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**On Some Pontoniine Shrimps from Noumea,
New Caledonia**

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RÉSUMÉ

Une petite collection de crevettes Pontoniinae provenant de Nouméa, Nouvelle-Calédonie, est décrite. Des neuf espèces, deux sont nouvelles pour la science, *Onycozaris longirostris* et *Periclimenaeus rastrifer*, et trois pour la faune de Nouvelle-Calédonie. La collection provient de l'Îlot Maitre, Baie des Citrons, Nouméa, d'une profondeur d'une vingtaine de mètres. Les crevettes étaient associées à des Éponges, à des Crinoïdes, à des Astéroïdes et à des Ascidies; pour plusieurs hôtes, ce sont de nouvelles associations. La faune des Pontoniinae de Nouvelle-Calédonie est brièvement passée en revue.

ABSTRACT

The caridean fauna of the extensive coral reefs of New Caledonia has been little studied. Through the kindness of M. Y. MAGNIER, Director of the Aquarium de Nouméa, a variety of specimens was recently made available for study. All species were commensals of other marine invertebrates, and were obtained from their host animals held in the reserve tanks of the aquarium. All samples had been recently collected from Îlot Maitre nearby in the Baie des Citrons, Nouméa, from a depth of about 20 m. I am most grateful to M. MAGNIER for the opportunity to report upon the collection. I am also indebted to Dr. J. FOREST and Dr. A. GILLES, who provided some of the specimens of *Periclimenes affinis*, also from Nouméa, and to Dr. J. VACELET, for the identifications of the sponge hosts.

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The collection consists of nine species, two of which are new, and three new to the fauna of New Caledonia. The hosts are identified as far as possible, and several new most records are reported. The types of the new species are deposited in the collections of the Museum National d'Histoire Naturelle, Paris, together with most of the other specimens in the collection. In the systematic account, C.L. refers to the post-orbital carapace length.

I. SYSTEMATIC ACCOUNT

Periclimenes affinis (ZEHNTNER) (Figs. 1-3)

Restricted synonymy:

Palaemonella affinis Zehntner, 1894. *Rev. Suisse Zool.*, **2** : 208.

Periclimenes (Harpilius) affinis HOLTHUIS, 1958. *Bull. Sea Fisch. Res. Stn.*, Israel, **17** (8-9) : 6-8, Fig. 2.

Periclimenes affinis BRUCE, 1967. *Bull. Mus. Nat. Hist. Nat.*, Paris, (2) **39** (6) : 1165-1166, Fig. 10.

Material examined. — 1 ♂, 1 ovig. ♀, C.L. 3.75, 1.8 mm., Ilot Maitre, Nouméa, 21 m, coll. A. GILLES, 29 March 1978. 1 ♀, C.L. 2.6 mm, idem, 20 m, coll. Y. MAGNIER, October 1978.

Description. — The specimens agree generally with the re-description of the holotype specimen provided by HOLTHUIS (1958). All three specimens have a straight slender rostrum, with seven dorsal and a single ventral tooth, and which slightly exceeds the length of the antennular peduncle. The most posterior rostral tooth is situated over or immediately posterior to the posterior orbital margin. The ventral tooth is situated below the fifth or sixth dorsal tooth. The inferior orbital angle is acute and produced, with a marginal antennal spine present just below. The hepatic spine is well developed, present at a distinctly lower and more posterior level. The abdominal pleura of the first three segments are broadly rounded, the fifth and sixth bluntly produced. The telson is slender, with small dorsal spines at about 0.65 and 0.85 of the telson length.

The proximal segment of the antennular peduncle has the disto-lateral lobe unidentate on one side and bidentate on the other in the ovigerous female, unidentate on both sides in the male, and bidentate on both sides in the smaller female. The scaphocerite is slender, about 3.3 times longer

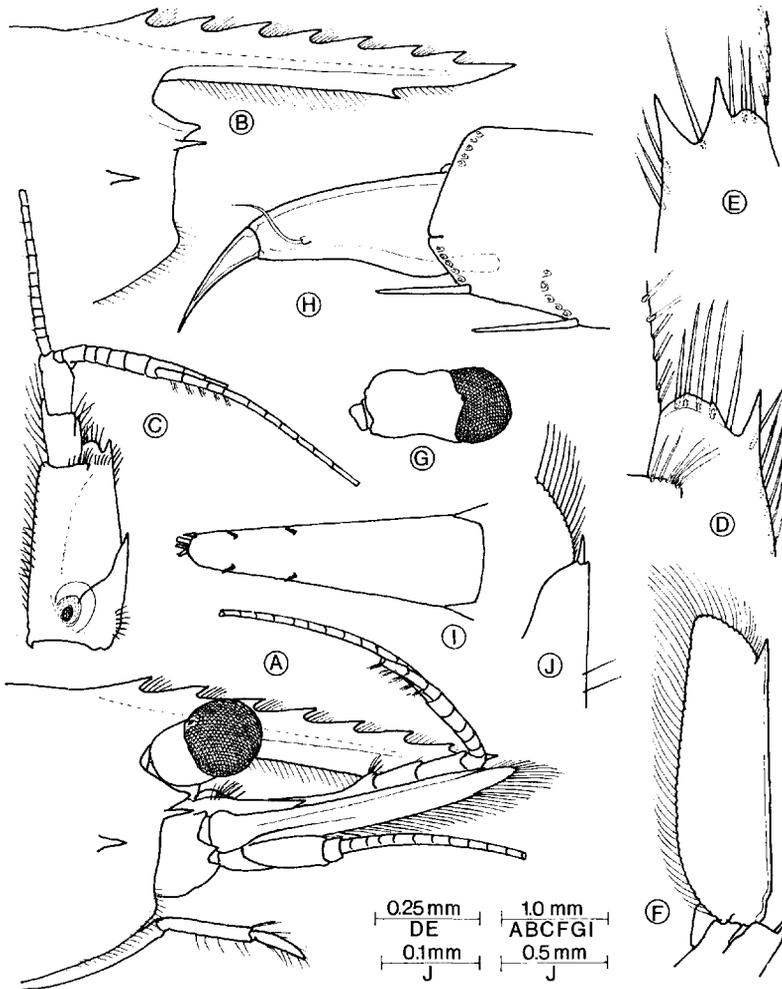


Fig. 1. — *Periclimenes affinis* (ZEHNTNER), female. A. anterior carapace, eye and antennae; B. anterior carapace and rostrum; C. antennule; D. antero-lateral angle of proximal segment of antennular peduncle, right; E. idem, left; F. antenna; G. eye, dorsal; H. dactyl and distal propod of ambulatory dactyl, setae omitted; I. telson; J. disto-lateral angle of exopod of uropod.

than broad, with a strong disto-lateral tooth that does not exceed the angular anterior border of the lamina.

