

plumose setae distally, caridean lobe large, broad; epipod large, triangular, feebly bilobed. Second maxilliped with normal endopod, dactylar segment broad, about 3.3 times longer than wide, with numerous robust densely serrulate setae medially; propodal segment broadly rounded distally, not strongly produced distomedially, with about 9 long slender finely serrulate spines medially, long setae distolaterally, carpus normal, with acute ventromedial angle; ischiomerus and basis normal, basis feebly excavate distomedially; exopod with slender flagellum, with numerous plumose setae distally, several shorter setae proximolaterally, coxa with median margin bluntly angular, sparsely setose, with large subcircular epipod laterally, without podobranch. Third maxilliped with slender normal endopod, reaching to about proximal end of carpocerite, ischiomerus and basis completely fused, combined segment about 5.4 times longer than central width, ischiomerus portions feebly tapering distally, sparsely setose medially, with long simple setae, distolateral border sparsely setose, with short setae, with three short stout spines, proximal dorsomedial border with longitudinal submarginal row of about 14 short papillose setae, medial margin of basal portion broadly convex, sparsely setose; intermediate segment 5.0 times longer than central width, slightly tapering distally, about 0.55 of combined proximal segment length, with about six small groups of long finely serrulate spiniform setae medially; terminal segment about 0.4 of combined proximal segment length, 5.0 times longer than proximal length, tapering distally, with small stout simple terminal spine, medial margin with about seven transverse rows of short serrulate spiniform setae; exopod with slender flagellum, reaching to about 0.3 of intermediate endopod segment length, with numerous plumose setae distally; coxa feebly produced medially, glabrous, with rounded lateral plate; arthrobranch present, small, with about 7 lamellae. Paragnaths with well developed broad alae, corpus short, without carina, with small proximal medial depression.

First pereopod normally developed, slender, exceeding antennular peduncle by about 0.3 of chela and 0.3 of carpus, carpocerite by chela and 0.6 of carpus; chela with palm oval in section, about 2.2 times longer than central depth, uniform, with six transverse rows of short serrulate setae proximoventrally; fingers about 0.8 of palm length, cutting edges sharp distally, entire, blunt proximally, situated laterally, fingers feebly subspatulate, with numerous groups of setae, tips acute, simple, feebly hooked, dactylus about 4.0 times longer than proximal depth, fixed finger about 3.4 times longer than proximal depth; carpus about 1.5 times longer than central width, uniform, unarmed, feebly bowed; ischium about 0.6 of carpus length, 3.6 times longer than wide, ventral margin feebly carinate, non-setose; basis about 0.6 of chela length; coxa normal, with two small setose, ventral lobes.

Second pereopods well developed, small, subequal similar, exceeding carpocerite by chela and half carpus, antennular peduncle by chela; palm with medial and lateral surfaces smooth, dorsal margin very minutely tuberculate, ventral margin feebly tuberculate, about 3.8 times longer than deep, uniform, fingers about 0.45 of palm length, dactylus about 3.8 times longer than proximal depth, with stout hooked tip, proximally feebly swollen, without lateral flange, feebly carinate, cutting edge lateral, distal 0.6 entire, sharp, proximal third with small acute distal tooth, larger, broadly triangular tooth proximally, separated by small V-shaped notch; fixed finger similar, without lateral carina, not proximally swollen, proximal third with small subacute tooth opposing notch between dactylar teeth, separated by notch from small rounded blunt proximal tooth; carpus about 0.33 of palm length, 1.4 times longer than distal width, tapering proximally, feebly excavate, unarmed distally, ventral surface minutely tuberculate; merus about 0.6 of palm length about 3.7 times longer than wide, uniform, unarmed, ventral surface distinctly tuberculate; ischium 0.6 of palm length, 0.9 of merus length, 3.3 times longer than distal width, feebly tapered proximally, unarmed ventrally, smooth; basis and coxa robust, without special features.

Ambulatory pereopods slender, third pereopod exceeding scaphocerite by dactylus; dactylus of third pereopod with unguis distinctly demarcated, acute, curved, about 3.7 times longer than basal width, corpus compressed, 2.3 times longer than proximal depth, about 0.7 of distal propod width, tapering distally dorsal margin feebly convex, ventral margin sharp, concave, with acute distal accessory tooth, about 0.2 of unguis length, with pairs of distolateral setae; propod about 0.5 of carapace length, 9.5 times longer than proximal depth, feebly expanded proximally, with small distoventral spine, ventral border with small spine at 0.9, two smaller spines at 0.7, 0.5, with few short setae; carpus about 0.6 of propod length, 4.6 times longer than distal width, with distinct distodorsal lobe; merus subequal to propod length, 7.0 times longer than central width, uniform, unarmed; ischium about subequal to carpus length, unarmed; basis and coxa normal. Fourth and fifth pereopods similar; fifth propod 1.2 of third propod length, 10.0 times longer than proximal width, with medial distoventral spine, setae laterally, ventral marginal spines minute, adpressed.

Uropods distinctly exceeding telson; protopodite with distoventral angel rounded; exopod 2.0 times longer than broad, lateral margin convex, glabrous, distolateral angles damaged, probably with feeble or obsolete angle and larger mobile spine, diaeresis distinct; endopod about 0.9 of exopod length, 2.7 times longer than broad.

Ova numerous, small.

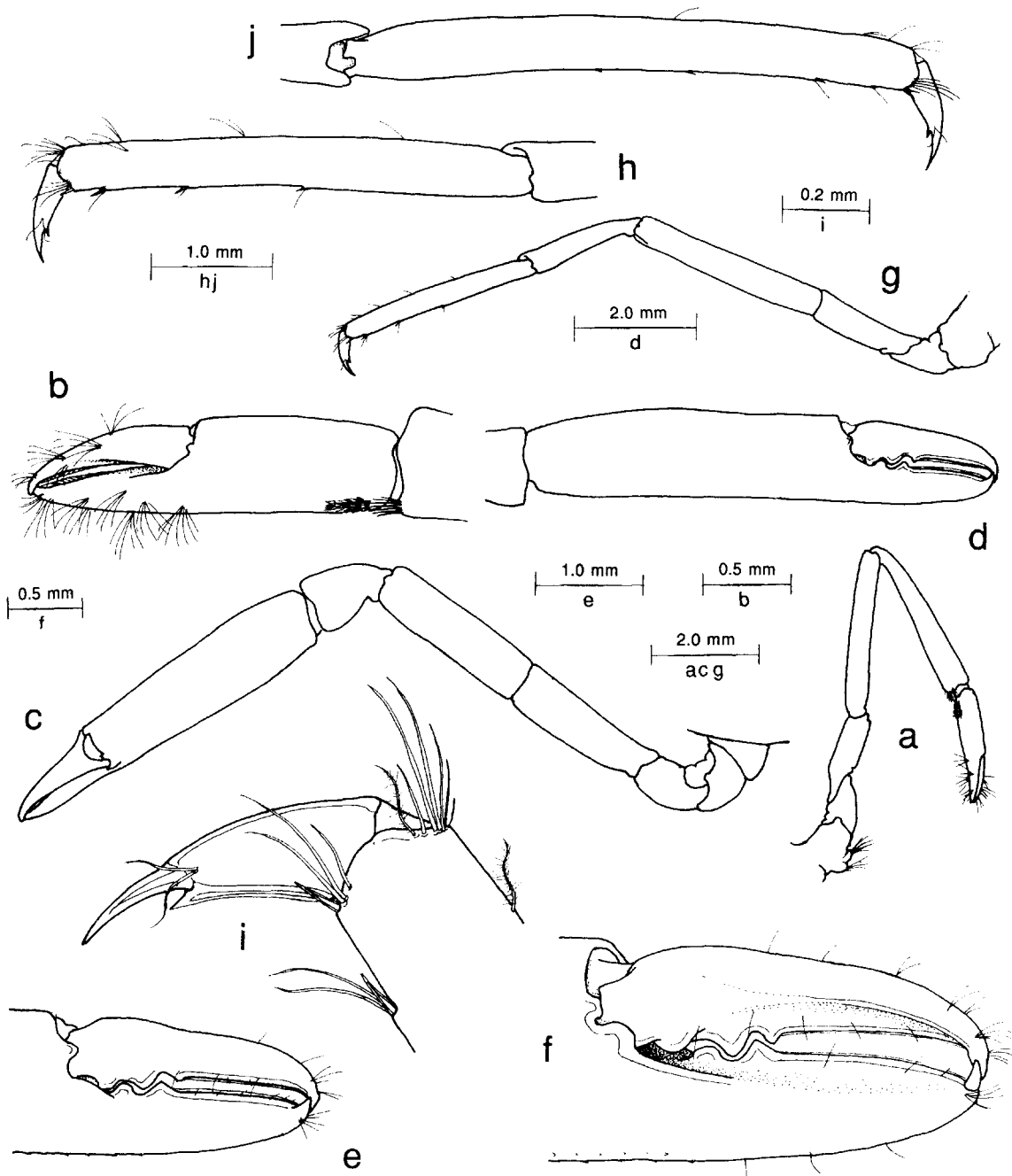


FIG. 44. — *Periclimenes platyrhynchus* sp. nov., holotype, ♀ : a, first pereiopod; b, same, chela; c, second pereiopod, left; d, same, chela; e, same, fingers; f, right second pereiopod, fingers; g, third pereiopod, left; h, same, propod and dactyl; i, same, distal propod and dactyl; j, fifth pereiopod, right, propod and dactyl.

MEASUREMENTS (mms). — Carapace length, 7.8; carapace and rostrum, 12.2; total body length (approx.), 36.0; second pereopod chela, right, 6.6; left, 7.0; length of ovum, 0.5.

COLOURATION AND HOST. — No data.

ETYMOLOGY. — πλατύς (Greek), broad; ρύγχος (Greek), snout, with reference to the deep rostral lamina.

SYSTEMATIC POSITION. — *Periclimenes platyrhynchus* is most closely related to the other species of *Periclimenes* that have four pairs of dorsal telson spines, with well developed accessory teeth on the dactyls of the ambulatory pereopods. *P. platyrhynchus* may be easily distinguished from all of these by the short, deep rostrum and by the absence of any epigastric tooth or tubercle. The second pereopod has the fingers of the chela closely resembling those of several other *Periclimenes* species, such as *P. alcocki* and *P. foveolatus* (figs 5 f, 8 g) but lacking the distinctive lateral dactylar flange found in some other species, such as *P. forcipulatus* (fig. 24 i). The size of the cornea represents an intermediate stage in reduction from the normal found in shallow water species of *Periclimenes* to the more extreme form as shown by *P. alcocki*.

Periclimenes setirostris sp. nov.

Figs 45-49

MATERIAL EXAMINED. — Chesterfield Islands. MUSORSTOM 5 : stn DW 258, 25°32.8'S, 159°46.1'E, 300 m, 8 October 1986 : 1 ♀, holotype (MNHN-Na 12043).

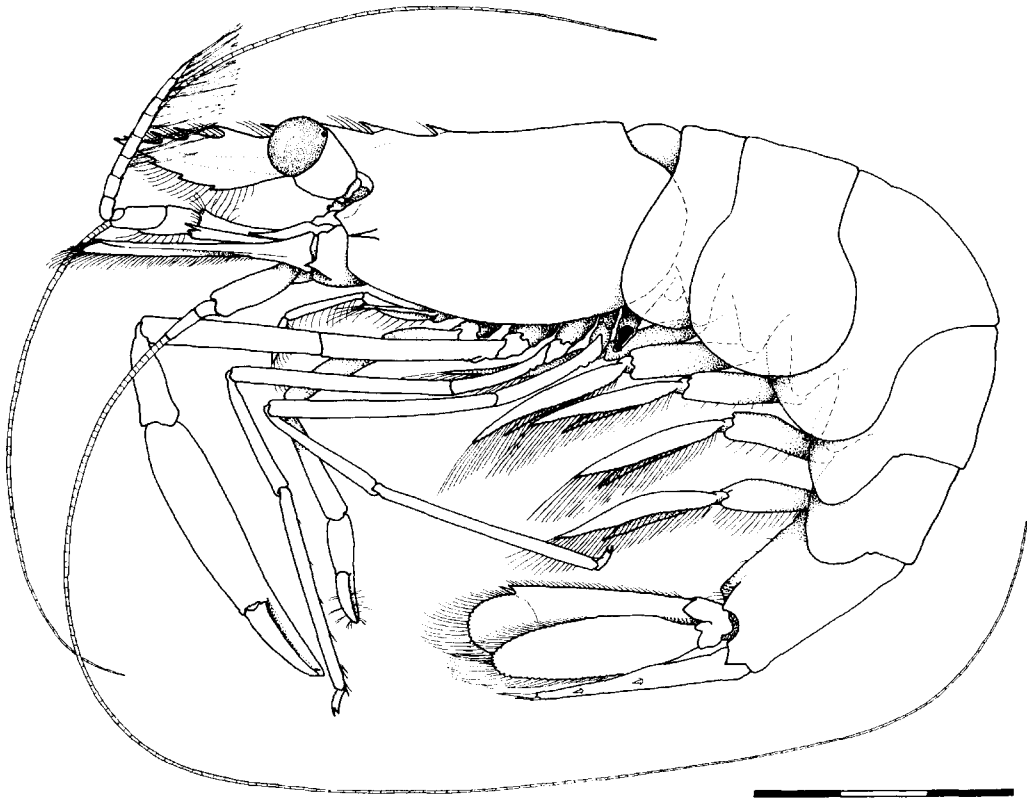


FIG. 45. — *Periclimenes setirostris* sp. nov., holotype, ♀, MUSORSTOM 5, stn DW 258, Coral Sea, 300 m. Scale bar in millimeters.

DESCRIPTION. — Small sized pontoniine shrimp of slender subcylindrical body form.

Carapace smooth, glabrous; rostrum well developed with deep lamina, 5.5 times longer than maximal depth, excluding teeth, straight, horizontal, about subequal to carapace length and antennular peduncle length, dorsal carina well developed with dorsal margin straight, with eight acute teeth, of decreasing size and interval distally, with first two teeth semi-articulate, more slender than distal teeth, situated posterior to orbital margin, first in epigastric position, at 0.28 of carapace length, distal tooth subterminal, lateral carina distinct, feebly developed, ventral carina well developed distally, ventral margin convex, with three small subequal acute teeth, dorsal and ventral carina with numerous very long median plumose setae, extending well beyond tips of teeth; supraorbital teeth absent, epigastric tubercle present, orbit feebly developed, inferior orbital angle acutely produced, antennal spine absent, hepatic spine large, situated at level of posterior orbital margin, well below level of inferior orbital angle, reaching anteriorly to margin of carapace; anterolateral angle of branchiostegite not produced, bluntly obtuse.

Abdomen smooth, glabrous; third abdominal segment not posteriorly produced, non-carinate; pleura of first three segments broadly rounded; fourth and fifth posteriorly produced, rounded; fifth segment about 0.6 of sixth segment length, sixth segment about 1.6 times longer than deep, compressed, feebly tapered posteriorly, postero-ventral angle small, subacute, posterolateral angle longer, acute. Telson about 1.25 times sixth segment length.

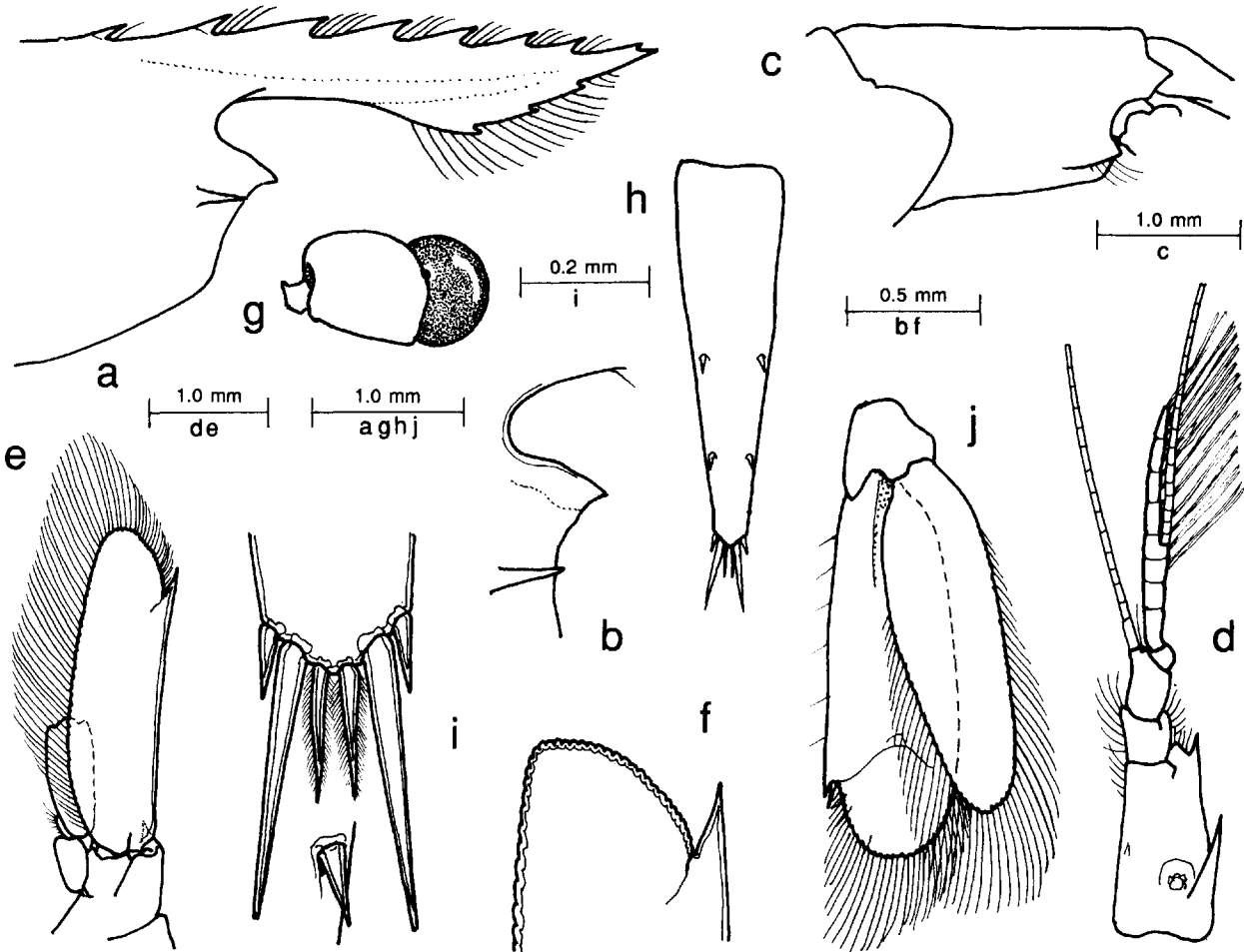


FIG. 46. — *Periclimenes setirostris* sp. nov., holotype, ♀ : a, anterior carapace and rostrum; b, inferior orbital angle; c, sixth abdominal segment; d, antennule; e, antenna; f, same, distal scaphocerite; g, eye; h, telson; i, same, posterior spines; insert, dorsal spine; j, uropod.

3.4 times longer than anterior width, lateral margins sublinear, feebly convergent, with two pairs of small submarginal dorsal spines at 0.5 and 0.75 of telson length, posterior margin about 0.33 of anterior margin width, bluntly angular, with small blunt median process, with three pairs of spines, lateral spines well developed, subequal to dorsal spines, slightly less robust, intermediate spines long, slender, about 0.2 of telson length, 3.5 times lateral spine length, submedian spines well developed, setulose, about 1.6 times lateral spine, 0.5 of intermediate spine length.

Eye with well developed globular cornea, feebly pigmented, with small dorsal accessory pigment spot, transversely oriented on stalk, corneal diameter about 0.25 of carapace length; stalk about 1.2 times longer than corneal diameter, 1.3 times longer than wide, feebly compressed.

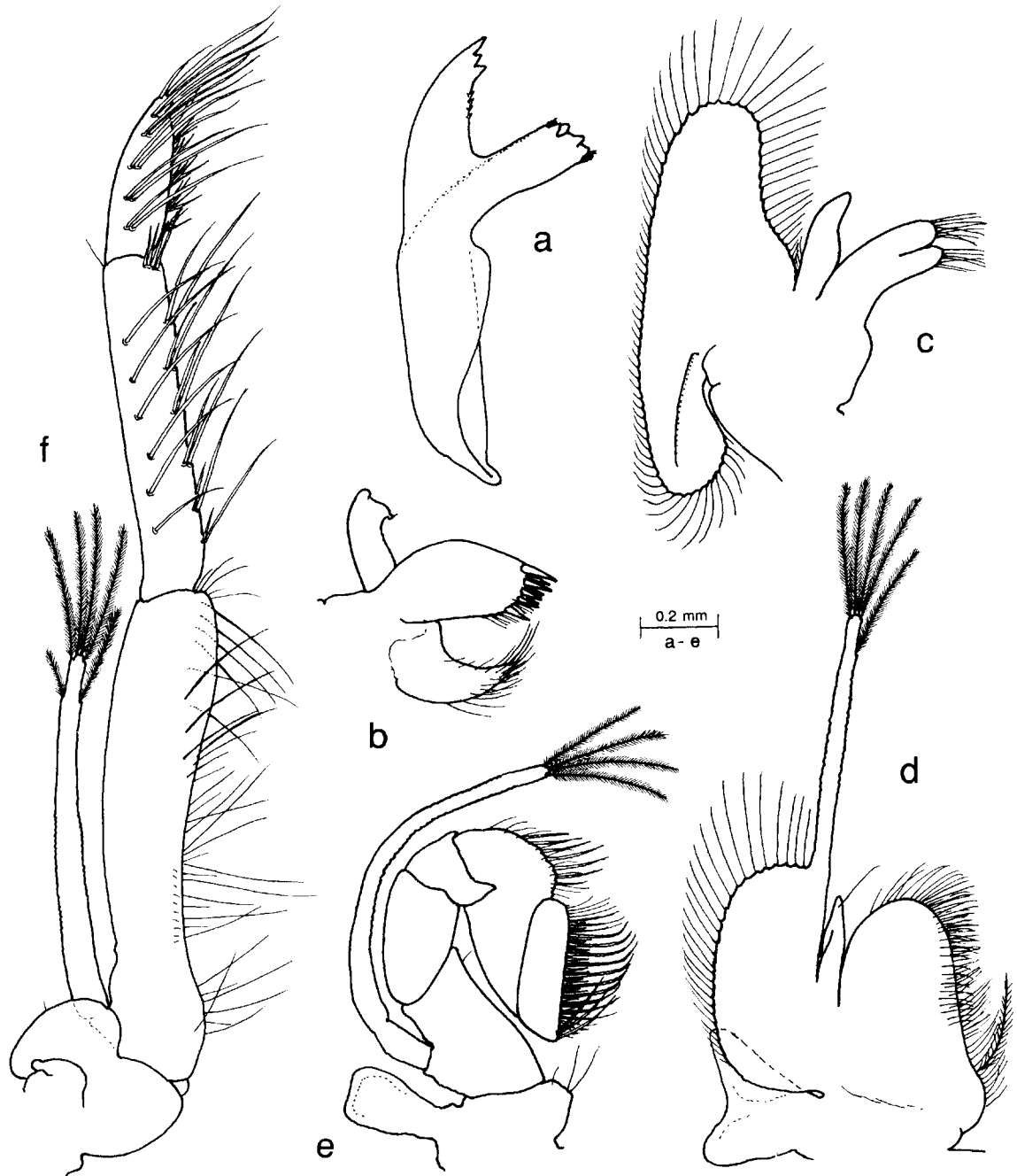


FIG. 47. — *Periclimenes setirostris* sp. nov., holotype, ♀ : a, mandible (right); b, maxillula; c, maxilla; d, first maxilliped; e, second maxilliped; f, third maxilliped.

