AUSTRALASIAN ANTARCTIC EXPEDITION

1911-14.

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

SCIENTIFIC REPORTS.

SERIES C.—ZOOLOGY AND BOTANY.

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

VOL. II. PART 4.

AMPHIPODA GAMMARIDEA

BY

G. E. NICHOLLS, D.Sc.,
PROFESSOR OF BIOLOGY, UNIVERSITY OF WESTERN AUSTRALIA.

WITH SIXTY-SEVEN TEXT FIGURES.

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CORRIGENDUM.

Since the name *Parandaniexis* (page 42) proposed in this report for a new genus is preoccupied, having been employed by Schellenberg (Bull. Mus. Comp. Zool., Vol. 69, 1929), *Pseudandaniexis* is substituted.

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THE AMPHIPODA GAMMARIDEA.

By G. E. Nicholls, Professor of Biology, University of Western Australia.

(With sixty-seven text-figures.)

INTRODUCTION.

The collection of Amphipods, here described, was made during the cruise of the "Aurora" in Antarctic waters (1912–14) under the leadership of Sir Douglas Mawson, and includes the material secured by Mr. H. Hamilton during his stay of one year (1912–13) upon Macquarie Island.

While by no means so comprehensive a collection as either of those recently described by Drs. Schellenberg and Barnard from the Weddell Quadrant, it comprises, nevertheless, a quite considerable accumulation of material of which a relatively large proportion appears new. The late Dr. Chilton, to whom it was originally entrusted, ultimately found himself unable to undertake the task and, in 1929, with the consent of Sir Douglas Mawson, to whom my thanks are due, transferred the material to me for report. Dr. Chilton had evidently just made a beginning upon the examination of the material, for some preliminary sorting had been done and some specimens dissected, but the contents of three or four tubes, only, had been provisionally named.

The examination of this collection has occupied most of my leisure since my return to West Australia in 1930, and my sincere thanks are due to Dr. K. Barnard of the South African Museum who kindly consented to relieve me of the Hyperiidae and also, to Miss N. L. Horgan for her enthusiastic help with preparations and drawings. Indeed, almost all of the illustrations are her work and without this assistance the completion of the report must have been much longer delayed.*

Of the Gammarids, several species are present in large numbers, in some cases many hundreds. Apart from these, the collection includes rather under 800 examples; sixty genera and ninety species are identified, of which fifteen are represented by two examples only, and twenty-two by but a single specimen apiece; seven genera and twenty-six species are believed to be new to science, and there are described also three new varieties which should, perhaps, have been given specific rank. That some of these may

*The manuscript was submitted for publication nearly five years ago.—[Editor].

have been misidentified is more than possible, for not only do earlier descriptions (amply sufficient for their time), as Dr. Barnard has pointed out (1932, pp. 3-4) frequently prove to lack just those details needed for the later student, but the disadvantages of residence remote from libraries and the museums which house the existing named antarctic collections could scarcely be greater than in this State. I cannot, however, allow to pass this opportunity to express my appreciation of the promptitude with which the Librarians of the Australian Museum, Sydney, and the South Australian Museum, met my frequent requests for the loan of books.

I desire to acknowledge, too, my gratitude to Drs. Barnard, Schellenberg and Stephensen for the gift of their published papers including the recent invaluable contributions to our knowledge of the Antarctic Amphipoda which lightened very considerably the task of identification.

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Family PODOCERIDAE.

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SYSTEMATIC ACCOUNT.

Sub-order Gammaridea.

FAMILY LYSIANASSIDAE.

Stebbing, 1906, pp. 8 and 717.
Schellenberg, 1926, p. 239; 1932, p. 5.
Barnard, 1930, p. 318; 1932, p. 28.

Barnard, in his remarks on this family, recommends the use of the profile of pleon segment 4 as a specific character. In attempting to make use of this character, however care must be taken to ensure that pleon segment 4 is drawn out to its full extent. Very frequently it occurs largely retracted within the preceding segment and the profile of the urus then appears notably different from that afforded when the 4th segment is seen fully extended (cf. fig. 6).

Genus ACONTIOSTOMA *Stebb.*

Stebbing, 1906, p. 15.

ACONTIOSTOMA MARIONIS *Stebb.*

(Fig. 1.)

Stebbing, 1888, p. 709, pl. 30; p. 714, pl. 31 (*magellanicum*); 1906, p. 15, fig. 4; p. 15 (*magellanicum*); 1914, p. 356; Chilton, 1912, p. 462; Schellenberg, 1931, p. 5; Barnard, 1932, p. 32.

Occurrence.—1. Macquarie Island (C.37)*, 1 ex., 5 mm.
2. ,, ,, (C.42), 2 ex., 4·5 and 4 mm.
3. ,, ,, (C.47), 15 ex., 4·5–8 mm.
4. ,, ,, North End (H. Hamilton 1913), 4 ex., 4–7·5 mm.
5. ? ,, ,, 1 ex., 7·5 mm. (bottle with clams).

Remarks.—These specimens undoubtedly belong to Stebbing's species for, although that author's figure of the first maxilla (pl. 30) indicates a much less setose condition of the palp than is seen in the present specimen (fig. 1c) and hand of gnathopod 2 (fig. 1, *a*, *b*) appears to be rather more strongly chelate, in every other respect these specimens conform closely to Stebbing's description.

The collector's note, attached to (2), reads: " 2 specimens from scrapings of rock below low water . . . Original colour: Whitish with transverse bands of red across the body."

* The Collector's numbering—fuller details given under " B " in locality list.

The taking of more than a score of examples of this species in shallow water (at about low tide level) on the shores of Macquarie Island is a matter of some interest. From the Falkland Islands a couple of specimens have also been recorded as taken at low tide mark. Apart from the latter, the species is apparently known from but a bare half dozen examples since the first specimens were taken by the " Challenger " at Marion Island. All of these were taken from shallow water, the greatest depth recorded being one hundred fathoms. It is probable, therefore, that it is essentially a littoral species in which case its widely scattered sub-antarctic distribution has a considerable zoo-geographical interest.

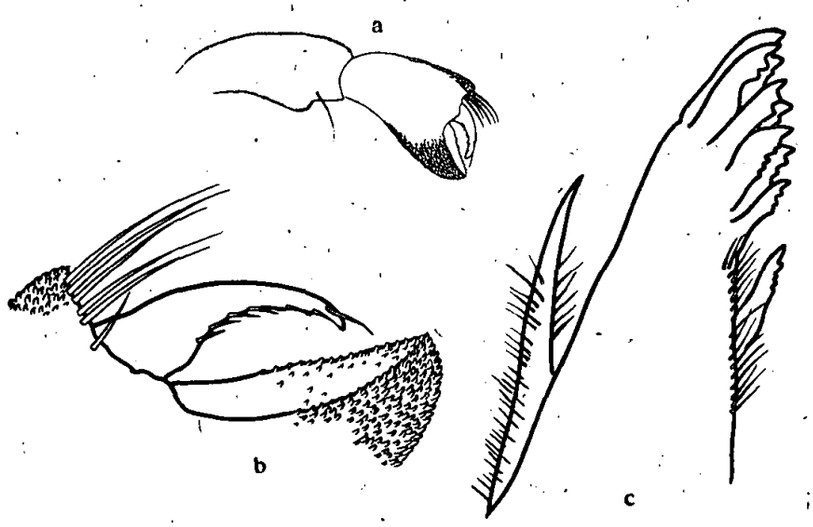

Figure 1. *Acontiostoma marionis*-Stebb.—a, gnathopod 2—propod and dactyl; b, palm and dactyl, more highly magnified; c, part of maxilla 1, showing apex of outer plate and of palp.

Distribution.—Marion Island, Cape Virgins, Gough Island, New Zealand, Kerguelen Island and Falkland Islands.

Genus PARALYSIANOPSIS *Schell.*

Schellenberg, 1931, p. 7.

PARALYSIANOPSIS ODHNERI *Schell.*

Schellenberg, 1931, p. 7, figs. 2 and 2*a–k;* Barnard, 1932, p. 38, fig. 6.

Occurrence.—Commonwealth Bay, 25 fathoms, 1 ♀, 4 mm.

Remarks.—A single specimen, in rather poor condition, eyes not discerned, brood lamellae exceedingly narrow, tipped with three or four long setae.

Distribution.—Falkland Islands, South Georgia.

ADELIELLA *n. g.*

Sideplate 1 rather small, nearly concealed by 2nd. Epimera of pleon rounded behind. Telson short, emarginate. Antennae short. Antenna 1 with joints 2 and 3 moderately well developed. Mouth parts slender. Epistome not greatly produced. Mandibles with distinct molar, palp stout. Maxilla 1, inner lobe minute or absent, outer lobe slender with few (5–6) stout spines terminally, palp 2-jointed with 3–5 short spine setae. Maxilla 2, slender, inner lobes narrower and considerably shorter than outer, both lobes with few terminal setae.

Inner plate of maxillipeds narrow, not extending beyond the 1st joint of palp, outer plate broad, not reaching to end of 2nd joint of palp, both plates armed with few spine teeth, palp stout, 4th joint short.

Gnathopod 1 stout, subchelate, carpus triangular, slightly shorter than propod, dactyl curved, stout, as long as oblique palm. Gnathopod 2 slender, scarcely subchelate, carpus narrow, propod bearing short finger-like 7th joint in middle of its apical border. Peraeopods 3–5 short and stout increasing progressively in length. Uropod 2 having rami lanceolate inner ramus not constricted. Uropod 3, short, outer ramus 2-jointed, 1st joint as long as peduncle, inner ramus shorter than 1st joint of outer.

Type.—Adeliella laticornis n. sp.

Remarks.—This genus seems to come nearest to *Pseudokoroga* Schell., from which, however, it differs in the small, almost concealed 1st sideplate, in the rounded epimera, less developed epistome, the condition of gnathopod 2 and the absence of constriction of inner ramus of uropod 2.

ADELIELLA LATICORNIS *n. sp.*

(Fig. 2.)

Occurrence.—1. Commonwealth Bay, Station 4, 1 ♂ (?) 7·5 mm. (strongly curved).
2. „ „ Station 9, 2 ♀♀, 9·5 mm. (strongly curved), and 9 mm.

Description.—Body stout, rounded, sideplates deep except first which is almost concealed by second; fourth shallowly emarginate behind; 4th pleon segment with deep sinus followed by rounded hump. Head with rounded antero-lateral angle; eye wanting.

Antenna 1, short and very stout, 1st joint of peduncle more than twice length of 2 and 3 together; flagellum conical, 5-jointed, considerably shorter than 1st joint of peduncle, 1st joint of flagellum longer than rest of flagellum. Accessory flagellum slender, 2-jointed, rather longer than 1st joint of primary flagellum. Antenna 2 subequal to antenna 1, slender, 4th joint longest and widest; 12-jointed flagellum equal in length to last two joints of peduncle.

Epistome separated from upper lip by a groove, mandible short, cutting edge with minute tooth at either end, molar distinct, palp arising proximally, stout, 2nd joint appreciably longer than 3rd.

Maxilla 1, inner lobe not seen (? absent), outer lobe slender, rounded apex capped by one simple seta, palp 2-jointed with from 3-5 short spinules.

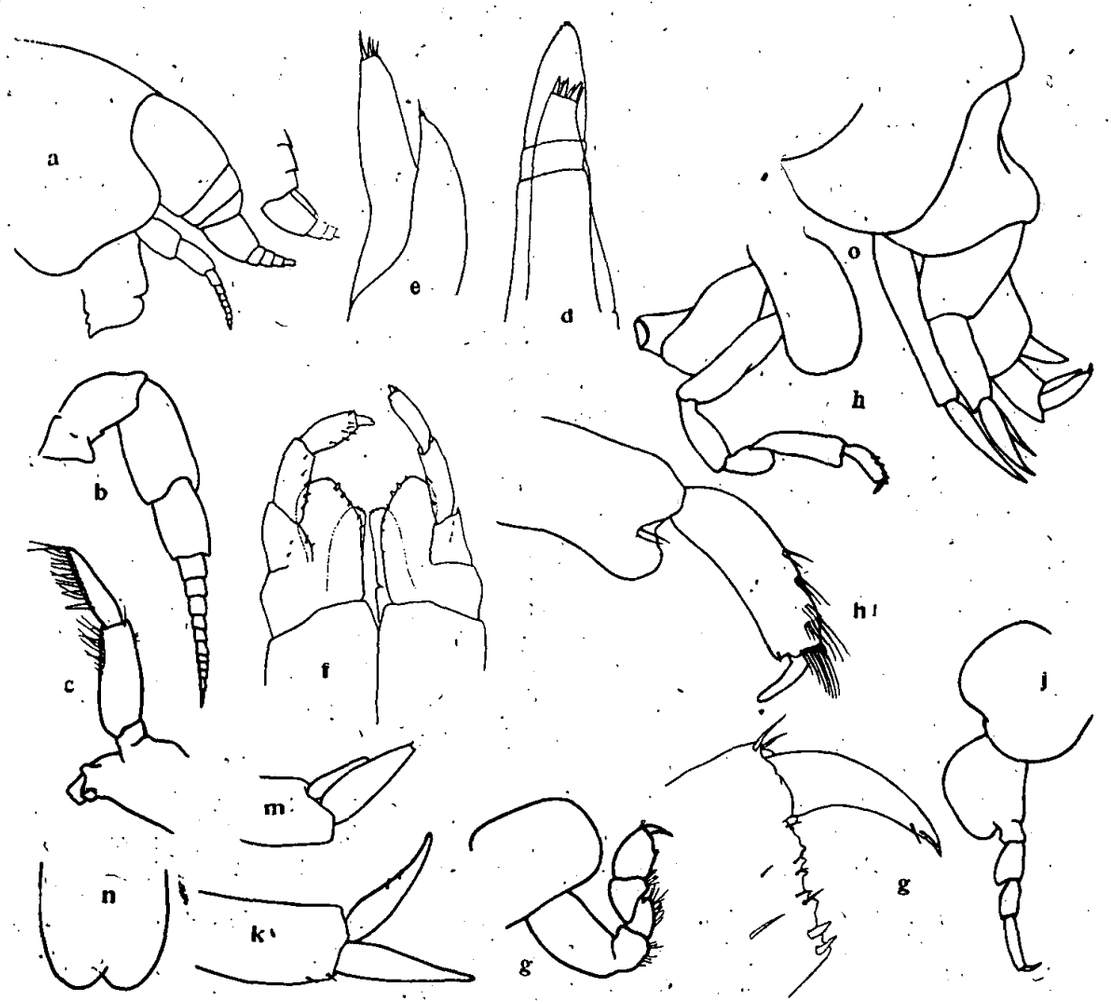

Figure 2. *Adeliella laticornis* n.sp.—a, head with epistome and antenna 1; b, antenna 2; c, mandible; d, maxilla 1; e, maxilla 2; f, maxilliped; g, gnathopod 1; h, gnathopod 2; j, peræopod 3; k, uropod 2; m, uropod 3; n, telson; o, urus.

Maxilla 2, both lobes slender, inner about three-fifths length of outer, apex narrowed to point terminating in two simple setae, outer lobes transversely truncated with 2 simple setae and two slender spines. Maxillipeds slight, both plates thin, membranous; inner narrow, apex truncate with 2 or 3 spine teeth, outer plate expanded, also with 2–3 spine teeth and some very flexible simple setae; palp stout with short unguiform 4th joint.

Coxa of gnathopod 1 short, rounded but not widening below. Basos short and

stout, carpus broad, triangular, propod trapezoidal, palm distinct, oblique, with sparse spine-setae, its posterior angle defined by two short spines, dactyl strong, curved.

Coxa of gnathopod 2 as wide but almost twice as long as coxa 1, gnathopod slender, 3rd and 5th joints subequal the 6th narrow and curved, little more than half the length of 5th, finger short and curved, perhaps shutting down on minute palm at distal end of propod.

Coxa of 3rd peraeopod equally bilobed, limb short and stout, basos expanded, peraepods 4 and 5 progressively increasing in length, coxal plates of the last being small and nearly oval.

Uropods 2 and 3 with broad peduncle, uropod 2 with rami lanceolate, equal, inner ramus unconstricted. Uropod 3, outer ramus 2-jointed, twice the length of the inner. Telson broad as long, rounded, with small median notch.

Genus PACHYCHELIUM *Steph.*

Stephensen, 1925, p. 121.
Schellenberg, 1926, p. 296, and 1931, p. 18.
Barnard, 1932, p. 75.

PACHYCHELIUM ANTARCTICUM *Schell.*

(Fig. 3.)

Schellenberg, 1926, p. 296, fig. 30, and 1931, p. 19, fig. 8; ? Barnard, 1932, p. 75, fig. 32 (*davidis*).

Occurrence.—1. Commonwealth Bay, 25 f., 5 ex., 12·5, 12, 8·5, 4 and 3·5 mm.
2. ,, ,, 350–400 f., 1 ex., 12 mm.

Remarks.—The description originally given by Schellenberg was based on the examination of a single immature specimen 1·6 mm. in length. Subsequently a more complete account was made possible by the collection of five other specimens of larger size (2·5 mm.–9 mm.), all still immature. To this description the "Aurora" material conforms very nearly. There are, however, differences to be observed, notably in (1) the shape of gnathopod 1 and the development of a thumb-like process at the posterior end of the palm, (2) in proportions and armature of the joints of the peraeopods, the basos of peraeopods 3–5 being markedly crenulate—much more so than is shown by Schellenberg in *P. oculatum*, but all of these differences are possibly to be explained by differences in age. Uropods 3, resemble rather the condition noted by Barnard than that figured by Schellenberg for his small specimen.

The mouthparts of *P. davidis* were not examined by Stephensen who, likewise, had but a single small specimen (3·5 mm.). The mandible of a small specimen (4 mm.) agrees exactly with Schellenberg's figure (8*b*) even to the number of setae, which however are more numerous in a larger specimen. Barnard's figure (32*a*) of maxilla 1 does not agree with the condition of this appendage in the "Aurora" specimens, the inner lobe,

in these, being short, rounded and without terminal seta, a condition suggested by Schellenberg's figure (8*c*). In the maxilliped there are structures probably to be regarded as traces of vanishing inner plates. The outer plate appears rather broader and more rounded than Schellenberg's figure indicates with a few short flexible setae on its mesial border, and a distinct notch near its distal end. The palp has a distinct 4th joint as stated by Schellenberg (1931), subequal in length to the 3rd.

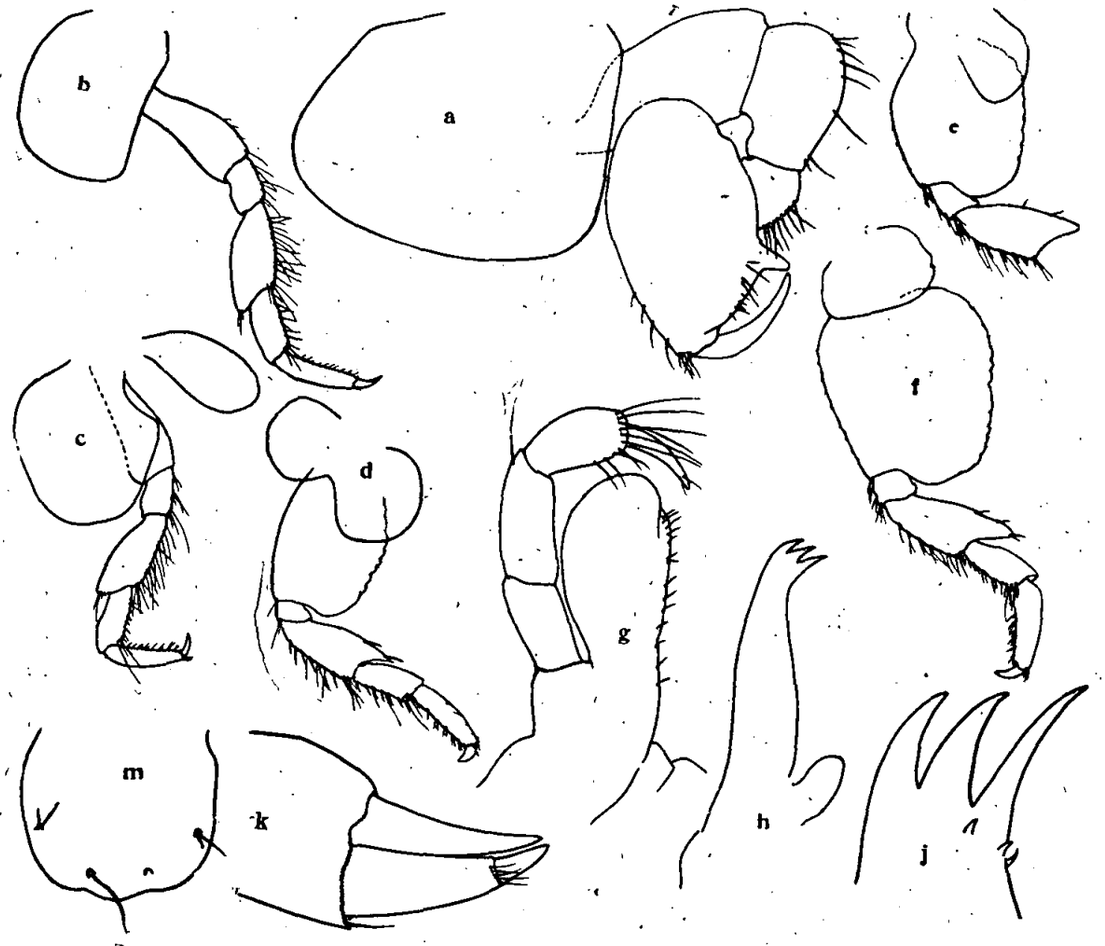

Figure 3. *Pachychelium antarcticum* Schell.—a, gnathopod 1; b, peræopod 1; c, peræopod 2; d, peræopod 3; e, peræopod 4; f, peræopod 5; g, maxilliped; h, maxilla 1; j, apex of outer plate of maxilla 1, more highly magnified; k, uropod 3; m, telson.

The telson is squarish but with corners rounded and hind border sinuous, with a pair of subterminal flexible setae lying behind slight notches, while laterally, submarginally, are a paired couple of similar setae.

None of the specimens in the present collection appears to have brood lamellae while all have the typical propod of gnathopod 1. It is possible, therefore, that all of these are males and that Schellenberg's original specimen and, perhaps also the "Discovery" specimens, reported on by Barnard, are immature females.

The bathymetrical range is considerable, varying from 3–400 fathoms.

Distribution.—" Gauss " Winter Station; Ultima Esperanza; Falkland Islands; Punta Arenas; Picton Islands; ? South Georgia (Barnard).

Genus WALDECKIA *Chevr.*

Chevreux, 1906, p. 13.

WALDECKIA OBESA (*Chevr.*)

(Fig. 4.)

Chevreux, 1906, p. 15, figs. 8–10, and 1913, p. 91; Walker, 1907, p. 10, pl. 2, fig. 4; Chilton, 1912, p. 471 (*zschauii*, non *Anonyx zschauii*, Pfr.); Schellenberg, 1926, p. 253, fig. 9; Barnard, 1930, p. 323, fig. 1*a*, and 1932, p. 43.

Occurrence.—1. Station 2, 1 ♂, 14 mm.; 2 ♀♀, 14 mm. (curved), and 16 mm.
2. Station 9, 1 ex. 10 mm.
3. Station 12, 1♂, 14 mm.; 7 ♀♀, 12 mm., 17 mm., 7 juv., 7 mm.; 9 mm.

Remarks.—Two specimens dissected agree with the descriptions of Chevreux and Walker, except in the following details: the accessory flagellum of antenna 1 has but five joints in the female; in maxilla 1 the inner lobe has six terminal plumose setae (two of these lying in a different plane), and the outer lobe 11 stout serrated spines (Chevreux notes but nine). In the male the long second antenna is as figured by Walker and has more than fifty joints in the flagellum.

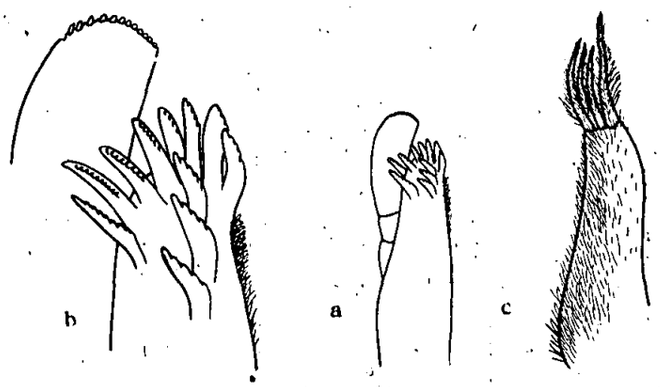

Figure 4. *Waldeckia obesa* Chevr.—a, part of maxilla 1; b, apex of same, more highly magnified; c, inner plate of same (only four of the six plumose setose shown).

The specimens taken at Station 2 were brought from 288–300 fathoms, thus still further extending the known bathymetrical range of this species.

Distribution.—Coats Land; Palmer Archipelago and Graham Land; McMurdo Sound; " Gauss " Winter Station; South Sandwich Group; South Shetlands.

Genus LYSIANASSA *M.-E.*

Stebbing, 1906, p. 37.

LYSIANASSA ANOMALA *n.sp.*

(Fig. 5.)

Occurrence.—1. Macquarie Island, 11th June, 1912, 1 ♂, 4·5 mm.
2. Stomach of *Notothenia macrocephala*, 1 ♂, 5 mm. (somewhat macerated).

Description ♂.—Body compressed, rounded. Head with antero-lateral angle rounded-quadrate. Eyes brown, oval-reniform, widened above; sideplates 1 and 2 with sub-marginal fringe of spine-setae, sideplate 1 partly concealed, 2–4 deeper, 4 very strongly excavate. Pleon segment 4 with transverse sinus behind which it is produced into a carina, postero-inferior angle of pleon segments 2 and 3 rounded.

Antennae calceoliferous. Antenna 1, 2nd joint of peduncle only moderately long, flagellum 9-jointed, accessory flagellum 7-jointed nearly as long as primary. Antenna 2, almost as long as the body.

Epistome not separated from upper lip by definite incisure. Mandible with molar obsolete, cutting edge smooth, palp set near proximal end, comparatively short.

Maxilla 1, inner lobe bears no plumose setae, outer lobe with 7 (? 11) stout spines, palp appears narrow and is tipped with fine setae. Maxilla 2, inner lobe broadened. Maxilliped, outer plate nearly as long as slender palp, broad and with smooth inner margin and apex, inner plate extends beyond 2nd joint of palp, nearly as long as outer, ending terminally in three stout spine-teeth; palp with 4th joint, short.

Gnathopod 1, 6th joint tapering, subequal to (not longer than) 5th, dactyl constricted subapically. Gnathopod 2, propod half length of carpus, minutely chelate, furnished with a bunch of terminally bifid setae; dactyl small, with inner border denticulate distally.

Uropod 2, inner ramus does not appear constricted. Uropod 3 short, rami broadly lanceolate, subequal, inner margins of both set with long plumose setae which attain a length twice that of ramus. Outer ramus ends in short curved spine, presumably a minute 2nd joint.

Remarks.—In many of its features this species shows an extraordinarily close likeness to other *Lysianassa* spp. It appears to differ from all, however, in epistome and palp of maxilla 1 while in the condition of uropod 3, it appears to transgress the generic definition so that it may prove necessary to erect for it a separate genus; for the present I prefer to leave it in *Lysianassa*.

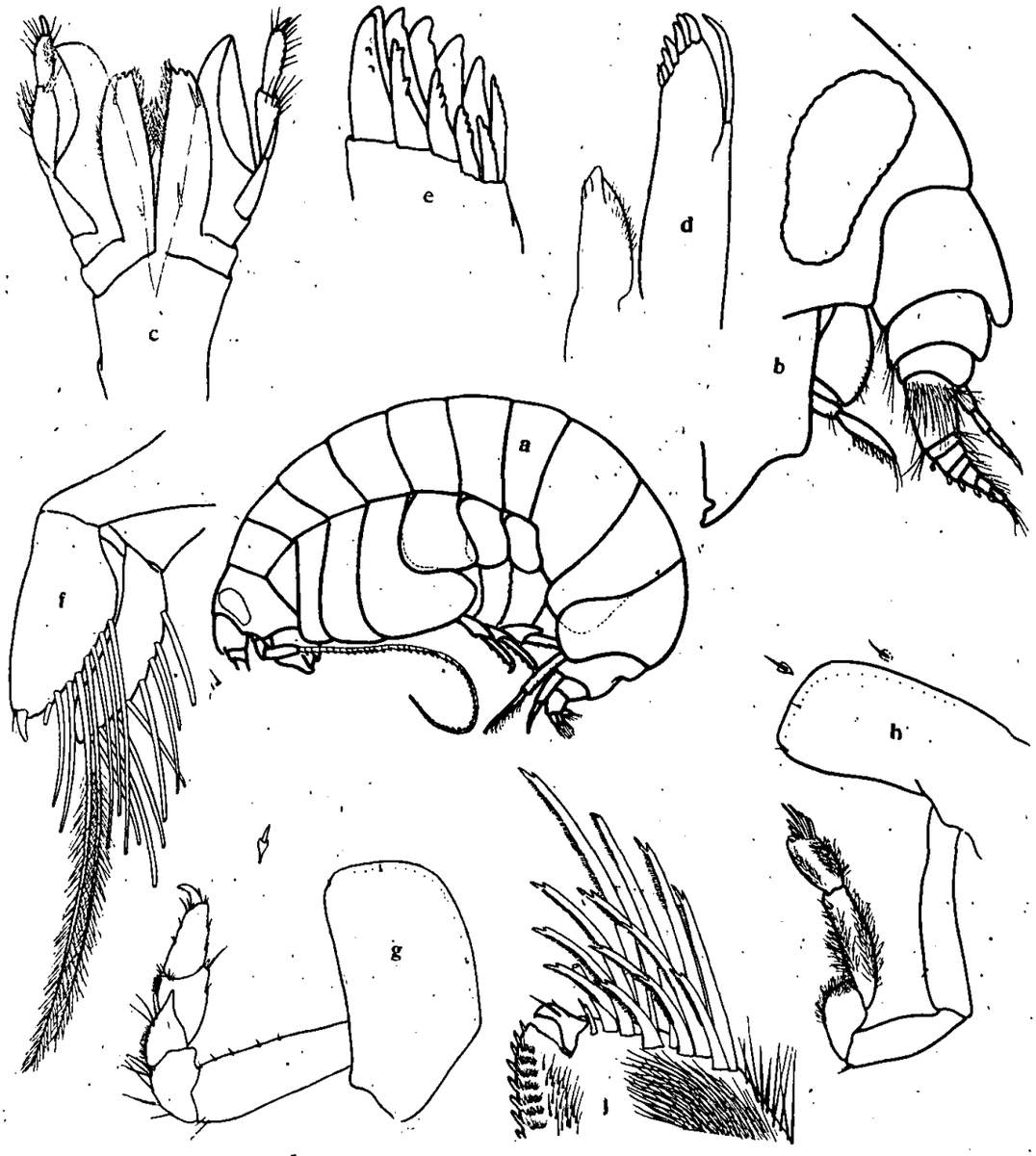

Figure 5. *Lysianassa anomala* n.sp.—a, entire animal (♂); b, head, epistome and antenna 1; c, maxilliped; d, maxilla 1; e, apex of outer plate of maxilla 1, more highly magnified; f, uropod 3; g, gnathopod 1; h, gnathopod 2; j, distal end of propod and dactyl, more highly magnified.

Genus ARISTIAS *Boeck*.

Stebbing, 1906, pp. 49, 718; Barnard, 1932, p. 43.

Barnard in his accounts of the "Terra Nova" and "Discovery" collections of Amphipoda, has remarked upon the difficulty of identifying the Antarctic species of this genus owing to the brevity of the accounts of Walker and Schellenberg.

The "Discovery" collection included nearly a score of specimens, taken at six different stations at depths varying from 60–342 metres and ranging in size from 7–12 mm.

Walker apparently had but two specimens, the larger 15 mm. in length taken from comparatively shallow water (20 fathoms), while Schellenberg examined but three juvenile forms.

All but two of the specimens taken by the "Discovery" were referred by Barnard with some hesitation to Walker's species principally on account of their agreement with that author's figure of the dorsal profile of pleon segment 4. The remaining two specimens are referred to a new species distinguished by differences in the shape of the epistome and upper lip, the urus profile and a small difference in the taper of the telson. Barnard concluded, moreover, that Schellenberg's specimens would prove to be referable to yet a third species. The two specimens in the "Terra Nova" collection reported upon by Barnard (1930) were apparently referred without hesitation to *antarcticus*—one of these being 16 mm., the largest recorded—and a study of the 6 specimens in the present collection suggests that some at least of the differences noted may be attributed to differences in age.

It is obvious that if reliance is to be placed upon the urus profile, care must be exercised to ensure that the pleon segments are fully exposed. The visible profile may be modified considerably by alteration of the curvature of the body—and in many forms there is found a considerable telescoping of these segments, particularly of the 4th pleon segment within the third.

Aristias antarcticus *Walker*.

(Fig. 6.)

Walker, 1907, p. 11, pl. 3, fig. 5; Schellenberg, 1926, p. 255, fig. 10; Barnard, 1930, p. 324; 1932, p. 43, fig. 8.

Occurrence.—1. Commonwealth Bay, Main Base, 25 fathoms, 1 ♀, 12 mm., 1 ♂ (?), 10 mm.

2. Davis Sea Station 7, 1 ovig. ♀, 18 mm. 2 ♀♀, 14 mm., 12·5 mm.

3. ,, ,, Station 9, 1 ♀, 14 mm.

Remarks.—These specimens conform sufficiently to the description and figures given by Walker to warrant their reference to his species *antarcticus*.

The profile of pleon segments 3–6 agrees with Barnard's figure ('32, fig. 8*a*), the rounded boss on pleon 4 much smaller than that in *collinus*. The epistome, however, is rounded and rather more prominent than is figured ('32, fig. 8*b*) for *antarcticus* and the upper lip appears to be separated by a deeper groove but otherwise corresponds to Barnard's figure.

Gnathopod 1 differs from the account given by Walker only in the development of a minute palm which may perhaps have escaped observation. Peraeopods agree with Barnard's description and Walker's figures; in peraeopod 1 the carpus is much more than

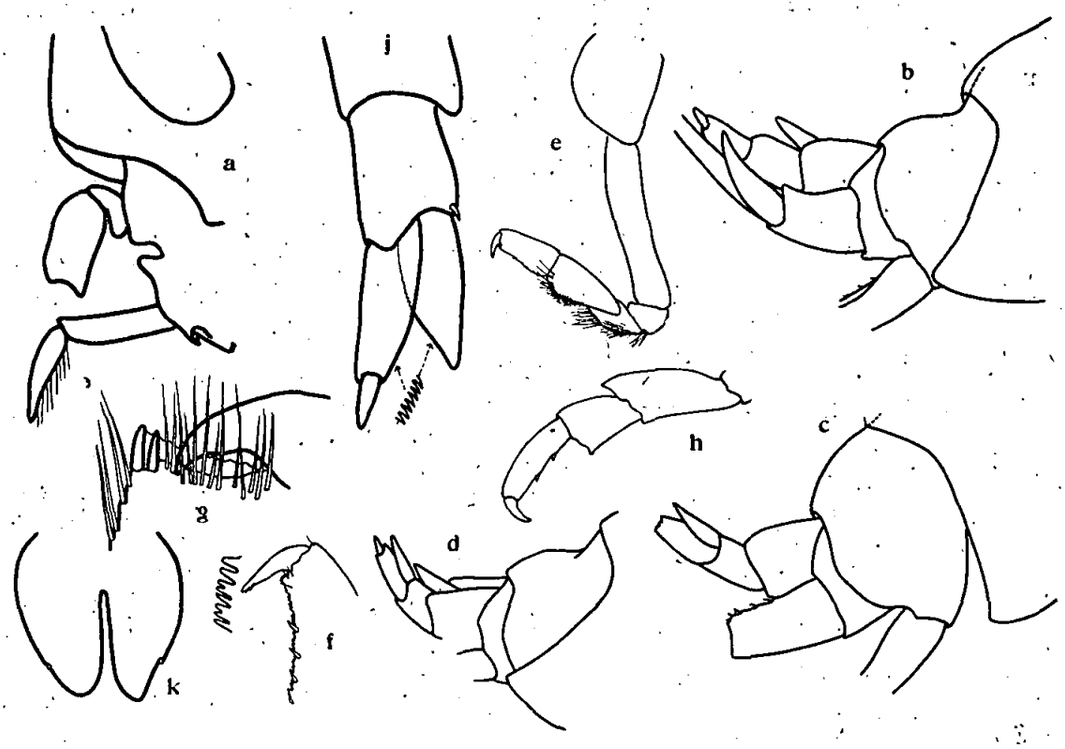

Figure 6. *Aristias antarcticus* Wlkr.—a, part of head and epistome; b, c, and d, part of urus of three specimens to illustrate change in profile accompanying different degrees of telescoping of pleon segment 4 and 5; e, gnathopod 1; f, dactyl and part of propod, much more highly magnified; g, palm of gnathopod 2; h, part of peræopod 1; j, uropod 3; k, telson.

"half as long" as the propod (the "fifth joint" of Walker's descriptions) and it is the carpus rather than the "fifth joint" which is produced into a sharp point at its postero-distal end. The telson is distinctly more tapering than Walker's figure would suggest, in this again agreeing with Barnard's account. It is, however, strongly concave dorsally with the apices upturned; but, examined from above, it presents a much more rounded appearance.

Walker's reference to the spinulose condition of the third uropod is ambiguous. Barnard notes that the margins of the rami are strongly serrulate except for the outer margin of the outer ramus. Such serrulation or spinulose condition appears in the present specimens on but two margins, the inner of the outer ramus and the outer of the inner ramus.

Distribution.—McMurdo Sound; South Georgia; South Shetlands.

Genus AMBASIOPSIS *Barnard.*

Barnard, 1934, p. 425, and 1932, p. 44.

The inclusion in this genus of the species described below requires a slight modification of Barnard's diagnosis, inasmuch as in it the outer plate of the maxilliped is spinose, as in *Metambasia*, and the first gnathopod is definitely subchelate.

AMBASIOPSIS TUMICORNIS *n. sp.*

(Fig. 7.)

Occurrence.—1. Commonwealth Bay, Station 1, 14 ex., 5 mm.–15 mm.
2. ,, ,, Station 7, 1 ♂ (?) 9 mm. (extended).
3. ,, ,, Station 9, 1 ♀, 8·5 mm. (curled up).

Description.—Body greyish, punctate, appearing indurated but actually integument is parchment-like. Head with antero-lateral angle rounded. Eyes not visible. Peraeon dorsally rounded. Sideplate 1 small, oval, almost concealed by sideplate 2. Side-plates 2–4 deep, closely packed, 4 rather deeply excavated, 5–7 as in *A. georgiensis* Barnard.

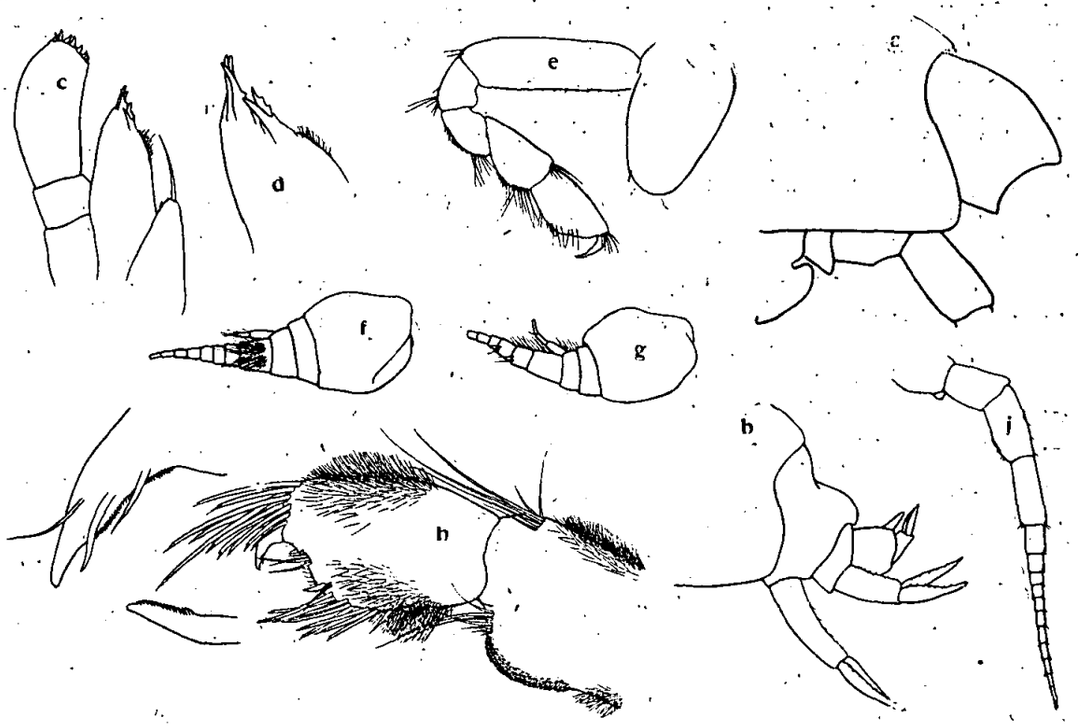

Figure 7. *Ambasiopsis tumicornis* n.sp.—a, head and epistome; b, urus; c, maxilla 1; d, apex of outer plate, more highly magnified; e, side plate 1 and gnathopod 1; f, antenna 1, ♂; g, antenna 1, ♀; h, hand of gnathopod 2, with dactyl and spine more highly magnified; j, antenna 2.

Pleon rounded, pleon segment 3 postero-inferior angle rounded, segment 4 rising to a pronounced boss posteriorly. Telson scarcely longer than wide, cleft for two-thirds its length, the truncate apices armed each with a couple of short stout spinules, with several other dorso-lateral spinules.

Antenna 1, peduncle very stout, particularly in ♂, 1st carinate, 2nd and 3rd joints short, flagellum short, subequal to 1st peduncular joint, 11 joints, the first constituting one-third the length of the flagellum and having a dense brush of long setae on its mesial aspect. Accessory flagellum 3–4 jointed. Antenna 2 short, about twice the length of

antenna 1, 5th joint longest, about one and a half times the length of the 3rd which is shortest, the 17-jointed flagellum shorter than peduncle.

Epistome not projecting, upper lip uniformly convex, separated from epistome by distinct groove; mandible as in *georgiensis* but 2nd and 3rd joints of palp are subequal.

Maxilla 1 has but a single plumose seta on inner lobe, the palp 9 short spines. Maxilla 2, with inner lobe considerably shorter than outer as in *faeroensis* but apices of both are more rounded. Maxilliped differs from *georgiensis* and resembles *M. faeroensis* in that the inner margin is armed with a number of short stout spinules.

Gnathopod 1, subchelate, 5th and 6th joints subequal, the 6th widest at about the middle of its length, palm uniformly fimbriate, longer than finger. Gnathopod 2 subchelate, 6th joint appearing much broader than in *georgiensis* Barnard (1932, fig. 9*b*), both palm and inner border of dactyl fimbriate. The hinder border of the 5th joint is produced distally into a lobe, covered with short, scale-like setae.

Peraeopods much as in *georgiensis*, the 2nd joint of 4th peraeopod not narrower than that of 3rd.

Uropod 3 with peduncle subequal to outer ramus, 2nd joint of latter well developed, inner ramus three-quarters of length of 1st joint of outer.

Remarks.—The strongly curved body with close-pressed appendages makes it difficult to determine the sex of the specimens. Two, of 8 mm. and 11 mm., partly dissected showed laminar marsupial plates; the two largest specimens 14 mm. and 15 mm. also appeared to be female; none were ovigerous.

Genus URISTES *Dana*.

Stebbing, 1906, p. 62; Schellenberg, 1931, p. 26.

URISTES GIGAS *Dana*.

Bate, 1862, p. 89, pl. 14, fig. 8; Stebbing, 1888, p. 617, pl. 6 (*Tryphosa antennipotens*), 1906, p. 64; Barnard, 1932, p. 47, fig. 11.

Occurrence.—1. Commonwealth Bay, Station 2, 1 ♀, 12 mm.
2. Davis Sea, Station 11, 1 ♂, fragmentary.
3. Station 12, 1 ♀ (broken), 22 mm.

Remarks.—The specimen (2) dissected, probably immature, differs from Stebbing's description and figures principally in possessing fewer joints in the antennae, calceoli being absent from the first three joints. Gnathopod 1 is, as Barnard noted, distinctly subchelate. In the third uropod, spines seem to be wanting from the inner margin of the outer ramus. In (1) uropods 3 do not extend much, if at all, behind uropods 2.

Distribution.—Antarctic Seas (Dana); Heard Island; Ross Sea; South Georgia.

Genus CHEIRIMEDON *Stebb.*

Stebbing, 1906, pp. 66, 720; Schellenberg, 1926, p. 262; Barnard, 1932, p. 47.

CHEIRIMEDON FEMORATUS (*Pfr.*).

(Fig. 8.)

