TWO NEW SPECIES OF *Orchomene* Boeck (CRUSTACEA : AMPHIPODA) FROM THE FALKLAND ISLANDS, SOUTH GEORGIA AND GRAHAM LAND

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ABSTRACT. Two new species of *Orchomene* are described. *O. schellenbergi* sp. nov. is based on specimens assigned to *O. macronyx* (Chevreux) from the Falkland Islands, South Georgia and Graham Land collected by the Discovery Committee and the Swedish South Polar Expedition; *O. tabarini* sp. nov. is based on material from Graham Land collected by Operation Tabarin. *O. macronyx* is re-described from adult material in the Discovery Committee collections and compared with the two new species.

SINCE 1944, when two stations were established at Port Lockroy (lat. 64°50′S., long. 63°31′W.) and Deception Island (lat. 62°59′S., long. 60°34′W.) in what was first "Operation Tabarin" and then the Falkland Islands Dependencies Survey (F.I.D.S.), there has been continuous occupation by British personnel of a number of stations on the Antarctic Peninsula and islands of the Scotia arc. From 1944 until 1960 work was concentrated on meteorology, survey and geology, but biological collections were made when time and opportunity permitted. Much of the marine material collected was deposited at the British Museum (Nat. Hist.) in 1961 by Dr. M. W. Holdgate. The results of an examination of over 100 samples of amphipods from this collection, of which this paper forms a small part, are in preparation and will be published later.

The discovery of a new species of *Orchomene* in the "Operation Tabarin"–F.I.D.S. collection prompted comparison with material from the *Discovery* Collections assigned to *Orchomene macronyx* (Chevreux) by Barnard (1932). The *Discovery* specimens were found to represent two distinct forms. One form was clearly identifiable with *O. macronyx*, but the other was not referable either to any previously described form, or to the "Operation Tabarin"–F.I.D.S. specimen, thus necessitating the erection of two new species. A re-description of *O. macronyx* based on adult material from the *Discovery* collections is given to facilitate comparison between these three closely related species.

Orchomene macronyx (Chevreux)

Figs. 1 and 2

Orchomenella macronyx Chevreux, 1905, p. 161–63, fig. 2; Chevreux, 1906, p. 8–13, figs. 5–7; Barnard, 1932, p. 70–71 (part, not fig. 29); Nicholls, 1938, p. 37–38, fig. 18; not Chilton, 1912, p. 470 (= *Orchomene* sp. juv.); not Schellenberg, 1931, p. 43–45, fig. 22.

Material examined

Syntypes. French Antarctic Expedition. Port Charcot, Booth Island, Antarctic Peninsula. 15 March 1904. Dredge, 40 m.; two juveniles.

Other material. Discovery sta. 45. Jason Light, South Georgia, bearing 275° true, 2·7 miles (4·4 km.). 6 April 1926. N4-T (net with 4 mm. mesh attached to back of trawl), 238–270 m.; nine specimens. Sta. 123. Off mouth of Cumberland Bay, South Georgia. 15 December 1926. OTL (large otter trawl), 230–250 m.; 30 specimens. Sta. 149. Mouth of East Cumberland Bay, South Georgia, 10 January 1927. OTL, 200–234 m.; 1♂ 12♀♀.

Diagnosis. Orchomenid with epistome not produced in front of upper lip. Eyes present. Eye lobes rounded. Epimera 3 rounded, smooth posteriorly. Urosome segment 1 with rounded boss, not overlapping following segment. Mandibular palp, article 3 longer than article 1. Gnathopod 1, carpus shorter than propod, posterior lobe narrow; propod stout lacking nodule

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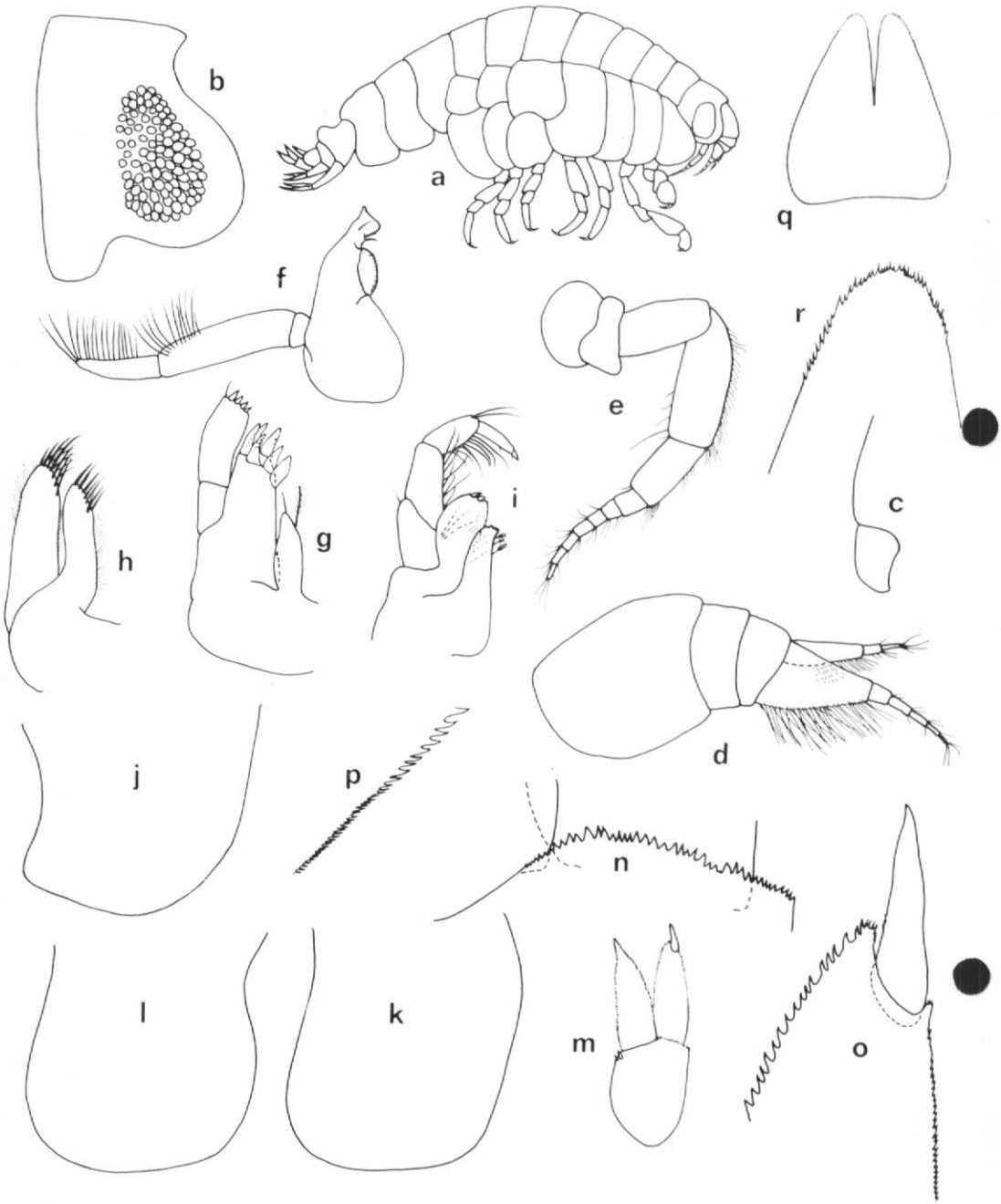

