7
   Uropod 3, inner ramus about four times length of peduncle . . . . . ***intermedia***
7. Urosome segment 3 strongly produced with many spines . . . . . ***cristata***
   Urosome segment 3 weakly produced with few spines . . . . ***acanthopoda* f. nov.**
8. Peraeopods 5–7, coxae broad, length less than twice width . . . . . ***antarctica***
   Peraeopods 5–7, coxae narrow, length more than twice width 9
9. Eye very large in both sexes, diameter much greater than half height of head . ***macrophthalma***
   Eye not very large, diameter less than half height of head 10
10. Peraeopod 4, coxa with anterior tooth . . . . . ***bidens***
    Peraeopod 4, coxa rounded anteriorly . . . . . ***tenuipes***

This key assumes that material from South America assigned to f. *tenuipes* by Schellenberg (1931) is identical with the *P. tenuipes* of Haswell from New Zealand, and leaves in abeyance the status of species from New Zealand included under *P. tenuipes* by Stebbing (1906).

Polycheria antarctica f. *acanthopoda* f. nov.
Fig. 5

This material is registered in the collection of the British Museum (Nat. Hist.) under the Reg. No. 1972:444:25.

Type locality. Sta. 6267, Hope Bay, Graham Land, 73 m., 17 December 1945.

Occurrence. (♂♂ 7–8·5 mm., ♀♀ 6·5–8·5 mm.).

1. Sta. 6267 17 ♂♂, 8 ♀♀.

Description. *Epimera 2* and *3* with small rounded tooth at posterior-distal angle. *Pleon*, segment 4 feebly carinate, the carina not posterior-distally produced; combined segment 5 + 6 dorso-lateral projections not strongly developed, each with a single spine.

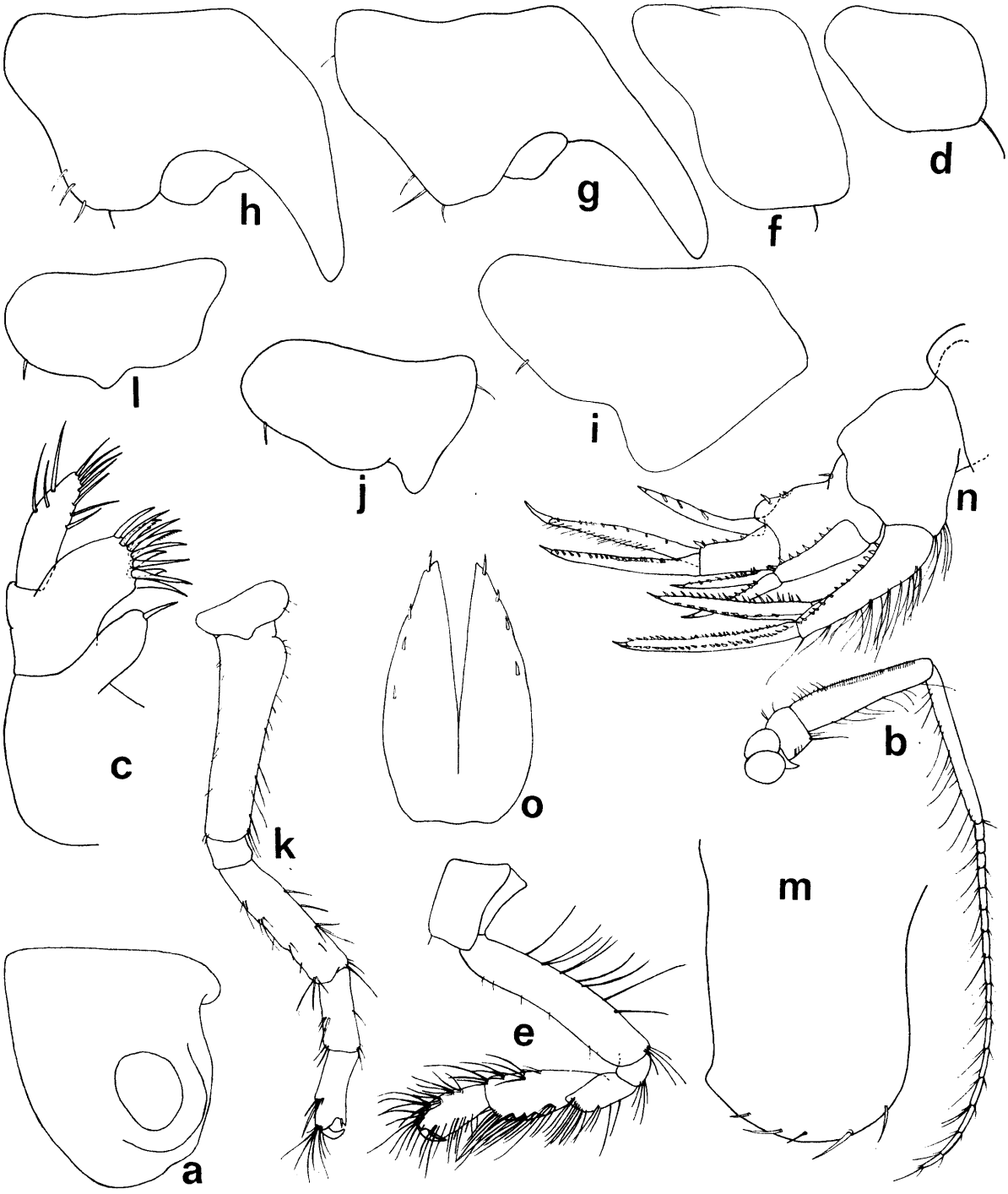

FIGURE 5

Polycheria antarctica f. *acanthopoda* f. nov., 8 mm. ♂, sta. 6267. *a*, head; *b*, antenna 2; *c*, maxilla 1; *d*, coxa 1; *e*, gnathopod 2; *f–j*, coxae 2–6; *k*, peraeopod 7; *l*, coxa 7; *m*, epimeron 3; *n*, urosome; *o*, telson.

Head, rostrum minute; eye bulbous, diameter barely one-third of height of head in male, a little smaller in female. *Antennae* sub-equal, second with the fifth peduncle article longer than the fourth in both sexes. *Maxilla 1*, inner plate with single stout spine on rounded apex; outer plate with 11 spine teeth; palp with stout setae on lateral margin.

Gnathopod 1, coxa wider than deep, distal angles rounded. *Gnathopod 2*, coxa sub-rectangular, deeper than wide, distal corners rounded; propod not elongate, length three-fifths of length of carpus. *Peraeopod 3*,

coxa strongly produced anterior-ventrally to form long, apically blunt tooth. *Peraeopod 4*, coxa similar to 3, but with anterior-ventral tooth rather shorter and broader. *Peraeopod 5*, coxa with rounded anterior lobe, neither ventral angle sharp. *Peraeopod 6*, coxa with small anterior lobe, angles rounded. *Peraeopod 7*, rather stout, coxa with angles rounded; basal nearly linear; merus just shorter than carpus and propod combined; propod strongly chelate but not distally expanded.

Uropod 1, inner ramus about as long as peduncle, outer rather longer; peduncle and both rami strongly spinose. *Uropod 2*, short, not extending to apices of uropod 1; peduncle and rami strongly spinose. *Uropod 3*, rami more than twice as long as peduncle; inner ramus setose on outer margin in male, longer than outer ramus. *Telson*, sub-oval, deeply cleft; one sub-apical and three lateral spines on each half.

The name *P. antarctica* f. *acanthopoda* refers to the multitudinous spines on the peduncles and rami of the uropods.

Remarks. Schellenberg (1931) has discussed the variation within *P. antarctica*, rejected Chilton's (1912) assertion that all forms of *Polycheria* belonged to a single species, and described several new forms. While the validity of these morphological entities cannot be doubted, the significance of the recorded variations is as yet unclear. An analysis of much material from many localities will be required before the status of these variants can be established and an indication given of whether they represent valid species, geographical races, or merely the outward expression of genotypic or phenotypic variations.

Skogsberg and Vansell (1928) and Barnard (1969*c*) were of the opinion that *P. osborni* Calman is a species distinct from the *P. tenuipes* of Haswell, which Schellenberg (1931) included in the synonymy of *P. antarctica*. Therefore, *P. antarctica*, as currently understood, occurs throughout the Antarctic and sub-Antarctic regions from Antarctica to southern South America, South Australia and New Zealand.

The material to hand is insufficient to resolve this problem but it differs from the forms described by Schellenberg (1931) and Stephensen (1947) in a number of characters which appear significant. Following the precedent set by these authors, the specimens are described here as a new form.

The new form falls into Schellenberg's group I as the fourth coxa is rounded at the posterior-ventral corner. In general appearance it is rather similar to f. *kergueleni* (Stebbing, 1888, as *Tritaeta kergueleni*) in having rather stout peraeopods and strongly produced coxae 3 and 4 but differs in the form of the urosome, coxae 1 and 2, propods of peraeopods 5–7, uropods and telson armature. The present specimens come close to f. *dentata* Schellenberg but differ in having much less strongly produced epimera and urosome segments, rounded coxae and fifth article of the peduncle of antenna 2 longer than the fourth. *P. antarctica* f. *acanthopoda* can be distinguished from f. *cristata* Schellenberg by the weaker carination and spination of the urosome and the shorter stouter propod of gnathopod 2 of the former. The much stouter peraeopods, rounded coxa 7, sub-equal rami of uropod 3 and shorter telson of f. *acanthopoda* distinguish it from f. *gracilis* Schellenberg. The sharp coxal angles and different structure of maxilla 1 distinguish f. *similis* from the new form. The f. *intermedia* Stephensen is separable by the more strongly armed urosome, two spines on the inner plate of maxilla 1 and the long, slender gnathopod 2 of that form. The nominate form *P. a. antarctica* requires re-description but it appears to differ from f. *acanthopoda* in having broad basal articles on peraeopods 5, 6 and 7, and gnathopod 2 with a concave palm and sub-equal articles 5 and 6.

All of the specimens were taken from holes in the surface of an enormous white colonial ascidian. It is not clear from the collector's note whether the amphipods were sheltering in the siphonal apertures of individual zooids or living in self-excavated pits in the surface of the colony.

Family Eophliantidae

Genus *Wandelia* Chevreux

Wandelia crassipes Chevreux

Wandelia crassipes Thurston, 1972*b*, p. 28, fig. 10h (synonymy and distribution).

Occurrence. (♂♂ 3·5–6 mm., ♀♀ 3·5–6·5 mm., juv. 2–3 mm.).

1. Sta. 1259 2 ovig. ♀♀; 2. Sta. 1343 1 ♂, 1 ovig. ♀; 3. Sta. 1357 1 ♂, 2 ♀♀ (1 ovig.); 4. Sta. 1379 1 ♂, 1 ♀, 2 juv.; 5. Sta. A142 5 ♂♂, 3 ovig. ♀♀.

Remarks. Further instances of ovigerous females with post-hatching juveniles clinging to the peraeopods have been noted (see Thurston 1972*b*).

Family Eusiridae

Barnard (1972) considered that the family Calliopiidae was no longer a distinct entity, and that it should be included in the Eusiridae. He has discussed in some detail parts of the calliopiid and pontogeneiid sequences of the Eusiridae, and has provided a re-alignment of these genera and species on the basis of characters of mouth parts, accessory flagellum and telson. Characters of the mouth parts regarded as advanced are loss of inner lobes of lower lip, reduction of the medial setae of the inner plate of maxilla 1 and reduction and loss of the diagonal row of setae on the inner plate of maxilla 2.

The presence or absence of inner lobes on the lower lip has been used extensively as a character for generic separation in the calliopiid and pontogeneiid sequences of the Eusiridae (Stebbing, 1906; Barnard, 1964*b*, 1969*b*, 1972). It is this author's experience that the apparent presence of small or vestigial inner lobes in mounted preparations is an unreliable character on which to base generic or even specific diagnoses. The apparent presence of small inner lobes can be a result of variations in mounting techniques and the degree of pressure exerted by the cover slip on the thickened basal areas of the outer lobes. Conversely small inner lobes can be so crushed and distorted as to become unrecognizable (cf. Barnard, 1969*a*, fig. 8). The presence of medium-sized or large inner lobes can be used with confidence, but in all other cases considerable caution is advocated. An examination of the lower lip under a high power stereomicroscope prior to mounting is recommended.

Features of the mouth parts are regarded by amphipod taxonomists as conservative characters so that despite the caution required in the use of the lower lip as a diagnostic character, the present classification provides a firmer basis for the investigation of the probable polyphyletic origin of this group of species flocks.

Genus *Antarctogeneia* gen. nov.

Diagnosis. Body smooth. *Antenna 1*, flagellar articles not produced distally; accessory flagellum absent. *Antenna 2*, peduncle elongate; flagellum not filiform. *Epistome* produced beyond upper lip. *Lower lip*, inner lobes well developed. *Maxilla 1*, inner plate with apical setae only; palp article 2 longer than article 1. *Maxilla 2*, inner plate with diagonal row of setae. *Coxa 1* distally expanded. *Gnathopods* sub-chelate, not eusirid; second slender but not sub-linear. *Peraeopod 4*, coxa excavate posteriorly. *Peraeopods 5–7*, articles 4–6 sub-equal to article 2; dactyls long. *Telson* extending half-way along rami of uropod 3.

Type species. Antarctogeneia macrodactyla sp. nov.

Remarks. The weak, sub-chelate gnathopods, normal maxilla 1 palp and cleft telson place this genus in the pontogeneiid sequence of the Eusiridae. *Antarctogeneia* is related to *Pontogeneia* but it differs in having an elongate antenna 2 peduncle, non-filiform antennal flagella, short third article of mandibular palp and expanded first coxae. *Pontogeneiella*, *Prostebbingia* and *Eurymera* are separable from *Antarctogeneia* by the fully setose inner plate of maxilla 1. *Prostebbingia* also differs from the new genus in having filiform antennae and non-excavate fourth coxae, while the umbonate body of *Eurymera* is characteristic. *Meteusiroides* is similar to *Antarctogeneia* but it has filiform antennae, an elongate terminal article on the mandibular palp, and gaping outer lobes of the lower lip. These two genera have in common a weakly produced epistome, a character which relates them to *Atyloella*, but the latter genus has a much more strongly produced epistome, acutely produced post-antennal lobe and an articulated accessory flagellum. The form of the gnathopod and the much shorter distal articles of peraeopods 5–7 distinguish the new genus from *Harcledo*. *Accedomoera* is separated from *Antarctogeneia* by the articulate accessory flagellum and severe reduction of the diagonal row of setae on the inner plate of maxilla 2. *Bovallia* differs in the form of the gnathopods and the number of setae on the inner plate of maxilla 1.

Antarctogeneia macrodactyla sp. nov.
Figs. 6 and 7

Eusiridae gen. et sp. indet. Thurston, 1972*b*, p. 87, fig. 32e–g.

Type material is registered in the collections of the British Museum (Nat. Hist.) under the following Reg. Nos.: holotype (3 mm. ♂) and paratypes from sta. A139, 1972:445:9; from sta. A134, 1972:446:1; from sta. A140, 1972:447:1; and from sta. E517, 1972:448:1. Additional paratype material from the South Orkney Islands is registered under the following numbers: 1969:628:1, 1969:629:1, 1969:630:6, 1969:631:6, 1969:632:2, 1969:633:1, 1969:634:1, 1969:635:1 and 1969:636:1.

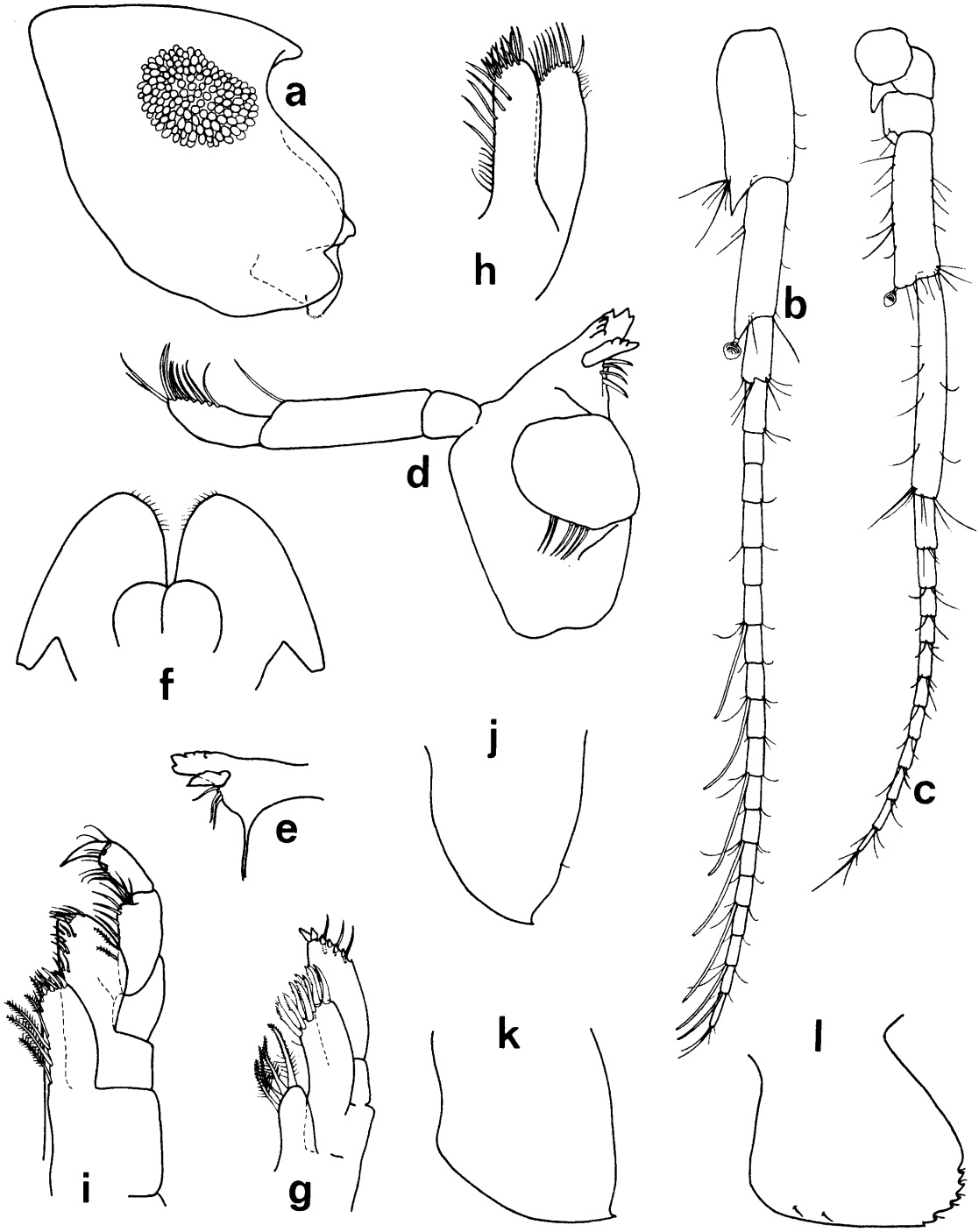

FIGURE 6

Antarctogeneia macrodactyla sp. nov., holotype, 3 mm. ♂, sta. A139. *a*, head; *b* and *c*, antennae 1 and 2; *d*, left mandible; *e*, right mandible, incisor; *f*, lower lip; *g* and *h*, maxillae 1 and 2; *i*, maxilliped; *j–l*, epimera 1–3.

Type locality. Peltier Channel, off Lecuyer Point, Port Lockroy, Graham Land: sta. A139, rock substrate, 18 m., 11 February 1945.

Occurrence. (♂♂ 2·5–3 mm., ♀♀ 2·5–3·5 mm., juvs. 1·5–2 mm.).

1. Sta. A134 1 ovig. ♀; 2. Sta. A139 2 ♂♂, 7 juvs. (including **holotype**); 3. Sta. A140 1 ♂, 1 ♀; 4. Sta. E517 1 ♀.

In addition to this material from the present collection, the type series includes 20 specimens in nine

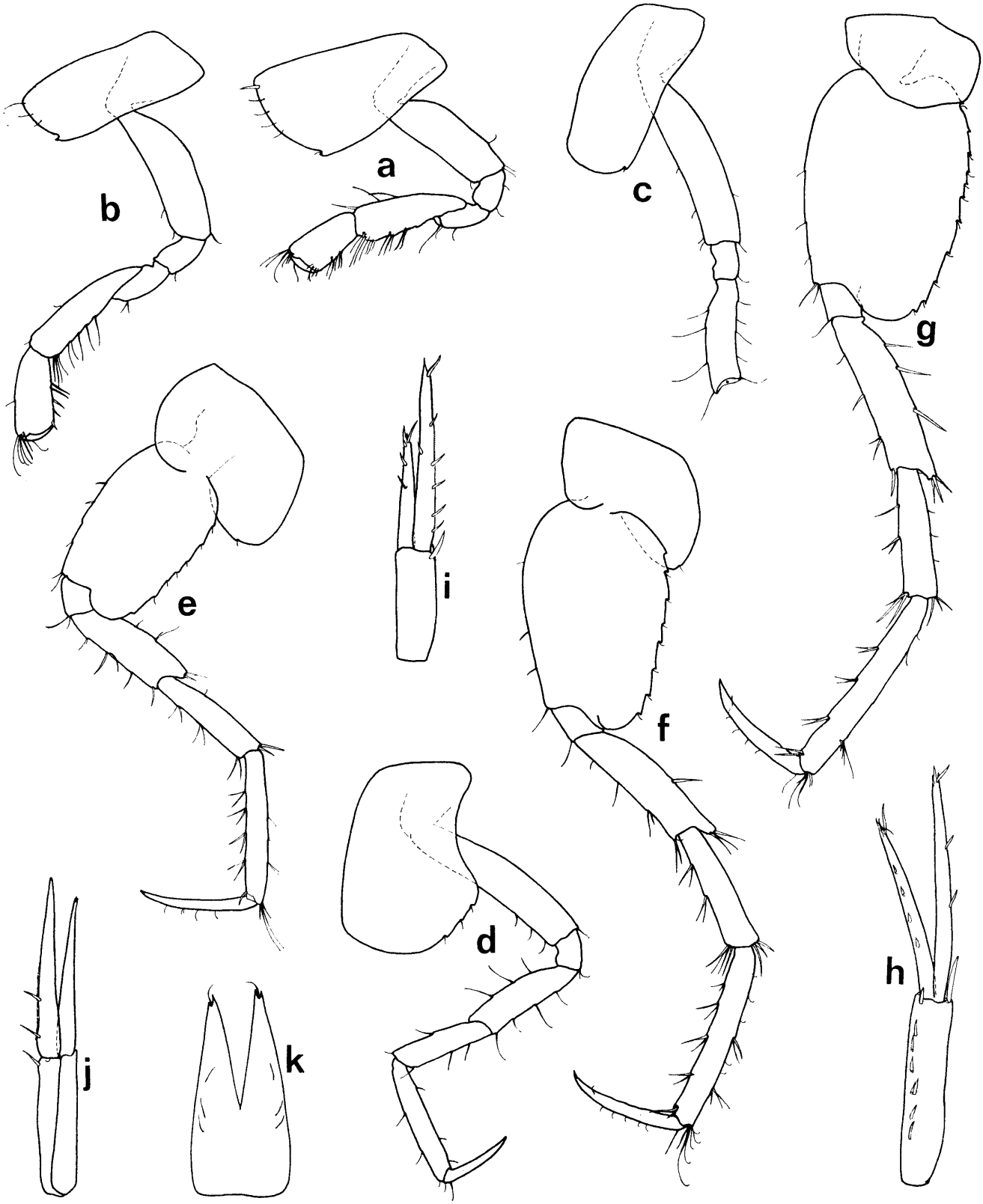

FIGURE 7

Antarctogeneia macrodactyla sp. nov., holotype, 3 mm. ♂, sta. A139. *a* and *b*, gnathopods 1 and 2; *c–g* peraeopods 3–7; *h–j*, uropods 1–3; *k*, telson.

lots collected at depths of between 2 and 10 m. in Borge Bay, Signy Island, South Orkney Islands, during 1964–65 (see Thurston, 1972*b*).

Description. Body smooth, lacking teeth or carinae. *Head*, rostrum short, slender; eye lobe produced, rounded; antennal lobe very shallow, rounded; eye sub-reniform, brown in alcohol; epistome sub-acutely produced. *Epimera 1* sub-triangular with a small distal tooth. *Epimera 2* trapezoidal with small tooth at posterior distal corner. *Epimera 3* strongly produced posteriorly, posterior-distal angle broadly rounded, strongly serrate.

Antenna 1 as long as head, peraeon and first pleon segment combined; peduncle article 1 produced into a sharp tooth extending one-quarter the length of article 2; peduncle article 2 as long as article 1 but much more slender, produced distally and bearing a large discoidal calceolus in the male; article 3 short; flagellum nearly twice as long as peduncle, composed of 18 articles of which alternate articles from the sixth to the sixteenth together with the seventeenth bear long filiform sensory organs. *Antenna 2* just shorter than antenna 1, peduncle and flagellum sub-equal; large discoidal calceolus on ventral distal projection of peduncle article 4; peduncle article 5 slender, 1·5 times length of article 4; flagellum of 11 articles. *Upper lip* entire, rounded. *Mandible* stout, molar large, incisor dentate, dentate lacina mobilis on each mandible; palp with three articles, the second cylindrical and as long as articles 1 and 3 combined, article 3 weakly falciform. *Lower lip*, inner lobes well developed; outer lobes not widely separated. *Maxilla 1*, inner plate with four stout setae; outer plate with nine pectinate spines; palp with six spines and three setae at obtusely truncate apex. *Maxilla 2*, plates sub-equal, inner with diagonal row of setae extending on to inner margin.

Gnathopod 1, coxa distally expanded, a tooth at posterior distal angle; carpus not lobed, nearly as long as basal; propod 0·7 times length of carpus, expanded slightly distally, palm convex, nearly transverse; dactyl as long as palm. *Gnathopod 2*, similar to, but longer than gnathopod 1; coxa with parallel margins, a tooth at the posterior distal angle. *Peraeopod 3*, coxa similar to that of gnathopod 2. *Peraeopod 4*, coxa emarginate posteriorly, margin serrate below emargination; distal articles slender. *Peraeopod 5*, coxa bilobed, lobes equal; basal expanded, posterior margin serrate; distal articles slender, dactyl 0·8 times length of propod. *Peraeopods 6 and 7* similar to but longer than peraeopod 5.

Uropod 1 slender, peduncle and outer ramus sub-equal, inner ramus 20 per cent longer; peduncle and rami sparsely spinose. *Uropod 2* not reaching apex of uropod 1; outer ramus just longer than peduncle; inner ramus 1·5 times length of outer ramus, pectinate on inner margin. *Uropod 3*, rami narrowly lanceolate; outer ramus just longer than inner, which is a little longer than peduncle. *Telson* cleft 60 per cent of length; lobes evenly tapering, somewhat dehiscent, apices narrow each with a short seta between two small teeth.

The name *A. macrodactyla* draws attention to the long slender dactyls of the posterior peraeopods.

Remarks. This species parallels minority trends within *Tethygeneia* as shown by the serrate third epimera (cf. *T. quinsana* (Barnard), *T. nasa* (Barnard)), but in its general appearance it bears little resemblance to that genus.

The specimen from sta. E517 was associated with a sponge.

Genus *Atyloella* Schellenberg

Atyloella magellanica (Stebbing)

Atyloella magellanica Thurston, 1972*b*, p. 57–58 (synonymy and distribution).

Occurrence. (♂♂ 7·5–9 mm., ♀♀ 8–16 mm., juv. 7·5 mm.).

1. Sta. A120 3 ♂♂, 1 ♀, 1 juv.; 2. Sta. A319 3 ♂♂, 4 ♀♀ (1 ovig.); 3. Sta. A387 1 ♂.

Genus *Atylopsis* Stebbing

Stebbing, 1888, p. 924–25 (part), 1906, p. 299 (part).
Barnard, 1969*b*, p. 175 (part).
Thurston, 1972*b*, p. 53–54 (part).

Diagnosis. Amphipods of the calliopiid sequence of the Eusiridae. *Antenna 1* with small accessory flagellum. *Mandible*, incisor not produced; palp article 3 nearly as long as article 2. *Lower lip* with inner lobes.

Maxilla 1, inner plate lacking plumose setae on inner margin; palp article 2 longer than article 1. *Maxilla 2*, inner plate lacking diagonal row of setae, but with one or more enlarged sub-medial setae. *Maxilliped*, inner plate not greater than outer; palp article 3 somewhat produced alongside article 4. *Gnathopods*, sub-chelate, not eusirid; carpus not lobate, not longer than propod, neither carpus nor propod immensely elongate and slender. *Coxae*, fourth deepest. *Peraeopods*, basal articles lacking anterior process; dactyls not pectinate. *Telson* rather short, emarginate.

List of species

emarginatus Stebbing, 1888 (type species).
megalops Nicholls, 1938.
orthodactylus sp. nov.
See p. 40 for key to the species of *Atylopsis* (*sens. lat.*).

Remarks. Barnard (1972) accepted three species of *Atylopsis* (*sens. lat.*) but he showed that they differ in characters of maxillae 1 and 2. All three species possess a small, articulate accessory flagellum, inner lobes on the lower lip, and have an emarginate telson. On the grounds that the reduction and loss of a character is a trend towards specialization, *A. multisetosa* Schellenberg can be considered the most primitive of these species. It has medial as well as distal setae on the inner plate of maxilla 1, and a well-developed diagonal row of setae on the inner plate of maxilla 2. *A. dentatus* Stebbing has distal setae only on maxilla 1 inner plate, and the diagonal row of setae on maxilla 2 is reduced. *A. emarginatus* lacks plumose setae on the medial margin of the inner plate of maxilla 1, and the diagonal row of setae on maxilla 2 inner plate has been lost and is replaced by four enlarged sub-marginal setae. This interpretation of the condition of maxilla 1 in *A. emarginatus* differs from that of Barnard (1972) in that here the plumose setae are assumed to be on the oblique apex of the inner plate, thus allowing the inclusion of *A. orthodactylus* sp. nov. within the restricted limits of *Atylopsis*.

The occurrence of *A. orthodactylus* sp. nov. congeneric with *A. emarginatus* and the close relation between *A. multisetosa* and *A. signiensis* Thurston, 1972, afford additional evidence in favour of Barnard's (1972) contention that *Atylopsis sens. lat.* should be split. See also under *Lopyastis* (p. 32) and *Tylosapis* (p. 40).

Atylopsis orthodactylus sp. nov.
Figs. 8 and 9

The holotype is housed in the collections of the British Museum (Nat. Hist.), Reg. No. 1972:202:1.

Type locality. Sta. A140, Port Lockroy, Wiencke Island, 6 February 1945. From a rock substrate, 18 m.

Occurrence

1. Sta. A140 1 ♀ 5·5 mm.

Diagnosis. Body, dorsally smooth, no segments produced. *Head*, rostrum very short; eyes rather large, reniform. *Epimera*, second and third rectangular, second with small tooth at posterior-distal corner.

Antenna 1, peduncle short, stout, article 1 longer than article 2; accessory flagellum articulate, very short. *Antenna 2*, peduncle article 4 just longer and broader than article 5. *Mandible*, molar strong, triturative surface ridged and toothed; incisor with six blunt teeth; lacina mobilis of left mandible broad with five teeth, of right mandible more slender, acutely tridentate; spine row with three (right) or four (left) broad pectinate spines; palp stout, articles 2 and 3 sub-equal. *Lower lip*, inner lobes well developed. *Maxilla 1*, inner plate rounded, three plumose setae distally; outer plate armed with ten dentate spines. *Maxilla 2*, inner plate a little shorter than outer. *Maxilliped*, inner plate rather short; outer plate with inner margin unarmed; palp stout, article 2 the longest, article 4 slender, set into end of article 3.

Gnathopod 1, coxa short, somewhat produced anteriorly; propod a little longer than carpus, palm oblique; dactyl with three teeth on posterior margin. *Gnathopod 2*, a little longer than gnathopod 1; coxa short, sub-rectangular; propod longer than carpus, about twice as long as wide; dactyl with three teeth on posterior margin. *Peraeopod 3*, coxa short, sub-rectangular. *Peraeopod 4*, coxa short, sub-rectangular, broader than deep, posterior emargination obsolete; dactyl uncinate, uncurved. *Peraeopod 5*, coxa shallow, bilobed; basal narrowly expanded. *Peraeopod 6*, coxa with strong posterior lobe; basal expanded; distal articles as in peraeopod 5. *Peraeopod 7*, basal expanded, minutely serrate posteriorly.