Pfeffer, 1888, p. 93, pl. 2, fig. 2; Chevreux, 1906, p. 2, figs. 1–4; and 1913, p. 92 (*dentimanus*); Chilton, 1912, p. 457.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 3½–5 fathoms, a number of specimens mostly small, largest 10 mm.

2. Commonwealth Bay, Boat Harbour, 25 fathoms, 1 immature, 10 mm.

3. Commonwealth Bay, Boat Harbour, 3 fathoms, 5 immature, 4–6·5 mm.

Remarks.—The specimens (3) differ from that figured by Chevreux, in the condition of epistome and pleon segment 3. The epistome appears much more prominent but Barnard (1913, p. 48) has recorded the finding of a similar variation in specimens from South Georgia. The epimeron of pleon segment 3 has the postero-inferior angle a rounded quadrate, lacking the upturned point figured by both Pfeffer and Chevreux.

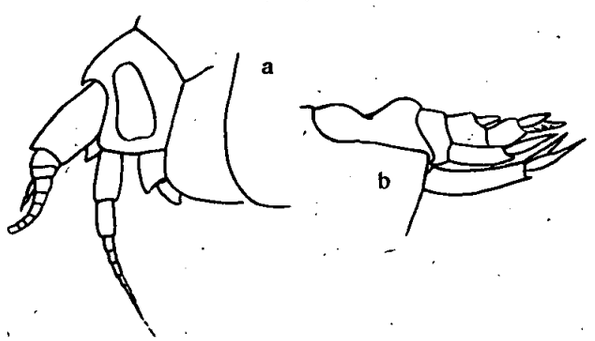

Figure 8. *Cheirimedon femoratus* Pfr.—a, head and epistome; b, urus.

The eye is small and black and the collector's note indicates that the specimens (1) were white. When examined, all of that sample were found to be of a dark green colour, presumably stained as a result of the inclusion in the tube of a "tie-on" label with brass eyelet. They were dredged from a depth of 3½–5 fathoms on a muddy bottom.

Distribution.—South Georgia; South Orkneys; South Shetlands; Palmer Archipelago.

CHEIRIMEDON FOUGNERI *Walker.*

Walker, 1903, p. 40, pl. 7, figs. 1–6, and 1906, p. 9; Schellenberg, 1926, p. 263, fig. 13; Barnard, 1930, p. 326.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 11 ex., from 7·5–10 mm.

2. Second (Western) Base, Shackleton Glacier, 14 ex., 9–15 mm.

Remarks.—The identity of some of the specimens (2) was determined by the late Dr. Chilton who elsewhere has noted (1912, p. 467) that he had examined Walker's cotypes. The " hand " in the sample (1) appears relatively rather narrower than would be expected from Walker's figure (1903, pl. 7, fig. 2).

These latter specimens are now deep brown in colour—the colour in life is not stated, the collector's label merely noting them as " surface forms."

Distribution.—Ross Sea;" Gauss " Winter Station.

Genus Tryphosella *Bonnier.*

Stebbing, 1906, pp. 67, 720; Schellenberg, 1931, p. 30.

Tryphosella georgiana *Schell.*

(Fig. 9.)

Schellenberg, 1931, p. 30, fig. 13; ? Barnard, 1932, p. 48, fig. 12 (*albina*).

Occurrence.—Commonwealth Bay, Station 2, 1 ♀, 7 mm.

Remarks.—The single specimen, a female, with slender brood lamellae, probably not fully grown, agrees very closely with Schellenberg's description. The long head lobe is broadly rounded, a dorsal carina is not recognisable upon the first antenna and there are rather fewer joints. There are slight differences, also, in the armature of the maxilliped.

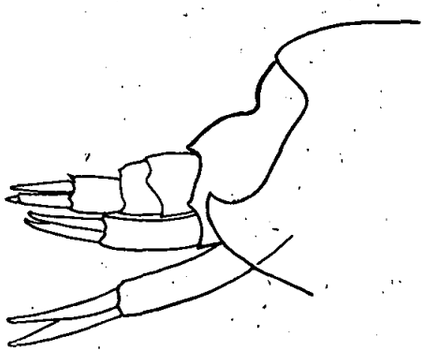

Figure 9. *Tryphosella georgiana* Schell.—Profile of urus.

The urus profile appeared to agree precisely with Barnard's figure of *T. albina* (1932, fig. 12) till a little manipulation freed the retracted 4th pleon segment (fig. 9). The agreement with Barnard's species is very close in other respects and the latter may, possibly, prove to be the male of this species. The most notable difference is the lack of calceoli in the present specimen, and these were likewise absent in Schellenberg's material.

Distribution.—South Georgia; ? South Sethlands.

Genus TRYPHOSA *Boeck.*

Stebbing, 1906, p. 68, and 1909, p. 573; Stephensen, 1925, p. 101.

The diagnosis of this genus as given by Stebbing must be slightly modified,—maxilla 1, inner plate short, with few (2–6) setae; gnathopod 1, 5th and 6th joints subequal; gnathopod 2, 6th joint not less than half as long as 5th.

TRYPHOSA KERGUELENI (*Miers*).

(Fig. 10.)

Stebbing, 1888, p. 623, pl. 8; Schellenberg, 1926, p. 266, fig. 15*a*, and 1931, p. 34; Barnard, 1930, p. 327, and 1932, p. 49, fig. 13*a*.

Occurrence.—1. Station 2, 1 ♀, 12 mm.

2. Western Base, 2 ♀♀, 15 mm. Stomach of *Lycodichthys antarcticus*.

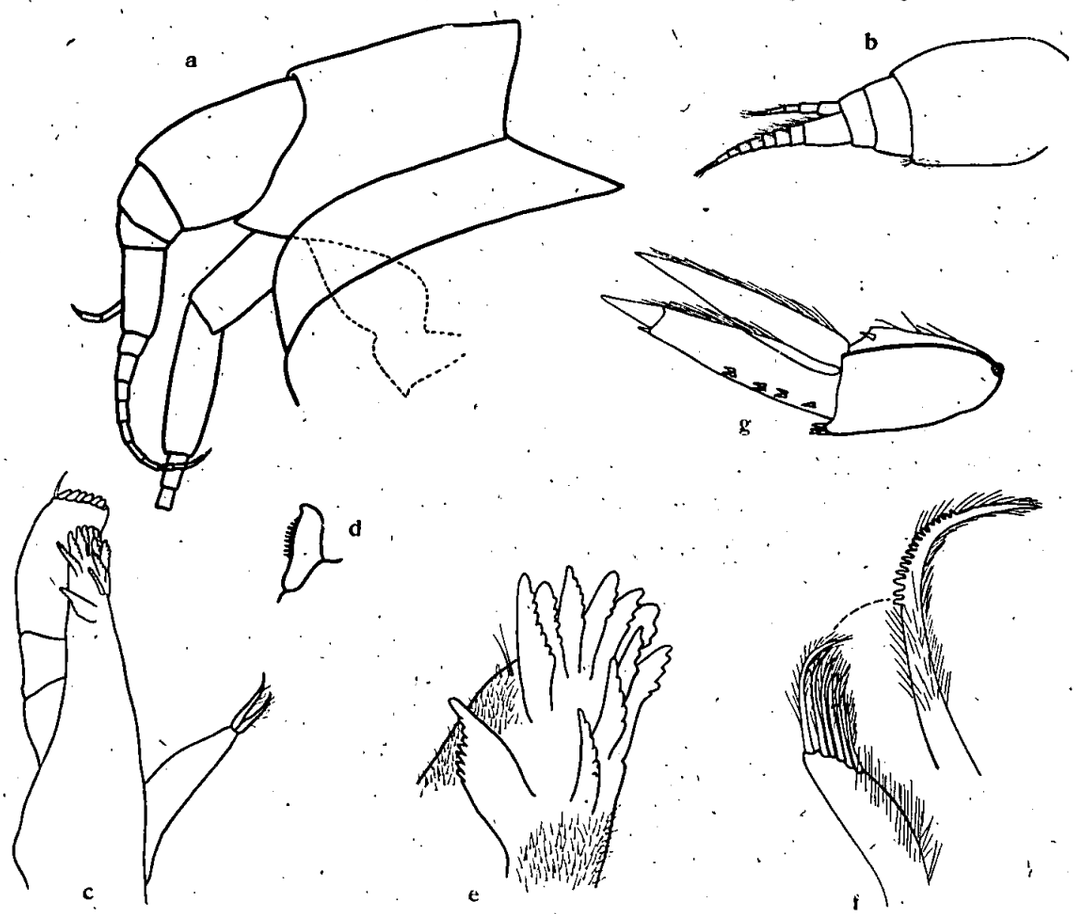

Figure 10. *Tryphosa kergueleni* Miers.—a, head with epistome and side plates 1 and 2; b, antenna 1; c, maxilla 1; d, highly magnified spine from palp; e, apex of outer plate and f, of inner plate with more highly magnified setæ; g, uropod 3.

Remarks.—This species is represented by but three specimens, two of which were taken with *O. rossi* and *T. murrayi*, from the stomach of *L. antarcticus*. It resembles closely that which Barnard (1932) had distinguished as the "typical form." The mouth parts when first mounted showed a narrowed inner lobe of the first maxilla apparently armed with but two terminal setae, exactly as figured by Stebbing, thus differing from the condition described by Barnard who found four of these setae. A remounting of the appendage revealed that there were actually six present. In *T. murrayi*, as noted below, the number varies from four to six, seemingly increasing with size and age. It seems probable that the number of these setae, given as two in *Tryphosa*, will prove to be quite inconstant for the Antarctic species of the genus.

Distribution.—Kerguelen; "Gauss" winter station; Ross Sea; South Georgia; South Orkneys; South Shetlands, and New Zealand.

TRYPHOSA ADAREI *Walker*.

(Fig. 11.)

Walker, 1903, p. 49, pl. 8, figs. 38–44; Barnard, 1930, p. 326, and 1932, p. 51, fig. 15.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 1 juv., 5 mm.

2. ,, ,, Boat Harbour, 3 fathoms, ♀ 11 mm., 2 juv., 3 mm. and 8 mm.

3. ,, ,, Station 2, 288–300 fathoms, 1 ♀, 12·5 mm.

4. Davis Sea, Station 11, 358 fathoms, 1 ♂, 11 mm., 1 ♀, 14 mm.

Remarks.—The head shows the antero-lateral lobes acute, rather shorter than 1st joint of peduncle of antenna 1, and with no trace of eyes; pleon segment 3 with postero-inferior angle quadrate, but posterior margin not noticeably convex, pleon segment 4 with rounded carina.

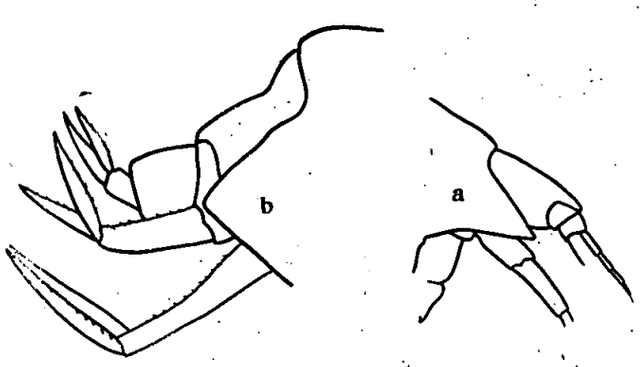

Figure 11. *Tryphosa adarei* Wlkr.—a, head; b, urus.

The epistome is rather more prominent than is suggested in Barnard's figure (1932, 15*b*); in maxilla 1, the palp appears narrow, the short and rounded inner plate appears to have but two plumose setae. Sideplate 1, narrowing and rounded below, projects forwardly, gnathopod 1 has the 6th joint slightly longer than the hind margin of 5th (see Table, page). Sideplate 2, with sides parallel, while in gnathopod 2, the 6th joint has approximately three-quarters the length of the hind margin of 5th. Sideplate 5 bilobed, deep, wider than basos of peraeopod 5; peraeopod 3, basos with anterior border strongly convex, posterior semi-circular; sideplate 5 and 6 subequal; peraeopod 4, basos elongated, its posterior distal lobe extending nearly to end of 4th joint, somewhat narrow with anterior border scarcely (?) convex. Uropod 3, rami subequal, outer 2-jointed, a trifle longer than peduncle.

Telson, elongate, tapering, cleft for three-fourths its length. Each lobe with a single apical spine and three short, equidistant spines submarginally.

The few specimens referred to this species are all comparatively small, probably immature. They occur with *T. murrayi* from which they can be separated most readily by the difference in the carina on pleon segment 4, in which it is, however, in my specimens, very like that figured by Barnard for *T. triangularis* (as also it is in shape of sideplate 1 and hinder margin of pleon segment 3) but from this species it may be distinguished by the epistome and the shape and armature of telson.

In gnathopods 1 and 2, my small specimens do not quite conform to Walker's account. In the former, the carpus is slightly longer (relatively to propod) than Walker's figure indicates. Gnathopod 2, too disagrees somewhat, the propod being from three-fifths to two-thirds the length of the carpus, whereas Walker describes it as five-sixths and represents it as three-quarters. In *T. murrayi* the propod has barely half the length of the carpus.

It seems probable that Walker's fig. 43 (1903 pl. 8) may really represent the fourth (and not the fifth) peraeopod. It agrees very precisely with the fourth peraeopod in the " Aurora " specimens and is certainly unlike the fifth peraeopod as shown in the habitus drawing (1903, fig. 38).

Its known bathymetric range is from 5·5–540 metres.

Distribution.—Ross Sea (47–385 metres); South Shetlands (200 metres).

Tryphosa murrayi *Walker.*

Walker, 1903, p. 50, pl. 9, figs. 45–61, and 1907, p. 16 (part); Chilton, 1912, p. 467; Schellenberg, 1926, pp. 267–269, fig. 16 (part ?), and 1931, p. 32.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 2 ♂♂, 13–15 mm., 6 ♀♀, 12–18 mm.

2. ,, ,, Boat Harbour; 3 fathoms, 6 juv., 5–9 mm.

3. ,, ,, ,, ,, 45–50 fathoms, 1 ♂, 14 mm.
4. ,, ,, Station 1, 1 ♂, 23 mm., 1 ♀, 19 mm.
5. ,, ,, ,, 2, 11 juv., 7·5–11 mm.
6. ,, ,, ,, 3, 1 juv., 8 mm.
7. Second Base (270 fathoms), 4 ♀♀, 15–25 mm.
8. Stomach of *Lycodichthys antarcticus*, 1 ♀, 15 mm.

The specimens (nearly three dozen in all) here referred to *T. murrayi* were, in a preliminary sorting, separated into two groups, one of which would, it seemed, require a new specific name. A detailed comparison however, has convinced me that they are more correctly considered as all belonging to the second of Walker's species. None of them conform to the original account of *T. adarei* and I am in agreement with Chilton and Barnard that the two forms described by Walker are to be considered as specifically distinct.

The antero-lateral lobe of the head (in young specimens nearly quadrate) appears sub-acute, with rounded apex, and may be as long as the first joint of antenna 1 (Nos. 2 and 7) but in other, mostly larger examples, appears somewhat shorter.

Eyes are not to be made out in any of these specimens. The slightly projecting epistome is a little variable. The first side-plate is relatively shorter and almost concealed by the forwardly projecting second plate in Nos. 2, 4 and 8, in the last, the lower front angle being practically invisible. As already noted, the specimens referred to *T. murrayi* show a marked variability in the condition of maxilla 1. Stebbing has defined *Tryphosa* as possessing but two plumose setae on the inner plate of this appendage. Chilton notes that in the " Scotia " specimens of *T. murrayi* he found four such setae, and this number he found also in Walker's type. Schellenberg who accepts Walker's union of *T. adarei* with *T. murrayi*, states that in the specimens examined there were seen five setae on this plate; in the examples in the present collection examined by dissection, the number was found to vary as follows :—4 (Nos. 6 and 8), 5 (No. 1),* 6 (Nos. 4 and 7, (23 mm.)).

On the outer plates there are generally 9 dentate spines (in one example, 10); on the palp the short stout spines vary in number, there being found 9, 10, 12, 13 and 16 in different examples.

The gnathopods agree fairly well with Walker's account. Gnathopod 1 in the young shows carpus and propod slender and subequal and, relatively to the rest of the limb, particularly long. In gnathopod 2, the propod appears almost oval. The relative proportions of carpus and propod of gnathopod 1, while fairly satisfying the description given by Walker (" about as long ") do not agree with his figure in which the proportions are about as 100 : 115. Even in the largest examples among the " Aurora " material

* No. 1 had 4 on one side and 5 on the other.

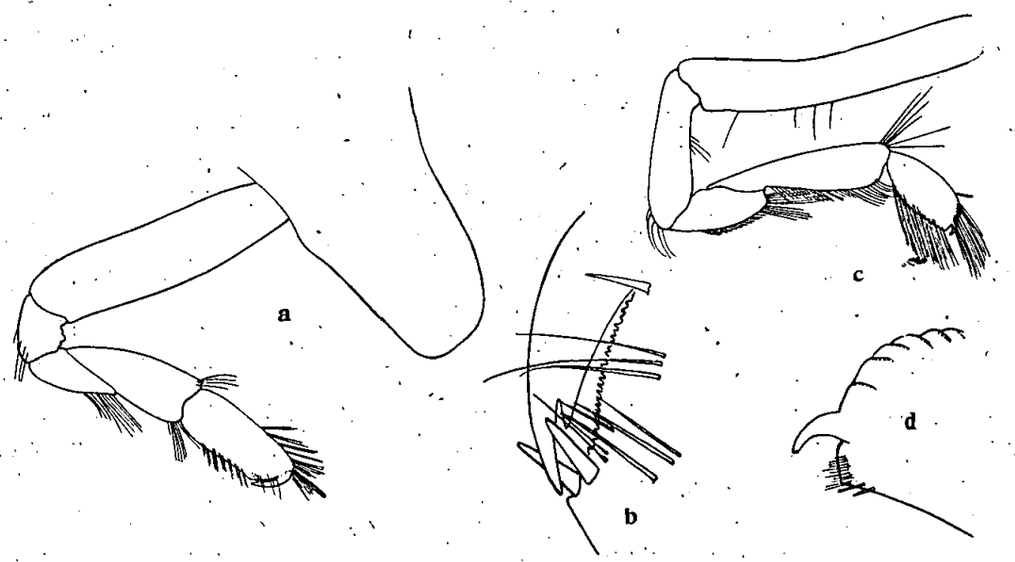

Figure 12. *Tryphosa murrayi* Wlkr.—a, gnathopod 1; b, palm of gnathopod 1; c, gnathopod 2.
Tryphosa adarei Wlkr.—d, extremity of gnathopod 2.

it is the carpus which is slightly the longer (100 : 90),* the length of that joint being a little more than three times (32 : 10) its greatest width, while that of propod is slightly less (29 : 10). There is a secondary unguis to the dactyl.

In all, the shape of basos of peraeopods 3 and 5 was exactly as figured by Walker, the hinder border of pleon segment 3, also, agreed very nearly with Walker's figure although some slight variation was observed.

In dorsal profile, pleon segment 4 has the tooth-like prominence figured by Schellenberg (1926, fig. 16*a*). The telson has the shape indicated by Walker—the armature of spines being less complete in the smaller specimens.

Remarks.—Around this (and the preceding) species a good deal of discussion has centred. It was originally established by Walker for the reception of a single specimen (♂, 15 mm.) taken by the "Southern Cross." In the same paper, Walker had proposed for another form—obviously closely akin—the name *adarei*, but subsequently, when reporting on the Amphipoda collected in the same waters by the "Discovery," Walker (1907) came to the conclusion that the characters, principally in pleon segments 3 and 4, upon which he had relied readily to distinguish *T. murrayi* from *T. adarei*, were too variable to justify the separation and he therefore united both under the name of his second species—*murrayi*.

Chilton (1912) after comparison of specimens obtained by the "Scotia" with Walker's types upheld the separation of the two species and referred his own numerous specimens (collected in the opposite quadrant of Antarctica) to *T. murrayi*. He was guided to this conclusion by a consideration of the condition of gnathopod 1 and noted that in *T. adarei* this appendage approached the condition seen in *Tryphosella barbatipes*.

As Barnard has noted (1930, p. 326) Walker (1903) omitted any mention of the relative length of 5th and 6th joints of gnathopod 2 of *T. murrayi*. That Walker's figure (pl. 9, fig. 48) is substantially correct may be assumed since Chilton, who re-examined the type, makes no comment, merely stating that the "Scotia" specimens agreed with *T. murrayi* rather than with *T. adarei*. It is confirmed by the material in the present collection. It is obvious that, in the condition of this appendage, *T. murrayi* does not conform strictly to the hitherto accepted definition of *Tryphosa* but, as Barnard points out, comes near to *Tryphosella*. Indeed Barnard went further and suggested that *T. murrayi* is identical with *T. barbatipes* (Stebb.).

For this latter suggestion, however, there appears less support. A comparison of the figures of Stebbing (1888, pl. 7) with those of Walker (1903, pl. 9, figs. 45–51) show differences in sideplates 1 and 2, shape and armature of telson and notably the proportions of carpus and propod of gnathopod 1.

It is true that the distinctions between several of these genera are very inconsiderable but, as the genera have been defined, the condition of gnathopod 1 constitutes at least as sound an objection to the transference of *murrayi* to *Tryphosella* as that of gnathopod 2 to its retention in *Tryphosa* (see table below). The proposed slight modification of that part of the generic diagnosis relating to the gnathopoda permits of its retention within this genus.

Occ. No.	Length in mm.	Gnathopod 1, Length of Carp. : Prop.	Gnathopod 2, Length of Carp. : Prop.	Occ. No.	Length in mm.	Gnathopod 1, Length of Carp. : Prop.	Gnathopod 2, Length of Carp. : Prop.
T. adarei Wlkr.				*T. murrayi* Wlkr.			
1	(juv.) 5	100 : 97	100 : 60	1	11	.....	100 : 51
3	(♀) 12·5	100 : 117	100 : 62·5	3	14	.....	100 : 50
4	.....	100 : 114	100 : 70	4	23	100 : 87	100 : 51
Wlkr.'s sp.	20	100 : 125	100 : 75·8	5	11	100 : 81	100 : 50
				6	8	.....	100 : 51
Tryphosella barbatipes Stebb.				7	25	100 : 90	100 : 50
Stebb.'s sp.	8–9	100 : 170	100 : 40	8	...	.....	100 : 51
.....	...	100 : 157	.....	Wlkr.'s sp.	15	100 : 114	100 : 51

[The relative proportions of carpus and propod in the gnathopoda of *Tryphosa adarei* and *murrayi* have been determined by careful measurements of drawings made with the aid of the camera lucida. The proportions quoted for Walker's and Stebbing's specimens have been arrived at by comparable measurements of those authors' figures.]

* In this agreeing with Chilton's account, "the carpus . . . in *T. murrayi* . . . as long or longer than the propod" (1912, p. 468).

Both Stebbing (1910) and Barnard (1930) have pointed out that Walker, if correct in reuniting his two species, was in error in his selection of the name *murrayi*, *adarei* having precedence in both text and plate. If, as seems probable, both are valid species, it is of interest that they appear to range widely, side by side. Taken originally in the Ross Sea both have since been recorded nearly 150° eastward (near South Georgia), and both have been taken in the same hauls in the present collection.

T. murrayi, however, has a very considerable bathymetric range (5·5 m.–920 m.), whereas *adarei* seems to attain to little more than half of the greatest depth.

Distribution.—South Victoria Land; Coats Land; "Gauss" Winter Station; (?) South Georgia; (65° 56′ S., 54° 35′ W.).

Genus LEPIDEPECREELLA *Schell.*

Schellenberg, 1926, p. 281; Barnard, 1930, p. 321 (*Paracyclocaris*) and 1932, p. 61; Stephensen, 1931, pp. 1, 6.

Remarks.—The one-jointed condition of palp of maxilla 1 is probably a generic character.

LEPIDEPECREELLA EMARGINATA *n. sp.*

(Fig. 13.)

Occurrence.—Commonwealth Bay, Station 2, 1 ovig. ♀, 8 mm.

Description.—Body stout, with distinct dorsal carina, integument indurated. Head deep, antero-lateral lobes small, acute, eyes wanting; epistome very prominent, strongly convex above, slightly concave below. Side plate 1 small, trapezoidal, 2 subtriangular, narrowed below, both of these partly concealed by 3 which is angular in front instead of strongly convex, 4 large and thick, deeply excavate behind and truncate postero-ventrally, fitting in an intricate manner into 5. The hinder lobe of this latter extends downwards into a narrowing rounded process overriding and almost concealing which, is the great posterior extension of 4. A deep and narrow groove is seen near the lower margin of the anterior lobe of the 5th sideplate (figs. 13*a*, *m*).

Sideplate 6 is smaller, not visibly divided into lobes but is produced ventrally and somewhat forwardly mesial to the 6th basos, into a triangular projection; 7 is oblong.

Pleon segment 1 is rounded below; 2 has a somewhat sinuous posterior border minutely crenulated below, extended postero-ventrally into a rounded projection, 3 produced dorsally into a strong compressed keel, has its posterior border interrupted by a rounded subtriangular excavation, below which the convex and serrulate hind margin meets the almost straight inferior margin in a small, slightly upturned, angle; 4 has terminally a stout dorsal tooth, slightly recurved apically.

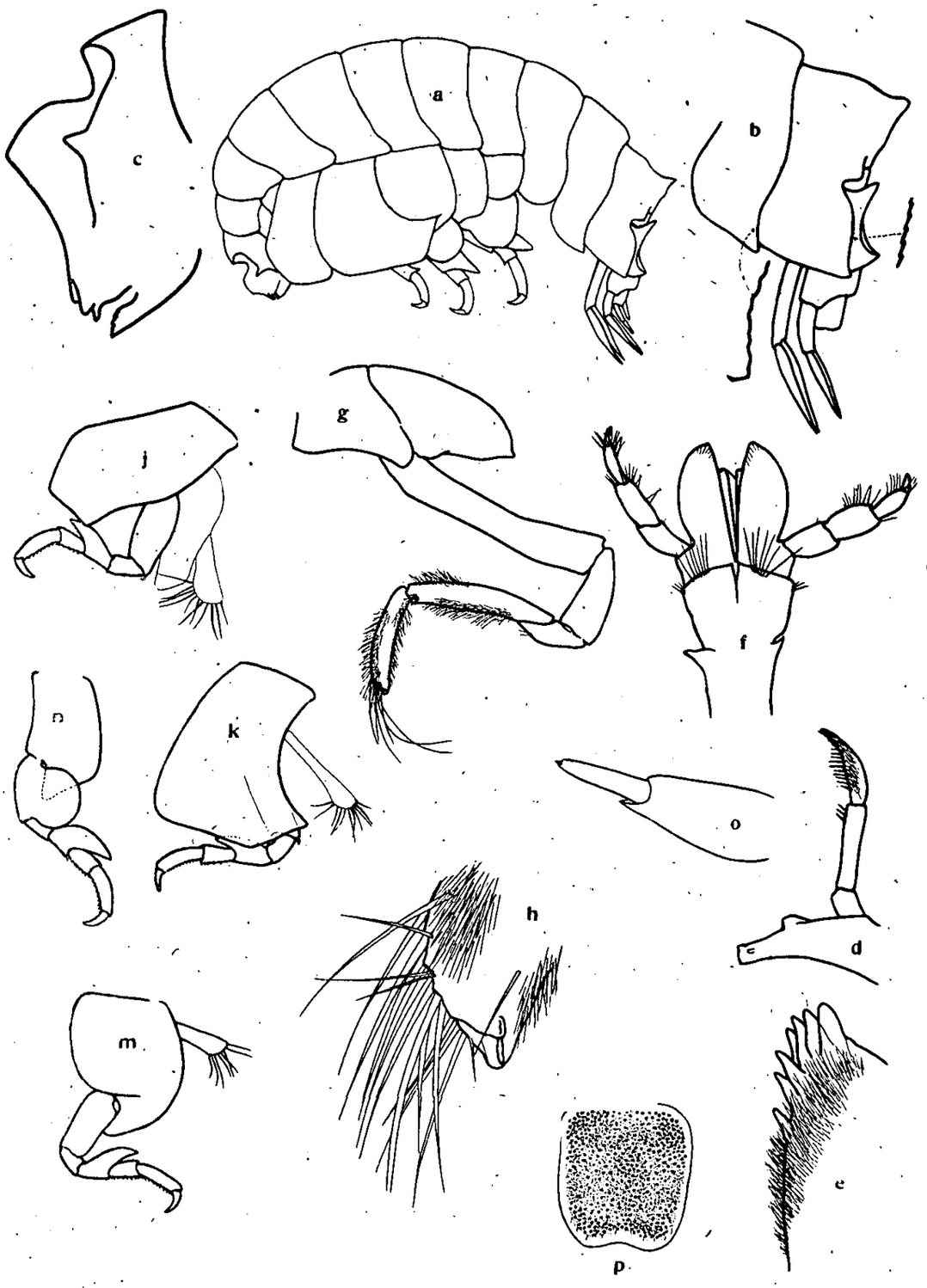

Figure 13. *Lepidepecreella emarginata* n.sp.—a, entire animal; b, part of pleon; c, head with antennæ not represented; d, mandible; e, maxilla 1, apex of outer plate; f, maxilliped; g, gnathopod 2; h, apex of hand; more highly magnified; j, peræopod 1; k, peræopod 2; m, peræopod 3; n, peræopod 4; o uropod 3; p, telson.

Telson oblong, a little longer than wide (7 : 6), with rounded corners and hinder border slightly emarginate.

Antennae short, antenna 1 a little the longer, joint 1 of peduncle almost twice as long as joints 2 and 3 combined; primary flagellum a little shorter than peduncle, 9-jointed, joint 1 slightly less than joints 2 and 3 of peduncle; long accessory flagellum with 6 joints of which the first is subequal to first joint of primary flagellum. Antenna 2, short, tapering, 4th joint barely twice as long as 5th and subequal to flagellum.

Mandible differs from that of the other described species only in having a short rank of setae distally on second joint of palp. It retains one spine of the otherwise vanished spine row. Maxilla 1 differs from that of *bidens*, in having inner plate larger and more rounded with a short apical spike (spine-seta), the outer plate densely setose, apically with 8 stout spines; the palp, relatively long, is bidentate.

Maxilla 2, both lobes subequal, the inner rather the wider, with a dense fur of short fine setae and numerous stiff terminal setae.

Maxillipeds, with outer plate broad and rounded apically, its length (compared to inner plate) intermediate between those of *cymba* and *ctenophora*, with vestiges of four terminal teeth.

Gnathopod 1, simple, basos moderately stout, as long as combined 5th and 6th joints which are subequal, its dactyl curved and set with a serried rank of short spine-teeth.

Gnathopod 2, long and slender, the proportions of the several joints agreeing fairly closely with that of other species but, differing slightly in the angle at which the " thumb " is produced, the chela being directed posteriorly.

Peraeopod 3 resembles that of other species (except *bidens*) in that the basos is narrow and without distal lobe.

Peraeopod 4 shows the usual rounded expansion of the basos, which moves externally to the triangular hinder lobe of the related coxa, as in *ctenophora*. In this and in peraeopod 5 the hinder margin of basos can scarcely be described as crenate.

Uropod 3 is uniramous; the single (outer) ramus, about two-thirds the length of peduncle, is unarmed, the second joint represented apparently by a short stout spine.

Remarks.—This species differs from all of the other described members of this genus in the shape of the telson, proportions of carpus and propod of gnathopod 1; from *ctenophora* and *cymba* in pleon segments 2 and 3, and in its uniramous uropod 3; from *ctenophora* also, in shape of epistome and in width of inner plate of maxilla 2; from *bidens* in the inner plate of maxilla 1, coxa of peraeopods 1 and 4, and basos of

peraeopod 3, hinder border of pleon segment 3 and apparently in the proportions of peduncle and ramus of uropod 3. From *ovalis*; which is very briefly described, it may be distinguished by shape and proportions of telson and uropod 3, as also, presumably, in those characters which distinguish *emarginata* from *ctenophora*.

It is of interest that the prominent interantennal ridge (epistome) was described by Goes (1866, *fide* Stephensen) and independently by Barnard (*Paracyclocaris*) as a rostrum. It is a question whether this ridge is not correctly interpreted as the remnant of a median, compressed ventral portion of the rostral eminence. In certain primitive Isopods (*Phreatoicopsis*) a similar ridge occurs which I feel convinced is a rostral vestige.

Genus Orchomenella *G. O. Sars.*

Stebbing, 1906, pp. 81, 83 (*Orchomenopsis*); Barnard, 1932, p. 68.

Orchomenella cavimanus (*Stebb.*).

(Fig. 14.)

Stebbing, 1888, p. 679, pl. 22 (*Orchomene c.*) and 1906, p. 85 (*Orchomenopsis zschauii*, part); Schellenberg, 1926, p. 285, fig. 25; Barnard, 1932, p. 69, fig. 27*g*.

Occurrence.—1. Commonwealth Bay, 25 fathoms, 1 ovig. ♀, 7·5 mm., 4 ex., 5–8 mm.

2. ,, ,, Station 3, 1 ♂, 14 mm., 3 juv., 7 mm.

3. ,, ,, ,, 7 (roots of algae), 1 ♂ ?, 11 mm. (strongly curved).

Remarks.—Eye and epistome as stated by Barnard. In the largest specimen (2) pleon segments 3 and 4 appear as figured by Barnard, but only after the 4th segment

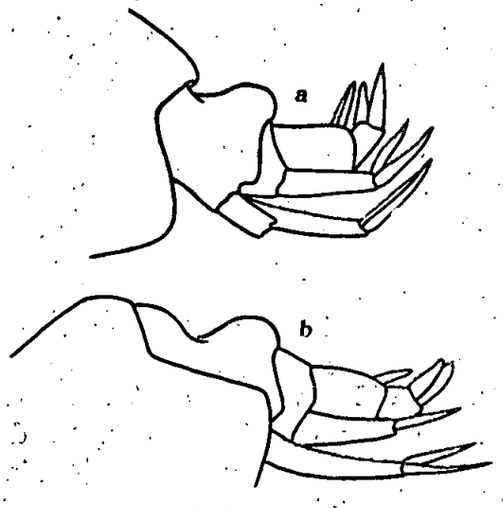

Figure 14. *Orchomenella cavimana* Stebb.—a, urus of small specimen, with pleon segment 4 retracted; b, the same, with pleon segment 4 fully extended.

had been forcibly withdrawn from the third. In Schellenberg's figure, much of the fourth segment is concealed so that the anterior boundary of the deep transverse sinus does not appear. In the smaller specimens (fig. 14), the carina is well rounded rather than pointed, but the shelf on gnathopod 2 is a most characteristic feature, serving at once for the recognition of the species.

Distribution.—Kerguelen; "Gauss" Winter Station; South Georgia; Falkland Islands.

Orchomenella abyssorum (*Stebb.*).

(Fig. 15.)

Stebbing, 1888, p. 676, pl. 21; Schellenberg, 1926, p. 291, fig. 27 (*chilensis*, form *abyssorum*); Barnard, 1932, p. 69, figs. 27*b*, 28.

Occurrence.—1. Second (Western) Base, Shackleton Glacier, many ex. up to 19 mm.

2. Stomach of *Austrolycichthys brachycephalus*, several ex. considerably macerated.

Remarks.—The collection made by the "Aurora" seems to be the first in which this species has been taken abundantly in Antarctic waters. Most were secured from a fish trap along with equally plentiful *Pseudorchomene coatsi* and still more numerous *O. rossi*. Unhappily this large collection was apparently preserved in insufficient fluid and almost all of the specimens of *O. abyssorum* have undergone a considerable degree of maceration. Only few, relatively, are sufficiently preserved to permit of the observation of the large faded brown eye. There can, however, be little doubt that this is the species described by Stebbing. The arrangement of the two spines defining the

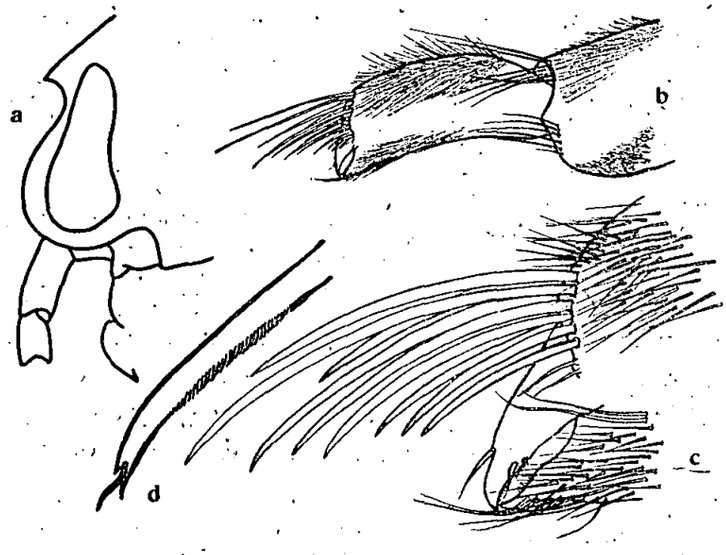

Figure 15. *Orchomenella abyssorum* Stebb.—a, epistome and part of head; b, hand of gnathopod 2; c, palm and dactyl of gnathopod 2, more highly magnified; d, tip of seta enlarged.

palm of gnathopod 1 is quite characteristic : the terminal setae of propod of gnathopod 2 may be bifid as indicated in Stebbing's figure, or frequently trifid. Similar bifid setae have been observed, however, in *O. cavimanus*, *nodimanus* and *macronyx* and occur, perhaps, throughout the genus.

The propod of gnathopod 2, in larger specimens at least, is less pointed than Stebbing's (and Schellenberg's) figures indicate, the difference being probably due to age; in any case, the actual profile is difficult to make out.

The mouth parts are, as Barnard notes, unusual for *Orchomenella;* in the palp of maxilla 1 there are apparently 8 stout wide-spaced spine-teeth on one side, seven on the other, flanked externally in both cases by a single seta. On the outer aspect these spines appear serrulate. The armature of spines upon uropods and telson, also, differs a little from that shown both in Stebbing's and Schellenberg's figures.

Distribution.—South Atlantic; "Gauss" Winter Station; South Shetlands.

Orchomenella nodimanus (*Wlkr.*).

(Fig. 16.)

Walker, 1903, p. 44, pl. 7, figs. 13–17 (*Orchomenopsis*); Chilton, 1912, p. 473.

Occurrence.—Loc. ?, 1 ♂, 9 mm.

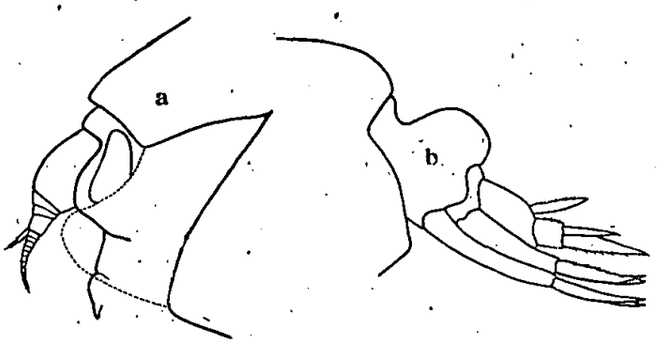

Figure 16. *Orchomenella nodimanus* Wlkr.—a, head with epistome, position of side plate 1 marked by broken line; b, urus.

Remarks.—This species is readily recognised by the peculiar condition of the propod of gnathopod 1. Chilton refers to the slight carination of the hinder part of the body and Barnard's figure (fig. 27*j*) would seem to have been drawn from a specimen in which pleon segment 3 is retracted and so fails to convey a correct impression of the really considerable carina on pleon segment 4 and does not indicate the existence of a deep sinus in front of it.

The epistome differs little from that of *abyssorum*.

Distribution.—Cape Adare; South Orkneys.

Orchomenella franklini *Walker.*

(Fig. 17.)

Walker, 1903, p. 47, pl. 8, figs. 31–36, and 1907, p. 13; Barnard, 1932, p. 68, fig. 27*k*.

Occurrence.—Commonwealth Bay, Boat Harbour, 1913, collected by Dr. McLean, 8 ex., 3–5 mm.

Remarks.—One of these differed from Walker's description principally in the presence of setae on the first flagellar joint of antenna 1 and in the lack of pilosity on the joints of gnathopod 1. The specimen examined, somewhat smaller than that described by Walker, may be a ♂ and these differences attributable to difference of sex or perhaps to growth changes, for a second specimen had very few setae on flagellar-jt 1 of antenna 1, and joints 4th and 5th of gnathopod 1 were moderately pilose. The palm is minutely

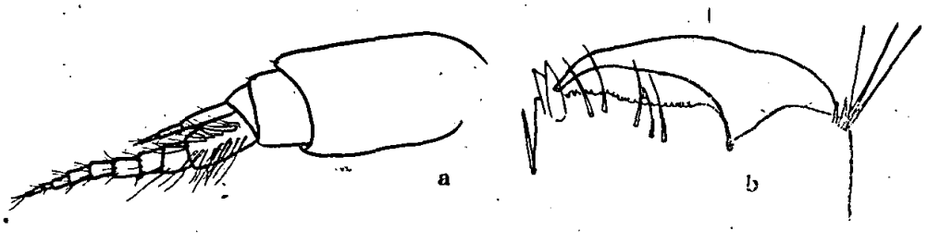

Figure 17. *Orchomenella franklini* Wlkr.—a, antenna 1, mesial aspect; b, gnathopod 1, palm and dactyl.

serrulate and otherwise these are in very close agreement with Walker's account. The 4th pleon segment in particular accords with Walker's figure and statement "without carina or depression." From Barnard's figure of the type there would seem to be a distinct distal carina scarcely less developed than that in *O. rossi*.

Distribution.—Ross Sea (10–24 fathoms).

Orchomenella macronyx *Chevr.*

(Fig. 18.)

Chevreux, 1906, p. 8, figs. 5–7; Chilton, 1912, p. 470; Schellenberg, 1931, p. 43, fig. 22; Barnard, 1932, p. 70, fig. 29.

Occurrence.—Station 8, 2 ♀♀ (1 ovig.), 10 mm. and 11 mm.

Remarks.—These specimens agree, in general, very closely with the description and figures given by Schellenberg and Barnard and differ, therefore, in a number of details from the description given by Chevreux which was based seemingly on quite immature specimens.

Pleon segments 3 and 4 appear very much as Schellenberg's figure (22*a*) but the telson lobes are rather convergent terminally and lack the terminal spines figured by Chevreux. It is in the gnathopods, however, that differences are most noticeable

Gnathopod 1 (more nearly agreeing with Chevreux's figure) has propod widest proximally, narrowing in the distal third. The palm is more oblique than in Barnard's figures, its margin convex and slightly sinuous. The denticles which are shown (1932, fig. 29*c*)

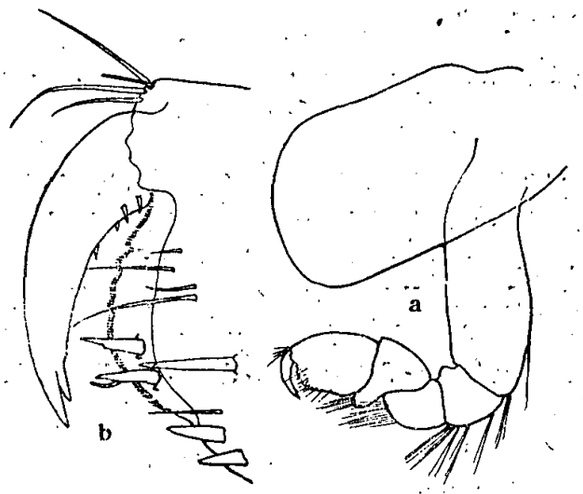

Figure 18. *Orchomenella macronyx* Chevr.—a, gnathopod 1; b, palm and dactyl more highly magnified.

as stout, tuberculate spinules are discoverable, in the present specimen, as minute spikes, only to be made out under very high magnification. These continue along part of the hinder border of the joint.

The palm is defined by two stout spines and other spines arm the hinder border. The dactyl is longer than represented in Barnard's figure. In gnathopod 2 the hinder border of propod is practically straight, the dactyl hooked terminally.

Uropod 3 has both margins of the rami denticulate exactly as in the "Discovery" specimens. Chevreux states explicitly that in his example this denticulation was found on the inner margin of each.

From Chevreux's figures of the mouth parts, also, in these larger specimens, some differences may be made out. Thus the cutting edge of the mandible is definitely dentate; the palp of the maxilla has five spine teeth and one stiff seta; the armature of maxilla 2 and maxilliped, also, differs in several minor details. In view of all these differences, these specimens ought perhaps to be assigned to a distinct species.

Distribution.—Palmer Archipelago; South Orkneys; South Georgia.

Orchomenella rossi (*Walker*).

(Fig. 19.)

Walker, 1903, p. 45, pl. 7, figs. 18–23 (*Orchomenopsis r.*); Barnard, 1932, p. 69, fig. 27; Schellenberg, 1926, p. 288, fig. 26 (*O. chilensis*, form *rossi*), and 1931, p. 49.

Occurrence.—1. Second (Western) Base, Shackleton Glacier, against ice face. in traps not deeper than 4 fathoms.
2. Second (Western) Base, in traps (270 fathoms).
3. Stomach of *Lycodichthys antarcticus*.