Fig. 1. *Orchomene macronyx* (Chevreux), female, 9 mm.; *Discovery* sta. 45. a, habitus; b, head; c, epistome and upper lip; d and e, antenna 1 and 2; f, mandible; g and h, maxilla 1 and 2; i, maxilliped; j–l, epimera 1–3; m, uropod 3; n, uropod 3, distal serration of peduncle; o, uropod 3, apex of outer ramus; p, uropod 3, serration of outer margin of inner ramus; q, telson; t, telson apical serration.

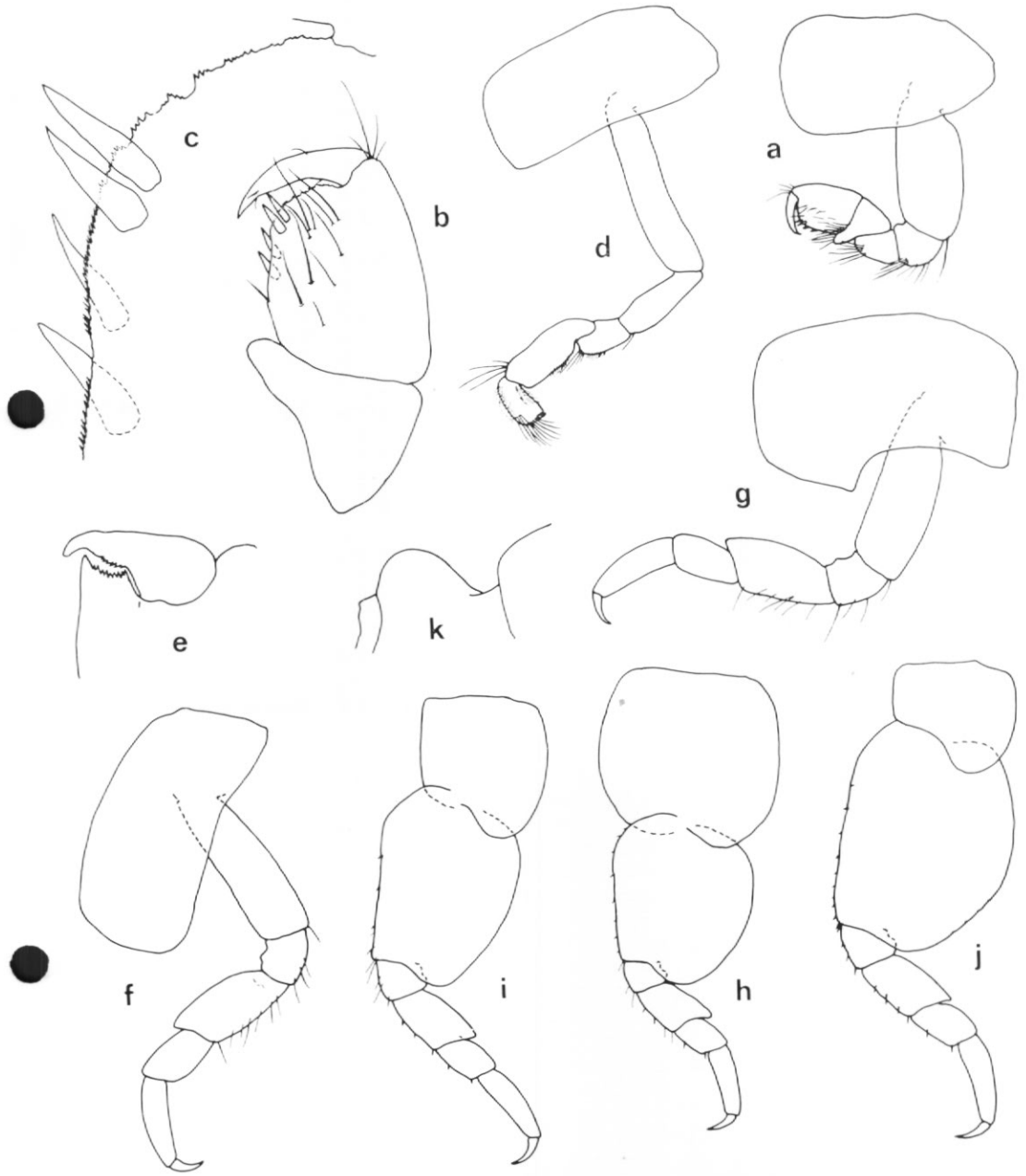

Fig. 2. *Orchomene macronyx* (Chevreux), female, 9 mm.; *Discovery* sta. 45. a, gnathopod 1; b, gnathopod 1, articles 5–7; c, gnathopod 1, detail of palm; d, gnathopod 2; e, gnathopod 2, detail of palm; f–j, peraeopods 3–7; k, boss on urosome segment 1.

on posterior margin, palmar angle rounded, defined by two stout spines. Gnathopod 2, chelate, widths of carpus and propod subequal. Peraeopod 5, coxa, anterior and posterior distal lobes subequal; basal not grossly expanded. Uropod 3, rami pectinate. Telson cleft 50 per cent, lobes unarmed.