The first pereiopod has fingers that are simple and slightly shorter than the palm length. The chela is about 0.6 of the length of the carpus,

which is subequal to the merus. The coxa has a very small ventro-medial process and the fourth thoracic sternite is unarmed.

The second pereiopods are unequal in both sexes. In the ovigerous female, the major chela is 1.97 times the length of the minor, and in the male 1.6 times. The non-ovigerous female has the major chela 1.35 times the length of the minor chela. The female has the palm of the major chela smooth, subcylindrical, moderately compressed and about twice the length of the fingers. The dactyl bears two acute recurved teeth and the fixed finger a series of eight irregular recurved teeth. The tips of the fingers are strongly hooked. The carpus is unarmed, equal to about 0.3 of the palm length. The merus is more than twice the length of the carpus, unarmed and about 5.0 times longer than wide. The ischium is a little longer than half the length of the merus. In the minor chela, the subcylindrical palm is 1.15 times the length of the fingers, which are slender, with hooked tips. The dactyl bears four small to minute teeth on the proximal half of the cutting edge, which oppose about seven rather large teeth on the fixed finger. The carpus distinctly exceeds half the palm length and is slightly shorter than the fingers. The merus is 1.25 times the palm length, six times longer than wide and unarmed. The ischium is subequal to the palm length. In the male, the major chela has the palm 1.55 times the length of the fingers. The fingers are slender, with acute hooked tips. The dactyl bears a single acute recurved tooth at 0.3 of its length and the fixed finger has in opposition a more distal acute tooth and a row of three unequal acute teeth proximally. The carpus is slightly longer half of the palm length, and the merus is subequal to the palm length. The ischium is 0.87 of the merus length. The minor chela has the palm equal to about 0.9 times the length of the fingers. The dactyl bears a minute tooth at one fourth of its length, while the fixed finger bears four larger teeth on its proximal third. The carpus is slender, equal to 1.1 times the palm length and 0.8 of the meral length. The ischium is subequal to the merus. The non-ovigerous female has the finger of the major chela equal to 0.6 of the palm length. The cutting edge of the dactyl bears three small acute teeth, while that of the fixed finger bears small irregular teeth. The carpus is half the palm length and the merus is very slightly shorter than the palm, with the ischium equal to 0.65 of the length of the merus.

The ambulatory pereiopods are slender, with the third extending to the tip of the scaphocerite. The dactylus is simple and slender, about three times longer than deep proximally, moderately curved, with a distinct

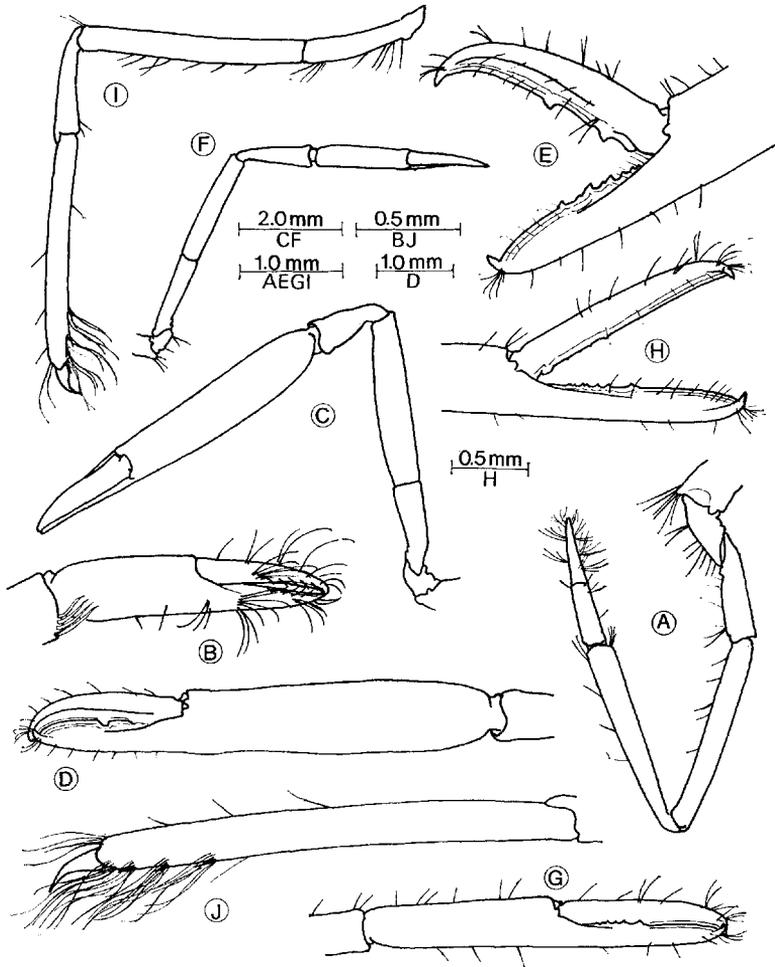


Fig. 2. — *Periclimenes affinis* (ZEHNTNER), female. A. first pereiopod; B. chela of first pereiopod; C. major second pereiopod; D. idem, chela; E. idem, fingers of chela; F. minor second pereiopod; G. idem, chela; H. idem, fingers of chela; I. ambulatory pereiopod; J. idem, dactyl and propod.