Antennular peduncle reaching to about level of tip of rostrum, distinctly exceeded by scaphocerite; proximal segment about 2.0 times longer than wide, medial margin straight, sparsely setose, with small acute tooth ventrally at about 0.5 of length, lateral margin feebly concave, distally convergent, distolateral lobe well developed, with slender acute lateral tooth reaching to about 0.5 of intermediate segment length, stylocerite slender, acute, reaching to about 0.7 of segment length, statocyst normal, with granular statolith; intermediate segment about 0.25 of proximal segment length, 1.2 times wider than long, with small setose lateral flange, obliquely articulated with distal segment, distal segment about 0.4 of proximal segment length, 1.6 times longer than wide; upper flagellum biramous, proximal four segments fused, shorter free ramus with four segments, longer free ramus slender, filiform, about 3.0 times short ramus length, with about 11 groups of aesthetascs; lower flagellum slender, filiform, about 2.0 times carapace length.

Antenna with basicerite robust, with well developed acute distolateral tooth, carapocerite robust, subcylindrical, about 2.5 times longer than wide, reaching to about 0.4 of scaphocerite length, flagellum well developed, long, slender, filiform, about 6.0 times carapace length; scaphocerite distinctly exceeds tip of rostrum and antennular peduncle, moderately narrow, about 3.5 times longer than broad, subuniform, lateral margin straight, with strong distal tooth, far exceeded by broad, bluntly angular distal margin of lamella.

Epistome normal, unarmed. Fourth thoracic sternite with small rounded median boss, without finger-like process; fifth sternite similar, with slightly larger boss; posterior sternites narrow, unarmed.

Mandible (right) normal, with robust corpus, without palp; molar process stout, obliquely truncate distally, with five stout, blunt distal teeth, anterior and posterior groups of short setae; incisor process well developed, obliquely truncate distally with three acute distal teeth, largest tooth laterally, considerable exceeding central smallest tooth, distal medial margin with four acute denticles. Maxillula with feebly bilobed palp, upper lobe almost obsolete, lower lobe feebly developed with small ventral tubercle bearing minute seta; upper lacinia normal, with about 8 short, simple distal spines, with numerous short setae; lower lacinia slender, tapering, with numerous long spiniform setae distally. Maxilla with stout tapering palp; with concave medial margin, proximal lateral margin with few short plumose setae; basal endite bilobed, lobes subequal, with 9 and 7 short slender simple setae; coxal endite obsolete, medial margin convex; scaphognathite about 2.5 times longer than wide, posterior lobe small about 2.0 times longer than wide, anterior lobe large, about 1.2 times longer than wide, narrower distally, medial margin concave. First maxilliped with short, slender tapering palp; reaching to about level of anterior margin of basal endite, with preterminal seta; basal endite broad, distally rounded, with straight medial margin with numerous slender simple setae, confluent with coxal endite, without intervening notch, coxal endite rounded medially sparsely setose, with single long coarsely plumose setae; exopod with slender flagellum, with five long plumose setae distally, caridean lobe large, broad; epipod small, subtriangular, feebly bilobed. Second maxilliped with normal endopod; dactylar segment about 3.3 times longer than broad, with numerous long serrulate spines medially, longer spines strongly curved mediadorsally, propodal segment broad, feebly produced distomedially, with about 7 long slender spiniform setae, numerous short slender setae; carpus normal, ventromedial angle acutely produced; ischiomerus and basis normal, basis not noticeably excavate medially; exopod with slender flagellum, with four long plumose distal setae; coxa angularly produced medially, sparsely setose, epipod small, subrectangular, without podobranch. Third maxilliped with slender endopod, reaching to the distal end of carapocerite, ischiomerus and basis completely fused, combined segment about 4.7 times distal width, feebly constricted proximally, with submedian row of small plumose spinules proximally, small tubercle at ischiomerus-basal junction laterally, lateral border without spines or setae; medial margin sparsely setose, with simple setae; intermediate segment about subequal to ischiomerus portion of proximal segment, about 5.25 times longer than wide, subcylindrical, uniform with ventral medial and lateral rows of stout spiniform setae; terminal segment about 0.5 of intermediate segment length, 3.0 times longer than proximal width, tapering distally, with five pairs of long ventrolateral spines, six transverse rows of short spines ventromedially; exopod with slender flagellum with five long plumose setae distally; coxa with medial margin broadly convex, non-setose, with rounded lateral plate; arthrobranch vestigial. Paragnaths not examined.

First pereopod robust, exceeding scaphocerite by length of fingers; chela with palm stout, feebly compressed, about 1.4 times longer than deep, uniform, with five transverse rows of short serrulate setae proximoventrally; fingers subspatulate, medially curved, with lateral cutting edges, dactylus stout, proximally swollen, tapering strongly distally, about 3.5 times longer than proximal width, ventrally concave, with sharp, curved lateral border

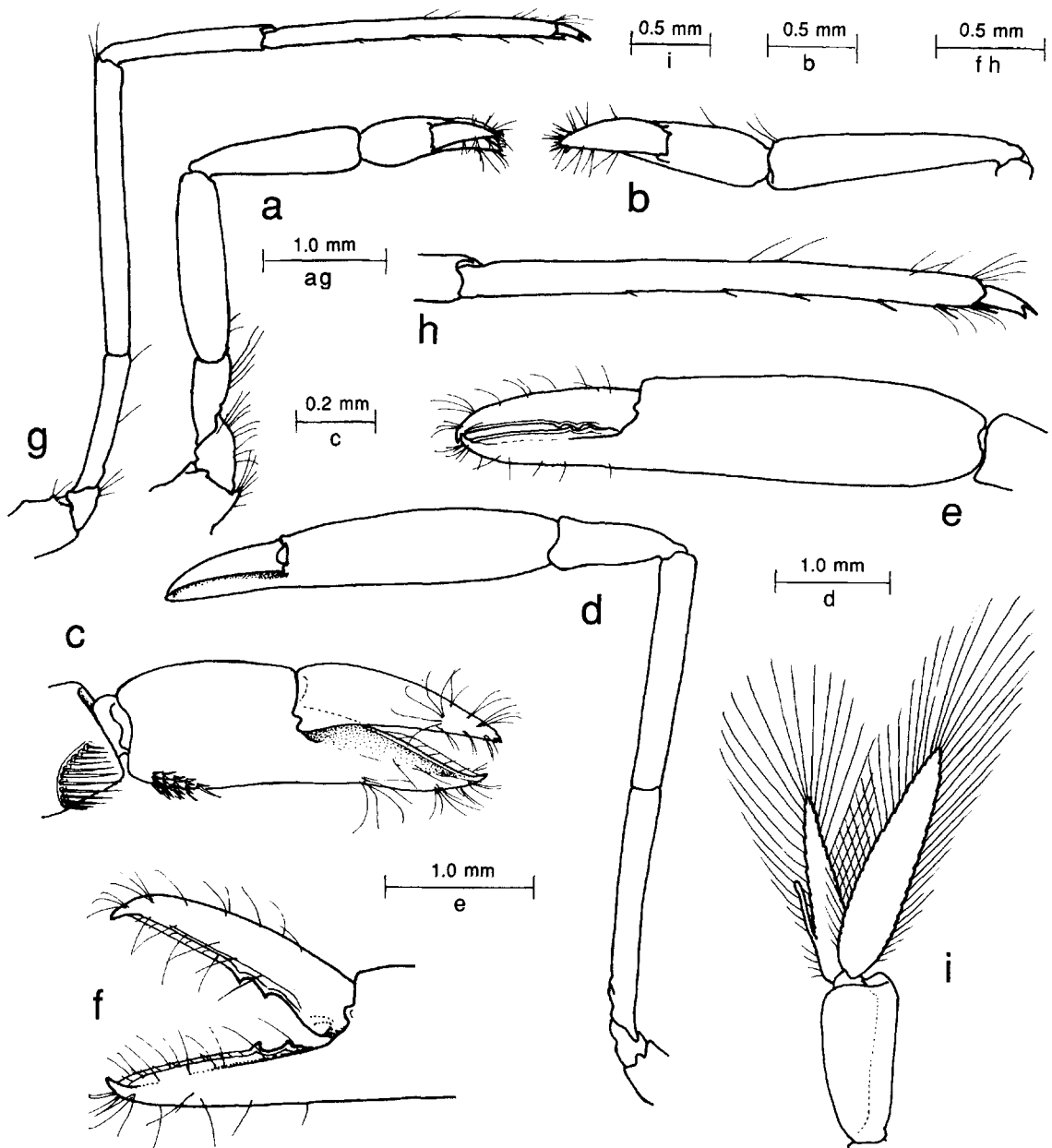


FIG. 48. — *Periclimenes setirostris* sp. nov., holotype, ♀ : a, first pereiopod, (slightly compressed); b, same, carpus and chela; c, same, chela; d, second pereiopod (minor?); e, same, chela; f, same, fingers; g, third pereiopod; h, same, propod and dactyl.

bearing deep entire lateral lamella on distal 0.75 of length, tip distally tridentate, with central tooth blunt, articulated; fixed finger similar, distally bidentate, both fingers with numerous groups of setae distally; carpus about 1.2 times length of chela, 4.9 times longer than distal width, tapering strongly proximally, with semicircular row of serrulate setae distoventrally; merus about 1.15 times carpus length, 4.5 times longer than central width, uniform; ischium about 0.45 of merus length, 0.5 of carpal length, 2.0 times longer than distal width, feebly carinate, setose ventrally, obliquely articulated with basis; basis about 0.5 of carpal length, with scattered ventral setae; coxa normal, with small setose distoventral lobe.

Second pereiopod preserved on left side only, (minor pereiopod?), extending to exceed carapocerite by about length of chela and distal half of carpus; chela well developed, about 1.2 times carapace length, palm subcylindrical, smooth, glabrous, slightly compressed, swollen proximally, 3.2 times longer than proximal depth, fingers normal, about 0.55 of palm length, dactylus 4.0 times longer than proximal depth, with stout, acute feebly hooked tips without distolateral flange, cutting edge with distal half straight, sharp, entire, proximal half with two small acute recurved distal teeth, proximally convex, blunt, fixed finger similar, cutting edge lateral, proximal half with two small acute recurved teeth, opposing proximally to dactylar teeth, both fingers with numerous long

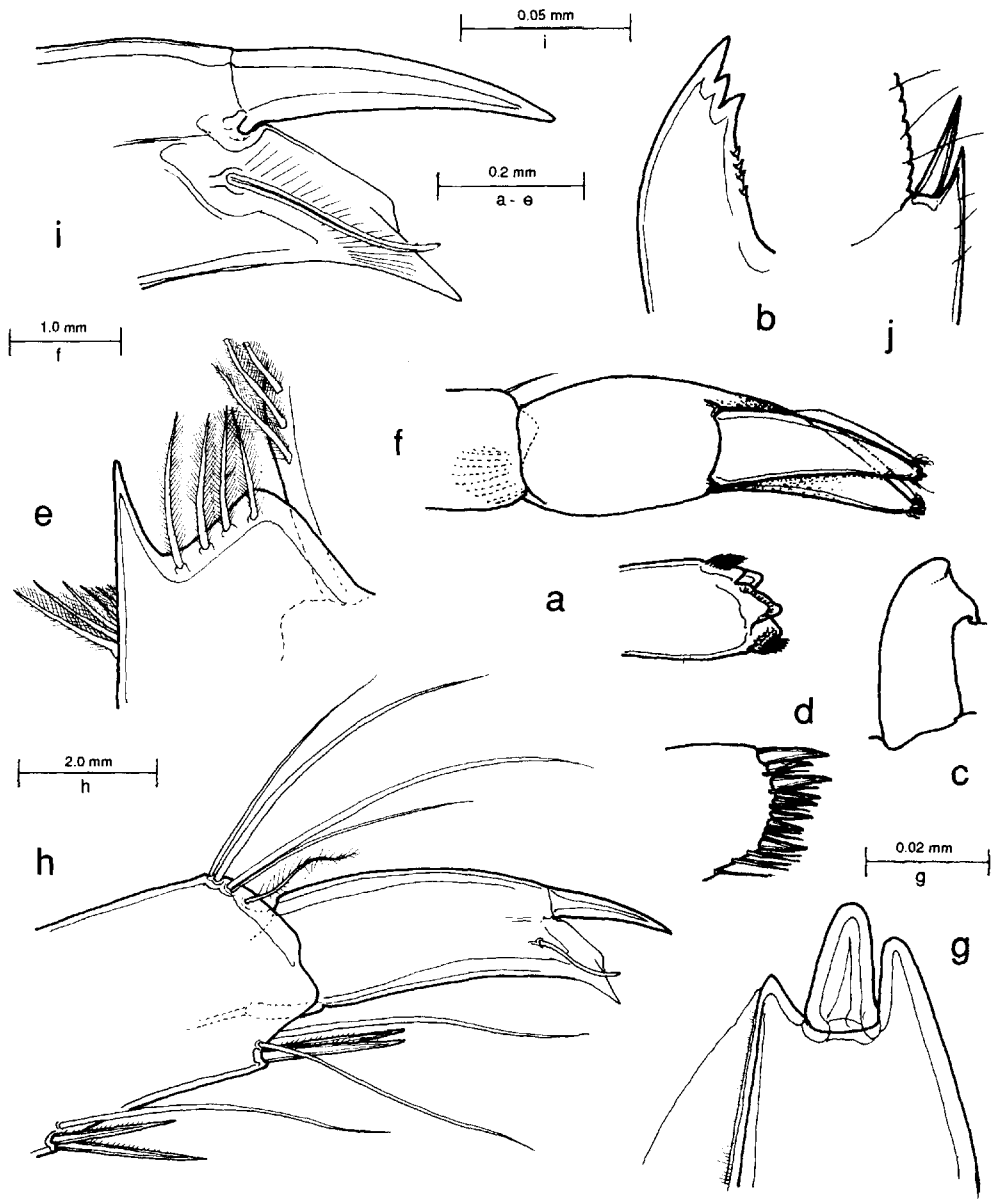


FIG. 49. — *Periclimenes setirostris* sp. nov., holotype, ♀ : a, mandible (right), molar process; b, same, incisor process; c, maxillula, palp; d, same, distal upper lacinia; e, antennule, proximal segment of peduncle, distolateral angle; f, first pereiopod, chela, dorsal; g, same, tip of dactyl; h, third pereiopod, distal propod and dactyl; i, same, distal carpus and unguis.

simple setae; carpus 0.5 of palm length, slender, 2.5 times longer than proximal width, feebly expanded, excavate distally, unarmed, tapering feebly proximally; merus about 0.85 of palm length, slender, about 6.75 times longer than wide, uniform, smooth, unarmed; ischium about 0.9 of merus length, slender, about 8.0 times longer than distal width, subuniform, unarmed; basis and coxa slender, without special features.

Ambulatory pereiopods slender, third pereiopod exceeding carapocerite by dactyl, propod, carpus, and distal half of merus, scaphocerite by dactyl, distal half of propod; third pereiopod dactyl well developed, about 0.12 of propod length, unguis distinct from corpus, slender, curved, about 3.75 times longer than basal width, slightly dorsally angled (about 15°) to general axis of corpus; corpus compressed, about 2.25 times longer than proximal depth, feebly tapered distally, ventral border sharp, with very large acute distoventral tooth, only slightly exceeded by unguis, distoventral tooth slightly compressed, about 0.4 of corpus length, very acute distally, with sharp accessory flange along proximal 0.66 of dorsal margin, with single distolateral seta only; propod about 0.85 of carapace length, 15.5 times longer than wide, uniform, with pairs of long distoventral and distal ventral spines, of decreasing size proximally, with scattered long simple setae, particularly distally; carpus about 0.6 of propod length, 6.5 times longer than distal width, with small distodorsal lobe, unarmed; merus subequal to propod length, 11.0 times longer than central width, uniform, unarmed; ischium about 0.5 of propod length, about 5.0 times longer than distal width, feebly tapered proximally; basis and coxa normal, fourth and fifth pereiopods generally similar, fourth propod about 1.5 times length of third.

Pleopods normal; endopod of second to fifth pleopods with long slender appendix interna at about 0.25 of medial margin length; ramus of pleopods with particularly long, densely setose marginal setae.

Uropod exceeding tip of telson; protopodite with broadly rounded distolateral lobe; exopod about 2.9 times longer than broad, lateral margin straight, sparsely setose, with small, very acute tooth, with larger mobile spine medially, at about 0.8 of exopod length, diaeresis distinct; endopod about 0.9 of exopod length, 3.4 times longer than broad.

MEASUREMENTS (mm). — Carapace length, 2.9; carapace and rostrum, 5.9; total body length (approx.) 16.5; second pereiopod chela (minor?), 3.6.

COLOURATION AND HOST. — No data.

ETYMOLOGY. — *Seta* (Latin), a hair; *rostrum* (Latin), a beak, with reference to the long rostral setae.

SYSTEMATIC POSITION. — The absence of an antennal spine has been recorded in only two species of Indo-West Pacific *Periclimenes*, *P. gorgonicola* and *P. franklini*, both closely related to each other (BRUCE, 1969, 1990a). *P. setirostris* appears most closely related to *P. franklini*, from which it may be distinguished by the much deeper rostral lamina, which does not distinctly exceed the end of the antennular peduncle and the more anterior situation of the hepatic spine, which is distinctly posterior to the level of the posterior margin of the orbit and fails to reach the anterior margin of the carapace in *P. franklini*. The chela of the first pereiopod is also distinctive in *P. setirostris*, in which it is subspatulate, with a marked lateral lamellar expansion, not simple as in *P. franklini*, a feature that is also absent in *P. gorgonicola*. The single second pereiopod is generally similar to that of *P. franklini*, but in that species the teeth do not appear to be at all recurved. The ambulatory dactyl of *P. franklini*, has the unguis continuing the line of the corpus and not at a small dorsal angle, as in *P. setirostris*, and the accessory spine is distinctly more slender, shorter, and lacks the characteristic dorsal accessory flange.

REMARKS. — The host of *P. franklini* has not been identified, but *P. gorgonicola* has been reported in association with gorgonian hosts of the genera *Acabaria* and *Melitheia* (BRUCE, 1969) and it is therefore probable that *P. setirostris* may be involved in a similar association.

The small dorsal flange on the accessory tooth of the ambulatory dactyls appears to be a unique feature and is exactly similar on all pereiopods. Although a trivial morphological feature, it may be diagnostic for this species. The strong setation of the rostrum is also a conspicuous feature that made the present specimen immediately stand out in contrast to the other *Periclimenes* species under study, most of which have a generally feeble dorsal and ventral interdental rostral setation.

Periclimenes sp. A

MATERIAL EXAMINED. — **New Caledonia**. BIOCAL : stn CP 75, 22°20.42'S, 167°23.41'E, Norfolk Ridge, 825-860 m, 4 October 1985 : 1 adult ♀ (MNHN-Na 12042).

REMARKS. — The single specimen, which is in good condition, with a regenerating minor second pereiopod, represents a taxon in course of description in another publication. It has a carapace length of 5.2 mm and a rostral dentition of 1 + 11/2.

Genus *PERICLIMENAEUS* Borradaile, 1915*Periclimenaeus jeancharcoti* sp. nov.

Figs 50-55

MATERIAL EXAMINED. — **New Caledonia**. BIOCAL : stn DW 104, 21°31'S, 166°21'E, 375-450 m, 8 September 1985 : 1 ovig. ♀ (MNHN-Na 12023).

DESCRIPTION. — Small sized pontonine shrimp, with body anteriorly slightly compressed, posteriorly sub-cylindrical or feebly depressed.

Carapace smooth, glabrous; rostrum well developed, slender, acute, compressed, reaching to about distal end of second segment of antennular peduncle, horizontal, straight, dorsal carina with seven slender acute teeth, subequal, semierect, first tooth more robust and less erect, tip of rostrum particularly slender and acute, lateral carinae obsolete, ventral carina absent, ventral margin straight, unarmed, epigastric, supraorbital and hepatic spines absent, orbit feebly developed, inferior orbital angle obsolete, represented by feeble protuberance on medial aspect of antennal spine, antennal spine well developed, acute, marginal, directed slightly dorsally, anterolateral margin of branchiostegite feebly produced, bluntly angular.

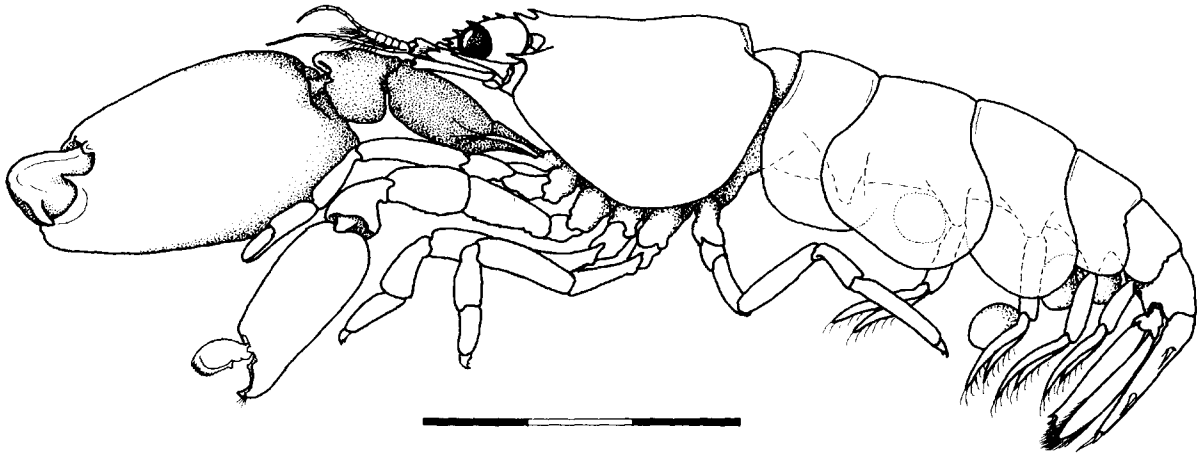


FIG. 50. — *Periclimenaeus jeancharcoti* sp. nov., holotype, ♀, BIOCAL, stn DW 104, New Caledonia, 375-450 m. Scale bar in millimeters.