Description. A medium-sized species, the largest specimen in the *Discovery* material being 13 mm. long. Colour in spirit a very pale cream; integument firm. Head longer than peraeon segment 1. Epistome straight, separated from upper lip by a shallow sinus. Eye lobes evenly rounded, just shorter than first article of antenna 1. Eyes large, oval, wider below than above consisting of about 90 loosely packed ommatidia, a pale straw colour in preservative. Epimera, first sub-quadrate anteriorly, rounded posteriorly, second and third rounded. Urosome boss broadly rounded.

Antenna 1 short and very stout; peduncle article 1 with length less than one-third greater than height, articles 2 and 3 sub-equal, together half as long as article 1; flagellum with five articles, first stout and longer than 2–5 combined; accessory flagellum of three articles, the first long and the others short. Antenna 2 sub-equal to first, peduncle article 4 the longest, setose anteriorly; flagellum of seven articles. Upper lip rounded, entire. Mandible, incisor process with cutting edge smooth, limited by small tooth at one end; lacinia mobilis spiniform, on left mandible only; spine row with two spines; molar triturative; palp attached proximal to molar, article 3 slightly curved, more slender than, and 60 per cent the length of article 2. Lower lip normal. Maxilla 1, inner plate with one apical and one sub-apical seta; outer plate with six stout spine teeth; palp article 2 rather narrow, the transversely truncate apex with four spine teeth and a seta. Maxilla 2, apices of both plates obliquely truncate and armed with spines. Maxilliped, outer plate with two stout apical spine teeth, and about ten nodular teeth on inner margin, reaches middle of palp article 2; article 4 of palp well developed, slender.

Gnathopod 1, coxa broad, a little expanded, distally transversely truncate; basal stout shorter than articles 3–6 combined; propod stout, tapering distally, with two stout spines on pectinate posterior margin; palm oblique, convex, irregularly serrate; dactyl overlaps palm by 60 per cent of palmar length. Gnathopod 2 chelate, coxa sub-rectangular; propod 50 per cent length of carpus, distal projection apically concave, serrate; dactyl short, hooked, serrate where it impinges on the apex of the propodal projection. Peraeopod 3, coxa sub-rectangular; ischium and merus with three and seven setae respectively on posterior margins. Peraeopod 4, coxa emarginate posteriorly, apex of posterior-distal lobe sub-acute; ischium and merus as in peraeopod 3. Peraeopod 5, coxa sub-circular, posterior lobe shallow, hardly more prominent than anterior lobe; depths of coxa and basal sub-equal; basal anterior margin with several small spines; ischium and merus sparsely setose on anterior margins; carpus with two spines on anterior margin. Peraeopod 6, armature as peraeopod 5. Peraeopod 7, coxa with concave distal margin and prominent posterior lobe; basal, length less than articles 3–6 combined, posterior margin slightly sinuous; articles 2–5 anteriorly sparsely spinose.

Uropod 1 extends half-way along rami of uropod 3; peduncle just longer than outer ramus; margins of peduncle and rami pectinate. Uropod 2 extends as far as uropod 1, peduncle and outer ramus sub-equal; margins of peduncle and rami pectinate. Uropod 3, short, stout; peduncle half as long again as wide, two small spines at the internal distal corner, outer half of distal margin pectinate; rami lanceolate, inner sub-equal in length to peduncle, outer slightly longer; all ramal margins pectinate. Telson, one-seventh longer than wide, cleft 50 per cent, lobes tapering, apices pectinate, sub-acute.

Remarks. O. macronyx is immediately distinguished from all other species in the genus by a combination of the form of the propod of gnathopod 1, the pectinate, asetose rami of the uropods, and the unarmed telson. The propod of gnathopod 1 is very short and stout, the length being only 1·4 times the width as compared with a ratio of 2 : 1 or more which is usual in the genus. The armature of the palm of gnathopod 1 is unique in so far as this character has been described. Only *O. rossi* (Walker) with small rounded teeth, and *O. zschaui* (Pfeffer) with regular acute serrations of the 20 or so species represented in the British Museum (Nat. Hist.) collections, have been found to be so armed. However, the first gnathopods of both

these species have short transverse palms with well-defined palmar angles, contrasting with *O. macronyx* in which the palm is convex and oblique, and palmar angle rounded.

The two juvenile specimens assigned to this species by Chilton (1912) have been examined. They do not belong to any of the species described herein, nor apparently do they belong to any of the species listed as occurring in the South Orkney Islands (Thurston, 1972, Appendix A, from which *O. macronyx* should be deleted). The Australasian Antarctic Expedition material (Nicholls, 1938) is not available for examination. The illustration of Barnard (1932, fig. 29c), with which Nicholls contrasted his specimens, does not represent *O. macronyx* but the related species described herein. The figures given by Schellenberg (1931) also refer to this new species, accounting for the different form of the telson noted by Nicholls. The terminal spines on the telson shown by Chevreux (1906) are not present on the two specimens from Booth Island examined by the author, nor are they to be found on any of the *Discovery* material of *O. macronyx*. It seems probable, therefore, that Nicholls's material belongs to this species.

Orchomene schellenbergi sp. nov.

Figs. 3 and 4

Orchomenella macronyx Schellenberg, 1931, p. 43–45, fig. 22; Barnard, 1932, p. 70–71 (part), fig. 29.

Material examined

Holotype. Discovery sta. 45. Jason Light, South Georgia bearing 275° true, 2·7 miles (4·4 km.). 6 April 1926. N4-T, 238–270 m.; 11 mm. ♀.

Paratypes. Discovery sta. 39. East Cumberland Bay, South Georgia. 25 March 1926. OTL, 179–235 m.; 1 ♂, 6 ovig. ♀♀, 2 ♀♀, 14 juveniles. Sta. 42. Off mouth of Cumberland Bay, South Georgia. 1 April 1926. OTL, 120–204 m.; 1 ovig. ♀, 1 ♀, 1 juvenile. Sta. 45 (see above). 4 ♂♂, 10 ovig. ♀♀, 11 ♀♀, 18 juveniles. Sta. 123. Off mouth of Cumberland Bay, South Georgia. 15 December 1926. N4–T, 230–250 m.; 1 ♂, 2 ovig. ♀♀, 5 ♀♀. Sta. MS68. East Cumberland Bay, South Georgia. 2 March 1926. NCS (16 mesh/inch net attached to other nets), 220–247 m.; 2 ♂♂, 1 ovig. ♀, 2 ♀♀, 1 juvenile. Swedish South Polar Expedition sta. 6. lat. 64°36′S., long. 57° 42′W., south-west of Snow Hill Island, Antarctic Peninsula. 20 January 1902. 125 m., gravel and stones; 1 ♂. Sta. 20. Antarctic Bay, South Georgia. 6 May 1902. 250 m., small stones; 2 ♀♀. Sta. 33. Grytviken, South Georgia. 30 May 1902. 22 m., clay with stones; 1 ♀. Sta. 34. Off mouth of Cumberland Bay, South Georgia. 5 June 1902. 252–310 m., clay with stones; 1 juvenile. Sta. 46. Port Louis, Falkland Islands. 9 August 1902. 1 m., sand and *Codium*; 2 ovig. ♀♀.