unguis equal to about 0.6 of the corpus length. The dactyl is about 0.14 of the length of the propod, which is eleven times longer than broad. The distal fourth of the ventral margin bears several oblique or transverse groups of large filamentous setae, which largely obscure some slender, ventral spines. The carpus, merus and ischium are of normal *Periclimenes*

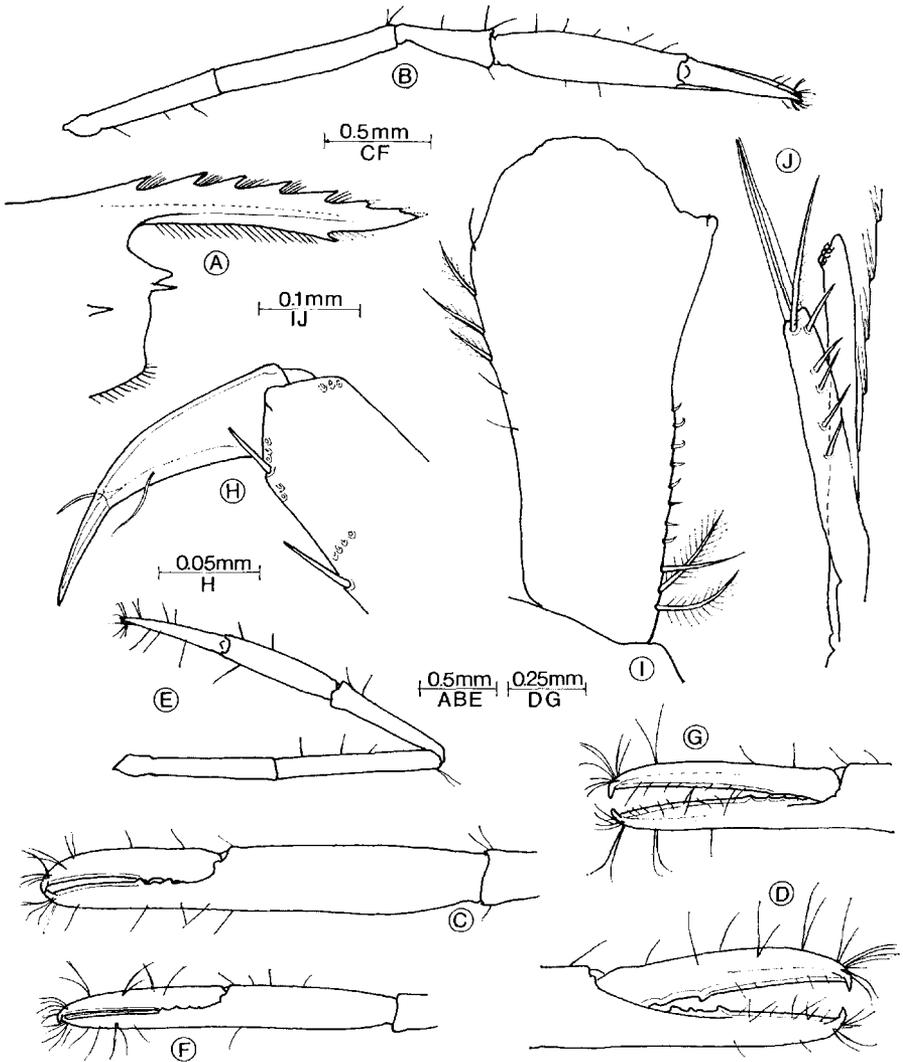


Fig. 3. — *Periclimenes affinis* (ZEHNTNER), male. A. anterior carapace and rostrum; B. major second pereiopod; C. idem, chela; D. idem, fingers of chela; E. Minor second pereiopod; F. idem, chela; G. idem, fingers of chela; H. dactyl of ambulatory pereiopod; I. endopod of first pleopod; J. appendix masculina and appendix interna of second pleopod.

form. The fourth and fifth pereopods are essentially similar. The ambulatory pereopods in the male are similar. The dactylus is more slender, about 3.5 times longer than deep, with the unguis equal to half the corpus length.

In the male, the endopod of the first pleopod is about three times longer than the central width, expanding and broadly rounded distally, with a small angular disto-medial lobe. The proximal half of the medial margin bears three short plumose spines distally. The lateral margin bears three short plumose setae on its preterminal fourth with a few simple setae. The distal margin is devoid of setae. On the second pleopod the appendix interna extends well beyond the appendix masculina. This appendix is about 7.5 times longer than broad, with two simple spines distally. A feebly setulose spine is present disto-medially and the distal half of the ventral surface bears a longitudinal row of five short simple spines. The uropods present no special features.

Colouration. — The non-ovigerous female was a general dark reddish-purple, paler on the appendages and with the ambulatory pereopods more marbled. The tips of the caudal fan were yellow.

Host. — The pair of specimens were found on the crinoid *Comanthina schlegeli* (P. H. CARPENTER) and the female on a near black crinoid, probably *Comanthus* sp.

Associates. — The *Comanthina* specimens were associated with *Allogalatea elegans* (ADAMS and WHITE) and *Gymnolophus obscura* (LJUNGAMAN).

Remarks. — *Periclimenes affinis* was first described (as a *Palaemonella*) by ZEHNTNER (1894) on the basis of a single ovigerous female from Ambon, in the Moluccan archipelago. The holotype specimen was re-described and illustrated by HOLTHUIS in 1958. The only other records of this species have been of a pair of specimens and a juvenile, also from Ilot Maitre (BRUCE, 1967) and a single specimen from the northern South China Sea (BRUCE, 1979).

In the course of the re-description of *P. brocketti* BORRADAILE it was emphasized that this species was very closely related to *P. affinis*, on morphological similarities as well as both being crinoid associates (BRUCE, 1978). The principal differences appeared to be the proportions of the segments of the second pereopods and the absence of ventral spines on

the propods of the ambulatory pereopods in *P. affinis* (HOLTHUIS, 1958), with possibly the degree of armament of the disto-lateral angle of the proximal segment of the antennular peduncle. Further re-examination of the propod of the ambulatory pereopods of the holotype of *P. affinis* has shown that small spines, largely obscured by setae, are present (Dr. Bernd HAUSER, pers. comm.). On morphological characters there appears to be no adequate ground for maintaining the separation of the two species, and *P. brockettii* BORRADAILE should be considered as a junior synonym of *P. affinis* (ZEHNTNER). It remains possible that two ecologically distinct but closely related species are involved but the situation can only be clarified when more abundant material from a range of authentically identified crinoid hosts, from the appropriate localities, can be examined.