Abdomen smooth, glabrous; first segment not anterodorsally produced; pleura broadly rounded, first three enlarged, fourth slightly produced, fifth small, feebly produced; fifth segment subequal to sixth segment length, sixth segment about as long as deep, depressed, posteroventral angle large, acute, posterolateral angle small, blunt, posterior dorsal margin unarmed. Telson about 2.2 times sixth segment length, anterior width subequal to sixth segment length, about 2.3 times longer than anterior width, lateral margins straight, convergent, posterior margin

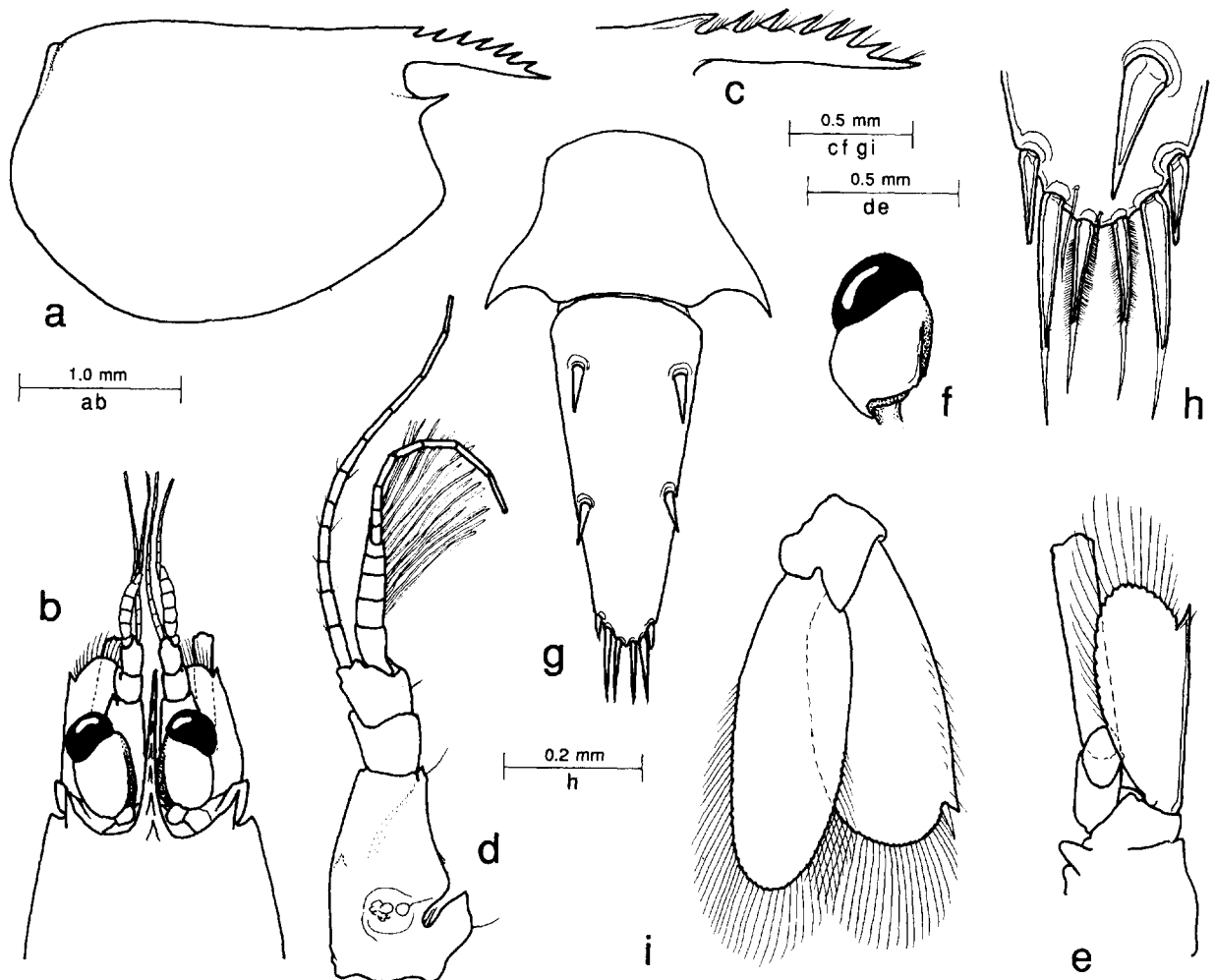


FIG. 51. — *Periclimenaeus jeancharcoti* sp. nov., holotype, ♀ : a, carapace and rostrum, lateral; b, anterior carapace, rostrum, eyes, antennal peduncles, dorsal; c, rostrum, lateral; d, antennule; e, antenna; f, eye; g, sixth abdominal segment and telson; h, posterior telson spines, dorsal spine inset; i, uropod.

angular, about 0.4 of anterior margin width, with two pairs of large subequal dorsal spines, about 0.12 of telson length, anterior pair subdorsal at 0.22 of telson length, posterior pair submarginal, at 0.55 of telson length, posterior margin without median point, with three pairs of posterior spines, lateral spines about 0.75 of dorsal spine length, slender, about 0.08 of telson length, intermediate spines long, slender, 2.5 times lateral spine length, 0.2 of telson length, 11.0 times longer than proximal width, submedian spines slender, proximally setulose, about 0.8 of intermediate spine length.

Eye with cornea hemispherical, oblique, well pigmented, without accessory pigment spot, stalk subcylindrical, strongly flattened medially, about as wide as long, tapering slightly distally, length subequal to corneal diameter.

Antennule with peduncle distinctly exceeding tip of rostrum, reaching beyond scaphocerite by about 0.5 of distal segment; proximal segment about 1.7 times longer than broad, tapering distally, medial margin sublinear, with acute tooth ventrally at about 0.5 of length, lateral margin bluntly angulate, with distolateral border concave, distolateral angle feebly produced, with small acute tooth, stylocerite short, broad, acute, divergent, reaching to about 0.4 of segment length, statocyst normal with granular statolith; intermediate and distal segments subequal, together about 0.6 of proximal segment length; upper flagellum short, feebly biramous, proximal five segments fused, shorter free ramus with single segment only, longer free ramus slender, with eight segments, lower

flagellum short, slender, subequal to lower free ramus length, with eleven segments; with about 10 groups of aesthetascs.

Antenna with basicerite stout, unarmed; carpoperite long, slender, distinctly exceeding scaphocerite, reaching to about end of antennular peduncle, about 5.5 times longer than distal width, flagella lacking; scaphocerite well developed, exceeding intermediate segment of antennular peduncle, broadest distally, about 2.4 times longer than

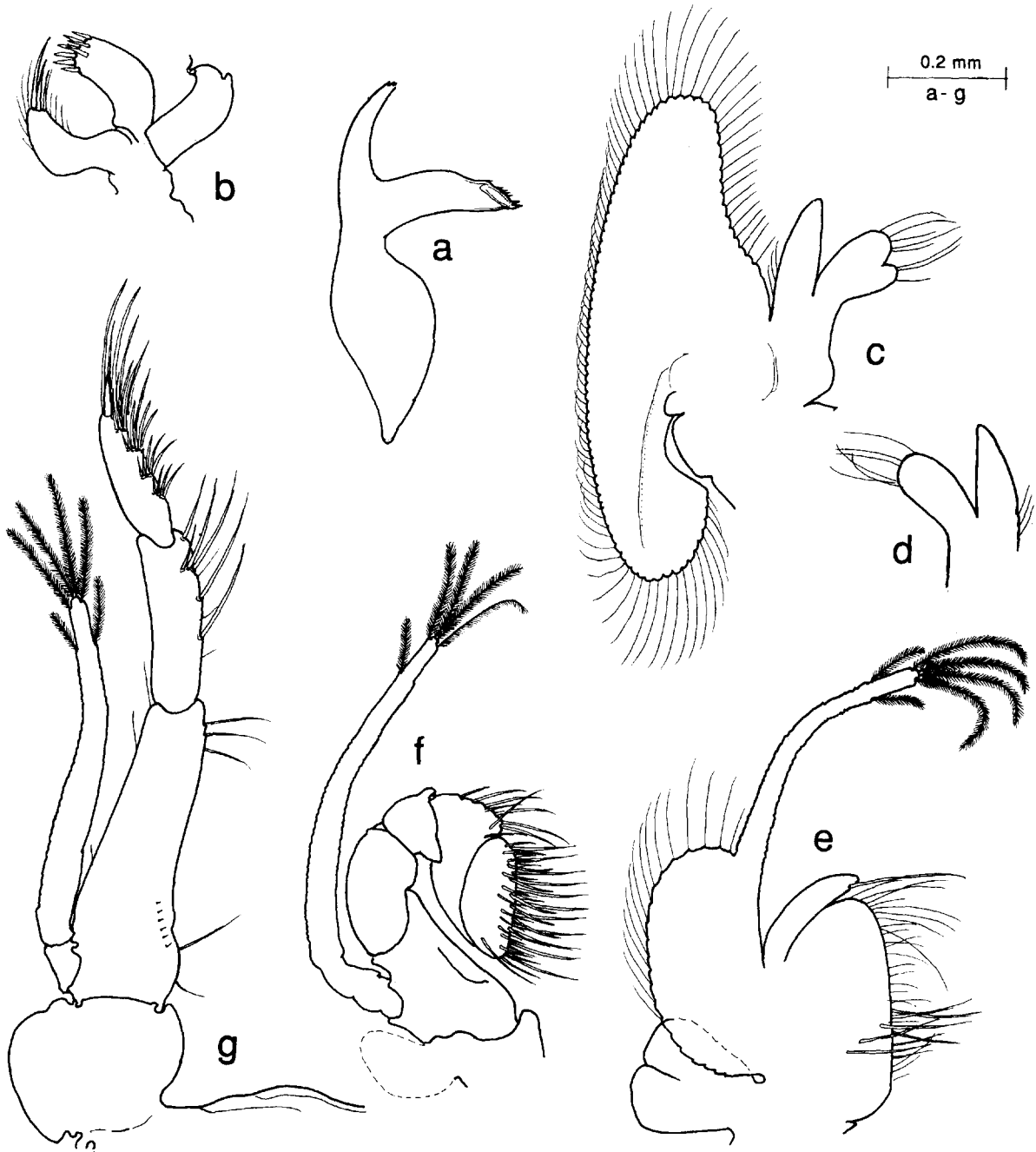


FIG. 52. — *Periclimenaeus jeancharcoti* sp. nov., holotype, ♀ : a, mandible; b, maxillula; c, maxilla (right); d, same, (left), palp and basal endite; e, first maxilliped; f, second maxilliped; g, third maxilliped.

wide, distal margin rounded, lateral margin straight, with stout distolateral tooth, not exceeding anterior margin of lamella.

Epistome normal, unarmed. Thoracic sternites anteriorly broad, particularly third, fourth sternite unarmed, posterior sternites narrow, unarmed.

Mandible (right) with stout corpus, without palp; molar process slender, obliquely truncate distally, with pair of small acute teeth distoventrally, several acute spines; incisor process slender, tapering, obliquely truncate distally, with three small acute teeth. Maxillula with feebly bilobed palp, upper lobe reduced, lower lobe larger, rounded with small ventral tubercle bearing short sinuous simple seta; upper lacinia slender, curved, with about eight short simple spines distally; lower lacinia slender, with few long robust, simple, spines distally, numerous setae. Maxilla with simple, tapering palp, with several short plumose setae proximolaterally; endite feebly bilobed on right, simple on left, with very few simple setae only, coxal endite obsolete, medial margin feebly convex; scaphognathite well developed, broad, about 2.6 times longer than wide, posterior lobe large, 1.5 times longer than wide, anterior lobe 1.3 times longer than wide, distally narrowed, rounded, medial margin concave. First maxilliped with simple palp, extending well beyond anterior margin of basal endite, tapering, distally, with long single preterminal setulose seta; basal endite distally rounded, sparsely setose, with few slender simple setae, coxal endite fused with basal, combined medial margin straight, sparsely setose, ventral region at junction with few longer stouter setae; endopod with slender flagellum with four long plumose terminal setae, caridean lobe broad, epipod small, feebly bilobed (?). Second maxilliped with normal endopod, dactylar segment broad, 2.0 times longer than wide, with numerous long spiniform setae medially, propodal segment with distomedial margin feebly enlarged with several long spiniform setae, carpus with ventromedial margin angulate, ischiomerus and basis normal, basis feebly excavate medially, exopod with slender flagellum, with four long plumose terminal setae, coxa with small distomedial process; epipod (lost in dissection) simple, without podobranch. Third maxilliped with endopod slender, reaching to about midpoint of carpocerite; ischiomerus completely fused to basis, combined segment about 3.6 times longer than central width, compressed, expanded proximally, tapered distally, proximal width about 2.0 times distal width, medial margin with few slender distal setae only, basal medial margin separated from ischiomerus region by feeble notch, convex, with two simple setae, proximal ventromedial ischial region with longitudinal submarginal row of six short spinules; intermediate segment about 0.7 of combined proximal segment length, subcylindrical, about 3.3 times longer than wide, uniform, with few long spiniform setae medially, terminal segment about 0.5 of combined proximal segment length, about 3.5 times longer than central width, feebly tapered distally, with short stout distal spine, about five transverse rows of spiniform setae along medial margin; exopod with slender flagellum, with four long plumose terminal setae; coxa with medial border broadly concave, non-setose, lateral plate large, rounded; without arthrobranch. Paragnaths not examined.

First pereopod moderately robust, exceeding carpocerite by distal fourth of merus, carpus and chela; chela with palm subcylindrical, feebly compressed, uniform, about 2.0 times longer than wide, with sparsely serrulate setae proximally, fingers subequal to palm length, similar, broad, spatulate, distally rounded, with three small distal teeth on dactylus, two on fixed finger, cutting edges well developed, entire, fingers with numerous groups of short setae, dactyl without dorsal setal tuft; carpus about subequal to chela length, about 3.3 times longer than proximal width, tapered proximally, with few long serrulate setae distoventrally; merus robust, 1.2 times carpus length, about 3.6 times longer than central width, subuniform, slightly swollen centrally; ischium about 0.8 of carpus length, 2.5 times longer than major width; basis about 0.45 of ischial length, with angular process dorsally; coxa without special features.

Second pereopods markedly unequal, dissimilar. Major (right) second pereopod exceeding antennular peduncle by chela, carpus and distal fifth of merus; chela massive with inflated palm, about 1.8 times carapace length, smooth, feebly compressed, about 2.0 times longer than deep; dactylus about 0.37 of palm length, medially curved, compressed, about 1.8 times longer than central depth, dorsal margin strongly convex, with stout hooked tip, distal ventral margin finely denticulate, with about 25 small acute teeth, generally larger distally, proximal ventral margin with massive molar process; fixed finger about 1.2 times longer than deep, robust, with stout hooked tip, with deep fossa, cutting edge unarmed; carpus stout, smooth, about 1.2 times longer than distal width, 0.33 of palm length, strongly tapered proximally, deeply excavate distally, unarmed; merus about 0.33 of palm length, subequal to carpus length, swollen, about 1.7 times longer than central width, with 5 small acute ventral tubercles; ischium 0.75 of merus length, 0.25 of palm length, 1.5 times longer than distal width, strongly tapered,

compressed proximally, unarmed, non-tuberculate; basis and coxa stout, without special features. Minor pereiopod (left) with chela about subequal to carapace length, 0.5 of major chela length; palm smooth, strongly compressed, about 1.9 times longer than proximal depth, slightly tapered distally; dactylus about 0.45 of palm length, very strongly compressed, laminar, near circular, dorsal border strongly convex, distal ventral border convex, with about

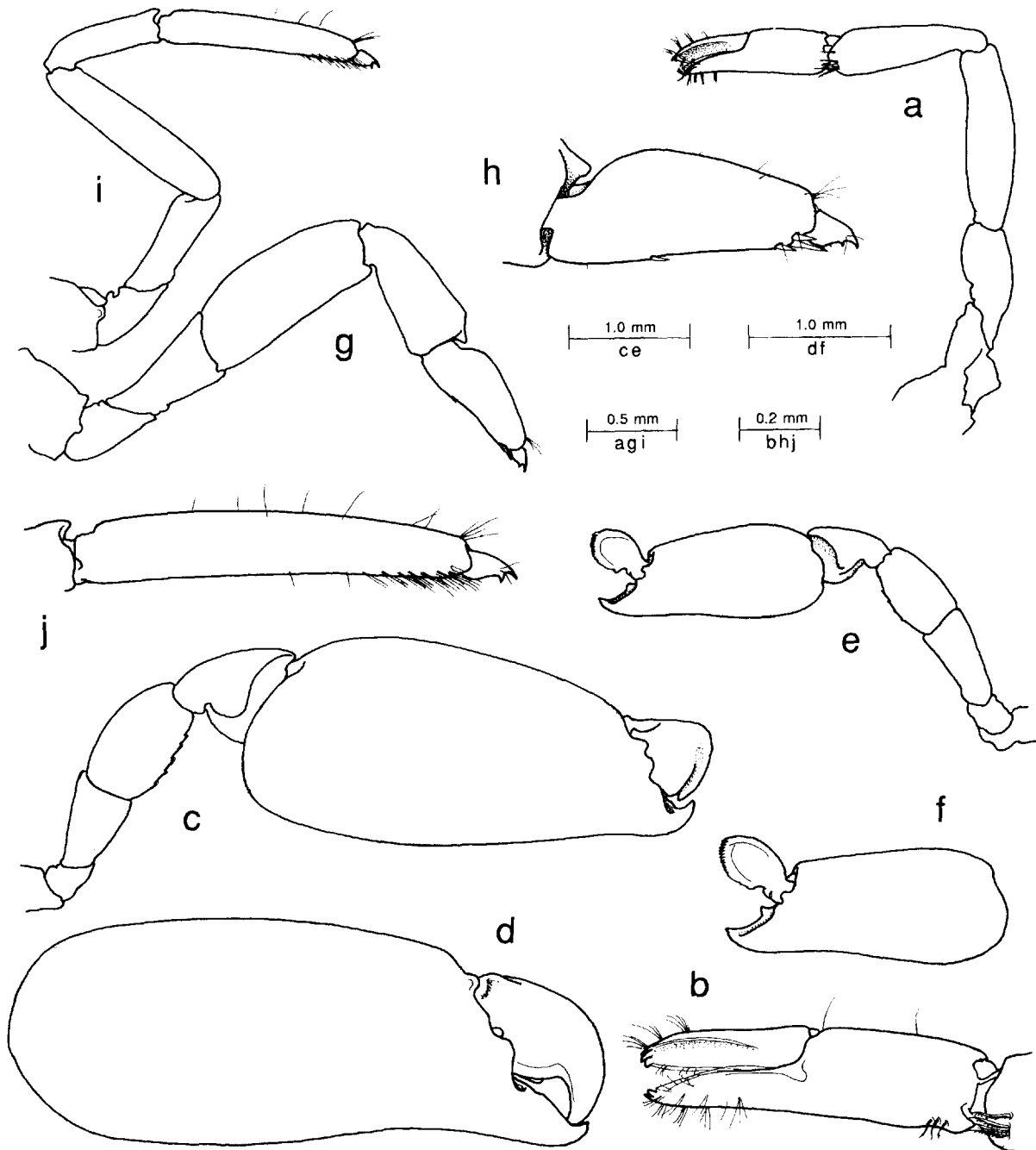


FIG. 53. — *Periclimenaeus jeancharcoti* sp. nov., holotype, ♀ : a, first pereiopod; b, same, chela; c, major second pereiopod; d, same, chela; e, minor second pereiopod; f, same, chela; g, third pereiopod; h, same, propod and dactyl; i, fifth pereiopod; j, same, propod and dactyl.

18 long, sharp, acute teeth, largest distally, obsolescent proximally, with small blunt tooth with several small acute denticles proximally, proximal ventral cutting edge incised; fixed finger about 1.3 times longer than deep, with strong acute curved tip distally, cutting edge deeply cannulate, proximal lateral margin with low angular tooth, proximal ventral margin with large blunt denticulate tooth; carpus about 0.5 of palm length, 1.4 times longer than distal width, tapered proximally, deeply excavate distally, unarmed; merus 0.5 of palm length, 1.5 times longer than central width, centrally swollen, with four small acute ventral tubercles; ischium about 1.2 times merus length, subequal to major second pereiopod, ischial length 2.0 times longer than distal width, basis and coxa without special features.

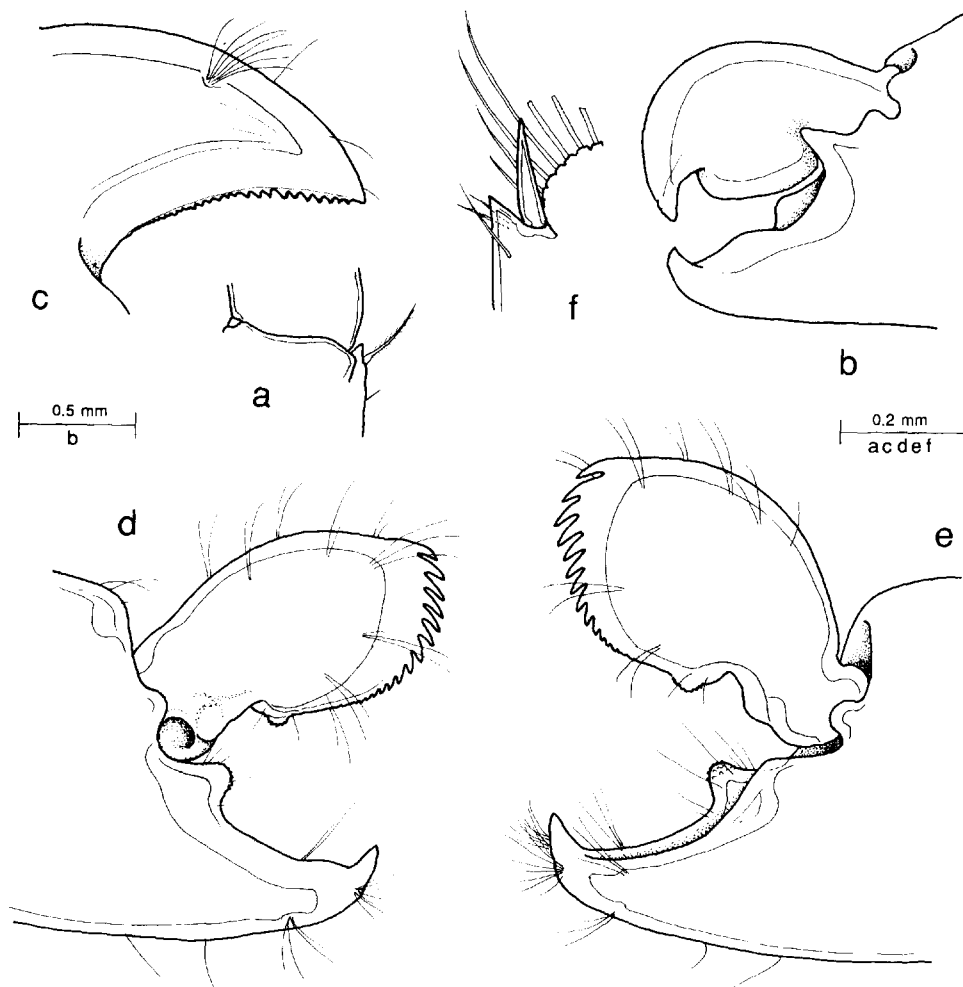


FIG. 54. — *Periclimenaeus jeancharcoti* sp. nov., holotype, ♀ : a, proximal segment of antennular peduncle, distolateral angle; b, major second pereiopod, fingers, medial; c, same, dactyl, distolateral; d, minor second pereiopod, fingers, medial; e, same, lateral.

Ambulatory pereiopods robust, third pereiopod exceeding carpoperite by dactyl and propod. Third pereiopod stout, with dactyl short, strongly compressed, about 0.7 of propod length, unguis distinct, conical, stout, ventrally curved, about 2.0 times longer than basal width, distally blunt, proximodorsally inflated with about nine transverse rows of small tubercles, largest centrally, obsolescent laterally and medially; corpus about as long as proximal depth, tapering strongly distally, dorsal margin sublinear, ventral border with strong blunt accessory tooth distally, proximal ventral border thickened with two (possibly four) curved mobile (?) spines, intervening

border sharper with two small slender acute teeth, with a pair of distolateral sensory setae; propod stout, swollen, about 0.33 of carapace length, about 2.4 times longer than maximum depth, at about 0.4 of length, moderately compressed, strongly tapering distally, with three large stout distoventral spines, two smaller laterally, single larger spine medially, with single smaller ventral spine at 0.4 of length; carpus swollen, 1.1 times propod length, 2.0 times longer than wide, tapering proximally, distal width about 1.2 times maximal propod width, with small distodorsal lobe, unarmed; merus about 1.5 times carpus length, 2.6 times longer than deep, swollen, feebly compressed, unarmed; ischium about 0.9 of carpus length, 1.8 times longer than distal width, unarmed; basis and coxa stout, without special features. Fourth and fifth pereiopods more slender, less swollen. Fifth pereiopod with propod about 0.5 of carapace length, 1.5 times third propod length, 6.3 times longer than deep, feebly tapering distally, with single distoventral spine, about 8 transverse rows of distal ventrolateral setae; dactyl similar to third, lacking proximal mobile spines, ventral border with three small slender distal teeth and pair of larger proximal teeth.

Uropod with protopodite with feeble blunt, distolateral lobe; exopod distinctly exceeding telson, broad, about 2.25 times longer than wide, lateral margin feebly concave, sparsely setose, unarmed, with small acute distoventral tooth, with large mobile spine medially, without distinct diaeresis, distal lamina reduced, scarcely exceeding distolateral spine; endopod about 1.1 times exopod length, 2.75 times longer than broad.