Remarks.—Numerous specimens were taken at both depths, in the second case associated with *O. abyssorum* and *Pseudorchomene coatsi*. That they are to be referred to Walker's species there can be little doubt. From the figures of *O. chilensis*, form *rossi*, given by Schellenberg they differ, however, in certain details, viz.—the armature of the palp of maxilla 1, the shape of the inner lobe of maxilla 2, the condition of the palm of both gnathopods and in the profile of pleon segment 4.

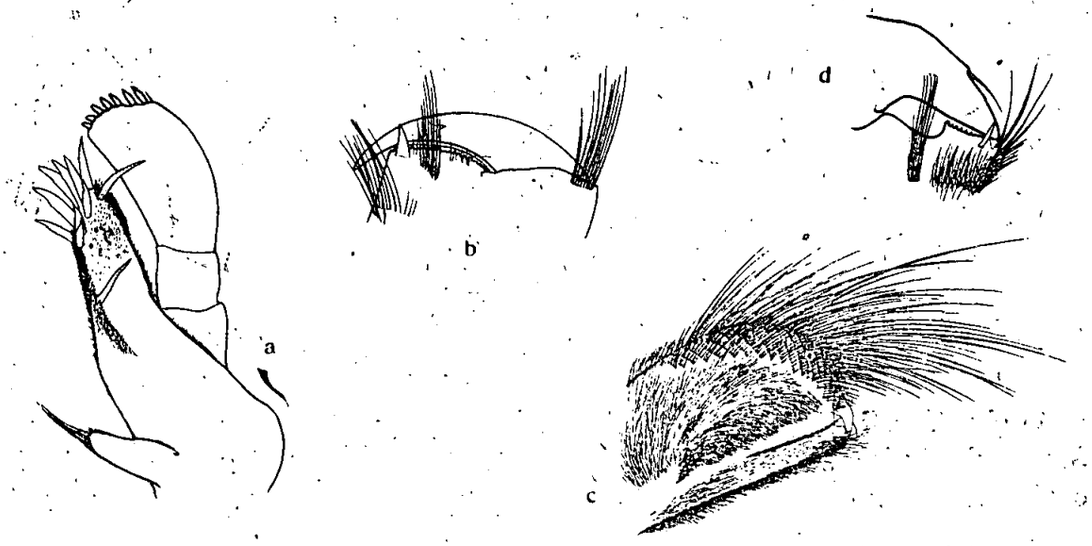

Figure 19. *Orchomenella rossi* Wlkr.—a, maxilla 1; b, gnathopod 1, palm and dactyl; c, gnathopod 2, part of propod; d, palm and dactyl of same, more highly magnified.

Distribution.—Ross Sea; "Gauss" Winter Station; Palmer Archipelago; South Georgia; South Shetland; probably South Orkneys and Coats Land.

Genus PSEUDORCHOMENE *Schell.*

Schellenberg, 1926, p. 295; Barnard, 1932, p. 74.

PSEUDORCHOMENE COATSI (*Chilton*).

(Fig. 20.)

Chilton, 1912, p. 477, pl. 1, figs. 8, 9 (*Orchomenopsis? c.*); Schellenberg, 1926, p. 295; Barnard, 1932, p. 74.

Occurrence.—1. Macquarie Island, 67 fathoms, 4 ♂♂, 11–12 mm., 3 ♀♀, 8–13 mm.
2. ,, ,, 12 fathoms, numerous ex.
3. ,, ,, 5 fathoms, 3 ex.

4. Macquarie Island, (C.39), 2 ex.
5. Second (Western) Base, Shackleton Glacier, 270 fathoms, numerous ex.
6. Stomach of *Austrolycichthys brachycephalus*, 2 ex.

Remarks.—A note supplied by the collector with (4) states "Original colour: ivory white, eyes bright red; left by tide on sandy beach."

The specimens from Macquarie Island appear to differ slightly from the antarctic examples in the relative size of the eyes and in the profile of pleon segment 4.

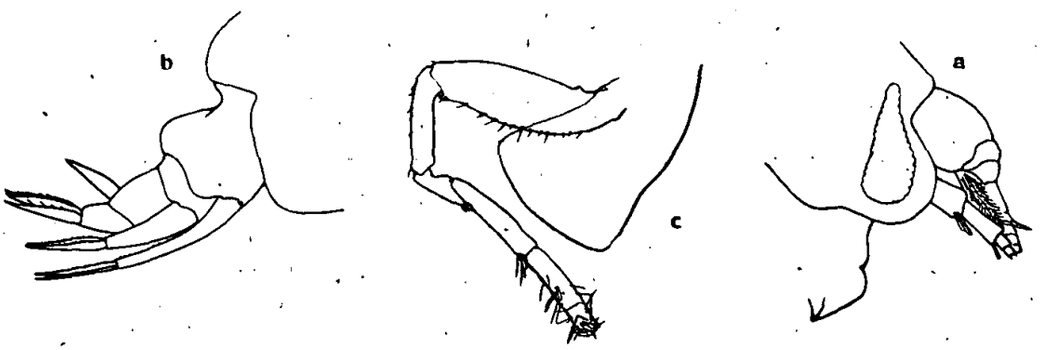

Figure 20. *Pseudorchomene coatsi* Chilton.—a, head and epistome; b, urus; c, gnathopod 1.

The maxilliped has its outer plate armed with spine-teeth so short and close set as to give the effect of a serrated edge; terminally two of these spines are elongate. Submarginally is a row of stiff spine-setae, the appendage agreeing closely with that of the other Orchomenella species (*cavimanus*, *macronyx*, and *rossi*).

In gnathopod 1 the carpus and propod are subequal, propod sometimes slightly longer, the palm defined by two spines. The dactyl of gnathopod 2 shuts down upon a small denticulate platform exactly resembling that seen in *O. rossi*, but lacking the little inwardly projecting flange that distinguishes *O. cavimanus*. The setae fringing the end of the propod are similarly bifid.

Distribution.—Coats Land; "Gauss" Winter Station.

Family STEGOCEPHALIDAE.

Stebbing, 1906, p. 88; Schellenberg, 1926, p. 298.

Genus Andaniotes *Stebb.*

Stebbing, 1906, p. 96; Barnard, 1930, p. 328.

Andaniotes ingens *Chevr.*

Chevreux, 1906, p. 22, figs. 12–14.

Occurrence.—Commonwealth Bay, Station 2, ♀, 7 mm.

Remarks.—The specimen is in a poor state of preservation and the integument is somewhat shrivelled. It differs in some details from the description given by Chevreux but these differences, although probably not attributable to immaturity, scarcely warrant, I think, the institution of a new species.

The junction of epimeron of pleon segment 3 with the dorsum is more rounded, the postero-inferior angle, also more rounded and there is no trace of the ventral marginal setae. Pleon segments 4 and 5 seem much shorter.

Sideplate 1 is more nearly triangular, its hinder margin straight (?), its ventral angle less obtuse; sideplate 4 appears longer and relatively shallower, coxa 7 is deeper than long and rounded below.

Maxilla 1 has palp rather better developed than in Chevreux's specimen, being slightly longer than the apical setose margin of the inner plate (nearly half length of outer plate), and bears fewer setae (8 only), the outer lobe having either 10 or 11 spines.

Maxilla 2 has 8–10 spines on the smaller outer plate and but twenty-two on the expanded inner lobe. Maxilliped is much less setose, outer plate relatively broader and the proportions of the joints of the palp are different.

Distribution.—Palmer Archipelago.

ANDANIOTES LINEARIS *Barnard.*

(Fig. 21.)

Barnard, 1932, p. 80, fig. 36.

Occurrence.—Commonwealth Bay, 45–50 fathoms, 4 ex., 2·5–4·5 mm.

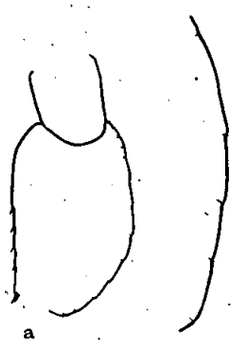

Figure 21. *Andaniotes linearis* Brnrd.—a, basos of peræopod 5 with hinder margin more highly magnified.

Remarks.—The specimen examined, an immature female of 4·5 mm. resembles *A. corpulentus* closely. The basos of the 4th peraeopod, however, is scarcely expanded and has an inner ridge with a single rank of setae. Peraeopod 5 has the posterior border of basos almost smooth, the position of the practically obsolete notches being indicated only by stiff setules.

Distribution.—South Georgia; South Shetlands; Palmer Archipelago.

PARANDANIEXIS *n. g.*

Sideplate 4 not completely overlapping 5th. Eyes obsolete. Antenna 1 with minute 1-jointed accessory flagellum. Epistome not carinate. Upper lip deeply and asymmetrically incised. Mandible broad, part of cutting edge dentate, part simple, accessory plate of left mandible similar but slightly smaller, of right mandible, a small untoothed lappet only. Maxilla 1, inner plate broad, setose, outer with denticulate spines, palp very broad, 2-jointed. Maxilla 2, both plates broad, inner setose, outer with slender pectinate spines, not hooked. Maxillipeds with outer plates large, extending as far as apex of palp. Gnathopod 1 rather stouter than gnathopod 2. Peraeopods 4 and 5, 2nd joint expanded. Telson, longer than broad.

Type.—P. mixtus n. sp.

PARANDANIEXIS MIXTUS *n. sp.*

(Fig. 22.)

Occurrence.—Commonwealth Bay, Station 1, 1 ♀, 15 mm.

Description.—The body (not including the head) resembles closely that of *Parandania boecki* as figured by Stebbing (1888, pl. 36). Pleon segment 3 has, however, a well developed carina, rounded behind, 4 is produced into a strong upstanding triangular process.

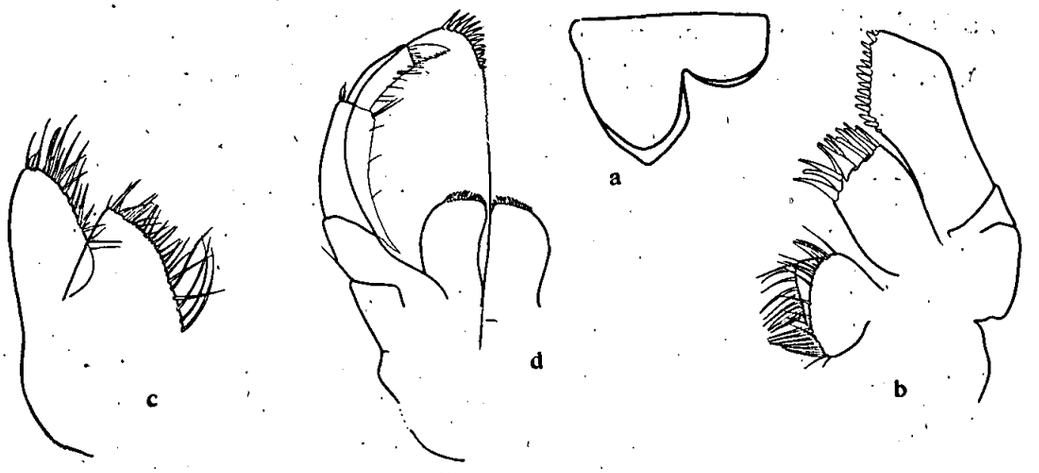

Figure 22. *Parandaniexis mixtus* n.sp.—a, upper lip; b, maxilla 1; c, maxilla 2; d, maxilliped.

Head not rostrate, nearly as long as peraeon segment 1. Eyes not perceived. Antennae broken. Upper lip very asymmetrical, the acutely pointed right lobe projecting downwards in the middle line, its triangular apex dark and strongly chitinised.

Lower lip not observed but what appears as an anterior part of the inner plate of maxilla 1 may be one lobe of the lip. It can not, however, be detached from the maxilla.

The maxillipeds were badly broken, the inner plates detached, and their exact relations were not observed but the outer plate and palp come near to the condition figured by Stebbing (1888, pl. 137*c*) for *Stegocephalus inflatus*, excepting that in the "Aurora" specimen the palps are relatively much shorter.

Of peraeopods 3–5 only the basos remain. Of these that of 3 is linear, 4–5 expanded. Uropods, all broken but, of 1 and 2, the bases of rami persist. Uropod 3, only portion of peduncle found. Telson broken but proximal portion is retained and, in this part, is not cleft.

Remarks.—The specimen a mature ♀, was badly mutilated. It had apparently completely dried out at some time and was extremely brittle. Almost all of peraeon appendages are lost from one side and broken upon the other. Of the antennae all were broken off short except antenna 1 of one side, portion of which was still loosely attached. The maxillipeds, also, were broken but enough remains for identification. Notwithstanding its incomplete condition it exhibits, as its specific name suggests, several characters found previously only in distinct genera. Thus, a similar condition of side plate 4 is found in the genera *Andaniexis*, *Parandania* and *Euandania* but the condition of the upper lip is characteristic of *Stegocephalus* and *Stegocephaloides* from which genera it differs in 2-jointed multispined palp of maxilla 1. The expanded basos of peraeopod 4 distinguishes it from *Phippsia*, *Stegocephaloides*, *Andaniopsis* and *Andaniella*. The similar and wide plates of maxilla 2, with their numerous setae and spines, and the shortness of the palp of the maxilliped (as compared with outer plate) seem to be features peculiar to this genus.

Family AMPELISCIDAE.

Stebbing, 1906, p. 97; Barnard, 1916, p. 132, and 1932, p. 81.

Genus Ampelisca *Kröyer*.

Stebbing, 1906, p. 98; Barnard, 1930, p. 329, and 1932, p. 81; Schellenberg, 1931, p. 52.

Ampelisca macrocephala *Lilj*.

Walker, 1903, p. 53, pl. 9, figs. 58–61, and 1907, p. 18; Stebbing, 1914, p. 357; Barnard, 1932, p. 82, fig. 38.

Occurrence.—Commonwealth Bay, Station 2, 1 ♂ (?), 16 mm.; 2 ♀♀, 12 mm.

Remarks.—These specimens agree most nearly with the antarctic "*macrocephala*" as described and figured by Barnard.

Head and pleon segments 3 and 4 conform to Barnard's figures and there is no trace of the antero-inferior notch on ventral border of pleon 3. The telson of this southern form appears not to have been figured and, therefore, may be presumed to resemble generally that of the boreal species. Chilton (1917) stresses the variability of the spinulation and his figure portrays a condition not very unlike that found in the present specimens where, however, one pair only of dorsal spinules can be made out, these about at the beginning of the distal third of the telson. It is not as narrowed distally as Chilton's figures suggest and in its proportions approaches more nearly to the telson of *A. bouvieri* (Chev., 1913, fig. 9*h*), or of *A. dentifera* (Schell., 1931, fig. 28*c*).

Of the eyes no trace remains. The mouth parts seem not to have been described in the southern form. The maxilliped in the specimen dissected has the spatulate teeth on the outer plate much more widely spaced than is the case in *A. barnardi*.

Sideplates 1 and 2 are both possessed of the strong postero-distal tooth, to which Schellenberg directs attention in *A. dentifera*, but this tooth is figured by Chevreux for *A. eschrichti*, and I find it equally well developed in *A. barnardi*.

Peraeopod 5 differs only in the smaller details of comparative sizes of the joints and in these it agrees closely with Walker's figure. The most advanced of the setae on the basos arise at the level of the middle of the 3rd joint.

Uropod 2 is more spinous than in the specimens figured by Walker. Uropods 3 have lanceolate narrow rami, as Barnard notes, and bear both spines and setae.

Distribution.—Ross Sea; Falkland Islands; South Georgia.

AMPELISCA BARNARDI *n. sp.*

(Fig. 23.)

Occurrence.—1. Commonwealth Bay, Station 2, 5 ♂♂, 12–16 mm., 28 ♀♀ (some ovig.), 12–16 mm., 8 (immature), 7–11 mm.

2. Davis Sea, Station 12, 1 ♂, 14 mm., 10 ♀♀, 12–18 mm. (3 ovig.), 2 (immature), 7 mm. and 10 mm.

Description.—Agreeing in position of corneal lenses with *A. hemicryptops* Barnard.

Head compressed, scarcely carinate, antero-lateral angle quadrate, rounded; sideplate 1 scarcely widened below; pleon segments 1 and 2 scarcely carinate, 3 with slight keel, its posterior margin almost straight, postero-lateral corner strongly produced, upturned apically. Pleon segment 4 dorsally rounded in front, with pronounced sinus and tooth and produced dorso-laterally into sharp upstanding processes.

Antennae very long, subequal, both pairs recurving in bent specimens around ends of uropods on to the urus. Antenna 2, joint 5 of peduncle three-fourths of length of 4, flagellum with 27 joints (in ♀ 38 joints were counted), once and a half the length of peduncle.

Gnathopod 1 subchelate, carpus and propod subequal, palm not very oblique, half as long as hind margin of carpus, dactyl strong, its inner margin setose.

Peraeopod 1, 6th joint half the length of 7th; peraeopods 3 and 4 each with single long plumose seta on posterior border of coxa; peraeopod 5, posterior lobe of basos with flattened distal border, its outer surface invested by a thick covering of plumose setae, the submarginal fringe extending up the anterior border of the lobe for half of the length of the 3rd joint; 4th and 5th joints spinous, 4th with smooth anterior border, 6th and 7th linear.

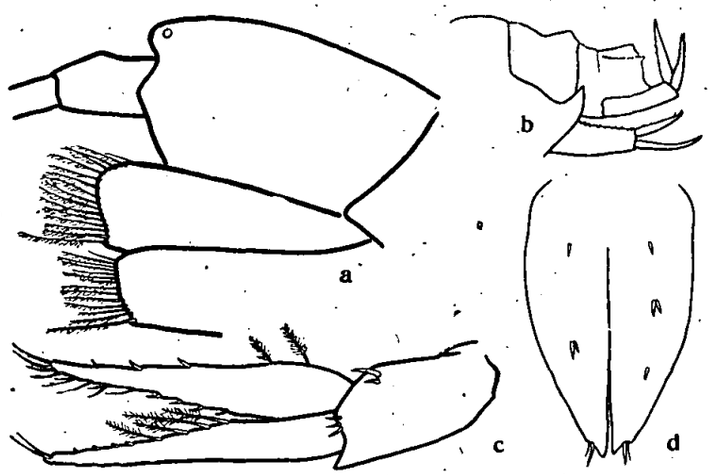

Figure 23. *Ampelisca barnardi* n.sp.—a, head with side plates 1 and 2; b, urus; from which uropod 3 (c) and telson (d) have been removed.

Uropod 3, rami comparatively long and narrow. Telson ovate, deeply cleft, apices obliquely truncate, not dehiscent, each with a terminal spinule and seta.

Remarks.—The description of *A. hemicryptops* is so very brief that it is difficult to institute a comparison with that species. In the shape of the head and profile of pleon segment 3 it would appear to differ from the present species and, for the rest, the account given above directs attention to those details in which *A. barnardi* differs from the southern "*eschrichti*" as described by Chevreux, with which *hemicryptops* is said to show a general agreement.

Family PHOXOCEPHALIDAE.

Stebbing, 1906, p. 133; Chevreux, 1908, p. 8; Shoemaker, 1925, p. 22 (*fide* Barnard); Barnard, 1930, p. 330, and 1932, p. 97; Schellenberg, 1931, p. 65.

Genus HETEROPHOXUS *Shoem.*

Shoemaker, 1925, p. 22; Barnard, 1930, p. 333; Schellenberg, 1931, p. 73.

HETEROPHOXUS VIDENS *Barnard.*

(Fig. 24.)

Barnard, 1930, p. 334, fig. 11, and 1932, p. 100; Schellenberg, 1931, p. 74, figs. 37*b*, 38; ? Chilton, 1912, p. 477 (*Harpinia obtusifrons*, non Stebbing).

Occurrence.—1. Commonwealth Bay, Boat Harbour, 3½–5 fathoms, 1 ♀, 6 mm.

2. ,, ,, ,, ,, 25 fathoms, 2♀♀, 5 mm. and 8 mm.

3. ,, ,, ,, ,, 3 fathoms, 1 ♀, 8·5 mm.

Remarks.—Differ only in small details from the descriptions of Barnard and Schellenberg. Pleon segment 3 is produced into a sharp postero-inferior point above which there is excavated a small sinus; the lower margin of the epimeron is fringed along its whole length with long setae; telson has two pairs of spines apically, outer much the stronger, more proximally are a pair of smaller spines and a paired couple of setae in the position figured by Chevreux in *Joubinella ciliata*, but here both are simple.

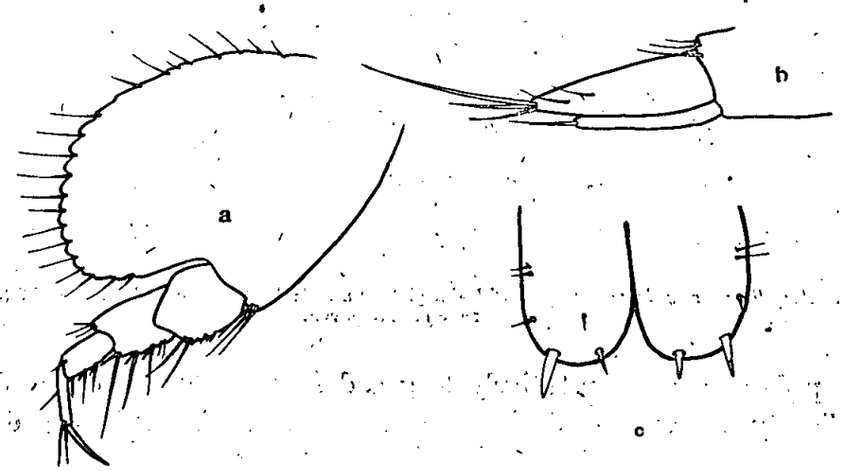

Figure 24. *Heterophoxus videns* Brnrd.—a, peræopod 5; b, uropod 3; c, telson.

Peraeopod 5 has all the joints spinous, as figured by Schellenberg, whereas Barnard's figure reveals the third joint practically unarmed.

Distribution.—Ross Sea; Magellan; South Georgia; South Shetlands.

FAMILY SEBIDAE.

Walker, 1907, p. 37.

Genus SEBA *Bate.*

Stebbing, 1906, p. 162; Walker, 1907, p. 37.

SEBA ANTARCTICA *Walker*.

Walker, 1907, p. 37, pl. 13, fig. 22; Barnard, 1932, p. 107, fig. 56.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 3–4 fathoms, about a dozen examples badly broken, 1·5–3 mm.

2. ,, ,, Boat Harbour, 25 fathoms, 5 exs., from 2·5–3 mm., including two ovig. ♀♀ (3 mm.).

3. ,, ,, Boat Harbour, 45–50 fathoms, 1 ♂, 2·5 mm.

4. Loc. ?, 1 ♂, 3·5 mm., 1 (?) ♀, 3 mm.

Remarks.—These specimens agree with Walker's figures, excepting that none of the ♀♀ in the present collection have the merus of peraeopods 3–5 greatly expanded.

The telson is relatively rather longer and narrower than would appear from Barnard's figure and bears two pairs of setae, and closely resembles Schellenberg's figure of *dubia*. In none was sideplate 2 produced into a point at its postero-inferior angle, but it should be noted that Walker's figures do not suggest that this condition was found although he states that this species agrees in the smallest detail with "*saundersi*." Barnard has pointed out that that statement is incorrect so far as the telson is concerned.

Several of the specimens were cream coloured with conspicuous reddish brown spots, in others the colour had almost disappeared and the spots appeared as transparent areas; a few were uniformly cream coloured. The label with (2) has a note "found chiefly among the roots of brown algae."

Distribution.—McMurdo Sound; South Georgia.

FAMILY LEUCOTHOIDAE.

Stebbing, 1906, p. 161.

Genus LEUCOTHOË *Leach*.

Stebbing, 1906, p. 163.

LEUCOTHOË SPINICARPA *Abildg*.

Barnard, 1932, p. 106 (references).

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 1 ♂, 10 mm., 1 ♀, 11 mm.

2. ,, ,, ,, ,, 50-60 fathoms, 1 ♂, 11 m.

3. ,, ,, Station 2, 288–300 fathoms, numerous exs., 8–13 mm.

4. ,, ,, ,, 7, 60 fathoms, 1 ♀ ?, 10 mm.

Distribution.—Cosmopolitan. In Antarctic and Sub-antarctic waters, recorded from Ross Sea, South Orkneys, South Shetlands, Falkland Islands, Palmer Archipelago, Marguerite Bay, " Gauss " Winter Station.

Family METOPIDAE.

Stebbing, 1906, p. 171.

Genus Metopella *Sars*.

Stebbing, 1906, p. 182; Schellenberg, 1926, p. 313; 1931, p. 108.

Metopella ovata (*Stebb.*).

Stebbing, 1888, p. 764, pl.44; 1906, p. 183, figs. 47, 48; 1914, p. 358; Chilton, 1912, p. 481; Schellenberg, 1926, p. 313, and 1931, p. 108; Barnard, 1932, p. 108.

Occurrence.—? Macquarie I. (" Bottle with clams "), 4 ex., 1·5–2·5 mm.

Remarks.—The specimen dissected was found to agree very exactly with Stebbing's description. The material was of a yellowish green colour.

Distribution.—Magellan Straits; Falkland Is.; South Orkneys; South Georgia; Kerguelen; New Zealand and Campbell Is.

Genus Metopoides *Della Valle*.

Stebbing, 1906, p. 185; Schellenberg, 1926, p. 318, and 1931, p. 96.

Metopoides heterostylis *Schell*.

(Fig. 25.)

Schellenberg, 1926, p. 320, fig. 39.

Occurrence.—Commonwealth Bay, Boat Harbour, 25 fathoms, 1 ? immat. ♂, 1·8 mm.

Remarks.—This small specimen resembles very closely Schellenberg's species from " Gauss " Winter Station.

The antennae are subequal; antenna 1 slightly the longer; the peduncle is conical, 1st joint twice the length of the second which is half as long again as the third, the slender flagellum a little longer than the peduncle, accessory flagellum minute, 1-jointed.

In gnathopod 1 the carpus is wider but shorter than propod; gnathopod 2 with the hinder border of propod, straight rather than concave. The dactyl of peraeopod 2 is short and stout, of peraeopod 3 curiously widened near its middle (but both of these may be abnormalities), peraeopod 5, basos is widest at its distal end.

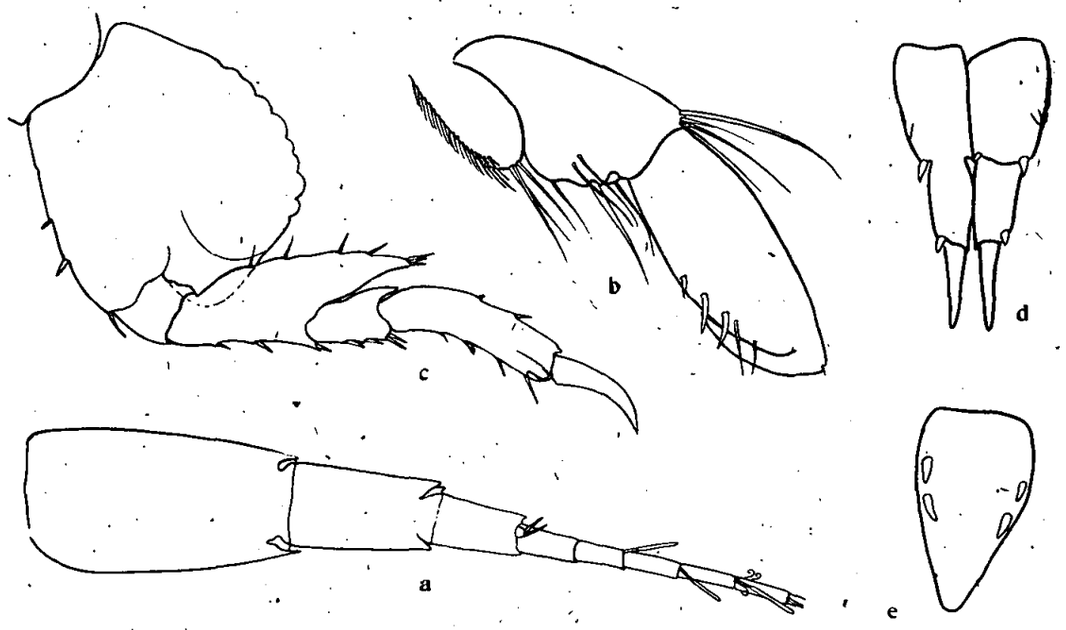

Figure 25.—*Metopoides heterostylis* Schell.—a, part of antenna 1; b, gnathopod 1; c, peræopod 5; d, uropods 3; e, telson.

The ♀♀ referred to very briefly by Walker at the end of his description of *Proboloides antarcticus* may probably be referred (as Schellenberg suggests) to this species.

Distribution.—" Gauss " Winter Station; ? Ross Sea.

METOPOIDES AURORAE *n. sp.*

(Fig. 26.)

Occurrence.—1. Macquarie I. (C.26), 1 ♂ (?), 5 mm. (type).
2. " Bottle with clams," 1 juv., 3 mm. (in poor preservation).

The integument thin and tough. Head, antero-lateral angle acute, rounded Eyes moderate, oval. Sideplate 4, one third longer than deep, completely concealing sideplates 5–7.' Telson, oval, entire with terminal spinule.

Antenna 1, about as long as head and peraeon segments 1–4, peduncle stout, 1st joint about as long as head or as long as joints 2 and 3 combined, 2 about twice length of 3, 18-jointed flagellum as long as peduncle, accessory flagellum not discerned. Antenna 2, as long as antenna 1, 11/12-jointed flagellum subequal to peduncle.

Mandible, palp with joint 3 reduced to minute tubercle surrounded by tuft of terminal setae at end of and armed with 1 (2 ?) long seta.

Maxilla 1, inner plate oblong, short and broad, with one long apical plumose seta on its inner angle, outer plate stout, its inner border set with stiff spine-setae, its narrowed apex set with five stout pectinate spines and an inner, much shorter, simple

spine, palp strong, its first joint nearly as long as inner lobe, 2nd joint tipped with short spines which continue nearly half way down its inner margin, and are flanked by a row of setae.

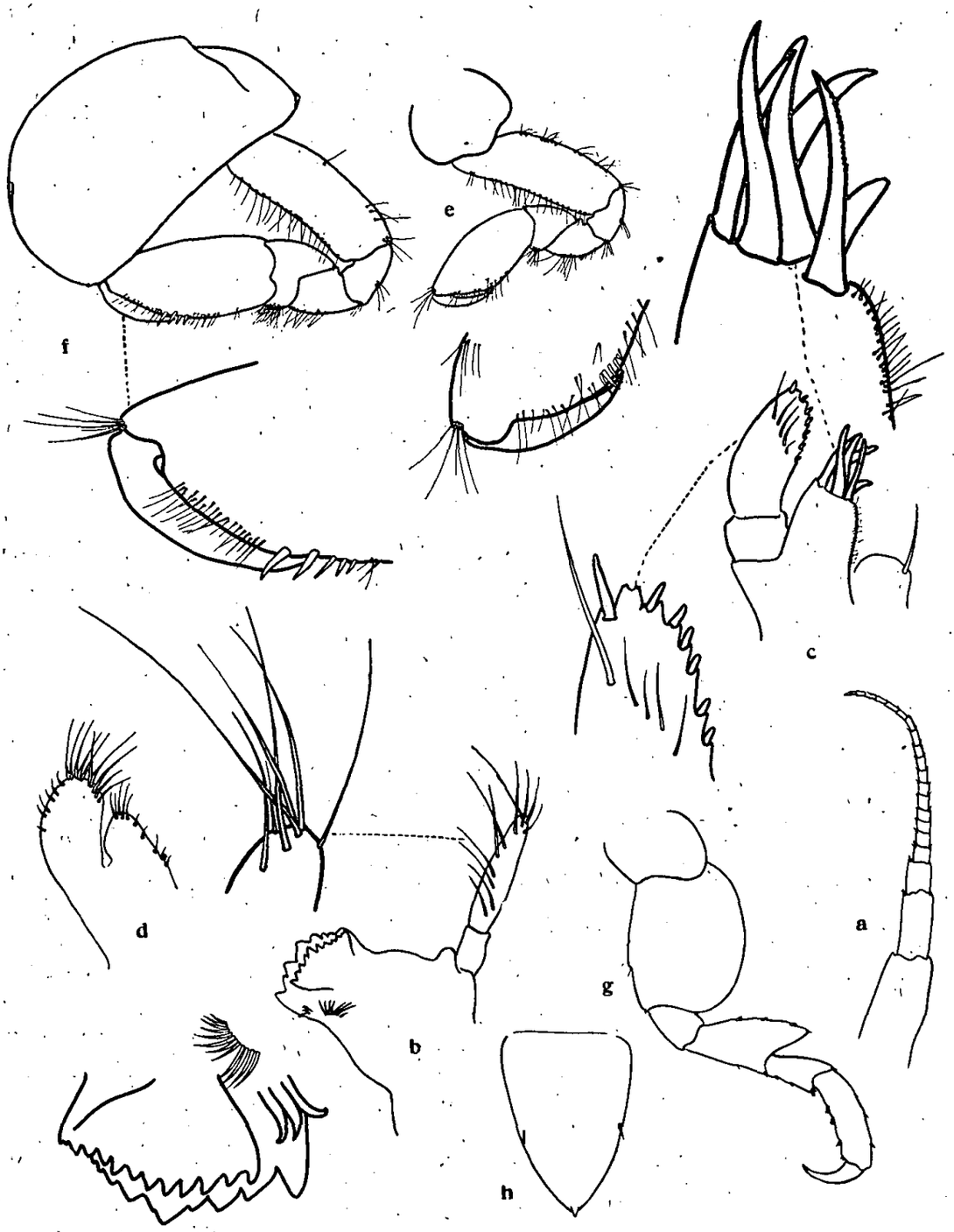

Figure 26. *Metopoides aurorae* n.sp.—a, antenna 1; b, mandible with cutting edge and apex of palp more highly magnified; c, maxilla 1, with apices of outer plate and of palp more highly magnified; d, maxilla 2; e, f, gnathopods 1 and 2 with palms more highly magnified; g, peræopod 5; h, telson.

Maxilla 2, inner plate short, narrowed apically, with a few stiff setae terminally, outer considerably longer, its apex obliquely truncated, with about 11 long curved setae, directed mesially. Its convex outer border is armed with 6 short, spaced setae.

Maxilliped much as in *compacta*.

Gnathopod 1, coxa small, squarish, with sinuous ventral border and angles rounded, basos stout, propod nearly oblong, almost as long as basos, widening distally, palm convex, oblique and not defined from posterior border of joint, the minutely denticulate margin continuing proximally beyond the edge of the strong curved dactyl.

Gnathopod 2, very similar to gnathopod 1, but somewhat longer and stouter, the long oval propod subequal to basos. The long dactyl closes upon the minutely denticulate border of the distal third of the propod and lies internal to a rank of four stout spines.

Peraeopods 2–5 show the fourth joint stout and decurrent, peraeopod 3 has the basos linear, peraeopod 4 is moderately expanded, peraeopod 5 with basos convex anteriorly, expanded posteriorly, with smooth hinder margin.

Remarks.—This species comes closest to *M. sarsii* (Pfr.) which according to Chilton is identical with the species described by Chevreux (*M. walkeri*). In the extreme reduction of the third joint of the mandibular palp, the present species and *M. sarsii* agree and are thereby marked off from all other of the *Metopoides* species. *M. aurorae* is distinguished from *M. sarsii*, however, by the condition of maxilla 2, gnathopod 2, the greater relative length of sideplate 4, by the large 4th joints of peraeopods 3–5 and by the absence of spines from the telson.

Genus Proboloides *Della Valle.*

Stebbing, 1906, p. 187; Walker, 1907, p. 18; Schellenberg, 1926, p. 323; Barnard, 1930, p. 339.

Proboloides dentimanus *n. sp.*

(Fig. 27.)

Occurrence.—Commonwealth Bay, Station 2, 2 ♀♀ , 5 mm., 8 mm.

Description.—Sideplate 3 beaded on lower margin. Postero-inferior angle of pleon segment 3, quadrate. Telson narrow oval, pointed, length twice the width, four pairs short marginal spines.

Eyes not distinguishable. Antenna 1 almost as long as the body, 1st joint long and stout, subequal to second which is slightly narrower, and is nearly four times as long as the slender 3; flagellum 22 joints, about twice length of peduncle, minute accessory flagellum 2-jointed about one-sixth length of first joint of primary flagellum.

Antenna 2 shorter, its peduncle rather longer than that of antenna 1, 4th joint longest, 5th slightly less and somewhat narrower, flagellum 15/16-jointed, little longer than 4th peduncular joint.

Mandible palp 3-jointed, 1st and 3rd subequal.

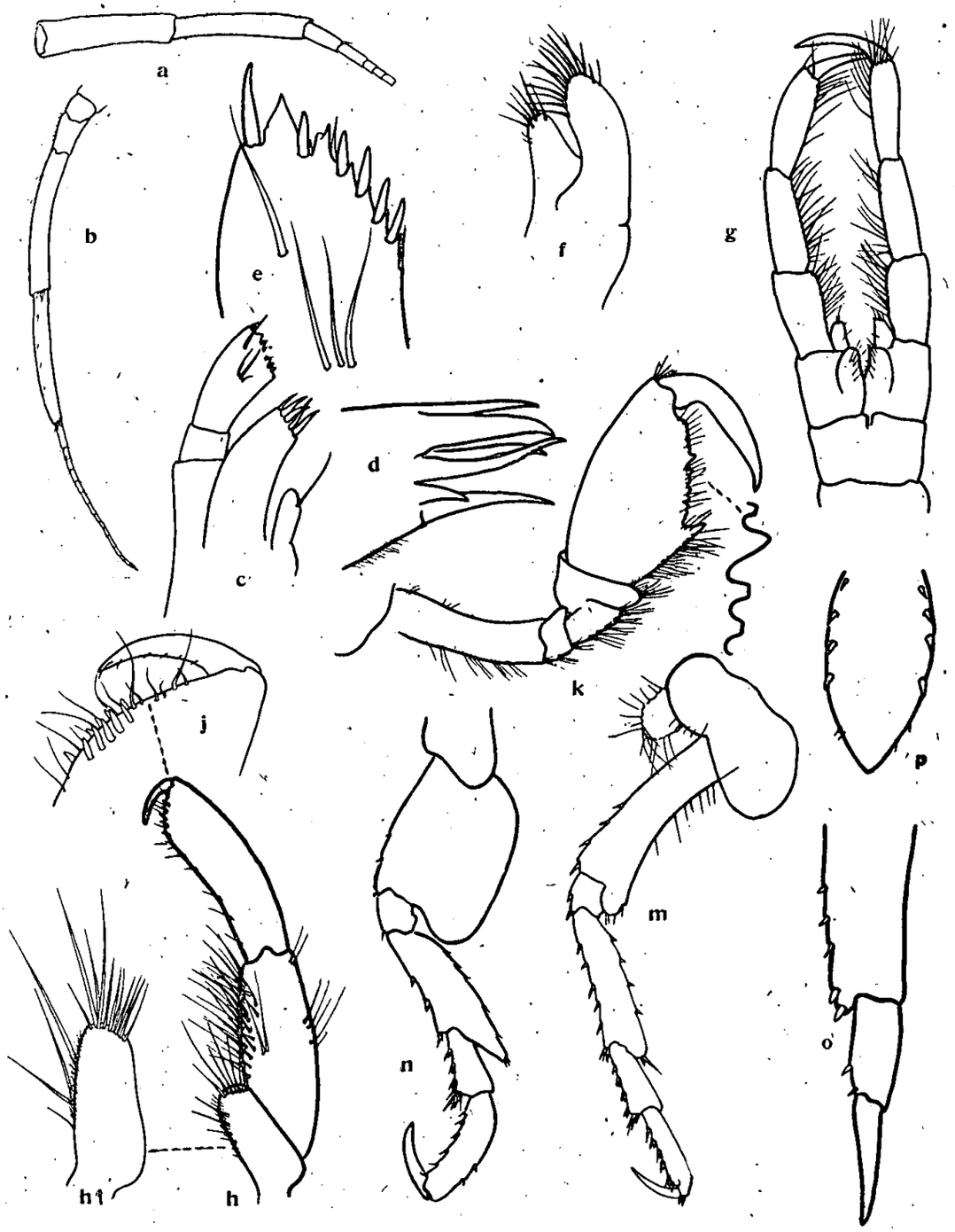

Figure 27. *Proboloides dentimanus* n.sp.—a, antenna 1, part; b, antenna 2; c, maxilla 1, with apex of outer plate, d, and of palp, e, more highly magnified; f, maxilla 2; g, maxilliped; h, part of gnathopod 1 with merus, h, and palm, ,more highly magnified; k, gnathopod 2; m, peræopod 3; n, peræopod 5; o, uropod 3; p, telson.

Maxilla 1, much like that of *crenatipalmata* but inner plate has a single mesial plumose seta, outer with 4 moderately strong serrulate spines and two others, simple and stouter, the inner of which is short; 2-jointed palp stout, armed apically with a number of short spines and subapically with a short oblique rank of stiff setae.

Maxilla 2, small, both plates rounded, inner considerably shorter with 6 apical setae, outer with about 15 similar setae.

Gnathopod 1 subchelate; its sideplate minute, round, with margin feebly crenate, basos long, both borders fringed with numerous long setae, merus produced along posterior border of carpus, the free rounded end set with long stout setae and with five stiff spine-setae, propod shorter than carpus, its posterior margin concave, truncated distally to form a short oblique, smoothly convex, palm, dactyl shutting down between 10 spines arranged in a double row.

Gnathopod 2 with short triangular carpus and strongly developed oval propod (as long as basos), palm oblique, defined by a strong tooth and set with a row of nine stout regularly spaced blunt teeth, but interrupted between 3 and 4 (counting from dactylar end) by a sharp upstanding tooth; dactyl stout, strongly curved.

Peraeopod 3, basos linear, with short postero-distal lobe; 4th joint slender, about three-fourth length of basos, and more than twice length of 5th.

Peraeopod 5, basos expanded, its width three-fourths its length, antero-distal angle of 5th joint armed with a bunch of 7 stout spines.

Uropod 3 differs from that of *crenatipalmata* in that the 5-spined peduncle is much shorter than the ramus.

Remarks.—This species runs down in Barnard's very convenient key to *P. crenatipalmata*, to which it has many points of resemblance. The differences are not, I think, to be explained by growth changes since the specimen described above (measuring 8 mm. fully extended) is probably not larger than the 5 mm. specimen which, in the position measured by Stebbing, was strongly curved. Judging by the marsupial lamellae, both are about at the same stage of maturity. It can be readily distinguished from that species by the antennae, other differences being observed in maxillae, gnathopod 1, peraeopods 3 and 5, and telson.

Genus PSEUDOTHAUMATELSON *Schell.*

Schellenberg, 1931, p. 110.

PSEUDOTHAUMATELSON CYPROIDES *n. sp.*

(Fig. 28.)

Occurrence.—Commonwealth Bay, 25 fathoms, 1 ♂, 1 ♀, 2 mm.

Description.—Head short, scarcely longer than peraeon segment 1, which is subequal to 2. In the ♀, peraeon segments 3 and 5 subequal, as long as the combined

length of 1 and 2; 4 considerably longer than 1, 2 and 3 combined; 6 and 7 and pleon segment 1, subequal but shorter than 5. In the ♂, segments 1–3 are more nearly equal, 4 less disproportionately large and the remaining segments subequal.

Sideplate 1 minute, hidden, 2 and 3 large, 4 very large, completely hiding the remaining sideplates and capable of concealing the inturned end of the body.

Eye large, with fifteen or sixteen ocelli; antenna 1 with first joint of peduncle large, strongly produced distally (as in *Thaumatelson walkeri* and *Prothaumatelson nasutum*) flagellum with about 12 joints in ♂, 4/5 in ♀.

Maxilliped much as figured for *herdmani*, perhaps a little less stout. Other mouth parts not examined.