The holotype (dissected specimen in alcohol and five microscope slides) and paratypes from *Discovery* stations are in the collections of the British Museum (Nat. Hist.) under the following numbers: holotype, 1971: 248:1; paratypes from sta. 45, 1971:249:42; and paratypes from sta. 39, 42, 123 and MS 68, 1971:250:57. The remaining paratypes, collected by the Swedish South Polar Expedition, are in the collections of the Naturhistoriska Riksmuseets, Stockholm, under the catalogue numbers 3100, 3153, 3790, 3791, 3792.

Diagnosis. Orchomenid with epistome gently rounded, protruding a little in front of upper lip. Eyes large. Eye lobes broadly but irregularly rounded. Epimera 3 obtuse posteriorly, minutely crenelate. Urosome segment 1 with rounded boss not overhanging segment 2. Mandibular palp article 3 longer than article 1. Gnathopod 1 carpus shorter than propod, posterior lobe narrow; propod stout, lacking nodule on posterior margin, palmar angle well defined. Gnathopod 2 chelate, carpus and propod subequal in width. Peraeopod 5, posterior lobe of coxa stronger than anterior, not very prominent; basal not grossly expanded. Uropod rami pectinate. Telson cleft 50 per cent.

Description. A medium-sized species (up to 14 mm.); a very pale cream colour in spirit; integument firm. Head just longer than first peraeon segment. Eye lobes just shorter than first article of antenna 1. Eyes large, oval, wider below than above with about 140 ommatidia; a

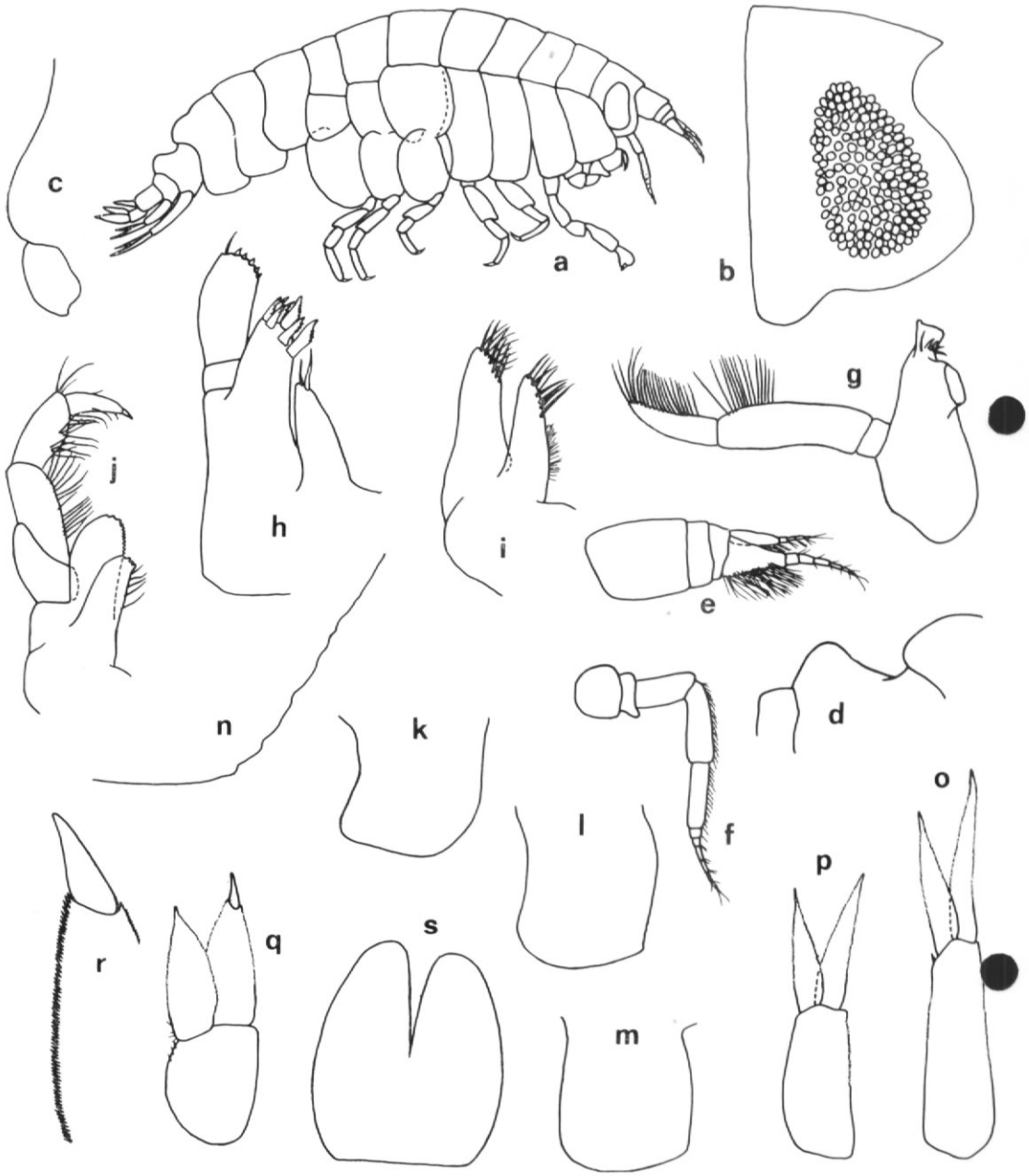

Fig. 3. *Orchomene schellenbergi* sp. nov., female, 11 mm.; *Discovery* sta. 45. a, habitus; b, head; c, epistome and upper lip; d, boss on urosome segment 1; e and f, antenna 1 and 2; g, mandible; h and i, maxilla 1 and 2; j, maxilliped; k–m, epimera 1–3, n, epimera 3, detail of posterior-distal angle; o–q, uropods 1–3; r, uropod 3, serrations of inner margin of outer ramus; s, telson.