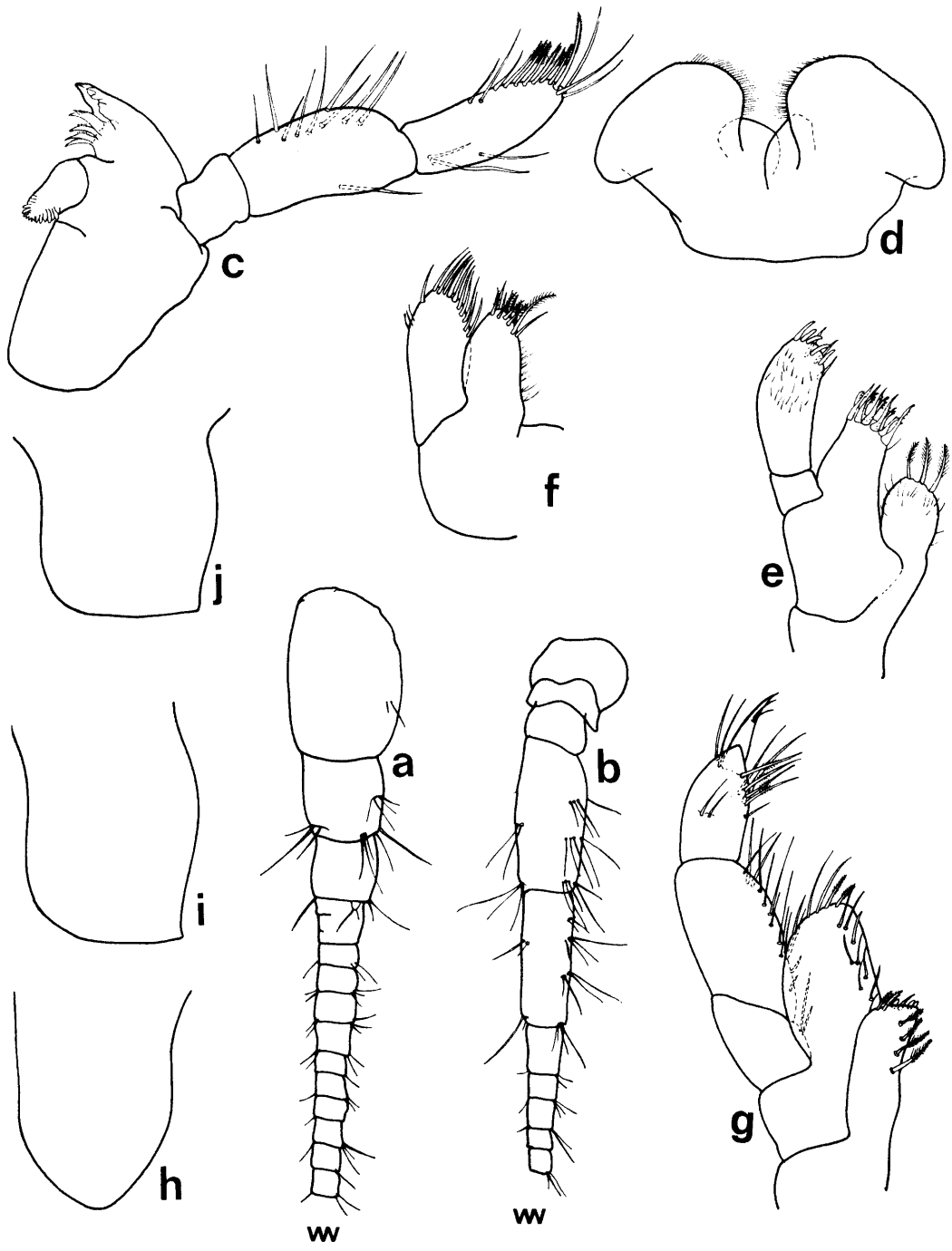

FIGURE 8

Atylopsis orthodactylus sp. nov., holotype, 5·5 mm. ♀, sta. A140. *a* and *b*, antennae 1 and 2; *c*, mandible; *d*, lower lip; *e* and *f*, maxillae 1 and 2; *g*, maxilliped; *h–j*, epimera 1–3.

Uropod 1, inner ramus long, slender, spinose. *Uropod 2*, inner ramus slender, spinose, longer than peduncle. *Telson*, length 1·25 times breadth, deeply emarginate, apices sub-acute, each with a single subterminal seta.

The name *Atylopsis orthodactylus* draws attention to the curious, straight dactyls of peraeopod 4–6 (and presumably also of peraeopods 3 and 7).

Remarks. The presence of only three setae on the inner plate of maxilla 1 separates *A. orthodactylus* from *Lopyastis multisetosa* and *L. signiensis*. *Tylosapis dentatus* and *A. megalops* differ from the new species in

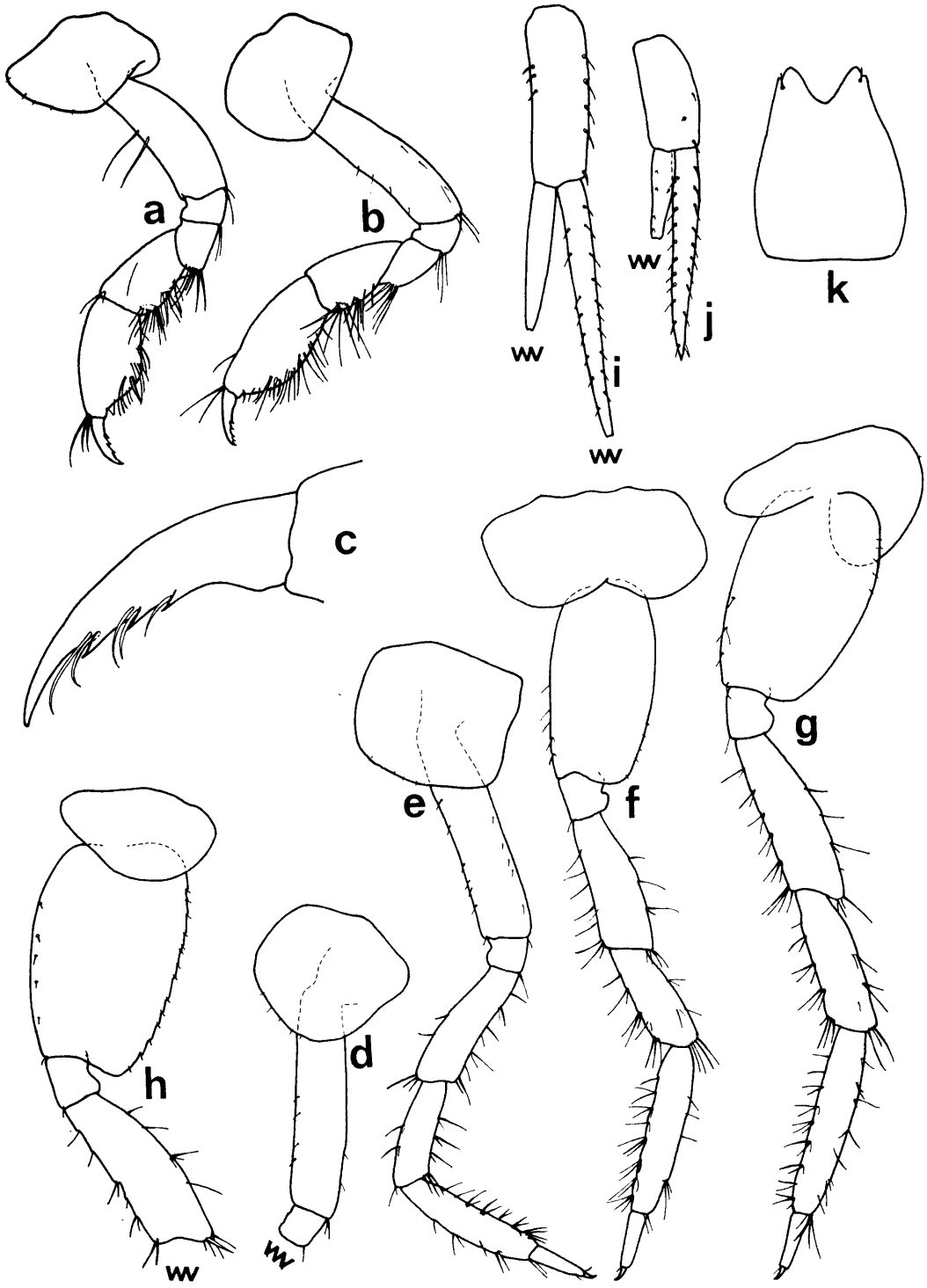

FIGURE 9

Atylopsis orthodactylus sp. nov., holotype, 5·5 mm. ♀, sta. A140. *a* and *b*, gnathopods 1 and 2; *c*, gnathopod 2, dactyl *d–h*, peraeopods 3–7; *i* and *j*, uropods 1 and 2; *k*, telson.

having dentate pleons, and *A. megalops* is additionally characterized by the elongate second gnathopod. *A. orthodactylus* is similar to *A. emarginatus* in many aspects but is separated from this species by the shallower coxae, convex palms of gnathopods 1 and 2 and the structure of epimera 2 and 3. *A. orthodactylus* is unique among the species assigned to these species in having uncurved dactyls on peraeopods 3–7.

Genus *Bovallia* Pfeffer

Bovallia gigantea Pfeffer

Bovallia gigantea Bone, 1972, p. 105–22, figs. 1–13; Thurston, 1972*b*, p. 86–87 (synonymy and distribution).

Occurrence. (♂♂ 14–42 mm., ♀♀ 14–53 mm., juvs. 4·5–6 mm.).

1. Sta. 1274 6 ♀♀ (2 ovig.); 2. Sta. 1337 1 ♀; 3. Sta. 1357 1 juv.; 4. Sta. 1470 9 ♂♂, 7 ♀♀; 5. Sta. 1508 1 ♀; 6. Sta. 1513 1 ♂; 7. Sta. A122 2 ♂♂, 2 ♀♀; 8. Sta. A130 3 ♀♀; 9. Sta. A131 2 ♂♂, 20 ♀♀ (4 ovig.); 10. Sta. A137 5 ♂♂, 13 ♀♀ (1 ovig.); 11. Sta. A139 1 ♂, 5 ♀♀ (1 ovig.); 12. Sta. A319 19 ♂♂, 33 ♀♀ (7 ovig.); 13. Sta. A383 1 juv.; 14. Sta. A385 3 juv.; 15. Sta. LOC3 1 ♀; 16. Sta. 6017 2 ♀♀; 17. Sta. 6077 2 ♂♂, 4 ♀♀; 18. Sta. 6177 3 ♀♀; 19. Sta. F14 1 ♀; 20. Sta. H125 1 ♂; 21. Sta. H136 1 specimen, damaged; 22. Sta. CAL1 1 ♂; 23. Sta. CAL2 2 ♀♀, 1 juv; 24. Sta. AGB1 3 ♂♂, 17 ♀♀; 25. Sta. AGB5 1 ♀; 26. Sta. AGB10 1 ♀; 27. Sta. AGB11 1 ovig. ♀.

Remarks. The dorsal carinae are much reduced in specimens of less than 18–20 mm. in length, and absent in animals of less than 10 mm. Small individuals can be recognized by the characteristic shape of the carpus of gnathopods 1 and 2.

Thurston (1968, 1970) and Bone (1972) have published data on the life history of this species.

Notes with specimens from sta. 1274, 1337, 1470, LOC3, 6077, 6177 and H125 indicate that the colour in life varies from brilliant scarlet to deep reddish brown, with occasional specimens tending towards brownish green. The variation in colour may be due in part to individual feeding habits for Bone (1972) has shown that this species takes both animal and plant material, and that the proportion of each varies on a seasonal basis.

The depth range given for this species at the South Sandwich Islands by Thurston (1972*b*) is erroneous, and should be 55–91 m. (see p. 12).

Genus *Djerboa* Chevreux

Djerboa furcipes Chevreux

Djerboa furcipes Thurston, 1972*b*, p. 71 (synonymy and distribution).

Occurrence. (♂♂ 15–16 mm., ♀♀ 12–18 mm.).

1. Sta. A131 2 ♂♂, 6 ♀♀ (1 ovig.); 2. Sta. A140 1 ovig. ♀; 3. Sta. AGB9 1 ♀.

Genus *Eurymera* Pfeffer

Eurymera monticulosa Pfeffer

Eurymera monticulosa Thurston, 1972*b*, p. 84–85 (synonymy and distribution).

Occurrence. (♂♂ 13–21 mm., ♀♀ 13–27 mm., juv. 7 mm.).

1. Sta. 1391 1 ovig. ♀; 2. Sta. 1411 1 ovig. ♀; 3. Sta. 1416 1 juv.; 4. Sta. 1475 3 ♂♂, 8 ♀♀; 5. Sta. 1477 1 ♂, 1 ♀; 6. Sta. LOC1 5 ♂♂, 4 ♀♀; 7. Sta. 6160 2 ♀♀ (1 ovig.); 8. Sta. 6168 1 ♂, 2 ♀♀; 9. Sta. 6178 4 ♀♀ (1 ovig.); 10. Sta. AGB10 1 ♀.

Remarks. The colour of specimens from sta. 1391 and 6168 is given as rich dark brown, sometimes with a purplish tinge.

Genus *Eusirus* Krøyer

Krøyer, 1842, p. 511–12.
Stebbing, 1906, p. 338–39.
Barnard, 1961, p. 96–97 (key to species), 1969*b*, p. 226.

Nine species of *Eusirus* have been recorded from Antarctic regions: *E. antarcticus* (Thomson, 1880); *E. bouvieri* Chevreux, 1911; *E. laevis* Walker, 1903; *E. laticarpus* Chevreux, 1906; *E. longipes* Boeck, 1861; *E. microps* Walker, 1906; *E. perdentatus* Chevreux, 1912; *E. propinquus* Sars, 1893; and *E. splendidus* Chilton, 1912. *E. longipes* and *E. propinquus* are northern species and have both been discounted from the Antarctic fauna. The specimens recorded as *E. longipes* by Stebbing (1888) were re-identified as *E. antarcticus* by that author (Stebbing, 1906), and the material placed under *E. propinquus* by Walker (1907) was identified as *E. antarcticus* by Chilton (1912). Chilton (1912) in a footnote to his description of *E. splendidus* suggested that this species should probably be synonymized with *E. perdentatus*, a move confirmed by subsequent workers. The validity of *E. antarcticus*, *E. microps* and *E. perdentatus* have not been questioned, but the remaining three species *E. bouvieri*, *E. laevis* and *E. laticarpus* have been considered doubtful by various authors.

E. laevis was included in the synonymy of *E. antarcticus* by Chilton (1912) on the grounds that it was a juvenile specimen. Barnard (1930) suggested that *E. laevis* might be a juvenile of *E. microps*. A re-examination of the type specimen which was squash-mounted on a slide, and is now in a very poor condition, failed to clarify the status of this species. Evidence is produced here to make clearer the position of *E. bouvieri* and *E. laticarpus*.

The key to the genus given by Barnard (1961) must be used with caution. The large Antarctic specimens of *E. antarcticus* (f. *walkeri* Schellenberg, 1931), due to the relatively shallowly cleft telson, key out as *E. tjalfiensis* or *E. holmi* depending on whether or not there is a tooth on peraeon segment 7.

Eusirus antarcticus (Thomson)

Eusirus cuspidatus var. *antarcticus* Thomson, 1880, p. 4–5.
Eusirus longipes Stebbing, 1888, p. 965–69, pl. 87.
Eusirus cuspidatus Della Valle, 1893, p. 669, 671 (part).
Eusirus antarcticus Stebbing, 1906, p. 340–41; Chilton, 1912, p. 490–92; Schellenberg, 1926*b*, p. 348–49; Barnard, 1930, p. 384–85, fig. 46a and b; Schellenberg, 1931, p. 171–72; Barnard, 1932, p. 188–89; Nicholls, 1938, p. 98; Stephensen, 1947, p. 57 (part, part = *E. bouvieri*); Birstein and Vinogradov, 1962, p. 51; Bellan-Santini, 1972*b*, p. 686–88, figs. 1 and 2.
Eusirus laticarpus Chevreux, 1906, p. 49–54, figs. 27–29 only (part, ♂ = *E. bouvieri*), 1913, p. 167.
Eusirus propinquus Walker, 1907, p. 30–31 (part, part = *E. microps*).

Occurrence

1. Sta. RNHS6 1 ♀ 11 mm.

Remarks. This specimen has the partially serrate third epimera and the broadly expanded carpal lobe of the female *E. laticarpus* Chevreux. An examination of many specimens of *E. antarcticus* from Graham Land, South Georgia, South America, Davis Sea, Iles Kerguelen, Cape Adare, McMurdo Sound and New Zealand shows that the breadth of the posterior lobe of the carpus of gnathopod 2 is quite variable and can overlap with the condition shown by Chevreux (1906, fig. 29B) for *E. laticarpus*. It also seems probable that the partially serrate margin of the third epimera may be a juvenile character. Most of Chevreux's (1906, 1913) specimens were small (up to 12 mm.) and Schellenberg (1926*b*) reported this condition in specimens 8 mm. long. The length at which the posterior margin of the third epimera becomes serrate varies. In the Graham Land area, specimens of 11–12 mm. lack serrations on this margin. Specimens from the Davis Sea area reach at least 8 mm. in length before serrations appear, but material from McMurdo Sound shows the characteristically serrate condition at 7–8 mm. In hatched young taken from the brood pouch the third epimera are not serrate and are rather more rounded than are those of adult specimens. The female described as *E. laticarpus* by Chevreux (1906) and all specimens subsequently referred to this species (Chevreux, 1913) are considered to belong to *E. antarcticus*.

The male specimen assigned to *E. laticarpus* by Chevreux (1906, fig. 30) differs markedly in the condition of antennae, epimera 3 and telson. These differences are unlike those attributable to sexual dimorphism in other species of *Eusirus* and indicate that it is not conspecific with the female specimen, and that it belongs to *E. bouvieri* (see p. 30).

In order to reduce the nomenclatorial confusion to a minimum, the unique female *E. laticarpus* (Chevreux, 1906, figs. 27–29) is here selected as a lectotype and placed as a junior synonym of *E. antarcticus* and the male specimen transferred to *E. bouvieri* Chevreux, 1911.

The maximum recorded size of *E. antarcticus* is 36 mm. (Schellenberg, 1926*b*) as the four large specimens measuring 48–50 mm. recorded by Walker (1907) are not this species but *E. microps* Walker.

Distribution. Graham Land (northern Alexander Island, Marguerite Bay, Jenny Island, Booth Island, Schollaert Channel, Tower Island, Erebus and Terror Gulf) 40–500 m.; South Shetland Islands (Admiralty Bay) 391 m.; South Orkney Islands (Signy Island, Laurie Island) 16–344 m.; South Georgia (Cumberland Bay, off Larsen Point, Stromness Bay) 22–250 m.; Weddell Sea (lat. 72°31′S., long. 19°00′W.; lat. 74°01′S., 22°00′W.) 2–1,800 m.; South Atlantic Ocean (south of Bouvetøya) 100–400 m.; Davis Sea (*Gauss* winter station, Haswell Island, Drygalski Island, Shackleton Ice Shelf) surface–450 m.; Terre Adélie (Commonwealth Bay) 5 m.; Balleny Islands (south-south-east of Sturge Island) surface; Ross Sea (Cape Adare, McMurdo Sound) 4–547 m.; Magellanic region 10–118 m.; Burdwood Bank; Falkland Islands 40 m.; Iles Kerguelen; Heard Island 247 m.; New Zealand 10 m.

Eusirus bouvieri Chevreux

Eusirus laticarpus Chevreux, 1906, p. 49–54, fig. 30 only (part, part = *E. antarcticus*).
Eusirus bouvieri Chevreux, 1911, p. 405–07, fig. 3.
Eusirus antarcticus Stephensen, 1947, p. 57 (part).

Occurrence. (♀♀ 22 mm.).

1. Sta. 6267 1 ovig. ♀; 2. Sta. CAL1 3 ♀♀ (2 ovig.).

Remarks. The specimen from sta. 6267 has posteriorly produced teeth on pleon segments 1 and 2, and carinae on segments 3 and 4. The telson is cleft for one-sixth of its length. Epimera 3 are broadly rounded and strongly serrate on the posterior and ventral margins. The antennae are short, stout and sub-equal and are as long as the head and first four peraeon segments combined. The oostegites are distended with hatched young.

Chevreux (1911) described *E. bouvieri* from a single ovigerous female obtained in the South Sandwich Islands. It was compared with *Eusirus propinquus* Sars but it differed in the form of the carina of urus segment 1, the very short antennae, the first of which was shorter than the second, and the shallow cleft in the telson.

The apparent difference in the form of the carina on urus segment 1 of *E. bouvieri* when compared with other species of the genus is not real but is due to the deflexed position of the urosome. The depth of the cleft in the telson is not a reliable character for identification as in several other species it is known that the cleft is progressively fused as size increases.

Among the material from the Expédition Antarctique Française were two specimens, one male and one female, which were described as a new species, *E. laticarpus*, by Chevreux (1906). The description was based on the female specimen and the species was characterized by the dorsal carinae ending in teeth on pleon segments 1 and 2, the expanded basal article of gnathopod 1, the broad posterior expansion of the carpus of the gnathopods and the obscurely serrate posterior distal angle of the sub-rectangular epimeron 3. A strong sexual dimorphism was recorded, a feature unique among members of the genus. The antennae of the male were shorter and stouter than those of the female, the eyes larger, the telson narrower and less deeply cleft and epimera 3 broadly rounded and strongly serrate. These features are all characteristic of *E. bouvieri* as described by Chevreux (1911) with which species this specimen must be identified. The condition of epimera 3 of the type specimen of *E. bouvieri* is precisely as figured by Chevreux (1906, fig. 30A) in the description of *E. laticarpus*. The crenelate appearance later shown by Chevreux (1911, fig. 3) is due to the damaged condition of the right epimeron 3 of this specimen.

E. bouvieri is, therefore, a valid species characterized by short stout antennae, broadly rounded and strongly serrate third epimera and narrow, shallowly cleft telson. A further character which seems diagnostic is the unusually low carpus:propod ratio (1:1·1) of peraeopods 5–7. For most other Antarctic species the ratio is about 1:1·5. Even in the variable *E. antarcticus* this ratio does not fall below 1:1·25 except possibly in very small individuals less than 6 mm. in length.

Distribution. Graham Land (Booth Island) 40 m.; South Sandwich Islands 55–91 m. (see p. 12).

Genus *Gondogeneia* Barnard

Barnard, 1972, p. 191.

The critical analysis by Barnard (1972) of *Pontogeneia* (*sens. lat.*) and allied genera has resulted in a new alignment of the contained species on the basis of characters of the lower lip, maxillae 1 and 2, accessory flagellum and telson.

The degree of fusion of the telsonic lobes in some of the larger species flocks is relatively constant, and thus tends to parallel the more conservative characters found in the mouth parts. *Pontogeneia* (*sens. str.*) and *Accedomoera* each contain three species, with telsons cleft about 60 and 50–55 per cent, respectively. *Gondogeneia* with 15 species has telsons cleft for 15–45 per cent. 14 of the 16 species of *Tethygeneia* have telsons cleft 55–70 per cent. Figures for the remaining two species, *T. quinsana* (Barnard) and *T. nasa* (Barnard) are 30 and 40 per cent, respectively, but it is perhaps significant that both have serrate third epimera (the only two species in the genus so armed) and both come from the southern California–Baja California area of the North American west coast.

Gondogeneia antarctica (Chevreux)
Fig. 10

Gondogeneia antarctica Barnard, 1972, p. 191, 196–97.
Pontogeneia antarctica Thurston, 1972*b*, p. 79–81, fig. 32a and b (synonymy and distribution).

Occurrence. (♂♂ 6–12 mm., ♀♀ 7–19 mm., juv. 2–9 mm.).

1. Sta. 1259 3 ♂♂, 25 ♀♀ (14 ovig.), 16 juv.; 2. Sta. 1335 7 ♀♀ (2 ovig.); 3. Sta. 1343 29 ♀♀ (9 ovig.), 58 juv.; 4. Sta. 1357 1 juv.; 5. Sta. 1379 61 juv.; 6. Sta. 1397 1 ♀, 12 juv.; 7. Sta. 1456 1 ♀; 8. Sta. 1477 3 ♂♂, 18 ♀♀ (4 ovig.), 11 juv.; 9. Sta. A120 2 ♂♂, 8 ♀♀ (1 ovig.), 2 juv.; 10. Sta. A202 17 ♂♂, 4 ♀♀ (2 ovig.), 5 juv.; 11. Sta. A319 7 ♂♂, 44 ♀♀ (9 ovig.), 3 juv.; 12. Sta. A334 58 juv.; 13. Sta. A381 4 ♂♂, 48 ♀♀ (39 ovig.), 1 juv.; 14. Sta. A382 2 ♂♂, 42 ♀♀ (33 ovig.), 4. juv.; 15. Sta. A383 10 ♂♂, 35 ♀♀ (12 ovig.), 12 juv.; 16. Sta. A384 2 ♀♀; 17. Sta. A385 1 juv.; 18. Sta. A387 1 ♂, 2 ♀♀, 7 juv.; 19. Sta. A429 1 ♂, 163 juv.; 20. Sta. A491 2 juv.; 21. Sta. A492 ca. 450 juv.; 22. Sta. A493 2 ♀♀; 23. Sta. LOC1 1 ♂, 24 ♀♀ (1 ovig.), 14 juv.; 24. Sta. LOC2 2 ♀♀; 25. Sta. LOC3 11 ♂♂, 365 ♀♀, 4 juv.; 26. Sta. 6000 2 ♀♀, 3 juv.; 27. Sta. 6078 6 ♀♀ (4 ovig.), 13 juv.; 28. Sta. 6090 5 ♀♀ (3 ovig.); 29. Sta. 6262 30 juv.; 30. Sta. E1022 1 ♀; 31. Sta. E495 1 ♀, 7 juv.; 32. Sta. F13 9 ♀♀, 23 juv.; 33. Sta. F14 5 ♀♀, 9 juv.; 34. Sta. RNHS2 1 ♀; 35. Sta. RNHS6 4 ♀♀, 10 juv.; 36. Sta. RNHS9 1 ♂, 40 ♀♀; 37. Sta. H126 11 ♀♀, 9 juv.; 38. Sta. AGB1 1 ♀; 39. Sta. AGB9 1 ♀.

Remarks. G. antarctica is remarkably similar to *G. microdeuteropa* (Haswell) as re-described by Barnard (1972). The attributes listed as unknown for *G. antarctica* by Barnard have been examined but they provide no useful characters by which the two species may be separated. The most obvious means of distinction is size. Adults of *G. microdeuteropa* are less than 4 mm. in length which is barely half the length at which the sexes are first distinguishable in *G. antarctica*. The largest males and females in the present collection are 12 and 19 mm. long, respectively, and Thurston (1972*b*) recorded maxima of 14 and 21 mm. for specimens from the South Orkney Islands. Barnard (1972) described calceoli on the antennal peduncles in *G. microdeuteropa* but no such organs have been found in *G. antarctica*. Additional characters separating the two species are the more slender peraeopods, differences in the shapes of the coxae, particularly coxa 4 and the completely fused accessory flagellum of *G. antarctica*. Despite the apparently trivial nature of these diagnostic characters, it seems advisable at present to retain the two species as distinct, if only for their marked differences in size, physiology and geographical distribution.

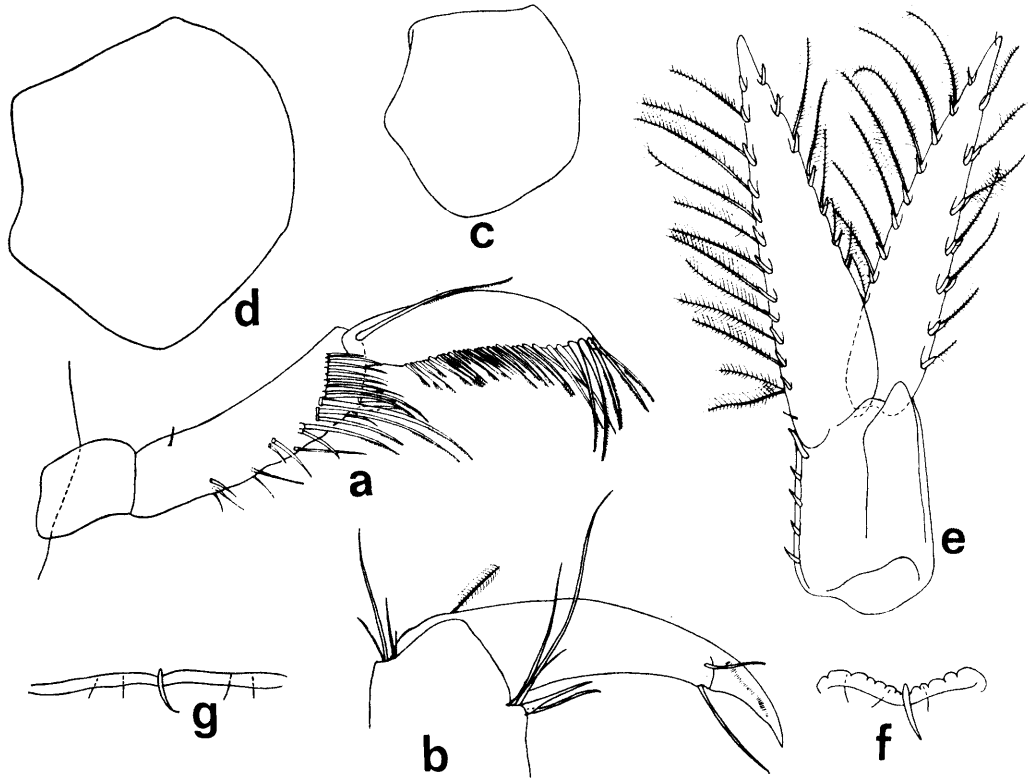

FIGURE 10

Gondogeneia antarctica (Chevreux), 10 mm. ♂ *a*, mandibular palp; *b*, peraeopod 3, dactyl; *c*, coxa 4; *e*, uropod 3; *f*, antenna 1 peduncle, integumental sculpture; *g*, coxa 3, integumental sculpture. 13 mm. ♀. *d*, coxa 4.

The surface sculpture consists of closely spaced, elongate pits covered by a scale or lappet. A seta originates just proximal to the centre of the pit/lappet system. Minute setae or projections occur in the pits. The pits on the cuticle of peraeon and coxae are nearly straight and 50–70 μm. in length, while those on the peduncles of the antennae form chevrons 25–40 μm. across.

This species occurs frequently in littoral pools during the summer months; it swims actively and thus shows a marked contrast to the cryptic habit of *Paramoera edouardi*, another abundant inhabitant of shore pools.

Gondogeneia redfearni (Thurston)

Pontogeneia redfearni Thurston 1972*b*, p. 81–84, figs. 33a–p and 34a–k.

Occurrence

1. Sta. AGB9 2 ♀♀ 10–17 mm.

Remarks. These specimens are the first to be recorded at other than the type locality.

Genus *Liouvillea* Chevreux

Liouvillea oculata Chevreux

Liouvillea oculata Thurston, 1972*b*, p. 71–72, fig. 29f–g (synonymy and distribution).

Occurrence. (♀♀ 12–19 mm., juv. 6–7 mm.).

1. Sta. A122 1 ♀; 2. Sta. A131 9 ♀♀; 3. Sta. A137 1 ♀; 4. Sta. A142 3 juv.; 5. Sta. A385 1 ♀.

Genus *Lopyastis* gen. nov.

Diagnosis. Amphipods of the calliopiid sequence of the Eusiridae. *Antenna 1* with small accessory flagellum. *Mandible*, cutting edge not drawn out; palp article 3 not markedly shorter than article 2. *Lower lip* with inner lobes. *Maxilla 1*, inner plate with plumose medial setae; palp article 2 longer than article 1. *Maxilla 2*, inner plate with well-developed diagonal row of setae. *Maxilliped*, inner plate not greater than outer; palp article 3 produced over article 4. *Gnathopods* sub-chelate, not eusirid; carpus not lobate, not longer than propod, neither carpus nor propod elongate or sub-linear. *Coxae*, fourth deepest. *Peraeopods*, basal articles lacking anterior process; dactyls not pectinate. *Telson*, rather short, emarginate.

The name *Lopyastis* is an anagram of *Atylopsis*, a form which hitherto contained the species now assigned to the new genus.

List of species

signiensis (Thurston, 1972) (types species).
multisetosa (Schellenberg, 1926).
See p. 40 for key to species of *Atylopsis* (*sens. lat.*).

Remarks. Lopyastis differs from *Atylopsis* in having a strong diagonal row of setae on the inner plate of maxilla 2. *Liouvillea* and *Lopyastis* differ by the acute epistomal process, long rostrum and shallowly cleft telson of the former. Coxa 4 is deeper than the others in *Lopyastis* whereas in *Haliragoides* coxa 1 is deepest. The absence of an accessory flagellum and medial setae on the inner plate of maxilla 1 distinguish *Apherusa* from the new genus. *Halirages* lacks an accessory flagellum, and most species of that genus are dorsally processiferous. The elongate carpus of gnathopods 1 and 2 of *Cleippides* contrasts with the condition in *Lopyastis*. *Regalia* is distinguished from *Lopyastis* by the prominent rostrum and very shallow coxae of the former.

The erection of *Lopyastis* gen. nov. is necessitated by the re-alignment of parts of the calliopiid and pontogeneiid sequences of the Eusiridae proposed by Barnard (1972).

Genus *Metaleptamphopus* Chevreux

Metaleptamphopus pectinatus Chevreux

Metaleptamphopus pectinatus Thurston, 1972*b*, p. 56–57, fig. 10l (synonymy and distribution).

Occurrence. (♂ 4 mm., ♀ 5 mm., juv. 2·5 mm.).

1. Sta. AGB5 1 ♂, 1 ♀, 1 juv.

Genus *Oradarea* Walker

Thurston, 1972*b*, p. 34–37 (key to species).

Oradarea bidentata Barnard

Oradarea bidentata Thurston, 1972*b*, p. 37–40, figs. 11f and s, 12f and 13f (synonymy and distribution).

Occurrence. (♂ 6 mm., ♀♀ 5·5–9 mm.).

1. Sta. A142 1 ♂, 1 ♀; 2. Sta. A319 1 ovig. ♀; 3. Sta. AGB5 1 ♀; 4. Sta. AGB9 1 ovig. ♀.

Oradarea edentata Barnard

Ordarea edentata Thurston, 1972*b*, p. 46, figs. 11b and o, 12b and 13b (synonymy and distribution).

Occurrence. (♂♂ 3·5–5 mm., ♀♀ 3·5–6·5 mm.).

1. Sta. 1477 3 ♂♂, 6 ♀♀ (1 ovig.); 2. Sta. A134 1 ♀; 3. Sta. A492 1 ♂; 4. Sta. A493 3 ♀♀.

Oradarea ocellata Thurston

Oradarea ocellata Thurston, 1972*b*, p. 40–43, figs. 11e and r, 12e, 13e, 14a–p and 15a–g (synonymy and distribution).