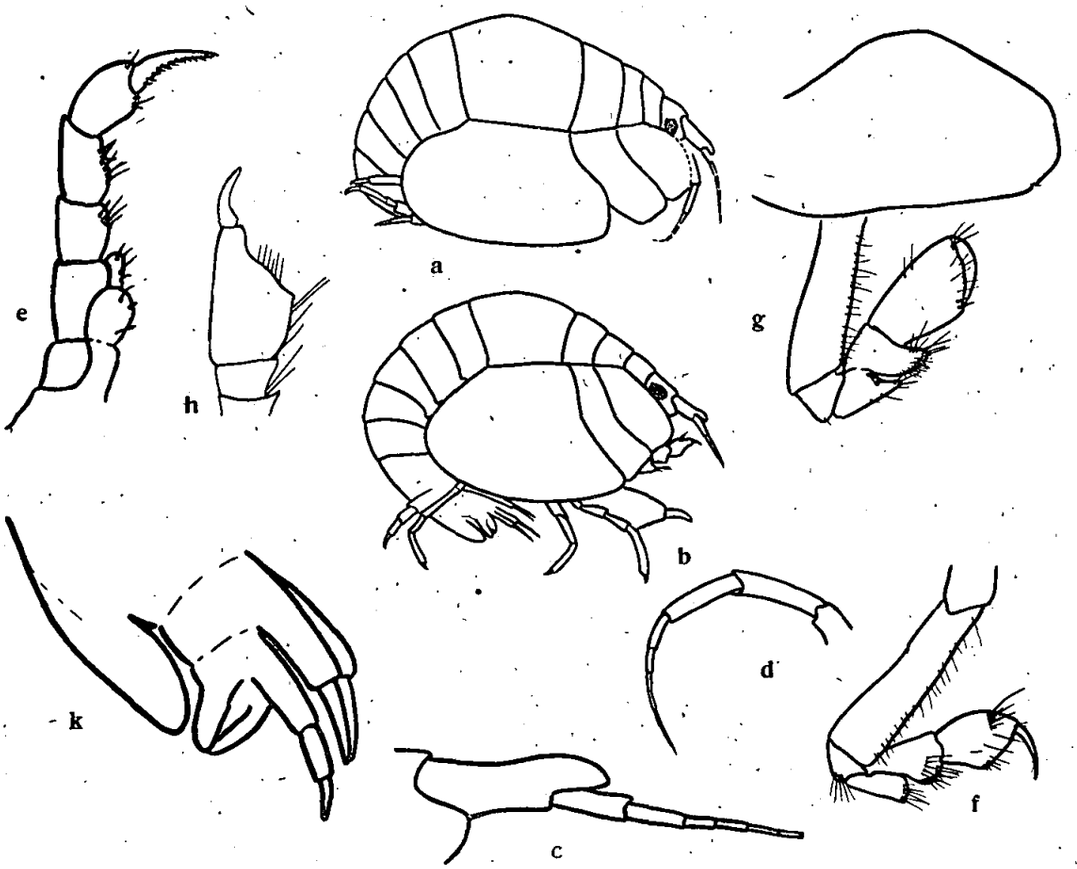

Figure 28. *Pseudothaumatelson cyproides* n.sp.—a, entire animal, ♀; b, ♂; c, antenna 1, ♂; d, antenna 2, ♂; e, maxilliped; f, gnathopod 1, ♀; g, gnathopod 2, ♀; h, hand of gnathopod 2; k, pleon segment 4 and urus.

Gnathopod 1, in ♀, rather like that of *patagonicum* but basos more elongated and setose, carpus rather shorter than propod, widening distally; palm oblique, scarcely longer than hinder border of propod.

Gnathopod 2, hand rather larger than in gnathopod 1, carpus barely half as long as propod, palm convex, shorter than hinder border of joint. In ♂, gnathopod 2, much

larger than gnathopod 1, palm almost straight, slightly concave and quite oblique, distinctly longer than hinder border of joint. Peraeopods slender. Uropod 2, ramus appears 2-jointed. Uropod 3, and telson, details not determined.

Remarks.—The condition of pleon segment 4 which is produced distally into a keel overriding the hinder part of pleon and telson is distinctive of *Pseudothaumatelson*.

Except, however, for the lack of a strong upstanding tooth on pleon segment 3, these specimens closely resemble *Thaumatelson walkeri* a resemblance which is heightened by the fact that the keel in both these species is strengthened along its mid-dorsal line by a marked thickening. In the present specimen, however, a small telson is present in the normal position, whereas in *walkeri* the large keeled structure is regarded as the telson (arising somewhat remarkably from the proximal part of the urus). It would seem probable that the terminal keel is really homologous throughout this group of species and that a true telson has become obsolete in *Thaumatelson* and *Prothaumatelson* were it not that in *T. cultricauda*, Barnard figures this keel arising much more nearly from the hinder part of the coalesced pleon segments.

Family PAGETINIDAE.

Barnard, 1932, p. 131.

The Amphipod described below, had been allotted a separate family near to the Cressidae, but just as the manuscript was about to be despatched, chance directed attention to *Pagetina*. The resemblance of the little Macquarie Island form to that from South Georgia is remarkably close and there can be no doubt that both belong to the same family. It is indeed, a question, whether the two forms are generically distinct, but the incised upper lip, vestigial molar (?), persistent inner plates of maxilliped, and 2-jointed ramus of uropod 3 of *Heterocressa* are probably sufficient to justify the separation.

The relationship of the family would seem to be at least as close to the Cressidae as to the Pardaliscidae.

Heterocressa *n.g.*

Body subcylindrical, slightly compressed. Head without rostrum. Sideplates shallow and not continuous, 5th bilobed. Branchial lamellae small, linguiform, exposed below sideplates. Pleon segments 5 and 6 very short, doubtfully united. Telson small, entire.

Antenna 1, very short, stout and without accessory flagellum. Antenna 2, shorter and rather slender, flagellum, few jointed. Upper lip incised. Mandible with dentate edge, and spine row, molar absent ? palp well developed, 3rd joint longest. Maxilliped stout, subpediform, outer plate small, not reaching end of 1st joint of palp, inner very small, palp stout, 4-jointed.

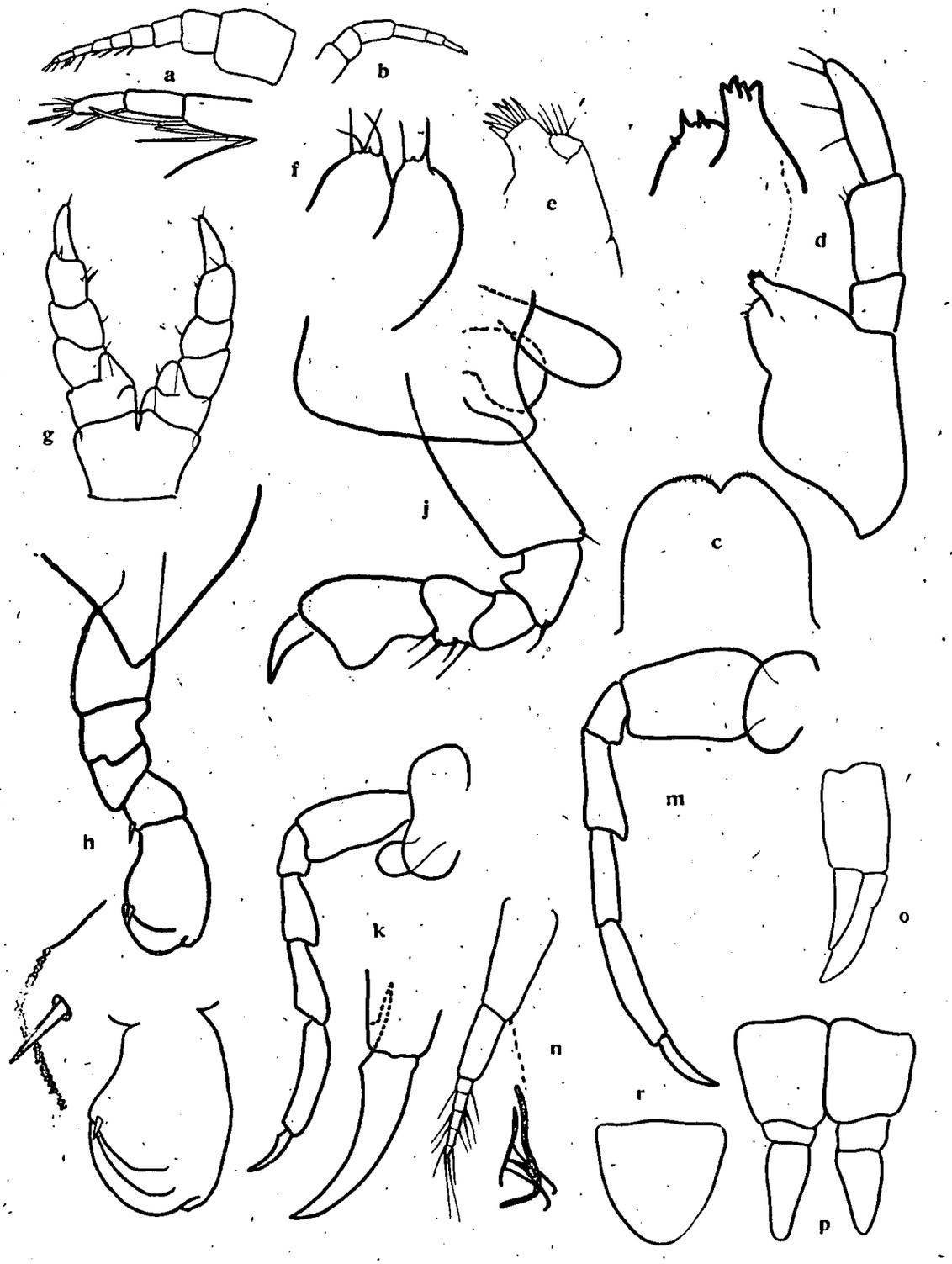

Figure 29. *Heterocressa monodi* n.sp.—a, antenna 1, with terminal part of flagellum more highly magnified; b, antenna 2; c, upper lip; d, mandible, with cutting edge more highly magnified; e, maxilla 1; f, maxilla 2; g, maxilliped; h, gnathopod 1, with hand more highly magnified; j, gnathopod 2; k, peræopod 3, with dactyl more highly magnified; m, peræopod 5; n, pleopod; o, uropod 2; p, uropod 3; r, telson.

Gnathopods 1 and 2 alike, short, subchelate. Peraeopods 1–5 alike, slender, 2nd joint linear, slightly expanded in 4 and 5, 4th joint not widened. Pleopods, rami little longer than peduncle with 2 coupling hooks. Uropods 1 and 2 styliform, rami unequal, 3 with single 2-jointed ramus.

Remarks.—In Stebbing's key to the families of Amphipods this runs down to the Cressidae and the combination of characters—upper lip bilobed, mandible with 3rd joint of palp long, maxilliped with plates reduced, uropod 3 with single 2-jointed ramus and telson small, entire,—is found, apparently, in no other family. Externally, however, this little Amphipod (with its rounded head, short antennae, shallow sideplates, scarcely expanded basos of peraeopods and short uropods) exhibits very little resemblance to *Cressa* but has, on the other hand, a strong likeness to *Colomastix*. From this latter however (as from *Cressa*) it is readily distinguished by the subchelate gnathopod 1; from *Colomastix*, too, it is further separated by the reduced condition of the hinder pleon segments and the uniramous 3rd uropods. Apart from these two families its nearest affinities seem to lie with the Phliantidae and the Laphystiopsidae.

Type.—H. monodi n.sp.

Heterocressa monodi *n. sp.*

(Fig. 29.)

Occurrence.—1. Macquarie Island, 1 juv., 1·8 mm.

2. ? ,, ,, "Bottle with clams," 1 ♀, 4·5 mm.

Description.—Body slender, elongate. Head short, with well rounded antero-lateral region. Eye, well marked, round, black, very near anterior margin of head. Sideplates small and shallow; 1 subtriangular, 2–4 oblong with angles rounded and hinder border slightly excavate, 5 bilobed, lobes subequal, 7th slightly shorter not lobed, both anterior and posterior borders uniformly rounded. Pleon segments 1–3 with epimera oblong, corners rounded. Antennae short, antenna 1 with first joint stout, flagellum 6-jointed, its length scarcely exceeding that of peduncle, every joint but the last furnished with sensory setae. Antenna 2, shorter, and more slender, joints 4 and 5 of peduncle subequal and as long as the 3-jointed flagellum. Setae very few.

Upper lip incised. Mandible short and stout, molar not certainly recognised, 3-jointed palp almost bare of setae, 3rd joint longest. Lower lip not certainly seen but apparently without inner lobes. Maxilla 1, inner plate small with single apical seta, outer large, truncated apex armed with spines, palp small, 1-jointed, with three or four setae.

Maxilla 2, slight, lobes subequal with few apical setae.

Gnathopod 1, almost free from setae, basos widening distally, longer than joints 3, 4 and 5 combined, propod pyriform widest distally, the convex palm not very oblique

and shorter than the sinuous and partly serrulate hinder border of the joint, defined by a pointed process and two spines; dactyl stout, curved, as long as palm with stout spine at its base.

Gnathopod 2, like gnathopod 1 but slightly stouter, basos rather longer, palm lacking the defining spines.

Marsupial lamellae rounded oblong to round in shape. Peraeopod 3, joints 4, 5, 6 increasing in length, dactyl almost as long as 4. Pleopods with stout sympodites, the rami about one-third longer, 6-jointed.

Uropod 1, peduncle twice the length of inner ramus, which is itself only two-thirds as long as outer. Uropod 2, peduncle and outer ramus subequal, inner ramus two-thirds the length of the outer. Uropod 3, uniramous, ramus slightly longer than peduncle, two-jointed. Telson minute, entire, unarmed, subtriangular with rounded apex, very slightly wider than long, its length being about three-fourths of uropod 3. There is a noticeable paucity of spines or setae on body and appendages.

Remarks.—The description of this species was based upon the examination of a single specimen found in a tube labelled "Bottle with clams. Mawson's Expedition," but without more precise locality label. In the same tube were other specimens, including *Acontiostoma marionis*, *Cylindryllioides mawsoni*, *Metopella ovata*, *Metopoides aurorae*, *Schraderia serraticauda*, and some quite small *Jassa* sp. *Metopella ovata* was already known as a subantarctic species and *Schraderia serraticauda* from Southern Australian waters. Moreover, I had already listed *Acontiostoma* from several localities in Macquarie Island as, also, one other specimen of *Metopoides aurorae*, so that there was a very strong presumption that these "clams" and associated Amphipods occurred on the shores of Macquarie Island rather than in Antarctica.

Much later, a few specimens of *Cylindryllioides* and a second, very much smaller example of *Heterocressa* were discovered in a tube of minute (and for the most part quite immature) littoral amphipods, bearing the label "Amphipods and Isopods, Shores of Macquarie Island, siftings from kelp," thus definitely establishing the locality for this species.

Family PHLIANTIDAE.

Stebbing, 1906, p. 200; Chevreux, 1906, p. 44, and 1913, p. 113.

Cylindryllioides *n. g.*

Body slender, cylindroidal; sideplates very short and narrow; upper lip bilobed; gnathopoda approaching the chelate condition, pleopoda uniramous, sympodite not broadly expanded.

Type.—*C. mawsoni* n.sp.

Remarks.—Near to *Bircenna*, from which (judging from Chilton's figure) it differs in the shape of head, in the stouter first antennae, the minute sideplates which are separated by wide gaps, in the relatively short condition of the gnathopoda with the well indicated " thumb " on the propod, in the slight expansion of the basos of the peraeopoda 3–5 and in the short few-jointed uniramous pleopoda.

CYLINDRYLLIOIDES MAWSONI *n. sp.*

(Figs. 30, 31.)

Occurrence.—1. Macquarie Island, 2 ex. (in poor condition), 2·5–3 mm.

2. ? ,, ,, (Label " Bottle with clams." Mawson's Expedition), 2 ♂♂ ?, 2–2·5 mm; 2 ♀♀ (ovig.), 2·5–3 mm.; 5 immat., 1·5–2·5 mm.

Description.—Body rounded, vermiform; head distinctly longer than deep, little longer than 1st peraeon segment, with subocular incisure and feebly defined ocular lobe (?), mouth parts prominent, eyes represented by 14/15 scattered ocelli. Head separated, in relaxed condition, by a wide intersegmental region from first peraeon segment; peraeon long with segments 1, and 3–7 subequal; peraeon segment 2 shorter; metasome segments well developed, urosome greatly reduced without definite intersegmental boundaries. Telson minute, very deeply cleft, the two lobes meeting at a sharp angle.

Antenna 1, short, stout, tapering, the 8 joints without visible differentiation into peduncle and flagellum; no accessory flagellum, 4th, 6th and 7th, joints bearing sensory filaments.

Antenna 2, still shorter, with 7 free joints of which the last three apparently constitute the flagellum.

Upper lip bilobed. Mandible with dentate cutting edge, reduced accessory plate and spine row. A vestigial molar (?) appears on left mandible but was not observed on opposite appendage. Lower lip without inner lobes.

Maxilla 1, inner plate narrow tapering to a single plumose seta, outer with 5 or 6 stout spines, some serrated, and three pectinate setae; palp obsolete but a scar possibly marks its position.

Maxilla 2, both lobes slender, subequal, armed apically with spines and setae.

Maxilliped, with short stout 4-jointed palp, inner and outer plates both extending about to distal end of 2nd joint of palp. The peraeon appendages all appear very similar. In the first and second, however, the base of the dactyl is much narrower than the distal border of the propod, which is produced distally into what may be regarded as an incipient " thumb." It is probably more correctly interpreted as a small oblique (? vestigial)

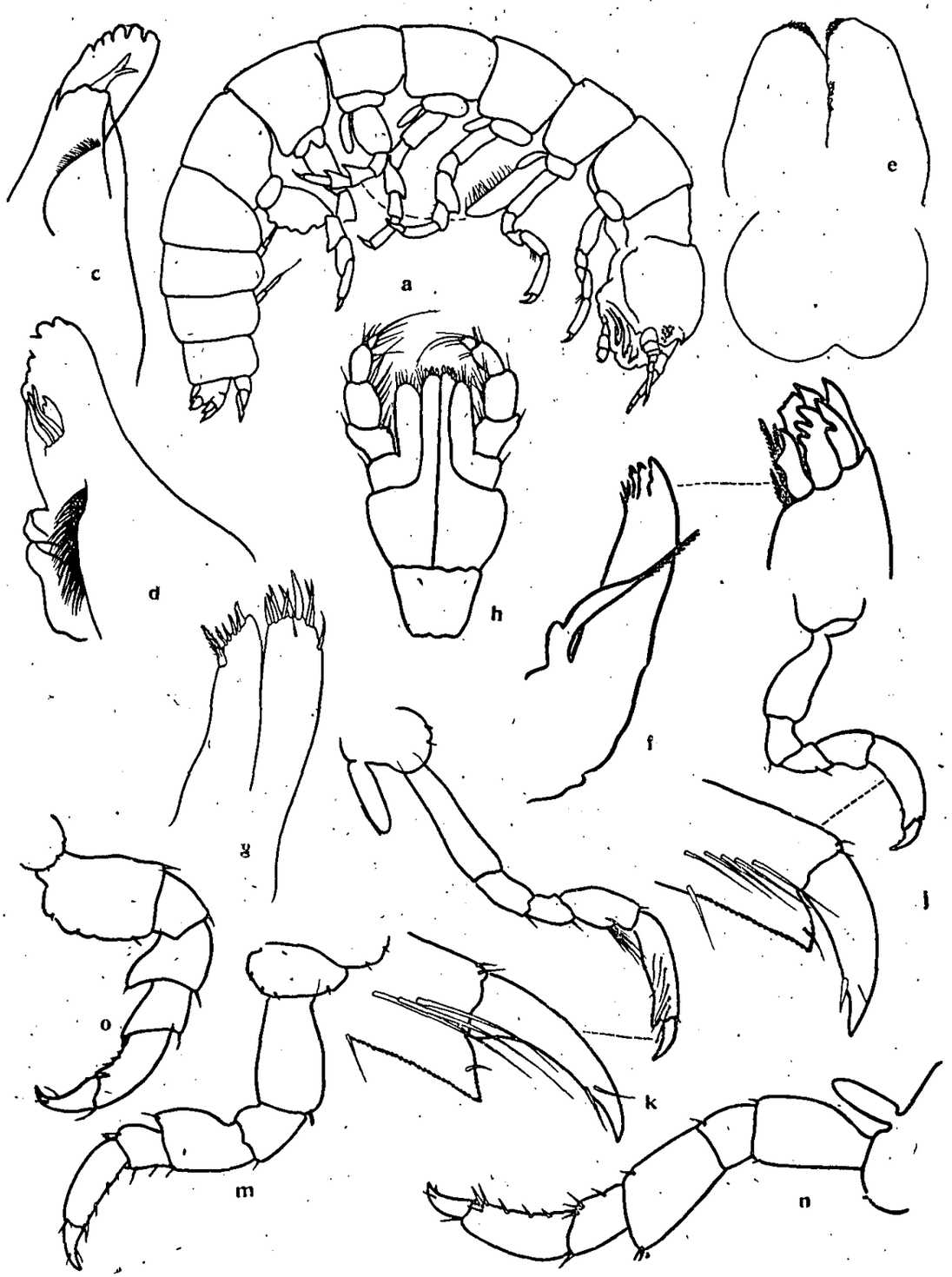

Figure 30. *Cylindryllioides mawsoni* n.sp.—a, entire animal, first marsupial lamella shown and brood pouch indicated by broken lines; b, upper lip; c, d, mandibles; e, lower lip; f, maxilla 1, with apex of outer plate more highly magnified; g, maxilla 2; h, maxilliped; j, gnathopod 1; k, gnathopod 2, with side plate and branchial lamella; m, peræopod 1; n, peræopod 2; o, peræopod 3.

palm, against which the proximal part only of the dactyl can be opposed and the first two peraeon appendages as imperfectly subchelate gnathopoda, the dactyl much longer than the palm.

In gnathopod 1 the carpus is widened distally; gnathopod 2 has basos long and slender, 3rd joint moderately long, carpus produced into a lobe about the middle of its hinder border.

Peraeopods 1–5, with basos short, 1 and 2 slightly expanded distally, 3–5 with this expansion much more marked and its hinder border feebly crenate, the 4th joint shows a progressive widening, most developed in peraeopod 5. Pleopoda, with very short broad sympodite, the single ramus 3 (or 4) jointed.

Uropods 1 and 2 biramous, 1 with rami equal and as long as peduncle, 2 with rami one-third longer than peduncle. Uropod 3, a single plate like structure with one or two terminal setae.

Telson minute, conical, cleft, with a few apical setae, which are peculiar with knobbed end.

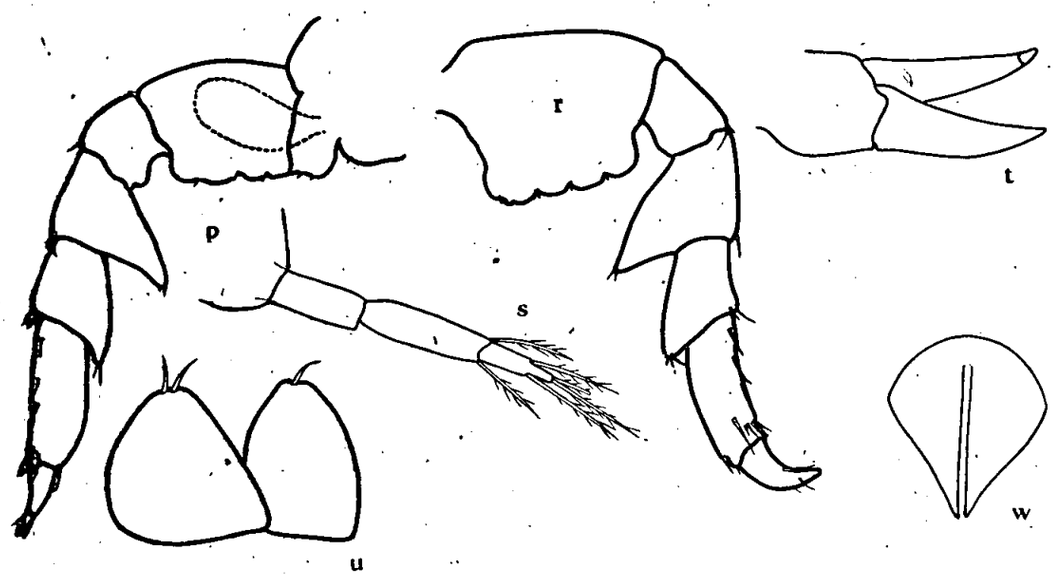

Figure 31—*Cylindrillioides mawsoni* n. sp.—p, peræopod 4; r, peræopod 5; s, pleopod; t, uropod 2; u, uropod 3; w, telson. Telson drawn as seen in position (and without the aid of camera lucida). The width of the cleft along the median ridge is somewhat exaggerated.

Remarks.—The appearance of this form is strikingly suggestive of *Ingolfiella*. The head shows several features otherwise peculiar to that genus; the elongated body, with its large pleon region, and the cleft telson are all *Ingolfiella*-like. In the pleopods it would need little change beyond the disappearance of the single reduced ramus to yield metasome appendages like those of *Ingolfiella*. The resemblance may of course be due merely to convergence consequent on a similar mode of life. It is however of interest that Stebbing nearly thirty years ago had assigned the Ingolfiellidae to a position near to the Phliantidae.

Family COLOMASTIGIDAE.

Stebbing, 1906, p. 206.

The discovery during recent years, of several antarctic species, and of the new subantarctic species here described, necessitates some modification of the diagnosis of the family (and genus).

Maxilla 1, inner plate small or wanting. Maxillipeds inner plates partly or entirely coalesced; gnathopod 1 simple; gnathopod 2 simple or subchelate in ♀, subchelate in ♂.

Genus Colomastix *Grube.*

Stebbing, 1906, p. 206; Chilton, 1921, p. 60; Schellenberg, 1926, p. 324; Barnard, 1932, p. 114 (references).

Colomastix simplicicauda *n.sp.*

(Fig. 32.)

Occurrence.—Macquarie Island (C.47), 2 ♀♀, 3 mm. and 3·5 mm. (ovig.).

Figure 32. *Colomastix simplicicauda* n.sp.—a, and b, maxilla 1; c, and d, maxillæ 2; e, maxilliped; f, gnathopod 1 with dactyl more highly magnified; g, distal part of gnathopod 2, with dactyl of opposite side and a seta more highly enlarged; h, uropod 3; j, telson.

Description.—Agreeing in general with *fissilingua*, it can be distinguished from all described antarctic species by its entire telson. From *brazieri*, it is marked off by the comparatively slight inequality of the rami of uropod 3.

Sideplate 1 seems to differ slightly from that of *fissilingua* as depicted in Barnard's figure (1932, fig. 63). There appears to be a membranous dactyl on gnathopod 1 of spatulate shape, but its outline is obscured by a couple of curved setae. Gnathopod 2 is remarkable for its dactyl which appears crumpled the palm irregularly sinuous and ill defined. The third uropod shows the rami not so very unequal. The greatest (basal) width of the shield-shaped telson is two-thirds of the length and it is almost as long as the shorter ramus of the third uropod.

Remarks.—The ovigerous specimen carried but a single, relatively large, egg in the brood pouch; both were apparently mature. It is, at the present time, the smallest recorded southern species.

Family ACANTHONOTOZOMATIDAE.

Stebbing, 1906, p. 210; Schellenberg, 1931, p. 116; Barnard, 1932, p. 115.

The several recent contributions to our knowledge of the Antarctic Amphipods have added a number of new genera to this family. In the present paper yet one other, *Parapanoploea*, has been instituted, this being characterised by its remarkable mandible, and its incised telson. It may be noted that the name *Iphimediopsis*, proposed by Schellenberg (1931, p. 126) is preoccupied, having been suggested by Della Valla (1893, p. 385) for *Panaploea eblanae*.

Genus Acanthonotozomella *Schell.*

Schellenberg, 1926, p. 332; Barnard, 1930, p. 346, and 1932, p. 117.

Acanthonotozomella oatesi *Barnard.*

Barnard, 1930, p. 346, and 1932, p. 117.

Occurrence.—Commonwealth Bay, Station 7, 1 ♀ (ovig.), 7 mm.

Remarks.—The specimen agrees very nearly with Barnard's description and figure (1930). In one particular only is a striking difference observed, viz., that a short stout spine projects from the centre of the prominent eye, *i.e.*, there are small paired spines on the head occupying a position closely comparable to that of the paired processes on the peraeon and the pleon.

The antero-lateral process of the head is rather more slender than figured and its border is serrated. It projects further distally than the first sideplate, subequal to the second.

The brood pouch lodged nine large eggs.

I think that there can be little doubt that this specimen should be referred to Barnard's species, which was described originally from a specimen coming from South Victoria Land. It is difficult, however, to believe that all of the "Discovery" material from South Georgia should be attributed to this species. Apart from the differences in the size and arrangement of the dentations, the shape of the head figured appears (1932, fig. 65) to be quite distinctive.

Distribution.—Ross Sea; South Georgia; Palmer Archipelago.

Genus PANOPLOEA *G. M. Thomson*.

Stebbing. 1906, p. 211.

PANOPLOEA JOUBINI *Chevr.*

Chevreux, 1913, p. 114, figs. 19–21; Barnard, 1932, p. 128.

Var. BIDENTATA *n.var.*

(Fig. 33.)

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 2 ♀♀ (ovig.), 7 mm. and 8 mm., 1 juv. 4 mm.

2. ,, ,, Station 2, 1 ♂ ? 9 mm. (extended).

3. ,, ,, ,, 7, 3 ♀♀ 8 mm., 9 mm. (one with embryos), 1 juv. 4 mm.

4. ,, ,, ,, 8, 1 ♀ 8 mm. (ovig.).

5. ,, ,, Loc. ? (recorded 3rd January, 1926), 1 juv. 3 mm.

Description.—All of these appear to conform quite closely to Chevreux's figures of *joubini* excepting in two characters, (1) the basos of peraeopods 3 and 4 are alike and bidentate, whereas Chevreaux says explicitly (p. 117) that it is 4 and 5 which are alike but unidentate, that is the hinder border is rounded convex proximally, produced into a long simple spine distally; (2) the carina on pleon segment 3 ends anterior to the hind margin of the segment, which sweeps in a regular curve between the two latero-dorsal spines. Chevreux states, that, on either side, between carina and dorsal lateral spines there is a small obtuse tooth.

The epimera of pleon segments 1 and 2 it may be noted are smoothly rounded below; Chevreux does not refer to the condition of these epimera in *joubini* but in *eblanae* to which this species is said to have a strong likeness, the postero-lateral corners are described as acute.

In some specimens the rostrum was distinctly shorter than is figured by Chevreux, but this appears to be a rather variable feature, for in several it is of normal length. The head, at the level of the eye is much longer than Chevreux's figures; the joints of the peduncle in antenna 1, also differ slightly in their proportions from those shown in Chevreux's figures. Other small differences appear in the shape of sideplates 1, 2 and 4 (less acute apically) and in the apex of the telson.

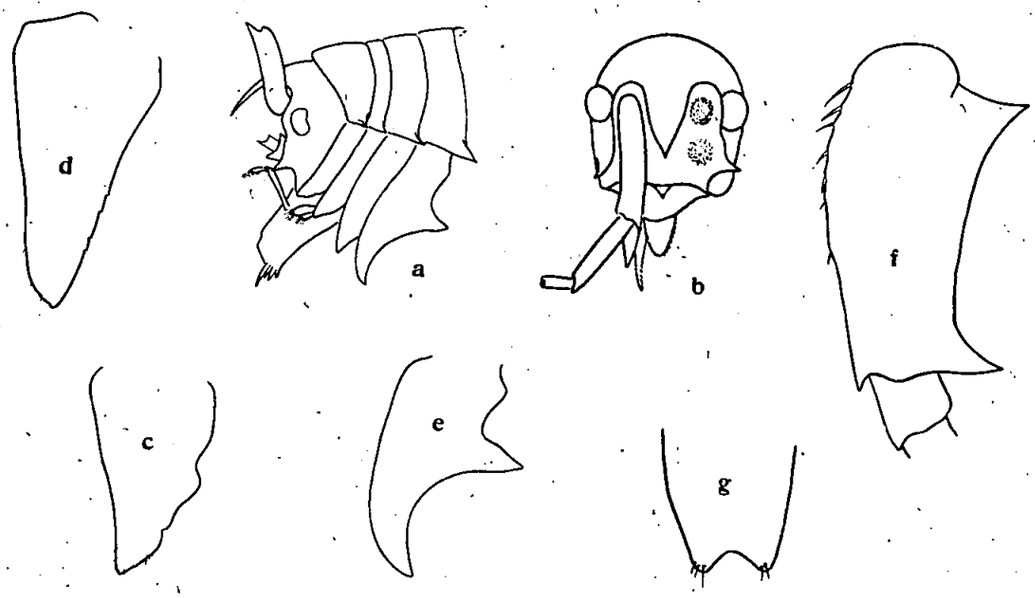

Figure 33. *Panoplœa joubini* var. *bidentata* n.—a, head and side plates 1–4; b, head, frontal view; c, d, e, side plates 1, 2 and 4; f, peræopod 3, basos; g, telson.

One specimen (No. 3, 9 mm.) disclosed from the brood pouch some fifteen advanced embryos, the body, still within the egg membrane, being smooth and rounded but a pair of blunt adpressed dorso-lateral spines on pleon segment 3 are already well developed.

Remarks.—All of the three known Antarctic species (*joubini*, *multidentata* and *macrocystidis*) are alike in the possession of three pairs of well developed spinous processes (peraeon segment 7, pleon segments 1 and 2) as well as a median dorsal carinal tooth on each of the three pleon segments; from the other two species, however, *joubini* may be readily distinguished by the shape of the sideplates 1–3 as well as by the armature of the basos of peraeopods 3–5.

Parapanoploea *n.g.*

Near to *Panoploea*, from which it differs in sideplates, mouth parts and telson. Sideplate 2 shorter and more narrow distally than 1 and 3. Upper lip short and broad, faintly emarginate; mandible with cutting edge drawn out into long needle-like apex, accessory plate and spine row wanting, molar small, palp stout, with 3rd joint moderately long; lower lip broad, rounded not incised apically; maxilla 1, with 2-jointed palp

reaching apex of outer plate, 2nd joint long; maxilliped palp with first joint equal in length to the second and third combined, second not greatly produced along inner border of third, small fourth joint present. Telson incised, apices armed with minute spines. *Type.*—*P. oxygnathia* n. sp.

PARAPANOPLOEA OXYGNATHIA *n.sp.*

(Figs. 34 and 35.)

Occurrence.—Commonwealth Bay, Station 8, 1 ♀, 12·5 mm.

Description. ♀—In general appearance, strongly resembling *G. macrops*; with three pairs of short, stout dorso-lateral spines (on peraeon segment 7, pleon segments 1 and 2) separated by a broad U-shaped gap and a suggestion of keel on peraeon segment 7 and pleon segment 1; with short blunt upturned dorso-lateral processes on pleon segment 3.

Head with stout curved rostrum, scarcely two-thirds length of first joint of antenna 1, antero-lateral angle produced into two sharp points (as in *margueritei*, *sexdentata*), eye large, oval.

Peraeon segments 1 and 2 rounded below, 3–7 with postero-inferior corner produced into a spine, that on 6 the longest, the series forming a slight lateral keel. Sideplates 1–3 narrowing distally, apically truncated, 1 broader apically and slightly longer than 2, 4 with hind margin excavate, produced distally into a backwardly directed point, 5 and 6 *not* produced into backwardly directed spines, 7 with small postero-inferior point. Epimeron of pleon segment 1 rounded below, that of 2 produced into minute obtuse point, 3 into stout upturned process. A pair of upstanding triangular dorso-lateral processes on pleon segment 6. Telson, oblong, tapering distally, greatest width at about two-thirds its length with triangular terminal incisure. Apices, each armed with two small spines and variable spinules.

Antennae long; antenna 1 broken but probably considerably shorter than antenna 2, joint 1 of peduncle twice as long as 2, produced below into a stout spine longer than joints 2 and 3 combined. Antenna 2 probably reaching to end of peraeon.

Labrum short and broad with slight emargination of distal border. A low median keel between antennae not produced into a spine on epistome.

Mandible with broad basal region, molar very small, cutting plate drawn out into a long slender rod with about 6 teeth in a linear series slightly indicated; no spine row or accessory plate on either side, palp long and relatively stout, joints 1 and 3 subequal, about four-fifths length of 2.

Labium short and broad without inner lobes or incisure of outer lobes. Maxilla 1, inner plate short and narrow, obliquely truncate apex furnished with 8/9 plumose setae, outer plates long and narrow, armed with 11 spines (not all shown in figure), mostly

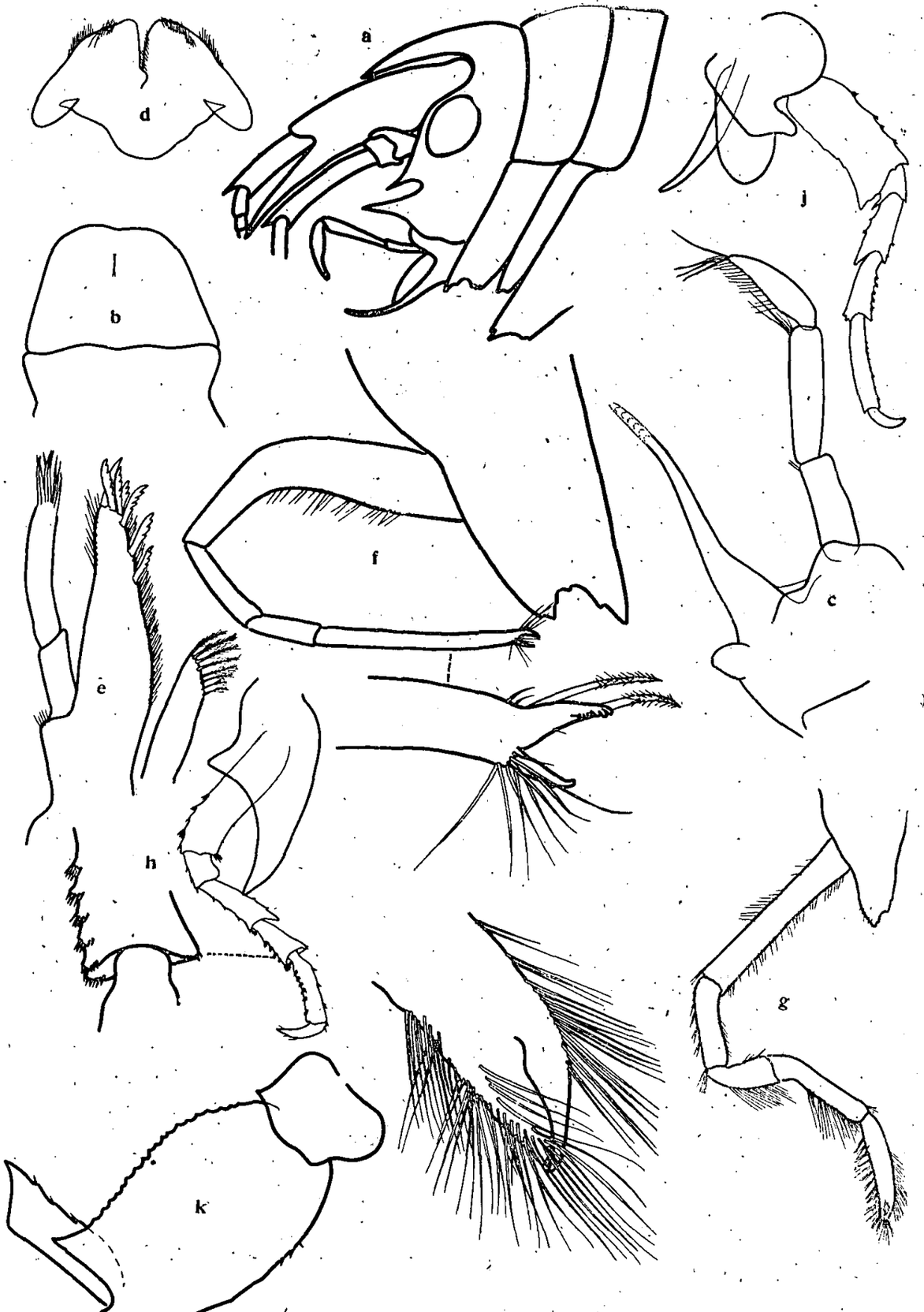

Figure 34. *Parapanoplœa oxygnathia* n.sp.—a, head and peræon segments 1 and 2; b, labrum; c, mandible; d, lower lip; e, maxilla 1; f, gnathopod 1, with part of hand more highly magnified; g, gnathopod 2, with hand more highly magnified; h, peræopod 2, with carpus more highly magnified; j, peræopod 3; k, peræopod 5, part.

denticulate, palp 2-jointed, joint 2 twice as long as 1 reaching apex of outer plate, with dense tuft of terminal setae.. Maxilla 2 both plates long and narrow, the outer a little the longer, apex of each obliquely truncated and thickly set with setae which extend along the greater part of mesial border of inner plate.

Maxilliped with inner and outer plates long and narrow, setae fringing the distal half of the lateral border of the outer plate. The palp is 4-jointed, 1 long and stout, 2 extending but a short distance along the inner border of 3, 4 minute, spiniform.

Gnathopod 1 slender, chelate, the dactyl armed with two long remarkably pectinate spines. Gnathopod 2, longer and rather less slender than gnathopod 1, chelate, the propod very setose; gill rounded oblong, marsupial lamella long oval.

Peraeopods 1 and 2 with strongly spinulose carpus; marsupial lamellae large, oval; 3 with basos expanded, hinder border concave, both inferior angles produced into sharp points, marsupial lamella narrow, tapering; 5, basos more widely expanded, hinder border sinuous convex, gill bilobed.

Uropod 1, styliform, extending distally beyond 2, as far as uropod 3, rami subequal, and as long as peduncle; 2, outer ramus much shorter than inner; 3, rami lanceolate, with outer ramus very slightly the shorter, thrice the length of peduncle, both inner and outer borders spinulose.

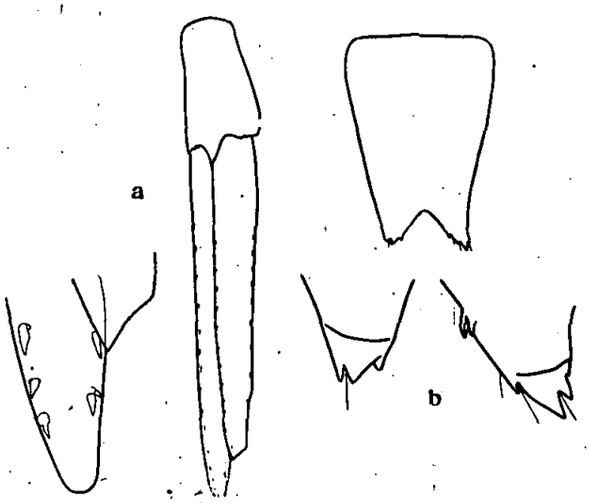

Figure 35. *Paraplanoploea oxygnathia*—a, uropod 3, with apex of inner ramus more highly magnified; b, telson.

Remarks.—This species, while nearest to *Panoploea* in the condition of the mouth parts, is much more Iphimediellan in appearance. A comparable condition of sideplate 2 seems to be met with, in this family only in *Acanthonotozomella alata* while in the spinulose armature of the telson this species transgresses the definition of the family.

Genus IPHIMEDIELLA *Chevr.*

Chevreux, 1913, p. 119; Schellenberg, 1926, p. 329; Barnard, 1930, p. 348, and 1932, p. 119.

IPHIMEDIELLA MARGUERITEI *Chevr.*

Chevreux, 1913, p. 120, figs. 22–24; Barnard, 1930, p. 348, fig. 22, and 1932, p. 119.

Occurrence.—Commonwealth Bay, Station 2, 2 ex., 6 mm., 10 mm.

Remarks.—These two immature specimens agree quite nearly with Chevreux's descriptions and figures. Sideplates 1 and 2 have, however, a form intermediate between that figured by Barnard (1930), and that originally described by Chevreux and the basos of peraeopod 4, like those of 3 and 5, is produced at its postero-inferior corner into a small point.

It is possible that these are merely young examples of the var. *acuta* described below.

Distribution.—Graham Land; "Gauss" winter station; McMurdo Sound; South Georgia; South Shetlands.

IPHIMEDIELLA MARGUERITEI *var.* ACUTA *n.var.*

(Fig. 36.)

Occurrence.—1. Commonwealth Bay Station 1 3 ♀♀ 10–13 mm.

2. Station 2, 3 ♀♀ 11 mm. and 15 mm. (both with embryos) 17 mm. (ovig.).

3. ,, 3, 1 ♀, 15 mm. (with embryos), 1 immature, 8 mm.

Description.—All of the present specimens agree very closely with *margueritei*. In shape of head, peduncle of antenna 1 and dorsal armature they are indistinguishable, while in sideplates 1–3 they show a range of variations comparable to that noted by Barnard (1930).

Figure 36. *Iphimediella margueritei* var. *acuta* n.—a, peraeopod 3; b, peraeopod 4; c, telson.

They are further variable in labrum and maxilla 1. In nearly all, the labrum is in agreement rather with the condition figured by Chevreux (fig. 23*c*) than that which Barnard depicts. The epistome, too (which has the characteristic short spine proximally) is, in these specimens, scarcely so much wider than the labrum as was found by Barnard.

In maxilla 1, palp is variably developed, the second joint being wider than the first, in some cases quite noticeably so, though of course not nearly to the extent found in *Maxilliphimedia*.

Disregarding these variable characters, however, there are several others, apparently of constant occurrence, in which these forms differ from the typical *margueritei*.

The antennae, when found complete, are long and subequal, the second (the longer) reaching about to the apex of the dorsal spines of pleon 3, the flagellum in both having forty or more joints. Chevreux describes the second as notably shorter than the first (except in the male, where this relation is reversed).

Another difference has been found in the condition of the mandibles, which, however, may prove to be a matter of age. In all but one of the specimens of the present collection the cutting edge is strong, smooth and rounded with a dark chitinous rim varying in colour from greyish brown to deep yellow brown. In the one exception the mandible is less stout and its apex shows two feeble denticulations.