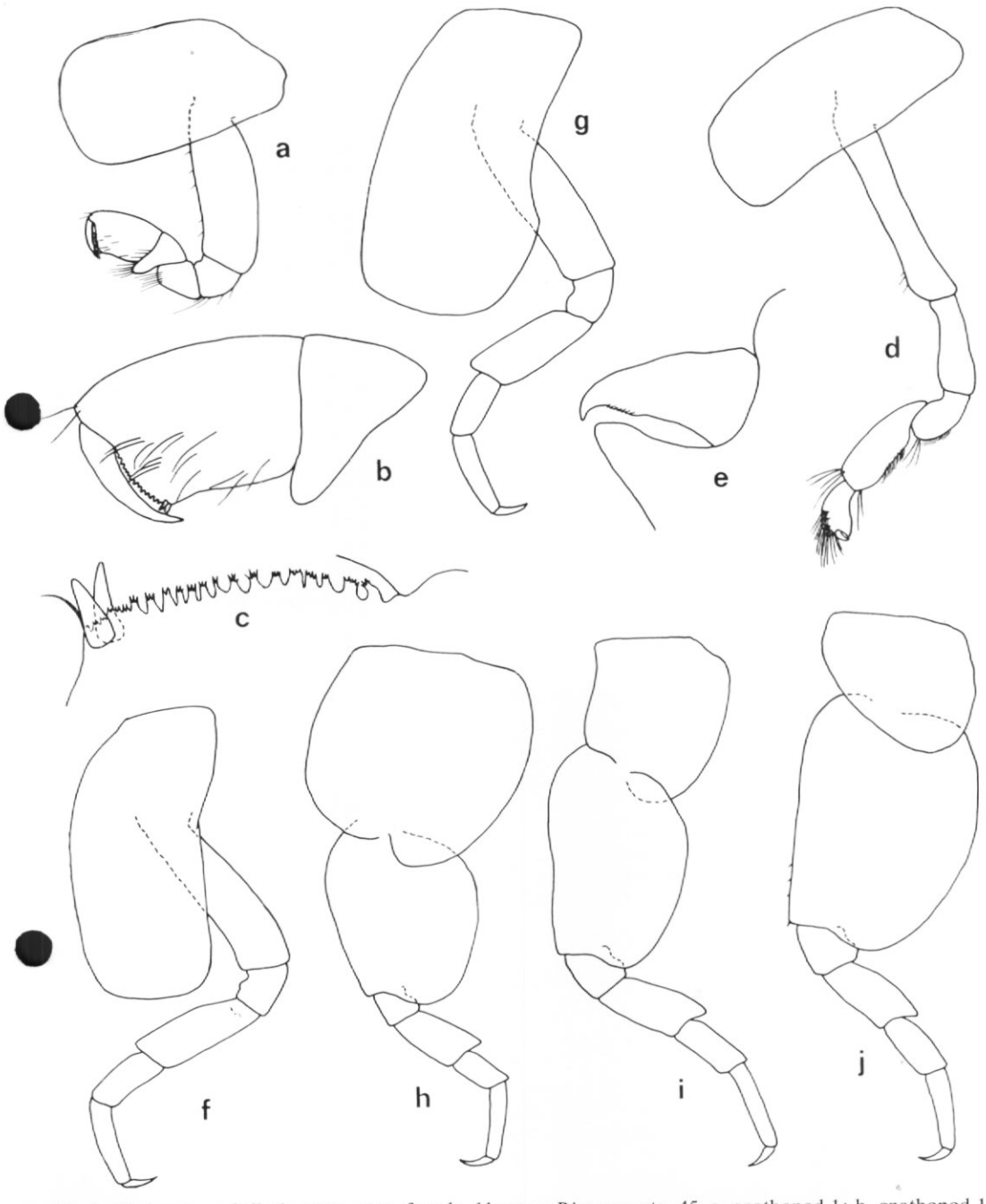

Fig. 4. *Orchomene schellenbergi* sp. nov., female, 11 mm.; *Discovery* sta. 45. a, gnathopod 1; b, gnathopod 1, articles 5–7; c, gnathopod 1, detail of palm; d, gnathopod 2; e, gnathopod 2, detail of palm; f–j, peraeopods 3–7.

pale straw colour in preservative. Epimera, first with anterior margin concave, second and third sub-rectangular, the second may or may not have a very small tooth at the posterior angle. Boss on urosome segment 1 rounded or sub-acute.

Antenna 1 short, stout, peduncle articles 2 and 3 sub-equal, combined less than length of article 1; flagellum 6–7 articles, accessory flagellum with 5. Antenna 2 a little longer than antenna 1. Mouth parts not projecting conically. Upper lip rounded, entire, finely setose. Mandible with cutting edge of incisor process smooth, a small tooth at one end; lacina mobilis spiniform, present on left mandible only; spine row with four spines; molar medium-sized, triturative; palp attached proximal to molar, article 3 slightly curved, length 60 per cent of article 2. Lower lip normal. Maxilla 1 inner plate with two apical setae, outer plate with seven stout, serrate spines. Maxilla 2 in inner plate with five disto-medial spines and four distal ones; outer plate with about 17 spines in two rows on obliquely truncate apex. Maxilliped outer plate with two spines distally and about ten nodular spine teeth on inner margin, reaches middle of article 2 of palp; article 4 of palp well developed, slightly curved.

Gnathopod 1, coxa rather broad, a little expanded, transversely truncate distally; articles 3–6 short, length combined equal to that of basal article; propod stout, not tapering distally, palm somewhat oblique, armed with 15–16 pectinate teeth, palmar angle obtuse, marked with two stout spines; dactyl, slender, overlaps palm by 25 per cent of palmar length. Gnathopod 2 chelate, coxa sub-rectangular; propod 50 per cent length of carpus, anterior margin strongly convex, posterior margin concave, projection unarmed; dactyl strongly hooked. Peraeopod 4, emargination of coxa very shallow. Peraeopod 5 cox sub-circular, deeper than basal; posterior-distal projection of merus acute. Peraeopod 7, coxa sub-triangular; basal expanded, as long as articles 3–6 combined, posterior distal lobe shallow and broadly rounded.