Periclimenes novaecaledoniae BRUCE (Fig. 4 a-e)

Restricted synonymy:

Periclimenes novaecaledoniae BRUCE, 1967, *Bull. Mus. Nat. Hist. nat.*, Paris, (2) 39 (6) : 1157-1165, Figs. 6-9.

Material examined. — 1 ♀, C.L. 2.4 mm, Ilot Maitre, Nouméa, 20 m, coll. October 1978.

Description. — The single example agrees closely with the original description. The rostrum is damaged and largely lacking.

The second pereopods are small, robust, subequal and similar. They differ slightly from those of the holotype, and from the male paratype, in that the cutting edges lack teeth on the proximal halves of the cutting edges. The distal cutting edges are finely serrated as in the type material.

The ambulatory pereopods are slender, with the third extending beyond the carpocerite by half the length of the propod. The dactyl is about 0.2 of the length of the prodopod, slender. The unguis is slender, about 0.8 of the length of the carpus, and clearly demarkated. The corpus is about 2.2 times longer than deep, with an acute disto-ventral accessory spine and a slender disto-dorsal spinule. Three pairs of sensory setae are present distally on each side. The distal third of the ventral border of the propod is armed, with clearly visible spines and long rigid setae. The third propod has a disto-ventral pair of spines and three single ventral spines. The

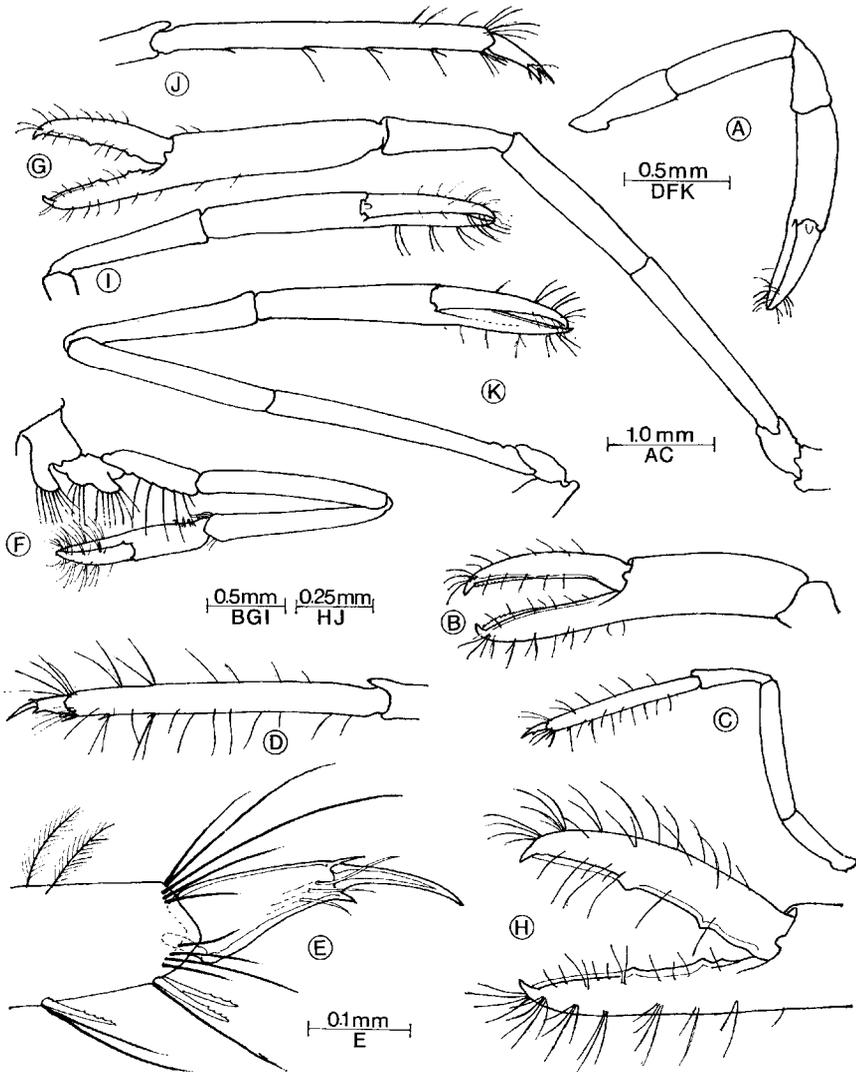


Fig. 4. *Periclimenes novae caledoniae* BRUCE. A. second pereiopod; B. idem, chela; C. third pereiopod; D. idem, dactyl and propod; E. idem, dactyl and distal propod. *Periclimenes incertus* BORRADAILE, female. F. first pereiopod; G. major second pereiopod; H. idem, fingers of chela; I. minor second pereiopod, carpus and chela; J. third pereiopod, dactyl and propod. Male. K. second pereiopod.

distal dorsal margin of these spines are feebly serrated. The following pereopods are more feebly armed.

Colouration. — The body and appendages are a general deep purple-red colour, with fine white lateral lines running from the antennal spine to the postero-ventral angle of the sixth abdominal segment and from the antero-ventral angle of the branchiostegite to cross the first three pleura. Pereiopods paler, with fingers of chela and distal propod and dactyl of ambulatory pereopods, yellow. The lateral border of the exopod of the uropod and the distal ends of both rami are also yellow. The dorsal lamina of the rostrum and the lateral border of the scaphocerite are more reddish.

Host. — *Comanthus* sp. [Crinoidea].