Two of the remaining differences relate to the peraeopods 3 and 4. In the former the coxa and in the latter the basos is produced into an acute point, whereas Chevreux notes that in *margueritei*, both of the joints have a rounded postero-inferior margin. In the small 8 mm. specimen (No. 3), the coxa of peraeopod 3 has a quadrate postero-inferior angle but is not produced, the basos of peraeopod 4 is drawn out into a well marked point.

The telson bears a seta apically and others have apparently been lost.

IPHIMEDIELLA BRANSFIELDI *Barnard*.

(Fig. 37*j*.)

Barnard, 1932, p. 119.

Occurrence.—Commonwealth Bay, Station 8, 1 ovig. ♀, 15 mm.

Remarks.—Agreeing fairly closely with the description given by Barnard of the smaller of his two specimens. The cutting edge of the mandible can, however, scarcely be described as bidentate in the "Aurora" specimen. There are two larger teeth terminally, with smaller denticles on the lateral border. The last joint of the palp is unusually setose. The upper lip is distinctly incised. Sideplate 1 has its lower margin very like that of *I. intermedia*.

Distribution.—South Shetlands.

Iphimediella intermedia *n.sp.*

(Fig. 37*a–h.*)

Occurrence.—Commonwealth Bay, Station 2, 3 ♂♂, 16 mm., 11·5 mm. and 10 mm.; 7 ♀♀, 28 mm., 24 mm., 23 mm., 16 mm. and 15 mm. (none ovigerous).

Figure 37. *Iphimediella intermedia* n.sp.—a, entire animal; a¹, head; b, antenna 1; c, mandible; d, maxilla 1; e, gnathopod 1; f, gnathopod 2; g, uropod 3; h, telson; j, *Iphimediella bransfieldi* Brnrd., mandible.

Description.—♂, 11·5 mm. Lateral margin of head produced into a sharp point separated by a short narrow notch from a lower lobe with rounded sinuous border. The eye is large, subreniform. Peraeon broadly vaulted, peraeon segment 7 and pleon segments 1–3, each with a pair of long sub-dorsal spinous processes which are not serrated, those upon pleon segment 3 being upturned and rather shorter, postero-inferior angles of segments 1–4 rounded, of segments 5–7 produced into distinct points. Sideplates, 1 nearly oblong with anterior angle rounded, posterior pointed, inferior border concave, 2–4 pointed below, the points on 1 and 2 forwardly directed, on 3 and 4 backwardly, all with sparse dentation antero-inferiorly. Antero-inferior angles of the posterior lobes of the sideplates 5 and 6 rounded, postero-inferior angles of 5–7 quadrate, inferior border straight. None of the pleon segments dorsally carinate. Postero-inferior angle of pleon segment 1 rounded quadrate, of segment 2 produced into a small point and of segment 3 with a strong point. The middle of the posterior margin of pleon segments 1 and 2 obtusely angular, of segment 3 with strong spinous serrulate process. Telson rather more broadly incised than in *I. margueritei*.

Antenna 1, 1st joint much stouter than following joints, one third longer than combined length of 2nd and 3rd, with broad spine near the dorsal margin and the outer, apical spine slightly longer than the 2nd joint but not reaching to the end of the 3rd and thus rather shorter than in *cyclogena* while the spines on the 2nd joint are less developed and more widely separated than in that species. Antenna 2 rather longer than antenna 1, setae (such as those figured for *margueritei* being absent from joints 3–5.

Mouth parts are in general like those of *I. margueritei*. Epistome rather like that of *cyclogena*, upper lip rounded, slightly emarginate and asymmetrical, a shallow median groove present on its anterior surface but the lip is not incised. Mandible less stout than figured for *cyclogena*, cutting edge dentate with secondary cutting plate on both mandibles but stronger on the right (in 11·5 mm. ♂), the thin triangular molar set with minute spines, the 2nd joint of the palp much longer (as compared with the first) than in *margueritei*.

Maxilliped with outer plate extending to the end of the 2nd joint of the palp.

The gnathopods closely resemble those of *margueritei*, but the first is almost free from setae, the basos is narrow proximally but widens rather markedly towards the middle of its length; the 2nd gnathopod also, lacks setae on the second joint but is furnished with longer and more abundant setae on 5th and 6th joints.

Peraeopods much as in *I. margueritei*, but the basos of peraeopod 4 has the postero-inferior angle produced into a short point. In the 3rd uropod the rami are almost equal and have a length twice that of the peduncle.

Remarks.—In many particulars this species agrees very closely with Chevreux's description of *I. margueritei*. In the shape of the head, however, it is quite distinct

from that species and appears to be intermediate between *cyclogena* and *microdentata* (*brevispinosa*). The shape of the upper lip is very nearly that of *I. cyclogena* as, probably, is that of the telson but the coxal plates 1 and 2 agree much more nearly with *brevispinosa*.

Other differences between this species and *I. margueritei* are found in the coxal plate 1–3 and 5–6, in the length of the sub-dorsal spines, in the shape of the posterior border of peraeon 7 and pleon segment 3, in the proportions of peduncular joints of first and second antennae, in the shape of lips and telson, and in the basos of peraeopod 4. From *I. cyclogena* it differs in the shape of the head, of the first coxal plate, in the outline of the peraeon segment 7 and pleon segments 1–3, in proportions and other details of peduncular joints of first and second antennae and the presence of secondary cutting plates on both mandibles. The wide separation of the sub-dorsal spines and the lack of carinae differentiate it readily from *I. rigida*. The length of the sub-dorsal spines marks it off from *brevispinosa* from which it differs also in the shape of the head and the first coxal plate, and in the proportion of the peduncular joints of the first antenna.

It is less readily distinguished from *microdentata* (with which *brevispinosa* is said to be identical). Apparently the head of that species somewhat closely resembles *I. margueritei* except in the length and the greater production of the anterior point, and thus differs from *I. intermedia*. *I. microdentata* apparently closely resembles the latter in the shape of the first coxal plate (which, however, narrows below in *I. microdentata*) and there is a further resemblance in the production of the postero-ventral border of the basos of peraeopods 3–5 into small points, but it differs in the pointed projection at the upper posterior boundary of the basos of peraeopod 3. The dentation of the mandibles, absence of accessory cutting edge upon right mandible, and in the number of setae upon the inner lobe of the first maxilla constitute other points of difference.

Genus Pariphimediella *Schell.*

Schellenberg, 1931, p. 121.

Pariphimediella microdentata (*Schell.*)

(Fig. 38.)

Schellenberg, 1926, p. 329, fig. 44 (*Iphimedia m.*) and 1931, p. 121; Barnard, 1930, p. 357, fig. 24 (*brevispinosa*), and 1932, p. 116 (footnote).

Occurrence.—1. Commonwealth Bay, Station 1, 1 ♂, 13 mm.; 5 ♀♀, 13, 14, 15 mm. (two largest ovigerous), 1 (? immat. ♂), 11 mm.

2. ,, ,, ,, 8, 1 ♀, 16 mm.

Remarks.—These specimens are referred with some hesitation to Schellenberg's species. The possession of four pairs of quite short dorsal spines is characteristic of *microdentata*, but in Barnard's fig. (24*b*) they are shown as dorsally situated, quite

Figure 38. *Pariphimediella microdentata* (Schell.)—a, entire animal; b, head; c, mandible; d, epistome and labrum; e, gnathopod 1, with distal end more highly magnified; f, gnathopod 2, with hand more highly magnified; g, telson.

closely together and separated by a rather narrow and squarish U-shaped gap. In the "Aurora" collection they are placed well apart dorso-laterally, the interspace broadly rounded. They are also much less markedly downturned than is figured for *rigida* (1930, fig. 25) which species is said to be very close to *brevispinosa*.

Compared with Barnard's account of *brevispinosa*, the rostrum is longer, the eyes considerably larger and the antero-lateral corner of the head is drawn out into a strongly projecting point. Since, however, Schellenberg states that *microdentata* resembled *margueritei* in habitus and makes no reference to any difference in shape of the head, it is quite possible that, in the specimens examined by him, this antero-lateral process was more strongly developed than in those described by Barnard.

In the proportions of antenna 1, shape of epistome, and of sideplate 1 my specimens agree fairly well with Barnard's and Schellenberg's accounts. Actually, the first joint of antenna 1 is distinctly longer than the combined length of 2 and 3 but, relatively to the head, it is short, scarcely longer than the rostrum, a character which may be generic.

The condition of the mouth parts appears quite typically Iphimediellan.

The basos of gnathopod 1 appears rather stouter than that figured by Schellenberg. Peraeopods 3–5 have the basos produced into a strong postero-inferior point.

Distribution.—"Gauss" Winter Station; McMurdo Sound.

Pariphimediella octodentata *n.sp.*

(Fig. 39.)

Occurrence.—Commonwealth Bay, Station 2, 1 ♀ (ovig.), 10 mm.

Description.—As seen in profile this is scarcely to be distinguished from *P. serrata* Schell. from which, however, it differs in that the high median tooth on pleon 3 of the latter is replaced in this present species by a pair of dorsal spines.

The serrations characteristic of *P. serrata* are equally noticeable here, but appear to be more numerous and smaller than in *serrata*. The eye, too, is rather smaller.

The rostrum and anterior border of head were broken, but the description given by Schellenberg of the antennae, mouth parts and other appendages for *P. serrata* for the most part apply exactly to this species. The cutting edge of both mandibles, however, are dentate and possess rather more teeth, while the inner plate of maxilla 1 has numerous plumose setae (twelve on both sides).

A curious feature of the mouth parts was the marked production, of what appears to be the lower lip, into a long pointed structure, strongly calcified and so unlike anything observed in other amphipods, that I am inclined to regard it as an abnormality.

In the basos of peraeopod 3 and in the telson the proportions differ slightly from those described or figured for *serrata*.

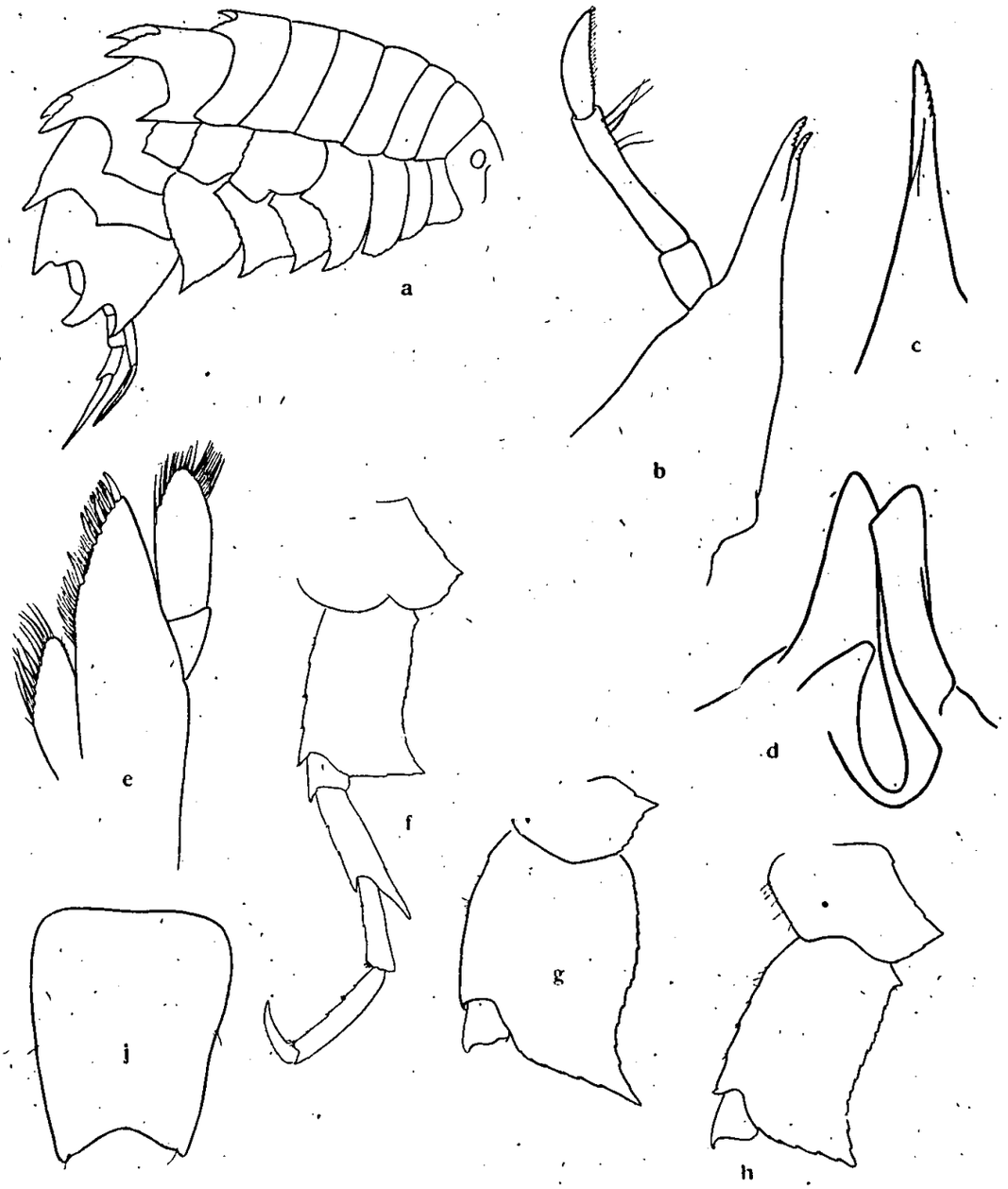

Figure 39. *Pariphimediella octodentata* n.sp.—a, entire animal; b, left mandibles; c, dentate edge of right mandible; d, lower lip; e, maxilla 1; f, peræopod 3; g, h, side plate and basos of peræopods 4 and 5; j, telson.

Remarks.—Were it not that Barnard has recently stressed the prime importance for systematic purposes, of the dorsal spines, I should have been inclined to include this, as a variable specimen of Schellenberg's species. It is perhaps of interest to note that at the outset of my examination of this collection, when Schellenberg's paper was not

available to me, I had assigned this to a new species in the genus *Iphimediella*, and had lighted independently upon the specific name, *serrata*. Even now I am not altogether convinced of the necessity for the new genus.

Genus GNATHIPHIMEDIA *Barnard.*

Barnard, 1930, p. 352, fig. 26, and 1932, p. 121 (new species); Schellenberg, 1931, p. 116.

GNATHIPHIMEDIA MANDIBULARIS *Barnard.*

Barnard, 1930, p. 352, fig. 26, and 1932, p. 121.

Occurrence.—Commonwealth Bay, Station 1, 1 ♂, 12 mm.

Remarks.—The single specimen which was not dissected, seems to agree very closely with Barnard's description except that the tooth described and figured on the long spine of the first joint of antenna 1 is not apparent on this small specimen, which is obviously immature. Barnard says nothing as to the relative size of the peraeon segments but his figure suggests that peraeon segment 1 is not notably longer. In the " Aurora " specimen this segment is longer than the combined length of segments 2 and 3, but sideplate 1 conforms exactly to Barnard's figure.

It is noteworthy that in the relatively small (yet mature) examples obtained by the " Discovery," the sideplates were more comparable to those of *I. margueritei* Chev.

Distribution.—Oates Land; McMurdo Sound; South Georgia.

GNATHIPHIMEDIA SEXDENTATA (*Schell.*).

(Fig. 40.)

Schellenberg, 1926, p. 331 (*Iphimediella*), 1931, p. 116; Barnard, 1930, p. 353, fig. 27, p. 449 (*Gnathiphimedia pacifica*) and 1932, p. 122; ? Walker, 1907, p. 27 (*pacifica non* Stebbing) and Chevreux, 1913, p. 118 (*pacifica non* Stebbing).

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 7 juv., 3 mm.–7 mm.

2. ,, ,, Station 1, 3 ♀♀, 11 mm. and 13 mm., 1 (immature), 9 mm.

3. ,, ,, ,, 2, 2 ♀♀, 11 mm. and 15 mm. (ovig.)

4. ,, ,, ,, 7, 1 ♀, 12 mm. 1 (immature), 9 mm.

5. ,, ,, ,, 8, 1 ♀, 12 mm. 1 (immature), 8 mm.

Remarks.—Having come quite definitely to the opinion that the specimens in the " Terra Nova " collection, referred by Barnard (1930) to *Gnathiphimedia pacifica* were not identical with Stebbing's *I. pacifica*, it was satisfactory to find that Barnard himself has since (1932) recognised the distinctness of the two forms.

Walker commented upon the length of the spine upon the first joint of antenna 1 (a feature in which this present species differs markedly from the condition observed by Stebbing in *I. pacifica*), but considered the difference as a matter of age, but Chevreux later found a similar variation, although his specimen was of the same size as Stebbing's types.

The present series ranging in length from 3–15 mm. show the elongation of the spine on the first peduncular joint in antenna 1 as a constant feature.

There is little doubt that Barnard is right in referring both Walker's and Chevreux's specimens to *sexdentata*. Variability in the shape of sideplates 1 and 2 noted by Barnard is also to be observed in the " Aurora " material.

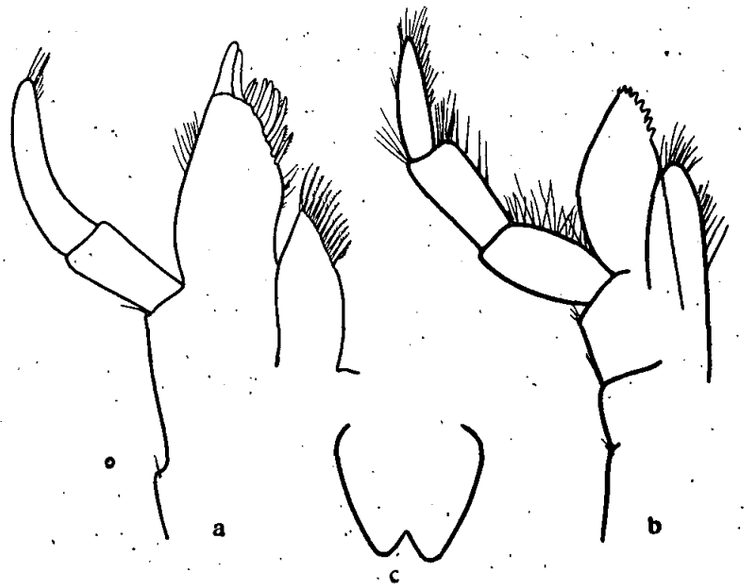

Figure 40. *Gnathiphimedia sexdentata* (Schell.)—a, maxilla 1; b, maxilliped; c, telson.

In a few details the specimen dissected departed slightly from Schellenberg's account. The telson was almost as broad as long. In the first maxilla, the inner plate bore 12 plumose setae; the outer plate has the two outermost spines much stouter than the rest and the first joint of the palp is shorter than the second. In the maxilliped the outer plate is set with spine teeth as well as setae, and the three joints of the palp are subequal.

Distribution.—" Gauss " Winter Station; McMurdo Sound; South Georgia; South Shetlands; Palmer Archipelago; Marguerite Bay.

GNATHIPHIMEDIA MACROPS *Barnard.*

(Fig. 41.)

Barnard, 1932, p. 122, fig. 68.

Occurrence.—Commonwealth Bay, Station 2, 3 ♀♀ (2 ovig.), 10–11 mm.

Remarks.—Barnard's description is extremely brief and relates to very few characters, and the correctness, or otherwise, of this determination must depend, therefore, upon whether or no a strictly literal interpretation is to be placed upon his statement "resembling *sexdentata* (cf. Barnard, 1930, fig. 27, as *pacifica*) as regards the dorsal

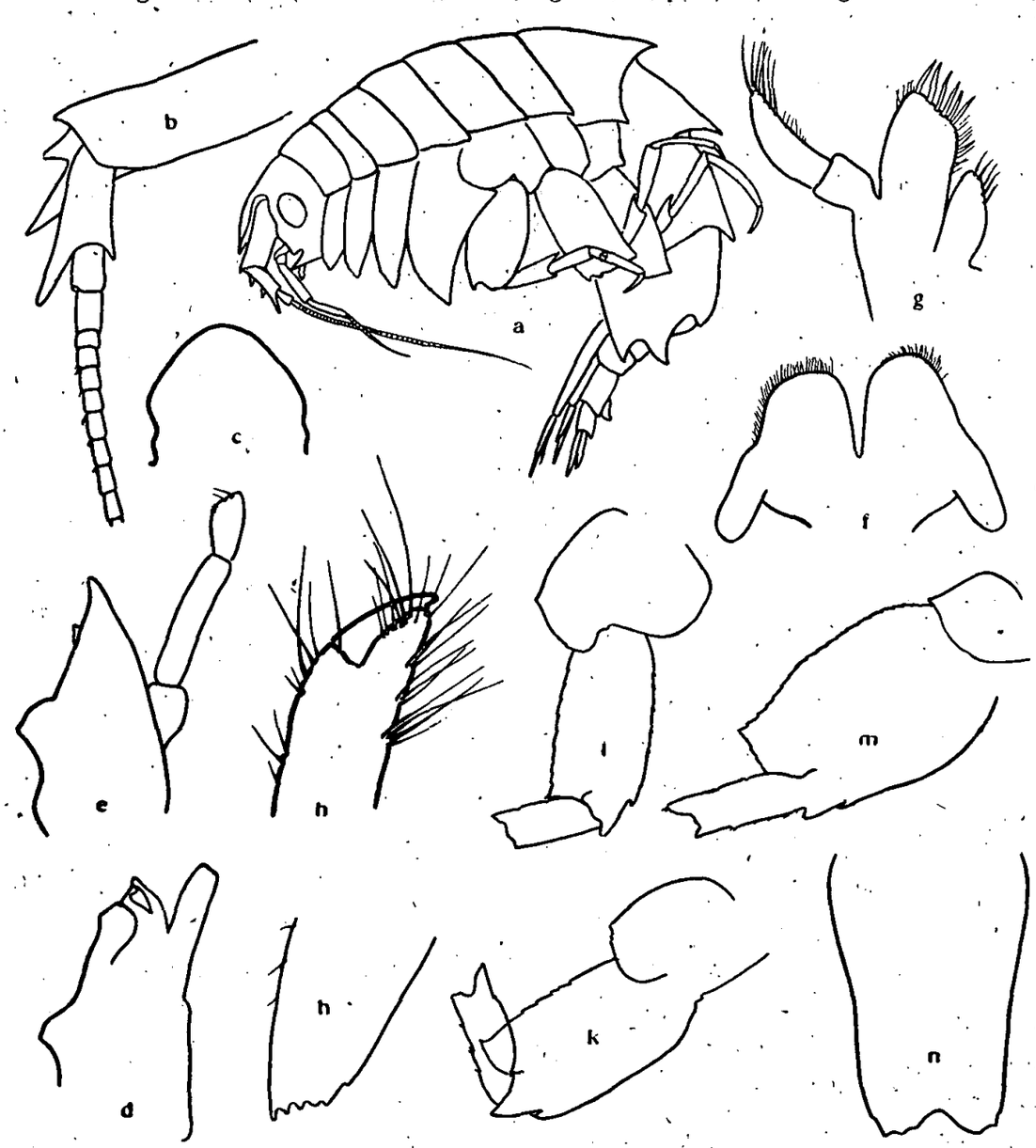

Figure 41. *Gnathiphimedia macrops* Brnrd.—a, entire animal; b, antenna 1; c, epistome (part) and labrum; d, left mandible; e, right mandible; f, lower lip; g, maxilla 1; h, gnathopod 2, distal end of coxa and of hand highly magnified; j, k, m, basos of peræopods 3, 4, 5; n, telson.

armature and gibbous pleon segment 3." There are, in the present specimens, three pairs of dorsal spines (on peraeon segment 7 and pleon segments 1 and 2) and the pleon segment is gibbous. But, whereas in *sexdentata* the spines are long and slender, they are here quite short and relatively stout. The lateral process of pleon segment 3 is also

much shorter and blunt. Unless, therefore, the resemblance to *sexdentata* was limited to number and position of spines and did not extend to size and shape, these specimens can scarcely belong to *macrops*. But the head and eyes are so very alike the condition shown (fig. 68) and sideplate 1, though not oblong, shows some variation and approaches fairly near to the condition figured; the 2nd joints of peraeopods 3–5 also show a very general correspondence. On the other hand the fewness of plumose setae (5 only) on the inner plate of maxilla 1 is a somewhat unusual feature and the telson is exceptionally long and narrow.

In view of the uncertainty it has seemed better, however, to refrain from the proposal of a distinctive name for these specimens.

Distribution.—South Georgia.

Genus ECHINIPHIMEDIA *Barnard.*

Barnard, 1930, p. 358.

ECHINIPHIMEDIA ECHINATA (*Walker*).

(Fig. 42.)

Walker, 1907, p. 28, pl. 10, fig. 16 (*Iphimedia e.*); Chevreux, 1913, p. 118; Barnard, 1930, p. 361, fig. 23 (*nodosa, non* Dana) and 1932, p. 126.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 1 juv., 6 mm.

2. ,, ,, Station 1, 1 ♀, 27 mm.

3. ,, ,, ,, 2, ? ♀, 10 mm.

4. ,, ,, ,, 7, ? ♀, 12 mm.

5. ,, ,, ,, 10, 2 ♀♀, 32 mm. (with embryo) and 28 mm. (with juv.).

Remarks.—Barnard (1930) dealing with this species under the name *nodosa* commented upon its variability. Walker had already noted that the number of dentations seemed liable to variation. In the present collection so marked were the differences observed that in the preliminary sorting, the specimens were separated into two distinct groups. Nos. 3 and 4 both small, agreed in the matter of dentations very closely with Walker's figure which represented the condition seen in a very large specimen.

No. 1, an even smaller specimen, shared with the fully adult specimens, (5) the peculiarity that the dentations begin upon the hinder border of the second (instead of the sixth) peraeon segment, in the smaller specimens appearing rather as tubercles but distinctly spinous in the adults. In these larger specimens there was a great increase in the number of spines and denticles in the hindermost peraeon and the succeeding pleon segments.

The gap between the two groups was bridged, however, by (2) in which the denticles though more numerous than in (3) and (4) do not appear anterior to the hind margin of the peraeon segment 5 (as was the case in Walker's specimens).

Figure 42. *Echiniphimedia echinata* (Wlkr.)—a, epistome and labrum; b, maxilliped.

A differently distributed variation appears in connection with the anterior peraeon segments and related sideplates. Both specimens (5) show spines on the sideplates 1–4 as well developed as those figured by Barnard for *E. scotti* (1930 p. 360); in the large ♀ (2) these spines are scarcely as prominent and not more numerous than depicted in the same author's figure (1930, fig. 33) of *nodosa* (=*echinata*); and in (1) the sideplates 1–3 are unarmed.

Further, in all of these (1, 2, 5) the lateral carina, to which Barnard directs attention, begins with the acute backwardly projecting postero-lateral angle of peraeon segment 1, and this carina is much less evident in (3) and (4). This would seem to be not simply a matter of age (or size) for not only is this armature better developed in the smallest (6 mm.) specimen (1) but it is clearly seen in juveniles removed from the brood pouch of a 28-mm. specimen. In these as in (1) the sideplates 1–3 are unarmed, lateral carina is visible and tubercles begin on hind margin of peraeon segment 2. On the epistome, a well developed spine is found in (2), represented by a minute tubercle only in (3).

It is noteworthy that the collection of this species obtained by the " Discovery " (Barnard 1932, p. 126) in South Georgia should have consisted of a remarkably uniform lot in general agreeing so closely with Walker's types from McMurdo Sound, whereas the samples secured by the " Terra Nova " (Barnard 1930) and the " Aurora " all taken near the type locality consist so largely of variable examples.

To one other character attention should be called. The maxillipeds have the outer plate very broad whereas in *I. pacifica* (to which species Walker likens his specimen) the outer plates are relatively narrow.

Distribution.—McMurdo Sound; South Graham Land; South Georgia; Palmer Archipelago.

ECHINIPHIMEDIA HODGSONI (*Walker*).

(Figs. 43, 44.)

Walker, 1907, p. 30, pl. 11, fig. 18 (*Iphimedia*); Barnard, 1930, p. 359, fig. 31, and 1932, p. 125; Schellenberg, 1931, p. 123.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 45–50 fathoms, 2 ♀♀, 14 mm. and 15 mm.

2. „ „ „ 55–60 fathoms, 2 ♀♀, 14 mm. and 24 mm.

3. „ „ Station 1, 1 ♀, 14 mm.

4. „ „ „ 2, 3 ♀♀, 14–15 mm., 24 immature, 12 mm.

5. „ „ „ 7, 2 ♂♂, 16 mm. and 10 mm.; 7 ♀♀, 18 mm., 17 mm. (with embryos), 16 mm. and 17 mm. (ovig.), 15 mm. (brood lamellae), 3 immature, 9–12 mm.

6. „ „ „ 10, 1 ♀ (immature), 14 mm.

7. „ „ „ 12, 1 ♀, 16 mm.

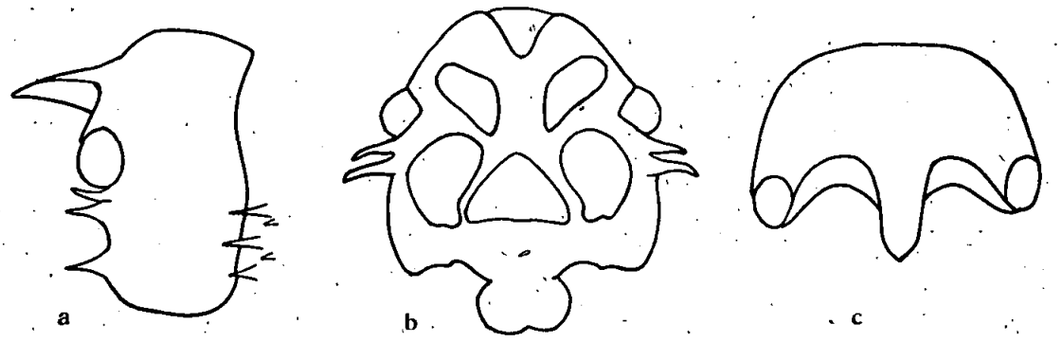

Figure 43. *Echiniphimedia hodgsoni* (Wlkr.)—a, head in side view; b, head seen from in front; c, head, dorsal view. (Drawn without the use of camera lucida.)

Description.—Head with broad, scarcely curved rostrum, subequal in length to the rest of the head. A pair of shallow semi-circular grooves bound the large and very prominent eyes. These bulge forwardly to hide much of the lateral margin of the head. There is no supra-ocular spine but below the eye the margin is produced into a pair of parallel infra-ocular spines, forwardly and outwardly directed. The antero-lateral border is broadly rounded, with shallow rounded notch between the infra-ocular and antero-inferior spines.

Peraeon segments 1 and 7 and pleon segment 1 each with two double rows of spines; peraeon segments 2–6 each with but one double row of spines; pleon segments 2–4 with 3 double rows; pleon segment 5 with a single curved row of 6 spines and pleon segment 6 with 4 spines. The rows of spines seem less regular upon the pleon and ventro-laterally the epimera are bare. Sideplates 1–4 with strong curved spines arranged in two or three rows, hinder lobe of sideplates 5 and 6 sub-triangular with rounded apex, that of sideplate 7 rounded, 5 with 3 rows, and 6 and 7 each with two rows of spines directed backwards the hinder row appearing marginal.

Figure 44. *Echiniphimedia hodgsoni* .Wlkr.—a, antenna 1; b, mandible; c, lower lip; d, maxilla 1; e, maxilla 2; f, maxilliped; g, side plate 1; h, side plate 2; j, k, m, side plates 5, 6, 7; n, telson. (Side plate 1 is drawn from opposite side of body. In all of the side plates, the spines are represented flattened down; in life, they are upstanding.)

Telson, sub-quadrate, narrowing slightly to the incised apex, the incisure not being as deep as the width of the apex.

Antennae short. Antenna 1 slightly the longer, peduncular joints 1 and 2 stout, as described by Walker "a mass of branching spines"; 3rd joint short, unarmed; a minute 1-jointed accessory flagellum.

Epistome with very short median spine. Upper lip entire. Mandible in older specimens (No. 7) with cutting edge rounded, toothless (in smaller specimens some dentation evident), a reduced secondary plate on right side only, without molar or spine row; palp longer than lamina, first joint produced into a sharp point. Labium, with very deep cleft between its two halves; both apices with distinct notch. Maxilla 1, inner plate with 12 or more (?) plumose setae, outer plate with about 11 stout spines, made up of an outer group of 4 stout and simple and an inner of 7 cultrate and serrulate; palp, apex with 4 stout spine setae. The maxilliped and gnathopods conform closely to the figures given by Walker. Peraeopods 3–5 have basos armed with two (three ?) rows of spines, the first row more or less medial, the hindermost submarginal or practically marginal.

Remarks.—That the species collected by the "Aurora" might be distinct from that described and figured by Barnard seemed quite probable. The differences in the head, sideplates, mouth parts, etc., appeared too great to be accounted for as mere variations. If that should be the case the question would arise as to which of these two is to be assigned to Walker's species. A decision is rendered difficult by the fact that Walker, having but a single specimen, refrained almost entirely from dissection and was thus able to offer but a meagre description. In one particular only, does his account provide what may be a really distinctive character, viz., the form and relative size of the rostrum, which he noted was "almost straight and about as long as the rest of the head," a description which fits the Adelie Land material very exactly. Barnard's figure indicates the rostrum strongly deflexed and at least once and a half the length of the head. Since, however, the related species *E. echinata* has proved to be extremely variable it is possible that *hodgsoni* may be not less so. The bathymetric range is considerable, being from 45 to 640 fathoms in the present collection.

Distribution.—McMurdo Sound; Oates Land; Coulman I.; South Georgia; South Shetlands; Palmer Archipelago.

Family LILJEBORGIIDAE.

Stebbing, 1906, p. 229.

Genus LILJEBORGIA *Bate.*

Stebbing, 1906, p. 230, 1910, p. 588; Schellenberg, 1931, p. 128; Barnard, 1932, p. 142.

Liljeborgia consanguinea *Stebb.*

(Fig. 45.)

Stebbing, 1888, p. 980, pl. 91, and 1906, p. 232.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 1 ♂, 8 mm.
2. ,, ,, ,, ,, 45–50 fathoms, 2 ♀♀, 5·5 mm. and 7 mm.

Description.—The specimens are very incomplete, most of the peræopods being broken or wanting. Antero-lateral lobe of head as figured by Stebbing. Eyes were not made out in the ♂, in the smaller ♀ they are seen to be of moderate size; sideplate 1, widened distally, 2, distinctly narrowed, 4 with 4 serrations on hinder border. Only pleon segments 1, 2, 4 and 5 are produced into a slight median dorsal tooth which is backwardly directed and not at all upturned nor flanked by lesser teeth. The long and slender telson is cleft, lobes narrowing apically, the terminal notch of each occupied by a single stout seta.

Antenna 1 with second joint of peduncle half the length of first, flagellum practically twice as long as peduncle, 16/17 jointed, accessory flagellum longer than peduncle, 9/10 jointed.

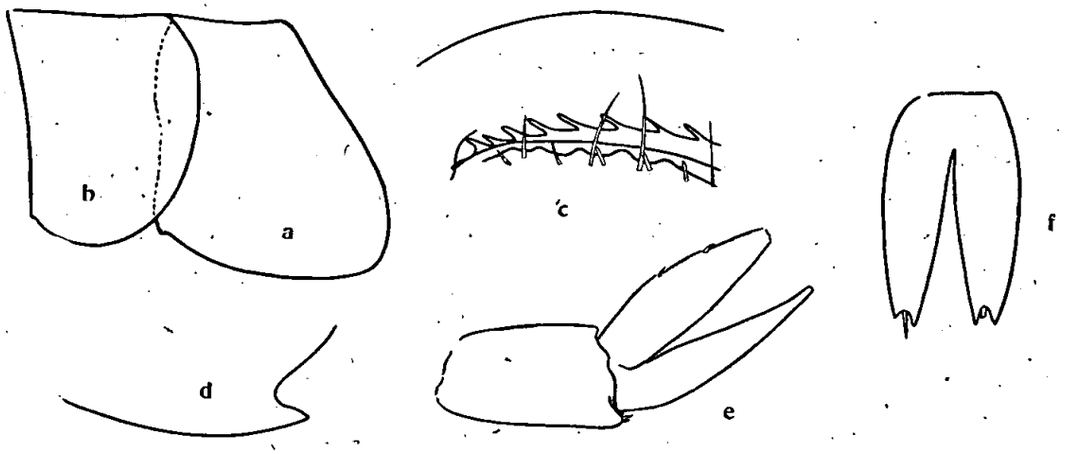

Figure 45., *Liljeborgia consanginea* Stebb.—a, b, side plates 1 and 2; c, gnathopod 2, part of palm and dactyl; d, part of epimeron of pleon segment 3; e, uropod 3; f, telson.

Antenna 2 incomplete, considerably longer than antenna 1, flagellum probably as long as joints 4 and 5 of peduncle. Gnathopods 1 and 2 palm convex, oblique, defined by slight projecting angle and two strong palmar spines. Dactyl of gnathopod 1, with 4 teeth at base (both sexes) that of gnathopod 2 in ♂, toothed along $\frac{3}{4}$ its length, with 12/13 teeth, and meeting four or five rounded tubercles on distal end of palm. In the ♀ 10 teeth on the dactyl were counted. Peræopods 1 and 2 very slender.

Uropod 3, rami equal in length, and longer than peduncle, the inner broader, with 2 spines on inner margin.

Remarks.—These differ from the condition found by Stebbing in the somewhat larger specimens (♀) examined by him, in (*a*) the absence of tooth on pleon segment 3, (*b*) in the relative sizes of the antennae, and (*c*) in the deeper cleft of telson. But Walker (1903, p. 60) has stated that the armature of the metasome segments is variable, changing with the age (size) of the specimens and none of the material examined approaches in size the specimens described by Stebbing.

Three antarctic species are now known, however, as without tooth on third pleon segment, viz., *quadridentata* Schell.; *macrodon* Schell., and *longicornis* Schell., and of these, the first two have these teeth small and backwardly directed, thus resembling the Adelie Land specimens. From *quadridentata*, however, the "Aurora" specimens differ in sideplates 1 and 2, epimeron of pleon segment 3, gnathopod 2 (palm) and third uropod.

In *macrodon*, the teeth on pleon segments 4 and 5 are much more in evidence in the ♀, the palm and finger of gnathopod 2 and the telson providing other differences.

Sideplate 1 of *longicornis* is very nearly as in the "Aurora" specimen but the upstanding and well developed teeth on pleon segments 4 and 5 and the palm and dactyl of gnathopod 2 are markedly different.

The "Aurora" specimens differ from *L. chevreuxi* Schell. and *dubius* (Hasw.) in the absence of tooth on pleon segment 3; and from the former also in the shape of head, size of eye, but agree very nearly in the number of teeth on dactyl of gnathopods in ♂, while *dubius* is further distinguished by the multiple teeth on pleon segments 1 and 2.

A mutilated specimen (♂, 10 mm.) taken at the first locality is probably referable to *consanguinea*, but it is far too incomplete for exact determination, neither antennae not peraeopods remaining. Eyes were not seen but shape of head, sideplate 1, dorsal teeth and 3rd pleon epimeron are as described.

Distribution.—Heard I. (75 fathoms); Kerguelen (20 fathoms).

LILJEBORGIA GEORGIANA *Schell.*

(Fig. 46.)

Schellenberg, 1931, p. 135, fig. 72.

Occurrence.—1. Commonwealth Bay, 3½–5 fathoms, 1 ♂, 11 mm. (strongly curved), and 1 ♀, 16 mm.

2. ,, ,, 25 fathoms, 1 ♂, 13 mm. (extended), 1 fragmentary, about 15 mm., 1 ♀ ? (strongly curved), 13 mm.; 6 (immature), 6 mm.–9 mm.

3. ,, ,, Boat Harbour, 3 fathoms, 3 (immature), 5 mm. and 7 mm. (latter incomplete).

4. No. loc., 1 immature, 4 mm.

Remarks.—These specimens were finally referred to this species on account of the single median spine of metasome segments 1 and 2. In other respects the condition seems intermediate between *L. macrodon* and *L. georgiana*. The label with large ♀ (1) has a note " colour red."

Distribution.—South Georgia.

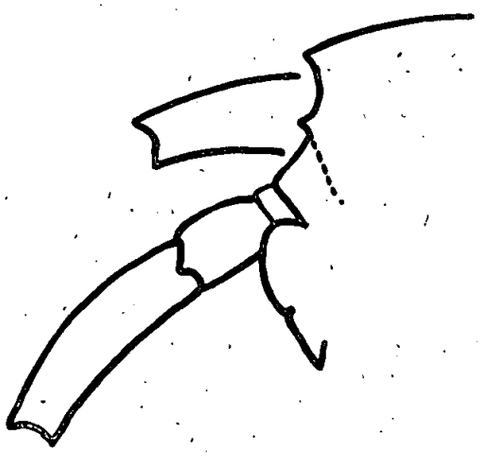

Figure 46. *Liljeborgia georgiana* Schell.—Head and epistome.

Family OEDICEROTIDAE.

Stebbing, 1906, p. 235.

Genus OEDICEROIDES *Stebb.*

Stebbing, 1888, p. 843, and 1906, p. 267; Chevreux, 1911, p. 403; Schellenberg, 1926, p. 226, and 1931, p. 139; Barnard, 1930, p. 366, and 1932, p. 140.

OEDICEROIDES CALMANI *Walker.*

Walker, 1907, p. 22, pl. 6, fig. 12; Chevreux, 1913, p. 128, figs. 28–30; Barnard, 1930, p. 366 and 1932, p. 140.

Occurrence.—1. Commonwealth Bay, Station 2, 3 (? immature ♀♀), 17 and 18 mm.
2. „ „ „ 3, 1 ♀, 18 mm.
3. „ „ „ 8, 1 (immature), 15 mm.
4. „ „ „ 12, 1 ♀, 23 mm. (with embryos).

Remarks.—All of the examples in the present collection agree with Chevreux's specimens in having pronounced transverse grooves and ridges on peraeon segments; pleon segments 1–3 are tuberculate and 4 gently carinate much as described by Walker.

Walker's account, based on a large ♀ (30 mm.) is, however, not very detailed and the telson is not mentioned; but it is stated that "gnathopods and rest of animal agree with *Oe. rostrata*." In that species the telson is described and figured as emarginate. Chevreux (1913) dealing with a much smaller specimen (♀ 10 mm.) indicates that the telson is entire which is true of all of the present specimens.

It is noteworthy that in embryos about to emerge from the pouch, antenna 1 is relatively long, its peduncle reaches almost to the end of penultimate joint of peduncle of antenna 2, its short 4-jointed flagellum considerably exceeding that point.

Distribution.—Ross Sea; Marguerite Bay; South Sandwich Is.; South Orkneys; Palmer Archipelago.

OEDICEROIDES EMARGINATUS *n.sp.*

(Fig. 47.)

Occurrence.—Commonwealth Bay, Station 10, 1 ♂, 25 mm.; 1 (immature), 16 mm. (extended).

Description.—Near to *Oe. rostratus*, Stebb., from which it differs in the shorter rostrum, the large elongate eyes, the quadrate antero-lateral angle of the head, and the hinder border of pleon segment 3.

Antenna 1 reaches the end of penultimate joint of peduncle of antenna 2, the many jointed flagellum of which is furnished irregularly with calceoli.

The mouth parts differ from the condition figured by Stebbing for *rostratus* principally in the slight setosity of palp of mandible and the almost unarmed condition of palp of maxilla 1.

Sideplate 1 widens greatly below, projecting forward over the head. Gnathopod 1 and 2 differ scarcely at all except in proportions of basos. The carpus of gnathopod 1 is a trifle less produced than that of gnathopod 2 and its lobe directed rather more distally. The propoda of the two appendages are indistinguishable but the dactyl of 2 is slightly longer.

The basos of peraeopod 5 is expanded principally in its lower two-thirds, so that its hinder border is, as compared with the anterior border, relatively much shorter than in *rostratus*.

The telson is almost as wide as long, its hinder margin strongly emarginate and armed with a pair of long flexible setae, flanked by a row of short stiff setae. In *rostratus* the width is greater than the length and emargination is shallow.

Remarks.—On first examination it seemed possible that the large specimen was the male of *Oe. calmani* which has not been described. Barnard, however, has recently reported on a collection which contained several males of the latter species, and it is quite

unlikely that such differences would have been overlooked had they existed. It has been noted that in the embryos of *calmani* the first antenna is relatively long, its proportions being comparable to those of this species.