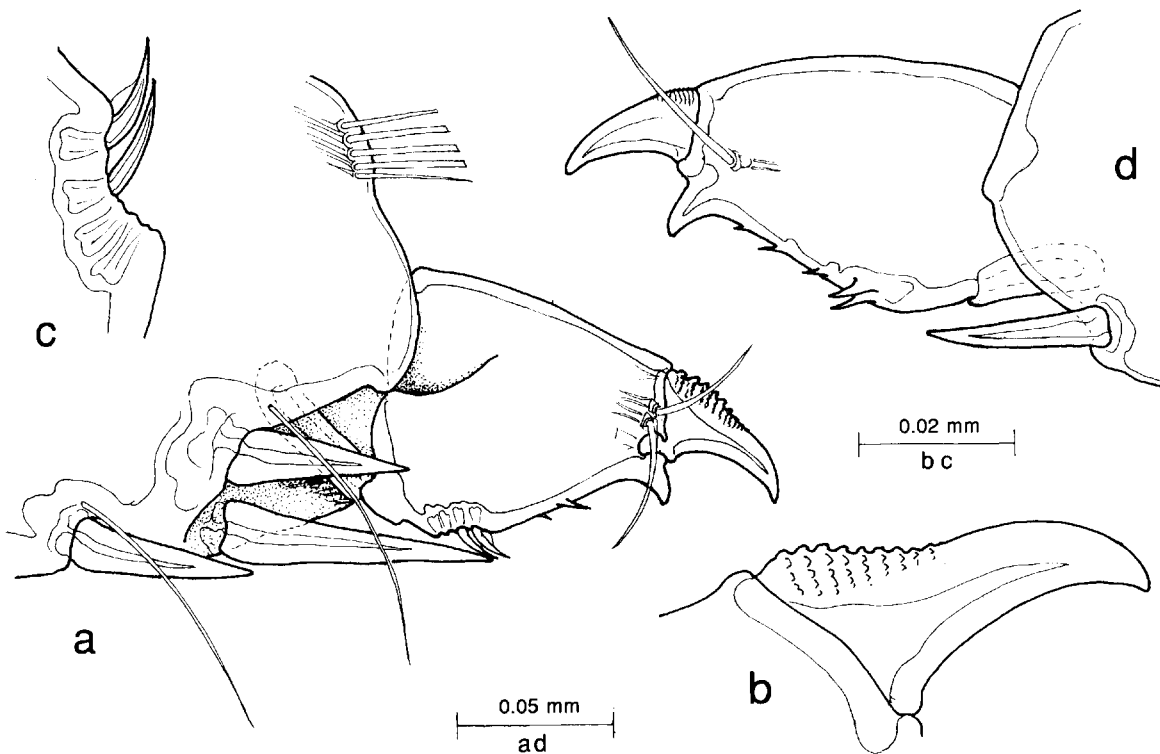


FIG. 55. — *Periclimenaeus jeancharcoti* sp. nov., holotype, ♀ : a, third ambulatory pereiopod, distal propod and dactyl, lateral; b, same, unguis; c, same, proximal corpus; d, fifth ambulatory pereiopod, same, medial.

MEASUREMENTS (mm). — Carapace length, 1.9; carapace and rostrum, 3.0; total body length (approx.) 9.0; major second pereiopod chela, 4.1; minor second pereiopod chela, 2.0; length of ovum, 0.6.

COLOURATION AND HOST. — No data.

ETYMOLOGY. — Named in honour of the research vessel "*Jean Charcot*", from which the capture of this specimen was made.

SYSTEMATIC POSITION. — The dactylus of the minor second pereopod and the third ambulatory pereopods are without parallel in the genus *Periclimenaeus*, of which this species is otherwise a typical representative, and do not suggest a particularly close relationship with any of the presently known species of the genus. Some species, such as *P. minutus*, have serrated cutting edges on the minor second pereopod dactyl (HOLTHUIS, 1952) but in that species, the ambulatory dactyl is simply biunguiculate and the propod bears 3-4 small spines along its ventral border. *P. spongicola* has the distal cutting edge of the dactyl of the major second pereopod denticulate (HOLTHUIS, 1952), and also shows a close resemblance to *P. jeancharcoti*, but lacks the ventral tubercles on the merus of both second pereopods and has the dactyl of the minor second pereopod relatively more elongate and less subcircular, lacking also the proximal denticulate tooth. Both these species lack the characteristic ornamentation of the base of the unguis of the ambulatory dactyl as found in *P. jeancharcoti*, but *P. spongicola* is reported to have some movable spines along this ventral border of the dactyl, but apparently not as a basal group as in *P. jeancharcoti*.

REMARKS. — The similarity of *P. jeancharcoti* to *P. spongicola* suggests that it will also prove to be associated with a sponge host. However, an association with a colonial ascidian cannot be eliminated from consideration, as several of the ascidian-associated species have denticulate cutting edges on the minor second pereopod dactyl and acute teeth at the proximal basal part of the corpus of the ambulatory dactyl. Both *P. minuta* and *P. spongicola* are shallow water species, known from 18-36 m and 28-32 m respectively. In contrast, *P. jeancharcoti* from 375-450 m, provides the deepest record so far obtained for a species of this genus. [*Periclimenes natalensis* (Stebbing, 1915), referred to *Periclimenaeus* by HOLTHUIS (1952) is considered unlikely to be a species of *Periclimenaeus* s. str., particularly on account of its slender ambulatory pereopods, but its correct systematic position cannot be assessed due to the lack of second pereopods from the holotype and only known specimen]. The only previous records of species of this genus from over 100 m are *P. ardeae* from 126-140 m and *P. robustus* from 119-141 m, both from Mombasa, Kenya, (BRUCE, 1976). The present record therefore indicates a significant extension of the known bathymetric range for this essentially shallow water genus.

Genus *ANCHISTUS* Borradaile, 1898

Anchistus pectinis Kemp, 1925

Figs 56-57, 71 d-f

Restricted synonymy :
Anchistus pectinis Kemp, 1925 : 327-330, figs 19-20. — SUZUKI, 1971 : 101-106, figs 5-7, pl. 2. — BRUCE, 1991 : 261, fig. 24.

MATERIAL EXAMINED. — New Caledonia. MUSORSTOM 4 : stn DW 150, 19°07.5'S, 163°22.1'E, 110 m, 14 September 1985 : 1 ♂ (MNHN-Na 12054).

HOST. — Unknown, presumably a bivalve mollusc.

REMARKS. — The present record provides a considerable extension of the known bathymetric range for this species. New Caledonian specimens have also been examined from a depth of 43 m.

The single example agrees closely with the specimens previously reported upon from New Caledonia by BRUCE, and has a carapace length of 2.7 mm. The host was not recorded.

The specimen, and other New Caledonian specimens, show some differences from the description and figures of the type material provided by KEMP (1925). The rostrum is obliquely truncate distally, rather than squarely truncate, with three small acute teeth, as in the types, but the upper pair are separated by a distinctly larger gap than the lower pair of teeth, the space being filled with a median row of short stiff setae. The inferior orbital angle is produced, acute in lateral view, with a slender marginal antennal spine. The first pereopod has the segment proportions as described by KEMP, but the fingers are deeply subspatulate, with finely denticulate lateral cutting-edges, without distal teeth, the denticulate margin continuing round on to the distomedial margin. The second

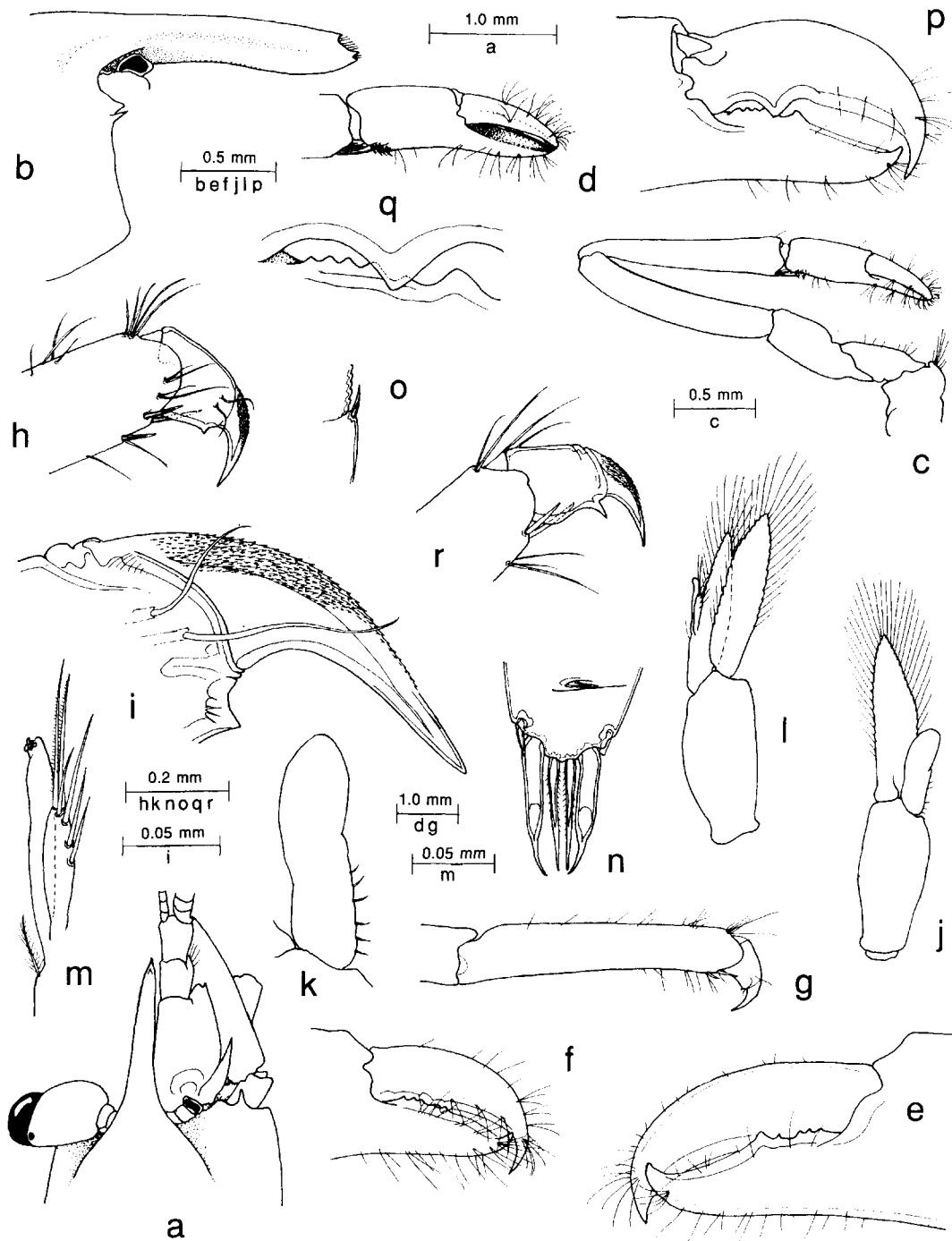


FIG. 56. — *Anchistus pectinis* Kemp, ♂, MUSORSTOM 4, stn DW 150, 110 m : a, anterior carapace and rostrum, dorsal; b, same lateral; c, first pereiopod; d, same, chela; e, major second pereiopod, fingers; f, minor second pereiopod, fingers; g, third pereiopod, propod and dactyl; h, same, distal propod and dactyl; i, same, unguis; j, first pleopod; k, same, endopod; l, second pleopod; m, same, appendix masculina and appendix interna; n, posterior telson spines; inset, dorsal spine; o, exopod of uropod, posterolateral angle. — *Anchistus pectinis* Kemp, ♂, carapace length 2.8 mm, LAGON, stn CC 147, 43 m : p, major second pereiopod, fingers; q, same, proximal cutting edges of fingers; r, third pereiopod, distal propod and dactyl.

pereiopods are similar but unequal, basically as described by KEMP. The dactylus bears a single acute tooth at about 0.3 of its length, the fixed finger with a small acute tooth at about 0.5 of its length with a series of five small, low teeth proximally. The ambulatory pereiopods are robust. The dactylus has a clearly demarcated, strongly curved, acute unguis with the proximal dorsal surface densely covered with acute microspinules. The corpus is deep and compressed, with a pair of sensory setae distolaterally; the ventral margin is convex with a small preterminal acute tooth. The propod is about 4.0 times the dactyl length and bears a pair of slender distoventral spines, with a single shorter distal ventral spine. The first pleopod has the basipodite about 2.3 times longer than wide, endopod 0.6 of basipodite length, 4.0 times longer than central width, feebly expanded distally, without accessory lobule, medial margin with six short simple spines proximally, lateral margin devoid of plumose setae. The second pleopod has the basipodite about 1.1 times the first basipodite length, subequal to the endopod length. The endopod has the appendices at about 0.3 of the medial margin length, with the corpus of the appendix masculina about 3.5 times longer than central width distinctly shorter than the appendix interna, slightly swollen, with pair of long slender distal spines, finely setulose on medial margin, about 1.2 times corpus length, with four simple ventrolateral spines. The dorsal telson spines are small, slender, slightly shorter than the lateral posterior spines which appear to be subventral. The intermediate spines are well developed, with the proximal three fourths swollen, with a slender terminal portion; intermediate spines slender about 0.8 of intermediate spine length, sparsely setulose. The exopod has the protopodite with the posterolateral angle strongly acute, exopod lacking a distinct posterolateral tooth, with a small slender mobile spine only.

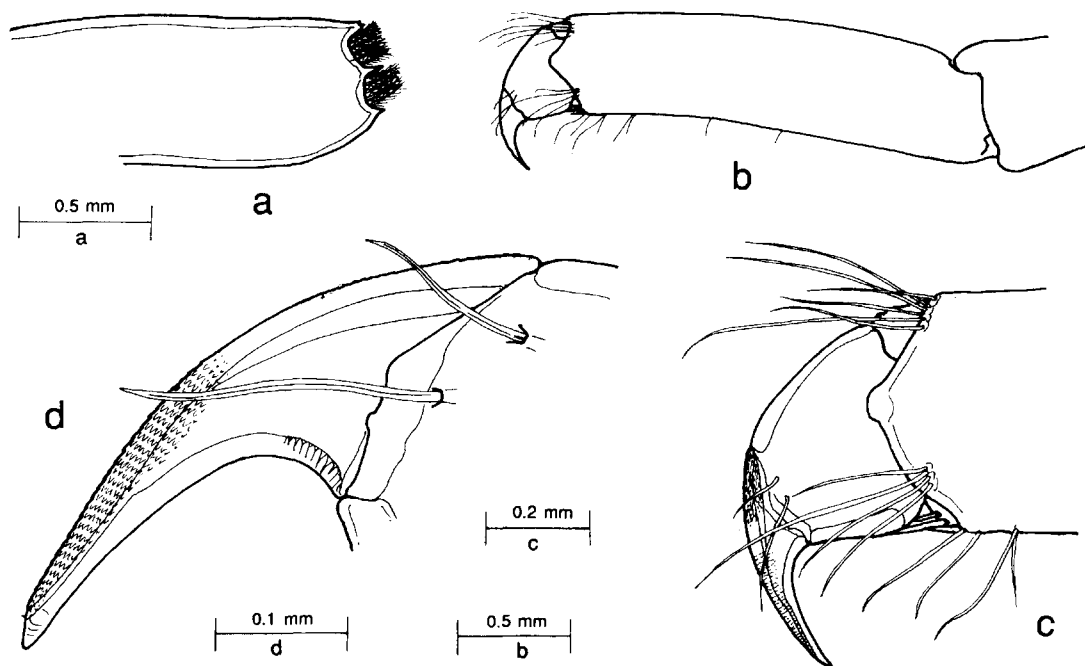


FIG. 57. — *Anchistus pectinis* Kemp, ♂, LAGON, stn CC 147, 43 m : a, rostrum; b, third ambulatory pereiopod, dactyl and propod, lateral; c, same, distal propod and dactyl; d, same unguis.

KEMP's material was reported to lack an accessory tooth on the ambulatory dactyl but a small tooth is discernible in this position in his illustration (KEMP, 1925, fig. 209). KEMP makes no mention of the microspinulation on the dorsal unguis, which he noted in other species of the genus, and he also states that the propod is without spinules on the posterior border. In the present specimen, the first pereiopod fingers are deeply subspatulate, with finely pectinate cutting edges, a further feature not commented upon by KEMP. A male specimen from 46 m (stn CC 147) was also examined and found fully comparable except that the third ambulatory propod lacked the

distal ventral spine and the accessory spine of the dactylus was particularly well developed. In view of these numerous small differences, it is possible that the present and related specimens could belong to a separate species but such a decision should be deferred until the type specimens of *A. pectinis* have been re-examined. It may also be noted that SUZUKI (1971), in reporting upon Japanese specimens of *A. pectinis*, reported that the fingers of the first pereopods are entire and did not remark on their subspatulate form. The carpus is also relatively much longer than the chela. In most of his specimens no accessory tooth was present on the ambulatory dactyls and no microspinulation of the dorsal unguis was mentioned. The endopod of the male first pleopod in SUZUKI's material also shows more numerous spinules on the proximal median margin than in the present specimen, and the distomedial margin bears a small medial process. It may therefore be necessary to resuscitate *A. misakiensis* Yokoya, 1936, in due course.

Other specimens from stn CC 147, two ovigerous females, two males and a juvenile, also showed differences from the above mentioned specimens. One female, carapace length 7.3 mm, had three distal rostral teeth, the intervening notches filled with 6-7 short plumose setae. The dactyls of the third ambulatory pereopods showed the presence of minute slender, acute denticles distodorsally under SEM examination (fig. 71), the proximal dorsal region being finely rugulose, but without distinct microspinulation. The distoventral propod was armed with one longer and two shorter slender spines. These specimens were found in the mantle cavity of *Amusium japonicum balliotti* (Bernardi) [Pectinidae]. It may be noted in parenthesis, that the distodorsal unguis of the third ambulatory pereopod of *Anchistus custos* (Forskål) is also sparsely provided with flattened scale-like denticles (fig. 71 a-c).

DISTRIBUTION. — Type locality : Octavia Bay, Nancowry Harbour, Nicobar Islands. Also known from Zanzibar, Japan, Australia and New Caledonia.

Genus *PONTONIA* Latreille, 1829

Pontonia monnioti Bruce, 1990

Pontonia monnioti Bruce, 1990b : 183-191, figs 21-24, 39 i-j.

MATERIAL EXAMINED. — Chesterfield Islands. MUSORSTOM 5 : stn CP 254, 25°10.29'S, 159°53.07'E, Middleton Chain, 280-290 m, 7 October 1986 : 1 ♂, 1 ovig. ♀ (MNHN-Na 12021). — Stn CP 269, 24°47.0'S, 159°37.3'E, 270-250 m, 9 October 1986 : 1 ♂, 1 ovig. ♀ (MNHN-Na 12022).

HOST. — *Ascidia alterna* Monniot & Monniot [Tunicata : Ascidiidae].

REMARKS. — Previously known only from the type material from 285 m, the present specimens are from a similar depth and show no significant differences. The host ascidian has now been described and is now specifically identified. The stn CP 269 specimens have only two detached second pereopods, the specimens from stn CP 254 have both pairs. The specimens have the following carapace lengths, stn CP 254, male, 2.5, female, 3.2; stn CP 269, male, 1.6; female, 3.0 mm.

DISTRIBUTION. — Type locality : Chesterfield Islands, New Caledonia (BRUCE, 1990b). No other records.

Genus *AMPHIPONTONIA* nov.

DEFINITION. — Small sized pontoniine shrimps of subcylindrical body form. Rostrum well developed, slender, distally compressed, unarmed, dorsal carina distinct, marginally swollen, lateral carinae feebly expanded. Carapace smooth, supraorbital, epigastric and hepatic spines absent; orbit feebly developed, inferior orbital angle distinct, antennal spine present, anterolateral branchiostegite feebly produced. Fourth thoracic sternite with low transverse

ridge, without medial process. Abdomen smooth, third segment not posterodorsally produced, pleura broadly rounded. Telson with two pairs of dorsal spines, three pairs of posterior spines. Antennae normal; scaphocerite well developed with small distolateral tooth. Eye normal, cornea globular, pigmented. Mandible without palp, molar process normal, incisor process slender. Maxillula normal, without enlarged lacinae. Maxilla with feeble bilobed endite, scaphognathite broad. First maxilliped with basal and coxal endites completely fused (?), exopod with broad caridean lobe, flagellum well developed, epipod simple. Second maxilliped with normal endopod, slender exopod, coxa with rounded medial margin, epipod simple, without podobranch. Third maxilliped with robust endopod, ischiomerus distinct from basis, exopod well developed, coxa with oval lateral plate, arthrobranchial rudiment present. Paragnaths with proximomedian ventral groove. First pereopod slender, chela with fingers simple, unarmed. Second pereopods well developed, elongate, subcylindrical, chelae grossly unequal, dissimilar; major chela subcylindrical, with dactyl greatly enlarged, fingers dentate, without molar process and fossa; minor chela slender, fingers subequal, feebly armed; carpus, merus and ischium unarmed. Ambulatory pereopods slender, dactyl biunguiculate, with proximal and intermediate teeth, without basal protuberance. Uropods normal, exopod with distolateral tooth with mobile spine medially.

TYPE SPECIES. — *Amphipontonia kanak* sp. nov.

SYSTEMATIC POSITION. — The genus *Amphipontonia* is most closely related to the genus *Pontonia* Latreille, 1829, and from which it may be distinguished by the characteristic form of the second pereopods, which contrast strongly with those of all species presently referred to *Pontonia*. Although a considerable range of variation occurs in the morphology of the second pereopods in *Pontonia* species, these are always much less unequal than in *Amphipontonia*, generally stout, with the palm proximally swollen and frequently compressed, with the ventral margins carinate, and not elongate and subcylindrical as in *Amphipontonia*. *Pontonia* species also lack the characterically enlarged fingers found on the major chela in *Amphipontonia*, with the broad dactylus markedly over-reaching the fixed finger.

ETYMOLOGY. — *Αμφί* (Greek), around; *Pontonia*, generic name first used by LATREILLE, 1829.

REMARKS. — The mouthparts of *Amphipontonia* show a close resemblance to those of most species of the genus *Pontonia* and, in particular, the paragnaths show a particular similarity to that of *P. pinnophylax* (Otto), the type species of the genus, both species having a characteristic longitudinal ventral groove on the proximal part of the corpus of the paragnaths (BRUCE, in press). The ambulatory dactyls also show some similarity to some *Pontonia* species but do not correspond precisely to any. Many *Pontonia* are simply biunguiculate, but others (*P. okai* Kemp, *P. ascidicola* Borradaile, *P. anachoreta* Kemp, *P. stylirostris* Holthuis, and *P. monnioti* Bruce, among Indo-West Pacific species) are biunguiculate with a variable number of accessory teeth along the ventral border of the dactylar corpus. In the *Pontonia* species these are usually blunt and hook-like and not acute as in *Amphipontonia*. The dorsal carina of the rostrum is distinct in some species of *Pontonia*, (feebly developed or absent in others) but lacks the characteristic swollen or thickened upper margin found in *Amphipontonia*.

Amphipontonia kanak sp. nov.

Figs 58-63

MATERIAL EXAMINED. — New Caledonia. CHALCAL 2 : stn DW 82, 22°13.36'S, 168°02.73'E, Norfolk Ridge, 300 m, 31 October 1986 : 1 ovig. ♀, paratype (NMT Cr. 007920).

Loyalty Islands. Stn unknown : 1986, no precise data : 1 ♂, allotype, 1 non-ovig. ♀, holotype (MNHN-Na 12026).

DESCRIPTION. — Small sized pontoniine shrimps of normal subcylindrical body form.

Carapace smooth, glabrous; rostrum slender, extending to slightly beyond proximal segment of antennular peduncle, compressed distally, with rounded, feebly irregular, non-setose distal margin, generally curved ventrally; dorsal margin convex, thickened, unarmed; supraorbital, epigastric and hepatic spines absent; orbit feebly developed, inferior orbital angle distinct, broad, blunt; antennal spine small, acute, marginal, extending to about level of apex of inferior orbital angle; anterolateral angle of branchiostegite feebly produced, broadly rounded.