Remarks. — In its original description, *P. novaecaledoniae* was considered most closely related to *P. affinis* and *P. brocketti*. However it is less closely related to these species than to *P. commensalis* BORRADAILE, from which it is distinguished only by the absence of supra-orbital spines. Both species agree in having short, stout, subequal chelae on the second pereopods, with finely serrated distal cutting edges on the fingers. The dactyl of the ambulatory pereopods are identical and the distal propodal spines bear similar small serrations. *P. commensalis* has been recorded from Nouméa by MONOD (1976), who illustrated these points in that species, and is widely distributed throughout the Indo-West Pacific region, from East Africa to New Caledonia. *P. novaecaledoniae* is known only from Nouméa and possibly north west Madagascar.

Periclimenes incertus BORRADAILE (Figs. 4 f-k, 5 a-c)

Restricted synonymy:

Periclimenes (Cristiger) incertus BORRADAILE, 1915, *Ann. Mag. nat. Hist.*, (8) **15** : 210; 1917, *Trans. Linn. Soc. Lond., Zool.*, (2) **17** : 362 (key), 364, pl. 53, Fig. 7.

Periclimenes (Periclimenes) impar KEMP, 1922, *Rec. Indian Mus.*, **24** : 140 (key), 147-149, Figs. 16-17, pl. 3, Fig. 1. HOLTHUIS, 1952, *Siboga Exped. Mon.*, **39** a¹⁰ : 9, 38-39, Fig. 7.

Periclimenes (Periclimenes) incertus HOLTHUIS, 1959, *Zool. Meded., Leiden*, **36** (11) : 193-194.

Material examined. — (i) 1 ♂, 9 ovig. ♀, C.Ls. 1.65; 1.7-2.4 mm. (ii) 2 ovig. ♀, C.Ls. 2.3, 2.0 mm. (iii) 1 ovig. ♀, C.L. 2.1 mm. (iv) 2 ♂, C.Ls. 2.5, 2.1 mm and all from sponges collected at Ilot Maitre, Nouméa, 20 m, October 1978.

Description. — The specimens show no significant variations from the previously published descriptions.

In all examples the spine situated on the carapace is distinct. The rostral lamina is armed, with 6-8/0-2 teeth, of which five specimens have a dentition of 8/1. In several specimens the first tooth on the dorsal rostral lamina appears mobile.

The first pereopods are moderately robust. The fingers of the chela are stout, simple and subequal to the palm. The chela is equal to 0.8 of the carpal length and the carpus is subequal to the merus. The ischium is slightly longer than half the length of the merus and has several long rigid setae along its ventral border, which is carinate. The basis also bears two ventral setose ridges, the distal one of which is slightly produced. The coxa bears a large flattened setose ventro-medial process.

The second pereopods are variable and generally feeble. In the males they are subequal and similar, slender with the fingers of the chela equal to about 0.75 of the palm length, and without teeth. In the typical female the major chela is about 1.18 times the length of the minor chela. The palm is about 4.5 times longer than deep and 1.95 times the length of the fingers. The fingers are slender, about 4.6 times longer than wide, with two small acute teeth on the dactyl, at about 0.3 and 0.6 of the length of the cutting edge, opposing similar teeth on the fixed finger, which also has a small additional proximal tooth. The carpus is 0.58 of the palm length, slender and unarmed, and about equal to the length of the dactyl. In the minor chela, the palm is about 4.5 times longer than deep and 1.2 times the length of the fingers, which have entire cutting edges without any teeth. The carpus is slender, 4.7 times longer than wide and subequal to the length of the palm. The merus in both limbs is about 5.5 times longer than wide, uniform, unarmed and 0.8 of the length of the palm of the major chela. The ischium is slender, subequal to the major palm length and 7.0 times longer than wide. The basis and coxa are normal.

The ambulatory pereopods are slender, the third extending beyond the carpoperite by the whole length of the propod. The dactyl is slender, about 3.5 times longer than deep, 0.24 of the propod length, with a large

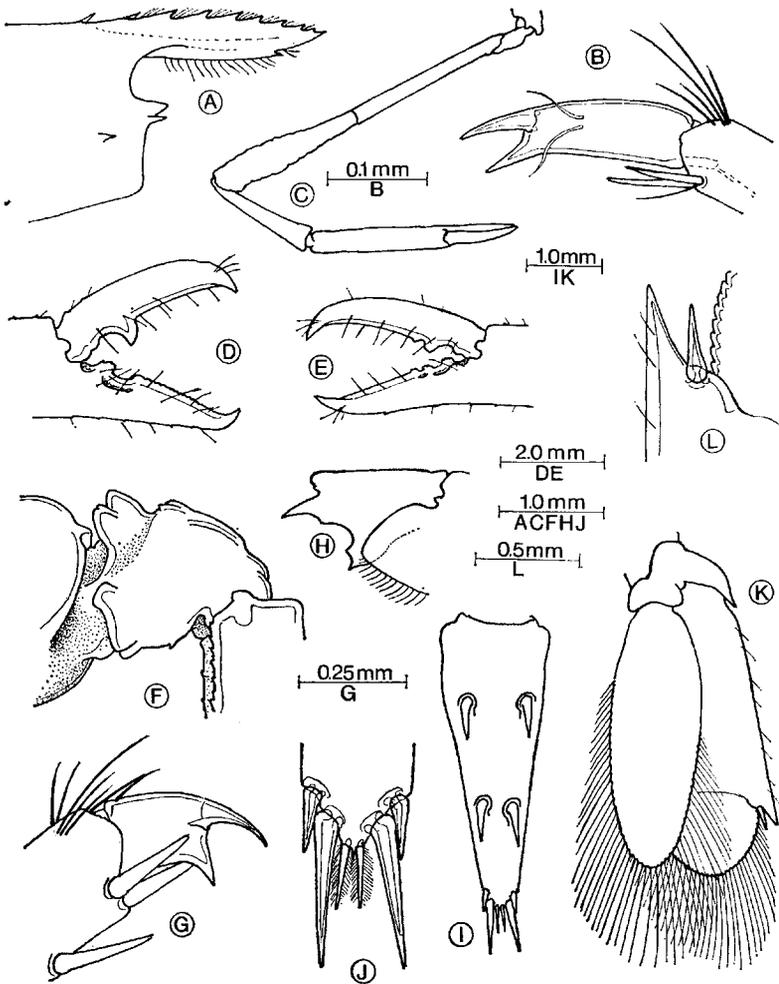


Fig. 5. — *Periclimenes incertus* BORRADAILE, female. A. anterior carapace and rostrum; B. dactyl of third pereiopod; C. abnormal second pereiopod. *Thaumastocaris streptopus* KEMP, female. D. fingers of chela of major second pereiopod; E. fingers of chela of minor second pereiopod; F. carpus of second pereiopod; G. dactyl of third pereiopod; H. sixth abdominal segment, lateral; I. telson; J. posterior telson spines; K. disto-lateral angle of exopod of uropod.

robust accessory spine and a slender unguis. The propod is about thirteen times longer than wide, with a pair of disto-ventral spines, and four spines along the length of the ventral border.