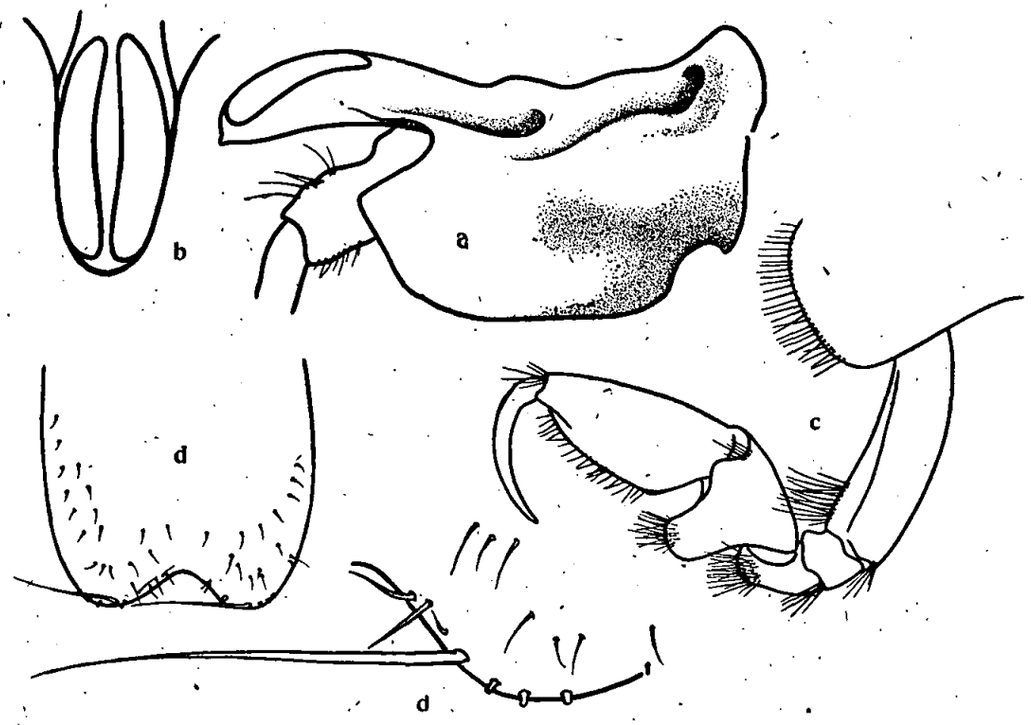

Figure 47. *Oediceroides emarginatus* n.sp.—a, head; b, rostrum and eyes seen in dorsal view; c, gnathopod 1; d, telson with part of hinder lobe more highly magnified.

Oediceroides similis *n.sp.*

(Fig. 48.)

Occurrence.—Commonwealth Bay, Station 9, 1 ♀, 12 mm.

Description.—There is but a single specimen, in poor condition, with antenna and legs broken.

The body somewhat compressed; head produced into a short deflexed rostrum; no eyes are seen.

Sideplates shallow, 1 and 4 heavily fringed with setae, 1 greatly widened below, its inferior margin rounded, 2 with parallel sides, angles rounded, 4 largest, strongly convex in front, scarcely excavate behind, postero-inferior corner slightly produced into rounded process, 5 almost as wide but not as deep as 4, divided into subequal lobes, the posterior lobe setose.

Antennae short, not very unequal. Antenna 1, 1st joint stout, scarcely two-thirds the length of slender 2nd which is three times as long as 3rd Antenna 2, 2nd and 3rd joints stout, 4th and 5th subequal, longer than combined length of 2 and 3, flagellum not quite complete, 28 joints about as slender and little longer than that of antenna 1

Mandible stout, cutting edge dentate, on both sides with accessory cutting edge and with spine row; molar moderately strong, denticulate, palp slender, 2nd joint arcuate and twisted, rather longer than third, both strongly setose.

Maxilla 1, inner plate short, oval, with two sub-terminal plumose setae, outer plate scarcely longer, obliquely truncate, with nine spines, palp 2-jointed, stout, 2nd joint long oval, its inner border set with setae passing into spines terminally, the outer border setose and a short transverse rank of setae at the distal third of its length.

Maxilla 2, small, plates subequal, inner a little the shorter, rounded and setose.

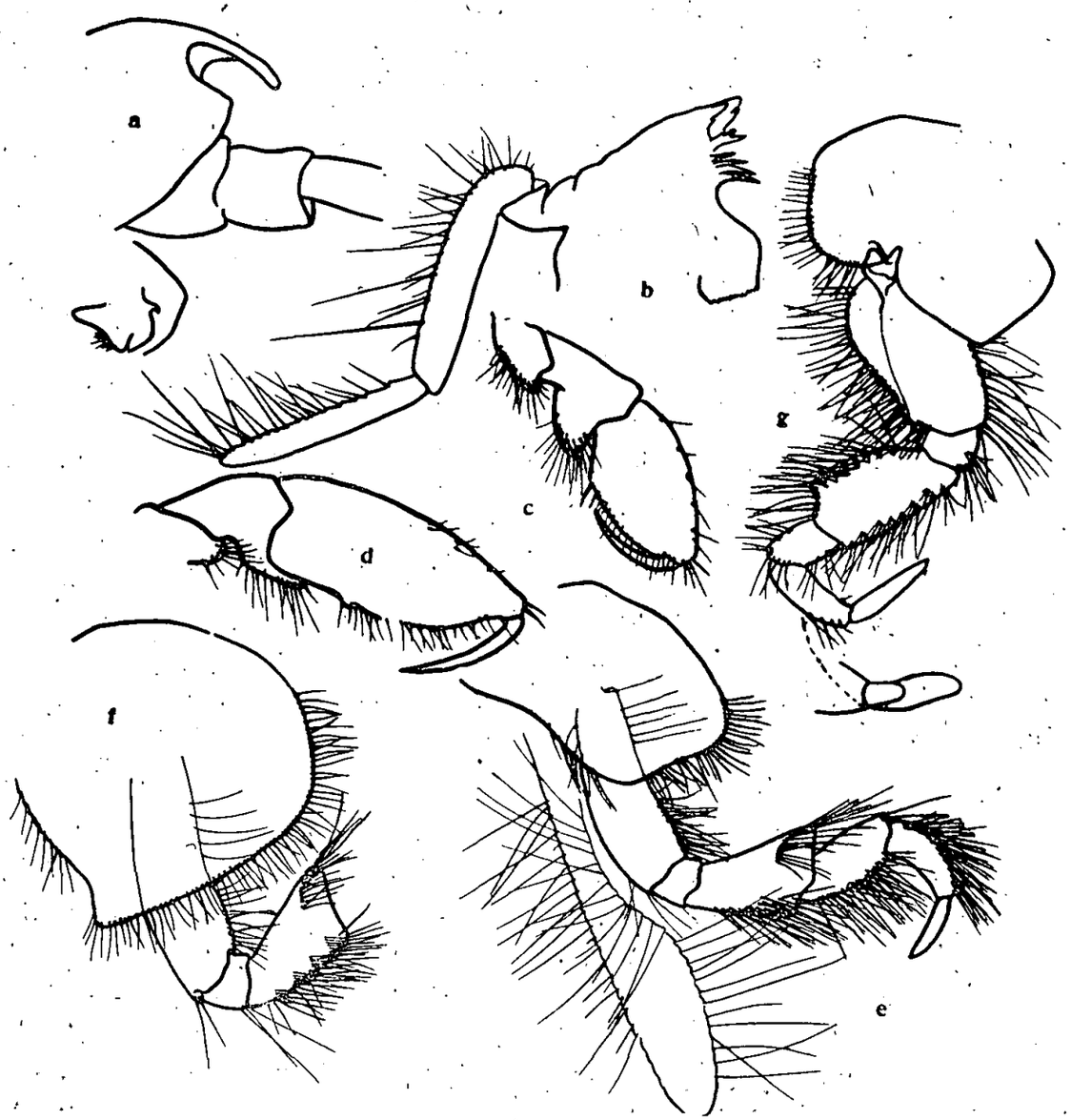

Figure 48. *Oediceroides similis* n.sp.—a, head; b, mandible; c, distal joints of gnathopod 1; d, gnathopod 2; e, peracopod 1; f, peracopod 2; g, peracopod 3.

Maxilliped, inner plate short, oblong, outer longer, its inner border armed with spines and extending past the middle of distally widened 2nd joint of palp, 3rd joint produced distally into an inner rounded lobe, 4th joint long and slender.

Gnathopods subchelate; gnathopod 1 shorter than gnathopod 2, carpus shorter than propod, produced behind into a somewhat pointed process two-thirdsl ength of hinder margin of propod; propod nearly oval, palm convex oblique, defined by spines, hinder border straight, shorter than palm. Gnathopod 2, carpus more nearly triangular, hinder process more slender than that on gnathopod 1, propod sub-oval, twice length of carpus, palm less well defined, almost as long as sinuous hinder margin; dactyl curved, the palmar border set with a rank of short, curved and bifid (?) spinules in both gnathopods.

Peraeopods 1 and 2 longer and stouter than gnathopods, 4th joint expanded distally, succeeding joints flattened, dactyl boat-shaped with membranous cap over nail.

Peraeopod 3, basos expanded above, but narrowing distally, 4th joint widened, 5th joint shorter (actually and relatively) than corresponding joints in peraeopods 1 and 2; peraeopod 4 like 3 except that 5th joint is longer and dactyl (broken) appears to have been elongate; peraeopod 5 (broken), basos oval, 4th joint long and spinose.

Telson truncated, oval (?), its hinder border straight with a pair of small spinules and a few fringing setae.

Remarks.—This species differs from *Oe. cinderella* chiefly in absence of eyes (?), proportions of antenna, curvature and proportions of joint in mandibular palp, carpus and propod of gnathopods, in the distal widening of merus of peraeopods 1 and 2, and in shape (?) of basos of peraeopod 3.

Genus METHALIMEDON *Schell.*

Schellenberg, 1931, p. 150.

METHALIMEDON NORDENSKJOLDI *Schell.*

Schellenberg, 1931, p. 150, fig. 79; Barnard, 1932, p. 141, fig. 80.

Occurrence.—Commonwealth Bay, Boat Harbour. Collected, Dr. McLean, 1913, 1 ♀ (with embryos), 5·5 mm.

Remarks.—The strongly bent specimen was in poor condition, antennae and some of the legs being wanting. Very broad in peraeon, the brood pouch was distended with a dozen embryos.

Eyes well developed, are seen from above to be confluent in front but slightly separated behind. Maxillipeds, gnathopods, peraeopods 2, 4 and 5 are as figured by Schellenberg. On the hinder lobe of the coxa of peraeopod 4 are a few fringing setae.

not shown in Schellenberg's figure (79*m*), but clearly visible when the joint is examined from the outer surface. In the embryos, antenna 1 is found somewhat shorter than antenna 2, the telson distinctly excavate.

Distribution.—South Georgia.

Family CALLIOPIIDAE.

Stebbing, 1906, p. 285; Schellenberg, 1925, p. 147.

Genus Oradarea *Walker.*

Walker, 1903, p. 56, and 1907, p. 32; Stebbing, 1906, p. 727; Shoemaker, 1930, p. 81 (fide Barnard); Barnard, 1932, p. 162.

Oradarea walkeri *Shoem.*

Walker, 1903, p. 56, pl. 10, figs. 77–89 (*longimana*); Shoemaker, 1930, p. 81 (fide Barnard, 1932, p. 163); Schellenberg, 1931, p. 177; ? Chevreux, 1913, p. 143 (part *Leptamphopus novae-zealandiae, non* Thoms.); ? Barnard, 1930, p. 369 (part *Leptamphopus novae-zealandiae, non* Thoms.).

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 1 ♀, immature, 6 mm. and fragments.

2. ,, ,, ,, ,, 45–50 fathoms, 1 ♀ (brood lamellae), 7 mm. (strongly curved, extended 10 mm.).

3. ,, ,, ,, ,, (1913, coll. Dr. McLean), 1 ♀ ovig., 8 mm., 1 ♂?, 6 mm., 1 juv., 5 mm.

4. ,, ,, Station 7, 5 ex. incomplete, 6–9 mm.

5. No loc., 3 ♀♀ (ovig.), 10 mm., 11 mm. (brood lamella); 3 juv., 5–7 mm.

Remarks.—This species seems to be remarkably fragile, no one specimen being quite complete, almost all lacking parts of peraeopods, inner ramus of uropod 3 and most of the antennae. There remains enough, however, to satisfy me that they should be referred to Walker's species. Walker's specimens, too, must, I think, have been incomplete for I find, in the few cases where antennae are practically undamaged, that the slender whip-like antenna 1 is longer than antenna 2 while Walker states that the 2nd pair is the longer. In one specimen the number of joints was :—antenna 1, 91+, antenna 2, 80+.

The telson may, like that of *tridentata*, be a little variable in the extent of the notching. It is relatively shorter than in that species.

Distribution.—Ross Sea.

? Oradarea tricarinata *Barnard*.

Barnard, 1932, p. 166, fig. 99.

Occurrence.—Commonwealth Bay, Station 7, 1 ♀, 8 mm.

Remarks.—The single specimen occurred with *O. walkeri* and is doubtfully referred to this species. It is smaller than the " Discovery " specimens and obviously immature. Head and eyes are as figured. There are well developed carinae on peraeon segment 7 and pleon segments 1–3 but it lacks the tooth on the 6th mesosome segment. The lateral keels are quite evident.

The telson, moreover, agrees very closely with the condition figured by Barnard, but the pleon 3 has a less convex hinder border and conforms more nearly to Barnard's figure of *tridentata*.

Distribution.—South Georgia; South Shetlands.

Genus Atylopsis *Stebb*.

Stebbing, 1906, p. 299.

Atylopsis megalops *n.sp*.

(Figs. 49 and 52*a*.)

Occurrence.—Commonwealth Bay, 45–50 fathoms, 2 ♀♀, 4·5 mm. and 5 mm.

Description.—Although both specimens were incomplete, antennae, peraeopods and uropods broken off short or quite lost, in mouth parts, sideplates and telson they appear very like *A. emarginata*, Stebb. Body compressed, integument thin and delicate, pleon segments 1 and 2 each produced into a short backwardly projecting median tooth. Marsupial plates very large, gills small and simple, visible below the sideplates. Head deeper than long, with short broad rostrum, not deflexed.

Sideplates shallow, 1 produced forwardly to a point, 4 scarcely deeper than the rest, 5 bilobed. Epimeron of pleon segment 3, produced into a short backwardly projecting point.

Telson small, longer than wide with a shallow triangular emargination.

Eyes long, crescentic, extending so as nearly to meet on the dorsal surface of the head. Mandibles, maxillae and maxillipeds closely agreeing with Stebbing's figures.

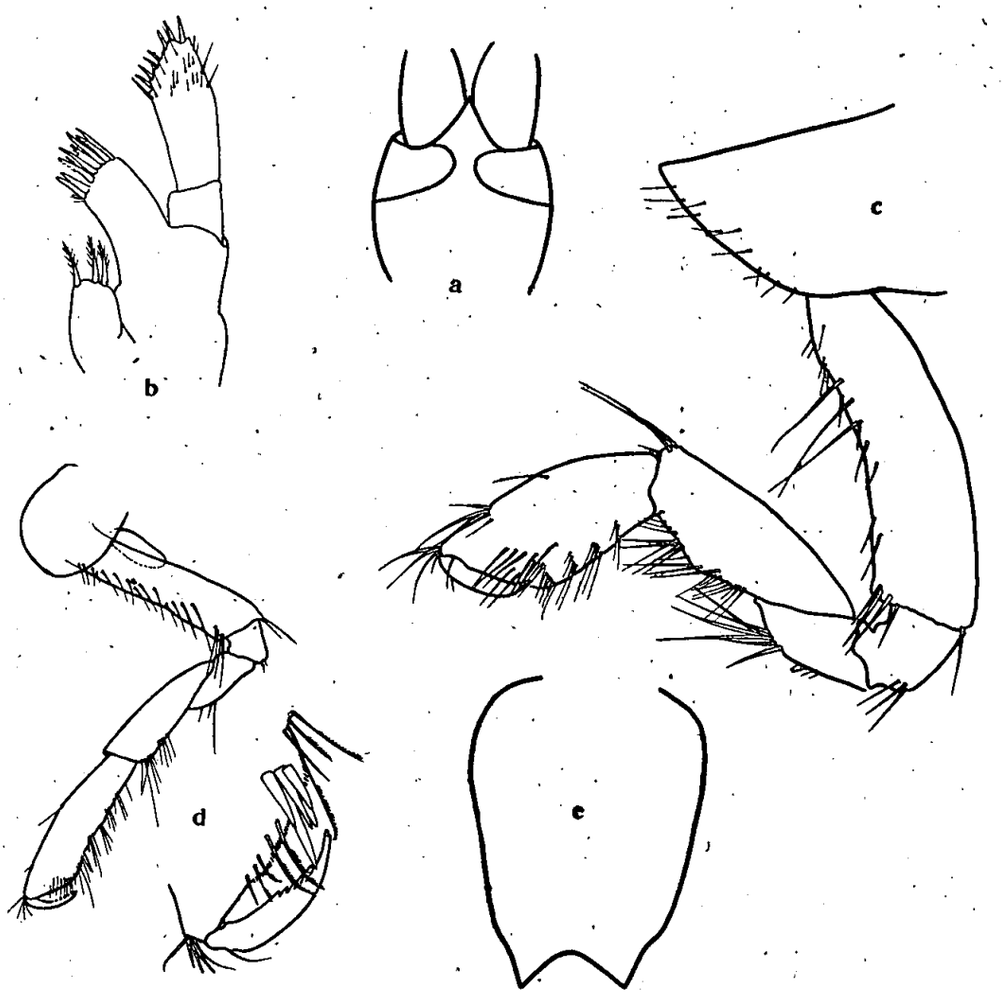

Figure 49. *Atylopsis megalops* n.sp.—a, head, in dorsal view; b, maxilla 1; c, gnathopod 1 with side plate; d, gnathopod 2 and side plate; e, telson.

Gnathopods subchelate; gnathopod 1 with carpus and propod subequal, propod widening slightly towards its distal end, palm short, a little oblique, defined by a group of stout spines. Dactyl strong, as long as palm.

Gnathopod 2, longer than gnathopod 1, both carpus and propod more elongate, propod not widening distally, short palm more oblique than in gnathopod 1, defined by spines. Dactyl short, curved, as long as palm.

Peraeopods, 1–2 only joints 2 and 3 seen; basos long and slender; peraeopods 3–5 basos moderately expanded, 5 widest.

Uropods 1 and 2 biramous, peduncle long, styliform, only bases of rami present. Uropod 3 not seen.

Integument finely granular with infrequent long and narrow depressions.

Remarks.—Distinguished from *emarginata* by eyes, gnathopods and sideplate 1.

Family PARAMPHITHOIDAE.

Stebbing, 1906, p. 320.

Genus Epimeria *A. Costa.*

Stebbing, 1906, p. 321; Barnard, 1932, p. 171.

Epimeria macrodonta *Walker.*

Walker, 1906, p. 16, and 1907, p. 24, pl. 8, fig. 14; Chilton, 1912, p. 486; Chevreux, 1913, p. 148, figs. 41–43; Schellenberg, 1926, p. 343; Barnard, 1930, p. 372, and 1932, p. 172.

Occurrence.—1. Commonwealth Bay, Station 1, 1 ♀, 20 mm. (ovig.).
2. ,, ,, ,, 2, 3 ♀♀, 33 mm. (ovig.), 1 ♂, 15 mm.
3. ,, ,, ,, 8, 2 ♀♀, 25 mm. and 15 mm.; 1 ♂, 15 mm.

Distribution.—McMurdo Sound; Coats Land; Graham Land; "Gauss" Winter Station; South Shetlands, and Palmer Archipelago.

Epimeria inermis *Walker.*

(Fig. 50.)

Walker, 1903, p. 54, pl. 10, fig. 69 and 1907, p. 23, pl. 8, fig. 13; Barnard, 1930, p. 374, fig. 40*b* and 1932, p. 173, fig. 104*a*.

Occurrence.—Commonwealth Bay, Station 7, 2 ♀♀, 15 mm. (one ovig.), 2 ♀♀ immature, 10 mm.

Remarks.—The basal joint of peduncle of antenna 1 appears covered with flattened scale-like setae, similar scales being seen on some of mouth parts (*e.g.*, outer border of palp of maxilla 1). There is a rudimentary 1-jointed accessory flagellum which appears conical. Gnathopods 1 and 2 have propods equal and that of gnathopod 1 is narrower distally only in that the palm is oblique and rounded, whereas in gnathopod 2 it is almost transverse.

In these comparatively small specimens, the projection on the basal third of the 2nd joint of peraeopod 3 is rounded, but is even less developed than is figured by Barnard (1932; fig. 104*a*) that figure more nearly depicting the condition of peraeopod 4 in the 'Aurora' specimens, it differs therefore quite markedly from the condition figured by Walker (1907).

The third uropod extends slightly beyond the longer ramus of the second as, indeed, Walker's fig. (1903, fig. 69) suggests, although in his text (1907) the opposite is stated.

Distribution.—McMurdo Sound and Cape Adare; West of Falkland Is.; South Shetlands.

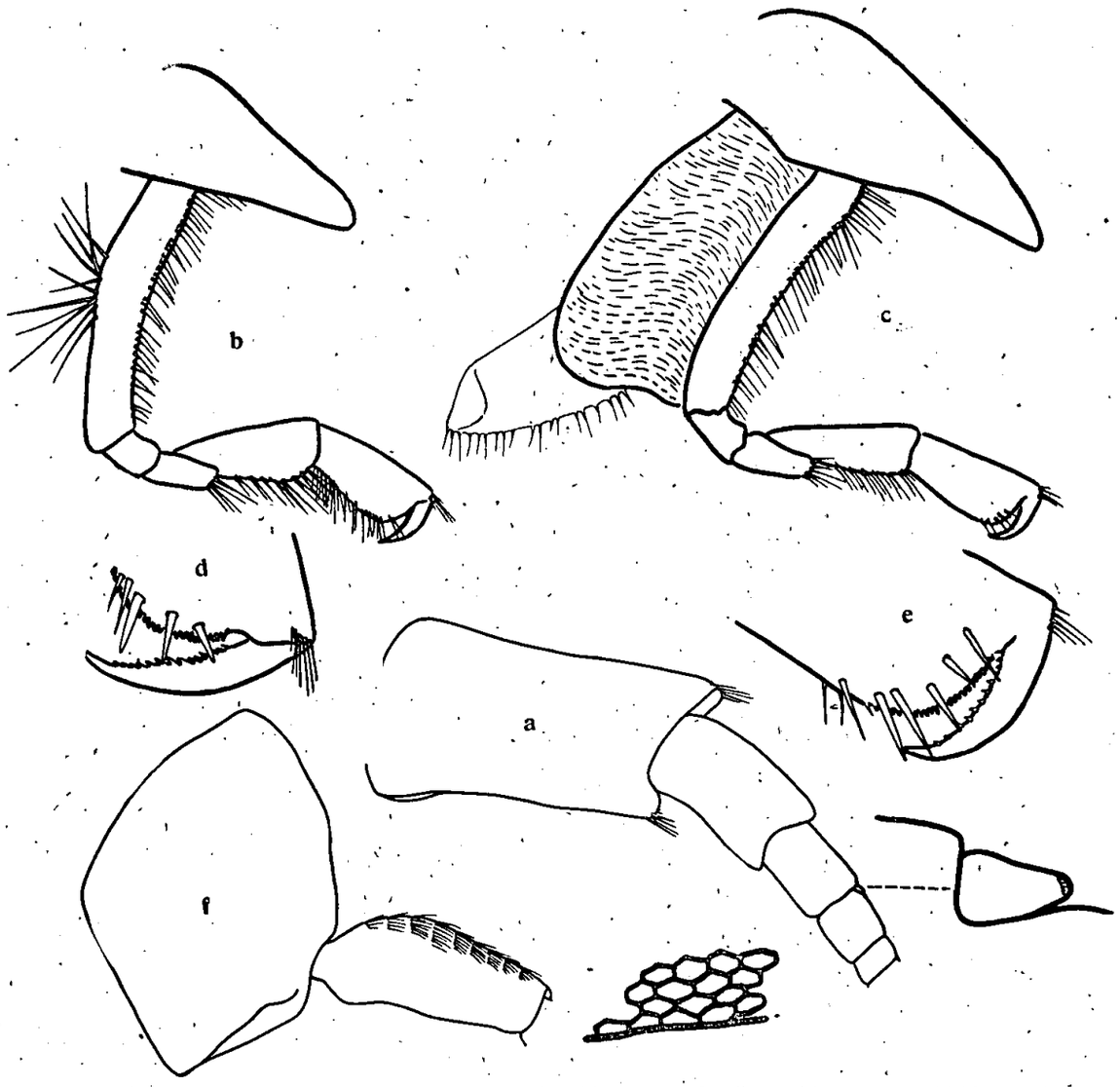

Figure 50. *Epimeria inermis* (Wlkr.)—a, antenna 1 peduncle, with accessory flagellum, with a part more highly magnified to show scale like marking; b, gnathopod 1; c, gnathopod 2; d, e, palm and dactyl of gnathopods 1 and 2; f, coxa and basos of peraeopod 3.

Genus EPIMERIELLA *Walker.*

Walker, 1907, p. 26.

Barnard, 1930, p. 377.

EPIMERIELLA WALKERI *Barnard.*

Barnard, 1930, p. 380, figs. 40*c* and 44; 1932, p. 178, fig. 110.

Occurrence.—Davis Sea, Station 8, 1 ♀, 18 mm. (curved).

Remarks.—The single specimen, a female with brood lamellae, agrees quite closely with Barnard's accounts and figures. The condition of palm and dactyl of gnathopod 1 is almost exactly as figured (1932, fig. 110*a*). Gnathopod 2 shows the palm rather

intermediate between this condition and that seen in the earlier figure (1930, fig. 44*b*) but the hinder margin of the propod is much more setose. The shape of the basos of peraeopod 5 approaches most nearly to that figured for specimens from the Palmer Archipelago (fig. 110*e*).

Distribution.—McMurdo Sound; South Shetlands; Palmer Archipelago.

Genus PSEUDEPIMERIA *Chevr.*

Chevreux, 1913, p. 153.

PSEUDEPIMERIA GRANDIROSTRIS *Chevr.*

Occurrence.—Commonwealth Bay, Station 2, 1 immature ♀, 8 mm.

Remarks.—The agreement in external features with Chevreux's fig. 44 is so close that there can be little doubt that this specimen is properly referred to his species. The only difference noted is in the armature of sideplates 4 and 5, on each of which, in the 'Aurora' specimen, the ridge figured by Chevreux is less sharp and appears rather as a long rounded boss.

Distribution.—Graham Land.

FAMILY LEPECHINELLIDAE.

Schellenberg, 1926, p. 344.

Genus LEPECHINELLA *Stebbing.*

Stebbing, 1908, p. 191.

Chevreux, 1914 (*Dorbanella, fide* Schellenberg).

Schellenberg, 1926, p. 344.

LEPECHINELLA DRYGALSKII *Schell.*

Schellenberg, 1926, p. 345, fig. 50.

Occurrence.—Commonwealth Bay, Station 2, 1 ex., 7·5 mm.

The single, somewhat imperfect, specimen appears to agree quite exactly with the description given by Schellenberg who, also, had but a single specimen, which furnished the first record for the genus from the southern hemisphere.

Distribution.—'Gauss' Winter Station.

Family EUSIRIDAE.

Stebbing, 1906, p. 338.

Genus Eusirus *Kroy.*

Stebbing, 1906, p. 338.

Eusirus antarcticus *G. M. Thomson.*

Stebbing, 1906, p. 340; Barnard, 1932, p. 188 (references).

Occurrence.—1. Commonwealth Bay, Boat Harbour (1913, coll. Dr. McLean, 3 fathoms) ? ♀, 13 mm.

2. ,, ,, Station 7, ♀, 19 mm.; juv., 11 mm.

3. ,, ,, ,, 12, 3 ♀♀, 25 mm., 20 mm., 14 mm. (immat.), ♂, 18 mm., (all in bad condition).

Remarks.—Two examples from Station 7 showed the eys more nearly oval than reniform and were paler in colour.

Distribution.—Antarctic and Sub-antarctic.

Eusirus perdentatus *Chevr.*

Chevreux, 1912, p. 10, and 1913, p. 163, figs. 50–52; Chilton, 1912, p. 492, pl. 2, fig. 20 (*splendidus*); Schellenberg, 1926, p. 350, and 1931, p. 172; Barnard, 1930, p. 386, fig. 46c, and 1932, p. 189, fig. 115.

Occurrence.—1. Commonwealth Bay, Station 1, ♀, 34 mm.; ♂, 25 mm. (in poor condition).

2. ,, ,, ,, 2, 4 ♀♀, 1 (spent), 54 mm.; 2 (ovig.), 1 incomplete (head and peraeon only).

3. ,, ,, ,, 7; ♀, 15 mm.

Distribution.—Palmer Archipelago; South Orkneys; "Gauss" Winter Station; South Victoria Land; South Shetlands.

Genus Rhachotropis *S. I. Sm.*

Stebbing, 1906, p. 347.

Rhachotropis hunteri *n.sp.*

(Fig. 51.)

Occurrence.—Commonwealth Bay, Station 8, ♀, 12 mm.; ♂, 11 mm., 10 mm. (?).

Description.—Very near to *R. kergueleni* Stebbing from which it differs in eyes, pleon, uropods and telson. Head, rostrum narrow, three-fourths of the length of first joint of antenna 1, lateral corner acutely produced. Pleon segment 3, median carina rounded above produced into minute terminal point, lateral carinae scarcely reaching hind border of segment and not produced into projecting points; hinder border strongly serrate, postero-inferior angle rounded; pleon segment 4 with anterior sinus, followed by carina ending in a well developed upturned point, lateral carinae not extending to hind border of segment; laterally the hind margin is produced into two sharp points on either side, the lowermost forming postero-inferior angle. Telson elongate, cleft for about one-third its length, a shallower median concavity continuing forward to the base of the region.

Eyes large, reniform, bleached.

Antennae long, the second pair slightly the longer, both apparently lacking the plumose setae figured by Stebbing in *kergueleni;* a minute 1-jointed accessory flagellum.

Gnathopods large, alike, the second rather the larger. On gnathopod 1 the apex of dactyl shuts into a recess, which is guarded by a semi-circular rank of stoutish spines, more numerous than in Stebbing's figure.

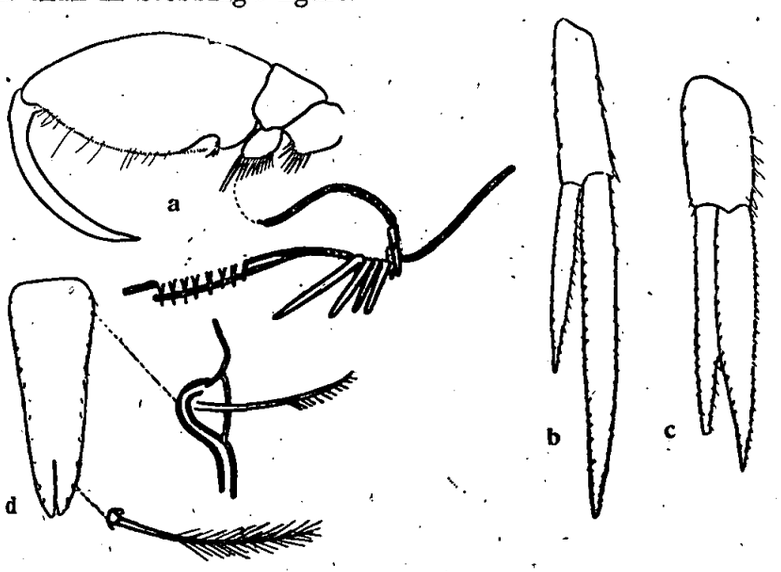

Figure 51. *Rhacoptropis hunteri* n.sp.—a, gnathopod 1, part of palm; b, uropod 3; c, uropod 2; d, telson.

Peraeopods, 3–5 with second joint oval, largest in 5 but there with rounded lower hind corner. Uropods with rami lanceolate, the inner longer; uropod 1 inner ramus shorter than peduncle; uropod 2, with peduncle and outer ramus sub-equal, inner ramus one half longer; uropod 3, with outer ramus rather narrower than inner, which is more than twice as long as peduncle.

Remarks.—In the condition of the pleon segments 2 and 3 and of the telson, this species agrees very nearly with *R. antarctica* Barnard (1932, p. 195) but that species is described as in other respects very near to *inflata* Sars. The species is named for Dr. Hunter, naturalist to the Expedition.

Family PONTOGENEIIDAE.

Stebbing, 1906, p. 356; Schellenberg, 1929, p. 273; Barnard, 1932, p. 195.

Schellenberg's revision of this family has made the task of separating members of the various genera a comparatively simple one. The species of the larger genera, however, are not so readily distinguished and an attempt to make use of the character proposed by Barnard, viz., the surface sculpturing as observed by reflected light, has proved somewhat disappointing.

In the first place it is a character of which one cannot always make use. Thus when a species is represented by but a single example one hesitates to expose it to that degree of drying which seems to be necessary to obtain a satisfactory view of the surface markings. Further if the specimen be small and the markings not very prominent it becomes necessary to use an objective of such short focus that the surface to be examined is thrown into shadow. This difficulty might be overcome by removing for examination a small portion of the integument were it not that in some species, at least, the sculpturing is not uniform but varies from one region to another and if the character is to be used it will be necessary to state precisely the area from which figure or description has been made.

Thus, in the specimens here referred to *Schraderia gracilis* the pits are largest upon the head, smaller upon the peraeon segments and almost (or entirely) absent upon the sideplates and, everywhere, are quite irregular in their distribution.

In yet another species the sculpturing appears quite unlike that figured by Barnard. The discrepancy may be due to an erroneous identification by the writer but that explanation does not seem probable in the case of *walkeri*.

During the examination of this surface sculpturing there were observed, in some species, markings suggesting a scaled condition. This is particularly noticeable in *Paramoera walkeri*, where the free edge (of sideplate, etc.) was serrulate suggesting the overlapping of scales. Examined by transmitted light this becomes much more evident. In *P. hamiltoni* the "scales" do not apparently reach the edge of the sideplates but are bounded by a smooth submarginal area with a striated border.

Genus Pontogeneia *Boeck.*

Schellenberg, 1929, p. 273, and 1931, p. 181.
Barnard, 1932, p. 198.

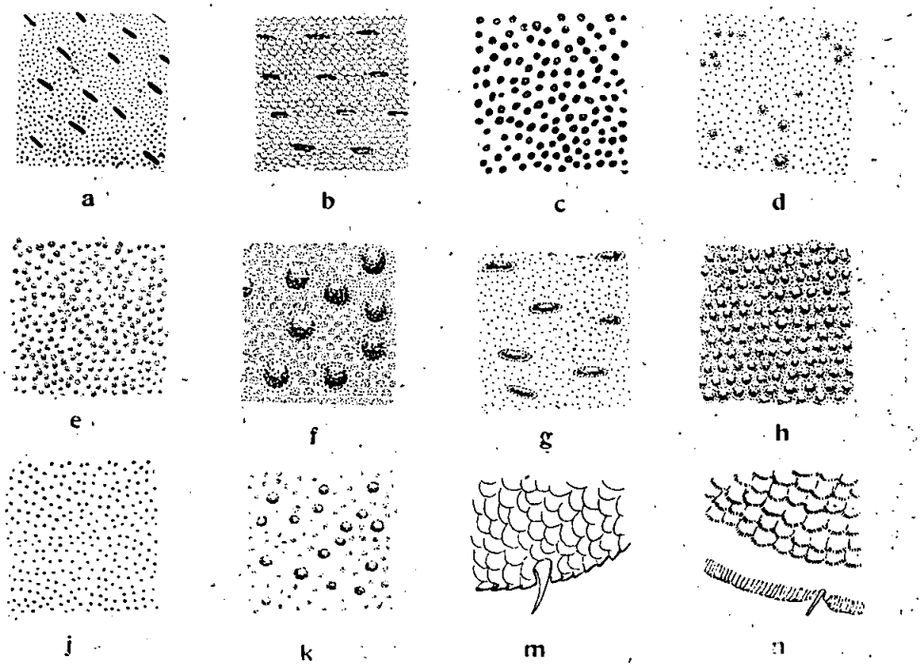

Figure 52. Portion of dry integument (examined by reflected light) of:—a, *Atylopsis megalops*; b, *Pontogeneia chosroides*; c, *Pontogeneiella brevicornis*; d, *Schraderia gracilis*; e, *Schraderia serraticauda*; f, *Paramoera walkeri*; g, *Paramoera gregaria* (?); h, *Paramoera hamiltoni*; j; *Paramoera macquariae*; k, *Paramoera schellenbergi*; m, portion of side plate, seen by transmitted light and more highly magnified, of *Paramoera walkeri* and n, of *Paramoera hamiltoni*. (a—j, drawn by Miss E. A. Bowley.)

PONTOGENEIA CHOSROIDES *n.sp.*

(Figs. 52*b* and 53.)

Occurrence.—1. Macquarie Island, (C.37), 19 ex. (a few ovig. ♀♀), 4–8 mm.

2. ,, ,, (C.47), 8 ♂♂ 7·5 mm. (width 2 mm.), 5 ♀♀ (ovig.), 6–8 mm. (width 4 mm.), 10 ♀♀, immature, 7 mm. (width 2·5 mm.), 1 juv., 4 mm. (types).

3. ,, ,, North End (low tide, Aug., 1913), 2 ♂♂, 8 mm., 6 ♀♀ (ovig.), 8–10 mm., 1 immature, 6 mm.

4. ,, ,, S. E. Harbour (roots of kelp, Aug., 1913), 2 ♂♂, 8–9 mm., 3 (ovig.) ♀♀, 8–10 mm.

Description.—Body broadly vaulted in front, smooth, without dorsal teeth; sideplates markedly outspread in ovigerous females; pleon segments 1–3 with rounded lower margins armed with a few spines anteriorly, 4–6 folded under, segments 5 and 6 not particularly short, subequal. Telson elongate, one-third longer than peduncle of uropod 3, its greatest width two-thirds its length, its apex with triangular emargination in depth one-fourth the length of telson, with several pairs of submarginal setae-couples.

Head with minute rostrum, eyes large, broadly reniform or sub-circular, brown to black, with many ocelli. Antennae moderate in length, calceoliferous and with many sensory setae; antenna 1 somewhat shorter than antenna 2, without accessory flagellum, peduncle stout, set with long setae on ventral surface, the length of the joints being 4 : 3 : 2, the third being scarcely longer than its greatest width, the peduncle

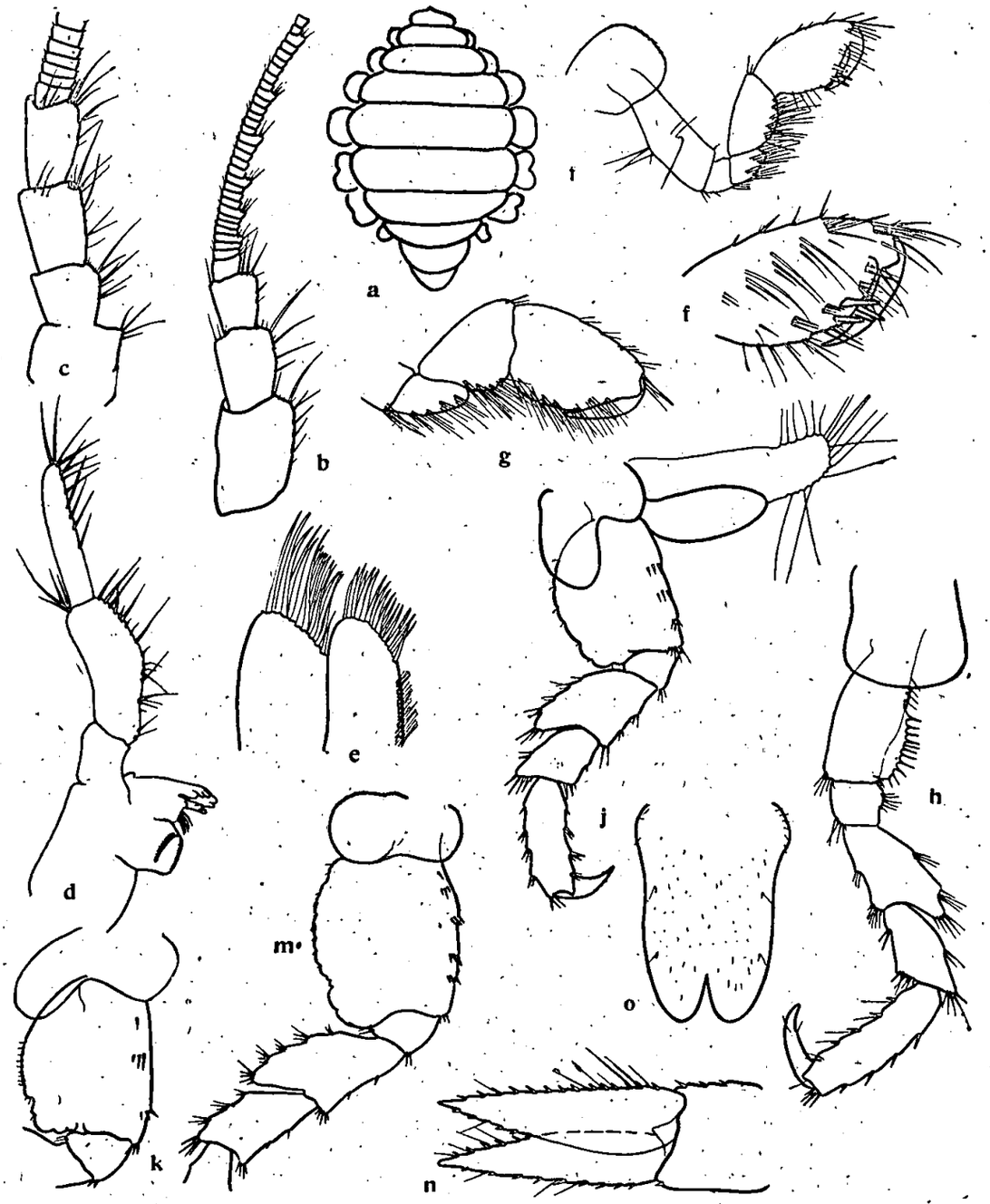

Figure 53. *Pontogeneia chosrōides* n.sp.—a, entire animal, ♀, dorsal view; b, part of antenna 1; c, part of antenna 2; d, mandible; e, maxilla 2; f, gnathopod 1; g, part of gnathopod 2; h, peræopod 1; j, peræopod 3; k, m, basos of peræopod 4, 5; n, uropod 3; o, telson.

reaching to the middle of 5th joint of antenna 2. Both 2nd and 3rd joints bear terminal calceoli, the end of each joint of the flagellum is ringed with calceoli—exactly resembling those described by Stebbing in *Chosroes incisus*. In another view some appear rather as a pile of stalked saucer-like discs. In addition to the calceoli a bunch of sensory cylinders occurs on the distally widened border of a number of flagellar joints.

Antenna 2 has peduncular joints 3, 4 and 5 calceoliferous, the two latter subequal; the peduncle scarcely half the length of flagellum, of which all of the short broad joints bear calceoli. Mandibles well developed; the left with cutting edge divided into 6 (7?) teeth, the accessory plate with 4–5 teeth; the spine row has 6 or 7 spines; molar strong; palp stout, twice the length of the basal plate, the third joint much narrower but as long as (or longer than) the second, its concave margin densely setose.

Labium short and broad, with small inner lobes. Maxilla 1, inner plate apically truncate with small terminal spine, 4 stout plumose setae and an inner slender slightly feathered seta, outer plate with 11 denticulate spines, palp stout, on one side with 9 apical spine-teeth and a parallel subapical row of feathered setae. Upon the other, the spine teeth are stout and very much shorter and are paralleled by about 8 stiff setae. What appears as a stout obsolescent spine lies on the outer margin of the palp.

Maxilla 2, plates of equal length, inner scarcely narrower, with a number of subterminal spine-setae (with vestiges of plumose condition) and with two more proximal stout plumose setae, possibly the remains of a diagonal row. Outer plate with numerous stiff setae.

Maxilliped very setose, short inner plate truncated, with terminal spines and 3 stout spine teeth, outer plate hardly reaching middle of large and very setose 2nd joint of palp, 3rd joint not produced, finger curved and with distinct "nail."

Sideplates 1–4 short, rounded below; 1 small, not broadened distally, 3 and 4 concave posteriorly, 4 not greatly excavate, 5 and 6 with posterior linguiform lobe.

Gnathopods resemble those of *P. simplex*, Dana as figured by Schellenberg (1926, fig. 52), basos as long as propod but the proportion of carpus to oval propod differs slightly. Thus in gnathopod 1 greatest length of carpus and propod are in proportion 5 : 7 and in gnathopod 2 as 3 : 4 whereas in Schellenberg's figures the ratios are as 4 : 5 and 9 : 11 respectively; the width of the carpus in gnathopod 2 is greater than in gnathopod 1 while in *P. simplex*, this condition is reversed.

Four stout spines define the palm in gnathopod 1, the number varying from 2–4 in the second gnathopod. The basos bears on its hinder margin at about the middle of its length in both appendages, a tuft of 4 long setae, a second tuft arising from the inner surface. From the inner surface of the land spring six or seven ranks of setae.

Peraeopods 1 and 2 show the basos with a slight wing-like lobe springing from the proximal part of its outer face, deeper but narrower than that figured by Stebbing for *Chosroes incisus;* peraeopods 3–5 with basos considerably expanded, hinder border crenate and marked by a distinct incisure near its distal angle; peraeopods 1–5 have both merus and carpus widened distally, merus always slightly the longer, the propod notably narrowed proximally. The curved dactyl is relatively long, with a " nail " and bears two setae, one on the concave and the other on the convex border.