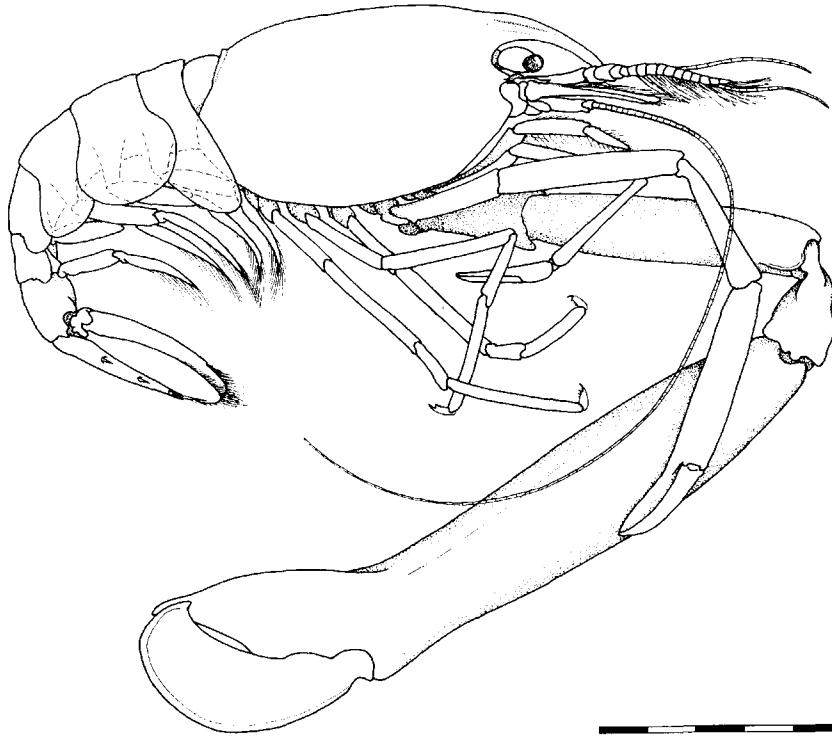


FIG. 58. — *Amphipontonia kanak* gen. nov., sp. nov., holotype, ♀, Loyalty Islands, station unknown : lateral aspect. Scale bar in millimeters.

Abdomen smooth, glabrous; third abdominal segment not posterodorsally produced; pleura of first three segments broadly rounded, fourth and fifth pleura small, rounded; fifth segment about 0.75 of sixth segment length, sixth segment about 1.25 times longer than deep, posteroventral angle small, blunt, posterolateral angle acute. Telson about 2.2 times longer than sixth segment, 2.5 times longer than anterior width, lateral margins straight, convergent posteriorly, posterior margin about 0.45 of anterior margin width; with two pairs of slender marginal dorsal spines, about 0.1 of telson length, at 0.35 and 0.65 of telson length; posterior margin bluntly angular, without acute median point, lateral spines well developed, slightly longer than dorsal spines, intermediate spines slender, about 0.29 of telson length. 2.3 times lateral spine length, submedian spines slightly longer than lateral spines, slender, densely setulose.

Eye with cornea well developed, small, globular, without accessory pigment spot, normally pigmented, about 0.8 of proximal width of stalk, oblique; peduncle about 1.2 times longer than proximal width, feebly compressed, tapering distally.

Antennule with peduncle exceeding rostrum by about half of intermediate segment, reaching to about 0.6 of scaphocerite length; proximal segment about 1.75 times longer than wide, stylocerite acute, slender, reaching to about 0.7 of proximal segment length, statocyst normal, with granular statolith, medial margin straight, sparsely setose, with small acute, ventral tooth at 0.5 of length; lateral margin sinuous, distally convergent, anterolateral angle produced, with small acute distolateral tooth; intermediate segment about 0.4 of proximal segment length, 1.5 times longer than wide, obliquely articulated with distal segment; distal segment subequal to intermediate segment; upper flagellum biramous, not carried flexed, proximally robust, with about 10 fused segments, shorter free ramus with three segments, with about 26 groups of aesthetascs; longer free ramus slender, about 20 segments; lower flagellum slender, similar to longer upper ramus.

Antenna with basicerite robust, laterally unarmed; carpcerite robust, about 3.5 times longer than broad, reaching to about 0.5 of scaphocerite length, flagellum well developed, slender, about 3.0 times carapace length;

scaphocerite well developed, far exceeding antennular peduncle, broad, about 2.2 times longer than maximal width situated at 0.5 of length, lateral margin proximally convex, distally straight, with stout acute distal tooth, distal margin broadly rounded, far exceeding tip of distolateral tooth.

Epistome normal, unarmed. First thoracic sternite (?) with low transverse ridge with median eminence with small central fossa; second and third sternites unarmed; fourth with low transverse ridge with small median projection; fifth with low ridges laterally posterior to origin of coxae; posterior sternites narrow, unarmed.

Mandible, damaged in dissection, moderately slender, without palp; molar process normal, obliquely truncate distally, with five blunt teeth and two small groups of setae; incisor process slender, tapering distally, with three acute distal teeth, central tooth smaller than adjacent teeth. Maxillula with short, stout bilobed palp, larger lower

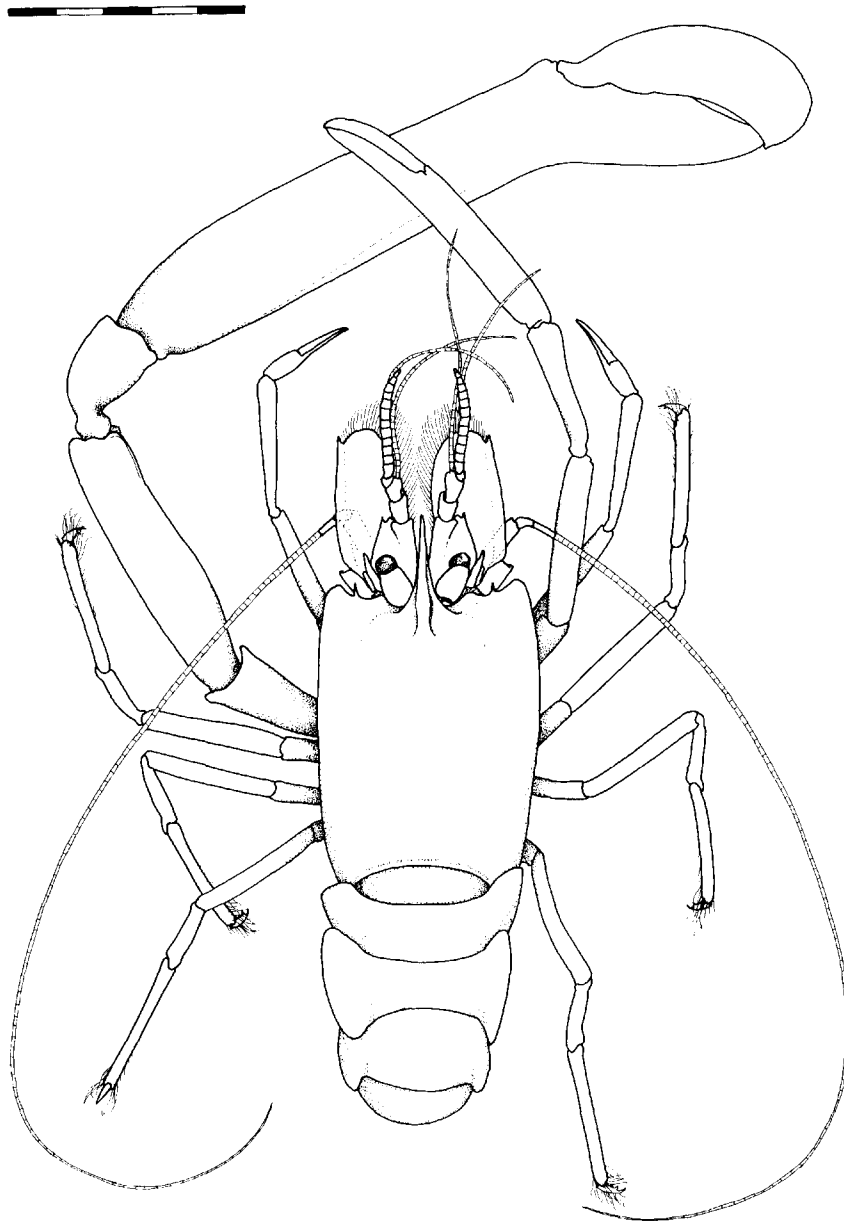


FIG. 59. — *Amphipontonia kanak* gen. nov., sp. nov., holotype, ♀, Loyalty Islands, station unknown : dorsal aspect. Scale bar in millimeters.

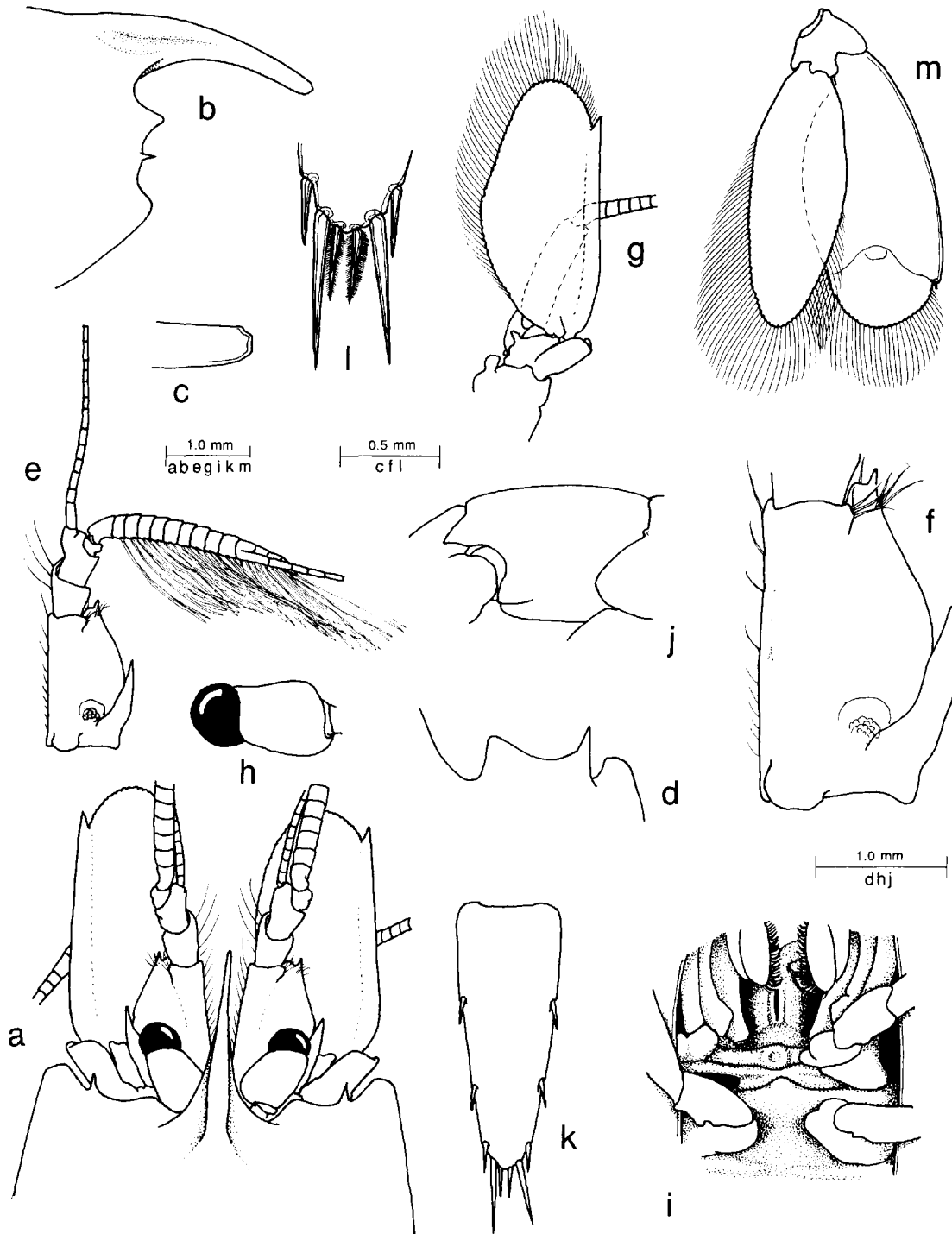


FIG. 60. — *Amphipontonia kanak* gen. nov., sp. nov. : a, anterior carapace, rostrum, eyes and antennal peduncles, dorsal; b, anterior carapace and rostrum, lateral; c, tip of rostrum; d, right orbital region, dorsal; e, antennule; f, same, proximal segment of peduncle; g, antenna; h, eye, dorsal; i, anterior thoracic sternites; j, sixth abdominal segment, lateral; k, telson; l, same, posterior spines; m, uropod.

a : holotype, ♀; b-m : allotype, ♂.

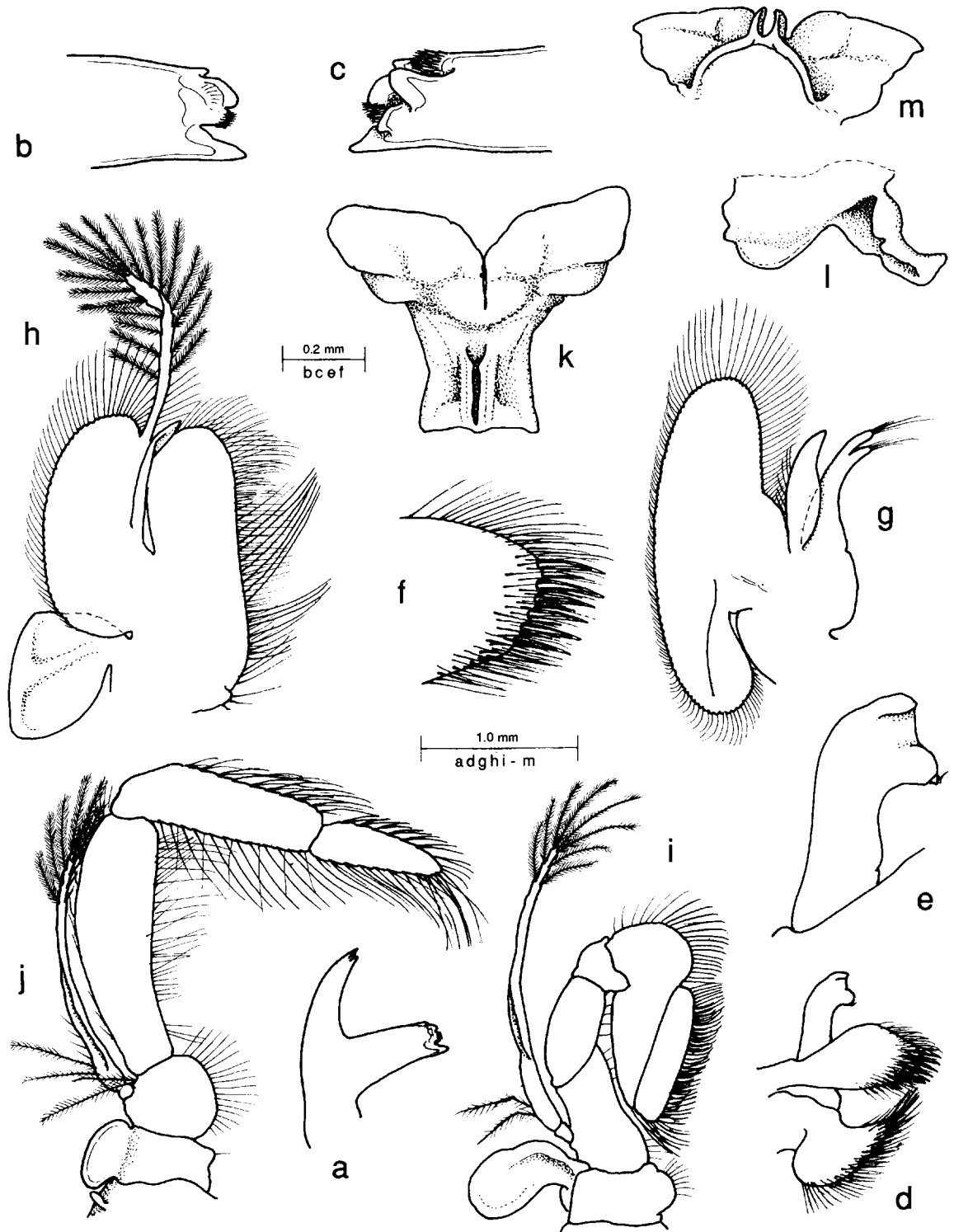


FIG. 61. — *Amphipontonia kanak* gen. nov., sp. nov., allotype, ♂ : a, mandible; b-c, molar process, dorsal and ventral; d, maxillula; e, same, palp; f, same, upper lacinia; g, maxilla; h, first maxilliped; i, second maxilliped; j, third maxilliped; k, paragnath, ventral; l, same, lateral; m, same, posterior.

lobe with small setose tubercle; upper lacinia feebly broadened, with numerous slender simple spines distally, densely setose; lower lacinia normal, tapering distally with numerous spiniform distal setae, densely setose ventrally. Maxilla with broad, tapering, distally acute palp, without distomedial seta, with several short plumose proximolateral setae, basal endite slender, bilobed, slender upper lobe longer than lower, with about five simple setae, lower lobe similar, coxal endite obsolete, separated from basal by small medial notch; scaphognathite broad, about 2.5 times longer than wide, posterior lobe well developed, about 1.4 times longer than wide, 0.3 of scaphognathite length, anterior lobe 1.3 times longer than wide, 0.55 of scaphognathite length, medial border notched, proximally convex, anteriorly broadly rounded. First maxilliped with elongate tapering palp, exceeding distal border of basal endite, non-setose, basal endite elongate, narrow, 1.4 times longer than broad, distally rounded, with numerous slender simple marginal setae, not forming a distinct setal basket, with ventral marginal row of long setae proximally, coxal endite obsolete, represented by small non-setose proximal lobe(?); exopod with slender flagellum with numerous plumose setae distally, caridean lobe large, broad, larger than basal endite; coxal endite obsolete, not separated from basal endite, with small proximal lobe, epipod well developed, simple. Second maxilliped with endopod normal, dactylar segment moderately broad, about 4.0 times longer than broad, densely provided with setulose setae medially, propodal segment with distomedial angle enlarged, broadly rounded with numerous long spiniform setae, carpus short, with acute ventromedial lobe, ischiomerus and basis without special features; exopod with slender flagellum with numerous plumose setae distally, with two plumose setae proximolaterally; coxa with rounded setose medial lobe, with simple epipod laterally, without podobranch. Third maxilliped with endopod moderately robust, exceeding carapocerite by distal segment; ischiomerus distinct from basis, compressed, about 3.3 times longer than central width, slightly tapered proximally, medial margin sparsely setose, with long slender simple setae, distolateral margin feebly setose; penultimate segment about 0.8 of ischiomerus length, about 3.6 times longer than proximal width, tapering feebly distally, sparsely setose medially with long simple setae, lateral border densely setose with groups of shorter setae; terminal segment about 0.6 of penultimate segment length, 3.0 times longer than proximal width, tapering distally, with numerous long setae medially and laterally; basis well developed, broadly rounded medially and with numerous long slender simple setae, with two distolateral plumose setae; exopod with slender flagellum with numerous plumose setae distally, two plumose setae proximolaterally; coxa with small median process, with single short seta, lateral plate well developed, rounded; with vestigial arthrobranch. Paragnaths with alae well developed, feebly bilobed, corpus with deep longitudinal median groove.

First pereopod slender, exceeding carapocerite by distal 0.3 of merus, antennular peduncle by carpus and chela; chela with palm, subcylindrical, slightly compressed, about 2.25 times longer than deep, fingers simple, slender, about 1.25 times palm length, dactyl about 6.0 times longer than deep, fixed finger 5.4 times longer than deep, dactyl with small hooked tip, fixed finger with two small distal teeth, cutting edges entire, with numerous short setae, fingers with numerous groups of longer setae; carpus about 1.25 times chela length, 7.3 times longer than distal width, tapering strongly proximally; merus subequal to carpal length, about 8.0 times longer than wide, subuniform; ischium about 0.55 of meral length, compressed, ventrally feebly convex, setose; basis about 0.33 of meral length, ventral border convex, setose; coxa robust, with prominent ventral carina.

Second pereopods generally similar in male and female, well developed, dissimilar, grossly unequal; major chela greatly enlarged, elongate, generally slender, exceeding scaphocerite by about distal half of merus, chela smooth, subcylindrical to suboval, with palm about 2.0 times carapace length in female, 2.3 times in male, about 4.5 times longer than proximal width, tapering feebly distally; dactyl strongly compressed, curved, about 0.4 of palm length, far over-reaching fixed finger, twisted, with acute distal tooth about 3.5 times longer than central depth, dorsal margin strongly convex, cutting edge concave, blunt, with well developed sharp angular tooth proximally, fitting into deep fossa on opposing region of fixed finger; fixed finger reaching to about 0.8 of dactyl length, about 2.5 times longer than deep, feebly hooked, tip semi-blunt, cutting edge distally concave, blunt, with large bluntly angular tooth at about 0.5 of length, medially situated with deep fossa proximolaterally, with smaller tooth proximally, with series of small marginal denticulations; carpus about 0.23 of palm length, 2.0 times longer than distal width, strongly tapered proximally, excavate distally, margins semi-obsolete, unarmed; merus about 0.5 of palm length, 4.0 times longer than central width, slightly swollen centrally, distinctly tapered proximally, without distoventral tooth or lateral flange; ischium about 0.4 of merus length, 0.18 of palm length, 1.8 times longer than distal width, narrow proximally, expanded distally, with distinct subacute distolateral and

distomedial angles, centrally feebly excavate; basis and coxa without special features. Minor second pereiopods slender, much smaller than major, exceeding scaphocerite by carpus and chela; chela subequal to carapace length, 0.38 of major chela length, palm about 0.7 of carapace length, subcylindrical, slightly compressed, smooth, 4.5 times longer than central depth, fingers slender, about 0.6 of palm length, dactyl about 5.7 times longer than central depth, with feebly hooked tip, cutting edge lateral, entire, with single small acute tooth proximally, fixed finger similar, unarmed; carpus about 0.5 of chela length, 4.5 times longer than distal width, tapering proximally, unarmed, about 1.2 times length of carpus of major chela; merus about 0.95 of palm length, 6.0 times longer than central width, subuniform, unarmed, ischium about 0.65 of merus length; basis and coxa without special features.

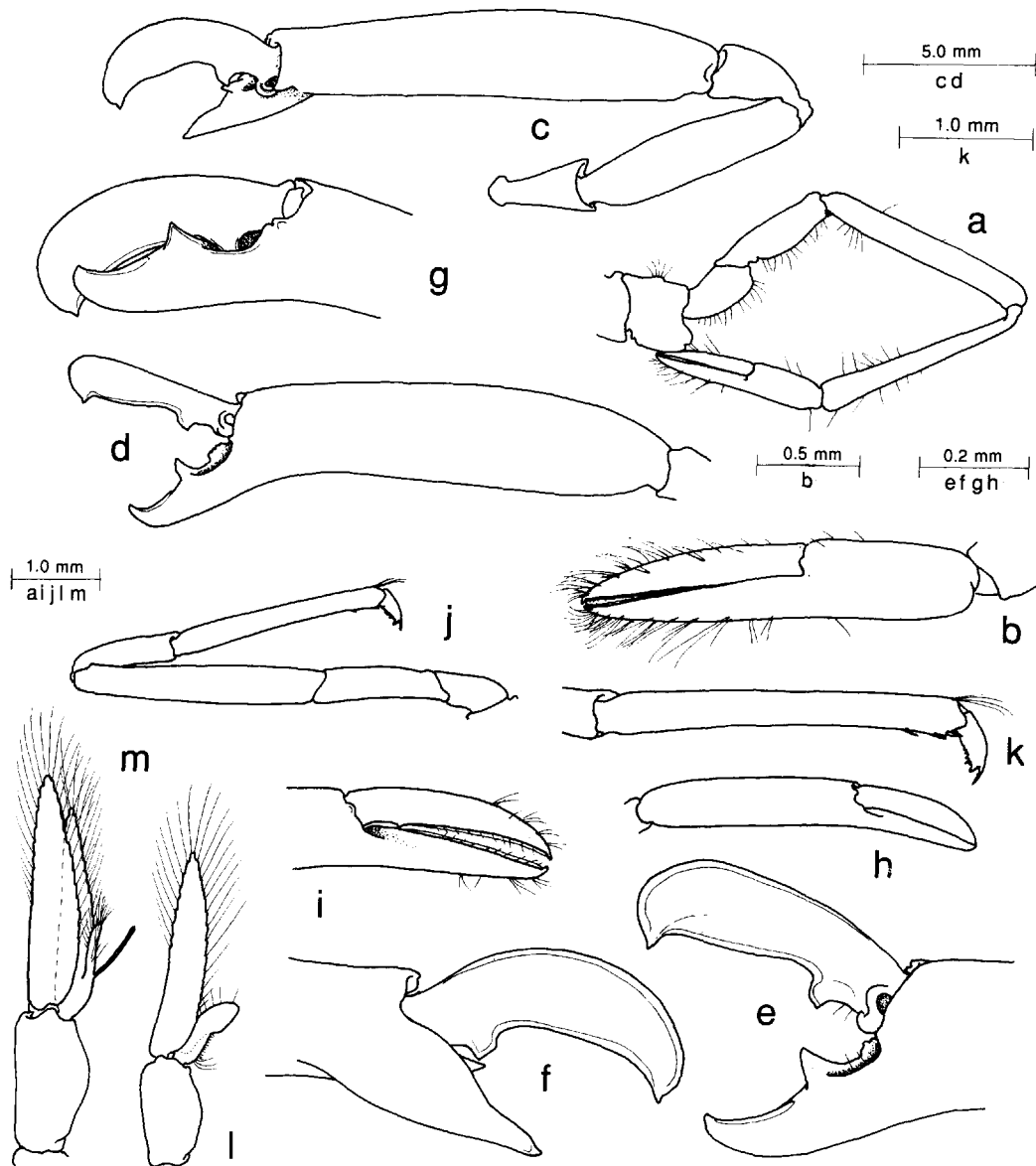


FIG. 62. — *Amphipontonia kanak* gen. nov., sp. nov. : a, first pereiopod; b, same, chela; c, major second pereiopod; d, same, chela; e, same, fingers, medial; f, same, lateral; g, same, medial; h, minor second pereiopod, chela; i, same, fingers; j, third pereiopod; k, same, propod and dactyl; l, first pleopod; m, second pleopod.

a-b, d-f, j-m : allotype, ♂; c, g-i : holotype, ♀.