Occurrence. (♂♂ 6·5–13 mm., ♀♀ 10–15 mm.).

1. Sta. 1397 1 ovig. ♀; 2. Sta. 1477 3 ♂♂, 7 ♀♀ (1 ovig.); 3. Sta. A131 2 ♂♂; 4. Sta. A319 8 ♀♀ (6 ovig.); 5. Sta. A384 1 ♂; 6. Sta. A387 1 ♂, 1 ovig. ♀; 7 Sta. 6179 1 ♂.

Remarks. Antenna 1 is as long as the body, and antenna 2 is longer.

Oradarea tridentata Barnard

Oradarea tridentata Thurston, 1972*b*, p. 46–47, figs. 11i and v, 12i and 13i (synonymy and distribution).

Occurrence

1. Sta. A319 1 ovig. ♀ 9 mm.

Oradarea unidentata Thurston

Oradarea unidentata Thurston, 1972*b*, p. 43–46, figs. 11c and p, 12c, 13c, 16a–o and 17 a–g (synonymy and distribution).

Occurrence. (♂♂ 3–6 mm., ♀♀ 3·5–8 mm., juv. 2–4 mm.).

1. Sta. 1343 1 ovig. ♀; 2. Sta. A120 2 ♂♂, 7 ♀♀ (5 ovig.); 3. Sta. A319 5 ovig. ♀♀; 4. Sta. A334 7 ♂♂, 8 ♀♀ (5 ovig.), 1 juv.; 5. Sta. A384 3 ♂♂, 7 ♀♀ (2 ovig.); 6. Sta. A385 5 ♂♂, 23 ♀♀ (4 ovig.), 5 juv.; 7. Sta. A387 4 ♂♂, 10 ♀♀ (6 ovig.), 1 juv.; 8. Sta. A429 4 ♂♂, 7 ♀♀, 13 juv.

Remarks. Antenna 2 is just longer than antenna 1 and is as long as the head, peraeon and pleon combined.

Oradarea walkeri Shoemaker

Oradarea walkeri Bellan-Santini, 1972*a*, p. 184–85, fig. 10, 1972*b*, p. 684 and 686; Thurston, 1972*b*, p. 37, figs. 11d and q, 12d and 13d (synonymy and distribution).

Occurrence. (♂♂ 8–12 mm., ♀♀ 7–12 mm., juv. 4·5–5 mm.).

1. Sta. 1397 1 ♀; 2. Sta. 1477 1 ♂, 6 ovig. ♀♀; 3. Sta. A120 1 ovig. ♀; 4. Sta. A134 1 juv.; 5. Sta. A152 1 ♂; 6. Sta. A334 1 ovig. ♀; 7. Sta. A382 1 ovig. ♀; 8. Sta. A383 1 ovig. ♀; 9. Sta. A387 5 ovig. ♀♀; 10. Sta. E507 1 juv.

Remarks. Antenna 1 is sub-equal in length to the body; antenna 2 a little shorter. Material figured by Bellan-Santini (1972*a*) is more typical in that antenna 2 is a little longer than antenna 1.

Genus *Paramoera* Miers

Miers, 1875, p. 75.
Stebbing, 1906, p. 363.
Schellenberg, 1929, p. 280–81.
Barnard, 1969*b*, p. 227, 1972, p. 184–86.

The taxonomy and distribution of species of *Paramoera* in Antarctic and sub-Antarctic regions has been complicated by the number of species involved, the lack of adequate descriptions of many of them and the sweeping synonymies assumed for several of the poorly known species described in the nineteenth

century. Barnard (1932) has disagreed with the list of species synonymized with *P. fissicauda* (Dana) by Schellenberg (1931) and recognized *P. capensis* (Dana) and *P. gregaria* (Pfeffer) as valid species. It is the opinion of the author that this move is fully justified, and also that *P. chevreuxi* (Stephensen) is sufficiently distinct to warrant separation from *P. edouardi* Schellenberg, in which synonomy it was included by Schellenberg (1931).

Until *P. fissicauda*, *P. capensis*, *P. austrina* (Bate), *P. australis* Miers and *P. gregaria* (Pfeffer) can be critically examined in the light of current understanding of the genus, attempts at combining nominate species will be liable to gross error and serve only to confuse an already complex situation.

Including the species described as new here, the 18 species listed below have been recorded from Antarctic and sub-Antarctic regions:

P. australis Miers, 1875	Iles Kerguelen.
P. fasciculata (Thomson, 1880)	Auckland Islands, Campbell Island.
P. gregaria (Pfeffer, 1888)	South Georgia, Tierra del Fuego, Tristan da Cunha.
P. walkeri (Stebbing, 1906)	Antarctica, Scotia arc.
P. aucklandica (Walker, 1908)	Auckland Islands.
P. chevreuxi (Stephensen, 1927)	Auckland Islands, Campbell Island.
P. edouardi Schellenberg, 1929	Graham Land, Scotia arc.
P. pfefferi Schellenberg, 1931	South Georgia, Falkland Islands, Magellanic region.*
P. brachyurus Schellenberg, 1931	South Georgia, Magellanic region.*
P. obliquimanus Barnard, 1932	Falkland Islands.
P. hermitensis Barnard, 1932	Tierra del Fuego.
P. tristanensis Barnard, 1932	Tristan da Cunha.
P. hamiltoni Nicholls, 1938	Macquarie Island.
P. macquariae Nicholls, 1938	Macquarie Island.
P. schellenbergi Nicholls, 1938	Macquarie Island.
P. brachyura Stephensen, 1949 (=homonym)	Tristan da Cunha.
P. parva Ruffo, 1949	Magellanic region.*
P. hurleyi Thurston, 1972	South Orkney Islands.
P. husvikensis sp. nov.	South Georgia.

In addition to these species, two others have been recorded from Australasia. *Aucklandia enderbyi* Walker, 1908, from the Auckland Islands is, on account of the curiously shaped propod of gnathopod 1, probably identical with *P. fasciculata*. *Atylus megalophthalmus* Haswell, 1881, for long included in the synonymy of *P. austrina*, has been re-discovered and transferred to *Tethygeneia* by Barnard (1972).

Barnard (1972), in his revision of parts of the pontogeneiid and calliopiid sequences of the Eusiridae, has suggested that the presence of stout apical spines on the telson forms a diagnostic character for *Paramoera*. The telsonic armature is however, variable, and some species, including the one described as new here, are armed with setae only.

Paramoera contains 29 species (Barnard, 1972), and two species, *P. hurleyi* Thurston, 1972, and *P. husvikensis* sp. nov., have been described subsequently. 30 of these species have telsons cleft 50–85 per cent. The remaining species, *P. walkeri*, which has a telson cleft only 30 per cent, has atypical maxillae and may require generic or sub-generic separation when the variations within *Paramoera* are more fully understood.

There is evidence in the literature to suggest that *Paramoera* may consist of two or more species flocks. When the older species have been critically re-examined, such trends may warrant the splitting up of *Paramoera* in a fashion parallel to that recently undergone by *Pontogeneia* (Barnard, 1972).

Paramoera edouardi Schellenberg

Paramoera edouardi Thurston, 1972*b*, p. 72–73, fig. 29h (synonymy and distribution).

Occurrence. (♂♂ 5–8 mm., ♀♀ 6–12 mm., juv. 1·5–6·5 mm.).

1. Sta. 1397 1 ♂; 2. Sta. 1412 2 ♂♂, 16 ♀♀, 96 juv.; 3. Sta. 1416 1 ovig. ♀; 4. Sta. 1477 4 ♂♂, 23 ♀♀ (6 ovig.), 6 juv.; 5. Sta.

* The term Magellanic region is not used here in a zoogeographic sense but simply to denote the southern extremities of Argentina and Chile lying to north and south of the Straits of Magellan.

A381 1 ♀; 6. Sta. A383 1 ♀; 7. Sta. A429 2 juv.; 8. Sta. A492 2 ♂♂, 18 juv.; 9. Sta. A493 5 ♂♂, 3 ♀♀ (1 ovig.), 1 juv.; 10. Sta. LOC2 2 ♂♂, 40 ♀♀ (4 ovig.), 18 juv.; 11. Sta. 6000 1 ♂, 3 ♀♀, 6 juv.; 12. Sta. 6159 1 ♂, 2 ♀♀, 3 juv.; 13. Sta. 6201 1 ♀, 18 juv.; 14. Sta. 6207 1 ♂; 15. Sta. 6217 1 ♀; 16. Sta. E1022 1 ♀; 17. Sta. E495 1 ♂.

Remarks. P. edouardi invades the littoral zone during the summer months, occurring in pools and under stones. Collection data indicate that at Hope Bay in November 1945 this species was the commonest macroscopic organism in pools between high and low water, although it was absent from those pools supporting dense growths of filamentous algae and diatoms. It is rarely found swimming freely, but usually occurs under rocks and stones on the floor of shallow pools. Specimens from sta. 6159 and 6201 were light brown in colour and that from sta. 6207 was reddish.

Paramoera husvikensis sp. nov.
Figs. 11 and 12

The type specimens are in the collection of the British Museum (Nat. Hist.): ♂ holotype, Reg. No. 1972:283:1; ♀ allotype, Reg. No. 1972:284:1; paratypes, Reg. No. 1972:285:3.

Type locality. Sta. HUS2. Husvik, South Georgia. The specimens were obtained from a rock pool at mean high water, neap tide on 8 November 1959. Collector, M. H. Thurston.

Occurrence

1. Sta. HUS2 4 ♂♂ 6–8 mm., 1 ♀ 6·5 mm.

Description. A small species. *Body* without dorsal teeth or carinae. *Head* with short straight rostrum; eye-lobes broadly rounded; post-antennal angle acute but not strongly produced; eyes broadly oval, black in alcohol. *Epimera*, second rectangular with small posterior-distal tooth; third with posterior-distal angle obtuse, posterior margin convex.

Antenna 1, equal in length to head and peraeon segments 1–4 combined; peduncle stout, article 1 just greater than articles 2 and 3 combined; flagellum sub-equal in length to peduncle, with 21 short articles, alternate articles with discoidal calceoli posteriorly; accessory flagellum articulate, just shorter than first article of flagellum. *Antenna 2*, peduncle stout, as long as peduncle of antenna 1, articles 4 and 5 equal in length; flagellum sub-equal to flagellum of antenna 1 but articles more slender, calceoli anteriorly on alternate articles. *Upper lip*, symmetrical, evenly rounded, finely setose. *Mandible*, stout; molar strong, columnar, triturative, surface ridged; incisor process broad, dentate; left lacina mobilis broad, with five blunt teeth, right with two long sharp teeth; palp stout, article 3 just longer than second and armed throughout with stout setae. *Lower lip*, inner lobes indistinct. *Maxilla 1*, inner plate with 11 setae medially and apically; outer plate with 11 pectinate spines. *Maxilla 2*, plates sub-equal, inner with strong, diagonal row of setae. *Maxilliped*, outer plate reaching half-way along second article of palp; palp second article long and stout, third curved, dactyl short and stout.

Gnathopod 1, coxa broadly rounded distally; propod just longer than carpus, tapering slightly distally, palm oblique, palmar angle not well defined. *Gnathopod 2*, larger than gnathopod 1; coxa broadly rounded distally; carpus lobate posteriorly, strongly setose; propod longer than carpus, palm just concave, very oblique. *Peraeopod 3*, coxa broadly rounded distally; carpus and propod sub-equal, just shorter than merus. *Peraeopod 4*, coxa broadly rounded distally, deeper than coxa of peraeopod 3, deeply emarginate posteriorly, width only just less than depth; merus gently convex anteriorly. *Peraeopod 5*, coxa bilobed, lobes sub-equal; basal sub-rectangular, rather broad; distal articles spinous, rather stout. *Peraeopod 6*, a little longer than peraeopod 5; coxa with posterior lobe much stronger than anterior, distal articles similar to, but longer than those of peraeopod 5. *Peraeopod 7*, as long as peraeopod 6; basal expanded, posterior-distal lobe extending beyond ischium.

Uropod 1, inner ramus shorter than peduncle; outer ramus without lateral spines, 90 per cent of length of inner ramus. *Uropod 2*, inner ramus as long as peduncle; outer ramus 75 per cent length of inner. *Uropod 3*, peduncle short, stout; rami narrowly lanceolate, nearly twice as long as peduncle, margins spinous. *Telson*, rather short, length about 1·3 times the maximum width, cleft 60 per cent of length, two or three setae on each rounded apex.

The female allotype differs from the male only in the structure of the antennae and gnathopods. Although alternate articles of the antennal flagella are slightly produced and have sensory elements, they lack the discoidal calceoli found in males. The palms of both gnathopods of the female are more nearly transverse and the palmar angles correspondingly more clearly defined.

The name *P. husvikensis* indicates the provenance of the type specimens.

Remarks. The inadequate descriptions of some of the southern species of *Paramoera* make comparison difficult, but the combination of small size, obtusely angled epimera 3, short antennae, and the form of gnathopods, peraeopod 4 coxa, uropods and telson seem sufficient to differentiate this species.

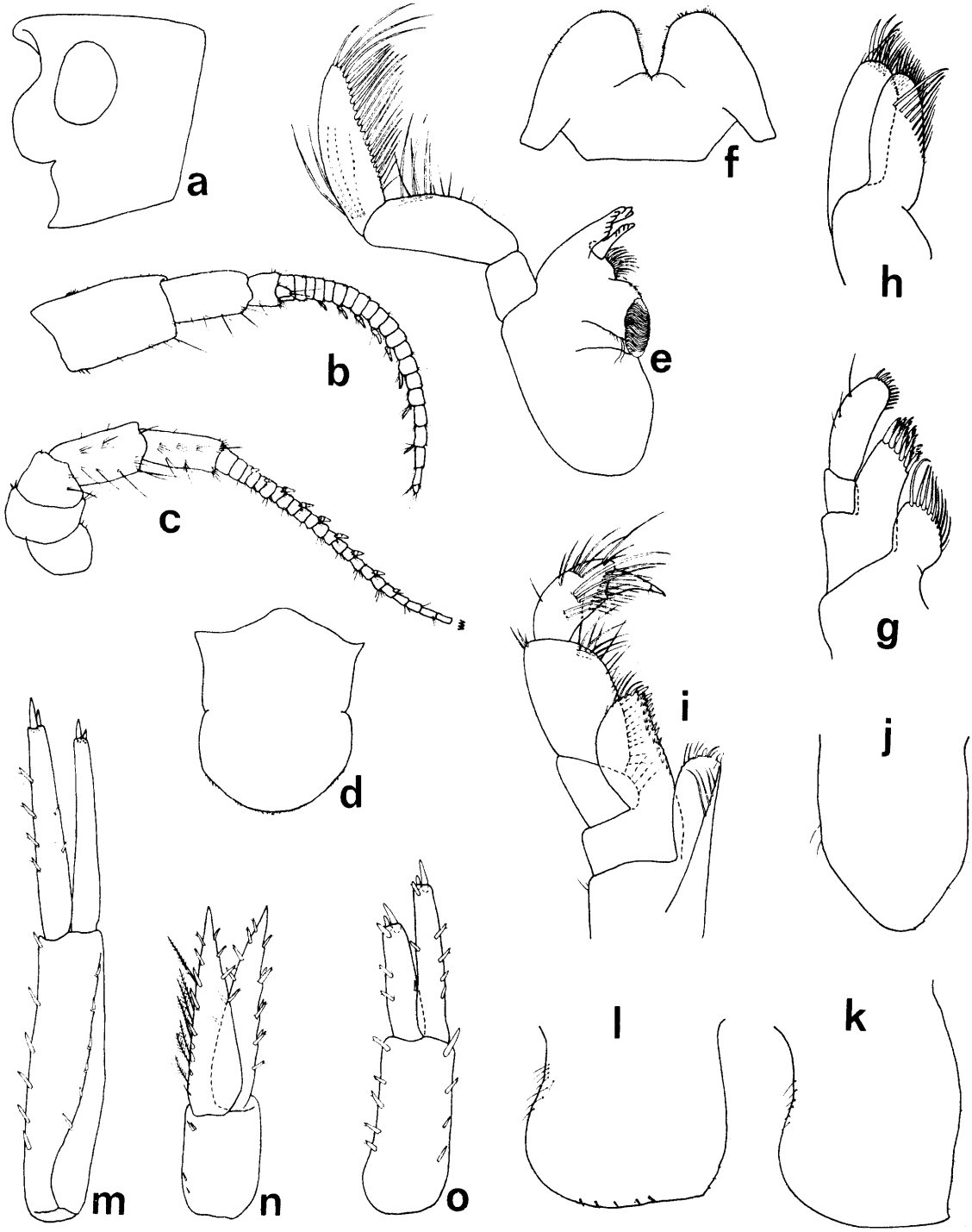

FIGURE 11

Paramoera husvikensis sp. nov., holotype, 8 mm. ♂, sta. HUS2. *a*, head; *b* and *c*, antennae 1 and 2; *d*, upper lip; *e*, mandible; *f*, lower lip; *g* and *h*, maxillae 1 and 2; *i*, maxilliped; *j–l*, epimera 1–3; *m*, uropod 1; *n*, uropod 3; *o*, uropod 2.

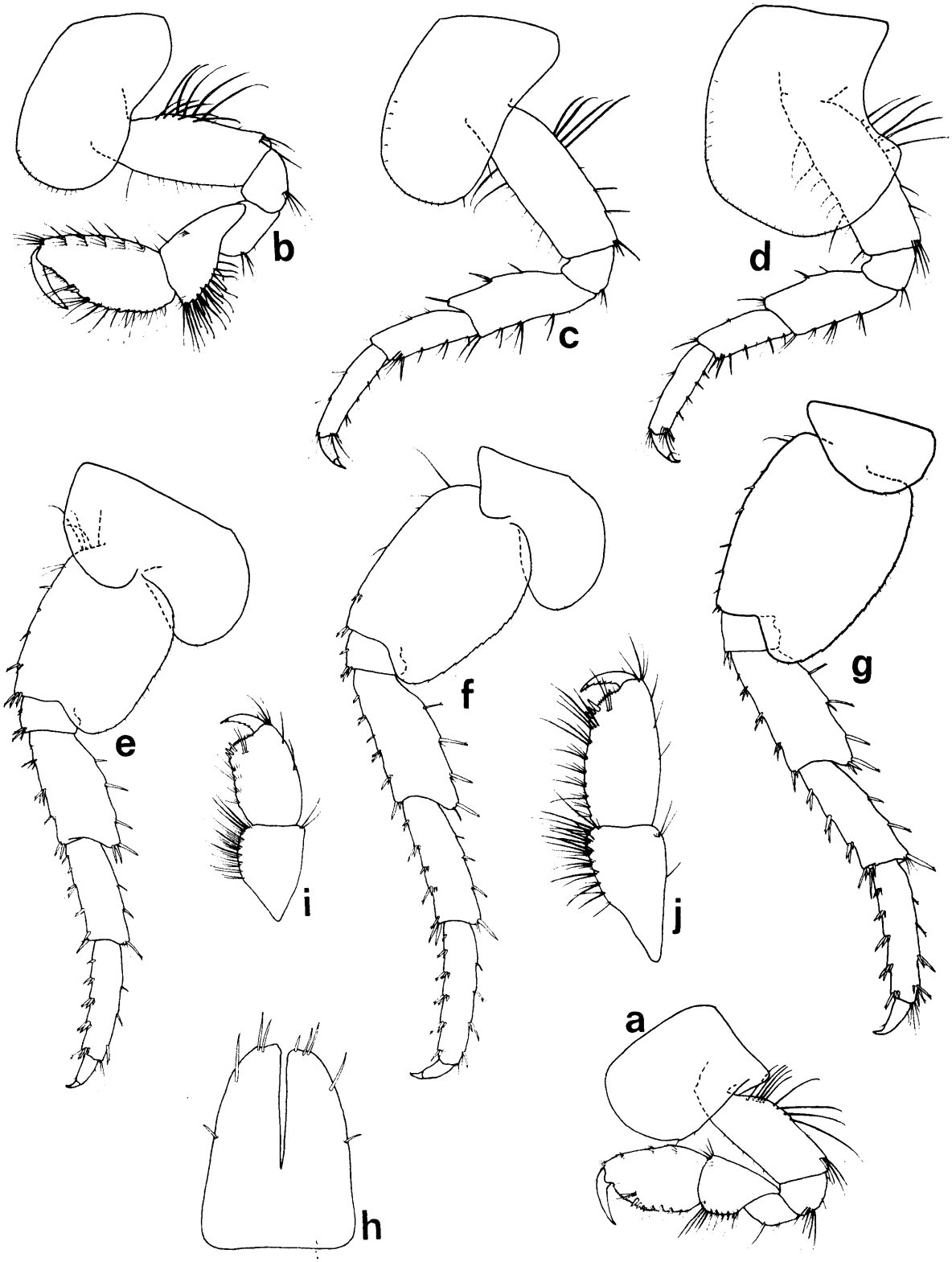

FIGURE 12

Paramoera husvikensis sp. nov., holotype, 8 mm. ♂, sta. HUS2. *a* and *b*, gnathopods 1 and 2; *c–g*, peraeopods 3–7; *h*, telson. Allotype, 6·5 mm. ♀, sta. HUS2. *i* and *j*, gnathopods 1 and 2.

Paramoera pfefferi Schellenberg

Paramoera pfefferi Schellenberg, 1931, p. 198–200, fig. 101.

Occurrence. (♂♂ 6–7 mm., ♀♀ 6·5–9 mm.).

1. Sta. HUS2 4 ♂♂, 2 ♀♀ (1 ovig.).

Remarks. This species is characterized by short stout antenna 1, broad, reniform eyes, sub-rectangular epimera 2, very broadly rounded epimera 3 and long apical setae on the telson. The specimens agree well with the description and illustrations of Schellenberg, differing only in the smaller emargination of the coxa of peraeopod 4.

The short rostrum is not decurrent and is therefore not hidden between the peduncles of the anterior antennae. The flagellum of antenna 1 is strongly compressed proximally. Alternate articles distal to article 6 or 7 of the flagellum bear prominent bunches of rod-like calceoli. The coxa of peraeopod 4 is shallowly emarginate, and more than twice as deep as coxa 1.

Distribution. South Georgia (Cumberland Bay) littoral–310 m.; Magellanic region, littoral–20 m.; Falkland Islands, littoral–22 m.

Paramoera walkeri (Stebbing)

Atylus antarcticus Walker, 1903, p. 58–60, pl. 11, figs. 91–97.
Atylus walkeri Stebbing, 1906, 728; Walker, 1907, p. 34; Chilton, 1909, p. 624.
Bovallia Walkeri Chevreux, 1913, p. 169–73, figs. 53–55; Gruzov and others, 1967, p. 128, 1969, p. 107.
Bovallia monoculoides Shoemaker, 1914, p. 74–75 (part).
Paramoera Walkeri Monod, 1926, p. 56–57; Stephensen, 1927, p. 326–27.
Paramoera walkeri Schellenberg, 1929, p. 281; Barnard, 1930, p. 388; Schellenberg, 1931, p. 197–98; Barnard, 1932, p. 206, fig. 118l; Stephensen, 1938, p. 240; Nicholls, 1938, p. 114–15, figs. 52f and m, 58a and b; Stephensen, 1947, p. 64; Andriashev, 1967, p. 1588, 1968, p. 150; Rakusa-Suszczewski, 1972, p. 11–36; Bellan-Santini, 1972*a*, p. 186–87, 1972*b*, p. 688.

Occurrence. (♂ 9·5 mm., ♀♀ 13–17 mm.).

1. Sta. 1416 1 ♀; 2. Sta. E1022 1 ♂, 2 ♀♀.

Remarks. These specimens differ from the type specimens in a few minor details. The dorsal carinae are a little more prominent. The palms of gnathopods 1 and 2 are rather more oblique than those of the type specimens, and both are more oblique than is indicated by Walker (1903, fig. 93). The number of plumose setae on the inner plate of maxilla 1 is variable, although both Chevreux and Nicholls reported six. Walker compared the mouth parts of his specimens with those of *Atylus carinatus* (Fabricius) as figured by Sars (1893, pl. 166) in which there are eight plumose setae on the inner plate of maxilla 1. A number of specimens from the type series has been examined for this character and examples with five, six and seven setae have been found. Specimens in the present collection have six, seven or eight setae. Both in Walker's material and the present collection, specimens have been found in which the number of setae differs on right and left maxillae.

The coxae of male specimens are not quite so high as those of the females. The propods of both pairs of gnathopods of the male are somewhat larger, and a little more expanded distally than is the case in the female.

The integument of these specimens and those described by Barnard (1932) agrees with the condition found by Nicholls. The large pits are not easily seen and are present on the peraeon segments but not on the coxae.

P. walkeri forms an important element of the sub-fast-ice community (Andriashev, 1967, 1968; Gruzov and others, 1967; Rakusa-Suszczewski, 1972).

Distribution. South Shetland Islands (Deception Island) littoral–60 m.; South Georgia (Godthul, Hystadhullet, Cumberland Bay, Possession Bay, Bay of Isles, Coal Harbour) 5–310 m.; Enderby Land (Alasheyev Bight) 0–10 m.; Davis Sea (Mirny); Terre Adélie (Archipel de Pointe Géologie, Commonwealth Bay) L.W.–9 m.; Ross Sea (Cape Adare, McMurdo Sound) littoral–250 m.

Genus *Pontogeneiella* Schellenberg

Pontogeneiella brevicornis (Chevreux)

Pontogeneiella brevicornis Thurston, 1972*b*, p. 85–86 (synonymy and distribution).

Occurrence. (♂♂ 10–15 mm., ♀♀ 12–22 mm., juv. 7–11 mm.).

1. Sta. 1477 1 ♀; 2. Sta. A127 1 juv.; 3. Sta. A131 3 ♀♀; 4. Sta. LOC1 1 ♂, 1 ♀; 5. Sta. 6017 1 ♂, 2 ♀♀ (1 ovig.), 1 juv.; 6. Sta. CAL1 12 ♀♀ (5 ovig.); 7. Sta. CAL4 3 ♀♀; 8. Sta. AGB6 2 ♂♂, 17 ♀♀, 1 juv.; 9. Sta. AGB7 5 ♀♀; 10. Sta. AGB8 1 ♂; 11. Sta. AGB9 8 ♂♂, 25 ♀♀; 12. Sta. AGB11 1 ♀.

Remarks. The depth range given for this species at the South Sandwich Islands by Thurston (1972*b*) is erroneous and should be 55–91 m. (see p. 12).

Pontogeneiella longicornis (Chevreux)

Pontogeneiella longicornis Thurston, 1972*b*, p. 86 (synonymy and distribution).

Occurrence. (♂♂ 9–18 mm., ♀♀ 12–26 mm., juv. 5–7 mm.).

1. Sta. A122 3 ♀♀; 2. Sta. A130 2 ♀♀; 3. Sta. A131 12 ♀♀; 4. Sta. A134 1 ♂; 5. Sta. A137 1 ♀; 6. Sta. A139 1 ♀; 7. Sta. A152 1 ♂, 1 ♀, 7 juv.; 8. Sta. E507 1 ♂; 9. Sta. AGB9 1 ♂, 4 ♀♀; 10. Sta. AGB11 1 ♂.

Genus *Prostebbingia* Schellenberg

Prostebbingia gracilis (Chevreux)

Prostebbingia gracilis Thurston, 1972*b*, p. 84, fig. 29i (synonymy and distribution).
? Bellan-Santini, 1972*a*, p. 187, figs. 11–12, 1972*b*, p. 688.

Occurrence. (♂♂ 4–7 mm., ♀♀ 5–12 mm., juv. 3·5–5 mm.).

1. Sta. 1477 2 ♂♂; 2. Sta. A127 3 ♂♂, 6 ♀♀, 13 juv.; 3. Sta. A131 2 ♀♀; 4. Sta. A134 1 ♀; 5. Sta. A142 8 ♂♂, 36 ♀♀ (1 ovig.), 19 juv.; 6. Sta. A152 54 specimens (damaged); 7. Sta. A319 2 ovig. ♀♀; 8. Sta. A383 1 ♂; 9. Sta. A385 4 ♂♂, 3 ♀♀, 4 juv.; 10. Sta. 6090 2 ♂♂, 1 ♀; 11. Sta. E506 1 juv.; 12. Sta. E507 1 ♀, 1 juv.

Remarks. The present material agrees in most respects with that described by Chevreux (1913) and therefore differs in the form of the gnathopods, peraeopod 7, mandibular palp and telson from the specimen illustrated by Bellan-Santini (1972*a*). The significance of these differences is unclear as there is some degree of variation among this species in the Graham Land–Scotia arc region.

Prostebbingia serrata Schellenberg

Prostebbingia serrata Schellenberg, 1926*b*, p. 358–60, fig. 54; Bellan-Santini, 1972*a*, p. 187, fig. 13, 1972*b*, p. 688.

Occurrence

1. Sta. E502 1 ♂ 9 mm.

Remarks. Although the single specimen is damaged, the characteristic serrate coxae, produced epimera 3 and basals of pepaeopods 5 and 7 leave no doubt as to its identity.

The specimens assigned to *Pontogeneia magellanica* (Stebbing) by Walker and which Schellenberg placed in the synonymy of the present species have been examined. Of the seven specimens present, only two bear any resemblance to *P. serrata*. Neither of these specimens, however, can be considered as belonging to *P. serrata* as they differ in the shape of the basals of the last three pairs of peraeopods and the longer antennal peduncles.

Distribution. Davis Sea (*Gauss* winter station, lat. 65°47′S., long. 88°00′E.) 385–400 m.; Terre Adélie (Cap Géodésie, Archipel de Pointe Géologie) 10–110 m.

Genus *Schraderia* Pfeffer

Thurston, 1972*b*, p. 58.

Schraderia barnardi Thurston

Schraderia barnardi Thurston, 1972*b*, p. 68, figs. 28a–r and 29a–e.

Occurrence

1. Sta. 1397 1 ovig. ♀ 8 mm.

Schraderia dubia Thurston

Schraderia dubia Thurston, 1972*b*, p. 65–68, figs. 26a–p and 27a–g.

Occurrence. (♀♀ 5–6·5 mm.).

1. Sta. 1259 2 ovig. ♀♀; 2. Sta. 1456 1 ovig. ♀.

Schraderia gracilis Pfeffer

Schraderia gracilis Bellan-Santini, 1972*a*, p. 189 and 191, 1972*b*, p. 689; Thurston, 1972*b*, p. 58–65, figs. 23a–i, 24a–q and 25a–k (synonymy and distribution).

Occurrence. (♂♂ 5·5–10 mm., ♀♀ 6–15 mm., juv. 3–7 mm.).

1. Sta. 1259 1 ♂; 2. Sta. 1335 1 ♂, 5 ♀♀ (2 ovig.); 3. Sta. 1343 1 ♀, 1 juv.; 4. Sta. 1397 1 ♂, 2 ♀♀, 8 juv.; 5. Sta. 1456 1 ♂, 3 ♀♀, 1 juv.; 6. Sta. 1477 1 ♂, 12 ♀♀ (6 ovig.), 5. juv.; 7. Sta. A122 1 ♀; 8. Sta. A131 1 ♀; 9. Sta. A134 1 ♂, 2 juv.; 10. Sta. A142 2 ♀♀, 1 juv.; 11. Sta. A381 1 ♀; 12. Sta. A383 1 ♂, 4 ♀♀ (1 ovig.); 13. Sta. A384 1 ♀, 1 juv.; 14. Sta. A385 1 ♂; 15. Sta. LOC1 1 ♀; 16. Sta. E500 2 ♀♀; 17. Sta. E514 1 ♂; 18. Sta. E516 1 ♀; 19. Sta. E517 1 ♀; 20. Sta. AGB8 6 ♀♀.

Remarks. Thurston (1972*b*) has discussed *S. gracilis* at some length and has shown that a morphological cline exists within the species. The present material shows a similar degree of variation. Both extremes of the cline, the strongly serrate, acalceolate "*gracilis*" form, and the weakly serrate, calceolate "*calceolata*" form are represented together with specimens of an intermediate nature. Bellan-Santini's material was collected at Archipel de Pointe Géologie, not far to the west of Commonwealth Bay, the locality of Nicholl's (1938) specimens.

Genus *Tylosapis* gen. nov.

Diagnosis. Amphipods of the calliopiid sequence of the Eusiridae. *Antenna 1* with small accessory flagellum. *Mandible*, incisor not produced; palp articles 2 and 3 sub-equal. *Lower lip* with inner lobes. *Maxilla 1*, inner plate with few apical setae only; palp article 2 longer than article 1. *Maxilla 2*, inner plate with diagonal row of setae present but reduced. *Maxilliped*, inner plate not greater than outer; palp article 3 somewhat produced alongside article 4. *Gnathopods* sub-chelate, not eusirid; carpus not lobate, shorter than propod, neither carpus nor propod elongate. *Coxae*, fourth deepest. *Peraeopods*, basal articles lacking anterior process; dactyls not pectinate. *Telson* rather short, narrowly emarginate.

The name *Tylosapis* is an anagram of *Atylopsis*.

List of species

dentatus (Stebbing, 1888) (type species).

Tylosapis differs from *Atylopsis* in having a reduced diagonal row of setae on maxilla 2 inner plate and possibly also in the short outer rami of uropods 1 and 3. *Tylosapis* and *Lopyastis* are distinguished by the well-developed diagonal row of setae on the inner plate of maxilla 2, and the strongly setose inner plate of maxilla 1 of the latter.