Uropod 1 extends to just beyond end of telson; margins of peduncle pectinate, rami narrowly lanceolate, pectinate on inner and outer margins, outer ramus length 80 per cent of peduncle, inner 70 per cent. Uropod 2, shorter than 1, extends to end of telson; margins of peduncle and rami pectinate; outer ramus just shorter than peduncle; inner ramus length 90 per cent of outer. Uropod 3 stout, short, extending just beyond uropod 1; rami broadly lanceolate, pectinate on both margins in female, inner margins setose in male second article of outer ramus spiniform. Telson, one-fifth longer than wide, apices somewhat divergent, lobes rounded, unarmed in female, each lobe with several minute spines in male.

Remarks. O. schellenbergi is distinguished from all species of the genus except *O. macronyx* by the shape of the propod and the armature of the palm of gnathopod 1, the pectinate uropods and the unarmed telson (in the females). From *O. macronyx*, the new species differs by its well-defined palmar angle and armature of the palm of gnathopod 1, the very shallow excavation of the coxa of peraeopod 4, and the broad, rounded unarmed apices of the telson. These and other differences are summarized in Table I.

The name *O. schellenbergi* is given in honour of Dr. A. Schellenberg who first illustrated this species, and whose major contributions have added greatly to our knowledge of the amphipods of Antarctica.

Orchomene tabarini sp. nov.

Figs. 5 and 6

Material examined

Holotype. Operation Tabarin sta. 6240. Hope Bay, Antarctic Peninsula. 5 December 1945. 40–30 fathoms (73–55 m.); 9 mm. ♀.

The holotype is registered in the collections of the British Museum (Nat. Hist.) under the number 1971:251:1. The dissected specimen is preserved in alcohol, and appendages are mounted on four microscope slides.

Diagnosis. Orchomenid with epistome produced in front of and overhanging lower lip. Eyes present. Eye lobes produced, sub-acute. Epimera 3, posterior angle obtuse marked by minute tooth, posterior margin obscurely crenelate immediately above tooth. Urosome segment with broadly rounded boss not overhanging next segment. Mandibular palp article 3

TABLE I. SUMMARY OF CHARACTERS SEPARATING *O. macronyx*, *O. schellenbergi* AND *O. tabarini*

	O. macronyx	*O. schellenbergi*	*O. tabarini*
Head lobes	Broadly and evenly rounded	Broadly and unevenly rounded	Sub-acute
Epistome	Flat, not projecting	Rounded, projecting beyond upper lip	Strongly projecting, over-hanging upper lip
Epimera 2	Rounded	Sub-quadrate	Quadrate, small tooth with serrations above at posterior-distal angle
Epimera 3	Broadly rounded	Obtuse	As epimera 2
Maxilla 1 palp	Four apical spine teeth	Five apical spine teeth	Five apical spine teeth
Gnathopod 1 coxa	Broad, sub-quadrate distally	Broad, sub-quadrate distally	Narrow, rounded distally
Gnathopod 1 palmar angle	Rounded	Quadrate	Quadrate
Gnathopod 1 palm armature	Groups of small serrations	ca. 16 apically pectinate crenelations	ca. 15 multi-pectinate crenelations
Gnathopod 2 coxa	Sub-quadrate distally	Sub-quadrate distally	Rounded distally
Gnathopod 2 propod	Posterior margin straight	Posterior margin concave	Posterior margin straight
Peraeopod 4 coxal excavation	Moderate	Very shallow	Sub-quadrate
Peraeopod 4 posterior-distal angle	Sub-acute	Very obtuse	Sub-quadrate
Peraeopod 5 coxa	Lobes sub-equal, not prominent	Posterior lobe produced	Posterior lobe narrow, strongly produced
Peraeopod 7 coxa	With strong posterior-distal lobe	Triangular	Sub-rectangular
Peraeopod 7 posterior-distal lobe	Rounded	Rounded	Very broadly rounded
Uropod 3 inner ramus	Rather broad	Broad	Very broad
Telson apices	Narrow, serrate	Rather broad, smooth	Narrow, smooth