Uropod 1, peduncle 1½ length of rami; uropod 2, peduncle and inner ramus subequal; uropod 3, rami subequal, almost twice the length of peduncle, the borders set with a double row of spines or with a series of spines and setae arising together in couples.

The integument is finely shagreened with sparse pits of elongate oval shape, scattered irregularly.

Young, taken from the brood pouch have antenna 1 with a 12-jointed flagellum and a minute accessory flagellum.

Remarks.—In the possession of a smooth body this species resembles *antarctica*, but the condition of the antennae, peraeopods and uropod 3 provides characters which enable these species to be easily distinguished. Chilton states that *danai* closely resembles *antarctica* being separated from it by the presence of widened articuli on the antenna on every fourth instead of every third joint.

With *simplex*, of which Schellenberg has given a very detailed description (under the name *Bovallia calliopioides*) *chosroides* shows very many points of agreement. It may be distinguished however, by the absence of dorsal teeth on peraeopod segment 7 and pleon segments 1 and 2, by the basos of the gnathopods, shape of joints of the peraeopods, the rounded lower margin of pleon segments 1–3, and the armature of the telson. In the shape of the sideplates, too, there are differences to be made out.

It is somewhat difficult, however, to decide what importance for systematic purposes may be attached to these several characters. Schellenberg regards *danai*, notwithstanding the absence of dorsal teeth, as identical with *simplex*. Certain other characters, also, appear inconstant. Thus the position of the widened joints of antenna 1 bearing the sensory setae is not definite, and in the three specimens examined they were as follows :—1, 3, 7, 11, 14, 17, 26, 32, 39, 46 (broken at 55th joint); 1, 4, 7, 10, 16, 22, 29, 36, 42, 50 (broken at 55th joint); 1, 4, 7, 11, 16, 20, 24, 29, 34, 38 (broken at 52nd joint). The armature of the uropod 3 also seems to be slightly variable.

PONTOGENEIEA CHOSROIDES *var.* DENTICULATA *n.var.*

(Fig. 54.)

Occurrence.—1. Macquarie Island, C.37. 1 ♂ ?

2. ,, ,, C.47. 6 ♀ ♀

Description.—Associated with *P. chosroides* which it closely resembles this variety differs in that peraeon segment 7 was produced into a median dorsal tooth; pleon segments 1 and 2each with a low carina, produced into a tooth on 1 and a rounded prominence on 2; on either side of each of these teeth, the hinder border of the segment is produced into a short flattened triangular process, not projecting as a tooth such as is figured in *P. ushuaiae.* The epimera of pleon segments 1 and 2 are traversed obliquely by a low ridge which is produced as a minute point where it meets the rounded border. The postero-inferior angle of pleon segment 3 is rounded quadrate. The rostrum is minute, antero-lateral corner of head rounded. The eyes in some specimens are dark brown, in others colourless, large, rather prominent and rounded oblong to subcircular in shape, the long diameter equalling half the length of the head.

The antennae are long, antenna 1 being probably not less than three-fourths length of antenna 2. Antenna 1 has sensory setae on articuli 1, 4, 8, 13, 19, 26, 33, 39, 46, and is broken at the 70th joint; antenna 2, though incomplete shows 80 joints, calceoli on peduncle being absent from all but the last joint. Maxilla 1 has a few stiff setae on the outer border of palp.

The telson has a length equalling that of peduncle of uropod 3, its greatest width being five-eighths of its length; the triangular emargination is rather less deep than one-fourth the length of the telson. The rounded apices are unarmed but in the distal half there are two submarginal setae-couples on either side.

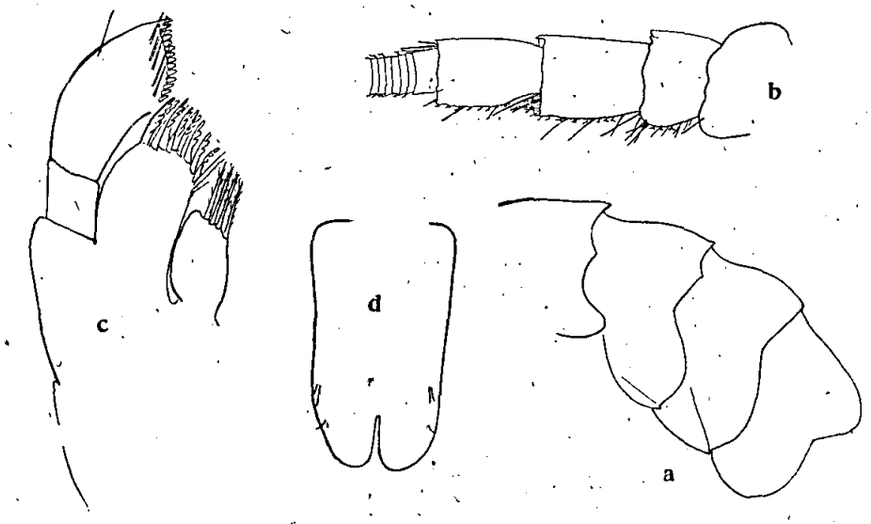

Figure 54. *Pontogeneia chosroides* var. *denticulata* n.—a, peræon segment 7 and pleon segments 1, 2 and 3; b, peduncle of antenna 2; c, maxilla 1; d, telson.

The integument is very finely shagreened with small round pits agreeing rather with the condition figured by Barnard for *P. simplex* (1932, fig. 118*g*).

Remarks.—The specimens here collected appear somewhat variable. The difference in eye colour may be due to bleaching and the differences in degree of development of denticulation of hinder margin of peraeon segment 7 and pleon segments 1 and 2 a matter of age.

They may be distinguished from the species *bidentata* named by Stephensen (to whose paper I have unfortunately not had access) from material collected in the Sub-Antarctic Islands of New Zealand, which likewise has two body segments produced into dorsal teeth by the fact that, in the latter, the teeth arise from pleon segments 1 and 2 (*fide* Schellenberg, 1932, p. 181).

Pontogeneoides *n.g.*

Body smooth, moderately compressed. Head with minute rostrum. Sideplates shallow, 1 produced forwardly well on to head, 4 emarginate, deeper than 5. Telson long, tapering with slight apical notch, unarmed. Antenna 1 very long, the joints bearing sensory setae not widened; accessory flagellum 1-jointed, a minute scale tipped with two stout setae. Antenna 2 much shorter (♀) than antenna 1, 4th joint of peduncle longer than 5th. Upper lip rounded. Mandible, palp with 3rd joint longer than 2nd. Lower lip with small inner lobes. Maxilla 1, inner plate oblong oval with few terminal plumose setae. Maxilla 2, both plates alike, with vestiges of a diagonal row of setae on inner plate. Maxilliped, palp long, outer plate reaching to second joint, inner plate short, truncate. Gnathopods stout, subchelate, gnathopod 2 much stronger than gnathopod 1 (in ♀), carpus short, especially in gnathopod 2. Dactyl of peraeopods without spine or seta. Uropod 3, rami subequal, the margins spinose.

Type.—P. abyssi n.sp.

Remarks.—The institution of a new genus seems inescapable but that it is referred to its proper family is doubtful. At first it was placed in the Gammaridae and its present assignment to the Pontogeneidae does violence to the diagnosis of that family as set out by Stebbing (1906) as well as to that proposed more recently by Schellenberg (1929) yet it seems more obviously related to the Pontogeneidae than to the Gammaridae or Calliopiidae.

Large and powerful gnathopods and almost entire telson are unusual characters in this family although so far as the telson is concerned, *Pontogeneia simplex* has but a shallow apical notch to its telson and the new species described above (*P. chosroides*) is very similar in this respect, but in both of these the telson is more definitely cleft than in the present species.

It comes nearest, apparently to *Pontogeneia*, from which it differs further in the lack of widened joints of antenna 1, in bearing the remains of a diagonal row of setae on inner plate of maxilla 2, in the short inner plate of maxilliped (?), in the forwardly directed sideplate 1, in the short carpus of gnathopods, and the absence of a seta on concave side of dactyl of peraeopods.

Pontogeneoides abyssi *n.sp.*

(Fig. 55.)

Occurrence.—Adelie Land, Station 6, 1 ♀, 12 mm. (strongly curved).

Description.—Head not deep, as long as peraeon segments 1 and 2 combined, rostrum minute, antero-lateral angle rounded. Eyes not perceived; sideplates 1–4 rather short, forwardly directed, 4 longest, 5 bilobed, hinder lobe almost twice the length

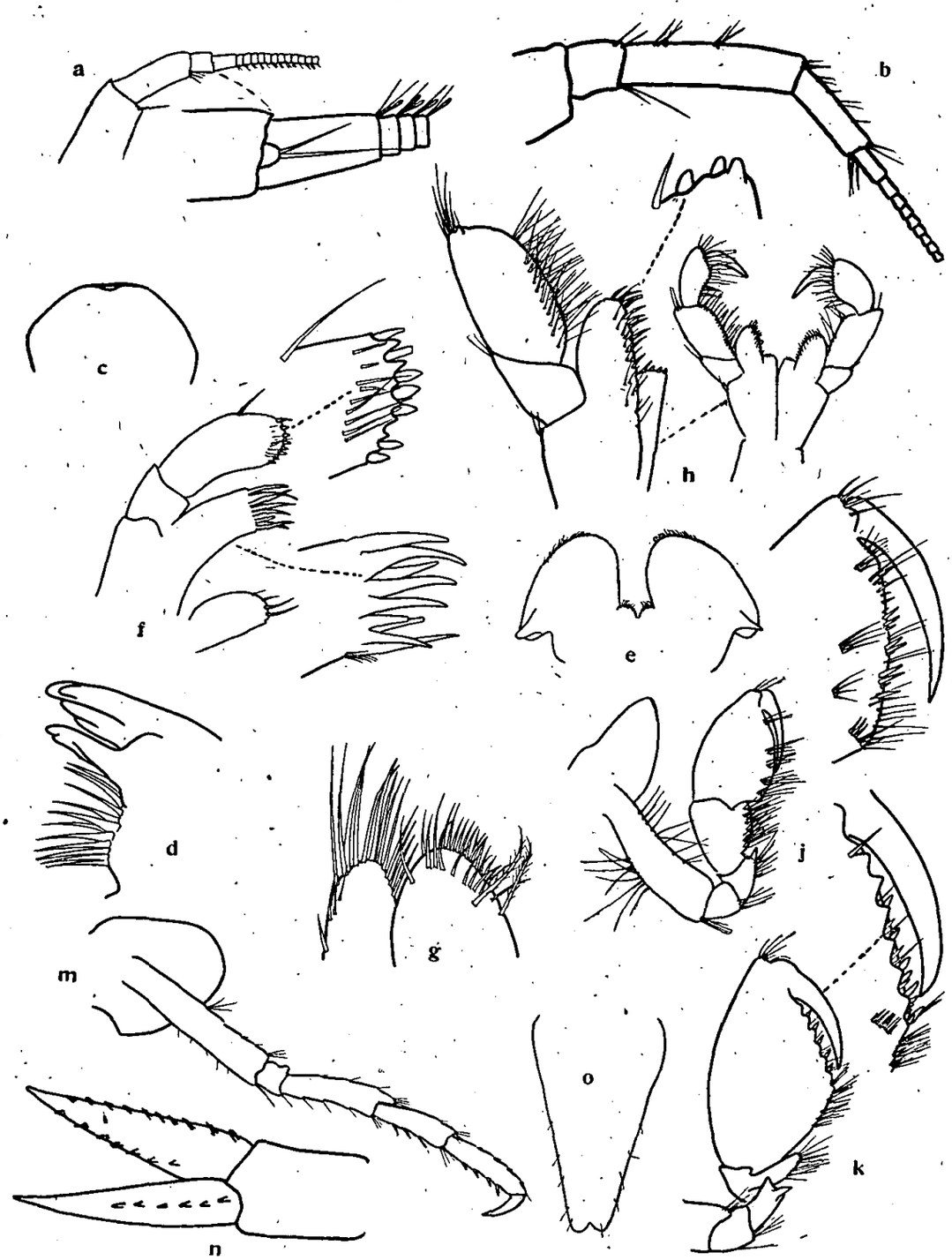

Figure 55. *Pontogeneoides abyssi* n.sp.—a, part of antenna 1 with accessory flagellum more highly magnified; b, part of antenna 2; c, upper lip; d, part of mandible; e, lower lip; f, maxilla 1; g, maxilla 2, apices of inner and outer plates; h, maxilliped; j, gnathopod 1; k, gnathopod 2; m, peraeopod 2; n, uropod 3; o, telson.

of the front lobe, 6 about equally long, 7 rounded, scarcely longer than anterior lobe of 5, epimeron of pleon segment 3 evenly rounded behind; the profile of pleon segment 4 excavated dorsally by a deep sinus. Telson, triangular, its greatest width (at base) slightly more than half its length, apex truncated and shallowly notched with few, very fine setae.

Antenna 1, as long as body; peduncle joints are in length approximately 4 : 3 : 1, the flagellum, of more than 70 joints, exceeds three times the length of peduncle; the 1-jointed accessory flagellum has, perhaps, one-fifth of length of joint 1 of primary flagellum.

Antenna 2 about half the length of antenna 1, the peduncles subequal, peduncle joint 5 being but two-thirds the length of 4, the flagellum (broken) had probably less than 40 joints.

Left mandible, cutting edge strong with 4 teeth, secondary lamella with 2 (? 3) teeth, followed by 11 stiff spine-setae, molar moderate, palp stout, reaching nearly to end of 4th joint of antenna 2, 3rd joint almost as long as 1 and 2 together.

Lower lip, outer lobes rounded, inner small; maxilla 1, inner plate rounded oblong, with 5 setae apically; maxilla 2, plates subequal in length, inner the wider, with stiff setae terminally. Submarginally is a nearly parallel row of these setae and slightly more proximally an incomplete row (nearly transverse) of 3 stout plumose setae.

Maxillipeds with both outer and inner plates short, a double row of stiff spine-setae lying marginally to inner border of outer plate; palp stout, joints 3 and 4 subequal.

Gnathopod 1, coxa sub-triangular, short, carpus short, produced into a wide lobe on its inner border, propod oval, palm very oblique, fringed with spines, passing insensibly into hinder border.

Gnathopod 2, with carpus relatively shorter, produced into a long hinder lobe, propod very large, widest at middle of its length, palm oblique, as long as the hinder border, furnished on one side by a row of short stout spines and on the other produced into a rank of 7 or 8 stout teeth, the dactyl fitting between the two rows; the palm is defined by two or three stout spines.

Marsupial lamellae rather long and narrow.

Peraeopods 3–5 increasing progressively in length, basos expanded, merus slightly decurrent, dactyl without spine on convex border or setae on concave border.

Uropods 1–3, decrease progressively in length, 3rd extending very slightly beyond the preceding two appendages. In all, the outer ramus is very slightly shorter than the inner, but the rami are almost equal in 3; they equal the telson in length and are twice as long as the peduncle.

Remarks.—This was the only Amphipod obtained at this station, coming from the greatest depth at which Amphipodan material was obtained by the "Aurora."

Genus PONTOGENEIELLA *Schell.*

Schellenberg, 1929, p. 278; Barnard, 1932, p. 200.

PONTOGENEIELLA BREVICORNIS (*Chevr.*)

(Figs. 52*c* and 56.)

Chevreux, 1906, p. 79, figs. 45–47 (*Atyloides b.*); Chilton, 1925, p. 178; Schellenberg, 1929, p. 278, and 1931, p. 191; Barnard, 1932, p. 200.

Occurrence.—1. Macquarie Island, C.37, 1♂ ?, 10 mm.

2. ,, ,, C.47, 1 ♂, 10 mm.

Remarks.—Agreeing very closely with Chevreux's account. Sideplates 1 and 2 are armed with spines upon the hinder border as figured by Chevreux, these being replaced on the ventral border by fine setules, those at the postero-inferior corner arising in distinct notches. Sideplates 4 and 5 interlock. Maxilla 1 lacks the setae on outer border of the palp; maxilla 2 (in the specimen from Lusitania Bay) shows, at the distal end of the diagonal row of setae upon the inner plate, two plumose setae mounted upon a common base—it is probably an individual variation merely. The figure illustrates some details of the armature of gnathopod 1. The telson bears submarginal spinules and setae not mentioned by Chevreux. The sculpturing of the integument appears as a moderately coarse granulation.

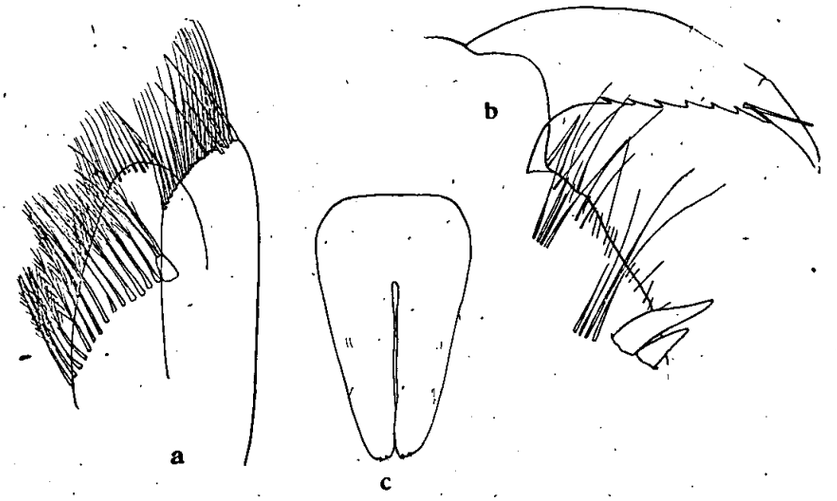

Figure 56. *Pontogeneiella brevicornis* (Chevr.)—a, maxilla 2; b, palm and dactyl of gnathopod 1; c, telson.

Distribution.—Booth Wandel Island; Deception Island; South Orkneys; South Georgia; ? Palmer Archipelago; South Sandwich Islands; South Shetlands.

Genus ATYLOELLA *Schell.*

Schellenberg, 1929, p. 279; Barnard, 1932, p. 201.

ATYLOELLA MAGELLANICA (*Stebb.*).

Stebbing, 1888, p. 925, pl. 79 (*Atylopsis*), 1906, p. 360 (*Pontogeneia m.*) ; ? 1914, p. 365 (*Atyloides*); Schellenberg, 1926, p. 360, fig. 55 (*Atyloides*); Barnard, 1932, p. 201 (fig. 118*g*).

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 3 specimens, very broken.

2. ,, ,, Station 2, 3 ♀, 7 mm., 9 mm. and 10 mm., 1 juv., 6 mm.

Remarks.—All the specimens (2) are incomplete. The general agreement with Stebbing's figures is so close, however, that I have no hesitation in assigning them to his species. Epistome, mouth parts, sideplates, epimeron of pleon 3 and telson are almost exactly as figured. A small difference was noted on maxilla 2, where, on both sides, the diagonal row of plumose setae on the inner plate consisted of but 5 setae (Stebbing shows 6).

The sculpturing of the integument does not accord with Barnard's figure and description, the uneven surface having sparse elongated depressions. The specimens (1) are very badly mutilated but they appear to belong here.

Distribution.—Cape Virgins, ? Falkland Islands; "Gauss" Winter Station; ? South Georgia.

Genus SCHRADERIA, *Pfr.*

Pfeffer, 1888, p. 141, pl. 2, fig. 5; Stebbing, 1888, p. 913 (*Atyloides*); 1906, pp. 308 and 362 (*Atyloides*); Schellenberg, 1929, p. 280 (*Atyloides*), and 1931, p. 193; Barnard, 1932, p. 203.

? SCHRADERIA GRACILIS *Pfr.*

(Figs. 52*d*, 57 and 58*n*.)

Schellenberg, 1931, p. 193 (*Atyloides gracilis*); Barnard, 1932, p. 204, figs. 118*c*, 123 (references).

Occurrence.—1. Commonwealth Bay, Boat Harbour, 3½–5 fathoms, numerous ex., —9 mm.

2. ,, ,, ,, ,, 25 fathoms, numerous ex., —10 mm.

3. ,, ,, ,, ,, 55–60 fathoms, 1 juv.

4. ,, ,, ,, ,, (1913, coll. Dr. McLean, 3 fathoms), numerous ex.

5. Adelie Land, Station 7, 2 ex.

Figure 57. *Schraderia gracilis* Pfr.—a, head; a′, from a second specimen; b, antenna 1, peduncle and part of flagellum; c, part of antenna 2; d, mandible; d′ cutting edges of both mandibles; e, maxilla 1; f, apices of palps of maxilla 1 from a second specimen; g, maxilla 2; h, maxilliped; j, gnathopod 1 with side plate; k, gnathopod 2; m, gnathopod 2 from another specimen.; o, uropod 3; p, telson.

Remarks.—The single *habitus* figure published by Pfeffer was unaccompanied by any description. That the specimens examined by Schellenberg (1931) and by Barnard (1932) coming as they do, from the same locality are, correctly referred to Pfeffer's species there seems to be no reason to doubt. It appears equally probable that Barnard is justified in his belief that the Australian species *serraticauda* is distinct from the Antarctic form, but the possibility that there might be *more than one Antarctic species* of this genus seems to have been altogether overlooked. Neither Schellenberg nor Barnard (both of whom have recently referred specimens to this species) have remedied Pfeffer's omission, by supplying a complete description.

The specimens in the present collection are many of them ovigerous ♀♀ but none exceed 10 mm. Nor do any of the males exhibit calceolate antennae and since Barnard has, tentatively, included in his synonymy Chilton's species (*calceolata*) it is to be presumed that the ♂♂ in the "Discovery" collection conformed to Chilton's figures, although this is not expressly stated. Schellenberg, however, makes the possession of large calceoli in the male a generic character (1929, p. 280). The specimens examined by Walker, Schellenberg and Barnard all reached a considerably greater length than those in the present series and Barnard expresses definitely his disbelief in the variability of *gracilis*.

Since the specimens in the present collection show considerable variation and apparently depart in some details from Pfeffer's figure, it may be that they should be referred to another species, but this in the absence of a sufficient description I can not certainly determine.

As a reason for accepting Pfeffer's figure as sufficient for the identification of the species Barnard points out that the characteristic gnathopods are figured rather well. It is to be noted that, in the figure referred to, the carpus of gnathopod 2 is shown at least as long as the propod.

In some of the present specimens examined, the joint is distinctly shorter and the setae differ. Antenna 1 is longer (usually much longer) than antenna 2 whereas Pfeffer's figure shows antenna 2 the longer. In the hope of simplifying matters for future workers I have ventured, therefore, to offer a detailed account of the specimens in the "Aurora" collection.

Description.—Body smooth. Head with minute rostrum, antero-lateral lobe rounded, post-antennal region serrate, the number of serrations varying from 2–5 and frequently different on opposite sides, a seta springing from each notch. Eyes rounded oblong, varying in spirit material, from light to dark brown; sideplate 1 widening below, part or all of its lower margin dentate (7–12 teeth), sideplate 2 rather narrower, not widening below, a portion or whole of the margin dentate (2–7 teeth), sideplates 3 with one postero-lateral tooth, sideplate 4 not deeply excavate behind; epimera of pleon segments 1 and 2 slightly serrated, that of pleon segment 3 with its hinder border sinuous, the distal half with 8–10 serrations, and the ventral border armed submarginally with

spines in 5–6 ranks, telson cleft for more than half its length, the apices truncate, dehiscent and with 6–9 serrations apiece, laterally with one or two couples of submarginal setae. In the telson there are no setae in the notches, elsewhere upon the body every serrated edge is setose.

Antenna 1, long and slender; peduncle joint 1 has 4 teeth distally and is almost as long as 2 and 3 combined, more than thrice the length of 3; the primary flagellum (incomplete) had 68 joints, and there was a minute scale-like, triangular accessory flagellum with two terminal setae. Antenna 2, shorter than antenna 1, peduncle has 4th and 5th joints subequal, flagellum with about 55 joints.

Mandible, molar well developed, palp long, joints 2 and 3 subequal, 3 widest at middle, tapering to its apex.

Maxilla 1, inner plate oval, fringed with setae along its entire inner margin; outer plate, truncated apex with eleven serrate and dentate spines (much as figured by Stebbing for *serraticauda*); palp strong, differing markedly in armature on opposite sides. On one side are 13 spines all subequal, on the other 4 are subequal and 7 others in a diminishing series. A second specimen had fewer spines (9 and 7 respectively). Maxilla 2, inner and outer plates practically equal, the inner having a marginal fringe of setae and an incomplete diagonal row of 14–17 plumose setae which in its lower half is submarginal running parallel to the inner margin of the plate.

Maxilliped, inner plate not reaching to end of 1st joint of palp, a row of submarginal setae parallel to its inner border, its apex truncate, set with 3 teeth and several plumose setae; outer plate ovate, extending to about the middle of 2nd joint of palp, its inner margin armed with close set spines, distal half of outer margin with plumose setae.

Gnathopod 1, relatively rather more slender than in Stebbing's figure of *serraticauda*, palm almost transverse, with three spines, dactyl stout, curved, its inner border denticulate. Gnathopod 2 long and slender, closely resembling the condition for *serraticauda* but with the sensory setae spatulate and relatively longer.

All of the peraeopods bear gills. Uropods 3, rami lanceolate, subequal, rather longer than peduncle, both margins armed with spines, the outer margin of the outer ramus serrate, with a larger serration at the level of each spine.

The condition of the integument varies in different regions, pits largest on the head, elsewhere are smaller and more scattered and over considerable areas are wholly wanting.

A note upon the label of (1) states that the colour in life is red.

Distribution.—South Georgia and probably Graham Land, South Orkneys and Ross Sea.

Schraderia serraticauda (*Stebb.*).

(Fig. 52*e*.)

Stebbing, 1888, p. 920, pl. 78 (*Atyloides s.*), and 1906, p. 362; Barnard, 1932, p. 205 (references).

Occurrence.—(?) Macquarie Island ("Bottle with clams"), ♀, 5 mm.

Remarks.—The single specimen is an immature ♀. The antennae are rather short; the apices of the telson have three serrations each; the hinder border of the epimeron of pleon 3 is crenate rather than serrate but the gnathopoda agree exactly with Stebbing's figures. The cheek lacks the serrations characteristic of *gracilis*.

The integument shows numerous small pits comparatively closely set.

Distribution.—Australia (off Melbourne); Sub-Antarctic Islands of New Zealand.

Genus Paramoera *Miers.*

Pfeffer, 1888, p. 110 (*Stebbingia*); Stebbing, 1888, p. 913, and 1906, p. 363 (*Atyloides*); Schellenberg, 1929, p. 280, and 1931, p. 194; Barnard, 1932, p. 206.

In his account of *P. fissicauda*, Schellenberg remarks that the number of setae on the inner margin of the inner plate of maxilla 1 may vary from 8 to many in specimens from Kerguelen. In *P. walkeri* the number is reduced to 6, distally situated, while in *P. schellenbergi* there is a further reduction to 5. The generic diagnosis should be amended, therefore, to read "Inner lobe of maxilla 1 broad with from few to many setae."

Paramoera walkeri (*Stebb.*).

(Figs. 52*f*, *m* and 58*a*, *b*.)

Walker, 1903, p. 58, pl. 11, figs. 91–97; Chevreux, 1913, p. 169, figs. 53–55; Schellenberg, 1929, p. 281; Barnard, 1930, p. 388, and ? 1932, p. 206.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 3½–5 f.
2. ,, ,, ,, ,, 3–4 f.
3. ,, ,, ,, ,, 1913, 3 f.
4. (Label Amphipoda XI.)
5. (Loc. ?)

Many examples reaching a maximum length of 14 mm. extended.

Remarks.—One of these tubes (No. 5) contained a label in Dr. Chilton's handwriting "*Atylus walkeri*", Stebb., loc. ?, and there can be no doubt, I think, that all should be referred to this species, originally described by Walker, with whose description they conform very exactly. A label, attached to No. 2, states that these amphipods were "very numerous throughout the year." Nos. 4 and 5 contained no locality labels but it is probable that all came from Boat Harbour and from shallow water. There are trifling

differences observed in mouth parts but none which exceed what might be regarded as due to individual variation. As Chevreux has already noted (1913, p. 172) the number of plumose setae on the inner plate of maxilla 1 is but six.

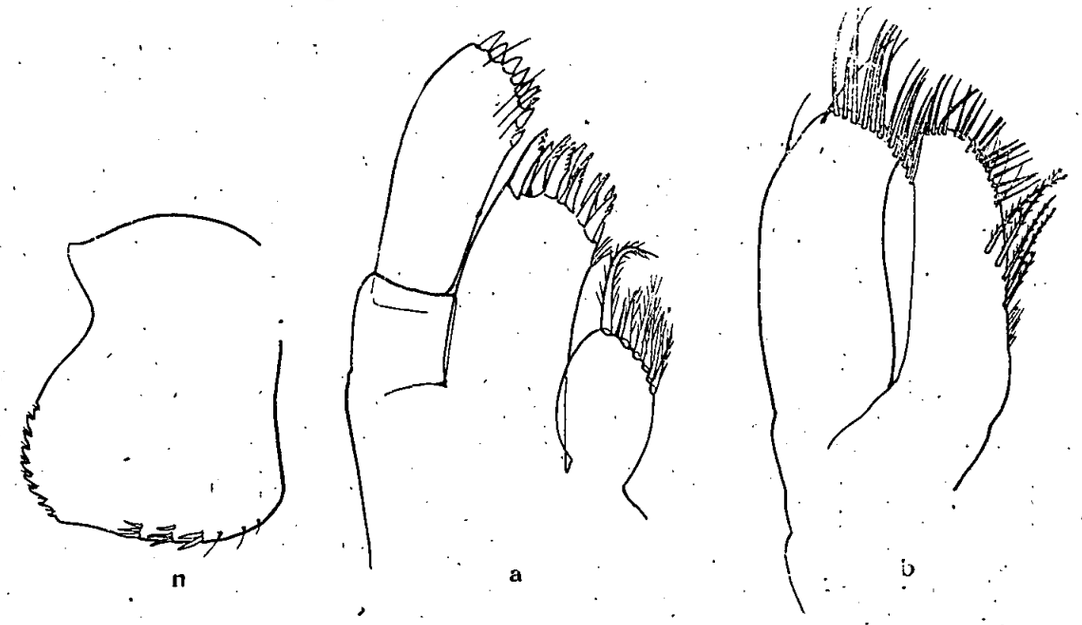

Figure 58. *Schraderia gracilis* Pfr.—n, epimeron of pleon, segment 3. *Paramoera walkeri* (Stebb.)— a, maxilla 1; b, maxilla 2.

Barnard figures and describes the integument in this species as finely shagreened and without large pits. The specimens in which this character was observed were apparently a couple of immature examples from South Georgia. An examination of a number of specimens, large and small, in the present material, reveals in every case the fine shagreened surface interrupted by frequent fairly large pits, resembling much more nearly the figure (118*i*) given by Barnard for *Paramoera gregaria*. An extended scrutiny revealed that in certain areas (principally parts of sideplates 1–4) the pits are absent or scarce but it is quite unlikely that Barnard would have overlooked them had they been present in his specimens. When, however, the surface (antennae, sideplates, etc.) is examined in prepared mounts, it is found to be wholly covered by fine curved lines, suggesting the free margins of overlapping scales.

It would appear, therefore, that this condition of the integument cannot be altogether relied upon as a constant feature in a species distributed over a wide area. It is, of course, possible that the specimens referred by Barnard and myself to *walkeri* really belong to different species, but I certainly cannot discover any distinctive feature which would justify the assignment of the " Aurora " material to any other species. The collection comes, moreover, from a region relatively near to the type locality.

Colour.—Most of the specimens (in spirit) are almost white. In one tube, the inclusion of a tie-on label with brass eyelet appears to be responsible for the staining of the material to a dark brown! A note with (2) says " colour red."

Distribution.—Ross Sea; South Shetlands; South Georgia.

Paramoera sp.

(Figs. 52*g* and 59.)

Barnard, 1932, p. 206, fig. 124 (references).

Occurrence.—1. Macquarie Island, (1912), 8 exs., 5–9 mm. including 2 ♀ ♀ (with brood lamellae).

2. ,, ,, C.37, 1 ex. ♀ (ovig.), 8·5 mm.

3. ,, ,, C.44, 1, immature, 4 mm. (mutilated).

Remarks.—The specimens (1) which are now in an extremely poor state of preservation, were found to have been assigned provisionally by Dr. Chilton to *Paramoera austrina* (Bate). They conform, however, much more nearly in shape of head, large reniform eyes, third pleon segment and in shape and armature of gnathopod, with the figures given by Barnard for *P. gregaria* (Pfr.) from which they differ chiefly in size. Maxilla 1 has 9 plumose setae fringing the inner plate; maxilla 2 has 10 in the incomplete diagonal row on its inner plate; for *austrina*, Stebbing shows these setae much more numerous. The third uropods are setose, and while Bate states explicitly for *austrina* that these appendages are unarmed, Stebbing (1888, pl. 75–77) shows these appendages furnished with spines and setae, and Pfeffer's figures also suggest very definitely a setose or spinulose condition of this appendage in his species. The sculpturing of the integument differs from the condition represented by Barnard in that the pits are long oval in shape and comparatively widely spaced, particularly upon the sideplates.

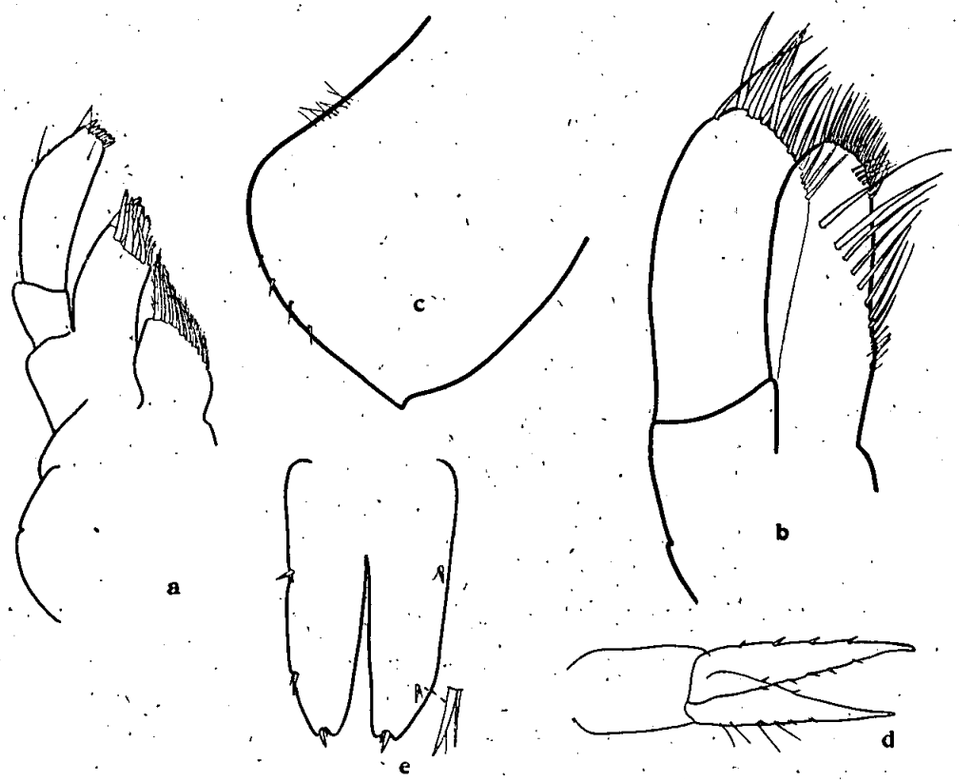

Figure 59. *Paramoera* sp.—a, maxilla 1; b, maxilla 2; c, pleon segment 3; d, uropod 3; e, telson.

In two details do I find a difference from the figures given by Barnard, the "Aurora" specimens having a short row of four small spinules along the ventral border of the epimeron of third pleon segment, wherein it agrees more nearly with *P. austrina*, and the telson, appears wider and shorter relatively.

The small and badly broken specimen (3) had the collector's note "colour red-brown."

Paramoera hamiltoni *n.sp.*

(Figs. 52*h*, *n* and 60.)

Occurrence.—1. Macquarie Island, C.26, 2 ex.

2. ,, ,, S.E. Harb., 18 ex., 7–10 mm., incl. more than a dozen ovigerous ♀♀ and 4 ? immature ♂♂.

?3. ,, ,, North End. 2 ex.

4. Stomach of *Notothenia macrocephala*, 1 ex., badly macerated.

Description.—The following description is based upon an ovigerous ♀ of 9 mm. Body smooth, without dorsal teeth. Head with rostrum short, antero-lateral border produced into a short rounded lobe, post antennal angle not very acute. Eyes of moderate size, oval, black.

Sideplates 1–3 about as deep as related segments, 1 not widening below, 4 deepest, as wide as segments 1 and 2 combined. Epimeron of pleon segment 2 slightly convex below, hinder border straight, postero-inferior angle rounded quadrate; pleon segment 3 rounded; its anterior half with a few small submarginal spinules, hinder border convex, smooth (?).

Telson two-thirds as wide as long, cleft for little more than half its length, apices rounded, each with terminal spine; a couple of short submarginal plumose setae on either side at the middle of its length.

Antenna 1, (♀) about as long as head and peraeon segments 1–4, peduncle moderately stout, flagellum with 27+ joints, alternate joints bearing small brushes of sensory setae; accessory flagellum rodlike, 1-jointed, shorter than joint 1 of primary flagellum. Antenna 2, considerably longer than antenna 1, peduncle with joints 4 and 5 equal.

The joints of the peduncle of both antennae appear, in profile minutely serrulate; in surface view they are found to be covered by fine polygonal overlapping scales.

Upper lip rounded below; epistome without tooth-like process.

Mandible, cutting edge with six stout rounded teeth, molar large, palp stout, 2nd joint longer than 3rd, the latter truncated terminally, setose. Lower lip with inner lobe obsolescent or wanting. Maxilla 1, inner plate short, distally truncated, having

a rounded oblong shape, with 8 or 9 plumose setae on oblique distal border; outer plate with densely crowded serrate spines, probably more than 11; palp well developed with about 10 apical spinules and a parallel sub-apical row of setae. Maxilla 2, inner plate a little shorter and much narrower than outer, resembles that of *Atyloella magellanica* in having a short incomplete diagonal row of plumose setae appearing as a continuation distally of a proximal marginal rank, the plumose setae, in this species, being more numerous (8–10) and more closely set.

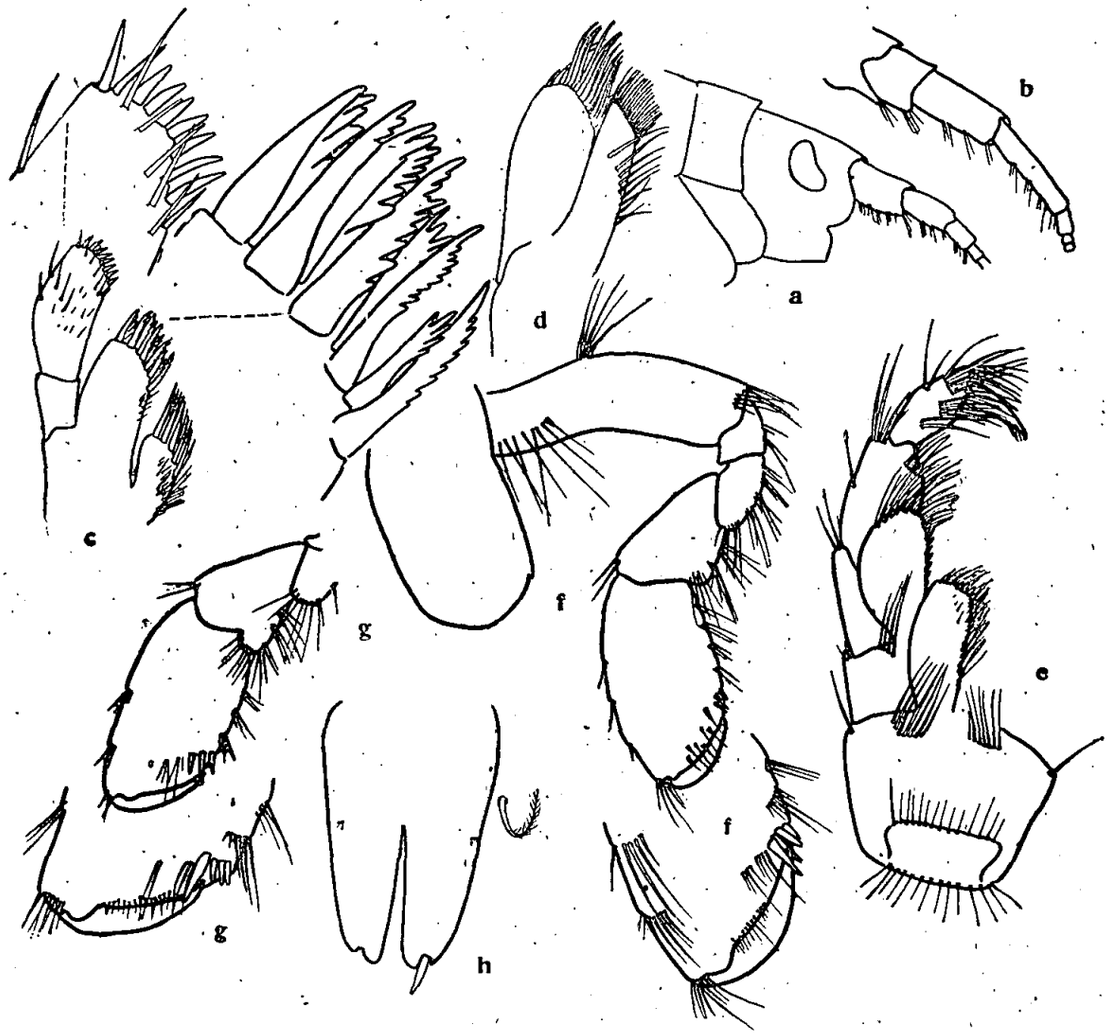

Figure 60. *Paramoera hamiltoni* n.sp.—a, head with peduncle of antenna 1; b, part of antenna 2; c, maxilla 1; d, maxilla 2; e, maxilliped; f, gnathopod 1 with side plate; g, gnathopod 2; h telson.

The maxilliped conforms fairly closely to the description given by Stebbing for this appendage in *A. magellanica*.

Gnathopod 1, carpus broadening distally, longer than broad, shorter than oval propod; palm scarcely convex, shorter than hind margin of joint, defined by a group of spines. Gnathopod 2, resembling gnathopod 1 except that the carpus is more nearly triangular.

Uropod 3, peduncle short, outer ramus shorter than inner by one-fifth of its length.

The two examples (3) have the same scaly condition but differ in arrangement of seta and have larger eyes. The integument appears wholly covered by close set pits, very shallow perhaps representing concave areas which appear as scales when viewed by transmitted light. The specific name is in compliment to Mr. H. Hamilton who was responsible for the securing of the Macquarie Island material.

Remarks.—In the distinct inequality of the rami of uropod 3 this species seems to be peculiar in this genus. The diagonal row of plumose setae on inner plate of maxilla 2 is continued at its proximal end along the inner margin of the plate—a condition which Schellenberg suggests, in his revision of the family, is peculiar to *Atyloella*. Stebbing, however, figured such a condition for *Atyloides australis* and *A. assimilis* both of which have since been recognised as identical with *P. austrina*.

PARAMOERA MACQUARIAE *n.sp.*

(Figs. 52*j* and 61.)

Occurrence.—Macquarie Island, C.31, ♂ ?, 8 mm.

Description.—Like *P. hamiltoni* from which, however, it differs in several characters some of which might have been regarded as sex differences. The single specimen is probably ♂. The eyes are larger than in *hamiltoni*. Antennae stout, but incomplete, both are calceolate; antenna 1 with stout 1-jointed accessory flagellum, bearing abundant sensory cylinders on every other joint alternating (after the 8th joint) with a calceolus; it is broken at about the 35th joint. Antenna 2, broken at about the 32nd joint shows alternately a tuft of short setae and a calceolus on every other joint.

Neither antenna, however, shows the least trace of scales, but the peduncular joints of antenna 2 are very setose.

The shape of the head is like that of *hamiltoni* but for the occurrence of a sharp process immediately below the rounded antero-lateral lobe.

The mouth parts also are very like those of *hamiltoni*; maxilla 1 bears four stiff setae on outer border of palp, maxilla 2 has slightly fewer stout setae on the apex of its outer lobe, and the diagonal row of plumose setae on the inner lobe, though consisting of the same number (10), does not quite reach the inner margin whereas in *hamiltoni* one or two of the more proximal setae of this row appear to spring from the inner border. There are slight differences also in the armature of the maxillipeds and the distribution of setae on gnathopods.

Uropod 3 has the rami subequal; the outer ramus very slightly the shorter. The telson shows slight differences in proportions, armature and condition of apices.