Key to the species of *Atylopsis*, *Lopyastis* and *Tylosapis*

1.	Maxilla 1 inner plate with five or less plumose setae	2
	Maxilla 1 inner plate with 12 or more plumose setae	5
2.	Dorsal teeth present on pleon segments 1 and 2	3
	No dorsal teeth on pleon	4
3.	Gnathopod 2 propod elongate, length four times width	***A. megalops***
	Gnathopod 2 propod short, length twice width	***T. dentatus***
4.	Epimera 3 rounded; dactyls of peraeopods 3–7 curved	***A. emarginatus***
	Epimera 3 sub-rectangular; dactyls of peraeopods 3–7 straight	***A. orthodactylus***
5.	Epimera 3 rounded; telson emargination small, apices truncate	***L. multisetosa***
	Epimera 3 with posterior-distal tooth; telson emargination deep, apices rounded	***L. signiensis***

Family Gammaridae

Genus *Paraceradocus* Stebbing

Paraceradocus miersii (Pfeffer)

Paraceradocus miersi Thurston, 1972*b*, p. 87–88 (synonymy and distribution).

Occurrence. (♂♂ 38–45 mm., ♀♀ 43–47 mm., juv. 16 mm.).

1. Sta. 6014 1 ♂; 2. Sta. 6176 2 ♂♂, 2 ovig. ♀♀, 1 juv.; 3. Sta. E556 1 ♂; 4. Sta. CAL1 1 ovig. ♀.

Remarks. In all these specimens the dorsal carination of pleon segments 1–3 is obsolete, the basal articles of peraeopods 5–7 are broad, the eyes dark and distinct, and the spine at the palmar angle of gnathopod 2

is short. They thus agree in all particulars with the specimens reported from Signy Island recently (Thurston, 1972*b*), as opposed to the material from deeper water reported by Barnard (1932). As in the Signy Island material, the peduncle of uropod 1 is variable both in number of spines present and their position. The colour of the specimens from sta. 6176 was chestnut-brown with two longitudinal whitish bands dorsolaterally, and that from sta. 6014 reddish brown.

The depth range given for this species at the South Sandwich Islands by Thurston (1972*b*) is erroneous and should be 55–91 m. (see p. 12).

Family Haustoriidae

Barnard, 1969*b*, p. 248–52 (key to genera).

Genus *Cardenio* Stebbing

Stebbing, 1888, p. 806.
Barnard, 1969*b*, p. 256.

Cardenio paurodactylus Stebbing

Cardenio paurodactylus Stebbing, 1888, p. 806–10, pl. 53; Della Valle, 1893, p. 749–50, pl. 60, figs. 20 and 21; Stebbing, 1906, p. 126; Schellenberg, 1926*a*, p. 195; Barnard, 1932, p. 91, fig. 43; Stephensen, 1947, p. 37.

Occurrence

1. Sta. AGB9 2 ♀♀ 8–11 mm.

Remarks. Like the large female obtained by the *Discovery* in the South Orkney Islands, these specimens agree closely with the *Challenger* material except that the flagella of the second antennae have more articles, ten in the 11 mm. specimen and eight in the smaller one.

Very few specimens of this species have been reported in the literature; probably less than 40 in all. In view of the apparent rarity of *C. paurodactylus*, it is of interest to note that at *Discovery* sta. 457 worked off Bouvetøya on 19 October 1930 in a depth of 40–41 m., a 10 min. haul with an N100 net modified as an epibenthic sampler produced about 30,000 individuals (unpublished data of M. H. Thurston).

Distribution. South Orkney Islands (Normanna Strait) 24–36 m.; South Sandwich Islands (Visokoi Island) 55–91 m.;* South Georgia (Cumberland Bay) 39 m.; Bouvetøya 0–70 m.; Iles Kerguelen (Betsy Cove) littoral.

Family Isaeidae

Genus *Gammaropsis* Liljeborg

Barnard, 1962*a*, p. 13–14 (as *Eurystheus*), 1969*b*, p. 271.
Thurston, 1972*b*, p. 91.

Thurston (1972*b*) has modified the definition of the genus *Gammaropsis* given by Barnard (1962*a*) to isaeid amphipods with uropod 3 biramous, the rami sub-equal, usually longer or sub-equal to peduncle; article 3 of antenna 1 as long as or longer than article 3; the accessory flagellum composed of 3 or more articles, gnathopod 2 of male with carpus sub-equal to or shorter than propod.

Gammaropsis, as defined, contains 53 species. Of the species listed by Barnard (1958) under *Eurystheus*, five, *Eurystheus ctenurus* Schellenberg, *E. georgianus* Schellenberg, *E. kergueleni* Schellenberg, *E. longicornis* Walker and *E. palmatus* (Stebbing and Robertson) have been transferred to *Megamphopus* on account of the condition of the accessory flagellum. *E. dentatus* Holmes, 1908, a homynym of *E. dentatus* Chevreux, 1900, was given the name *E. alaskensis* by Stebbing (1910) but it reverts to the original species name due to transference to *Protomedia* by Barnard (1969*b*). *Audulla chelifera* Chevreux was included in *Eurystheus* (see Barnard, 1965, p. 533) and is treated as a subgenus of *Gammaropsis* by Barnard (1969*b*). The transfer of *Pseudeurystheus sublitoralis* to *Gammaropsis* (Barnard, 1962*a*, 1969*b*) is not accepted (Thurston, 1972*b*).

The following ten species have been described since the compilation of Barnard's (1958) list:

G. japonicus (Nagata, 1961).
G. utinomi (Nagata, 1961).
G. mamolus (Barnard, 1962) (was *Megamphopus*, see Barnard, 1969*a*).
G. longicanthus (A. and E. Mateus, 1966).

*See p. 12.

G. tonichi (Barnard, 1969*a*).
G. alamoana Barnard, 1970.
G. haleiwa Barnard, 1970.
G. kaumaka Barnard, 1970.
G. pali Barnard, 1970.
G. pokipoki Barnard, 1970.

An eleventh species is described here. *Eurystheus ventosa* Barnard, 1962, has since been transferred to *Ventojassa* in the Ischyroceridae (Barnard, 1970).

The descriptions of many older species of *Gammaropsis* are inadequate and these species require re-examination in the light of the findings of Barnard (1970). The following key should be used with caution and in conjunction with the original descriptions. Subsequent descriptions should be examined critically due to subtle inter-specific differences within the genus.

E. persetosus Chilton is omitted from the key as the male is unknown, and *E. scissimanus* Barnard because the description is inadequate. *E. angolensis* Schellenberg and *E. togoensis* Schellenberg are assumed to lack dentation on the urosome.

KEY TO ADULT MALES OF SPECIES OF *Gammaropsis*

1.	Gnathopod 2 chelate	2
	Gnathopod 2 not chelate	4
2.	Flagellum of antenna 2 with articles swollen	***chelifera*** (Chevreux)
	Flagellum of antenna 2 with articles not swollen	3
3.	Telson deeply emarginate	***lina*** (Kunkel)
	Telson not deeply emarginate	***semichelatus*** (Barnard)
4.	Gnathopod 2 coxa strongly lobate posteriorly	***mamolus*** (Barnard)
	Gnathopod 2 coxa not strongly lobate posteriorly	5
5.	Gnathopod 2 propod with large tooth (at least 33 per cent the length of the propod) on posterior margin	6
	Gnathopod 2 propod without such a tooth	7
6.	Gnathopod 2 propod with tooth on posterior margin arising from the base of the article; strong tooth near hinge of dactyl	***digitatus*** (Schellenberg)
	Gnathopod 2 propod with tooth on posterior margin arising at 33 per cent of that length of the propod from the proximal end; no tooth near dactyl hinge	***dentifer*** (Haswell)
7.	Gnathopod 2 propod without tooth on palm or at palmar angle	8
	Gnathopod 2 propod with tooth at palmar angle or on palm or both	12
8.	Gnathopod 2 dactyl closes normally against palm	9
	Gnathopod 2 dactyl closes against medial surface of propod (cf. *Melita palmata*)	11
9.	Gnathopod 2 propod three times longer than carpus	***kaumaka*** Barnard
	Gnathopod 2 propod less than twice as long as carpus	10
10.	Gnathopod 2 propod with stout sub-palmar spine	***haleiwa*** Barnard
	Gnathopod 2 propod lacking sub-palmar spine	***utinomi*** (Nagata)
11.	Gnathopod 2 propod less than twice as long as carpus	***longimanus*** (Chilton)
	Gnathopod 2 propod greater than four times as long as the carpus	***palmoides*** (Barnard)
12.	Urosome not dentate	13
	Urosome dentate	33
13.	Gnathopod 2 dactyl at least 70 per cent length of propod	14
	Gnathopod 2 dactyl half or less of length of propod	15
14.	Gnathopod 2 propod palm nearly transverse, half length of posterior margin	***haswelli*** (Thomson)
	Gnathopod 2 propod palm very oblique, three times length of posterior margin	***lobatus*** (Chevreux)
15.	Gnathopod 2 propod not more than 1·3 times length of carpus	16
	Gnathopod 2 propod at least 1·5 times length of carpus	20
16.	Peraeopod 5 basal narrow, length greater than 1·75 times width	17
	Peraeopod 5 basal broad, length less than 1·25 times width	19
17.	Peraeopod 7 basal margins parallel; merus expanded	***remipes*** (Barnard)
	Peraeopod 7 basal margins not parallel; merus not expanded	18

18. Epimera 3 irregularly rounded . . . . . ***pokipoki*** Barnard
    Epimera 3 with posterior-distal tooth and small excavation above . . . ***melanops*** Sars
19. Peraeopod 3 coxa strongly and acutely produced anteriorly . . ***angolensis*** (Schellenberg)
    Peraeopod 3 coxa rounded, not expanded . . . . . ***maculatus*** (Johnston)
20. Gnathopod 2 basal strongly expanded anteriorly . . . . . ***exsertipes*** Stebbing
    Gnathopod 2 basal not strongly expanded 21
21. Peraeopod 5 basal narrow, length at least twice width 22
    Peraeopod 5 basal broad, length 1·5 times width or less 24
22. Gnathopod 1 dactyl nearly as long as propod . . . . . ***purpurescens*** (Barnard)
    Gnathopod 1 dactyl much shorter than propod 23
23. Gnathopod 2 with large multidentate tooth in middle of palm . . . ***setiferus*** (Schellenberg)
    Gnathopod 2 with small triangular tooth on palm . . . . . ***pali*** Barnard
24. Gnathopod 2 propod not longer than 1·6 times length of carpus. 25
    Gnathopod 2 propod at least twice as long as carpus 26
25. Gnathopod 2 with tooth at palmar angle . . . . . ***spinosus*** (Shoemaker)
    Gnathopod 2 lacks tooth at palmar angle . . . . . ***valdiviae*** (Schellenberg)
26. Gnathopod 2 propod not longer than three times length of carpus 27
    Gnathopod 2 propod at least four times length of carpus 30
27. Peraeopod 5 coxa at least 25 per cent deeper than length of basal 28
    Peraeopod 5 coxa not deeper than length of basal 29
28. Epimera 3 broadly rounded . . . . . ***minutus*** (Chevreux)
    Epimera 3 sub-rectangular . . . . . ***monodi*** (Schellenberg)
29. Gnathopod 2 palm convex, crenelate but lacking teeth . . . . . ***afra*** Stebbing
    Gnathopod 2 palm with teeth. . . . . ***pacificus*** (Schellenberg)
30. Gnathopod 2 propod narrow, length about twice width 31
    Gnathopod 2 propod broad, length about 1·5 times width . . . . . ***atlantica*** Stebbing
31. Gnathopod 2 palm very oblique, longer than posterior margin of propod . ***togoensis*** (Schellenberg)
    Gnathopod 2 palm not very oblique, shorter than posterior margin of propod 32
32. Gnathopod 2 palm oblique with two distinct teeth . . . . . ***imminens*** (Barnard)
    Gnathopod 2 palm transverse with an excavation separating it from tooth at palmar angle ***longicanthus*** (A. and E. Mateus)
33. Urosome segment 1 with median tooth 34
    Urosome segment 1 without median tooth 41
34. Urosome segment 1 with three teeth and segment 2 with two teeth 35
    Urosome segments with different complement of teeth 40
35. Epimera 3 with deep sinus above tooth at posterior distal angle; coxa 1 dentate along whole ventral margin . . . . . ***dentata*** Chevreux
    These characters not combined 36
36. Peraeopod 7 basal massively serrate anteriorly . . . . . ***lophomeria*** (Barnard)
    Peraeopod 7 basal not massively serrate anteriorly 37
37. Peraeopod 7 not shorter than peraeopod 6 38
    Peraeopod 6 noticeably longer and stouter than peraeopod 7 39
38. Gnathopod 2 propod, palm convex; propod less than 2·5 times length of carpus ***abyssalis*** (Stephensen)
    Gnathopod 2 propod, palm sinuous with median emargination; propod about seven times length of carpus. . . . . ***semidentatus*** (Barnard)
39. Peraeopod 5 basal, posterior margin massively emarginate; posterior margin of basals of peraeopods 5–7 strongly serrate . . . . . ***holmesi*** Stebbing
    Peraeopod 5 basal, posterior margin not emarginate; basals of peraeopods 5–7 not strongly serrate . . . . . ***thomsoni*** (Stebbing)
40. Urosome segments 1 and 2 each with one tooth . . . . . ***anomalus*** (Chevreux)
    Urosome segment 1 with three teeth, segment 2 without teeth . . . ***crassipes*** (Haswell)
41. Urosome segments 1 and 2 each with two teeth 42
    Urosome segments 1 and 2 with a different complement of teeth 55

42. Gnathopod 2 propod less than 1·25 times length of carpus 43
Gnathopod 2 propod at least 1·6 times length of carpus 45
43. Gnathopod 2 propod without a defining tooth at palmar angle . . . . ***longicarpus*** (Reid)
Gnathopod 2 propod with defining tooth at palmar angle 44
44. Peraeopod 5 merus and carpus expanded . . . . . ***gurvitzi*** (Bulycheva)
Peraeopod 5 merus only expanded . . . . . ***japonicus*** (Nagata)
45. Peraeopod 6 merus expanded 46
Peraeopod 6 merus not expanded 48
46. Peraeopod 6 carpus not expanded . . . . . ***ostroumowi*** (Sowinsky)
Peraeopod 6 carpus expanded. 47
47. Peraeopod 5 basal narrowing distally . . . . . ***anamae*** (Gurjanova)
Peraeopod 5 basal very broadly expanded . . . . . ***sexdentata*** (Stephensen)
48. Gnathopod 2 propod without palmar teeth . . . . . ***bennetti*** **sp. nov.**
Gnathopod 2 propod palm with teeth 49
49. Gnathopod 2 propod with a tooth at hinge of dactyl; peraeopod 7 coxa expanded ***thompsoni*** (Walker)
Gnathopod 2 propod without such a tooth; peraeopod 7 coxa not expanded . . . 50
50. Gnathopod 2 propod about 1·7 times length of carpus . . . . . ***chiltoni*** (Thomson)
Gnathopod 2 propod at least 2·5 times length of carpus 51
51. Gnathopod 2 propod narrow, length twice width . . . . . ***hirsutimanus*** (Reid)
Gnathopod 2 propod broad, length not greater than 1·5 times width 52
52. Peraeopod 7 basal broad, length about 1·5 times width 53
Peraeopod 7 basal narrow, length at least twice width 54
53. Peraeopod 6 basal broad, convex posteriorly; peraeopod 7 coxa small. . ***serratus*** (Schellenberg)
Peraeopod 6 basal narrow, concave posteriorly; peraeopod 7 coxa enlarged . . ***tonichi*** Barnard
54. Gnathopod 2 propod, tooth at palmar angle broad and bluntly rounded, separated from distal palmar tooth by a barely concave edge . . . . . ***serricrus*** (Barnard)
Gnathopod 2 propod, tooth at palmar angle narrow and pointed, separated from distal palmar tooth by a deep notch . . . . . ***triodon*** (Schellenberg)
55. Gnathopod 2 propod twice as long as carpus . . . . . ***averus*** (Reid)
Gnathopod 2 propod not longer than 1·5 times length of carpus. 56
56. Peraeopod 7 coxa expanded and produced, larger than coxa of peraeopod 6 . ***alamoana*** Barnard
Peraeopod 7 coxa not expanded or produced 57
57. Peraeopod 5 basal very slender, length more than three times width; peraeopod 7 basal broadly expanded into a posteriorly directed lobe, anterior margin straight proximally and convex distally . . . . . ***dimorphus*** (Barnard)
Peraeopod 5 basal not very slender, length about twice width; peraeopod 7 basal not broadly expanded, anterior margin gently convex . . . . . ***longitarsus*** (Schellenberg)

Gammaropsis bennetti sp. nov.
Figs. 13 and 14

The holotype is in the collection of the British Museum (Nat. Hist.), Reg. No. 1972:406:1.

Type locality. Deception Island, South Shetland Islands. From stomach of *Notothenia*, January 1918. Collected by A. G. Bennett.

Occurrence

1. Sta. AGB3 1 ♂ 12 mm. **Holotype.**

Description. Body rather slender. *Headlobes* strongly produced, acute. *Eyes* oval, situated at base of head lobes, dark reddish brown in spirit. *Epistome* produced as a long, sharp blade-like tooth. *Coxae*, not as deep as the corresponding segment, third and fourth just deeper than second and fifth. *Epimera*, third broadly rounded with small notch posterior-distally. *Urosome*, segments 1 and 2 each with two dorso-lateral teeth.

Antenna 1, as long as head and first six peraeon segments combined; peduncle article 2 the longest, article 3 longer than article 1; flagellum of 17 articles, accessory flagellum of six articles. *Antenna 2*, sub-

equal in length to antenna 1, peduncle articles 4 and 5 sub-equal; flagellum of 14 articles. *Upper lip* not emarginate. *Mandible*, incisor process with five teeth; lacina mobilis of left mandible stout, with four teeth, of right mandible more slender and with thee teeth; palp stout, setose. *Maxilla 1*, inner plate triangular with single apical seta; outer plate rather broad, transversely truncate, with ten apical spine teeth; palp, second article rather long with six apical spine teeth and 22–23 stout setae sub-apically on posterior surface. *Maxilla 2*, inner plate moderately broad, rounded apex and distal part of inner margin setose, diagonal row of setae on anterior surface; outer plate a little longer and broader than inner, apex roundly truncate, with stout simple and pectinate setae. *Maxilliped*, inner plate truncate, spine teeth and setae across apex and on inner margin; outer plate reaching beyond middle of second palp article; palp slender, article 2 long, article 4 short with long terminal unguis.

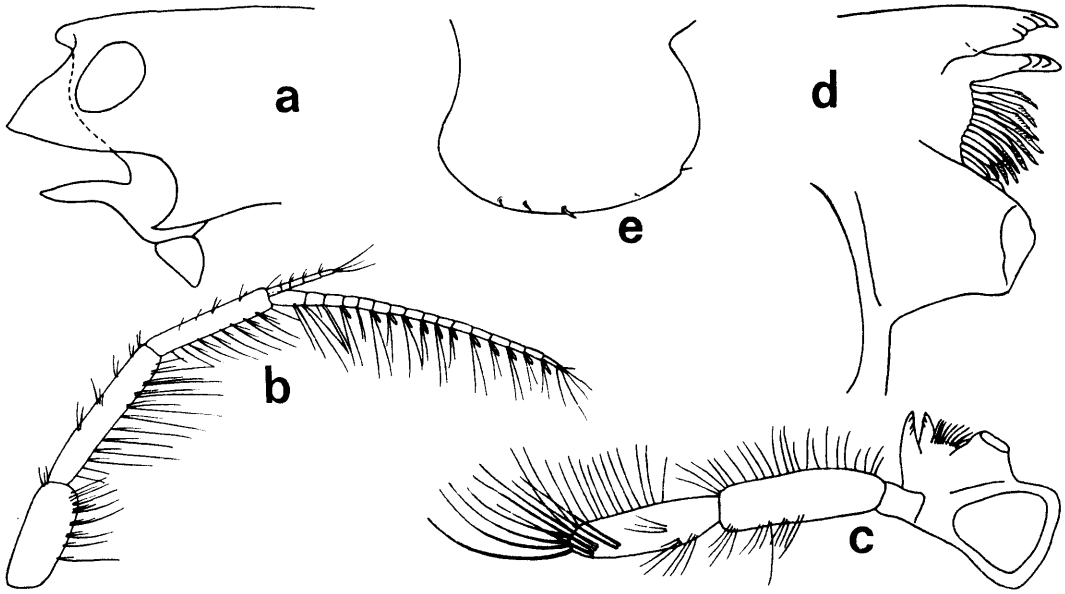

FIGURE 13

Gammaropsis bennetti sp. nov., holotype, 12 mm. ♂, sta. AGB3. *a*, head; *b*, antenna 1; *c* and *d*, left mandible; *e*, epimeron 3.

Gnathopod 1, coxa rounded, hardly produced; carpus about 1·4 times as long as propod; propod, palm not defined; dactyl serrate posteriorly. *Gnathopod 2*, coxa rounded below; basal channelled anteriorly but not distally produced; propod 1·7 times length of carpus, palmar angle marked by small tooth, no teeth on palm; dactyl as long as palm. *Peraeopods 3 and 4*, coxae rounded, not very deep. *Peraeopod 5*, short sub-equal in length to peraeopods 3 and 4; basal expanded. *Peraeopod 6*, much longer than peraeopod 5, basal expanded, merus and carpus not expanded. *Peraeopod 7*, longer than peraeopod 6; basal expanded, other articles not expanded.

Uropods strongly spinose; third rather short, sub-equal rami about as long as peduncle. *Telson* pentagonal, apex rounded, lateral angles sharply upturned, each with stout sub-marginal spine.

The name *G. bennetti* recognizes A. G. Bennett who made extensive biological collections during visits to South Georgia, the South Orkney Islands and the South Shetland Islands during the year 1913–22.

Remarks. The relations of *G. bennetti* to other species of the genus can be seen from the accompanying key. The sub-chelate gnathopod 2 with a tooth at the palmar angle but no large tooth on the posterior margin, urosome segments 1 and 2 each with a single pair of dorso-lateral teeth but no median tooth, gnathopod 2 propod:carpus ratio of 1·7:1 and unexpanded merus of peraeopod 6 distinguish this species from all except *G. chiltoni*, *G. hirsutimanus*, *G. serratus*, *G. serircrus*, *G. thompsoni*, *G. tonichi* and *G. triodon*. *G. bennetti* is the only species in this group which lacks a palmar spine.

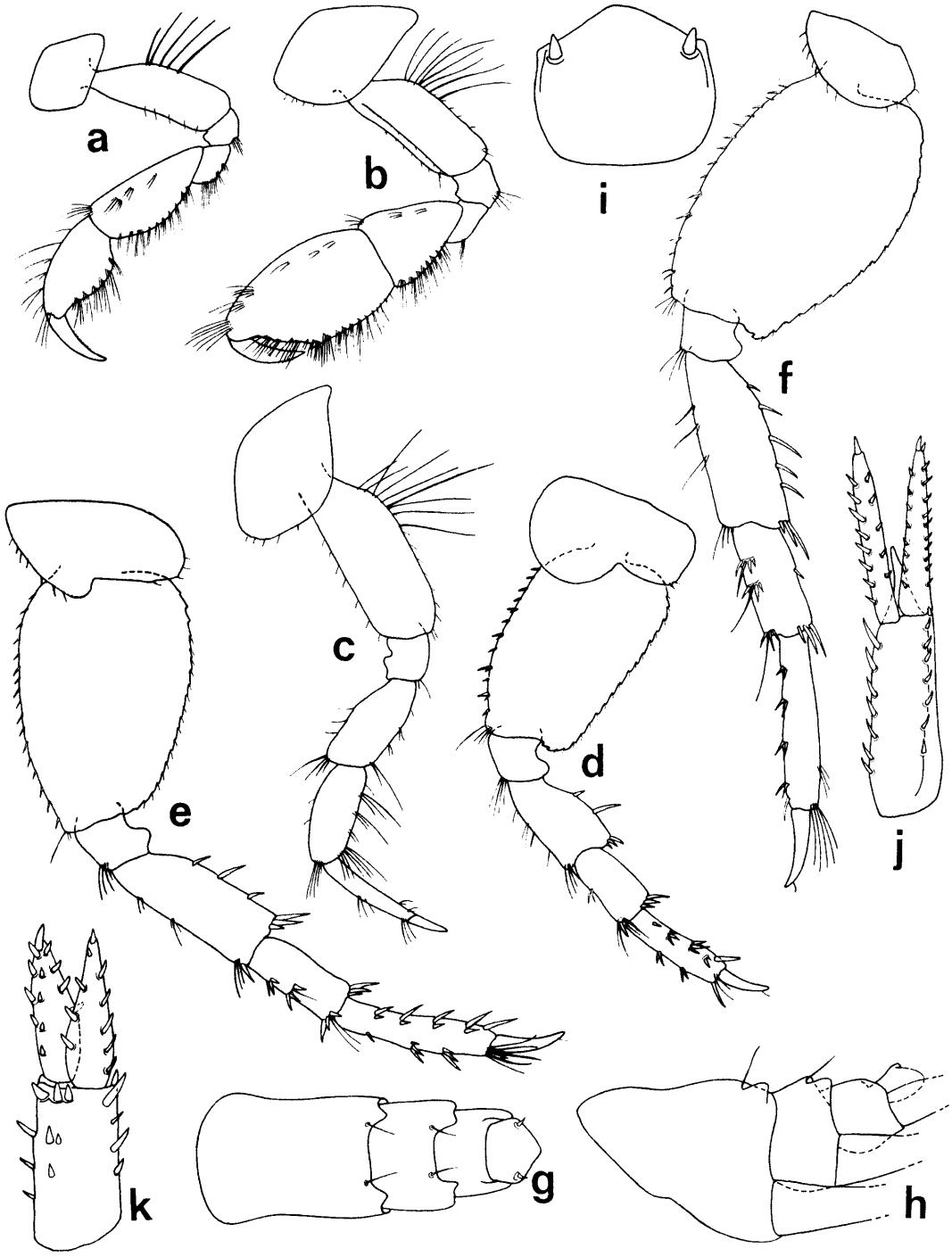

FIGURE 14

Gammaropsis bennetti sp. nov., holotype, 12 mm. ♂, sta. AGB3. *a* and *b*, gnathopods 1 and 2; *c–f*, peraeopods 3, 5–7; *g* and *h*, urosome; *i*, telson; *j* and *k*, uropods 1 and 3.

FAMILY ISCHYROCERIDAE

Genus *Jassa* Leach

Jassa falcata (Montagu)

Jassa falcata Bellan-Santini, 1972*a*, p. 191, 1972*b*, p. 689; Thurston, 1972*b*, p. 100–02 (synonymy and distribution).

Occurrence. (♂♂ 3–10 mm., ♀♀ 7–8 mm., juv. 1·5–4 mm.).

1. Sta. 1259 2 ♀♀ (1 ovig.); 2. Sta. 1343 1 ♂, 1 ♀, 1 juv.; 3. Sta. 1357 1 ♂, 1 ♀; 4. Sta. 1379 1 ♂; 5. Sta. 1411 1 ♂; 6. Sta. A334 1 ♂, 1 juv.; 7. Sta. A381 1 juv.; 8. Sta. 6090 2 ovig. ♀♀; 9. Sta. 6179 3 ♂♂, 1 ♀; 10. Sta. 6217 2 juv.; 11. Sta. RNHS7 3 ♂♂; 12. Sta. AGB3 1 ♂.

Remarks. These specimens agree with the description and figures of *Jassa wandeli* Chevreux, 1906, and the material listed under *Jassa falcata* form 1 by Thurston (1972*b*).

Jassa ingens (Pfeffer)

Jassa ingens Thurston, 1972*b*, p. 99–100 (synonymy and distribution).

Occurrence. (♂ 25 mm., ♀♀ 16–22 mm.).

1. Sta. H124 1 ♂; 2. Sta. CAL2 1 ovig. ♀; 3. Sta. AGB11 2 ♀♀.

Remarks. Specimens from South Georgia (sta. AGB11) confirm Pfeffer's original description from that locality. The male from sta. H124 was red in life.

Family Liljeborgiidae

Barnard, 1959, p. 14–15, 1962*b*, p. 86, 1969*b*, p. 291–93 (key to genera).

Genus *Liljeborgia* Bate

Bate, 1862, p. 118.
Stebbing, 1906, p. 230.
Barnard, 1962*b*, p. 86, 1969*b*, p. 294.

Liljeborgia eurycradus sp. nov.
Figs. 15 and 16

Holotype and paratype are in the collections of the British Museum (Nat. Hist.), Reg. No. 1972:167:1 and 1972:168:1, respectively.

Type locality. Sta. AGB11. South Georgia, no other data. Collected by A. G. Bennett.

Locality of paratype. Sta. AGB7. Deception Island, South Shetland Islands. From stomach of *Notothenia*, caught at 5–7 fathoms (9–13 m.). Collected by A. G. Bennett, 22 January 1918.

Occurrence

1. Sta. AGB7 1 ♂ 26 mm., **paratype**; 2. Sta. AGB11 1 ♂ 28 mm., **holotype**.

Description. Body strongly compressed. *Rostrum* short, slender, not extending beyond head lobes. *Head lobes* produced obliquely forward, broadly rounded. *Eyes* reniform, lacking pigment in spirit. *Epistome* convexly produced to a rounded apex. *Pleon*, segments 1 and 2 each with a dorsal median tooth flanked on either side by a much smaller tooth. *Urosome*, segment 1 slightly carinate with a moderately large acute tooth posteriorly; segment 2 with low carina ending in posteriorly directed tooth; segment 3, pair of dorsal spines absent, possibly due to damage, posterior dorsal angle of lateral lamella rounded, without tooth.

Antenna 1, peduncle article 3 very short; flagellum 1·5 times length of peduncle, 35 articles; accessory flagellum 18 articles, sub-equal to peduncle. *Antenna 2*, much longer than antenna 1, peduncle articles 4 and 5 sub-equal, flagellum much shorter than peduncle, first article equal in length to articles 2–4 combined. *Upper lip*, broad, anterior margin with two very small indentations. *Mandible*, cutting edge dentate, accessory lamellae on each mandible, spine row prominent, molar obsolete; palp articles not very different in length. *Maxilla 1*, inner plate with one long and two short apical setae; outer plate with ten slender, curved spine teeth; palp large. *Maxilla 2*, inner plate wider but a little shorter than outer.

Gnathopod 1, coxa strongly expanded distally; carpal process reaching almost to palmar angle; propod sub-oval, palm convex, spinose and setose; dactyl with five teeth on inner margin. *Gnathopod 2*, larger than gnathopod 1; coxa narrowing distally; carpal projection reaching almost to palmar angle; propod large, palm sinuous, setose, with large triangular tooth near dactyl insertion; dactyl strongly curved, 14 teeth on proximal half of inner margin. *Peraeopods 3 and 4*, slender. *Peraeopods 5–7*, basals expanded, spinose anteriorly, serrate posteriorly; dactyls not lanceolate, ending in stout curved spine with smaller spine just proximal to this on the inner margin.

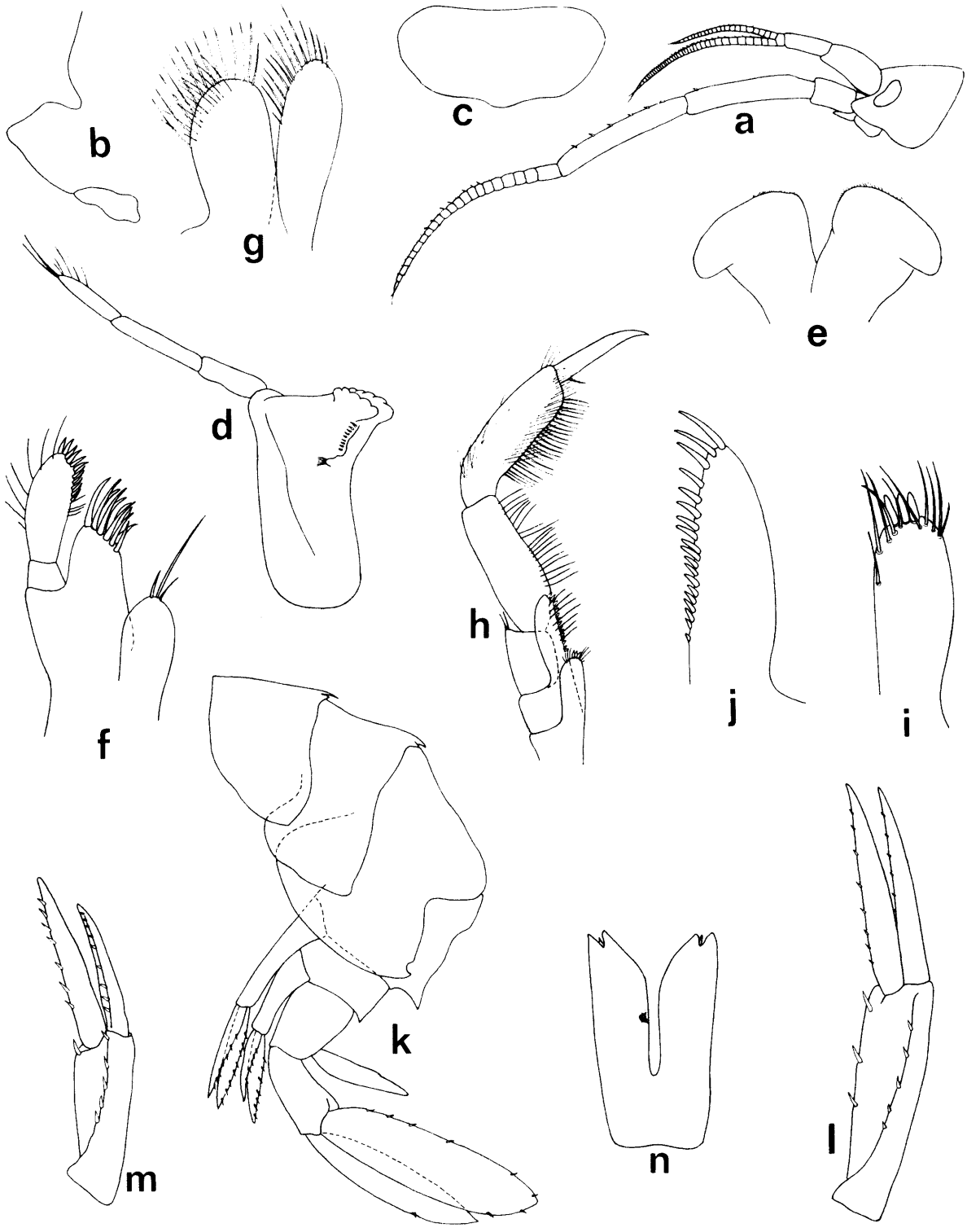

FIGURE 15

Liljeborgia eurycradus sp. nov., holotype, 28 mm. ♂, sta. AGB11. *a*, head and antennae; *b*, epistome; *c*, upper lip; *d*, mandible; *e*, lower lip; *f* and *g*, maxillae 1 and 2; *h*, maxilliped; *i*, maxilliped, inner plate; *j*, maxilliped, outer plate; *k*, pleon and urosome; *l* and *m*, uropods 1 and 2; *n*, telson.