Colouration. — Highly transparent, with fine paired red striae along the lower branchiostegite and abdomen.

Hosts. — The main collection of shrimps was obtained from a sponge *Clathria* sp., the other specimens were found in association with (ii) *Siphonochalina* sp. (iii), idem (iv).

Remarks. — Although *P. incertus* has not been previously recorded from New Caledonia, it seems probable that the specimens referred to *Periclimenes* sp. by MONOD (1976) are conspecific with the present material. In particular the morphology of the first and major second pereopods appears identical and closely resembles that illustrated for this species (as *P. impar*) by HOLTUIS (1952). Although not illustrated by MONOD, one of the most characteristic features of *P. incertus* is the dactyl of the ambulatory pereopod, which differs from most other species of *Periclimenes* in having a slender unguis with a more robust accessory spine.

Periclimenes incertus has been previously recorded in association with sponges in East African waters, where it is common on *Siphonochalina*. The association with *Clathria* has also been previously noted. *P. incertus* appears to be the only species of the genus found to associate with sponges in the Indo-West Pacific region. The shrimps live on the outside of the host, unlike the species of many of the other sponge associated pontonine genera. The distribution of this species extends from Aden to Madagascar, the Maldiv Islands, Ceylon, Andaman Islands, Indonesia and northern Australia.

Thaumastocaris streptopus KEMP (Fig. 5 d-j)

Restricted synonymy:

Thaumastocaris streptopus KEMP, 1922, Rec. Indian Mus., 24 : 244-247, Figs. 78-80. HOLTUIS, 1952, *Siboga Exped. Mon.*, 39 a¹⁰ : 13, 111-114, Figs. 46-47.

Material examined. — 2 ovig. ♀, C.Ls. 5.1, 4.75 mm, Ilot Maitre, Nouméa, 20 m, October 1978.

Description. — The specimens agree generally with the previous accounts. The larger female has a rostral dentition of 10/3 and the small, 10/4. The smaller female has both first pereopods similar, slender and with four

carpal segments, the larger specimen has one similar slender first pereiopod, while the other is more robust and with only three carpal segments.

The second pereiopods are moderately unequal. In the larger female, the major chela is 1.56 times the post-orbital carapace length and 1.45 times the length of the minor chela. In the smaller female the ratios are 1.13 and 1.30 respectively. In the major chela of the small female, the dactyl bears a single large acute recurved tooth, which fits into a fossa on the fixed finger. The distal cutting edge is entire. The fixed finger bears a deep notch opposite the fossa for the dactylar tooth, with an irregular tooth proximally. Distally the cutting edge is straight, with a row of about a dozen small blunt rounded tubercles. In the minor chela, the dactyl bears a smaller acute tooth, with an additional smaller tooth present distally, separated by a small notch. The proximal cutting edge of the fixed finger bears three irregular teeth, the proximal crowned with five small tubercles, the intermediate with three and the distal with two. The carpus bears a bilobed dorsal crest, as noted by HOLTHUIS (1952).

The ambulatory legs are robust, with the propods bearing 14, 6, and 4 ventral spines in the large female and 11, 8 and 5 in the smaller. The unguis of the dactyl is distinct, slender and acute. The corpus is without lateral sensory setae.

The sixth abdominal segment is about as long as broad, with very acute postero-lateral and postero-ventral angles. The telson is about 2.0 times the length of the sixth segment and 2.6 times longer than wide anteriorly. The lateral borders taper strongly posteriorly and the distal width is less than 0.3 of the anterior width. Two pairs of large subequal dorsal spines are present, equal to about 1.4 of the telson length, and situated away from the lateral margins. The posterior margin is acute, terminating in a small median point. The lateral spines are about half the length of the dorsal spines, and about 0.4 of the length of the intermediate spines, which are robust and equal to 0.2 of the telson length. The submedian spines are subequal to the length of the lateral spines, but much more slender and finely setulose.

The protopodite of the uropod is robust, with the postero-lateral angle acutely produced. The lateral margin of the exopod is straight, terminating in a very large acute tooth, with a strong mobile spine situated medially and slightly proximally.

Colouration. — No data.

Host. — *Siphonochalina* sp. [Porifera].

Remarks. — The rediscovery of *Thaumastocaris streptopus* at Nouméa, is of particular interest as this is the type locality. The holotype was described by KEMP (1922) on the basis of a single specimen in the Museum National d'Histoire Naturelle, Paris, which was collected by Abbé CULLIERET. The host was not recorded at that time, but the species has been found in association with *Siphonochalina* sp. in the Western Indian Ocean, where it also occurs on *Haliclona*, *Acarnus*, *Petrosia* and *Callyspongia*.

Thaumastocaris streptopus has been recorded from Somalia, Kenya, Zanzibar, Tanganyika, Madagascar, Indonesia, New Caledonia and the Marshall Islands. Its bathymetric range extends to 121-141 m.

Onycocaris longirostris sp. nov. (Figs. 6-10)

Material examined. — 1 ♂, Ilot Maitre, Nouméa, New Caledonia, 20 m, October 1978.

Description. — A small sized pontoniine shrimp, of slender body form, with greatly enlarged chelae on the second pereiopods.