Ambulatory pereiopods slender, third exceeding scaphocerite by about length of dactyl; dactyl of male third pereiopod with unguis distinct, about 3.0 times longer than proximal width, conical, feebly curved, about 0.55 of corpus length, corpus strongly compressed, about 2.0 times longer than deep, with large acute compressed distoventral accessory tooth, ventral margin straight or feebly convex with six small very acute teeth over distal half; propod about 5.0 times dactyl length, 8.75 times longer than central width, slightly compressed, proximally and distally expanded, with three sharp single spines distoventrally, numerous long flexible setae; carpus about 0.5 of propod length, with distodorsal lobe, unarmed; merus about 1.2 times propod length, 6.3 times longer than central width, unarmed; ischium about 0.55 of meral length, 4.0 times longer than distal width; basis and coxa normal. Fourth and fifth pereiopods similar. Female third ambulatory dactyl with four acute ventral teeth only, in addition to distoventral accessory tooth, fourth pereiopod with three only; otherwise as in male.

Branchial formula	Maxillipeds			Pereiopods				
	1	2	3	1	2	3	4	5
Pleurobranchs	-	-	-	+	+	+	+	+
Arthrobranchs	-	-	r	-	-	-	-	-
Podobranchs	-	-	-	-	-	-	-	-
Epipods	+	+	+	-	-	-	-	-
Exopods	+	+	+	-	-	-	-	-

Male first pleopod with basipodite robust, about 1.9 times longer than broad, endopod about 0.8 of basipodite length, 3.5 times longer than central width, distal third expanded medially, without accessory lobe, proximal 0.6 of medial margin with three plumose setae proximally, fourteen slender simple spinules along remainder, distal medial margin unornamented, distal half of lateral margin with six short plumose setae; exopod about 2.5 times endopod length, 5.0 times longer than central width. Male second pleopod with basipodite 2.0 times longer than wide, 1.3 times longer than first pleopod basipodite, endopod about 5.3 times longer than wide with appendices at 0.13 of medial length; appendix masculina reaching to about 0.5 of endopod length, subcylindrical, about 6.5

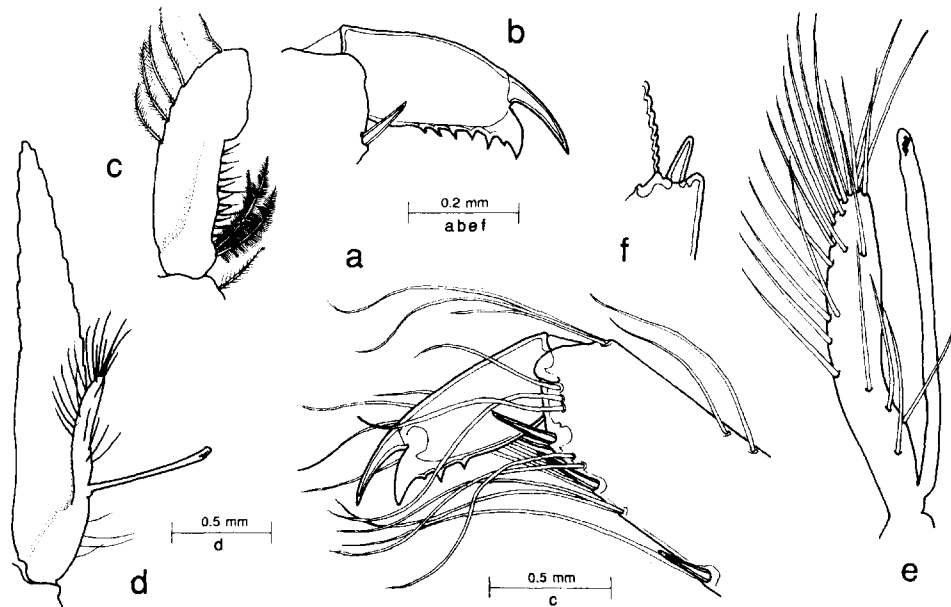


FIG. 63. — *Amphipontonia kanak* gen. nov., sp. nov. : a, fourth pereiopod, distal propod and dactyl; b, third pereiopod, same without setae; c, first pleopod, endopod; d, second pleopod, endopod; e, same, appendix masculina and appendix interna.

a : holotype, ♀; b-e : allotype, ♂.

times longer than central width, with about ten slender simple spines along ventromedial margin, six ventral, one proximolateral and six distal spines; appendix interna elongate, slender, about 25 times longer than central width, exceeding appendix masculina, with few distal concinnuli.

Uropod distinctly exceeding telson; protopodite with distolateral lobe rounded; exopod about 2.2 times longer than broad, lateral margin convex, non-setose, with very small distolateral tooth, with larger blunt mobile spine medially; endopod subequal to exopod length, about 2.7 times longer than width.

Ova moderately numerous, small.

MEASUREMENTS (mm). — *Holotype female* : carapace length, 5.2; rostrum and carapace, 7.3; total body length (approx.), 17.0; major second pereopod chela, 14.0; minor second pereopod chela, 5.7.

Allotype male : carapace length, 8.0; carapace and rostrum, 4.0; total body length (approx.) 28.0; major second pereopod chela, 18.6.

Paratype female : carapace length, 5.2; carapace and rostrum, 6.71; total body length (approx.) 17.0; major second pereopod chela, 13.0; minor second pereopod chela, 5.8; length of ovum, 0.6.

ETYMOLOGY. — *Kanak*, traditional local name for inhabitant of New Caledonia, used in apposition.

REMARKS. — The specimens of *Amphipontonia kanak* were collected during the CHALCAL 2 operations off New Caledonia. The pair of specimens were reportedly found in association with an antipatharian host, *Antipathes* sp. or *Parantipathes* sp., presumably in association, but no details of the precise locality or depth were recorded. The single ovigerous female was found in an ascidian host by Dr Claude MONNIOT, who identified the host as a specimen of *Corynascidia alterna*. It seems most unlikely that *A. kanak* could live in association with such disparate hosts. In favour of an association with an ascidian host is the close relationship of the genus *Amphipontonia* to *Pontonia*, of which most Indo-West Pacific species are normally found in association with ascidian hosts. However many of these species tend to be of a robust, squat conformation, with stout or compressed chelae on the second pereopods, and it appears unlikely that a species with elongate, slender chelae would be satisfactorily accommodated within an ascidian host. In contrast, *Pontonia*-like species do not generally occur in association with antipatharian or other coelenterate hosts. The capture of a heterosexual pair on an antipatharian does suggest that such an association may not be merely accidental. The slender ambulatory pereopods in *Amphipontonia* also suggests a more active lifestyle than in most *Pontonia* species, which may indicate a more chirostyliid-like association. An unidentified shrimp (*Pontonia* sp.) has been illustrated in association with a coelenterate host, off Okinawa, Japan, and shows some general similarity to the morphology of *Amphipontonia*. The specimen was unfortunately not collected, but shows that such an association may be expected (MASUDA *et al.*, 1986).

The major second pereopod in *Amphipontonia* is quite unlike that of any other known pontoniine shrimp. There is some slight resemblance to the feebly developed major second pereopod in *Hamodactylus boschmai* Holthuis, an associate of alcyonarians, in which the relatively large curved dactylus greatly overreaches the reduced fixed finger, but in this species the whole chela is especially feebly developed for a pontonine shrimp. In the genera *Anchistus*, *Paranchistus* and *Neoanchistus*, the major second pereopod chela also has a strongly curved hooked dactylus, but the fixed finger is not reduced, and the dactyl is not strongly enlarged and compressed as in *Amphipontonia*, in which both fingers are also noticeably depressed. The ischiomeral articulation resembles a ball-and-socket joint and shows an unusually high degree of mobility, not found in most other pontoniine shrimps, in which it is generally semi-rigid.

Genus *ALTOPONTONIA* Bruce, 1990

Altopontonia disparostris Bruce, 1990

Altopontonia disparostris Bruce, 1990b : 192-202, figs 25-33, 39 k.

MATERIAL EXAMINED. — **Loyalty Islands**. BIOCAL : stn DW 44, 22°47.0'S, 167°14.0'E, 440-450 m, 30 August 1985 : 1 ♂ (MNHN-Na 12016). — Stn CP 45, 22°47.0'S, 167°15'0"E, 430-465 m, 30 August 1985 : 2 ♀, 2 ovig. ♀ (MNHN-Na 12015).

New Caledonia. MUSORSTOM 4 : stn DW 162, 18°35.0'S, 163°10.3' E, Entrecasteaux Reefs, 525 m, 16 September 1985 : 1 ovig. ♀ (MNHN-Na 12019). — Stn 181, 18°57.2 'S, 163°22.4' E, 350 m, 18 September 1985 : 5 ovig. ♀, 1 ? juvenile ♀ (MNHN-Na 12018). — Stn DW 196, 18°55.0'S, 163°23.7'E, 450 m, 20 September 1985 : 2 ♀ (MNHN-Na 12020). — Stn DW 222, 22°57.6' S, 167°33.0' E, 410-440 m, 30 September 1985 : 3 ovig. ♀ (MNHN-Na 12017).

REMARKS. — Previously known only from the nine type specimens from 410-503 m off New Caledonia, the additional fifteen specimens indicate that this species is relatively common, although its host animal unfortunately remains unknown. The records from 350 m and 525 m provide a small increase in the recorded bathymetric range.

The specimens agree generally with the previous description, scarcely surprising as some of them were from the same stations as some of the type material (stns DW 44, CP 45).

DISTRIBUTION. — Type locality : New Caledonia, 23°03.0'S, 167°19.0'E, 503 m. Known only from New Caledonian waters.

Genus *MESOPONTONIA* Bruce, 1967

Mesopontonia gorgoniophila Bruce, 1967

Restricted synonymy :

Mesopontonia gorgoniophila Bruce, 1969 : 13-23, figs 5-9.

MATERIAL EXAMINED. — **New Caledonia.** MUSORSTOM 4 : stn 153, 19°04.2'S, 163°21.2'E, 235 m, 14 September 1985 : 1 ovig. ♀ (MNHN-Na 12008).

REMARKS. — The single specimen is complete, with both second pereopods and has a carapace length of 2.5 mm, with a rostral dentition of 1 + 8/2. It shows no significant differences from the original description.

DISTRIBUTION. — Not previously recorded from New Caledonian waters. Type locality : South-China Sea, 21°47.7'N, 116°28.5'E to 21°42.0'N, 116°30.0'E, 117-131 m. Also known from the Coral Sea, 270 m, and the Philippine Islands, 130-137 m.

Mesopontonia gracilicarpus Bruce, 1990

Fig. 64

Mesopontonia gracilicarpus Bruce, 1990b : 202-211, figs 34-37, 39 l-m.

MATERIAL EXAMINED. — **New Caledonia.** MUSORSTOM 4 : stn 222, 22°59.6'S, 167°33.0'E, Isle of Pines, 410-440 m, 30 September 1985 : 1 ♂, 2 ovig. ♀ (MNHN-Na 12013); 1 ovig. ♀ (NTM Cr. 8217).

Chesterfield Islands. MUSORSTOM 5 : stn 339, 19°53.4'S, 158°37.9'E, 380-395 m, 16 October 1986 : 1 ♀ (MNHN-Na 12014).

REMARKS. — The present specimens agree well with the description of the ovigerous female holotype, the only previously known specimen.

The single male specimen has a carapace length of 3.6 mm and a rostral dentition of 1 + 9/2. The ovigerous females have carapace lengths of 3.7 - 4.4 mm and a rostral dentition of 1 + 10/3. The female, probably immature, has a carapace length of 2.9 mm and a rostral dentition of 1 + 9/2, with the extended second pereopods of subequal length. The male specimen lacks both second pereopods. The rostrum reaches only to the end of the intermediate segment of the antennular peduncle, with the first two teeth semiarticulate. The first pleopod has the basicerite about 2.0 times longer than wide, with the endopod about 0.9 of the basipodite length, 2.7 times longer than central width, very feebly expanded distally, with vestigial distomedial lobule, proximal medial margin with three

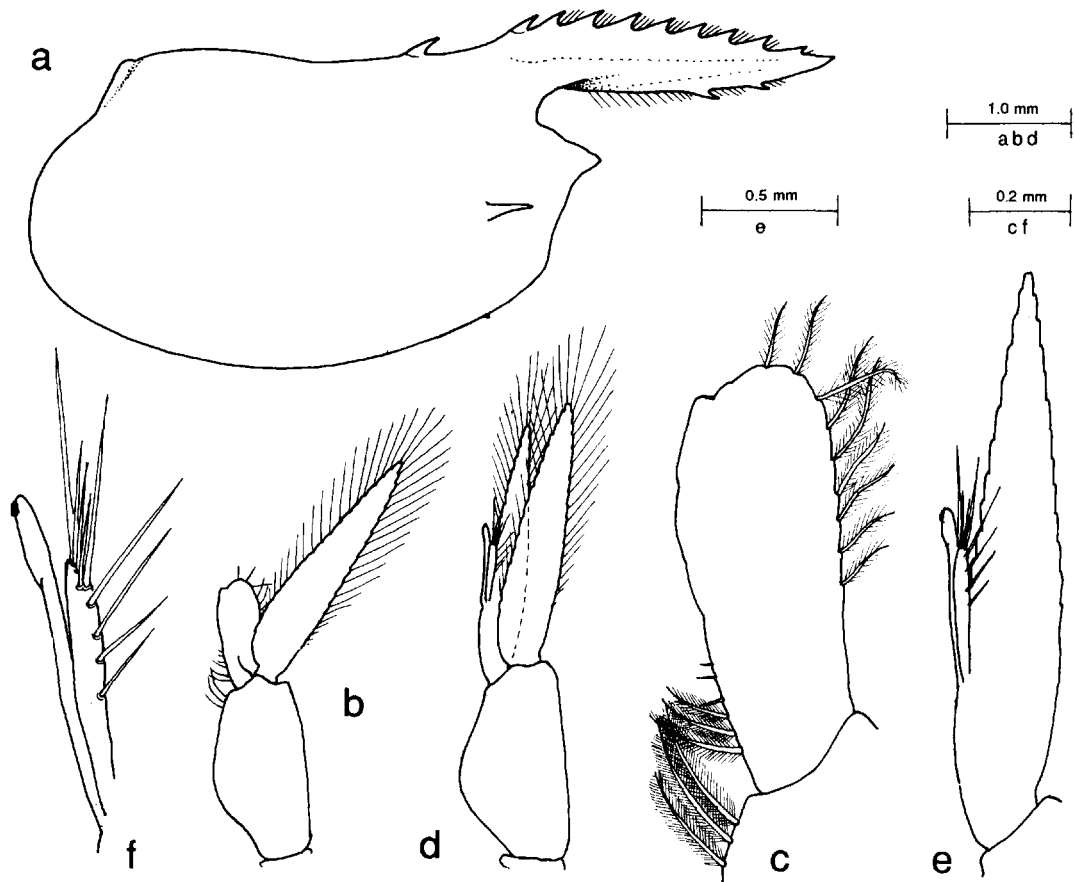


FIG. 64. — *Mesopontonia gracilicarpus* Bruce, ♂, MUSORSTOM 4, stn DW 222, 410-440 m : a, carapace and rostrum; b, first pleopod; c, same, endopod; d, second pleopod; e, same, endopod; f, same, appendix masculina and appendix interna.

robust densely plumose setae proximally and three small simple spinules distally, distolateral margin with nine short feebly plumose setae. Second pleopod with basipodite 1.1 times first basipodite length, 1.8 times longer than wide; endopod about 1.3 times basipodite length, 6.0 times longer than wide, with appendices at 0.33 of medial margin length, appendix masculina reaching to about 0.5 of endopod length, subcylindrical, 7.0 times longer than central width, with single long robust simple spine distally, subequal to corpus length, with five stout ventrolateral spines, simple, of decreasing length proximally, with three shorter, more slender distomedial spines near the tip; appendix interna slender, distinctly exceeding appendix masculina; exopod subequal to endopod length, 5.0 times longer than wide.

DISTRIBUTION. — Type locality : New Caledonia, 22°56'S, 167°14'E, 398-410 m. Known only from New Caledonian waters.

Mesopontonia monodactylus sp. nov.

Figs 65-69

MATERIAL EXAMINED. — Loyalty Islands. BIOCAL : stn DW 83, 20°35.0'S, 166°54.0'E, Uvéa, 460 m, 6 September 1985 : 1 ♂, 5 ovig. ♀ [holotype ♀ (MNHN-Na 12011); allotype ♂, 3 paratype ♀ (MNHN - Na 12012); 1 paratype ♀ (NTM Cr. 007921)].

DESCRIPTION. — Small sized pontoniine shrimps of moderately slender, subcylindrical body form.

Carapace smooth, glabrous; rostrum well developed, slender, acute, compressed, slightly upturned, reaching to about end of antennular peduncle, about 0.9 of carapace length, dorsal carina well developed, straight or feebly concave in female, feebly convex in male, with 8-9 slender acute dorsal teeth in female, 8 in male (with tip missing), lateral carinae feebly developed, slightly expanded posteriorly, ventral carina feebly developed, with two acute teeth in female, both on distal half, with single tooth in male; dental interspaces feebly setose; epigastric tooth present, at about 0.2 of carapace length, supraorbital spines absent, orbit feebly developed, inferior orbital angle acutely produced, antennal spine absent, hepatic spine large, slender, reaching to or exceeding anterolateral margin of carapace, arising from level only slightly posterior to orbital margin; anterolateral margin of branchiostegite feebly produced, bluntly angular or rounded.

Abdomen smooth, glabrous; third abdominal segment not posteriorly produced, non-carinate; pleura of first three segments broadly rounded, fourth angularly produced, blunt, fifth small, rounded, fifth segment about 0.6 of sixth segment length, sixth segment compressed, about 2.0 times longer than deep, uniform, posteroventral angle small, subacute, posterolateral angle larger, acute. Telson about 1.4 times sixth segment length, slender, 3.75 times longer than anterior width, lateral margins sublinear, convergent, with two pairs of well developed submarginal dorsal spines at about 0.45 and 0.75 of telson length; posterior margin angulate with feeble acute median process, with three pairs of posterior spines, lateral spines small, subequal to dorsal spines, submedian spines long, robust, about 3.5 times lateral spine length, 0.2 of telson length, submedian spines slender, about 0.5 of submedian spine length, setulose.

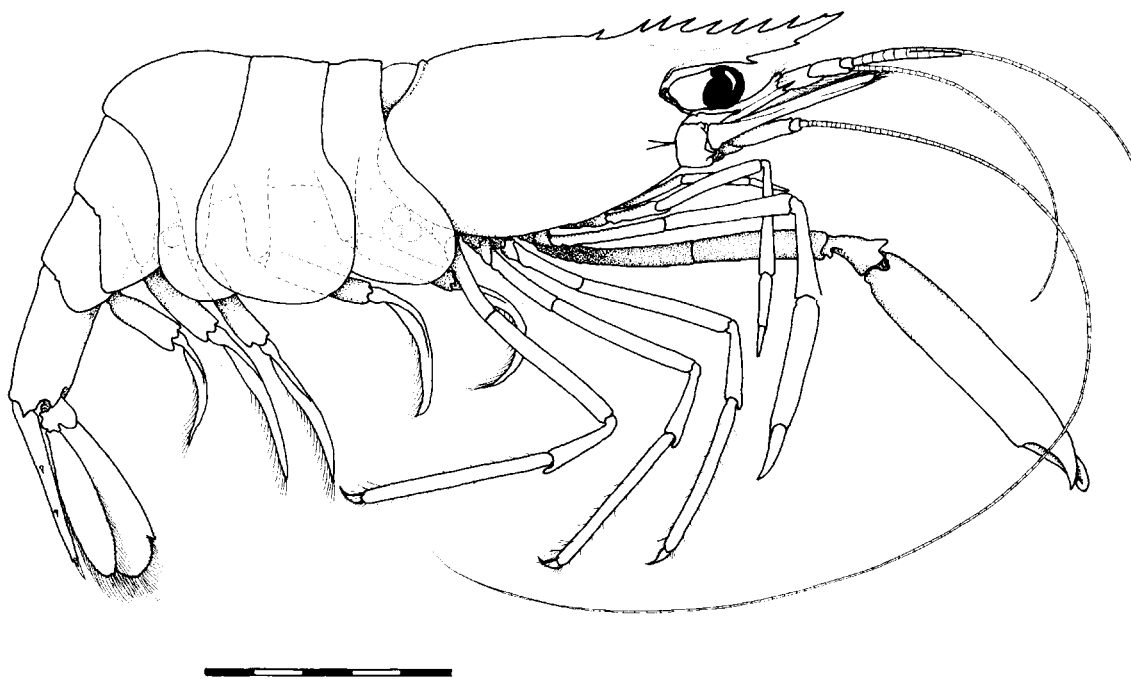


FIG. 65. — *Mesopontonia monodactylus* sp. nov., holotype, ♀, BIOCAL, stn DW 83, Loyalty Islands, 460 m. Scale bar in millimeters.

Eye with large well pigmented globular cornea, with distinct dorsal accessory pigment spot; corneal diameter about 1.8 of carapace length; stalk about as wide as long, slightly compressed, width less than corneal diameter.