Uropod 3, peduncles short, rami long and broadly expanded, apically acute. *Telson*, cleft for 65 per cent of length, lobes slightly divergent, apical teeth sub-equal, apical spine short.

Remarks. This species, while basically very similar to the other species of the genus, can be distinguished from them by the elongate, broadly expanded rami of uropod 3, a character possibly of generic value. The peculiar structure of the dactyls of the last three pairs of peraeopods is shared only with *L. longicornis* (Schellenberg). Additional characters separating *L. eurycradus* from Schellenberg's species are the presence

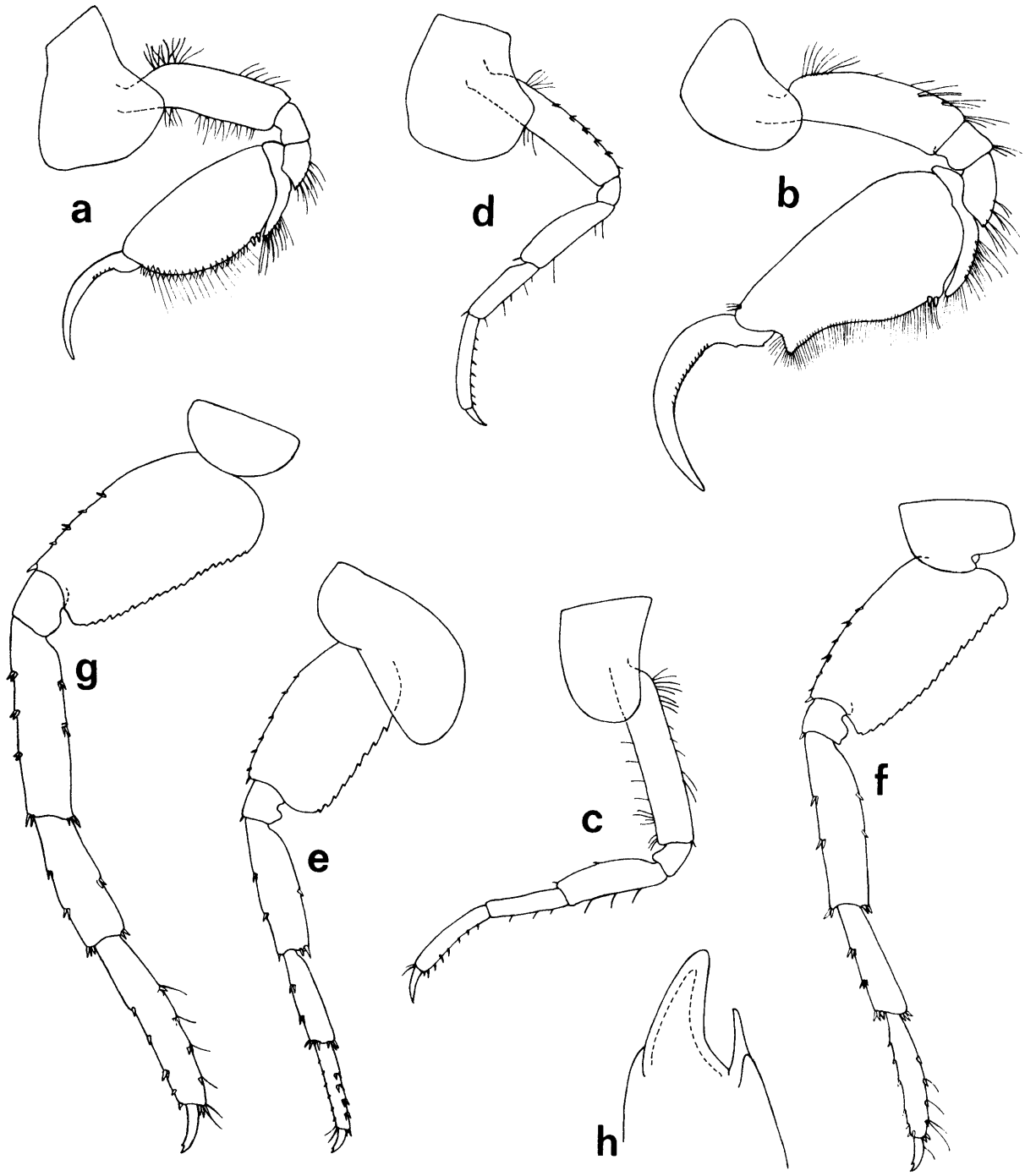

FIGURE 16

Liljeborgia eurycradus sp. nov., holotype, 28 mm. ♂, sta. AGB11. *a* and *b*, gnathopods 1 and 2; *c–g*, peraeopods 3–7; *h*, peraeopod 7, dactyl.

of eyes, more strongly produced epistome, the shorter length and different proportions of peduncle to flagellum of antenna 1, fewer teeth on the dactyl of the gnathopods, and the different form of the telson.

The name *L. eurycradus* is given in allusion to the distinctive broad rami of the third uropods.

Family Lysianassidae

Genus *Cheirimedon* Stebbing

Cheirimedon femoratus (Pfeffer)

Cheirimedon femoratus Bellan-Santini, 1972*a*, p. 193, 1972*b*, p. 689, figs. 4 and 5; Thurston, 1972*b*, p. 14–16, fig. 6a–c (synonymy and distribution); Bregazzi, 1972*a*, p. 5–14, 1972*b*, p. 21–31, 1973*a*, p. 69–70, 1973*b*, p. 18–31.

Occurrence. (♂♂ 8–12 mm., ♀♀ 8–15 mm., juvs. 2–7 mm.).

1. Hole No. 1 ca. 180 specimens (♂♂, ♀♀ and juv.); 2. Hole No. 2 ca. 350 specimens (♂♂, ovig. ♀♀, ♀♀ and juv.); 3. Sta. 1285 ca. 25,000 specimens (♂♂, ovig. ♀♀, ♀♀ and juv.); 4. Sta. A134 3 ♂♂, 5 ♀♀; 5. Sta. A382 2 ♂♂; 6. Sta. A383 8 ♂♂, 3 ♀♀; 1 juv.; 7. Sta. A384 1 ♂; 8. Sta. LOC1 3 ♂♂, 12 ♀♀, 18 juv.; 9. Sta. LOC2 1 ♀; 10. Sta. 6023 14 ♂♂, 3 ♀♀, 5 juv.; 11. Sta. 6159 1 ♀; 12. Sta. 6300 ca. 120 specimens (♂♂, ♀♀ and juv.); 13. Sta. E556 2 ♂♂; 14. Sta. AGB2 1 ♂, 37 ♀♀, 1 juv.; 15. Sta. AGB6 2 ♂♂, 1 ♀; 16. Sta. AGB9 3 ♂♂, 2 ♀♀, 2 juv.

Remarks. This species is common on sediment bottoms in the shallow sub-littoral throughout the Antarctic Peninsula and Scotia arc. Detailed information on the biology, ecology, embryology and behaviour have been given by Bregazzi (1972*a*, *b*, 1973*a*, *b*).

Nearly all (99·8 per cent) of the specimens in this collection were caught as a result of an attraction to bait, often viscera discarded at blow holes after sealing operations, or on seal skulls immersed in the sea for cleaning. This very high percentage suggests that the species is an obligative necrophage but the finding of considerable amounts of plant material during an examination of gut contents of specimens from Signy Island (Bregazzi, 1972*a*) showed that *C. femoratus* can be regarded as no more than a facultative necrophage.

The reported depth range given for the South Sandwich Islands by Thurston (1972*b*) is incorrect and should be 55–91 m. (see p. 12).

Cheirimedon fougneri Walker
Figs. 17, 18 and 19a–e

Cheirimedon fougneri Walker, 1903, p. 41–42, pl. 1, figs. 1–6; Nicholls, 1938, p. 23–24; Shoemaker, 1945, p. 289; Bellan-Santini, 1972*b*, p. 689 and 691, figs. 6 and 7.
not Walker, 1907, p. 9 (=*Cheirimedon similis* sp. nov.); Schellenberg, 1926*b*, p. 263–64, fig. 13 (=*C. similis* sp. nov.); Barnard, 1930, p. 326 (=*C. similis* sp. nov.).

Material examined

1. 9 ♂♂, 16 ♀♀ from the Ross Ice Shelf collected by the *Southern Cross* Expedition (Walker, 1903). 2. 5 ♂♂, 14 ♀♀ from the Shackleton Ice Shelf collected by the Australasian Antarctic Expedition (Nicholls, 1938). 3. 6 ♂♂, 3 ovig. ♀♀, 15 ♀♀ from the Bay of Whales collected by the United States Antarctic Service Expedition (Shoemaker, 1945).

The opportunity to re-describe and figure this species is taken here in order that it may be compared in detail with the following species.

Description. This description is based on a 19 mm. long female. Quite a large species (up to 23 mm.). *Body* moderately compressed; integument not very thick. *Eye lobes* broadly but unevenly rounded. *Eyes* dark brown in spirit, reniform, a little broader below than above. *Epistome* sinuous, hardly produced. *Epimera*, second with small tooth at obtuse posterior angle; third rectangular with tooth at posterior angle.

Antenna 1, peduncle articles 2 and 3 not short, flagellum with 28 articles, accessory flagellum with six. *Antenna 2* longer than 1, flagellum with 33 articles. *Mandible*, palp attached just proximal to molar. *Maxilla 1*, outer plate with 11 spine teeth, palp with five. *Maxilla 2*, inner plate with about ten spine setae on inner margin distal to single strong plumose seta. *Maxilliped*, outer plate with sub-marginal setae in pairs.

Gnathopod 1, coxa broad, wider distally than proximally; basal short and broad; carpus barely 25 per cent length of propod; propod broad, nearly as long as basal, palm nearly transverse, sinuous, with many small irregular teeth. *Gnathopod 2*, coxa parallel-sided, broadly rounded distally. *Peraeopod 3*, coxa, length slightly greater than twice the width, lower margin rounded but truncate. *Peraeopod 4*, coxa,

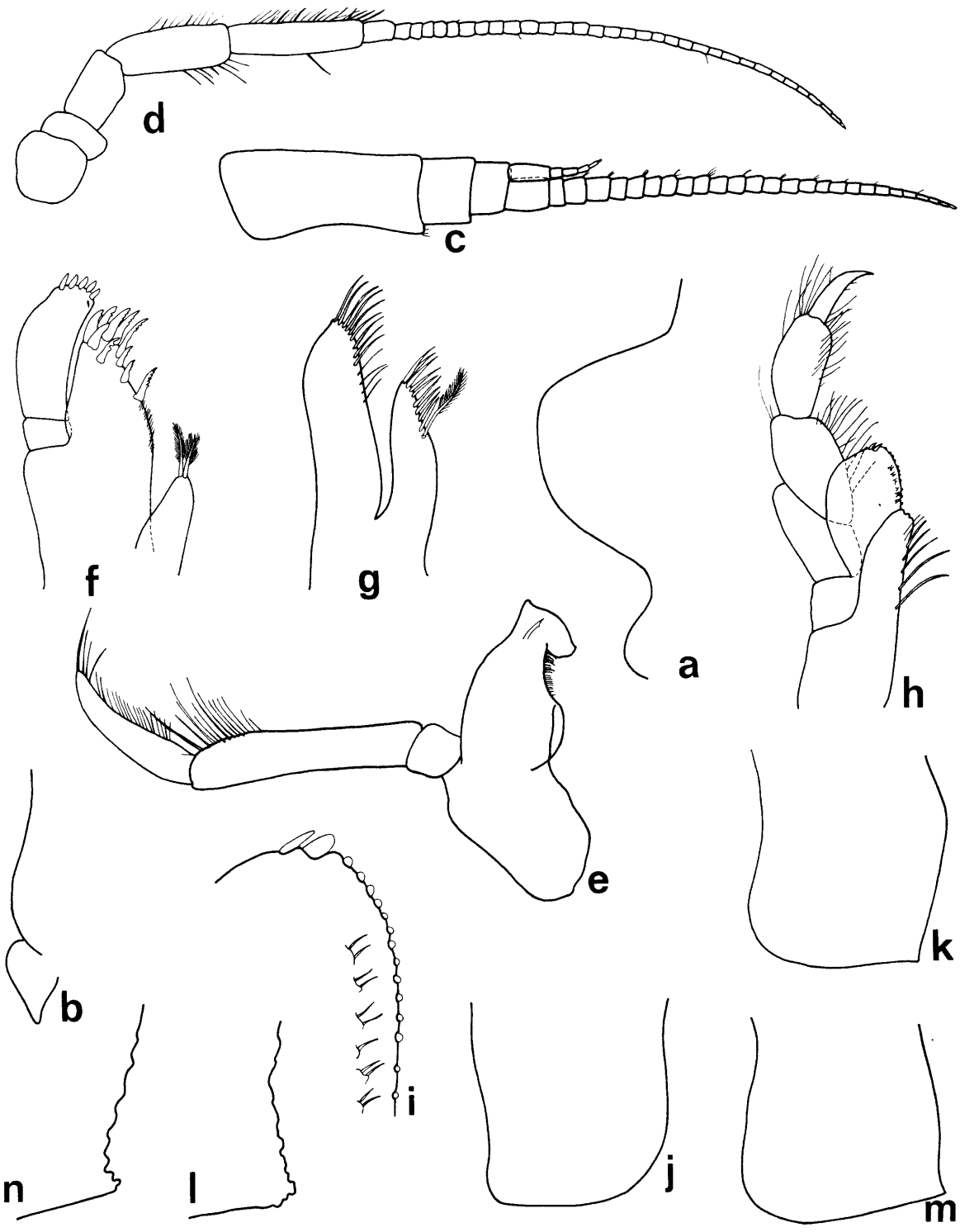

FIGURE 17

Cheirimedon fougneri Walker, lectotype, 19 mm. ♀, Ross Sea, lat. 78°35′S., 15 February 1900. *a*, head lobe; *b*, epistome; *c* and *d*, antennae 1 and 2; *e*, mandible; *f* and *g*, maxillae 1 and 2; *h*, maxilliped; *i*, maxilliped, outer plate; *j* and *k*, epimera 1 and 2; *l*, epimeron 2, posterior-distal angle; *m*, epimeron 3; *n*, epimeron 3, posterior-distal angle.

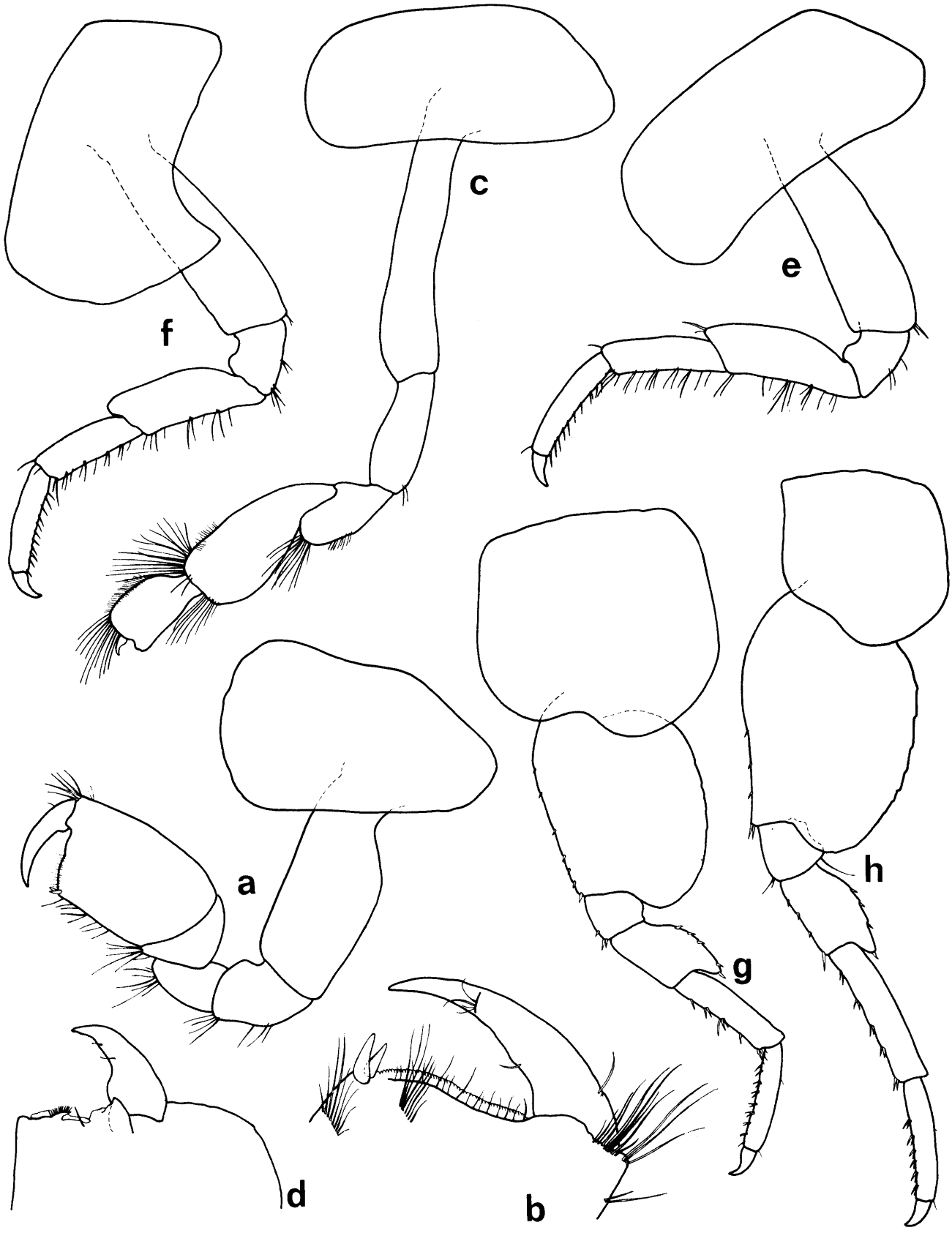

FIGURE 18

Cheirimedon fougneri Walker, lectotype, 19 mm. ♀, Ross Sea, lat. 78°35′S., 15 February 1900. *a*, gnathopod 1; *b*, gnathopod 1, palm; *c*, gnathopod 2; *d*, gnathopod 2, palm; *e–h*, peraeopods 3–6.

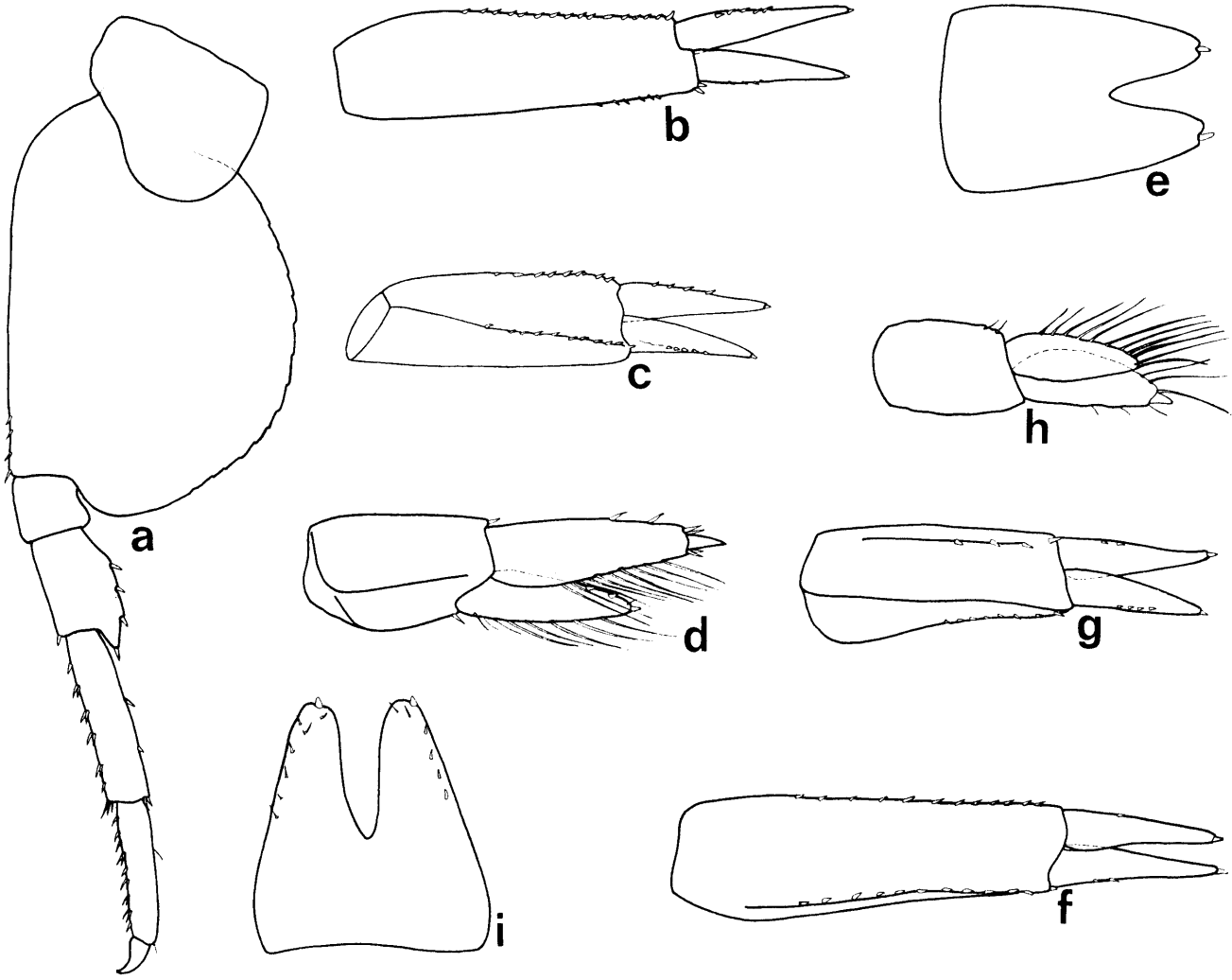

FIGURE 19

Cheirimedon fougneri Walker, lectotype, 19 mm. ♀, Ross Sea, lat. 78°35′S., 15 February 1900. *a*, peraeopod 7; *b–d*, uropods 1–3; *e*, telson. *Cheirimedon similis* sp. nov., holotype, 18 mm. ♀, sta. E1030. *f–h*, uropods 1–3; *i*, telson.

height less than 1·5 times maximum width, posterior ventral margin straight or convex, angle acute. *Peraeopod 5*, coxa a little wider than deep, posterior lobe deeper than anterior. *Peraeopod 6*, coxa as wide as deep, anterior ventral lobe almost obsolete; length of articles 5 and 6 combined greater than anterior margin of basal. *Peraeopod 7*, basal broadly expanded, maximum width at half the length; articles 5 and 6 combined nearly twice the length of 3 and 4 combined.

Uropod 2 rami not constricted or incised. *Uropod 3* projects a little beyond 1 and 2; inner ramus shorter than outer. *Telson*, length equal to 1·5 times width, cleft for 33–40 per cent of length, a single spine at the apex of each lobe.

Remarks. This species can be distinguished from all other species in the genus except *C. similis* by the characters listed under the last-named species. From *C. similis* it may be distinguished by the broader and more expanded coxae of the gnathopods and peraeopod 3 and 4, shallower coxa of peraeopod 5, broader basal of peraeopod 7, more massive propod with sinuous palm of gnathopod 1, longer antennae, longer peduncle articles 4 and 5 of antenna 2 and less deeply cleft telson.

Most of the material previously assigned to this species has been re-examined. The three lots of specimens listed above belong to *C. fougneri* as currently restricted, while collections described by Walker (1907), Schellenberg (1926*b*) and Barnard (1930) are transferred to *C. similis* sp. nov. Specimens from

Commonwealth Bay (Nicholls, 1938) and Marguerite Bay (Shoemaker, 1945) were not available for study. With reference to the Commonwealth Bay material, Nicholls stated that the propod of gnathopod 1 ". . . appears relatively rather narrower than would be expected from Walker's figure . . .". Although there is, in fact, little difference in the proportions of length to breadth in this article in the two species, the somewhat more rounded form in *C. similis* gives the impression of it being more slender than in *C. fougneri*. It is perhaps significant in relation to these specimens and to the material from Marguerite Bay that the three accepted records of *C. fougneri* are from the surface over deep water at or near the seaward edge of ice shelves. When the known abundance of *C. similis* in Marguerite Bay is also considered, there seems some likelihood that both lots of specimens belong to this species rather than *C. fougneri*.

Distribution. Davis Sea (Shackleton Ice Shelf) surface; Ross Ice Shelf, surface.

Cheirimedon similis sp. nov.
Figs. 19f–i, 20 and 21

Cheirimedon fougneri Walker, 1907, p. 9; Schellenberg, 1926*b*, p. 263–64, fig. 13; Barnard, 1930, p. 326.
? Nicholls, 1938. p. 23–24 (part); Shoemaker, 1945, p. 289 (part).

Type material has been deposited in the collections of five institutions:

British Museum (Nat. Hist.). The holotype, an 19 mm. ♀, is preserved in alcohol and on five microslides under the Reg. No. 1972:88:1 and the allotype, a 16 mm. ♂ under 1972:89:1. Paratypes from sta. E1030 (but see below) are registered 1972:90:1000; sta. E495, 1972:91:1; and sta. E1029, 1972:92:1000. Material collected by the National Antarctic Expedition is held under Reg. No. 1907:6:6:76–81, and specimens obtained by the British Antarctic (*Terra Nova*) Expedition under 1930:8:1:18–19.

British Antarctic Survey. This unit holds 14 paratype specimens from sta. E1030.

Institute of Oceanographic Sciences. Six paratypes from sta. E1030 are held at this institute.

University Zoological Museum, Copenhagen. Ten specimens from sta. E1030 have been deposited in the collection of the museum.

Institute for Special Zoology, Humbolt University, Berlin. Eleven specimens collected by the German South Polar Expedition are held in the collections of this museum under the Catalogue No. 20310.

Type locality. Stonington Island, Marguerite Bay, Graham Land. On seal viscera in hole in sea ice, 7 August 1947.

Occurrence. (♂♂ 8–16 mm., ♀♀ 9–18 mm., juvs. 6–8 mm.).

1. Sta. E1029 ca. 1,000 specimens (♂♂, ovig. ♀♀, ♀♀ and juv.); 2. Sta. E1030 ca. 1,000 specimens (♂♂, ovig. ♀♀, ♀♀ and juv.) including **holotype** and **allotype**; 3. Sta. E495 17 ♂♂.

Other material examined

1. 1 ♂, 1 ♀, 8 juvs. from McMurdo Sound collected by the National Antarctic Expedition (Walker, 1907, as *C. fougneri*). 2. 1 ♂, 1 ovig. ♀, 2 ♀♀, 7 juvs. from *Gauss* winter station collected by the German South Polar Expedition (Schellenberg, 1926*b*, as *C. fougneri*). 3. 1 ♂, 1 ♀ from McMurdo Sound collected by the British Antarctic (*Terra Nova*) Expedition (Barnard, 1930, as *C. fougneri*).

Description. A moderately large species, maximum length recorded 18 mm. *Body* moderately compressed, integument not very thick. *Eye lobes* broadly and evenly rounded. *Eyes* fairly large, reniform, sometimes slightly constricted, dark brown in alcohol. *Epistome* slightly produced, convex, separated from upper lip by shallow notch. *Epimera*, first broadly rounded at posterior angle; second obtuse; third rectangular, posterior-distal angle with or without minute tooth. *Urosome*, segment 1 transversely grooved anteriorly and with rounded boss posteriorly.

Antenna 1, peduncle not very stout; article 1 with maximum diameter proximally, tapering unevenly to cylindrical distal half; combined lengths of articles 2 and 3 about 40 per cent length of article 1; flagellum rather stout, of about 28 articles of which the first is sub-equal in length to the second and third combined; accessory flagellum of six articles, first article as long as first article of primary flagellum. *Antenna 2* a little longer than antenna 1, as long as head and first three peraeon segments combined; peduncle articles 4 and 5 sub-equal in length; flagellum of 27 articles. *Mandible* relatively slender, cutting edge somewhat convex, lacina mobilis a long curved spine-like tooth, three stout spines and a series of setae form spine row, molar ridged; palp slender, longer than body of mandible, attached proximal to molar, article 1

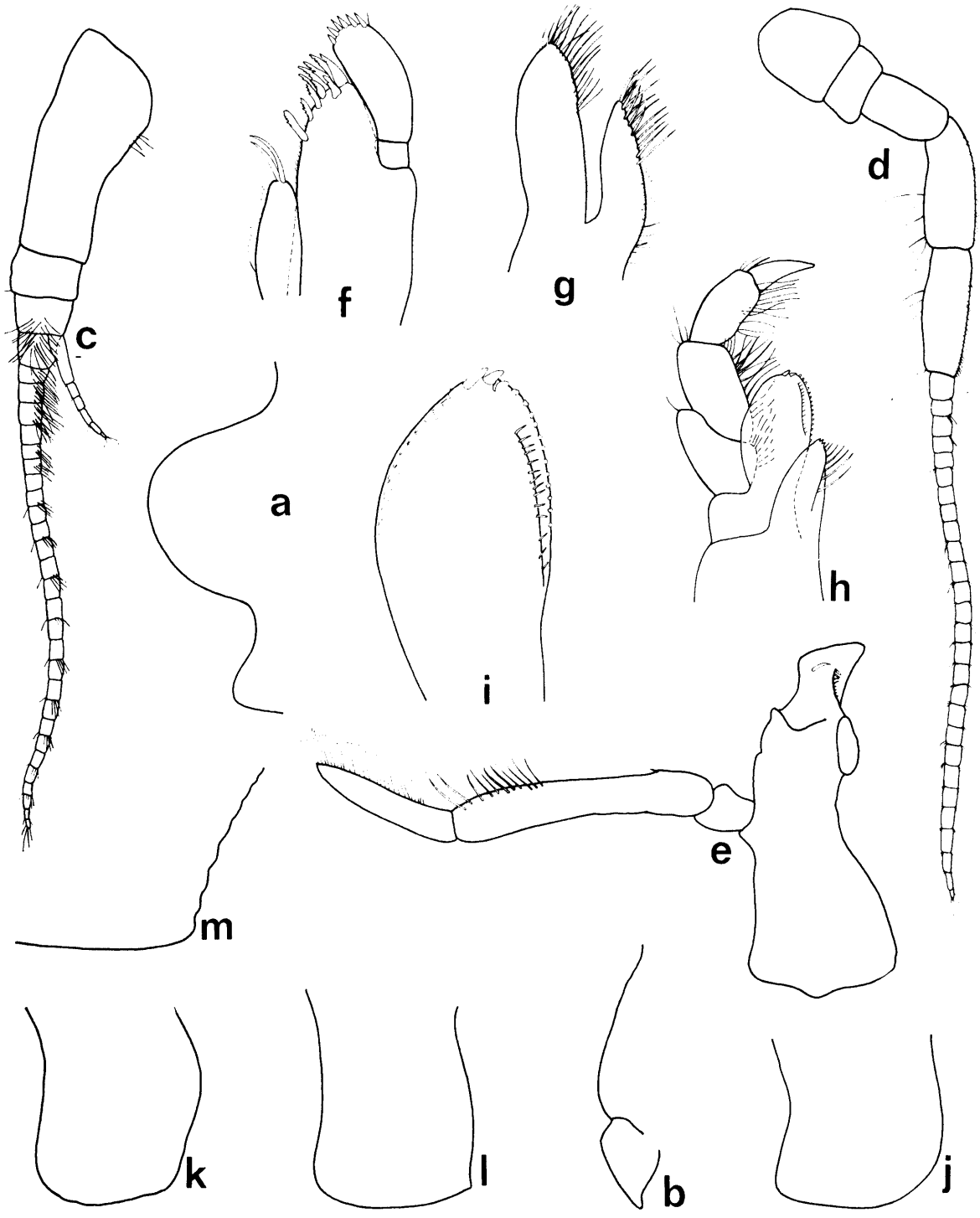

FIGURE 20

Cheirimedon similis sp. nov., holotype, 18 mm. ♀, sta. E1030. *a*, head lobe; *b*, epistome; *c* and *d*, antennae 1 and 2; *e*, mandible; *f* and *g*, maxillae 1 and 2; *h*, maxilliped; *i*, maxilliped, outer plate; *j–l*, epimera 1–3; *m*, epimeron 3, posterior-distal angle.