The carapace is smooth and not swollen. The rostrum is well developed, slender, with well developed lateral carinae extending its whole length. The tip of the rostrum is acute and reaches almost to the distal border of the antennular peduncle. The distal half of the dorsal border bears three similar acute teeth and the proximal half is without teeth. The dorsal carina is distinct to the level of the posterior orbital rims. The lamina is deepest at about 0.6 of its length and the ventral border is convex and toothless. A deep orbital notch is present, and the anterior part of the carapace largely obscures the eye laterally. A slender acute spine is present on the anterior margin of the carapace, level with the centre of the cornea. Supra-orbital and hepatic spines are lacking and there is no evident inferior orbital angle.

The abdomen is smooth and slender, slightly compressed anteriorly and depressed posteriorly. The fifth segment is slightly shorter than the sixth. The sixth is about 2.4 times broader than long and 1.8 times longer than deep. The postero-ventral angle is large, broad and acute, the

postero-lateral angle is smaller and blunter. The telson is about 2.25 times the length of the sixth abdominal segment and 1.5 times longer than broad. The greatest width is situated anteriorly and is about 3.5 times the width of the posterior margin. The lateral borders are smooth, convex, with two pairs of small, submarginal dorsal spines situated at 0.33 and 0.56

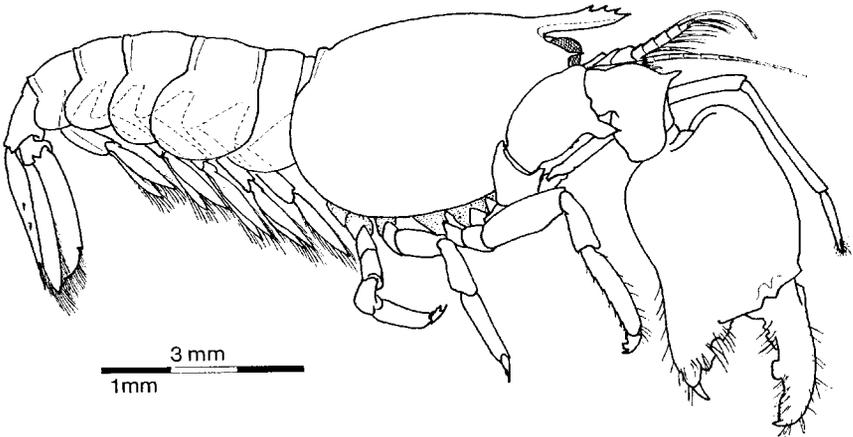


Fig. 6. — *Onycocaris longirostris* sp. nov., holotype, male. Scale in millimetres.

of the telson length. The posterior margin is feebly convex, without a median process, and sparsely setose. The lateral pair of spines are small, subequal to the dorsal spines. The intermediate spines are stout, equal to about one sixth of the telson length and four times the length of the lateral spines. The submedian spines are slender, about two thirds of the length of the intermediate spines and devoid of setules.

The antennule has a robust, short peduncle. The proximal segment is stout, about 1.6 times longer than wide, with subparallel sides. The medial border is without a ventral tooth. The lateral border has a small acute stylocerite that extends to the level of the middle segment. The statocyst is normally developed with a granular statolith. The antero-lateral margin is not produced but bears a strong acute lateral tooth, that reaches almost to the level of the anterior margin of the intermediate segment. The intermediate segment is short and stout, about 1.7 times wider than long, and without a lateral lobe. The distal segment is slightly longer than wide. The upper flagellum is biramous, with the two rami fused for the four proximal segments, with the stouter ramus consisting

of one free segment, and the slender ramus of six segments. About eight groups of aesthetascs are present. The lower flagellum is also slender, slightly longer than the upper, with nine segments.

The antenna has a stout basicerite, unarmed laterally, and the ischicerite is also robust. The carpocerite is slender about four times longer than broad, and compressed, reaching to the level of the anterior margin of the lamella of the scaphocerite. The scaphocerite is about 2.2 times longer than broad, with the anterior margin rounded and the greatest width at 0.75 of its length. The lateral border is straight, with a particularly large acute disto-lateral tooth, which just fails to exceed the distal margin of the lamella. The flagellum is short, equal to about 1.5 times the post-orbital carapace length.

The eye is short and stout. The cornea is hemispherical, without an accessory pigment spot. The stalk is tapering distally about 1.7 times broader than long, with the length about equal to the corneal diameter.

The epistome is normal and unarmed. The fourth thoracic sternite is unarmed. The fourth and fifth are narrow, so that the coxae of the first and second pereopods are contiguous. The succeeding sternites are progressively broader.

The mandible is slender and without a palp. The molar process (right) is obliquely truncate distally, with a series of acute denticles along the ventral border. The incisor process is feebly developed, with four poorly developed teeth distally. The maxillula has a moderately bilobed palp, the lower lobe bearing a single, straight simple seta. The upper lacinia is distally rounded, bearing six short spinulose spines, with some longer spinulose setae posteriorly. The lower lacinia is slender, and tapering, with numerous slender spinulose setae, distally and posteriorly. The maxilla has a laminar, non-setiferous palp. The basal endite is slender, simple, distally rounded, with six short setulose setae distally. The coxal endite is lacking and the proximal medial border is feebly convex. The scaphocerite is rather narrow, about three times longer than wide. The posterior lobe is narrower than the anterior and of almost equal length. The anterior lobe is broadly rounded distally and feebly concave medially. The first maxilliped has a large palp, extending far beyond the anterior margin of the basal endite, with three distal setae. The basal endite is small, distally rounded, and sparsely setose. The coxal endite is not clearly demarkated from the basal endite. The caridean lobe is well developed and a small triangular epipod is present. The second maxilliped