Antennular peduncle reaching to about end of rostrum, distinctly shorter than distal margin of scaphocerite; proximal segment about 2.0 times longer than broad, medial margin straight, with small acute ventral tooth at 0.5 of length, lateral margin feebly convergent distally, sinuous, with well developed distolateral lobe with large acute tooth laterally (two teeth on one side in one ovigerous female), lateral tooth reaching to about level of distal

margin of lobe, with medial tooth far exceeding lobe, stylocerite slender, acute, reaching to about 0.5 of segment length; statocyst normal with granular statolith; intermediate segment about 0.3 of proximal segment length, 1.6 times longer than wide, with narrow setose lateral lamella, obliquely articulated with distal segment; distal

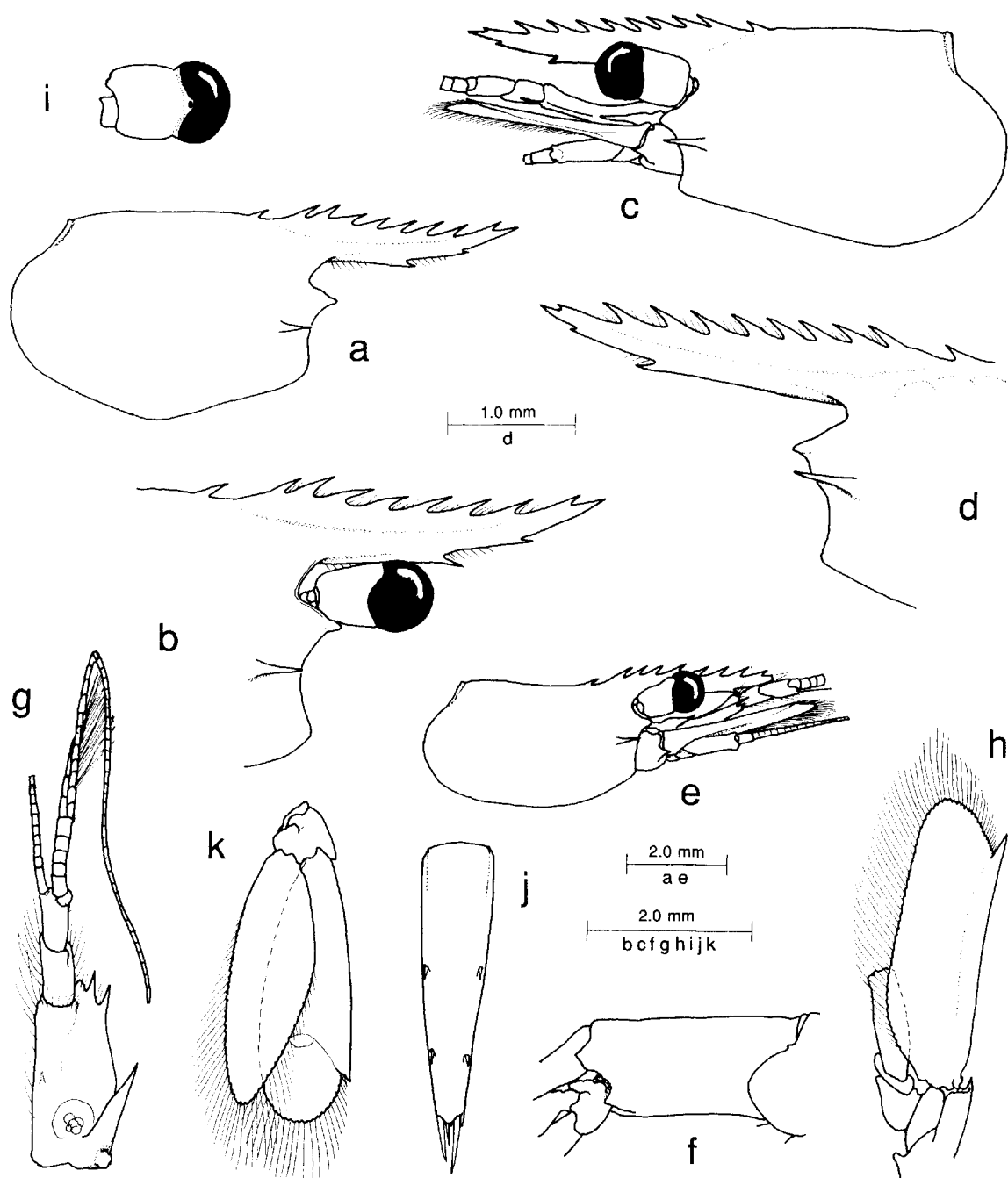


FIG. 66. — *Mesopontonia monodactylus* sp. nov. : a, carapace and rostrum; b, anterior carapace, rostrum and eye; c, carapace, rostrum, eye and antennal peduncle; d, anterior carapace and rostrum; e, carapace, rostrum, eye and antennal peduncles; f, sixth abdominal segment; g, antennule; h, antenna; i, eye; j, telson; k, uropod.

a-b, i : holotype, ♀; c-d, f-h, j-k : paratype, ♀; e : allotype, ♂.

segment about 1.1 times intermediate segment length, 2.4 times longer than broad; upper flagellum biramous with proximal five segments fused, shorter free ramus with five segments, longer free ramus slender, subequal to carapace length; lower ramus slender, about 1.5 times carapace length; with about 17 groups of aesthetascs.

Antenna with robust basicerite, with strong acute distolateral tooth, carpocerite short, stout, about 3.3 times longer than wide, reaching to about 0.4 of scaphocerite length, flagellum long, slender, about 5.0 times carapace length; scaphocerite extending well beyond rostrum and antennular peduncle, about 0.85 of carapace length, 3.3 times longer than central width, broad, sides subparallel, lateral margin feebly concave, with stout acute lateral tooth at 0.8 of length, far exceeded by broadly rounded distal margin of lamella.

Epistome without horns, with small rounded lateral prominence. Third thoracic sternite with thickened transverse ridge, fourth sternite without median process, with stout transverse ridge with deep median notch, fifth with narrower transverse ridge with smaller median notch; posterior sternites moderately broad, unarmed.

Mandible (right) with robust corpus, without palp; molar process stout, obliquely truncate distally with five low teeth, with setose lobe posteriorly, incisor process short, tapering distally, oblique, with three acute teeth, smallest tooth centrally, distomedial margin with three small acute denticles distally, with two minute spinules proximally. Maxillula with distinctly bilobed palp, lobes subequal, lower lobe with small ventral tubercle, with short simple seta; upper lacinia normal, distally truncate, with about 7-8 slender simple spines and setae distally; lower lacinia short, stout, tapering distally with numerous long setae. Maxilla with stout, non-setose, distally blunt palp; basal endite bilobed, upper lobe slightly broader than lower, with about 10, 12 short simple distal setae respectively; coxal endite obsolete, medial margin slightly produced, convex, non-setose; scaphognathite 3.0 times longer than broad, posterior lobe 2.5 times longer than anterior width, anterior lobe about 1.5 times longer than wide, linguiform, medial margin feebly concave. First maxilliped with slender tapering palp, slightly exceeding anterior margin of basal endite, with papillose preterminal seta, basal endite broad, anterior margin rounded, medial margin straight, with numerous slender setae, separated by distinct notch from coxal endite, thickened, sparsely setose; exopod with flagellum slender, with six long plumose terminal setae, caridean lobe well developed, broad; epipod triangular, feebly bilobed. Second maxilliped with normal endopod; dactylar segment about 2.4 times longer than broad, with dense rows of distally serrulate spines, propodal segment broad, with distomedial margin feebly produced, with long simple spines; carpal segment ventromedially angulate, ischiomerus and basis normal, without special features; exopod with normal slender flagellum, with six long plumose setae distally; coxa medially produced, thickened, with small simple epipod laterally, without podobranch. Third maxilliped with endopod robust, reaching to about middle of carpocerite, ischiomerus completely fused to basis, combined segment about 5.3 times longer than broad, subuniform, bowed, feebly compressed distally, lateral margin sparsely setose, without distolateral spines, medial margin with sparse longer setae, dorsal portion convex medially, separated by small notch from ischial region, proximal ischial region with submarginal row of short plumose setae; penultimate segment subcylindrical, about 0.6 of combined proximal segment length, 4.5 times longer than proximal width, sparsely setose medially, with simple setae; terminal segment about 0.45 of combined proximal segment length, 4.0 times longer than proximal width, with about six transverse rows of short serrulate spiniform setae ventrally; exopod completely lacking; coxa with small rounded medial lobe, with rounded lateral plate; with rudimentary arthrobranch. Paragnaths with well developed, subrectangular alae, corpus short, broad without carinae.

First pereopod slender, exceeding antennular peduncle by about half chela length; chela with palm subcylindrical, tapering slightly distally, about 3.5 times longer than proximal depth, with four transverse rows of short serrulate setae proximoventrally; fingers slender, compressed, about 0.5 of palm length, with small acute tips; dactylus about 5.0 times longer than proximal depth, with sharp entire cutting edge over distal half, fixed finger similar, with small distal lateral lamella only; with numerous short curved distal setae; carpus about 1.45 times chela length, 7.0 times longer than distal width, tapering proximally, with small group of serrulate distoventral setae; merus subequal to carpus length, about 8.5 times longer than central width, uniform; ischium obliquely articulated with merus, about 0.5 of merus length, 4.0 times longer than deep, compressed, feebly carinate ventrally, non-setose, obliquely articulated with basis; basis about 0.45 of chela length, ventral margin straight; coxa normal, without ventromedial process.

Second pereopods well developed, unequal, feebly dissimilar. Major second pereopod exceeding antennal peduncle by length of chela; chela about 1.25 times carapace length, with palm subcylindrical, smooth,

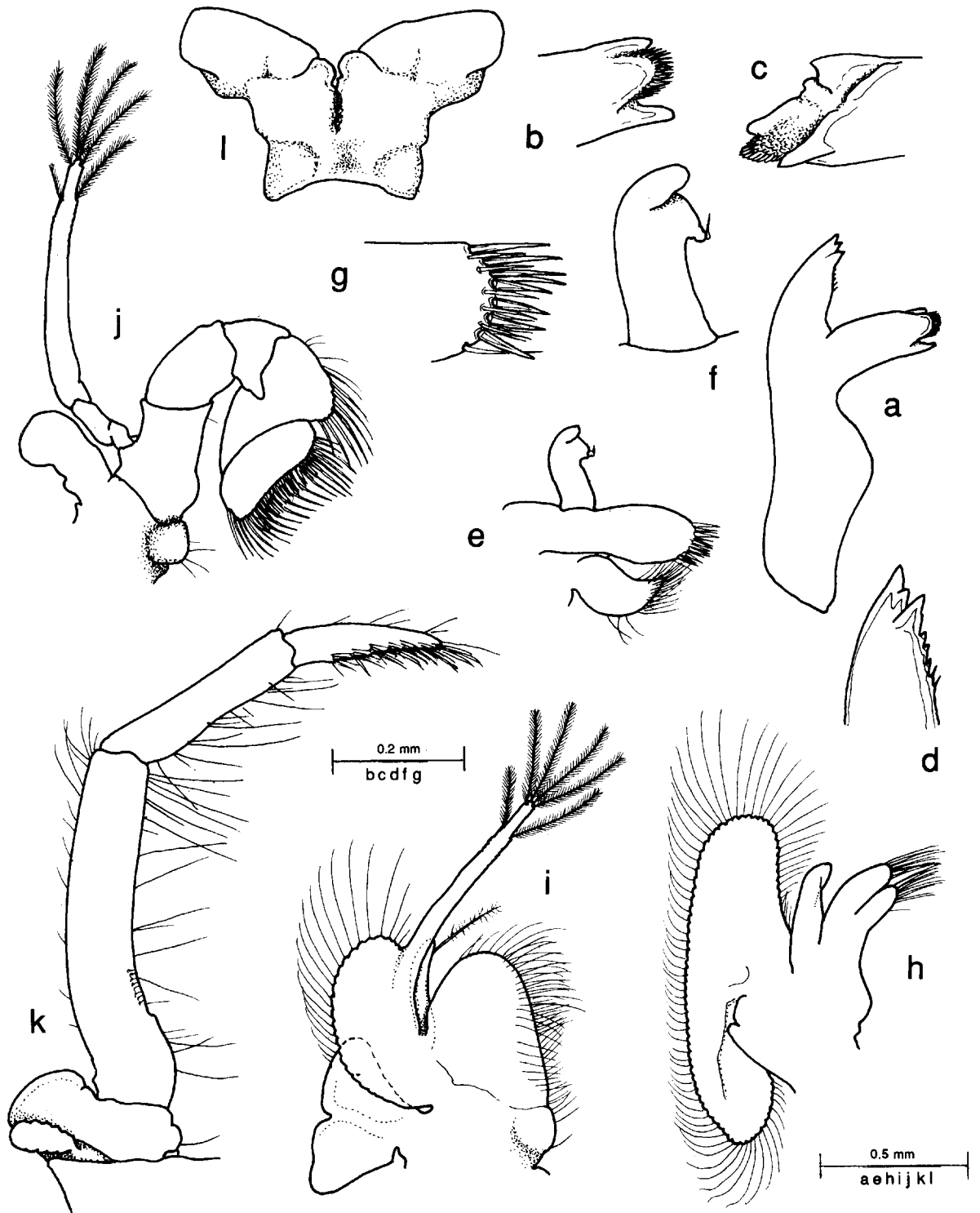


FIG. 67. — *Mesopontonia monodactylus* sp. nov., paratype, ♀ : a, mandible; b-c, same, molar process, ventral and anterior aspects; d, same, incisor process; e, maxillula; f, same, palp; g, same, distal upper lacinia; h, maxilla; i, first maxilliped; j, second maxilliped; k, third maxilliped; l, paragnaths.

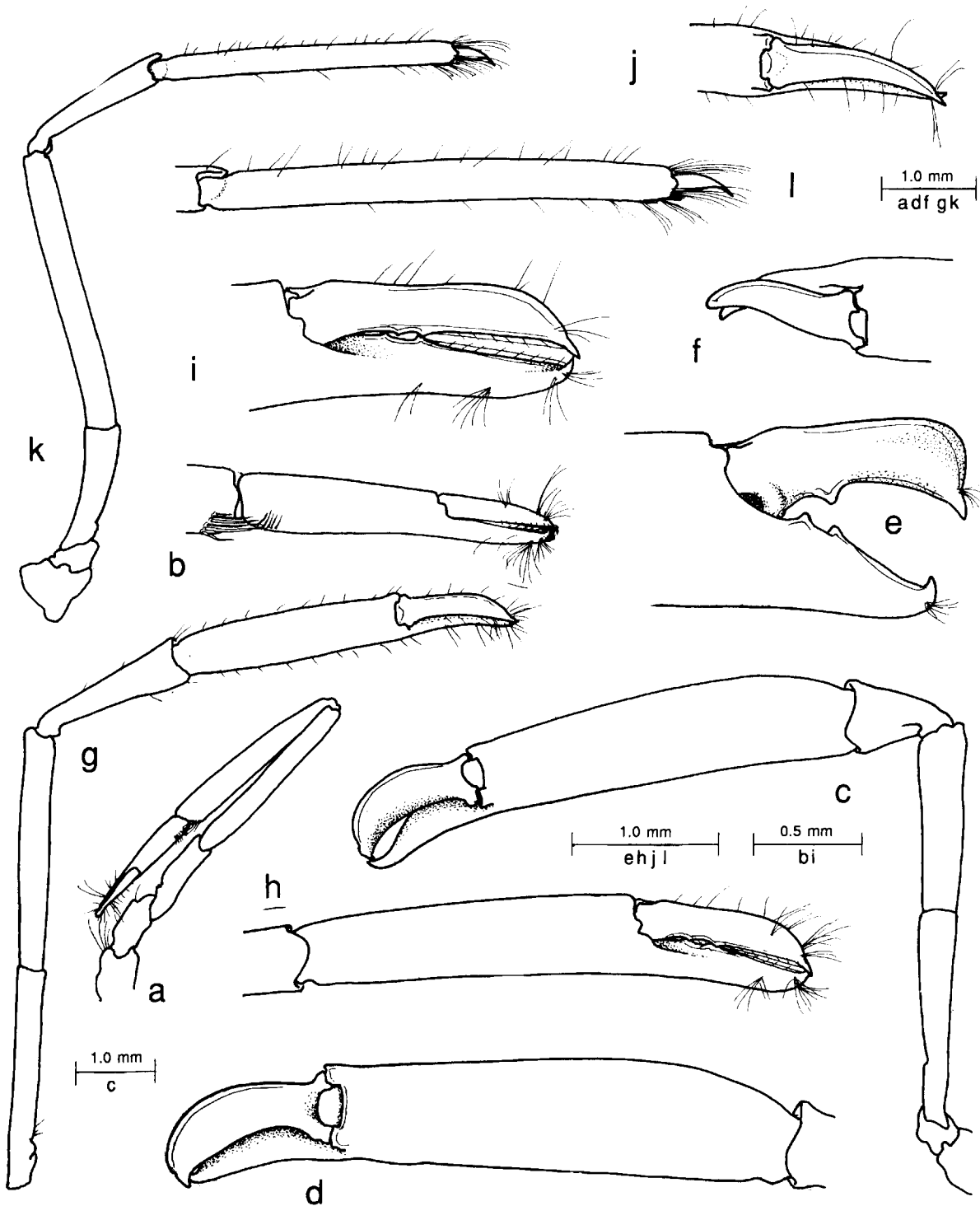


FIG. 68. — *Mesopontonia monodactylus* sp. nov. : a, first pereiopod; b, same, chela; c, second pereiopod; d, same, chela; e, same, fingers, medial; f, same, dorsal; g, minor second pereiopod; h, same, chela; i, same, fingers; j, same, dorsal; k, third pereiopod; l, same, propod and dactyl.
 a, b, g-l : paratype, ♀; c-f : holotype, ♀.

non-setose, slightly oval proximally, 4.0 times longer than proximal width, tapering slightly distally, fingers about 0.35 of palm length, dactylus with well developed dorsolateral flange, acute projecting tip, stout concave cutting edge, with single stout, short acute tooth proximally, about 2.7 times longer than proximal depth, twisted; fixed finger similar, tip strongly hooked, with two acute teeth proximally, without flange; carpus short, stout, unarmed, distally excavate, 1.4 times longer than distal width, about 0.28 of palm length; merus about 0.5 of palm length, smooth, 3.5 times longer than distal width, slightly broadened distally, unarmed; ischium about 1.2 times merus length, 5.5 times longer than distal width, tapering proximally, unarmed; basis and coxa normal, without special features. Minor second pereiopod exceeding antennular peduncle by length of chela; chela about

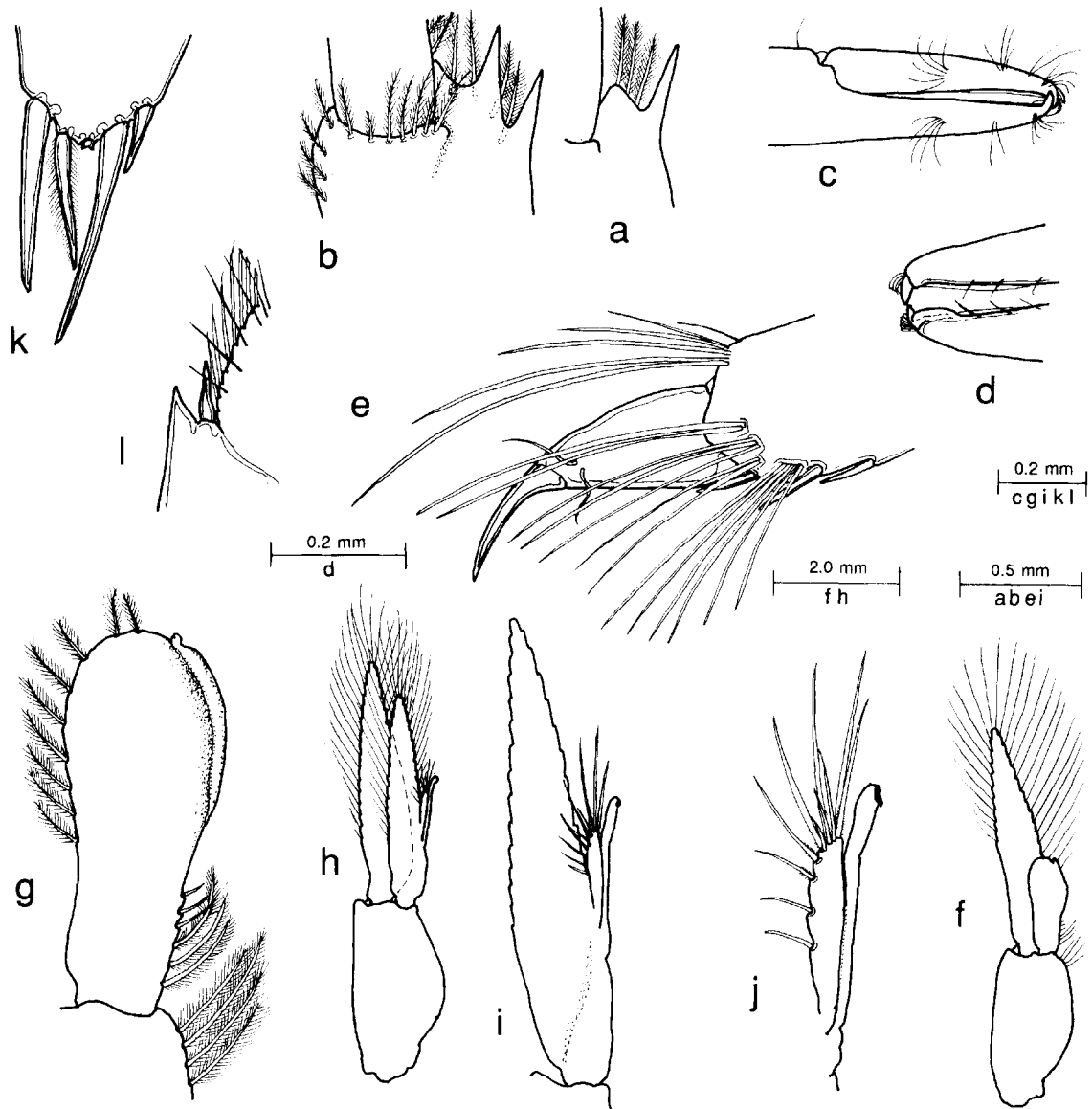


FIG. 69. — *Mesopontonia monodactylus* sp. nov. : a, antennular peduncle, proximal segment, distal margin; b, same, distolateral angle; c, first pereiopod, fingers; d, same, tips of fingers; e, third pereiopod, dactyl and distal propod; f, male first pleopod; g, same, endopod; h, male second pleopod; i, same, endopod; j, same, appendix masculina and appendix interna; k, telson, posterior spines; l, uropod, exopod, distolateral angle.

a : holotype, ♀; b-e, k-l : paratype, ♀; f-j : allotype, ♂.

0.75 of carapace length, 0.6 of major palm length; palm about 4.3 times longer than distal width, feebly tapering proximally, fingers about 0.5 of palm length, dactylus with acute projecting tip, with two small acute teeth proximally, sharp entire cutting edge distally, with feeble lateral flange, fixed finger with hooked tip, two small acute teeth proximally; carpus about 3.3 times longer than distal width, 0.5 of chela length, 0.7 of palm length, tapering proximally, feebly excavate distally, unarmed; merus slender, 7.0 times longer than central width, subuniform, unarmed, subequal to palm length; ischium slender, about 0.9 of merus length, 8.0 times longer than distal width, unarmed; basis and coxa without special features. The male allotype lacks both second pereopods.

Ambulatory pereopods slender, third pereopod exceeding scaphocerite by dactyl and half of propod, dactyl small, compressed, about 0.13 of propod length, unguis distinct, slender, curved, proximally swollen, about 3.0 times longer than basal width, corpus about 1.8 times longer than proximal width, tapering distally, with pair of distolateral sensory setae, margin convex, ventral margin straight, blunt, unarmed, without distal accessory tooth; propod about 0.7 of carapace length, about 11.5 times longer than wide, uniform, sparsely setose, with single distoventral spine, one preterminal ventral spine, numerous long simple setae distally; carpus about 0.5 of propod length, 5.0 times longer than distal width, with strong distolateral lobe, unarmed; merus subequal to propod length, 3.5 times longer than distal width, feebly tapered proximally; basis and coxa normal. Fourth and fifth pereopods similar. Fifth propod about 1.2 times length of third.

Male first pereopod with basipodite 2.0 times longer than broad; endopod about 1.2 times length of basipodite, 3.5 times longer than proximal width, distally expanded, 1.5 times proximal width, with thickened distomedial margin with small distal process, proximal medial margin with nine short plumose setae proximally, three slender spinules distally, distolateral margin with nine short plumose setae, exopod 5.5 times longer than wide, 2.3 times endopod length. Second pleopod with basipodite 2.0 times longer than broad, 1.2 times first basipodite length; endopod 6.0 times longer than wide, 1.2 times basipodite length, with appendices at about 0.33 of medial margin length; appendix masculina with corpus about 0.2 of endopod length, subcylindrical, slightly swollen distally, about 5.0 times longer than distal width, with seven simple, distomedial spines, of distally increasing length, with distoventral row of four shorter spines, longest spines subequal to corpus length; appendix masculina slender, exceeding corpus length of appendix masculina, with few distal cincinnuli.

Uropod reaching to end of telson; protopodite with rounded distolateral lobe; endopod about 3.0 times longer than broad, lateral margin feebly convex, with acute posterolateral tooth at 0.8 exopod length, with slender short mobile spine medially, diaeresis distinct; endopod about 0.9 of exopod length, broad, 3.1 times longer than wide.

Ova numerous and small.

MEASUREMENTS (mm). — *Holotype female* : carapace length, 4.74; carapace and rostrum, 8.5; total body length (approx.), 23.0; major second pereopod chela, 6.1; minor second pereopod chela, 5.7.