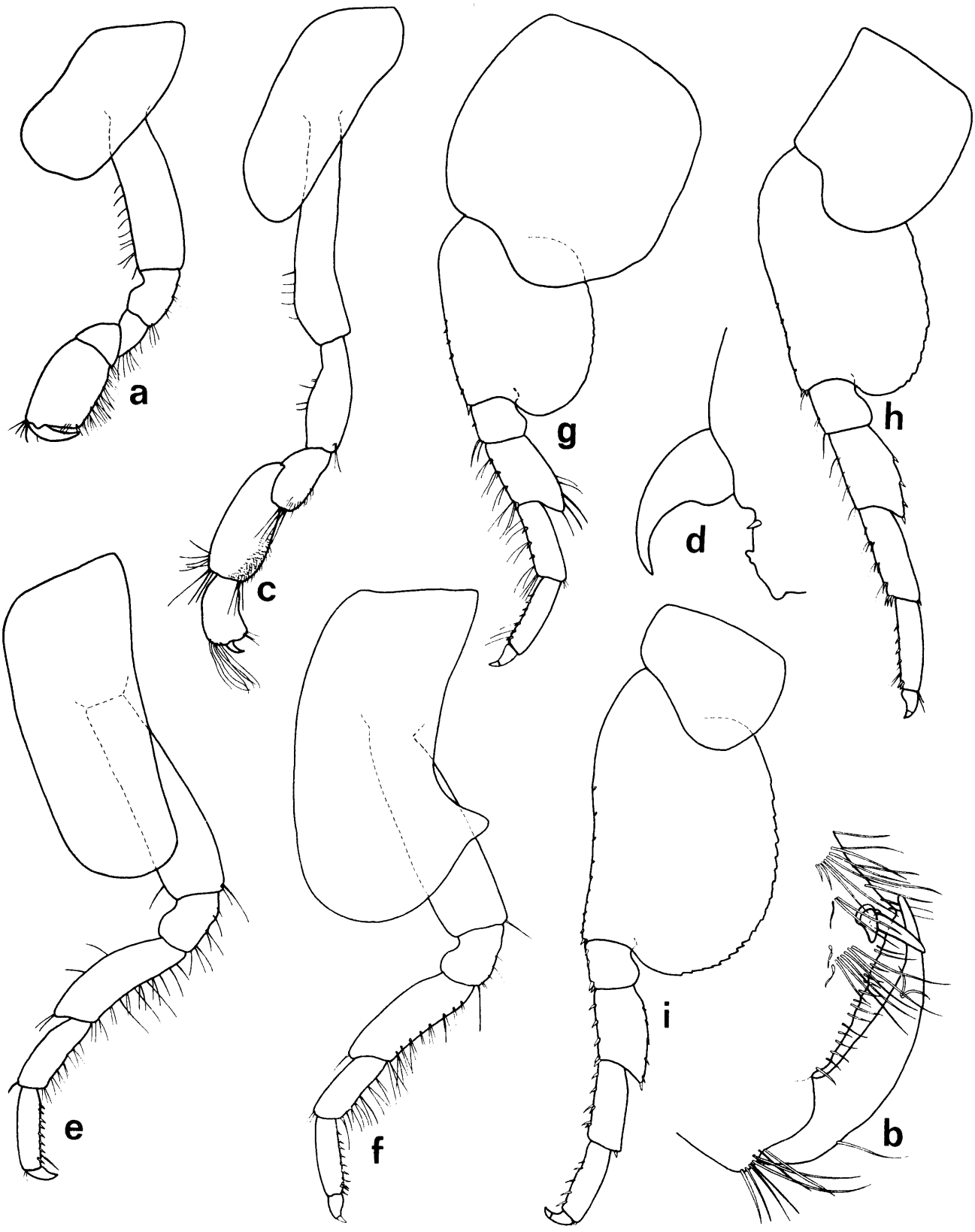

FIGURE 21

Cheirimedon similis sp. nov., holotype, 18 mm. ♀, sta. E1030. *a*, gnathopod 1; *b*, gnathopod 1, palm; *c*, gnathopod 2; *d*, gnathopod 2, palm; *e–i*, peraeopods 3–7.

short, article 3 just over half the length of article 2. *Maxilla 1*, inner plate with two stout plumose setae apically; outer plate with an apical row of seven serrate spines and a row of four more spines on the inner margin; palp with six spine teeth and a seta apically. *Maxilla 2*, inner plate shorter and narrower than outer, obliquely truncate with about 14 stout setae on distal margin; outer plate rounded distally. *Maxilliped*, inner plate apically tridentate, inner margin armed with plumose setae; outer plate with two stout spines apically and a series of small teeth on the inner margin, setae of sub-marginal row set singly; palp well developed, dactyl strong.

Gnathopod 1, coxa with anterior and posterior margins sub-parallel, the former a little concave; basal not expanded, about as long as depth of coxa; carpus short, triangular; propod quadrangular, three times length of carpus, breadth 60 per cent of length, palm nearly transverse, straight or slightly convex; dactyl curved, just longer than palm. *Gnathopod 2*, coxa rather deep, tapering towards rounded apex; propod half as long as carpus, these two articles combined just shorter than basal, palm transverse, armed with spine and bluntly bidentate tooth; dactyl strongly curved. *Peraeopod 3*, coxa tapering slightly towards broadly rounded apex; distal articles rather stout; propod with spinous posterior margin; dactyl very short. *Peraeopod 4*, coxa narrow and deep, distally rounded, emargination shallow but distinct, posterior-distal angle produced into subacute tooth; distal articles similar to those of peraeopod 3. *Peraeopod 5*, coxa a little deeper than wide; basal expanded; distal articles stout, rather short; merus expanded posteriorly and somewhat decurrent. *Peraeopod 6*, coxa deeper than wide, posterior lobe broadly rounded; basal expanded, longer than that of peraeopod 5; distal articles similar to those of peraeopod 5. *Peraeopod 7*, basal broadly expanded, serrate posteriorly; articles 3–7 combined just longer than basal.

Uropod 1, rami slender, sub-equal, less than half as long as peduncle. *Uropod 2*, about as long as peduncle of uropod 1; rami sub-equal, length 60 per cent that of peduncle. *Uropod 3*, short, rami and peduncle sub-equal in length bearing long setae on inner margin; outer ramus just longer than inner, second article short. *Telson*, length and breadth sub-equal, cleft for half length, the dehiscent lobes each with an apical spine and a dorsal sub-marginal row of small spines.

Remarks. This species is allied most closely to *C. fougneri*, from which it may be distinguished by the narrower, unexpanded coxa of gnathopod 1, the narrower, distally rounded fourth coxa, deeper fifth coxa, and shorter antennae. Differences in the shape of the head lobes, epistome, second epimera, first article of the peduncle of antenna 1, second, third, and sixth coxae, basal article of peraeopod 7, and telson appear to be constant. Further characters distinguishing the new species are the larger eyes, relatively short articles 5 and 6 of peraeopods 3–7 and equally spaced setae on the outer plate of the maxilliped.

The rounded head lobes, the relatively long distal articles of the peduncle of antenna 1 and the form of gnathopod 1 distinguish the present species from *C. latimanus* (Sars), *C. femoratus* (Pfeffer), *C. crenatipalmatus* Stebbing and *C. pectinipalma* Barnard. The number of spines on the palp of maxilla 1 and the condition of epimera 3 are additional factors separating the last three species from *C. similis*, while *C. latimanus* and *C. crenatipalmatus* also differ in the carination of the first urosome segment.

An examination of hundreds of specimens has shown that there is no overlap or intergradation in any of the characters which are used to separate *C. fougneri* and *C. similis* despite the wide geographical range of the latter. The proportions of the first, fourth and fifth coxa of the two species are compared in Table I.

Distribution. Davis Sea (*Gauss* winter station) 10–385 m.; Ross Sea (McMurdo Sound) 7–92 m.

Genus *Hippomedon* Boeck

Boeck, 1871, p. 102.
Stebbing, 1906, p. 58.
Chevreux and Fage, 1925, p. 52.
Gurjanova, 1962, p. 93–104 (key to species).
Bellan-Santini, 1965, p. 161–65.
Barnard, 1964*a*, p. 5–8 (key to species), 1969*b*, p. 345.

The description of *Hippomedon macrocephalus* Bellan-Santini, 1972, and the recognition that *Tryphosella kergueleni* (Miers) and *T. major* (Barnard) are hippomedons, proves *Hippomedon* to be a cosmopolitan genus, extending from the Arctic Ocean, through temperate and tropical seas to the shores of the Antarctic continent.

TABLE I
COMPARISON OF LENGTH–WIDTH RATIOS OF COXAE 1, 4 AND 5 IN *Cheirimedon similis* sp. nov. AND *C. fougneri* Walker

Source	*Number of specimens*	*Length/width ± standard deviations*		
		Coxa 1	*Coxa 4*	*Coxa 5*
C. similis				
This collection	25	2·173 ± 0·067	1·656 ± 0·046	1·063 ± 0·010
C. fougneri				
Southern Cross (Walker, 1903)	25	1·697 ± 0·056	1·369 ± 0·047	0·930 ± 0·038
United States Antarctic Service Expedition (Shoemaker, 1945)	24	1·675 ± 0·045	1·375 ± 0·041	0·914 ± 0·027
Australasian Antarctic Expedition (Nicholls, 1938)	14	1·689 ± 0·058	1·354 ± 0·035	0·914 ± 0·037

Hippomedon kergueleni (Miers)

Hippomedon kergueleni Gurjanova, 1962, p. 101 (in key); Barnard, 1964*a*, p. 8 (in key); Bellan-Santini, 1965, p. 161 and 163, 1972*b*, p. 691 and 693, fig. 8.
Tryphosella kergueleni Thurston, 1972*b*, p. 17–19, figs. 6e–o and 7a–u (synonymy and distribution); Bregazzi, 1972*a*, p. 15–25, 1972*b*, p. 22–30, 1973*a*, p. 63–69, 1973*b*, p. 18–31.

Occurrence. (♂♂ 8–15 mm., ♀♀ 8–16 mm., juvs. 6–9 mm.).

1. Sta. A430 2 ♂♂; 2. Sta. LOC1 1 ♂; 3. Sta. 6014 1 ♂, 1 ♀, 1 juv.; 4. Sta. 6017 4 ♂♂, 1 ovig. ♀, 1 juv.; 5. Sta. E556 1 ♀; 6. Sta. H359 2 ♂♂; 7. Sta. CAL3 4 ♂♂, 1 ovig. ♀; 8. Sta. AGB6 2 ovig. ♀♀; 9. Sta. AGB9 12 ♂♂, 12 ovig. ♀♀, 6 juvs.; 10. Sta. AGB11 1 ♂, 2 ovig. ♀♀.

Remarks. Stebbing (1888) transferred *Lysianassa kergueleni* Miers, 1875, from the genus *Anonyx* under which Miers (1879) placed his species to *Hippomedon* and subsequently (Stebbing, 1906) to *Tryphosa*. Barnard (1969*b*) has shown that the concept of *Tryphosa* held by Sars and Stebbing was erroneous, and that the first available name for this assemblage of species was *Tryphosella* Bonnier, 1893. A re-definition of this genus by Barnard utilized characters of the epistome, upper lip, mandible, coxa 1, gnathopod 1 and telson. An examination of specimens in the present collection, together with material held at the British Museum (Nat. Hist.) showed that this species cannot be retained in *Tryphosella*, being excluded on the grounds of the well-developed, strongly ridged molar process, and the unshortened, distally expanded coxa 1. Gurjanova (1962) and Bellan-Santini (1965) recognized the true generic position by placing Miers' species in *Hippomedon*, an assessment confirmed by the present observations.

None of the specimens in this collection corresponds to the "hypsilophic" form described by Barnard (1932), although there is a little variation in the form of the posterior distal tooth of the third epimera similar to that figured by Thurston (1972*b*).

Five of the ten samples listed above were obtained from fish stomachs and a sixth sample, that from sta. H359, was found in the stomach of an elephant seal (*Mirounga leonina*).

Detailed information on the biology, embryology, ecology and behaviour of this species has been given by Bregazzi (1972*a*, *b*, 1973*a*, *b*, as *Tryphosella kergueleni*).

The reported depth distribution for this species at the South Sandwich Islands given by Thurston (1972*b*) is incorrect and should be 55–91 m.

Genus *Lepidepcreum* Bate and Westwood

Lepidepecreum cingulatum Barnard

Lepidepecreum cingulatum Thurston, 1972*b*, p. 16, fig. 6d (synonymy and distribution).

Occurrence. (♂♂ 4·5–5·5 mm., ♀♀ 6–8 mm.).

1. Sta. A492 1; 2♂. Sta. 6078 1 ♂; 3. Sta. 6159 1 ♂, 6 ♀♀ (2 ovig.).

Remarks. The transverse bands of pigment on peraeon and pleon segments appear permanent in alcohol, thus affording a useful character for rapid identification.

Accessory lobes are present on the branchiae of peraeopods 5 and 6.

A note with the material from sta. 6159 gives the colour as light brown with dark reddish brown transverse bands.

Genus *Orchomene* Boeck

Orchomene acanthurus (Schellenberg)

Orchomenopsis acanthurus Schellenberg, 1931, p. 47–48, fig. 25.
Orchomenella acanthurus Barnard, 1932, p. 73, figs. 27a and 31.
Orchomenella acanthura Shoemaker, 1945, p. 289–90.

Occurrence

1. Sta. E502 1 juv. 5 mm.

Remarks. This specimen is damaged, but the carination of pleon segments 3 and 4, and the projecting, rounded epistome leave no doubts as to its identity.

Distribution. Graham Land (Horseshoe Island) 35 m.; South Georgia (south-east of Cooper Island, Cumberland Bay, Stromness Bay) 17–130 m.; Shag Rocks bank 160 m.

Orchomene plebs (Hurley)

Orchomenopsis proxima Chevreux, 1906, p. 13.
Orchomenopsis rossi Walker, 1907, p. 14–16 (part).
Orchomenopsis chilensis Chilton, 1912, p. 473–77 (part).
Orchomenopsis chilensis f. *proxima* Schellenberg, 1926*b*, p. 290–91 and 294.
Orchomenopsis chilensis f. *rossi* Barnard, 1930, p. 327–28 and 449.
Orchomenella rossi Barnard, 1932, p. 69–70 (part).
Orchomenella chilensis f. *proxima* Shoemaker, 1945, p. 289.
Orchomenella proxima Littlepage and Pearse, 1962, p. 680; Pearse, 1963, p. 43.
Orchomenella plebs Hurley, 1965*a*, p. 107–13, figs. 1 and 2; Dearborn, 1967, p. 45; Arnaud, 1970, p. 261.
Orchomene plebs Bellan-Santini, 1972*a*, p. 212 and 215.

Occurrence. (♂♂ 13–22 mm., ♀♀ 13–24 mm., juvs. 4–14 mm.).

1. Hole No. 1 2 ♂♂, 5 ♀♀ (2 ovig.); 2. Hole No. 2 ca. 900 specimens (♂♂, ovig. ♀♀, ♀♀, juvs.); 3. Sta. 1285 7 ♂♂, 7 ♀♀ (1 ovig.); 4. Sta. 6023 1 ♂, 2 ♀♀, 4 juvs.

Remarks. The strongly produced coxa of gnathopod 1, the relatively narrow expansion of the fourth articles of peraeopods 5–7 and brown eyes serve to distinguish this species from *O. rossi.*

Juvenile specimens differ somewhat from the adults in that the coxa of gnathopod 1 is less expanded, gnathopod 2 is distinctly chelate particularly in very small individuals and peraeopods 5–7 are relatively short and stout.

Appendix A lists material of this species hitherto included under *O. rossi.*

Distribution. Graham Land (Stonington Island, Port Charcot, Port Lockroy, Fournier Bay, Schollaert Channel, Melchior Harbour) 7–235 m.; Bransfield Strait (south-east of Livingston Island); South Shetland Islands (Deception Island) 5–60 m.; South Orkney Islands (Scotia Bay) 16–49 m.; Weddell Sea (lat. 74°S., long. 22°W.) 295 m.; Davis Sea (*Gauss* winter station, Gaussberg) 170–385 m.; Ross Sea (McMurdo Sound, White Island) 2–180 m.

Orchomene rossi (Walker)

Orchomenopsis rossi Walker, 1903, p. 45–46, pl. 7, figs. 18–23, 1907, p. 14–16 (part); Chevreux, 1913, p. 92; Dahl, 1954, p. 282.
Orchomenopsis chilensis Chilton, 1912, p. 473–77 (part).
Orchomenopsis chilensis f. *rossi* Schellenberg, 1926*b*, p. 288–90 and 294, fig. 26, 1931, p. 49.
not Barnard, 1930, p. 327 (= *Orchomene plebs*).
Orchomenella rossi Barnard, 1932, p. 69–70 (part); Nicholls, 1938, p. 38–39, fig. 19; Stephensen, 1947, p. 35–36; Hurley, 1965*b*, p. 155–59, figs. 1 and 2; Dearborn, 1967, p. 45; Arnaud, 1970, p. 261.
Orchomenella chilensis f. *rossi* Shoemaker, 1945, p. 289.
Orchomene rossi Bellan-Santini, 1972*a*, p. 215, 1972*b*, p. 695.

Occurrence. (♂♂ 27–30 mm., ♀♀ 26–37 mm.).

1. Sta. E519 5 ♂♂, 4 ♀♀ (2 ovig.).

Remarks. Chilton (1912) fused many species of *Orchomene* with *O. chilensis* (Heller) giving rise to a confused situation which has been clarified by the work of Schellenberg (1926*b*) and Hurley (1965*a*, *b*, *c*).

A considerable amount of the Antarctic material variously ascribed to *Orchomenopsis rossi*, *O. chilensis*, *O. chilensis* f. *rossi*, *Orchomenella rossi* and *O. chilensis* f. *rossi* is present in the collections of the British Museum (Nat. Hist.). The opportunity was taken to examine all this material together with specimens kindly made available by museums and institutions in Berlin, Edinburgh, Oslo, Paris, Perth, Stockholm, Vienna and Washington, in an attempt to clarify the geographical ranges of *O. rossi* and *O. plebs*.

On comparing the various collections with Walker's types of *O. rossi*, and paratypes of *O. plebs* (Hurley) deposited at the British Museum (Nat. Hist.), it soon became apparent that these species are quite distinct. Although both species are circum-polar and each has a wide geographical distribution, the degree of intra-specific variation is minimal. If similar morphological homogeneity throughout the geographical range occurred in other species, many problems of amphipod systematics and taxonomy would be greatly reduced.

Results of the examination of part or all of the collections pertaining to many of the published records of *O. rossi* and *O. plebs* are given in Appendix A.

All specimens in Walker's type series (Walker, 1903) are *O. rossi*, although two *O. plebs* were taken at a previously unpublished locality.

Two points of interest emerge from Appendix A. First, in very few samples do *O. rossi* and *O. plebs* co-occur. This may reflect some as yet undetected difference in micro-habitat. Secondly, the numbers of specimens examined in this study (450 *O. rossi*, 4,100 *O. plebs*) agree very closely with the observed 1:9 ratio between *O. rossi* and *O. plebs* in collections examined by Hurley (1965*a*).

Distribution. Graham Land (Petermann Island, Port Lockroy, Schollaert Channel, Erebus and Terror Gulf) 7–335 m.; South Georgia (Cumberland Bay, lat. 54°01′S., long. 35°14′W.) 53–270 m.; Weddell Sea (lat. 74°S., long. 22°W.) 295 m.; Davis Sea (*Gauss* winter station, Shackleton Ice Shelf) 7–491 m.; Ross Sea (McMurdo Sound, White Island, Discovery Inlet, Bay of Whales) surface–560 m.

Orchomene rotundifrons (Barnard)

Orchomene rotundifrons Thurston, 1972*b*, p. 20–21, fig. 7z (synonymy and distribution).

Occurrence. (♂♂ 5–7 mm., ♀♀ 6–11 mm., juvs. 4–6 mm.).

1. Sta. 6023 15 ♂♂, 74 ♀♀ (7 ovig.), 10 juvs.

Orchomene tabarini Thurston

Orchomene tabarini Thurston, 1972*a*, p. 58, 60–63, figs. 5 and 6.

Occurrence

1. Sta. 6240 1 ♀ 9 mm.

Remarks. A description of this species, based on the single specimen from the present collection, has been published recently (Thurston, 1972*a*) in conjunction with a discussion of the closely related species *O. macronyx* (Chevreux) and *O. schellenbergi* Thurston.

Genus *Tryphosella* Bonnier

Barnard (1969*b*) has shown that all species previously assigned to *Tryphosa* and *Tmetonyx* except the type species of each must be included under *Tryphosella*, and he has re-defined Bonnier's genus, emphasizing the distally tapering coxa 1 and the weakly or unridged condition of the molar process.

On the basis of the re-defining of *Tryphosella*, *T. kergueleni* must be excluded and transferred to *Hippomedon*. An examination of the type series of *T. major* (Barnard) showed that a similar course is necessary for this species, as it has an expanded coxa 1, small head and a strongly ridged molar process. *T. cicadoides* (Stebbing) is also excluded from *Tryphosella* on the grounds of an expanded coxa 1, a strongly ridged molar, and an incised inner ramus of uropod 2. Barnard (1969*b*) recognized the unique facies of this species in the key to the Lysianassidae (Barnard, 1969*b*, p. 308). It is perhaps significant that these three species all possess strong falcate teeth at the posterior distal angle of epimera 3, suggesting that this condition may not occur in true tryphosellas.

Tryphosella marri sp. nov.
Figs. 22 and 23

Tryphosella ? triangularis Thurston, 1972*b*, p. 19, fig. 7v–x.

The type specimens are in the collection of the British Museum (Nat. Hist.): holotype, Reg. No. 1972:110:1 and paratype, Reg. No. 1972:111:1.

Type locality. Hope Bay, Graham Land. The holotype was collected at Jagged Rocks on 20 November 1945 and the paratype at Grunden Rocks on 5 December 1945.

Occurrence. (♂ 8 mm., ♀ 11 mm.).
1. Sta. 6164 1 ♀ **(holotype)**; 2. Sta. 6217 1 ♂ **(paratype)**.

Description. Body rather slender. *Head lobes* produced, acute. *Eyes* not seen. *Epistome*, produced in front of upper lip, broadly rounded. *Epimera 3* strongly produced, rounded at posterior distal angle. *Urosome* segment 1 slightly convex, no carina or boss.

Antenna 1, peduncle article 1 long, articles 2 and 3 short; flagellum of 12 articles, the first as long as second and third combined; accessory flagellum of four articles. *Antenna 2*, peduncle article 4 longer and broader than 5; flagellum of 12–13 articles. *Mandible*, cutting edge broad, convex, accessory lamella present on left side only, molar prominent, weakly ridged; palp, long and slender, fixed level with molar, article 2 elongate. *Maxilla 1*, inner plate with two apical setae, outer plate obliquely truncate with 11 serrate spine teeth; palp broad and long. *Maxilla 2*, inner plate a little shorter than outer.

Gnathopod 1, coxa shorter than coxa of gnathopod 2, tapering towards apex; articles 5 and 6 relatively stout, sub-equal; palm nearly obsolete; palmar angle marked by two spines; dactyl with tooth on inner margin. *Gnathopod 2*, article 6 as wide as and half as long as article 5, palm transverse, minutely pectinate; dactyl relatively large, serrate on inner margin near apex. *Peraeopod 3*, merus longer and wider than either carpus or propod. *Peraeopod 4*, coxa deep, posterior distal angle broadly rounded; distal articles as in peraeopod 3. *Peraeopod 5*, coxa as long as broadly rounded basal; merus stout, decurrent. *Peraeopod 7*, basal broadly rounded, as long as articles 3–7 combined.

Uropods 1 and 2, rather short, rami and peduncles sub-equal. *Uropod 3*, very short, peduncle stout, nearly as wide as long; rami lanceolate, inner longer than first article of outer. *Telson*, longer than broad, lobes somewhat dehiscent, apically truncate with three stout spines on dorsal surface and two or three spines at apex.

Remarks. The presence of acute head lobes and produced third epimera, and the absence of eyes, serrations and teeth on epimera 3, and boss or carina on pleon segment 4 separate this species from all others of the genus except *T. insignis* Bonnier, and *T. insignoides* Stephensen. From *T. insignis* the present species differs in the stouter gnathopod 1, strongly produced epistome, narrower basal article of peraeopod 7 and dorsally convex pleon segment 4. Characters separting *T. marri* from *T. insignoides* are the more convex upper margin of the head lobes, the shorter first article of the flagellum of antenna 1, the stouter gnathopod 1 and the shorter uropod 3 and telson of the former. Among Antarctic species *T. marri* comes closest to *T. triangularis* Barnard. These two species can be separated by differences in the epistome, antennae, peraeopod 7, epimera 3, urus segment 1 and telson.

The name *T. marri* is given in honour of the late J. W. S. Marr, who devoted a lifetime to the study of Antarctic biology, and who was commanding officer during the first year of Operation Tabarin.

A collector's note gives the colour of the holotype as brownish red, with bright red eyes.

Distribution. South Orkney Islands (Signy Island), 2–2·5 m.

Tryphosella triangularis (Barnard)
Fig. 24

Tryphosa triangularis Barnard, 1932, p. 51–52, fig. 16.
not Tryphosella cf. *triangularis* Thurston, 1972*b*, p. 19, fig. 7v–x (= *T. marri* sp. nov.).

Remarks. Illustrations of syntypical material are given to complement Barnard's description and to facilitate comparison with *T. marri* sp. nov.

Distribution. South Georgia (Cumberland Bay, Stromness Bay, Undine Harbour, lat. 53°32′S., long. 36°08′W.) 17–178 m.

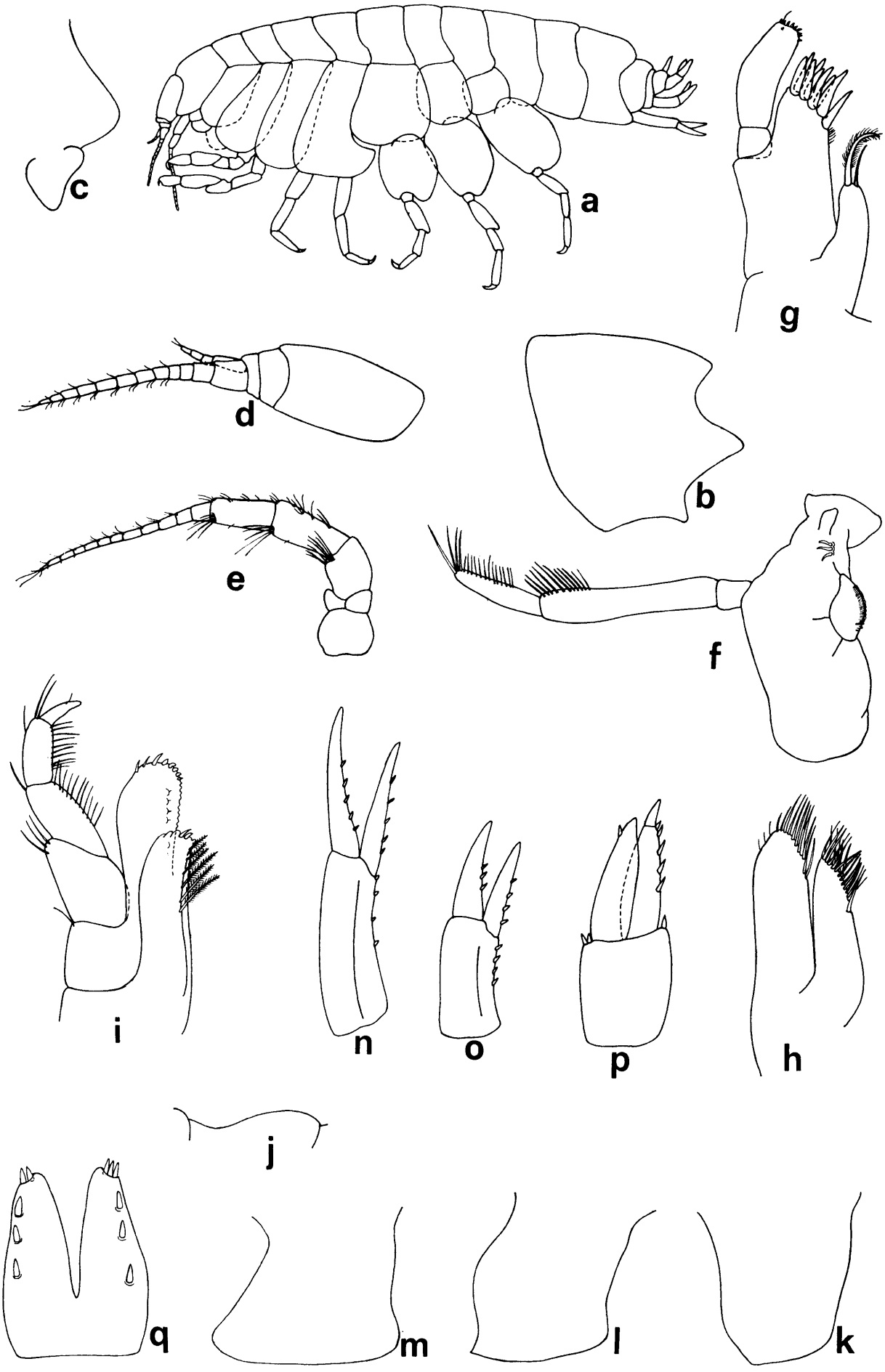

FIGURE 22

Tryphosella marri sp. nov., holotype, 11 mm. ♀, sta. 6164. *a*, habitus; *b*, head; *c*, epistome; *d* and *e*, antennae 1 and 2; *f*, mandible; *g* and *h*, maxillae 1 and 2; *i*, maxilliped; *j*, urosome segment 1; *k–m*, epimera 1–3; *n–p*, uropods 1–3; *q*, telson.

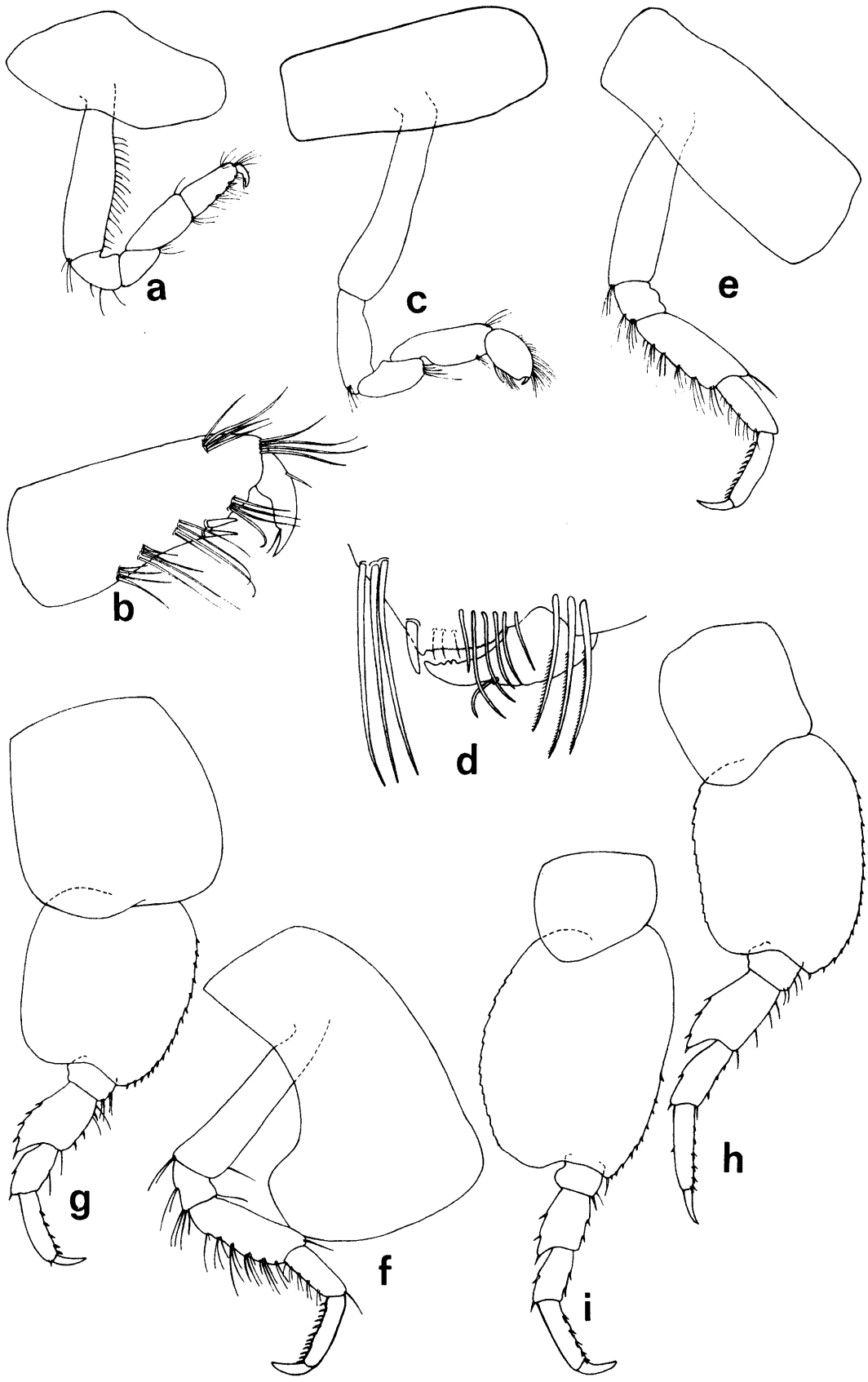

FIGURE 23

Tryphosella marri sp. nov., holotype, 11 mm. ♀, sta. 6164. *a* and *b*, gnathopod 1; *c* and *d*, gnathopod 2; *e–i*, peraeopods 3–7.