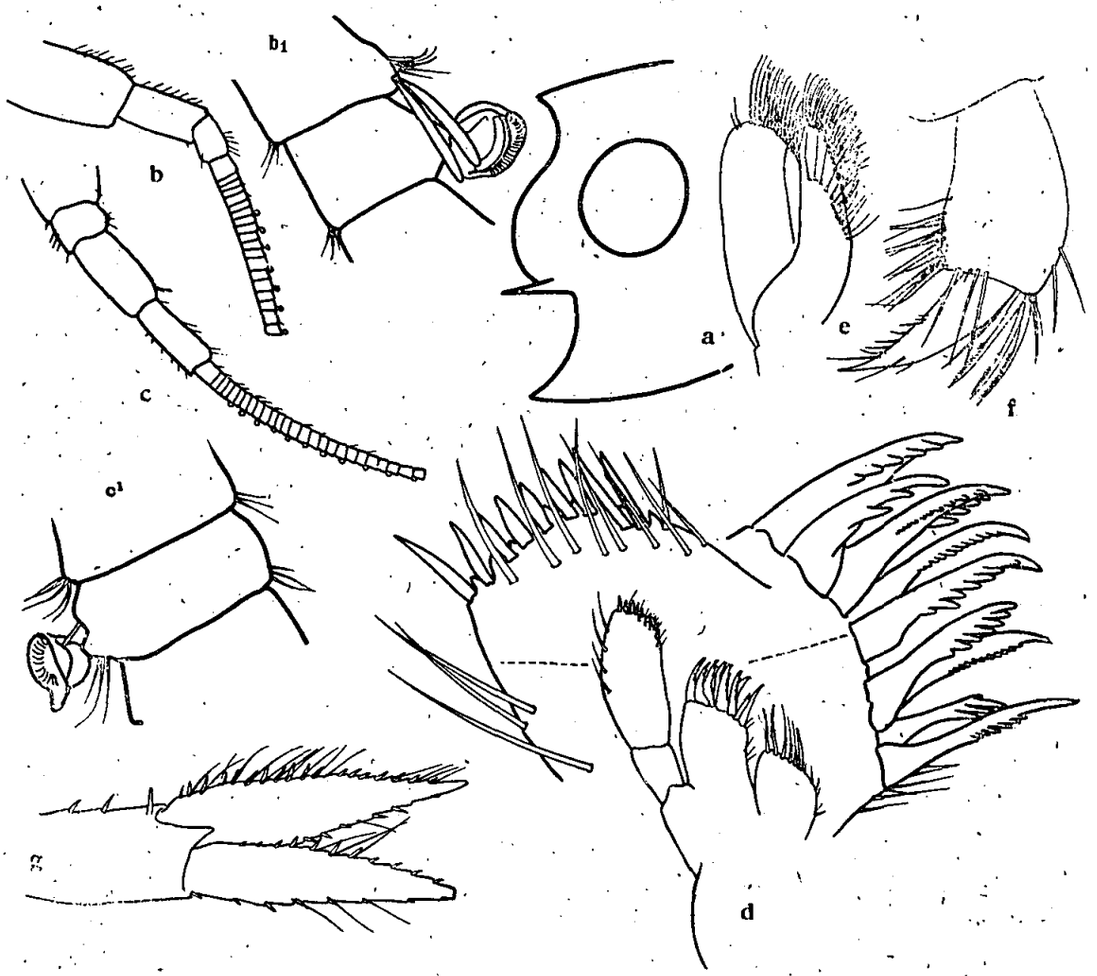

Figure 61. *Paramoera macquariae* n.sp.—a, head; b, antenna 1; c, antenna 2; d, maxilla 1; e, maxilla 2; f, part of palp of maxilliped; g, uropod 3.

The integument appears finely granular and pits are absent.

Remarks.—So close is the external resemblance of this species to *P. hamiltoni* that, but for the conspicuously calceolate condition it is probable that it would have been referred to that species. The absence of the scaled condition, however, marks it off sharply. It has, of course, very much in common with *P. austrina* which Schellenberg regards as synonymous with *fissicauda* and of which the ♂ (from Kerguelen) is said to have antenna 1 with calceoli (1931, p. 195).

Paramoera schellenbergi *n.sp.*

(Figs. 52*k* and 62.)

Occurrence.—Macquarie Island, C.13, 19 ♀♀, including spent (4), with embryos (6), ovig. (5), juv. (4), all strongly curved and measuring in that position about 8 mm.; 4 immature, 5·5–6 mm.

Description.—Body smooth; sideplates 1–4 relatively long, 1 not narrowed distally, 1–3 postero-inferior angle notched, with a single stiff seta, 4 moderately excavate posteriorly; 5 with hinder lobe the deeper. Epimeron of pleon segment 3 rounded behind, its postero-lateral margin crenate, its lower border with a row of 9 spines. Telson as long as wide, cleft for nearly four-fifths of its length, each apex armed with a single terminal spine.

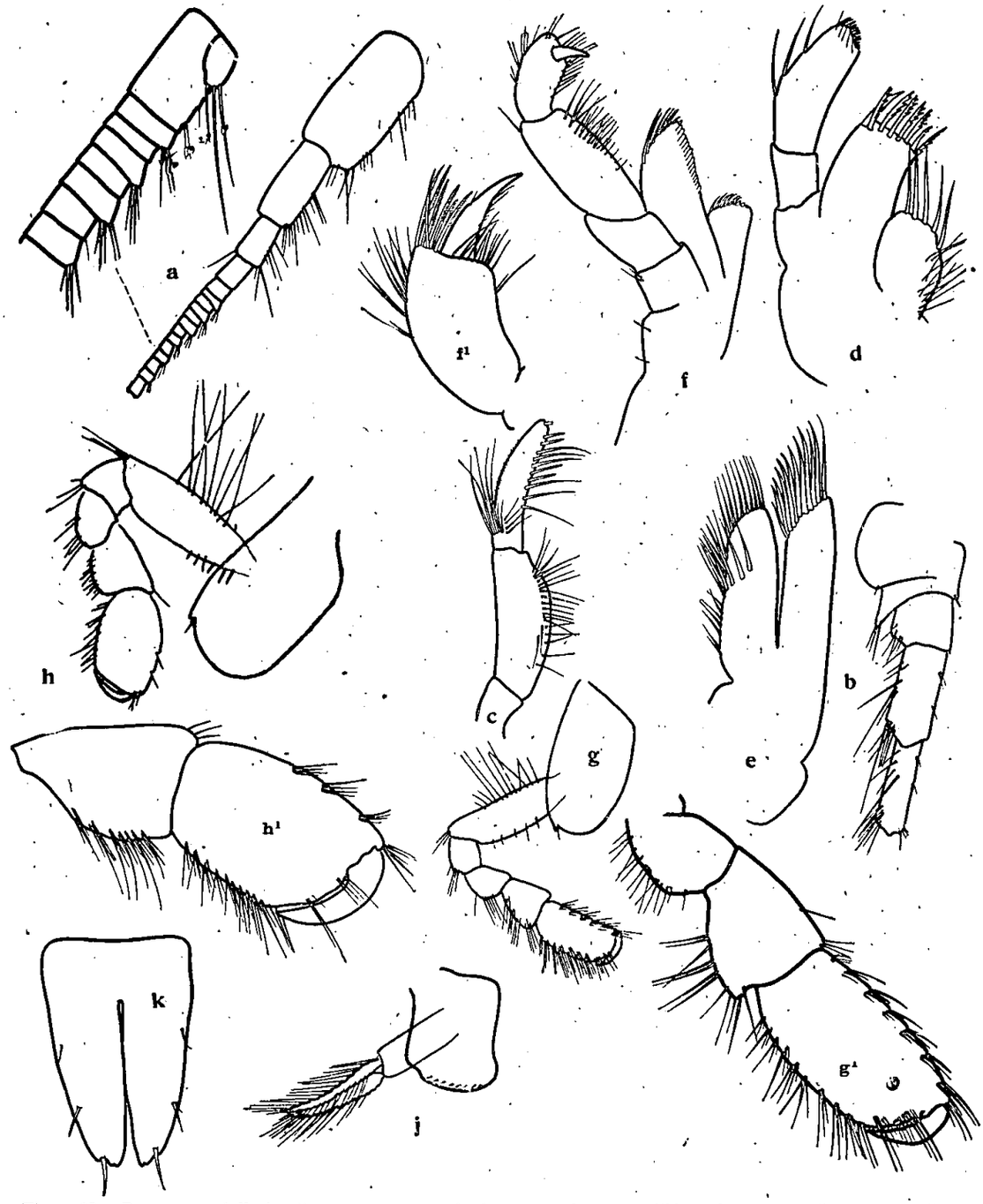

Figure 62. *Paramoera schellenbergii* n.sp.—a, antenna 1; b, antenna 2; c, mandible (palp); d, maxilla 1; e, maxilla 2; f, maxilliped and end of palp; f¹, gnathopod 1, with side plate; h, h¹, gnathopod 2; j, epimeron of pleon segment 3; k, telson.

Head with post-antennal lobe rounded, antero-lateral lobe rounded quadrate. Eyes black, large reniform. Epistome not produced into tooth-like process. Antennae moderately stout, subequal; antenna 1, peduncle stout, length of joints as 7 : 4 : 3, flagellum twice as long as peduncle with 38+ joints, alternate joints rather widened and bearing a tuft of 6 or more sensory setae; with short flattened but articulated 1-jointed accessory flagellum. Antenna 2, with joints 4 and 5 of peduncle, subequal. Upper lip, rounded not incised; lower lip with inner lobes barely indicated; maxilla 1, inner plate rounded oblong with 5 plumose setae apically; outer with about 8 pectinate spines; palp with 2/3 stiff setae on outer border. Maxilla 2 with short diagonal row of plumose setae 5 (or 6) in number, one (or 2) of which arise from the inner border.

Maxilliped with 4th joint of the palp not as long as the 3rd, furnished with several sub-apical setae.

Gnathopod 1, carpus short and broad, subequal to propod, in gnathopod 2, propod considerably longer than carpus.

Peraeopods 1–5 with single seta on concave side of dactyl, which is short and blunt; basos of peraeopods 3–5 crenulate along its hinder margin.

Uropod 1, peduncle considerably longer than stiliform rami, armed with short spines.

Uropod 3, rami lanceolate, equal, one-third longer than peduncle, set with stout spines and long setae, springing in couples.

Integument finely shagreened and with small pits not very abundant.

Remarks.—Differing apparently from all described species of this genus in the reduction in the number of plumose setae on inner plate of maxilla 1, *P. walkeri* coming nearest to it in this respect but it is readily distinguished from that species by the absence of dorsal teeth on peraeon and pleon; from *edouardi* it differs, also in its subequal antennae, in the equality of 4th and 5th joint of peduncle of antenna 2, in the coxa of peraeopod 5, armature of uropods and more deeply cleft telson; from *austrina* it is further distinguished by the shape of coxa 1, and apparently by the well developed tuft of setae on 2nd joint of mandibular palp.

Family DEXAMINIDAE.

Stebbing, 1906, p. 514.

Genus Polycheria *Hasw.*

Stebbing, 1906, p. 519; Schellenberg, 1931, p. 212.

POLYCHERIA ANTARCTICA (*Stebb.*).

Occurrence.—Commonwealth Bay, Boat Harbour, 25 fathoms, 1 ex., 3·5 mm.

Remarks.—The specimen appears to agree more nearly with the Kerguelen specimen described by Stebbing than with the various other forms named by Schellenberg.

Distribution.—Antarctica and sub-antarctic regions.

FAMILY GAMMARIDAE.

Stebbing, 1906, p. 364.

CERADOCOIDES *n.g.*

Body slender. Head without rostrum. Sideplates becoming progressively more shallow, 4 not emarginate behind, 5 and 7 bilobed. Telson small with narrow triangular excision. Inner plates of maxilla 1 and 2 with numerous setae. Peraeopods 1–5 with basos not expanded. Uropod 1 extending well beyond uropod 2, as far as 3; rami subequal; uropod 2, rami unequal; outer ramus the shorter; uropod 3, rami narrowly lanceolate, subequal. *Type.—C. chiltoni* n.sp.

CERADOCOIDES CHILTONI *n.sp.*

(Fig. 63.)

Occurrence.—Commonwealth Bay, Station 4, 1 ♀, 32 mm.

Description.—Body smooth rounded, postero-inferior angle of the epimeron of pleon segment 3 not upwardly curved, pleon segments 4 and 5 with sharp pointed triangular carinae.

Head not deep, antero-lateral angle rounded quadrate; eye small reniform, brown in spirit specimen, very near to anterior margin of the head.

Antenna 1 very long, not very stout, joint 2 of peduncle longer than 1 and nearly six times the length of 3; flagellum about 60 joints; accessory flagellum well developed, 7-jointed. Antenna 2 more slender, peduncle longer than that of antenna 1, flagellum little longer than last joint of peduncle, 17-jointed.

The hand of gnathopod 2 is very like that of *Paraceradocus miersii* as figured by Barnard (1932, p. 216, fig. 133), the dactyl projecting considerably beyond the stout spine which defines the palm and with the whole inner border denticulate. Peraeopod 3 much shorter than 4 and 5 which are subequal.

Uropod 1, peduncle extending beyond end of peduncle of uropod 2, its ventral border armed with 2 stout spines, considerably longer than the styliform rami, outer ramus very slightly shorter than inner.

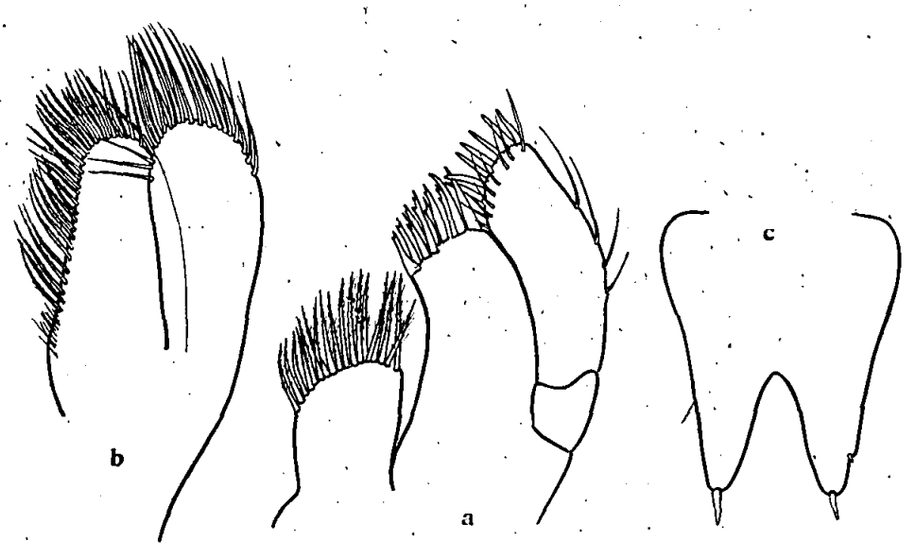

Figure 63. *Ceradocoides chiltoni* n.sp.—a, maxilla 1; b, maxilla 2; c, telson.

Uropod 2, peduncle extending back just as far as the peduncle of uropod 3, rami unequal, the outer shorter than inner by one third of its length. Uropod 3, peduncle shorter, rami more than three times its length, styliform or very narrowly lanceolate.

Telson small, tapering, with a triangular excision nearly half its length, each apex with a short stout spine, its greatest width about four-fifths its length.

Remarks.—Differs from the typical condition of *P. miersii* in proportions of antennae, in the narrow linear basos of peraeopod 3–5 and in the proportions of the uropods. In the latter it agrees quite closely with some species of *Maera* (e.g., *M. tenera*) but it has the condition of maxilla 1 and 2 characteristic of *Paraceradocus* and *Ceradocus*. The hand exhibits a remarkable likeness to that of *P. miersii*.

Family TALITRIDAE.

Stebbing, 1906, p. 523.

Genus Hyale *Rathke.*

Stebbing, 1906, p. 559.

Hyale hirtipalma (*Dana*).

(Fig. 64*a–c*.)

Stebbing, 1906, p. 564; Chilton, 1909, p. 643 (?); Schellenberg, 1926, p. 371, and 1931 p. 226.

Occurrence.—1. Macquarie Island (coll. by H. Hamilton), numerous ex.; ♂♂ extended reach 19 mm. (10–14 mm. in curved condition), ♀♀ about 12 mm., juv. 6 mm. Taken among "roots of kelp" and under stones at low tide.

2. Stomach of *Harpagifer bispinis* Forster (38 fathoms), fragments of 3 large specimens.

Distribution.—South Georgia; Pacific Coast of South America; New Zealand, and its Sub-antarctic Islands; Macquarie Island; South Africa; Kerguelen.

HYALE NOVAEZEALANDIAE (*G. M. Thomson*).

(Fig. 64*d–f.*)

Stebbing, 1906, p. 567.

Occurrence.—1. Macquarie Island, C.22, 5 mm.

2. ,, ,, C.41, 9 ♂♂, 5–10 mm.; 3 ♀♀, 6–8·5 mm.

3. Commonwealth Bay, 25 fathoms, ♂ 6 mm., ♀ 6 mm.

Remarks.—The larger specimens (2) agree quite well with the description of this species. The collector's note states that in life the colour was carmine. The measurement, in practically every case, was that of the rolled up animal. Those from Aerial Cove are much smaller—all immature—and doubtfully belong here.

The two specimens from Adelie Land agree fairly well with the Macquarie Island specimens, antennae, gnathopods of both ♂ and ♀, peraeopod 5, uropods and telson in specimens from the two localities being practically indistinguishable.

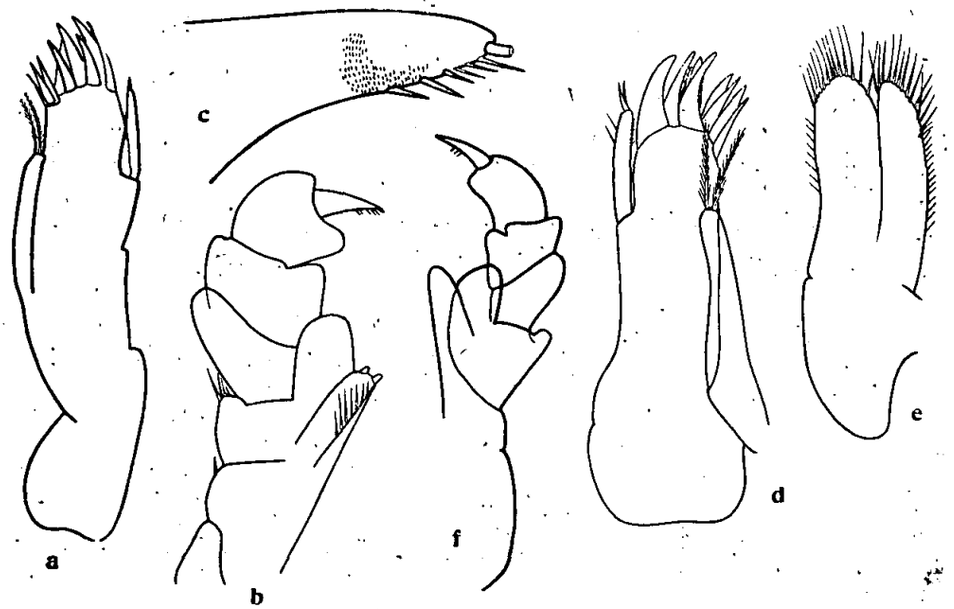

Figure 64. *Hyale hirtipalma* (Dana.)—a, maxilla 1; b, maxilliped; c, apex of palp of maxilliped more highly magnified. *Hyale novaezealandiae* G. M. Thoms.—d, maxilla 1; e, maxilla 2; f, maxilliped.

In the mouth parts certain differences were observed; the palp of maxilla 1 in the Adelie Land specimen is unusually long reaching to the middle of the outer apical spine; maxilla 2 shows the two plates equally long, the 4th joint of the palp of maxilliped is rather more slender (relatively longer) and its surface is without the rasp-like surface that is found in both *hirtipalma* and typical *novaezealandiae.*

Distribution.—New Zealand; The Snares; Macquarie Island.

Family AORIDAE.

Stebbing, 1906, p. 585.

? Aora *sp.*

Occurrence.—Commonwealth Bay, Station 2, 1 ♀ (ovig.), 6 mm.

Remarks.—A single very incomplete ♀ (with three large eggs in pouch) is placed here with some hesitation. Antennae and all but one of the peraeopods are missing but the body and gnathopods are strikingly like the figures given by Stebbing (1888, pl. 119, fig. *c*) for *A. typica* (*trichobostrychus*).

Family PHOTIDAE.

Stebbing, 1906, p. 603.

Genus Haplocheira *Haswell.*

Stebbing, 1906, p. 609.

Haplocheira barbimanus (*G. M. Thomson*).

(Fig. 65.)

Stebbing, 1888, p. 1172, pl. 126 (*plumosa*); 1906, p. 609, figs. 106, 107 and ? 1914, p. 370; Walker, 1907, p. 35; Chilton, 1912, p. 510; Schellenberg, 1926, p. 375 and 1931, p. 232; Barnard, 1930, p. 391 and 1932, p. 235.

Occurrence.—1. Commonwealth Bay, 1 juv., 2·5 mm.

2. ,, ,, 25 fathoms, many ex., 2–6 mm.

3. ,, ,, 3 fathoms, 3 ♀♀ (ovig.); 5–6 mm.

4. ,, ,, 45–50 fathoms, 9 ex., 4–6 mm.

5. ,, ,, 55–60 fathoms, 3 immat., 4 mm.

?6. Macquarie Island (siftings from kelp), 1 ♀, 6 mm.

Remarks.—The specimens are all more or less incomplete but sufficient for identification, being in fairly close agreement with Stebbing's (1888) account.

Antenna 1 shows the accessory flagellum 3-jointed as Walker has noted. Uropods 3 of the specimen dissected were remarkable for the fact that on the one side the rami were of almost equal size, while upon the other the characteristic condition was found (*i.e.*, with the inner ramus much reduced).

I am in agreement with Barnard in doubting the identity of the Antarctic species with the Australasian but the specimen (6) from Macquarie Island is too incomplete (antennae and all peraeopods being wanting) to furnish decisive evidence. The eye is round with about 12 ocelli whereas Stebbing describes it as oval with about 30 ocelli. In mouth parts, armature of uropod, telson, etc., it differs in numerous small details from the Antarctic species. Stebbing himself, after the examination of the Australian forms, came very definitely to the conclusion that the Antarctic *plumosa* was quite distinct (1888, pp. 1177–8) and, so far as I can discover, has nowhere offered any reason for the subsequent union (1906) of that species with *barbimanus*. Barnard refers the Falkland Islands specimens collected by the "Discovery" to a distinct species, *robusta*, to which he suggests the specimens recorded by Stebbing (1914) may also be referable.

Distribution.—Kerguelen; McMurdo Sound; South Orkneys; South Georgia; ? Falkland Islands.

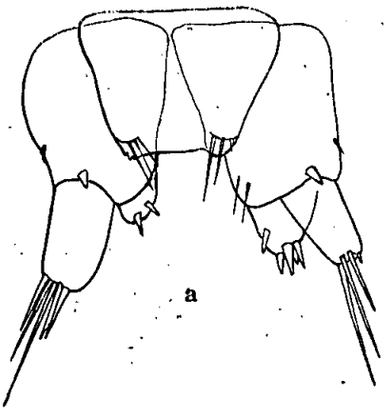

Figure 65. *Haplocheira barbimanus* (G. M. Thoms.)—a, uropods 3 and telson.

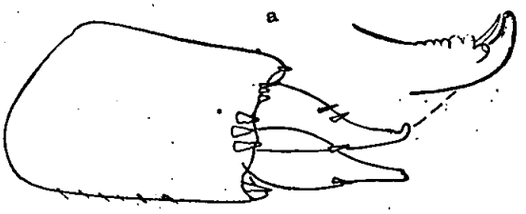

Figure 66. *Pseudischryocerus distichon* (Brnrd.)—a, uropod 3.

Family JASSIDAE.

Stebbing, 1906, p. 647.

Genus Jassa *Leach.*

Stebbing, 1906, p. 652; Sexton, 1911, pp. 212–3; Schellenberg, 1931, pp. 248–50; Barnard, 1932, p. 241.

Jassa falcata (*Mont.*).

Schellenberg, 1931, p. 250, fig. 130; Barnard, 1932, p. 241 (ref.).

Occurrence.—1. Macquarie Island, C.22 } Numerous specimens ♂♂ to
2. ,, ,, C.26 } 6 mm. (strongly flexed)
3. ,, ,, C.37 } 9 mm., extended.
4. ,, ,, S.E. Harbour } ♀♀ ovig., 3–9 mm.

5. Numerous fragments from stomach of *Notothenia macrocephala* Günther (No. 71).
6. Fragments from stomach of *Zanclorhynchus spinifer* Günther.

Remarks.—The specimens appear to be referable to this multiform species although the range of variation within the collection appears to be even greater than has already been recorded. Among the few fragmentary specimens (5), upon which antennae still remained attached, the proportions of the peduncular joints appeared to differ from the account given by Stebbing, 1906, p. 654 (*pulchella*) and the propod of gnathopod 2 in some males, reached a length of almost 4 mm., suggesting that the complete specimen had a total length considerably greater than that recorded for *falcata;* the finger, too, was very strongly curved.

In the material collected from rocks and seaweed, at the several localities in Macquarie Island the 2nd gnathopod of the male is extremely variable.

For the most part the specimens seem to have been taken " in burrows " among the roots of kelp, or crawling free under rocks below low tide mark, but in one case (C.22) the actual nests, attached to submerged seaweed were collected. The nests appear as irregular felt-like masses containing embedded fronds of seaweed.

The collector's note reads: " Animals inhabit a tube, coming out and dying quickly on exposure to air. Colour: Red-brown."

Distribution.—Almost cosmopolitan.

JASSA GONIAMERA *Walker.*

Walker, 1903, p. 61, figs. 98–106 and 1907, p. 38 (*Hemijassa g.*); Schellenberg, 1931, p. 253.

Occurrence.—1. Commonwealth Bay, 55–60 fathoms, 1 ♂, 15 mm.

2. „ „ Station 7, 1 ♂, 10 mm.

Remarks.—Barnard (1932), apparently considers this as identical with Pfeffer's *ingens*, and also Chevreux's *wandeli*. Schellenberg, however, maintains the three species as distinct, and records Walker's species from Graham Land. Barnard has very justly pointed out, in another connection, that Pfeffer's figures are remarkable for their accuracy; the two specimens in the " Aurora " collection agree in essential details (e.g. antennae quite exactly with Walker's account, but not with Pfeffer's figures.

Distribution.—South Victoria Land; " Gauss " Winter Station; Graham Land.

Genus PSEUDISCHRYOCERUS *Schell.*

Schellenberg, 1931, p. 254.

PSEUDISCHRYOCERUS DISTICHON (*Barnard*).

(Fig. 66.)

Barnard, 1930, p. 391, fig. 50, and 1932, p. 227, fig. 141 (*Eurystheus d.*); Schellenberg, 1931, p. 255, fig. 133.

Occurrence.—1. Commonwealth Bay, Boat Harbour, 25 fathoms, 2 ♂♂, 4 mm. and 7 mm.

2. ,, ,, ,, ,, 55–60 fathoms, ♂ 7 mm., ♀ 8 mm. (ovig.), 2 immat. 5 mm. and 6 mm.

Remarks.—In general these agree very closely with the descriptions of Barnard and Schellenberg, the armature and the proportions of rami to peduncle of uropod 3 differing slightly from those of Barnard's and Schellenberg's figures. The slightly uncinate condition of the rami of the uropod 3 and the reverted 3rd peraeopod apparently warrant Schellenberg's transference of this species to the Jassidae.

Distribution.—South Victoria Land; South Georgia; Cape Adare ?

Family PODOCERIDAE.

Stebbing, 1906, p. 694.

Genus Podocerus *Leach.*

Stebbing, 1906, p. 700.

Podocerus capillimanus *n.sp.*

(Fig. 67.)

Occurrence.—1. Macquarie Island, C.31, 2 ♂♂, 7–8 mm.; 2 immature ♂♂, 5 mm.; 3 ♀♀ (ovig.), 5–6 mm.; 5 ♀♀, 3–4 mm.

2. ,, ,, C.47, 5 ♂♂, 5–6 mm., 2 ♀♀ (ovig.), 5 mm.

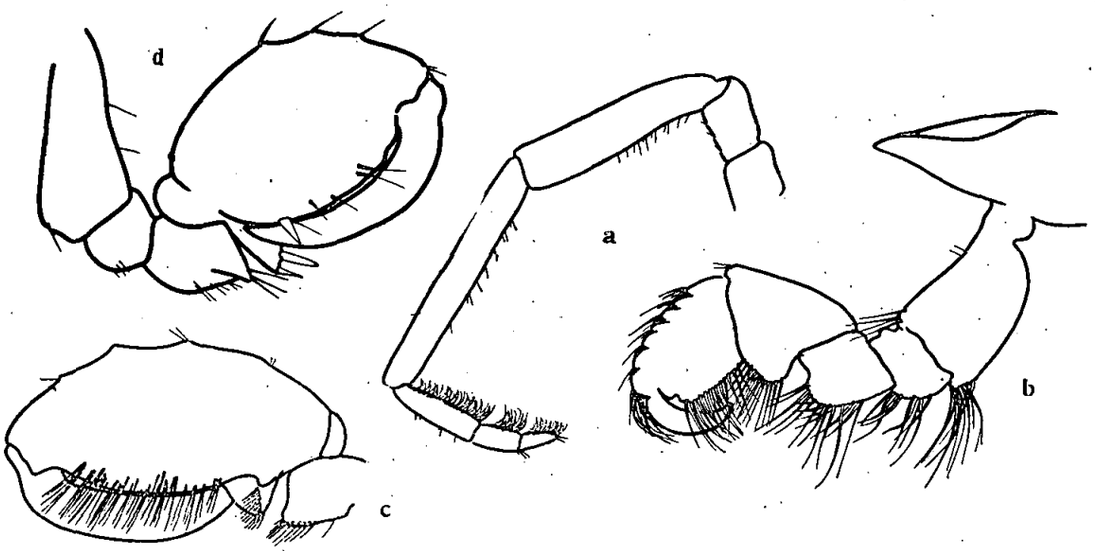

Figure 67. *Podocerus capillimanus* n.sp.—a, antenna 2, ♂; b, gnathopod 1, ♂; c, gnathopod 2, ♂; d, gnathopod 2, ♀.

Description.—Body smooth. Antenna 2 in ♀ only slightly shorter than in ♂, ultimate joint of peduncle scarcely longer than penultimate and little longer than flagellum which is divided distinctly into 3 joints, in both ♂ and ♀, and is closely set along the whole length of its lower border with short curved setae.

Gnathopod 1 with 6th joint subequal to 5th, and in the inner aspect of propod being densely setose, its anterior border bears a series of spine-like setae. Gnathopod 2 in ♂, 4th joint not produced into apical tooth, 5th joint very small but distinct, 6th, palm sinuous, defined by a rounded notch into which fits the apex of the long finger; mesially this depression is shielded by a broadly expanded lobe whose distal edge is fringed with spines. The whole inner aspect and the ventral border of the propod is clothed in adult ♂ with a dense brush of long flexible setae. The anterior border of the propod lacks definite notches and is armed only with two or three ranks of setae.

Gnathopod 2 in ♀ has the 4th joint slightly produced apically, has propod more broadly oval than in ♂, palm convex, defined by a notch and lobe as in ♂.

In other respects this species agrees closely with the account given by Stebbing (1906, pp. 704–5) for *P. laevis*. The condition of antennae and gnathopoda requires, I think, the erection of a distinct species for this Macquarie Island form.

The Collector's note states that these (47) were obtained "from spongy rock coverings."

LIST OF SPECIES OF AMPHIPODA COLLECTED AT THE SEVERAL LOCALITIES AND STATIONS.

A.—Antarctica.

I. *King George V Land* (*Main Base*), *Boat Harbour*, *S.* 67°, *E.* 142° 36′.

28th May to 1st June, 1912, 3½–5 fathoms.

Cheirimedon femoratus (Pfr.);
Heterophoxus videns Barnard;
Seba antarctica Wlkr.;
Liljeborgia georgiana Schell.;
Schraderia gracilis Pfr.;
Paramoera walkeri (Stebb.).

3rd and 4th September, 1912, 25 fathoms.

Paralysianopsis odhneri Schell.;
Pachychelium antarcticum Schell.
Aristias antarcticus Wlkr.;
Cheirimedon femoratus (Pfr.);
Tryphosa adarei Wlkr.;
Tryphosa murrayi Wlkr.;
Orchomenella cavimanus Stebb.;
Orchomenella franklini Wlkr.;
Heterophoxus videns Barnard;
Seba antarctica Wlkr.;
Leucothoë spinicarpa (Abild.);
Metopoides heterostylis Schell.;
Pseudothaumatelson cyproides n.sp.;
Panoploea joubini Chevr., var. *bidentata* n.var.
Gnathiphimedia sexdentata (Schell.);
Echiniphimedia echinata (Wlkr.);
Liljeborgia consanguinea Stebb.;
Oradarea walkeri Shoem.;
Atyloella magellanica (Stebb.);
Schraderia gracilis Pfr.;
Polycheria antarctica (Stebb.);
Hyale novaezealandiae (G. M. Thoms.);
Haplocheira barbimanus (G. M. Thoms.);
Pseudischyocerus distichon (Barnard).

14th September, 1912. Surface forms.

Cheirimedon fougneri Wlkr.

14th December, 1913. 45–50 fathoms.

Tryphosa murrayi Wlkr.;
Andaniotes linearis Barnard;
Seba antarctica Wlkr.;
Echiniphimedia hodgsoni (Wlkr.);
Liljeborgia consanguinea Stebb.;
Oradarea walkeri Shoem.;
Atylopsis megalops n.sp.;
Haplocheira barbimanus (G. M. Thoms.).

21st December, 1913. 50–60 fathoms.

Leucothöe spinicarpa (Abild.);
Echiniphimedia hodgsoni (Wlkr.);
Haplocheira barbimanus (G. M. Thoms.);
Jassa goniamera Wlkr.;
Pseudischyocerus distichon (Barnard).

1913, 3 fathoms.

Cheirimedon femoratus (Pfr.);
Tryphosa adarei Wlkr.
Tryphosa murrayi Wlkr.;
Heterophoxus videns Barnard;
Methalimedon nordenskjoldi Schell.;
Liljeborgia georgiana Schell.;
Oradarea walkeri Shoem.;
Eusirus antarcticus G. M. Thoms.;
Schraderia gracilis Pfr.;
Paramoera walkeri (Stebb.);
Haplocheira barbimanus (G. M. Thoms.).

II. *Commonwealth Bay.*

Station 1, 22nd December, 1913, 350–400 fathoms.

Pachychelium antarcticum Schell.
Ambasiopsis tumicornis n.sp.;
Uristes gigas Dana;
Tryphosa murrayi Wlkr.;
Parandaniexis mixtus n.g., n.sp.;
Iphimediella margueritei Chevr., var. *acuta* n. var.;
Pariphimediella microdentata (Schell.);
Gnathiphimedia mandibularis Barnard;
Gnathiphimedia sexdentata (Schell.);

Echiniphimedia echinata (Wlkr.);
Echiniphimedia hodgsoni (Wlkr.);
Epimeria macrodonta Wlkr.;
Eusirus perdentatus Chevr.

Station 2, 28th December, 1913, 288–300 fathoms.

Waldeckia obesa (Chevr.);
Uristes gigas Dana;
Tryphosella georgiana Schell.;
Tryphosa kergueleni (Miers);
Tryphosa adarei Wlkr.;
Tryphosa murrayi Wlkr.;
Lepidepecreella emarginata n.sp.;
Andaniotes ingens Chevr.;
Ampelisca macrocephala Lilj.;
Ampelisca barnardi n.sp.;
Leucothoe spinicarpa (Abild.);
Proboloides dentimanus n.sp.;
Oediceroides calmani Wlkr.;
Panoploea joubini Chevr., var. *bidentata* n.var.
Iphimediella margueritei Chevr.;
Iphimediella margueritei Chevr., var. *acuta* n.var.;
Pariphimediella octodentata n.sp.;
Gnathiphimedia sexdentata (Schell.);
Gnathiphimedia macrops Barnard;
Echiniphimedia echinata (Wlkr.);
Echiniphimedia hodgsoni (Wlkr.);
Epimeria macrodonta Wlkr.;
Pseudepimeria grandirostris Chevr.;
Lepechinella drygalskii Schell.;
Eusirus perdentatus Chevr.;
Atyloella magellanica (Stebb.).

Station 3, 31st December, 1913, 157 fathoms.

Tryphosa murrayi Wlkr.;
Orchomenella cavimanus (Stebb.);
Oediceroides calmani Wlkr.

Station 4, 2nd January, 1914, 230 fathoms.

Adeliella laticornis n.g., n.sp.;
Ceradocoides chiltoni n.g., n.sp.

Station 6, 14th January, 1914, 870 fathoms.

Pontogeneoides abyssi n.g., n.sp.

Station 7, 21st January, 1914, 60 fathoms.

Aristias antarcticus Wlkr.;
Ambasiopsis tumicornis n.sp.;
Orchomenella cavimana (Stebb.);
Leucothoe spinicarpa (Abild.);
Acanthonotozomella oatesi Barnard;
Panoploea joubini Chevr., var. *bidentata* n.var.;
Gnathiphimedia sexdentata (Schell.);
Echiniphimedia echinata (Wlkr.);
Echiniphimedia hodgsoni (Wlkr.);
Oradarea walkeri Shoem.;
Oradarea tricarinata Barnard;
Epimeria inermis Wlkr.;
Eusirus perdentatus Chevr.;
Schraderia gracilis Pfr.;
Jassa goniamera Wlkr.

III. *Davis Sea.*

Station 8, 27th January, 1914, 120 fathoms.

Orchomenella macronyx Chevr.;
Oediceroides calmani Wlkr.;
Panoploea joubini Chevr., var. *bidentata* n.var.;
Parapanoploea oxygnathia n.g., n.sp.;
Iphimediella margueritei Chevr., var. *acuta* n.var.;
Iphimediella bransfieldi Barnard;
Pariphimediella microdentata (Schell.);
Gnathiphimedia sexdentata (Schell.);
Epimeria macrodonta Wlkr.;
Epimeriella walkeri Barnard;
Eusirus antarcticus Wlkr.;
Rhacotropis hunteri n.sp.

Station 9, 28th January, 1914, 240 fathoms.

Adeliella laticornis n.g., n.sp.;
Waldeckia obesa (Chevr.);
Aristias antarcticus Wlkr.;
Ambasiopsis tumicornis n.sp.;
Oediceroides similis n.sp.

Station 10, 29th January, 1914, 325-fathoms.

Oediceroides emarginatus n.sp.;
Echiniphimedia hodgsoni (Wlkr.);
From stomach of *Austrolycicthys brachycephalus* (Pappenheim)—
Orchomenella abyssorum (Stebb.); and
Pseudorchomene coatsi (Chilton).

Station 11, 31st January, 1914, 358 fathoms.

Uristes gigas Dana;
Tryphosa adarei Wlkr.;
Tryphosa murrayi Wlkr.

Station 12, 31st January, 1914, 110 fathoms.

Waldeckia obesa (Chevr.);
Uristes gigas Dana;
Ampelisca barnardi n.sp.;
Oediceroides calmani Wlkr.;
Echiniphimedia hodgsoni (Wlkr.);
Eusirus antarcticus G. M. Thoms.

IV. *Queen Mary Land, Shackleton Glacier (Western Base), S.* 66° 18′, *E.* 54° 58′.

Cheirimedon fougneri Wlkr.;

From fish traps, 270 fathoms.

Tryphosa murrayi Wlkr.;
Orchomenella abyssorum (Stebb.);
Orchomenella rossi (Wlkr.);
Pseudorchomene coatsi (Chilton);
And from stomach of *Lycodichthys antarcticus* Pappenheim—
Tryphosa kergueleni (Miers);
Tryphosa murrayi Wlkr.;
Orchomenella rossi (Wlkr.).

From traps, 4 fathoms.

Orchomenella rossi (Wlkr.).

Antarctic material, locality uncertain.

(*a*) In a tube, which included a label of Dr. Chilton's " Recd. 3-1-21 Commonwealth Bay " were :—

Haplocheira barbimanus (G. M. Thoms.), (3 ex.);
? *Proboloides* sp. (1 ex.); and
Paramoera walkeri (Stebb.), (1 ex.).

These were badly shrivelled and almost unidentifiable.

(*b*) One jar contained a number of small tubes, numbered with Roman numerals scratched upon the glass. It was almost certainly the preliminary sorting of a tube of mixed species and doubtless a locality record was made at the time. No written labels were found in the tubes and if a locality label had been provided with the jar it had unfortunately gone astray.

The contents of this jar came under observation only after Dr. Chilton's greatly regretted death, and it was thus impossible to rectify the matter. These specimens are recorded as (loc. ?) but as practically all concerning which there exists this uncertainty, are definitely known by other examples from "Boat Harbour," Commonwealth Bay, Antarctica, I have little doubt that these unlabelled specimens are from that collecting ground.

They include :—

Orchomenella nodimanus Stebb.;
Seba antarctica Wlkr.;
Panoploea joubini Chevr., var. *bidentata* n.var.;
Oradarea walkeri Shoem.;
Paramoera walkeri (Stebb.);
Jassa goniamera Wlkr.

B. Macquarie Island.

The collector's notes are given in ( ).

(C.13) Garden Bay, 4th July, 1912 ("under stones, at low water").
Paramoera schellenbergi n.sp.;
Hyale hirtipalma (Dana).

(C.37) Garden Bay, 17th November, 1912 ("from rocks, below low water").
Pontogeneia chosroides n.sp.;
Pontogeneia chosroides n.sp., var. *denticulata* n.var.;
Pontogeniella brevicornis (Chevr.);
Jassa falcata (Mont.);
Podocerus capillimanus n.sp.

(C.50) Garden Bay, December, 1912 ("from rocks, below low water").
Paramoera sp.;
Hyale hirtipalma (Dana).

(C.22) Aerial Cove, 24th August, 1912 ("from seaweed attached to rocks and hanging into the water").
Hyale novaezealandiae (G. M. Thoms.);
Jassa falcata (Mont.).

(C.26) North End, 3rd September, 1912 (" entangled in roots of kelp. Washed up after storm ").

Metopoides aurorae n.sp.;
Paramoera hamiltoni n.sp.;
Jassa falcata (Mont.).

(C.31) North End, 2nd November, 1912 (" on sandy beach, left by tide ").
Paramoera macquariae n.sp.

(C.39–41) North End, 28th November, 1912 (" left by tide, on sandy beach ").
Pseudorchomene coatsi (Chilton);
Hyale novaezealandiae (G. M. Thoms.);
Jassa falcata (Mont.).

(C.42) (" From scrapings of rock, below low water ").
Acontiostoma marionis Stebb.

North End, August, 1913 (" low tide ").
Acontiostoma marionis Stebb.
Pontogeneia chosroides n.sp.;
Paramoera hamiltoni n.sp.

North End (stomach of *Zanclorhynchus spinifer* Gunther).
Jassa falcata (Mont.).

North End, 1913 (" low tide ").
Paramoera hamiltoni n.sp.

? Lusitania Bay, 11th June, 1912 (cf. Waite, 1916, p. 68) (" fish traps, 67 fathoms ").
Acontiostoma marionis Stebb.;
Lysianassa anomala n.sp.;
Pseudorchomene coatsi (Chilton).

Stomach of *Notothenia macrocephala* Gunther caught in this trap yielded :
Lysianassa anomala n.sp.;
? *Paramoera hamiltoni* n.sp.;
Jassa falcata (Mont.).

(C.47) North End, 2nd January, 1913 (" from spongy rock coverings ").
Acontiostoma marionis Stebb.;
Colomastix simplicicauda n.sp.;
Pontogeneia chosroides n.sp.;
Pontogeneia chosroides n.sp. var. *denticulata* n.var.;
Pontogeniella brevicornis (Chevr.);
Podocerus capillimanus n.sp.;

(C.44) Hasselbrough Bay, 4th December, 1912 (" dredged from 11 fathoms ").

Paramoera sp..

South-East Harbour (" from roots of kelp ").

Various immature forms, *Hyale*, *Jassa*.

Macquarie Island (" siftings from kelp ").

Heterocressa monodi n.g., n.sp.;
Hyale sp., juv.;
Jassa sp., juv.

Macquarie Island shore (label in Dr. Chilton's writing).

Cylindryllioides mawsoni n.g., n.sp.;
Pontogeneia chosroides n.sp.;
Paramoera sp.; *Jassa* sp.

Macquarie Island shore (fish trap, 12 fathoms).

Pseudorchomene coatsi (Chilton).

Macquarie Island shore (fish trap, 5 fathoms).

Pseudorchomene coatsi (Chilton).

Macquarie Island shore, stomach of *Harpagifer bispinis* Forster.

Hyale hirtipalma (Dana).

No locality label, but probably Macquarie Island; label, " Bottle with clams, Mawson's expedition."

Metopella ovata (Stebb.);
Metopoides aurorae n.sp.;
Cylindryllioides mawsoni n.g., n.sp.;
Heterocressa monodi n.g., n.sp.;
Schraderia serraticauda (Stebb.);
? *Hyale hirtipalma* (Dana), immature.

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(Synonyms are indicated by italics.)

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