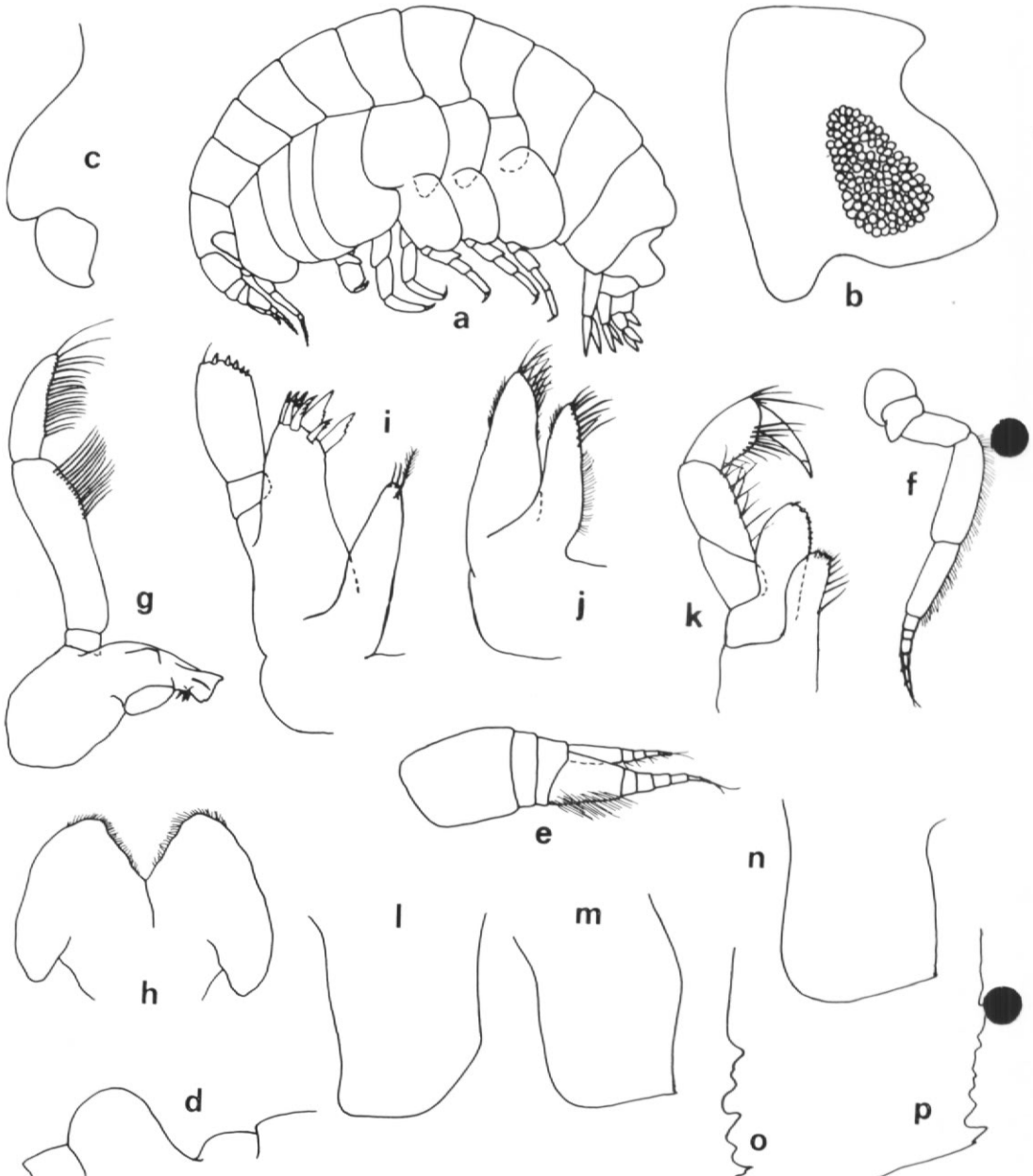

Fig. 5. *Orchomene tabarini* sp. nov., female, 9 mm.; Operation Tabarin sta. 6240. a, habitus; b, head; c, epistome and upper lip; d, boss on urosome segment 1; e and f, antenna 1 and 2; g, mandible; h, lower lip; i and j, maxilla 1 and 2; k, maxilliped; l–n, epimera 1–3; o, epimera 2, detail of posterior-distal angle; p, epimera 3; detail of posterior-distal angle.

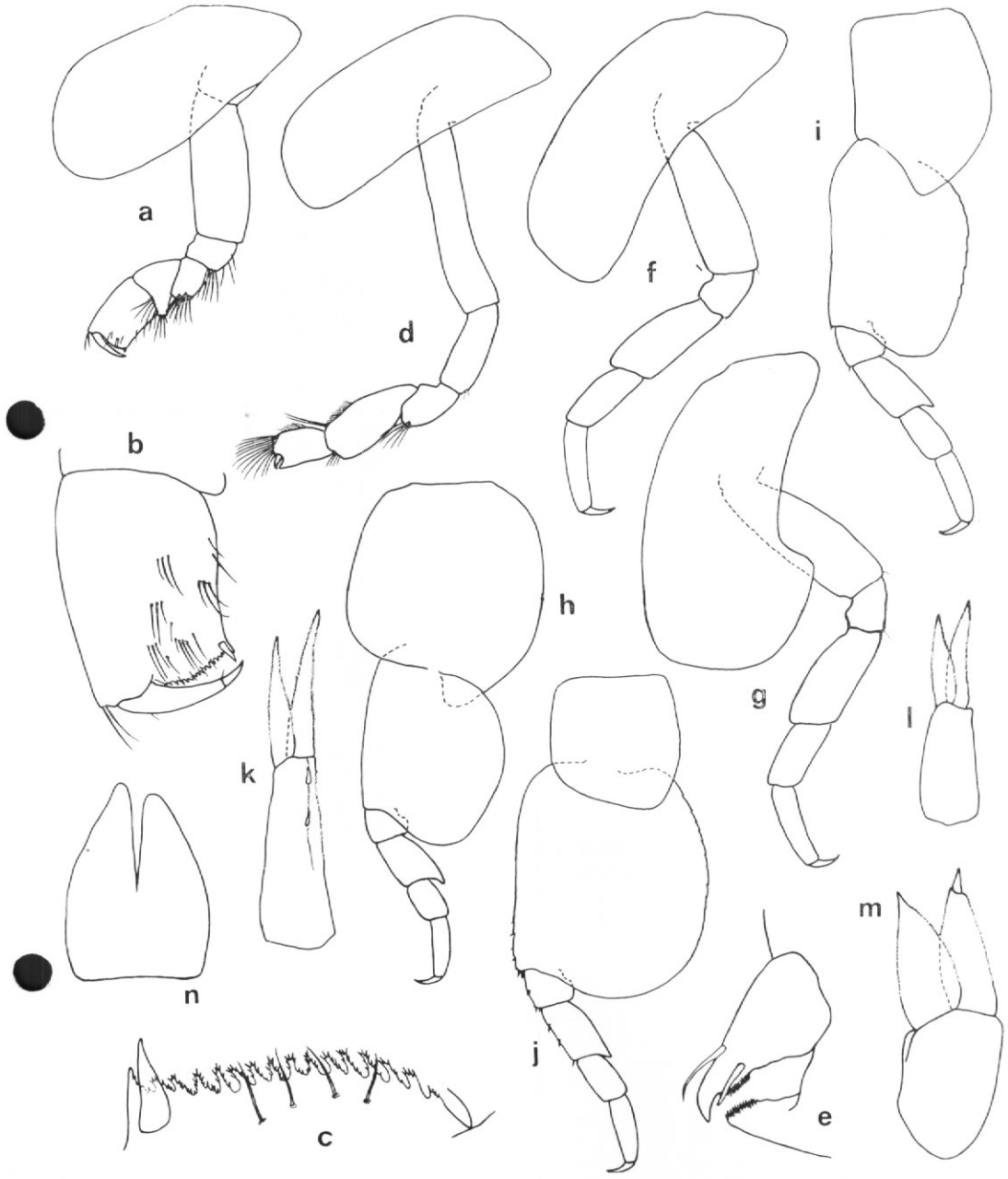

Fig. 6. *Orchomene tabarini* sp. nov., female, 9 mm.; Operation Tabarin sta. 6420. a, gnathopod 1; b, gnathopod 1, articles 5–7; c, gnathopod 1, detail of palm; d, gnathopod 2; e, gnathopod 2, detail of palm; f–j, peraeopods 3–7; k–m, uropods 1–3, n, telson.

longer than 1. Gnathopod 1, carpus shorter than propod, posterior lobe narrow; propod stout, lacking nodule on posterior margin, palmar angle quadrate. Gnathopod 2, chelate, widths of carpus and propod sub-equal. Coxa of peraeopod 5 with strongly developed posterior lobe, basal not grossly expanded. Rami of uropod 3 pectinate. Telson cleft just over half, lobes unarmed.