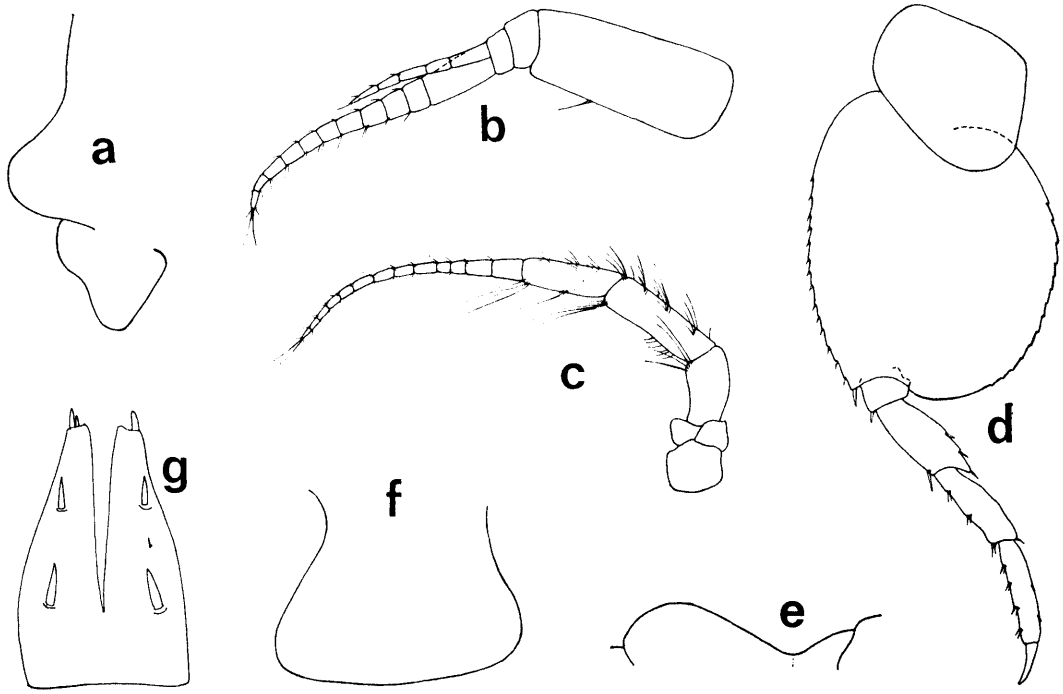

FIGURE 24

Tryphosella triangularis (Barnard), lectotype, 11 mm. ovig. ♀, *Discovery* sta. 159. *a*, epistome; *b* and *c*, antennae 1 and 2; *d*, peraeopod 7; *e*, urosome segment 1; *f*, epimeron 3; *g*, telson.

Genus *Waldeckia* Chevreux

Chevreux, 1905, p. 163–65 (as *Charcotia*, homonym, Mollusca), 1906, p. 13–15.
Stebbing, 1910, p. 571–72.
Barnard, 1969*b*, p. 368.

Waldeckia obesa (Chevreux)
Fig. 25

Charcotia obesa Chevreux, 1905, p. 163, fig. 3; Walker, 1906, p. 454; Stebbing, 1906, p. 718.
Waldeckia obesa Chevreux, 1906, p. 15–20, figs. 8–10; Walker, 1907, p. 10–11, pl. 2, fig. 4; Chevreux, 1911, p. 403, 1913, p. 91–92 (as *Waldekia*, err.); Schellenberg, 1926*b*, p. 253–55, fig. 9; Barnard, 1930, p. 323–24, fig. 1a, 1932, p. 43; Nicholls, 1938, p. 16, fig. 4; Stephensen, 1947, p. 33; Dahl, 1954, p. 281; Bellisio, 1966, p. 52, fig. 27; Arnaud, 1970, p. 261; Bellan-Santini, 1972*a*, p. 218 and 221.
Waldeckia zschaui (not *Anonyx zschaui* Pfeffer) Chilton, 1912, p. 471–73.

Occurrence. (♂♂ 14–18 mm., ♀♀ 17–20 mm.).
1. Sta. 1517 1 ♀; 2. Sta. A212 6 ♂♂, 1 ♀.

Remarks. These specimens agree closely with the descriptions and figures of Chevreux (1905, 1906) and Walker (1907). The mandibular spine row consists of four spines. The armature of the inner plate of maxilla 1 is variable, Chevreux (1906) having reported two setae, Schellenberg (1926*b*) three, Walker (1907) four or five, and Nicholls (1938) six, while the present material has four stout plumose setae and three short spines distally. The outer plate of maxilla 1 was figured by Nicholls and has a terminal arc of eight stout spines and a sub-terminal longitudinal row of three more. These spines are triangular in lateral aspect and each one is strongly serrate on its inner margin.

There is also some degree of variation in the form of the boss on the first urosome segment. Chevreux shows a high-angled projection. Specimens in this collection are similar except that the boss terminates in a small acute tooth which in *Scotia* material is considerably developed and projects anteriorly, thus bearing a marked resemblance to the condition seen in *Orchomene zschaui* (Pfeffer).

The specimen from sta. 1517 was pale straw-yellow in colour and had black eyes when alive.

Distribution. Graham Land (Marguerite Bay, Booth Island, Flandres Bay, Doumer Island, Port Lockroy, Fournier Bay) 36–200 m.; South Shetland Islands (Deception Island, Admiralty Bay, Clarence Island)

FIGURE 25

Waldeckia obesa (Chevreux), 18 mm. ♂, sta. A212. *a*, maxilla 1, inner plate; *b*, urosome segment 1. 15 mm. ♂, *Scotia* sta. 411. *c*, urosome segment 1.

342–525 m.; South Sandwich Islands 55–91 m.,* Weddell Sea (lat. 74°S., long. 22°W.) 295 m.; Davis Sea (*Gauss* winter station, west and north of Shackleton Ice Shelf) 201–439 m.; Terre Adélie (Cap Géodésie, Archipel de Pointe Géologie, Commonwealth Bay) 15–549 m.; Ross Sea (McMurdo Sound, Discovery Inlet) 256–550 m.

FAMILY OEDICEROTIDAE

Genus *Methalimedon* Schellenberg

Methalimedon nordenskjoeldi Schellenberg

Methalimedon nordenskjoeldi Bellan-Santini, 1972*a*, p. 221; Thurston, 1972*b*, p. 32–33 (synonymy and distribution).

Occurrence

1. Sta. A140 1 ♀ 5·5 mm.

Genus *Monoculodes* Stimpson

Monoculodes scabriculosus Barnard

Monoculodes scabriculosus Thurston, 1972*b*, p. 33–34, fig. 10i–k (synonymy and distribution).

Occurrence. (♂ 8 mm., juv. 3 mm.).

1. Sta. 6000 1 ♂; 2. Sta. E506 1 juv.

Genus *Oediceroides* Stebbing

Oediceroides calmani Walker

Oediceroides calmani Walker, 1906*a*, p. 15–16, 1907, p. 22–23, pl. 6, fig. 12; Chevreux, 1913, p. 128–33, figs. 28–30; Barnard, 1930, p. 366, 1932, p. 140 (part, part = *Oediceroides lahillei* f. *polita*); Nicholls, 1938, p. 87–88; Shoemaker, 1945, p. 290; Dahl, 1954, p. 290; Bellan-Santini, 1972*a*, p. 221, fig. 31.

Remarks. The characters distinguishing *O. calmani* from *O. lahillei* are given under the latter species. Chevreux (1913) described specimens which he identified with *O. calmani*, but he listed certain differences between his specimens and Walker's description. A comparison of the type material with Chevreux's description shows that these differences were due to inaccuracies in Walker's description. The condition of the type material is not good, and it is probable that the absence of the long seta at the distal end of article 5 of antenna 2 was due to damage. Transverse grooves are present on all peraeon segments, but they are less prominent than in the Marguerite Bay specimens. Uropod 3 and the telson are not similar to those of *Oediceroides rostratus* Stebbing, but they conform to Chevreux's illustrations except that the upper margins of the peduncle of uropod 3 are finely spinose, as is the case in *Discovery* material from Graham Land (*Discovery* sta. 167, 181, 182 and 190).

It appears that *O. calmani* is a circum-polar species occurring in high latitudes, while *O. lahillei* is confined to islands of the Scotia arc, and the Magellanic region of South America. An overlap between the two species occurs in the South Orkney Islands.

* See p. 12.

Distribution. Graham Land (Marguerite Bay, Neny Fjord, Bismarck Strait, Schollaert Channel) 27–500 m.; South Orkney Islands (Signy Island) 244–344 m.; Davis Sea (west and north of Shackleton Ice Shelf) 201–219 m.; Terre Adélie (Cap Géodésie, Archipel de Pointe Géologie, Commonwealth Bay) 15–549 m.; Ross Sea (Coulman Island, McMurdo Sound, Discovery Inlet, Bay of Whales) 183–550 m.

Oediceroides lahillei f. *lahillei* Chevreux

Oediceroides lahillei Chevreux, 1911, p. 403–05, figs. 1 and 2; Schellenberg, 1931, p. 139; Stephensen, 1947, p. 51; Thurston, 1972*b*, p. 33.
Gulbarentsia larseni Oldevig, 1961, 73–75, figs. 1 and 2.

Occurrence. (♂ 17 mm., ♀♀ 14–22 mm., juv. 9 mm.).

1. Sta. CAL1 1 ♂, 20 ♀♀ (4 ovig.), 1 juv.; 2. Sta. CAL2 1 ♀; 3. Sta. AGB7 3 ♀♀.

Remarks. Barnard (1932) synonymized this species with *Oediceroides calmani* Walker on the grounds of the variability of specimens obtained in South Georgia, South Orkney Islands and Graham Land by *Discovery*. A re-examination of these specimens shows that they can be divided into two groups which can be separated morphologically and which show no overlap in characters.

Specimens from *Discovery* sta. 167, 180, 181, 182 and 190 (i.e. those from the South Orkney Islands and Graham Land) are clearly identical with material described as *O. calmani* by Chevreux (1913). The remaining *Discovery* material (all of which is from South Georgia) can be identified with *Oediceroides lahillei* f. *polita* Schellenberg (1931). This form differs from *O. lahillei* f. *lahillei* Chevreux only in the presence of a transverse groove across the head in place of the strongly produced boss of the typical form.

O. lahillei and *O. calmani* may be separated by the bulbous rostrum, shorter and stouter mandibular palp, weakly produced coxa of gnathopod 1 and non-emarginate posterior margin of the basal of peraeopod 7 of the former. These diagnostic characters can be seen in the figures of Chevreux (1911, 1913).

Oediceroides lahillei f. *polita* Schellenberg

Oediceroides lahillei f. *polita* Schellenberg, 1931, p. 140, pl. 1, fig. 3e.
Oediceroides calmani Barnard, 1932, p. 140 (part).

Remarks. Specimens assigned to *O. calmani* by Barnard (1932) from *Discovery* sta. 45, 145, 159, WS25, WS33, MS66 and MS67 belong to this form. As all of these localities are in South Georgian waters, *O. lahillei* f. *polita* is still known only from that island.

Distribution. South Georgia (Cumberland Bay, Stromness Bay, Undine Harbour, lat. 54°59′S., long. 35°24′W.; lat. 53°52′S., long. 36°08′W.) 18–270 m.

Family Paramphithoidae

Genus *Epimeria* Costa

Epimeria monodon Stephensen

Epimeria monodon Thurston, 1972*b*, p. 34 (distribution).

Occurrence. (♂ 9 mm., ♀ 29 mm.).

1. Sta. 1550 1 ovig. ♀; 2. Sta. A383 1 ♂.

Remarks. A note on the label with the specimen from sta. 1550 gives the colour as "brilliant scarlet".

Family Phoxocephalidae

Genus *Heterophoxus* Shoemaker

Heterophoxus videns Barnard

Heterophoxus videns Bellan-Santini, 1972*a*, p. 227–29, fig. 35, 1972*b*, p. 699; Thurston, 1972*b*, p. 21–23 (synonymy and distribution).

Occurrence

1. Sta. E514 1 ♀ 5 mm.

Family Sebidae

Genus *Seba* Bate

Bate, 1862, p. 159.
Stebbing, 1906, p. 162.
Schellenberg, 1931, p. 83–84.
Barnard, 1969*b*, p. 436.
Karaman, 1971, p. 84–86.

Seba stoningtonensis sp. nov.

Figs. 26 and 27

The type material, consisting of holotype (3·7 mm. ♂), allotype (3·1 mm. ♀) and ten paratypes, is in the collection of the British Museum (Nat. Hist.) under the Reg. No. 1972:130:12.

Type locality. Sta. E517. Stonington Island, Marguerite Bay. Associated with large sponge dredged from a mud bottom at 64 m. off the southern point of the island on 13 February 1949.

Occurrence. (♂♂ 2·7–3·7 mm., ♀♀ 3–3·5 mm.).
1. Sta. E517 3 ♂♂, 9 ♀♀.

Description. Holotype. Body, relatively slender. *Head*, rostrum obsolete; eye lobes rounded; post-antennal lobe somewhat produced, acute. *Eyes* absent. *Epimera*, first shallow, sub-triangular; second rectangular, posterior margin finely and irregularly crenelate; third longer than deep, somewhat produced posteriorly, four lateral sub-marginal spines ventrally, posterior-distal angle rounded, minute seta in notch above angle.

Antenna 1, first peduncle article rather stout, second a little longer than first; flagellum half length of peduncle, with seven articles; accessory flagellum longer than first article of primary flagellum, slender, second article minute. *Antenna 2*, sub-equal in length to antenna 1, flagellum as long as fifth peduncle article, 3-articulate. *Mandible* short, stout, incisor process multidentate, molar obsolete; palp with three articles, third shorter and more slender than second, apically produced, with two sub-apical setae. *Maxilla 1*, inner plate rounded with single apical seta; outer plate with seven apical spines; palp, rather slender, curved, with single apical spine. *Maxilla 2*, inner plate triangular with three apical setae; outer plate narrower than inner, with four setae on truncate apex. *Maxilliped*, inner and outer plates small; palp stout, second article with about ten spine setae on medial margin, third article with setose flange anterior-medially, dactyl slender.

Gnathopod 1, coxa broadly rounded; propodal projection excavate distally, palm with three teeth. *Gnathopod 2*, coxa rounded, a little deeper than coxa 1, neither distal angle sharp; carpus 55 per cent the length of propod. *Peraeopod 3*, coxa rounded, shallower than coxa 2; meral projection short, acute, extending about 25 per cent length of carpus; carpus and propod sub-equal; propod strongly spinose posteriorly. *Peraeopod 4*, coxa shallower than coxa 3, barely excavate posteriorly; distal articles similar to peraeopod 3. *Peraeopod 5*, coxa bilobed, posterior lobe just deeper than anterior; basal expanded, anterior and posterior margins parallel; merus stout, posterior-distal projection about as wide as proximal margin of article, extending half length of carpus; carpus and propod short, stout, spinose anteriorly. *Peraeopod 6*, similar in structure to peraeopod 5, but basal larger and merus longer. *Peraeopod 7*, basal broadly and evenly expanded posteriorly, width about 80 per cent of anterior length; distal articles similar to those of peraeopod 6.

Uropod 1 short, inner ramus slender, unarmed, sub-equal to peduncle, 20 per cent longer than outer ramus. *Uropod 2*, just shorter than uropod 1, inner ramus with two spines on medial margin. *Uropod 3*, short, stout, medial dorsal margin strongly serrate. *Telson*, short, pentagonal, two pairs of setae on each oblique distal margin.

Allotype. The female agrees in most respects with the male, but it shows dimorphism in gnathopod 1 and peraeopods 5–7. The palm of gnathopod 1 is strongly oblique and lacks teeth. The merus of each posterior peraeopod is more slender and has a shorter posterior distal projection than is found in male specimens of a similar size, and both carpus and propod are rather more slender.

Remarks. The sexual dimorphism and allometric changes which apparently occur in most if not all of the currently accepted species of *Seba* obscure the differences between, and relationships of these species.

The apparent rarity of some species, and descriptions based on one sex only, complicate further an already confused situation.

Karaman (1971) recognized eight species, *Seba armata* (Chevreux, 1889), *S. antarctica* Walker, 1906, *S. dubia* Schellenberg, 1926, *S. ekepuu* Barnard, 1970, *S. innominata* Bate, 1862, *S. saundersii* Stebbing, 1875, *S. subantarctica* Schellenberg, 1931, and *S. typica* (Chilton, 1884), and he described a ninth *S. aloe*. *S. saundersii* f. *georgiana* Schellenberg, 1931, was included doubtfully under *S. saundersii* by Karaman

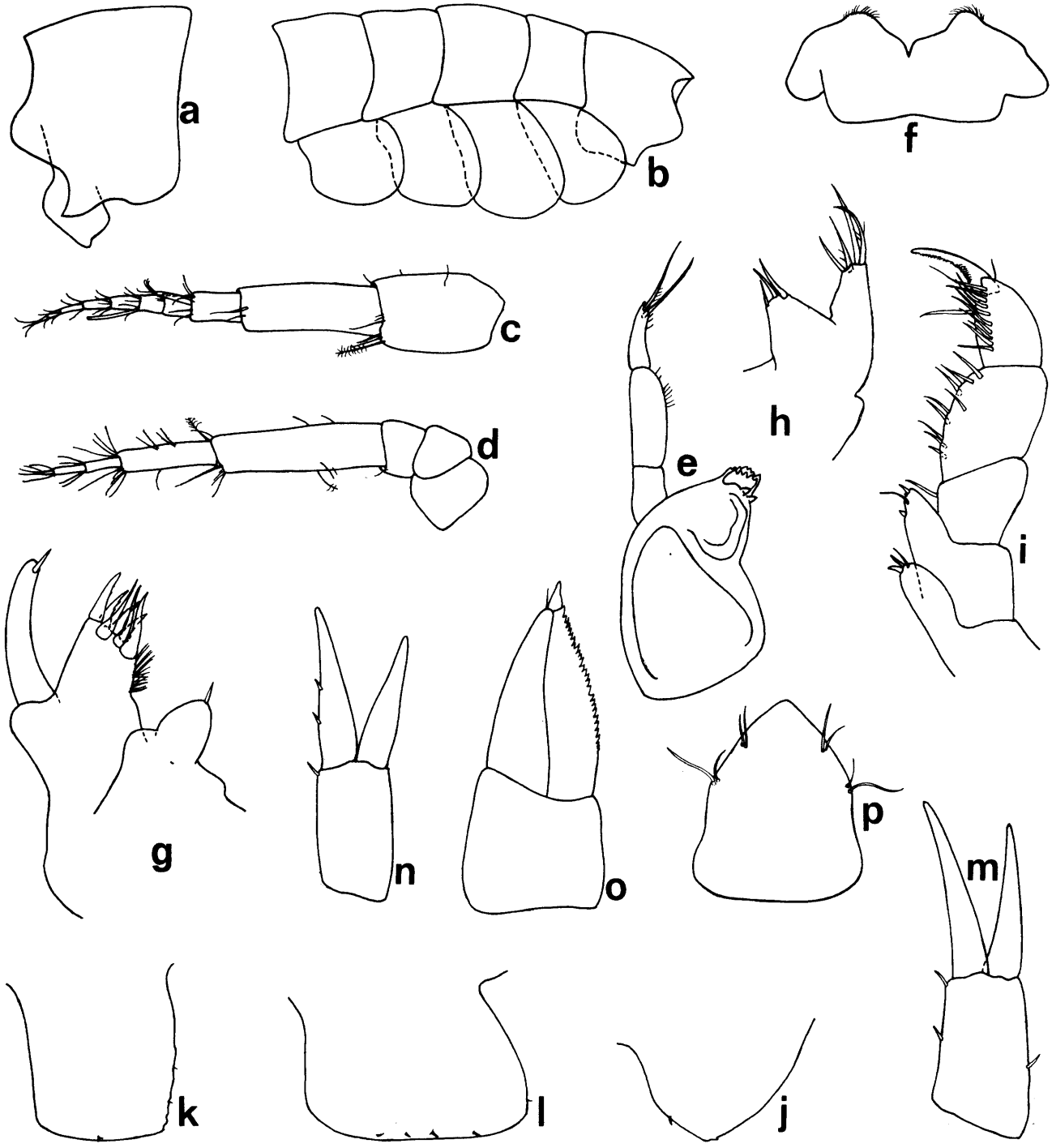

FIGURE 26

Seba stoningtonensis sp. nov., holotype, 3·7 mm. ♂, sta. E517. *a*, head; *b*, head and peraeonites 1–4; *c* and *d*, antennae 1 and 2; *e*, mandible; *f*, lower lip; *g* and *h*, maxillae 1 and 2; *i*, maxilliped; *j–l*, epimera 1–3; *m–o*, uropods 1–3; *p*, telson.

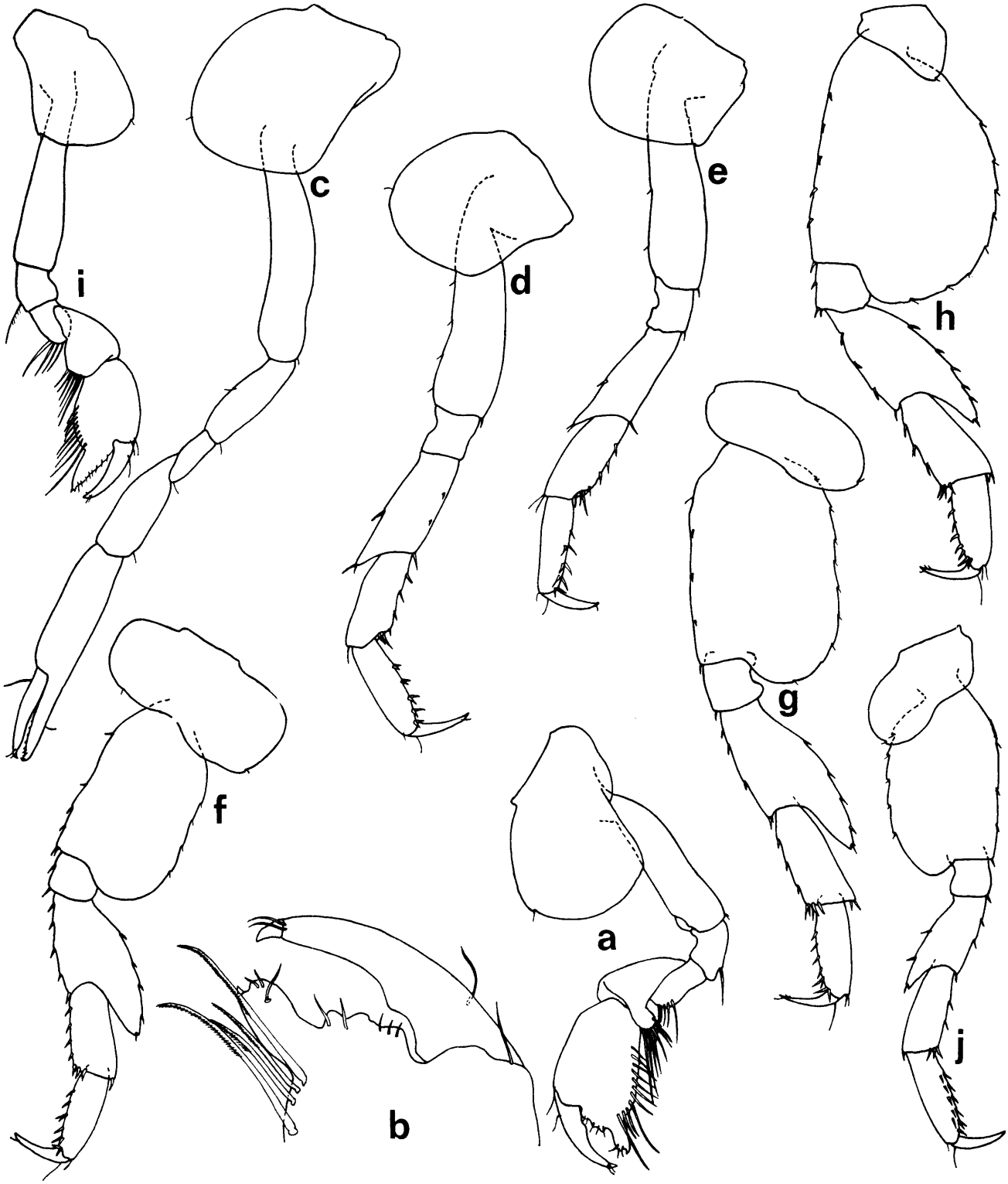

FIGURE 27

Seba stoningtonensis sp. nov., holotype, 3·7 mm. ♂, sta. E517. *a* and *b*, gnathopod 1; *c*, gnathopod 2; *d–h*, peraeopods 3–7. Allotype, 3·1 mm. ♀, sta. E517. *i*, gnathopod 1; *j*, peraeopod 6.

(1971), but the rounded second coxa and differently shaped third epimeron indicate that the material described by Schellenberg must be accorded specific rank. Schellenberg (1931) examined the abundant material described by Walker (1906*b*) as *S. antarctica* and distinguished four different forms. Despite the large number of specimens involved, he was unable to relate the various forms. It seems probable that at least two species are concerned (forms b and c) but what relation forms a and d have with each other and with forms b and c requires study of additional material.

S. stoningtonensis sp. nov. is named for the type locality, Stonington Island.

If it is assumed that the holotype of *S. stoningtonensis* is sufficiently mature to reflect the adult characteristics, then the new species can be distinguished from *S. aloe*, *S. antarctica* (form a), *S. subantarctica* and *S. typica* by the much less strongly expanded meri of peraeopods 5–7. *S. stoningtonensis* also differs from *S. aloe* in that the new species has a pentagonal rather than a triangular telson, *S. antarctica* form a in having all coxae rounded, from *S. subantarctica* in having the carpus of gnathopod 2 shorter than the propod, and from *S. typica* which has gnathopod 1 sub-chelate. All forms of *S. antarctica* have coxa 3 with posterior-distal angle rectangular and forming a sharp angle, thus contrasting with the new species in which coxa 3 is rounded. *S. stoningtonensis* has stouter and more strongly spined peraeopods than *S. armata* and the two species differ in the form of the epimera. Both *S. dubia* and *S. georgiana* can be distinguished from the material from Stonington Island by the more slender peraeopods and differently shaped third epimera of the former. The holotype of *S. ekepuu* is small and may not be mature, but it differs from the present material in the form of coxa 4, the basal article of peraeopod 7 and the rounded telson. *S. innominata* is poorly known but it can be distinguished by the large teeth posterior-distally on epimera 1–3. *S. saundersii*, as figured by Stebbing (1888), differs from the present material in having the posterior-distal angle of coxa 2 acute, epimera 3 strongly produced, and a narrow, sub-triangular telson.

Family Stegocephalidae

Barnard, 1969*b*, p. 436–40 (key to genera).

Genus *Andaniotes* Stebbing

Stebbing, 1897, p. 30–31, 1906, p. 96.
Barnard, 1969*b*, p. 441, 1972, p. 302 and 307 (key to species).

Andaniotes ingens Chevreux
Fig. 28a

Andaniotes ingens Chevreux, 1906, p. 22–28, figs. 12–14; Nicholls, 1938, p. 40–41.

Occurrence. (♂ 7 mm., ♀♀ 8–14 mm., juv. 4–6 mm.).
1. Sta. A140 1 ♂, 7 ♀♀, 20 juv.; 2. Sta. E502 1 ovig. ♀, 1 juv.

Remarks. These specimens agree closely with Chevreux's description, differing only in the shorter rostrum, which is 25–33 per cent of the length of the first article of antenna 1, and the absence of short setae on articles 4 and 5 of antenna 2.

The coxa of peraeopod 5 has a short anterior lobe, and a pronounced groove across the outer surface which accommodates the posteriorly produced margin of coxa 4, in a manner similar to that seen in some paramphithoids.

Distribution. Graham Land (Booth Island) 20–40 m.; Terre Adélie (Commonwealth Bay) 527–549 m.

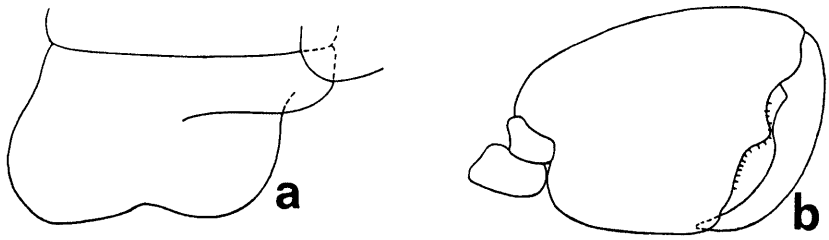

FIGURE 28
Andaniotes ingens (Chevreux), 14 mm. ♀, sta. E502. *a*, coxa 5. *Orchestia scutigerula* Dana, 18 mm. ♂, sta. HUS3. *b*, gnathopod 2.

Family Stenothoidae

Barnard, 1972, p. 310 (key to thaumatelsonin genera).

The intermediate nature of *Parathaumatelson* and *Pseudothaumatelson* has led Barnard (1972) to combine the families Stenothoidae and Thaumatelsonidae.

Genus *Antatelson* Barnard

Barnard, 1972, p. 312.

Antatelson walkeri (Chilton)

Antatelson walkeri Barnard, 1972, p. 312.
Thaumatelson walkeri Thurston, 1972*b*, p. 24–25 (synonymy and distribution).

Occurrence. (♂♂ 1·5–2·25 mm., ♀♀ 1·5–2·75 mm., juv. 1–1·5 mm.).
1. Sta. 1343 1 ♀; 2. Sta. 1379 5 ♀♀ (1 ovig.), 2 juv.; 3. Sta. A334 2 ♂♂, 4 ♀♀; 4. Sta. A429 5 ♂♂, 5 ♀♀.

Genus *Metopoides* Della Valle

Della Valle, 1893, p. 907.
Stebbing, 1906, p. 185.
Barnard, 1969*b*, p. 449.

The classification of the Stenothoidae is unsatisfactory, being based to a large extent on trivial or variable characters. To maintain some degree of consistency until a complete revision of the family is available it seems advisable to retain *Metopoides* and *Proboloides* as distinct despite the fact that they are separable only on the presence or absence of a rudimentary accessory flagellum.

Metopoides sarsi (Pfeffer)

Proboloides sarsi Thurston, 1972*b*, p. 27 (synonymy and distribution).

Occurrence. (♀♀ 8–9 mm., juv. 4 mm.).
1. Sta. 1259 1 juv.; 2. Sta. 6179 3 ♀♀; 3. Sta. 6217 1 ♀.

Remarks. Epimera 3 have a slightly sinuous margin rather than the tooth shown by Chevreux (1906, as *M. walkeri*). The mandibular palp has three articles, but the third is microscopic and incompletely articulated with the second.

Genus *Probolisca* Stebbing

Probolisca ovata (Stebbing)

Probolisca ovata Thurston, 1972*b*, p. 26–27, fig. 8c–j (synonymy and distribution).

Occurrence. (♀♀ 2·5–2·75 mm., juv. 1–2 mm.).
1. Sta. 1259 1 juv.; 2. Sta. 1477 1 ovig. ♀; 3. Sta. A334 4 ovig. ♀♀, 13 juvs.; 4. Sta. 6090 2 ovig. ♀♀; 5. Sta. H159 1 juv.

Genus *Prothaumatelson* Schellenberg

Barnard, 1972, p. 311.

Prothaumatelson nasutum (Chevreux)

Prothaumatelson nasutum Thurston, 1972*b*, p. 25–26 (synonymy and distribution).

Occurrence. (♂♂ 1·25–1·5 mm., ♀♀ 1·5–2·25 mm., juv. 0·75–1·25 mm.).
1. Sta. A334 3 ♂♂, 2 ♀♀, 3 juv.

Family Talitridae

Barnard, 1969*b*, p. 463–68 (key to genera).

Genus *Orchestia* Leach

Leach, 1814, p. 402.
Stebbing, 1906, p. 530–31.
Barnard, 1969*b*, p. 470.

Orchestia scutigerula Dana
Fig. 28b

Orchestia scutigerula Dana, 1852 and 1855, p. 863, pl. 58, figs. 2a–m; Bate, 1862, p. 26–27, pl. 4, fig. 7; Della Valle, 1893, p. 479, pl. 57, figs. 57–60; Schellenberg, 1931, p. 223–24; Stephensen, 1949, 26–29, figs. 11 and 12; Macnae, 1953, p. 1027–28; Barnard, 1965, p. 207.
Talorchestia scutigerula Stebbing, 1906, p. 544–45; Chilton, 1912, p. 508; Barnard, 1932, p. 218–19.
Talorchestia scutigerulus Stebbing, 1914, p. 367–68.

Occurrence. (♂♂ 10–19 mm., ♀♀ 11–15 mm.).
1. Sta. HUS3 16 ♂♂, 10 ♀♀ (9 ovig.).

Remarks. There is good agreement between these specimens and the figures of Stephensen (1949) except in the condition of the propod of gnathopod 2 in the male. Although somewhat variable, the propods of these specimens and others from South Georgia (Barnard), the Falkland Islands (Stebbing) and Tierra del Fuego (Bate) show a more prominent palmar angle and a distinct blunt tooth on the palmar margin. The degree of development of the plates arising from the posterior margin of the basals of the seventh pair of peraeopods varies considerably in specimens of 16–18 mm. in length. In those specimens in which development is greatest, the plates are strongly convex and are large enough to enclose the whole of the pleon.

O. scutigerula frequently occurs in considerable numbers in strand-line debris on beaches in West Cumberland Bay and Stromness Bay, South Georgia. It has not been recorded from any other microhabitat in South Georgia but Chilton recorded the species from the banks of fresh-water streams in the Falkland Islands. On Tristan da Cunha the species appears almost completely terrestrial, occurring in penguin and albatross rookeries and among leaf litter on the higher parts of the island (Macnae, 1953).