Male allotype : carapace length, 3.4; carapace and rostrum, 6.5+; total body length (approx.), 20.0+.

Ovigerous female paratypes : carapace lengths, 3.0, 4.0, 4.8, 5.0. Length of ovum, 0.5.

COLOURATION. — No data.

HOST. — *Phoronema* sp. [Phoronematidae : Hexactinella].

ASSOCIATED FAUNA. — The specimens were found in association with type specimens of *Periclimenes forcipulatus* sp. nov.

ETYMOLOGY. — *Μόνος* (Greek), single, and *δάκτυλος* (Greek), finger, with reference to the simple ambulatory dactyls.

SYSTEMATIC POSITION. — The small genus *Mesopontonia* Bruce, 1969, presently contains only two other species, both represented in the present collection. *M. monodactylus* is immediately separated from both of these species, *M. gorgoniophila* Bruce and *M. gracilicarpus* Bruce, by the lack of an accessory tooth on the dactylus of the ambulatory pereopods. *M. monodactylus* may also be distinguished from *M. gracilicarpus* by the lack of the elongated slender minor second pereopod found in that species, and from *M. gorgoniophila* by the shorter and more upturned rostrum.

REMARKS. — *Mesopontonia gorgoniophila* has been found in association with the gorgonian hosts, *Melithea* sp. and *Acabaria* sp. (BRUCE, 1967) and the host of *M. gracilicarpus* is as yet unknown. The association of *M. monodactylus* with a sponge host is therefore surprising as commensal pontoniine shrimps do not usually cross phylar boundaries in the selection of their hosts at generic level, excepting, of course, the genus *Periclimenes*. The association of six specimens with the host sponge renders it unlikely that the association was accidental. The absence of the accessory tooth on the ambulatory dactyl, in association with a sponge host, is also surprising, as a majority of pontoniine sponge associates are provided with an accessory tooth in this position. The lack of this tooth also requires the revision of the generic diagnosis of *Mesopontonia* to include species with the dactyl of the ambulatory pereiopods simple or biunguiculate.

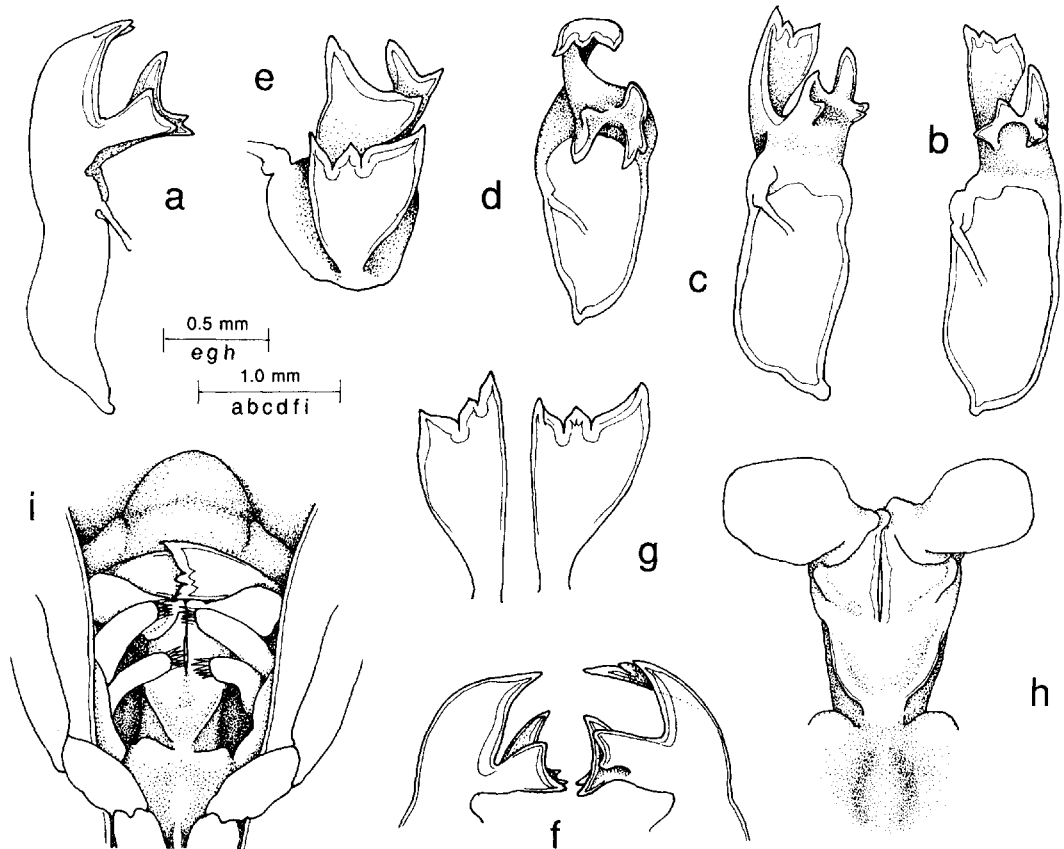


FIG. 70. — *Anchistioides willeyi* (Borradaile), ♂, CHALCAL 1, stn D 29, Chesterfield Islands, 100 m : a, right mandible; b-e, same, further views; f, right and left molar and incisor processes, anterior aspect; g, right and left incisor processes, ventral aspect; h, paragnaths; i, paragnaths, *in situ*, maxillipeds removed.

Family ANCHISTIOIDIDAE

Genus *ANCHISTIOIDES* Paulson, 1875

Anchistioides willeyi (Borradaile, 1899)

Fig. 70

Restricted synonymy :

Palaemonopsis willeyi Borradaile, 1899 : 410, pls 36, 37, fig. 7.

Anchistioides willeyi - GORDON, 1935 : 345, figs 23a, 24 a. — BRUCE, 1990b : 211.

MATERIAL EXAMINED. — **Chesterfield Islands**. CHALCAL 1 : stn D 29, 19°30.6'S, 158°31.1'E, 100 m, 10 July 1984 : 1 ♂ (MNHN-Na 12009).

REMARKS. — The single specimen has a carapace length of 7.7 mm and a rostral dentition of 6/3, with the rostrum reaching the distal end of the lamella of the scaphocerite, which is exceeded by the distolateral spine. The second pereopods are of the long-fingered form (BRUCE, 1990) with the fingers about 1.09 times the palm length.

The mandible has been briefly described and illustrated by HOLTHUIS (1952), who noted that the molar process bears some rather sharp knobs and is devoid of spines. The mandibles are moderately asymmetrical and the molar processes present a very characteristic appearance, unlike most palaemonid shrimps. The knobs of the molar process consist of a smaller ventral pair and a larger dorsal triad, both more or less concave on their inner surfaces and separated by a deep open notch posteriorly. The processes are more strongly developed on the right molar process than on the left, but the left incisor process is larger and broader than the right. The molar processes are completely devoid of spines or setae. In the left incisor process, the anterior tooth is considerably enlarged, whereas in the right incisor process the posterior tooth is elongated. Both incisor processes are strongly twisted so that the flattened distal portion lies in a horizontally transverse plane, largely outside the paragnath, with the larger right process overlying the smaller right process, and fully exposed ventrally. The paragnaths have well developed alae. The corpus is well developed, twice as long as broad, with a deep anterior fissure. The posterior half bears oblique, posteriorly convergent lateral carinae, enclosing a flat or feebly concave central region. The fourth thoracic sternite bears a low longitudinal medial carina. All posterior thoracic sternites are narrow and unarmed.

DISTRIBUTION. — Not previously recorded from the Chesterfield Islands. Type locality : Ralun, New Britain. Also known from Zanzibar; Tanganyika; Kenya; Madagascar, 42 m; Maldives Islands, Philippine Islands; South China Sea, 73-82 m; Australia and New Caledonia, 127 m, mainly from shallow waters.

DISCUSSION

The recent status of knowledge of deep-sea palaemonoid shrimps was briefly reviewed by BRUCE (1990b), when 33 identified species of 11 genera were noted as occurring in the Indo-West Pacific region. The present study has added one further new genus, *Amphipontonia*, eight new species of *Periclimenes*, one new species of *Mesopontonia* and one of *Periclimenaeus*. Three species previously reported from shallower New Caledonian waters are now also recorded for the first time from over 100 m depth. These additions are included in the following chronological tabulation of Indo-West Pacific benthic palaemonoid shrimps presently known to occur in depths of over 100 m. It is noteworthy that the "Challenger" Expedition (1873-1876), with its extensive programme of deep-sea dredging and trawling, obtained only a single example of a palaemonid shrimp from over 100 m depth. This specimen, originally described as *Palaemonella orientalis* by BATE (1888), was subsequently renamed as *P. batei* by BORRADAILE (1917), and more recently shown to be a *Periclimenes* by HOLTHUIS (1959). The specimen is very small and probably an early post-larval stage, possibly of a adult species known under another name. BATE considered it to have been caught near the surface, and may well have been correct, but does not give his reason for his statement. Its status as a member of the deep-sea palaemonoid fauna seems rather dubious. However, no information on the larval life history of the deep-sea palaemonoids is available, and where the larvae pass their time is unknown. The ova so far noted do not differ significantly in size from those of shallow-water palaemonoid shrimps and so the larvae may be expected to have a full series of unabbreviated stages, followed by the early settlement on the appropriate host of the post-larvae, in the case of the commensal species.

Eight genera are now known with representative species occurring at over 200 m, (principally of the genus *Periclimenes*, with 26 taxa). Four of these genera, *Palaemonella*, *Periclimenes*, *Periclimenaeus* and *Pontonia* also occur abundantly in shallow water, and the other genera, *Altopontonia*, *Amphipontonia*, *Mesopontonia* and *Plesiopontonia*, are so far known exclusively from deep waters.

TABLE 1
 CHRONOLOGICAL CHECK-LIST OF
 INDO-WEST PACIFIC DEEP-WATER PALAEMONOID SHRIMPS

Species	Authority	Date	Depth	Locality
0. [<i>Periclimenes batei</i>]	Bate	1888	200 m	Philippine Islands]
1. <i>Periclimenes laccadivensis</i>	Alcock & Anderson	1894	1285 m	Bay of Bengal
2. <i>Periclimenes hertwigi</i>	Balss	1913	205 m	Japan
3. <i>Periclimenaeus(?) natalensis</i>	Stebbing	1915	800 m	South Africa
4. <i>Periclimenes compressus</i>	Borradaile	1915	265 m	Saya de Malha
5. <i>Hamiger novaezealandiae</i>	Borradaile	1916	128 m	New Zealand
6. <i>Periclimenes alcocki</i>	Kemp	1922	743 m	Laccadive Sea
7. <i>Periclimenes latipollex</i>	"	"	155 m	Mergui Archipelago
8. <i>Dasycaris doederleini</i>	Balss	1924	130 m	Japan
9. <i>Periclimenes curvirostris</i>	Kubo	1940	300 m	Japan
10. <i>Periclimenes</i> sp., cf. <i>calmani</i>	Holthuis	1952	278 m	Indonesia
11. <i>Pontonia ascidicola</i>	"	"	120-400 m	Indonesia
12. <i>Periclimenes gorgonicola</i>	Bruce	1964	109-132 m	South China Sea
13. <i>Mesopontonia gorgoniophila</i>	"	"	117-132 m	South China Sea
14. <i>Palaemonella rotumana</i>	Bruce	1970	128 m	South China Sea
15. <i>Periclimenes macrophthalmus</i>	Fujino & Miyake	1970	145 m	Japan
16. <i>Periclimenaeus ardeae</i>	Bruce	1970	126-140 m	Western Indian Ocean
17. <i>Periclimenes</i> sp.	"	"	236-256 m	Western Indian Ocean
18. <i>Periclimenaeus robustus</i>	Bruce	1976	119-141 m	Western Indian Ocean
19. <i>Thaumastocaris streptopus</i>	"	"	121-141 m	Western Indian Ocean
20. <i>Periclimenes nilandensis</i>	Bruce	1979	117-133 m	South China Sea
21. <i>Periclimenes foresti</i>	Bruce	1981	189-209 m	Philippine Islands
22. <i>Periclimenes foveolatus</i>	"	"	187-195 m	Philippine Islands
23. <i>Periclimenes rectirostris</i>	"	"	129-134 m	Philippine Islands
24. <i>Periclimenes tosaensis</i>	"	"	129-134 m	Philippine Islands
25. <i>Periclimenes</i> sp.	King	1984	250 m	Tonga
26. <i>Periclimenes coriolis</i>	Bruce	1985a	186-184 m	Philippine Islands
27. <i>Plesiopontonia monodi</i>	"	"	299-320 m	Philippine Islands
28. <i>Periclimenes dentidactylus</i>	Bruce	1985b	592-595 m	Indonesia
29. <i>Periclimenes granuloides</i>	Hayashi	1986	130 m	Japan
30. <i>Periclimenes franklini</i>	Bruce	1990a	296-302 m	Coral Sea
31. <i>Urocaridella gracilis</i>	Bruce	1990b	125 m	New Caledonia
32. <i>Periclimenes fujinoi</i>	"	"	487-610 m	Chesterfield Islands
33. <i>Periclimenes parvispinatus</i>	"	"	200 m	New Caledonia
34. <i>Periclimenes richeri</i>	"	"	527 m	New Caledonia
35. <i>Periclimenes uniungiculatus</i>	"	"	540-600 m	New Caledonia
36. <i>Periclimenes vaubani</i>	"	"	425-670 m	New Caledonia
37. <i>Periclimenes</i> sp., (cf. <i>grandis</i>)	"	"	345 m	New Caledonia
38. <i>Pontonia monnioti</i>	"	"	285 m	Chesterfield Islands
39. <i>Altopontonia disparostris</i>	"	"	430-503 m	New Caledonia
40. <i>Mesopontonia gracilicarpus</i>	"	"	398-410 m	New Caledonia
41. <i>Anchistioides willeyi</i>	"	"	127 m	New Caledonia
42. <i>Periclimenes poupini</i>	Bruce	1990d	430-560 m	Tuamotu Archipelago
43. <i>Periclimenes pholeter</i>	Bruce	in press a	1820 m	Red Sea

44. <i>Palaemonella dolichodactylus</i>	Bruce	present	250 m	Norfolk Ridge
45. <i>Periclimenes tenuirostris</i>	"	report	110 m	New Caledonia
46. <i>Periclimenes aleator</i>	"	"	570-610 m	Loyalty Islands
47. <i>Periclimenes brevirostris</i>	"	"	500-550 m	I. Pines; Norfolk R.
48. <i>Periclimenes forcipulatus</i>	"	"	460 m	Loyalty Islands
49. <i>Periclimenes leptodactylus</i>	"	"	370-825 m	Lifu - Uvéa
50. <i>Periclimenes ordinarius</i>	"	"	260 m	New Caledonia
51. <i>Periclimenes pectinipes</i>	"	"	280 m	Norfolk Ridge
52. <i>Periclimenes platyrhynchus</i>	"	"	260 m	New Caledonia
53. <i>Periclimenes setirostris</i>	"	"	300 m	Coral Sea
54. <i>Periclimenaeus jeancharcoti</i>	"	"	375-450 m	New Caledonia
55. <i>Anchistus pectinis</i>	"	"	110 m	New Caledonia
56. <i>Amphipontonia kanak</i>	"	"	300 m	Loyalty Islands
57. <i>Mesopontonia monodactylus</i>	"	"	460 m	Uvéa

The present study has added a little information to the meagre knowledge of the hosts of the deep-sea species of palaemonoid shrimps. *Mesopontonia monodactylus* and *Periclimenes forcipulatus* are associates of hexactinellid sponges of the genus *Phoronema*. The host for *Amphipontonia kanak* is obscure, but at least there is little doubt that it is a commensal species. The probable association of *Periclimenes pectinipes* with *Gymnocrinus* is also of particular interest. The association of many stenopid shrimps with hexactinellid sponges has been long established. Although many carideans, particularly in the Pontoniinae, are known as associates of non-hexactinellid sponges, associations of carideans with hexactinellids have only rarely been reported. The hippolytid shrimp *Paralebbeus zootheculatus* and the alpheid shrimps *Bannereus anomalus* and *Vexillipar repandum* are the only previously recorded examples (BRUCE & CHACE, 1986; BRUCE, 1989; CHACE, 1988). The association of *Periclimenes forcipulatus* and *Mesopontonia monodactylus* are therefore the first instances of palaemonoid-pontoniine associations with the Hexactinellida.

A key to the deep-water species was recently provided by BRUCE (1990b). However, the increased number of species now known from over 100 metres, and the inclusion of some taxa omitted from the earlier key, provide an opportunity for the revised version below.

Key to deep-water Indo-West Pacific *Periclimenes* species

1. Antennal spine absent..... 2
- Antennal spine present..... 4
2. First and second postrostral teeth replaced by large slender articulated spines; R. 2+6-7/3-4
..... *P. franklini* Bruce, 1990
- First and second postrostral teeth distinct, not articulated spines..... 3
3. Fingers of first pereiopod slender, simple; R. 2+8/4..... *P. gorgoncola* Bruce, 1969
- Fingers of first pereiopod stout, deeply subspatulate; R. 1+7/3.. *P. setirostris* sp. nov.
4. Dactyls of ambulatory pereiopods simple 5
- Dactyls of ambulatory pereiopods not simple 17
5. Fourth thoracic sternite with slender, finger-like median process 6
- Fourth thoracic sternite without slender median process..... 8
6. Supraorbital teeth present; R. 1+7-9/3-4 *P. nilandensis* Borradaile, 1915
- Supraorbital teeth absent 7
7. Ambulatory dactyl about 0.3 of propod length; R. 1+6-7/2.....
- *P. sp.*, cf. *calmani* Holthuis, 1952

- Ambulatory dactyl about 0.17 of propod length; R. ?..... *Periclimenes* sp., Bruce, 1990
8. Rostrum elongate, straight, subequal to carapace length; R. 11-12/4-5.....
..... *P. rectirostris* Bruce, 1981
- Rostrum shorter, distinctly less than carapace length..... 9
9. Rostral lamina shallow..... 10
- Rostral lamina deep..... 14
10. Rostrum arched; third abdominal segment with posteromedian carina; R. 1+6-7/1-2.....
..... *P. tosaensis* Kubo, 1940
- Rostrum straight, not arched; third abdominal segment without dorsal carina..... 11
11. First pereopod with carpus distinctly shorter than chela 12
- First pereopod with carpus distinctly longer than chela 13
12. Ambulatory propods without distal or ventral spines; fingers of first pereopod chela with distal cutting edge unarmed; R. 1+5/3..... *P. compressus* Borradaile, 1915
- Ambulatory propods distally and ventrally spinulate; fingers of first pereopod chela with distal cutting edges with minute acute teeth; R. 1+5/3..... *P. forcipulatus* sp. nov.
13. Ambulatory propods strongly spinose distoventrally, fifth with three pairs of spines; eyestalk strongly tapered distally; R. 1+8/1 *P. macrophthalmus* Fujino, 1970
- Ambulatory pereopods feebly spinose distoventrally, third with single distoventral spine only; R. ? *P. fujinoi* Bruce, 1990
14. Eye with cornea normally developed; rostral lamina shallow; epigastric tooth acute; R. 2 +7/3..... *P. uniunguiculatus* sp. nov.
- Eye with cornea markedly reduced; rostral lamina moderately deep; epigastric tubercle present, blunt..... 15
15. Ambulatory pereopods without ventral spinules; R. 2+7/2.....
..... *P. granuloides* Hayashi, 1986
- Ambulatory pereopods with small ventral spinules..... 16
16. Hepatic and antennal spines subequal, near same horizontal level; R. 1+8/1
..... *P. foresti* Bruce, 1981
- Hepatic spine enlarged, antennal spine reduced, hepatic spine at lower level; disto-dorsal rostrum edentate, R. 1+6/2..... *Periclimenes* sp., King, 1984
17. Ambulatory dactyls with numerous acute ventral teeth; R. 1+8/3.....
..... *P. pectinipes* sp. nov.
- Ambulatory dactyls with distoventral tooth or denticles only..... 18
18. Ambulatory dactyl with distoventral border of corpus with sharply carinate denticulate lamella 19
- Ambulatory dactyl with distoventral corpus with single accessory tooth only 21
19. Palm of chela of second pereopod slender, tuberculate, about four times longer than deep; R. 7/3 *P. dentidactylus* Bruce, 1985
- Palm of second pereopod chela robust, smooth, about three times longer than deep.... 20
20. Distoventral angle of dactylar corpus with spiniform teeth; R. 5-6/2.....
..... *Periclimenes* sp., cf. *hertwigi*
- Distoventral angle of dactylar corpus irregularly denticulate, without distinct teeth; R. 6-7/1-2 *P. hertwigi* Balss, 1913

21. Telson with two pairs of dorsal spines only 2 2
 — Telson with more than two pairs of dorsal spines 3 0
22. Third abdominal segment posterodorsally produced, carinate; R. 1+6-7/2-3.....
 *P. tenuirostris* Bruce, 1991
 — Third abdominal segment not produced or carinate 2 3
23. Rostrum distinctly slender, distinctly exceeding antennular peduncle; epigastric and two
 postorbital teeth present..... 2 4
 — Rostrum deep, not markedly exceeding antennular peduncle; epigastric and one postorbital
 tooth only..... 2 5
24. Hepatic and antennal spines on same horizontal level; dactyl of major second pereiopod
 with distinct lateral flange; R. 1+7/3..... *P. latipollex* Kemp, 1922
 — Hepatic spine on distinctly lower level than antennal spine; dactyl of major second
 pereiopod without lateral flange; R. 1+9/2.....
 *P. laccadivensis* (Alcock & Anderson, 1884)
25. Ambulatory dactyls short and stout, strongly curved, propods with dense tufts of long
 setae; R. 8/2..... *P. curvirostris* Kubo, 1940
 — Ambulatory dactyls not short, stout, strongly curved 2 6
26. Rostrum with well developed dorsal and ventral rostral carinae, lateral carinae particularly
 robust; antennal and hepatic spines small and slender; R. 8/1
 *P. parvispinatus* Bruce, 1990
 — Rostral lateral carinae, hepatic and antennal spines normally developed..... 2 7
27. Branchiostegite and pleura foveolate; dorsal telson spines minute; R. 8-10/3-6.....
 *P. foveolatus* Bruce, 1990
 — Branchiostegite and pleura non-foveolate; dorsal telson spines normal 2 8
28. Second to fifth pereiopods generally setose, with short stiff erect setae; R. 8/2.....
 *P. coriolis* Bruce, 1985
 — Pereiopods not markedly setose 2 9
29. Rostrum acutely tapered, proximal dorsal carina elevated; second pereiopods with carpus
 distinctly less than palm length; lamella of scaphocerite not far exceeding tip of lateral
 tooth; R. 1+7-8/2..... *P. vaubani* Bruce, 1990
 — Rostrum lanceolate, proximal dorsal carina not elevated; carpus of second pereiopod nearly
 equal to palm length; lamella of scaphocerite far exceeding tip of lateral tooth; R. 9/1
 *P. richeri* Bruce, 1990
30. Distinct epigastric tooth present..... 3 1
 — Epigastric tooth absent..... 3 4
31. Cornea markedly reduced; dorsal telson spines minute; R. 1+9/3.....
 *P. alcocki* Kemp, 1922
 — Cornea not markedly reduced; dorsal telson spines not minute..... 3 2
32. Ambulatory dactyl with accessory tooth almost as long as unguis, laterally twisted; R.
 1+7-9/2-3..... *P. poupini* Bruce, 1990
 — Ambulatory dactyls with accessory tooth not unusually long or twisted..... 3 3
33. Rostrum distinctly exceeding antennular peduncle; R. 1+5-9/4..... *P. aleator* sp. nov.
 — Rostrum distinctly shorter than antennular peduncle; R. 1+5-6/2.....
 *P. brevirostris* sp. nov.

34. Dactyls of ambulatory pereopods very slender, about 0.33 of propod length, accessory tooth minute; rostral lamina shallow; R. 8/2 *P. leptodactylus* sp. nov.
 — Dactyls of ambulatory pereopods robust, about 0.2 of propod length, accessory tooth well developed; rostral lamina deep; R. 7/3..... *P. platyrhynchus* sp. nov.

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