Description. A medium-sized species; the holotype, a sub-adult female with partly developed, asetose oostegites measures 9 mm. from rostrum to telson apex. Colour in spirit, a very pale cream; integument firm. Head just longer than first peraeon segment. Eye lobes prominent, just shorter than antenna 1 article 1. Eyes medium-sized, oval, wider below than above, consisting of about 115 tightly packed ommatidia; darkish brown in preservative. Epimera, first produced anterior-distally; second sub-rectangular, posterior angle quadrate, defined by small tooth, posterior margin distally finely crenelate. Urosome boss rather prominent.

Antenna 1, short; peduncle articles 2 and 3 sub-equal, combined less than half length of article 1; flagellum of seven articles, the first longer than 2–5 combined; accessory flagellum of five articles. Antenna 2 a little longer than antenna 1, peduncle article 4 the longest, articles 4 and 5 anteriorly setose; flagellum of eight articles, shorter than peduncle article 4. Upper lip rounded, entire, finely setose distally. Mandible has incisor process with smooth cutting edge limited by a small tooth at one end and a small notch at the other; lacina mobilis spiniform, present on left mandible only; three spines in spine row; molar moderate in size, triturative; palp situated proximal to molar, article 3 somewhat curved, with 19 spines on anterior margin, 60 per cent as long as article 2. Lower lip normal. Maxilla 1, inner plate on left side with two apical and one sub-apical setae, on right with two apical and two sub-apical setae; outer plate with seven serrate spine teeth, two of which are particularly stout; palp article 2 expanded a little, transversely truncate apex with five small spine teeth and a seta. Maxilla 2, inner plate with eight spines, outer with 14. Maxilliped, inner plate well developed, outer plate with two apical and nine median spine teeth, reaches middle of second palp article; palp stout, article 4 long.

Gnathopod 1 short and stout, coxa not very broad, apically broadly rounded; basal sub-equal to articles 3–6 combined; propod stout not tapering distally; palm slightly curved, nearly transverse, armed with 15 strongly pectinate teeth; palmar angle defined by a tooth and a stout spine; dactyl slender overlaps palm by 7 per cent of palmar length. Gnathopod 2 chelate; coxa rather narrow, broadly rounded anterior-distally; propod 50 per cent length of carpus, anterior margin convex, posterior margin straight; propod projection with pectinate apex; strongly hooked dactyl with pectinate area opposing apex of projection of propod. Peraeopod 4, coxa emarginate, posterior-distal lobe distinct. Peraeopod 5, coxa sub-quadrate, deeper than basal, posterior lobe sub-acute. Posterior-distal projection of merus acute. Peraeopod 6, posterior margin of basal minutely serrate; peraeopod 7, coxa sub-quadrate; basal broadly expanded, length just greater than articles 3–6 combined, posterior margin minutely serrate; posterior-distal lobe extends level with distal margin of ischium, very broadly rounded.

Uropod 1 extends two-thirds along rami of uropod 3; peduncle with two lateral spines, margins pectinate; rami narrowly lanceolate, margins pectinate, outer 75 per cent length of peduncle, inner 70 per cent. Uropod 2 reaches apex of uropod 1; peduncle outer margin pectinate; rami margins pectinate, outer ramus and peduncle sub-equal, inner ramus length 90 per cent of outer. Uropod 3, short, stout; rami lanceolate, margins pectinate, first article of outer ramus just shorter than inner, second article short spiniform. Telson one-third longer than wide, apices sub-acute.

Remarks. O. tabarini is closely related to *O. schellenbergi* and *O. macronyx*, having in common with them the form of gnathopod 1 propod, uropods and unarmed telson. In so far as *O. schellenbergi* is intermediate between *O. macronyx* and *O. tabarini*, characters which separate *O. tabarini* and *O. schellenbergi* will usually apply to an even greater extent in the separation of *O. tabarini* and *O. macronyx*.

O. tabarini differs from *O. schellenbergi* in having a more strongly projecting epistome, narrower and distally rounded coxa of gnathopod 1, more strongly produced posterior-distal

lobe of the coxa of peraeopod 5, more broadly rounded basal article of peraeopod 7 and narrower telsonic lobes.

Characters separating *O. tabarini* from *O. macronyx* are found in the epistome, epimera, coxa and propod of gnathopod 1, coxa of peraeopod 5 and inner ramus of uropod 3. Table I gives a summary of the characters separating *O. tabarini* from the two closely allied species.

The name *O. tabarini* commemorates Operation Tabarin the organization from which the British Antarctic Survey has grown.

Discussion

Barnard (1964, 1969) has recently discussed and revised the concept of the genus *Orchomene* Boeck 1871. *O. macronyx*, *O. schellenbergi* and *O. tabarini* form a closely related group within the genus, distinguished by the stout propod of gnathopod 1 and pectinate uropods. Barnard (1964) has shown that, due to a series of morphological trends, the distinctions previously used to separate *Orchomenella* Sars 1890, *Orchomenopsis* Sars 1891 and *Allogaussia* Schellenberg 1926 can no longer be maintained, and that these genera must fall as junior synonyms to *Orchomene*. Barnard considered that the orchomenopsid type with undeveloped epistome, smooth epimera, symmetrical coxa of peraeopod 5 and deeply cleft telson must be considered as the least specialized. Trends can be seen towards the more specialized condition of strongly produced epistome and serrate epimera in orchomenids, towards the produced posterior-distal lobe of the coxa of peraeopod 5 in allogaussids and some orchomenids and towards the fusion of telsonic lobes as in allogaussids and some orchomenids. Examples of these trends and of various combinations of characters have been tabulated by Barnard (1964).

The three species described in this paper demonstrate to a remarkable degree the trends discussed by Barnard (1964). The rounded, produced epistome of *O. schellenbergi* is intermediate between the flat, unproduced structure in *O. macronyx* and the strongly produced, lobate condition in *O. tabarini*. This order, with *O. macronyx* as the least specialized and *O. tabarini* as the most specialized member of the group is also seen in the trend from unserrate to serrate epimera, and in the increasing development of a posterior-distal lobe on the coxa of peraeopod 5. Only in the condition of the telson is no trend apparent; all three species have this organ cleft for about 50 per cent of its length.

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