Distribution. South Georgia (Cumberland Bay, Undine Harbour); Magellanic region, many localities; Falkland Islands; Gough Island; Tristan da Cunha.

SUB-ORDER HYPERIIDEA

Family Vibiliidae

Genus *Cyllopus* Dana

Cyllopus lucasii Bate

Cyllopus lucasii Bate, 1862, p. 306–07, pl. 50, fig. 2; Bovallius, 1887*b*, p. 556; Barnard, 1930, p. 409, 1932, p. 266–67; Hurley, 1960, p. 111; Vinogradov, 1962, p. 21–22; Hurley, 1969, p. 32–34, pl. 18, map 4.
Cyllopus lucasi Bovallius, 1889, p. 16–18; Stephensen, 1947, p. 78.
Cyllopus antarcticus Spandl, 1927, p. 175–76, fig. 12.

Occurrence
1. Sta. E1022 1 ♀ 15 mm.

Remarks. The specimen agrees with the descriptions of Barnard (1932) and Vinogradov (1962), thus differing from the illustrations of Spandl (1927) in the pectinate anterior margin of the carpal projection of peraeopod 2 and posterior margin of the propod of peraeopods 3 and 4. The carpus of peraeopods 3 and 4 is stouter than is shown by Spandl.

An examination of Barnard's (1932) material shows that the length of the carpal projection of peraeopod 2 and the breadth of the carpus of peraeopods 3 and 4 can all vary considerably. In addition, the pectination of the peraeopods is frequently damaged in mutilated specimens. Barnard (1932) was therefore justified in assigning *C. antarcticus* to the synonymy of this species.

Distribution. Circum-polar in high latitudes, this species has been recorded between lat. 53° and 72°S. It has been taken near the surface at night, but it inhabits greater depths during the day.

Cyllopus magellanicus Dana

Cyllopus magellanicus Hurley, 1969, p. 32–34, pl. 18, map 4; Thurston, 1972*b*, p. 105 (synonymy and distribution).

Occurrence
1. Sta. AGB11 1 ♀ 14 mm.

Remarks. This specimen shows the same intermediate nature as that from Signy Island (Thurston, 1972*b*) when compared with the illustrations of Hurley (1955, figs. 23–50, *C. magellanicus* and figs. 51–69, *C. macropis*).

These findings add weight to the suggestion that in the Weddell Sea sector, at least, *C. macropis* is not separable from *C. magellanicus*. The localities for *C. macropis* given by Hurley (1969) suggest a cool temperature distribution between the Antarctic Convergence and the Sub-tropical Convergence, whereas *C. magellanicus* extends from the Sub-tropical Convergence south to the pack-ice edge.

Family Hyperiidae

Bovallius, 1889, p. 74–79 (key to genera).
Stephensen, 1925*b*, p. 247–49.
Spandl, 1927, p. 151–53 (key to genera).
Hurley, 1955, p. 136–37.
Bowman, 1973, p. 1–76 (key to genera).

Genus *Hyperia* Latreille

Latreille (*in* Demarest), 1823, p. 347.
Bovallius, 1889, p. 129–46 (part) (key to species).
Stephensen, 1925*b*, p. 247–48 (part).
Bowman, 1973, p. 5–26 (key to species).

Hyperia macrocephala (Dana)

Tauria macrocephala Dana, 1852 and 1855, p. 988–89, pl. 68, fig. 2; Bovallius, 1885, p. 16–17, 1887*a*, p. 19, 1887*b*, p. 565, 1889, p. 81–82, figs. 1–4; Chevreux, 1913, p. 86; Shoemaker, 1914, p. 76; Spandl, 1927, p. 156–58, fig. 3a–g.
Hyperia macrocephala Bate, 1862, p. 296, pl. 49, fig. 2; Shoemaker, 1945, p. 291–93, figs. 2a and b; Emison, 1968, p. 202, fig. 11; Bowman, 1973, p. 12, 16–18, figs. 11 and 12.
Hyperia galba White and Bone, 1972, p. 39–49.

Occurrence. (♀♀ 8–24 mm., juv. 4–7 mm.).

1. Sta. E1022 1 ovig. ♀; 2. Sta. HUS1 1 ♀, 17 juv.

Remarks. The large female specimen from sta. E1022 is damaged but it has coxa 3 shallower than coxae 1 and 2, coxa 4 apparently acute distally, and teeth posterior-distally on all epimera. These characters, which agree with the specimen figured by Shoemaker (1945) separate *H. macrocephala* from *H. gaudichaudii* Milne Edwards and *H. spinigera* Bovallius. The produced coxa 4 and the slender antennae 1 of the specimen from Stonington Island prevent its inclusion under *H. antarctica* Spandl.

The condition of the small specimens from South Georgia is poor, so that the specific identification is not absolutely certain. They clearly do not belong to *H. antarctica* as they lack the stout, flattened antenna 1 of that species. The form of peraeopods 1 and 2 is much more nearly akin to that figured by Bowman (1973) for *H. macrocephala* than for *H. gaudichaudii*. The specimens are thus assigned to *H. macrocephala* despite the unproduced fourth coxae, as this latter character is developed only in mature or nearly mature adults.

The specimens from sta. HUS1 were collected from the tissues of a large medusa.

Distribution. Graham Land (Neny Fjord); South Georgia; Davis Sea (*Gauss* winter station); Ross Sea (McMurdo Sound); "near lat. 66°S., long. 157°E.".

SUB-ORDER CAPRELLIDEA

Family Caprellidae

Genus *Aeginoides* Schellenberg

Schellenberg, 1926*c*, p. 465.
Barnard, 1930, p. 441–42.
McCain and Grey, 1971, p. 112.

Aeginoides gaussi Schellenberg

Aeginoides gaussi Schellenberg, 1926*c*, p. 465–67, fig. 1; Barnard, 1930, p. 442–43, fig. 63, 1932, p. 305–06, fig. 169 c and d; Stephensen, 1947, p. 79, fig. 26; McCain and Grey, 1971, p. 112–13, figs. 1 and 2; McCain, 1972, p. 241.

Occurrence

1. Sta. AGB4 1 juv. 8 mm.

Remarks. The single specimen is somewhat damaged, but it appears to agree satisfactorily with the descriptions of Schellenberg (1926*c*), and McCain and Grey (1971).

Distribution. Graham Land (Tower Island, lat. 62°41′S., long. 54°43′W.) 200–220 m.; South Shetland Islands (west of Snow Island, Cape Shirreff, south-east of Robert Island, Admiralty Bay, north-west of Aspland Island, lat. 62°12′S., long. 54°25′W.) 183–604 m.; South Georgia (lat. 54°41′S., long. 38°38′W., Cumberland Bay, north-north-east of Jason Island) 120–320 m.; Davis Sea 350 m.; Terre Adélie (Cap Géodésie, Archipel de Pointe Géologie) 50–170 m.; Oates Coast 329–366 m.; Ross Sea (Cape Adare, Cape Hallett) 37–92 m.; Peter I Øy 330 m.; South Atlantic (lat. 50°18′S., long. 54°11′W.) 1,498–1,501 m.

Genus *Caprellinoides* Stebbing

Caprellinoides mayeri (Pfeffer)

Caprellinoides mayeri McCain and Grey, 1971, p. 116–19, figs. 3–5 (synonymy and distribution); McCain, 1972, p. 241–42; Thurston, 1972*b*, p. 106.

Occurrence. (♂♂ 6–10 mm., ♀♀ 5·5–8 mm., juv. 2–5 mm.).

1. Sta. 1361 1 juv.; 2. Sta. A429 12 ♂♂, 10 ♀♀ (7 ovig.), 12 juv.

Remarks. McCain and Grey (1971) have found it necessary to include *C. tristanensis* Stebbing, 1888, *C. antarctica* Schellenberg, 1926, and *C. spinosa* Barnard, 1930, in the synonymy of Pfeffer's species. *C. mayeri* is thus widely distributed in Antarctic and sub-Antarctic regions. The variable nature of body proportions and spination noted by McCain and Grey, and Thurston (1972*b*) can also be seen in the present collection.

IV. GEOGRAPHICAL AND BIOLOGICAL ACCOUNT

THURSTON (1972*b*) listed 224 species of gammaridean amphipods which had been recorded from Graham Land and the Scotia arc. The present collection adds many distributional records to those previously published.

The collections under discussion have provided eight species described here as new and one species, *Prostebbingia serrata*, not previously recorded from the region. A re-examination of *Discovery* Committee material has resulted in the description of a further two new species. Thurston (1972*a*) has described *Orchomene schellenbergi*, and *Gnathiphimedia barnardi* is defined in this report.

The amphipod fauna of that part of the west coast of Graham Land to the south of lat. 67°S. was not well known, being based on rather few samples reported by Chevreux (1913) and Shoemaker (1945). The material from Stonington Island described in this report adds 17 species to the total and thus nearly doubles the number known from this part of Graham Land. That part of the Graham Land coast north of lat. 67°S. and west of long. 60°W. has been more thoroughly sampled than has any other. Reports by Chevreux (1906, 1913), Barnard (1932) and Stephensen (1947) described a total of 67 species of amphipod. The extensive collection made at Port Lockroy during Operation Tabarin realized a total of 40 species, of which 14 had not previously been recorded from the area. Operation Tabarin samples from Hope Bay have added 19 species to the total known from Graham Land east of long. 60°W., an area previously known mainly from the report of the Swedish South-Polar Expedition (Schellenberg, 1931). The less extensive collections made from the Scotia arc, and reported here, have also added to the number of species known from these island groups (see Appendices B and C).

The large number of new distributional records reported indicates that much work is still required before the fauna of Graham Land and the Scotia arc can be considered adequately known.

Castellanos and Perez (1963) have described ecological observations made in the littoral zone of Spring Point, Graham Land. These authors found that *Gondogeneia antarctica* and *Paramoera edouardi* (as *Pontogeneia antarctica* and *Pontogeneia magellanica*, respectively) formed a very large proportion of the abundant amphipod fauna in littoral pools and that the only other species represented were *Eurymera*

monticulosa and *Bovallia gigantea*. Thurston (1972*b*) found ten species in littoral samples collected at Signy Island. *G. antarctica* was the only numerically abundant species, but five other species, *E. monticulosa*, *P. edouardi*, *Jassa falcata*, *Metopoides sarsi* and *Probolisca ovata* occurred in significant numbers.

Excluding stations which, although collected in the littoral zone, were more properly representative of the infra-littoral fringe, 32 samples out of a total of 103 collected between 1944 and 1959 were of littoral origin. These littoral samples contained 596 specimens of 25 species. About 72 per cent of the specimens belonged to two species, *G. antarctica* and *P. edouardi*, while significant but much smaller numbers of *Bovallia gigantea*, *E. monticulosa*, *Cheirimedon femoratus* and *Orchestia scutigerula* also occurred. If only those samples from littoral pools are considered, then *G. antarctica* and *P. edouardi* comprise 83 per cent of the amphipods obtained. This dominance confirms the observations of collectors at Port Lockroy and Hope Bay who found *G. antarctica* to be the commonest amphipod free-swimming in pools, and *P. edouardi* numerically dominant among rocks and stones at the bottom of the pools.

Temperature effects are probably one of the most important factors governing which species can survive in shore pools. Despite the generally low ambient temperatures, insolation effects can cause considerable fluctuations in temperature. In calm sunny conditions at Hope Bay in 1945, pools above mean tide level often had temperatures 4–5° C above that of the sea, and on one occasion a temperature of 13·95° C was measured in a pool near high-water mark and 11·9° C at mean tide level.

As amphipods form an important part of the Antarctic benthos, it is not surprising to find that they are preyed upon by many vertebrates, particularly fish. Nine of the samples considered in this report were obtained from the stomachs of fish; two (sta. 6017 and H136) came from *Notothenia coriiceps* and the remaining seven (sta. 6014, E556, AGB3, AGB6, AGB7, AGB9 and AGB10) from unidentified nototheniid fish. A total of 17 species of amphipod occurred in these nine samples. *B. gigantea*, *Pontogeneiella brevicornis*, *C. femoratus* and *Hippomedon kergueleni* were the most frequently taken species. *H. kergueleni* has also been found in the stomach of an elephant seal (*Mirounga leonina*) from Signy Island (sta. H359) and *B. gigantea* in a blue-eyed shag (*Phalocrocorax atriceps*) from Port Lockroy (sta. 1274).

Barnard (1932) reported *P. brevicornis*, *C. femoratus*, *H. kergueleni* and *Lepidepecreum cingulatum* as being eaten by *Notothenia*. An analysis of a series of nototheniid stomach contents by Bellan-Santini (1972*b*) showed *Oradarea walkeri*, *C. femoratus* and *Prostebbingia serrata* to be the most commonly taken amphipod species.

It has long been known that some species of amphipods, particularly lysianassids, are necrophagous (see, for example, Sars (1890–95) and Vader (1972*b*)). Reports of necrophagy by Antarctic species have been given by Hodgson (*in* Walker, 1907), Dearborn (1967), Arnaud (1970) and Bregazzi (1972*a*). Species recorded as necrophagous by these authors are *C. femoratus*, *H. kergueleni*, *Orchomene nodimanus*, *O. plebs*, *O. rossi* and *Waldeckia obesa*.

Nine of the samples covered by this report are of material showing a necrophagous habit. Three samples were collected from viscera discarded at holes in the sea ice after sealing operations (sta. E1029, E1030, E519), two from seal skulls immersed in the sea for cleaning (sta. 1285, 6300), two from bait in fish traps (hole no. 1, hole no. 2), one from bait on a fishing line (sta. A212) and one from a baited water bottle (sta. 6023). Six species of amphipod, all lysianassids, were represented: *C. femoratus*, *C. similis*, *O. plebs*, *O. rossi*, *O. rotundifrons* and *W. obesa*. The number of specimens of these species obtained in the nine samples, about 28,700, forms 90 per cent of the total number of specimens in the Operation Tabarin/Falkland Islands Dependencies Survey collection. It is interesting to note that less than 80 specimens of these six species were caught by other means.

These figures, which are comparable with those quoted by Hodgson (*in* Walker, 1907) and Bellan-Santini (1972*a*), indicate the vast numbers of necrophagous amphipods which must be present on the shallower parts of the continental shelf around Antarctica. The evidence of large aggregations of necrophagous lysianassids suggests that the reduction of an intact Weddell Sea carcase to a clean skeleton in less than 48 hours (personal communications from P. K. Dayton) may be normal rather than an unusual occurrence. It seems probable that necrophagy is normal in most of the six species listed above, but that other food sources can and are utilized. Bregazzi (1972*a*) has shown that both *C. femoratus* and *H. kergueleni* are facultative rather than obligatory necrophages.

Many associations between amphipods and other invertebrates have been described. Recent work by Jones (1970), Vader (1970*a*, *b*, 1972*a*, *c*), Hartnoll (1971), Laval (1972) and White and Bone (1972) indicates the diverse nature of such associations.

Three associations of a commensal or parasitic nature between amphipods and other organisms have been noted among the material in the present collections. Specimens of *Polycheria antarctica* f. *acanthopoda* were found living in shallow pits in the matrix of a large colonial ascidian. The habit of this species thus closely parallels that of the related boreal species *Dexamine thea* which occupies pits in the surface of sponges. The three amphipod species from sta. E517 were obtained from a large sponge. *Antarctogeneia macrodactyla* and *Schraderia gracilis* may have been chance associations, but the presence of *Seba stoningtonensis* is significant in the light of the large number of *Seba antarctica* obtained from sponges (Walker, 1907). Specimens of *Hyperia macrocephala* were obtained from the tissues of a large medusa (sta. HUS1). The association of *Hyperia* with medusae, known for many years, has recently been reported for Antarctic waters by White and Bone (1972).

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APPENDICES

APPENDIX A

IDENTITY OF ANTARCTIC ORCHOMENID AMPHIPODS ASCRIBED TO *O. chilensis* (Heller) (*sens. lat.*)

Source	*Station*	*Original identification*	*Present ident (number of in examin Orchomene C rossi*
Southern Cross Antarctic Expedition (Walker, 1903)	Lat. 78°35′S., long. 165°W., surface, 18 February 1900	*Orchomenopsis rossi* (syntypes)	ca. 25
	Seal stomach	*Orchomenopsis rossi* (syntypes)	4
	Plankton	*Orchomenopsis rossi* (syntypes)	—
National Antarctic Expedition (Walker, 1907)	Winter quarters, hole 4, 21 June 1902	*Orchomenopsis rossi*	—
	Winter quarters, hole 4, 28 June 1902	*Orchomenopsis rossi*	—
	Winter quarters, hole 4, 27 December 1902	*Orchomenopsis rossi*	—
	Winter quarters, hole 6, 130 fathoms, 23 February 1903	*Orchomenopsis rossi*	1
	Winter quarters, Cape Armitage, 5 fathoms, 30 April 1903	*Orchomenopsis rossi*	ca. 45
	Winter quarters, April 1903	(From tube of *Orchomenella pinguides*)	—
	Winter quarters, Castle Rock, seal hole, 14·5 fathoms	*Orchomenopsis rossi*	—
	No data	*Orchomenopsis rossi*	ca. 25
Swedish South-Polar Expedition (Schellenberg, 1931)	Grytviken, 29 May 1902, 210 m.	*Orchomenopsis chilensis* f. *rossi*	2
Scottish National Antarctic Expedition (Chilton, 1912)	South Orkney Islands, 1903*	*Orchomenopsis chilensis*	—
	Sta. 411, Coats Land, lat. 74°01′S., long. 22°00′W., 161 fathoms, March 1904*	*Orchomenopsis chilensis*	6
	Sta. 411, Coats Lane, lat. 74°01′S., long. 22°00′W., 161 fathoms, March 1904*	(With types of *Pseudorchomene coatsi*)	—
	Sta. 325, Scotia Bay, 27 fathoms, June 1903†	*Orchomenopsis chilensis*	—
	Sta. 325, Scotia Bay, 21 fathoms, September 1903†	*Orchomenopsis chilensis*	—
	Sta. 325, Scotia Bay, 10 fathoms, no date†	*Orchomenopsis chilensis*	—
	Sta. 411, Coats Land, lat. 74°01′S., long. 22°00′W., 161 fathoms, March 1904†	*Orchomenopsis chilensis*	Present**
Expédition Antarctique Française (Chevreux, 1906)	Port Charcot, 20 m.	*Orchomenopsis proxima*	—
British Antarctic Expedition (Barnard, 1930)	The Bay (Back Door Bay, Cape Royds, McMurdo Sound), 7–20 fathoms, 25 August 1908	*Orchomenopsis chilensis* f. *rossi*	—
Deuxième Expédition Antarctique Française (Chevreux, 1913)	Petermann Island, from penguin stomach	*Orchomenopsis rossi*	1
British Antarctic (*Terra Nova*) Expedition (Barnard, 1930)	Sta. 318, 11 April 1911, 180 m.	*Orchomenopsis chilensis* f. *rossi*	—
	Sta. 318, 13 June 1911, 180 m.	*Orchomenopsis chilensis* f. *rossi*	—
	Sta. 326, 16 June 1911, 18 m.	*Orchomenopsis chilensis* f. *rossi*	—
	Sta. 318, 11 August 1911, 175 m.	*Orchomenopsis chilensis* f. *rossi*	—
	Sta. 318, 29 August 1911, 180 m.	*Orchomenopsis chilensis* f. *rossi*	—
	Sta. 318, 15 September 1911, 180 m.	*Orchomenopsis chilensis* f. *rossi*	—
	Sta. 326, 11 August 1912, from penguin skeleton	*Orchomenopsis chilensis* f. *rossi*	—
Australasian Antarctic Expedition (Nicholls, 1938)	West Base, fish trap, 270 fathoms	*Orchomenella rossi*	14
Discovery Committee (Barnard, 1932)	Sta. MS68, South Georgia	*Orchomenella rossi*	1
	Sta. 42, South Georgia	*Orchomenella rossi*	ca. 75
	Sta. 45, South Georgia	*Orchomenella rossi*	11
	Sta. 123, South Georgia	*Orchomenella rossi*	ca. 125
	Sta. 142, South Georgia	*Orchomenella rossi*	ca. 40
	Sta. 149, South Georgia	*Orchomenella rossi*	12
	Sta. 154, South Georgia	*Orchomenella rossi*	4
	Sta. 173, South Shetland Islands	*Orchomenella rossi*	—
	Sta. 178, Graham Land	*Orchomenella rossi*	—
	Sta. 181, Graham Land	*Orchomenella rossi*	ca. 125
	Sta. 184, Graham Land	*Orchomenella rossi*	—
	Sta. 189, Graham Land, 70 m.	*Orchomenella rossi*	3
	Sta. 189, Graham Land, 7 m.	*Orchomenella rossi*	3
	Sta. 208, Bransfield Strait	*Orchomenella rossi*	—
	Sta. WS38, South Georgia	*Orchomenella rossi*	1
Norwegian Antarctic Expeditions (Stephensen, 1947)	Sta. 28, South Georgia	*Orchomenella rossi*	8

* From British Museum (Nat. Hist.) collections.
† From Royal Scottish Museum collections.
‡ Sample also contained ca. 40 *Orchomene nodimanus*.
§ Sample also contained ca. 750 *Orchomene nodimanus*.
‖ Sample also contained five *Orchomene nodimanus* and three *Cheirimedon femoratus*.
** Sample also contained *Pseudorchomene coatsi*.

APPENDIX B

GEOGRAPHICAL DISTRIBUTION OF GAMMARIDEAN AMPHIPODS FROM OPERATION TABARIN/F.I.D.S., LARSEN AND BENNETT COLLECTIONS

	Graham Land, west coast south of lat. 67°S.	Graham Land, west coast north of lat. 67°S. and west of long. 60°W.	Graham Land, north and east coasts east of long. 60°W.	South Shetland Islands	South Orkney Islands	South Sandwich Islands	South Georgia	Shag Rocks
Ampelisca bouvieri Chevreux		–	–					
A. eschrichtii Krøyer						+		
Andaniotes ingens Chevreux	+	–						
Antarctogeneia macrodactyla sp. nov.	+	+						
Antatelson walkeri (Chilton)		+						
Atyloella magellanica (Stebbing)		+						
Atylopsis orthodactylus sp. nov.		+						
Bovallia gigantea Pfeffer		–	+	–	–	–	–	
Cardenio paurodactylus Stebbing				+				
Cheirimedon femoratus (Pfeffer)	+	–	+	–	–			
C. similis sp. nov.	+							
Djerboa furcipes Chevreux		–		+				
Echiniphimedia echinata (Walker)					+			
Epimeria monodon Stephensen		–						
Eurymera monticulosa Pfeffer		–	+	–				
Eusirus antarcticus (Thomson)		–						
E. bouvieri Chevreux			+			+		
Gammaropsis bennetti sp. nov.				+				
Gitanopsis squamosa (Thomson)		–						
Gnathiphimedia sexdentata (Schellenberg)	+							
Gondogeneia antarctica (Chevreux)	+	–	–	–	–			
G. redfearni (Thurston)				+				
Heterophoxus videns Barnard	+							
Hippomedon kergueleni (Miers)	+	+	–	–	–	–	–	
Jassa falcata (Montagu)		–	+	+				
J. ingens (Pfeffer)					–	–	–	
Lepidepecreum cingulatum Barnard		+	+					
Liljeborgia eurycradus sp. nov.				+			+	
Liouvillea oculata Chevreux		–						
Metaleptamphopus pectinatus Chevreux					–			
Methalimedon nordenskjoeldi Schellenberg		+						
Metopoides sarsi (Pfeffer)		–	+					
Monoculodes scabriculosus Barnard	+		+					
Oediceroides lahillei Chevreux				+		–		
Oradarea bidentata Barnard		+		+	–			
O. edentata Barnard		+						
O. ocellata Thurston		–	+					
O. tridentata Barnard		+						
O. unidentata Thurston		–						
O. walkeri Shoemaker	+	–						
Orchestia scutigerula Dana							–	
Orchomene acanthurus (Schellenberg)	–							
O. plebs (Hurley)		–	+					
O. rossi (Walker)	+							
O. rotundifrons (Barnard)			+					
O. tabarini Thurston			+					
Paraceradocus miersi (Pfeffer)	+		–			–		
Paradexamine fissicauda Chevreux		–	+					
Paramoera edouardi Schellenberg	+	–	+					
P. husvikensis sp. nov.							+	
P. pfefferi Schellenberg							–	

APPENDIX B—*continued*

APPENDIX B—*continued*

GEOGRAPHICAL DISTRIBUTION OF GAMMARIDEAN AMPHIPODS FROM OPERATION TABARIN/F.I.D.S., LARSEN AND BENNETT COLLECTIONS

	Graham Land, west coast south of lat. 67°S.	Graham Land, west coast north of lat. 67°S. and west of long. 60°W.	Graham Land, north and east coasts east of long. 60°W.	South Shetland Islands	South Orkney Islands	South Sandwich Islands	South Georgia	Shag Rocks
P. walkeri (Stebbing)	+	+						
Pariphimedia integricauda Chevreux		–	+	–	–			
Polycheria antarctica (Stebbing)			+					
Pontogeneiella brevicornis (Chevreux)		–	+	–		–	–	
P. longicornis (Chevreux)	+	–		–			–	
Probolisca ovata (Stebbing)		+	+		–			
Prostebbingia gracilis (Chevreux)	–	–	–					
P. serrata Schellenberg	+							
Prothaumatelson nasutum (Chevreux)		–						
Schraderia barnardi Thurston		+						
S. dubia Thurston		+						
S. gracilis Pfeffer	–	–		–				
Seba stoningtonensis sp. nov.	+							
Tryphosella marri sp. nov.			+					
Waldeckia obesa (Chevreux)		–						
Wandelia crassipes Chevreux		–						
TOTAL	20	41	24	17	10	8	9	0

\+ New record for area.
– Previously recorded from area.

APPENDIX C

SUMMARY OF GEOGRAPHICAL DISTRIBUTION OF GAMMARIDEAN AMPHIPODS FROM GRAHAM LAND AND THE SCOTIA ARC

	Graham Land, west coast south of lat. 67°S.	Graham Land, west coast north of lat. 67°S. and west of long. 60°W.	Graham Land, north and east coasts east of long. 60°W.	South Shetland Islands	South Orkney Islands	South Sandwich Islands	South Georgia	Shag Rocks	TOTAL
Number of species recorded by Thurston (1972*b*, appendix C)	19	67	48	84	73	17	144	17	224
New records from Operation Tabarin/F.I.D.S., Larsen and Bennett collections	17	14	19	8	1	2	2	—	9
New records based on other collections or literature		1[a]	1[b]			2[c]	2[b,d]	1[e]	2
Records deleted on evidence provided in this report	1[f]	1[f]			1[g]	1[e]			1
REVISED TOTAL	35	81	68	92	73	20	148	18	234[h]

[a] *Eusirus bouvieri* (see p. 30).
[b] *Orchomene schellenbergi* (see Thurston (1972*a*)).
[c] *Jassa falcata* (as *J. wandeli*), *Leucothoe spinicarpa* recorded by Stephensen (1947) and omitted by Thurston (1972*b*).
[d] *Gnathiphimedia barnardi* (see p. 15).
[e] *Socarnoides kergueleni* attributed to wrong area by Thurston (1972*b*).
[f] *Eusirus laticarpus* (see under *E. antarcticus*, p. 29).
[g] *Orchomene macronyx* (see Thurston (1972*a*)).
[h] These totals do not include the abyssal records of Barnard (1962*c*), nor those from west of long. 80°W. given by Monod (1926) and Ruffo (1949).

APPENDIX D

Geographical Coordinates of Localities Mentioned in the Text*

	Latitude	*Longitude*
Adare, Cape	71°17′S.,	170°14′E.
Admiralty Bay	62°07′S.,	58°27′W.
Alasheyev Bight	67°30′S.,	45°40′E.
Alexander Island	70°45′S.,	70°00′W.
Anvers Island	64°35′S.,	63°30′W.
Argentine Islands	65°15′S.,	64°17′W.
Aspland Island	61°30′S.,	55°49′W.
Astrolabe Island	63°19′S.,	58°42′W.
Armitage, Cape	77°51′S.,	166°40′E.
Arthur Harbour	64°46′S.,	64°04′W.
Balleny Islands	66°35′S.,	162°50′E.
Betsy Cove	49°09′S.,	70°11′E.
Bismarck Strait	64°51′S.,	64°00′W.
Booth Island	65°05′S.,	64°00′W.
Bouvetøya	54°26′S.,	03°24′E.
Bransfield Strait	63°00′S.,	59°00′W.
Bristol Island	59°02′S.,	26°31′W.
Burdwood Bank	54°20′S.,	59°00′W.
Candlemas Island	57°03′S.,	26°40′W.
Castle Rock	77°48′S.,	166°46′E.
Charcot, Port	65°03′S.,	64°00′W.
Chavez Island	65°38′S.,	64°33′W.
Clarence Island	61°08′S.,	54°06′W.
Coal Harbour	54°02′S.,	37°58′W.
Coats Land	74°00′S.,	22°00′W.
Commonwealth Bay	66°54′S.,	142°40′E.
Cook Island	59°27′S.,	27°10′W.
Cooper Island	54°49′S.,	35°46′W.
Coulman Island	73°28′S.,	169°45′E.
Cumberland Bay	54°17′S.,	36°30′W.
Davis Sea	66°00′S.,	92°00′E.
Deception Island	62°57′S.,	60°38′W.
Discovery Inlet	78°20′S.,	171°00′W.
Doumer Island	64°51′S.,	63°35′W.
Drygalski Island	65°45′S.,	92°30′E.
Enderby Land	67°30′S.,	53°00′E.
Erebus and Terror Gulf	63°55′S.,	56°40′W.
Falkland Islands	51°30′S.,	59°30′W.
Flandres Bay	65°02′S.,	63°20′W.
Fournier Bay	64°30′S.,	63°07′W.
Galindez Island	65°15′S.,	64°15′W.
Gaussberg	66°48′S.,	89°12′E.
Gauss winter station	66°02′S.,	89°38′E.
Géodésie, Cap	66°40′S.,	139°51′E.
Godthul	54°17′S.,	36°18′W.
Gough Island	40°20′S.,	10°00′W.
Grytviken	54°17′S.,	36°31′W.
Hallett, Cape	72°19′S.,	170°18′E.
Haswell Island	66°31′S.,	93°00′E.
Heard Island	53°06′S.,	73°30′E.
Hope Bay	63°24′S.,	57°00′W.
Horseshoe Island	67°51′S.,	67°12′W.
Husvik	54°10′S.,	36°43′W.
Hystadhullet	54°16′S.,	36°18′W.
Isles, Bay of	54°02′S.,	37°20′W.
Jason Island	54°10′S.,	36°30′W.
Jenny Island	67°44′S.,	68°25′W.
Kerguelen, Iles	49°30′S.,	69°30′E.
Larsen Point	54°12′S.,	36°30′W.
Laurie Island	60°44′S.,	44°37′W.
Leskov Island	56°40′S.,	28°10′W.
Livingston Island	62°36′S.,	60°30′W.
Lockroy, Port	64°49′S.,	63°30′W.
McMurdo Sound	77°30′S.,	165°00′E.
Marguerite Bay	68°30′S.,	69°00′W.
Melchior Harbour	64°19′S.,	62°59′W.
Montagu Island	58°25′S.,	26°20′W.
Neny Fjord	68°16′S.,	66°50′W.
Neumeyer Channel	64°47′S.,	63°30′W.
Normanna Strait	60°41′S.,	45°38′W.
Oates Coast	70°00′S.,	160°00′E.
Peltier Channel	64°52′S.,	63°33′W.
Peter I Øy	68°47′S.,	90°35′W.
Petermann Island	65°11′S.,	64°11′W.
Pointe Géologie, Archipel de	66°39′S.,	139°55′E.
Possession Bay	54°06′S.,	37°06′W.
Rasmussen Island	65°15′S.,	64°06′W.
Robert Island	62°24′S.,	59°34′W.
Royds, Cape	77°33′S.,	166°09′E.
Saunders, Cape	54°07′S.,	36°38′W.
Saunders Island	57°47′S.,	26°27′W.
Schollaert Channel	64°30′S.,	62°50′W.
Scotia Bay	60°46′S.,	44°40,W.
Shackleton Ice Shelf	66°00′S.,	100°00′E.
Shag Rocks	53°33′S.,	42°02′W.
Shelter Islands	65°15′S.,	64°18′W.
Shirreff, Cape	62°28′S.,	60°48′W.
Signy Island	60°43′S.,	45°38′W.
Skua Island	65°15′S.,	64°16′W.
Snow Hill Island	64°27′S.,	57°13′W.
Snow Island	62°46′S.,	61°23′W.
Southern Thule	59°26′S.,	27°12′W.
South Georgia	54°20′S.,	36°40′W.
Spring Point	64°17′S.,	61°04′W.
Stonington Island	68°11′S.,	67°00′W.
Stromness Bay	54°09′S.,	36°38′W.
Sturge Island	67°27′S.,	164°18′E.
Terre Adélie	67°00′S.,	139°00′E.
Tower Island	63°33′S.,	59°51′W.
Trepassy Island	68°12′S.,	66°59′W.
Tuxen, Cape	65°16′S.,	64°08′W.
Undine Harbour	54°02′S.,	37°59′W.
Visokoi Island	56°42′S.,	27°12′W.
Whales, Bay of	78°30′S.,	164°20′W.
White Island	78°08′S.,	167°20′W.
Wiencke Island	64°50′S.,	63°25′W.
Zavodovski Island	56°20′S.,	27°35′W.

* Positions based on H.M.S.O. (1962) and United States Board on Geographic Names (1969).

APPENDIX E

INDEX OF SCIENTIFIC NAMES
(Synonyms are in brackets)