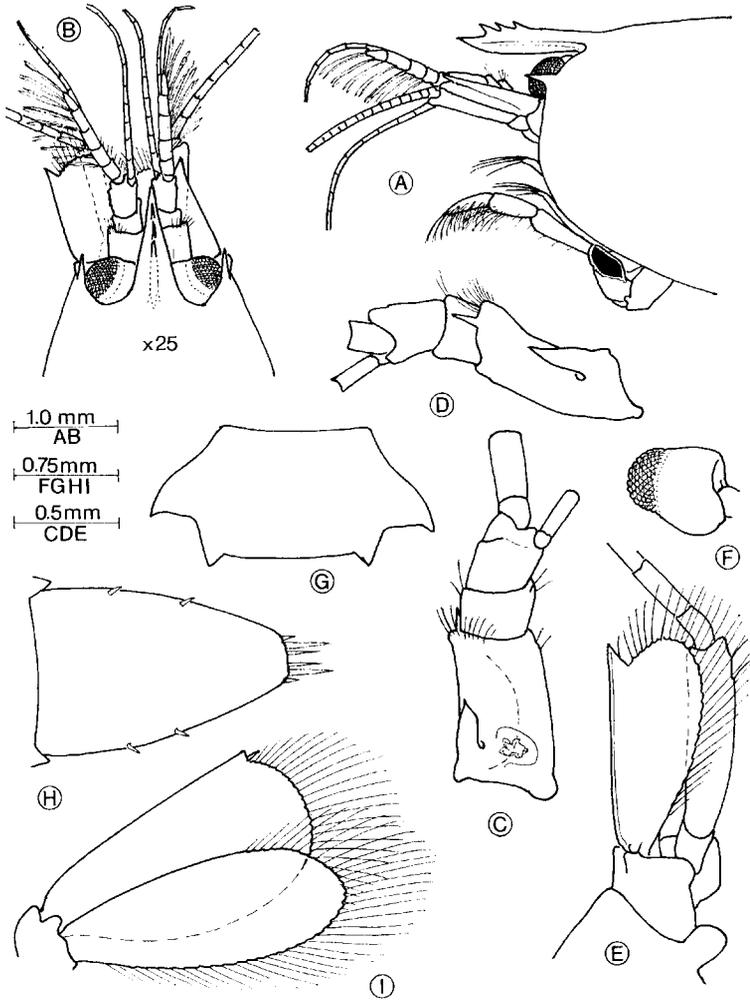


Fig. 7. — *Onycocaris longirostris* sp. nov., holotype, male. A. anterior carapace, rostrum and antennae; B. idem, dorsal aspect; C. antennule; D. idem, lateral; E. antenna; F. eye; G. sixth abdominal segment; H. telson; I. uropod.

is of normal form. The dactylar segment is broad, with a dense fringe of stout densely setulose spines. The medial portion of the coxa was damaged in dissection. A small oval epipod is present laterally. The third maxilliped fails to exceed the tip of the carapocerite. The ischio-merus and basis are completely fused. The combined segment is about three

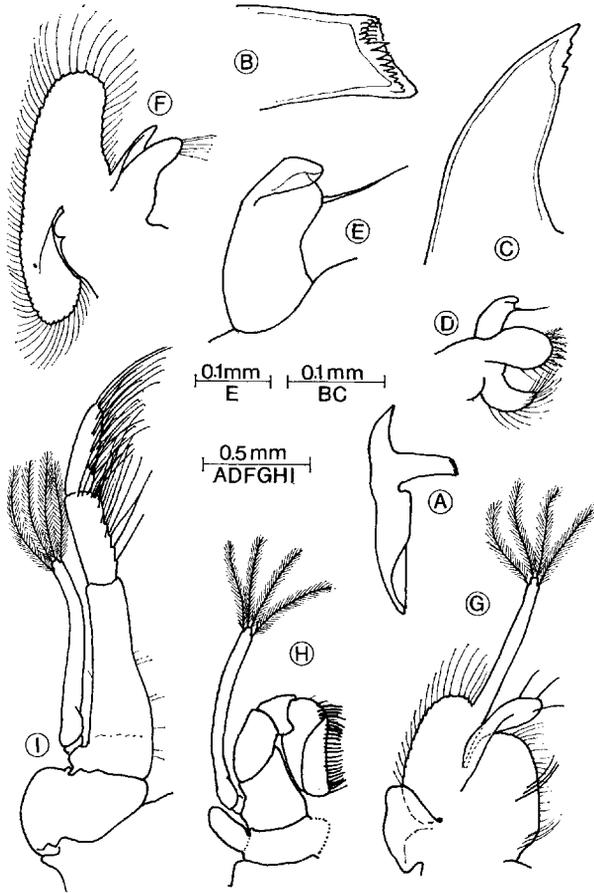


Fig. 8. — *Onycocaris longirostris* sp. nov., holotype, male. A. mandible; B. molar process; C. incisor process; D. maxillula; E. idem, palp.; F. maxilla; G. first maxilliped; H. second maxilliped; I. third maxilliped.

times longer than broad, with a straight lateral border and a sinuous medial margin converging distally so that the distal width is about 0.55 of the proximal width. The penultimate segment is uniform, about 2.7 times longer than wide, equal to half the length of the whole ante-penultimate segment and provided with transverse rows of long setae medially. The terminal segment is about equal in length to the penultimate, tapering distally, with several transverse rows of long spinulose setae medially. The coxal segment is very robust, short on the medial side, and not produced

with a large oval epipod laterally. There is no arthrobranch present, but all maxillipeds have exopods with well developed flagella, each bearing four terminal plumose setae.

The first pereopod is very slender. The chela has the palm subcylindrical, slightly swollen proximally, about five times longer than wide. The fingers are short, feebly subspatulate, equal to about one fourth of the palm length. The cutting edges are indistinct. The tips of the fingers are provided with dense tufts of short serrulate setae, with isolated setae along the sides of the cutting edges. The tips are armed with a small blunt hooked unguis, flanked on each side by a very acute process with a swollen base. The carpus is about twice the length of the chela, about 1.3 times longer than wide, slightly narrowed in its proximal fifth. The merus is more robust, about nine times longer than deep, slightly compressed, with its greatest width centrally. The ischium is moderately stout, about six times longer than deep, equal to about 0.7 of the meral length. The basis and coxa are normal.

Only the right second pereopod has been preserved. The chela is massive, its length equal to the post-orbital carapace length. The palm is strongly compressed, smooth, about 1.2 times longer than deep. The fingers are feebly subspatulate. The dactylus is stout, about three times longer than deep, with a convex outer margin. The cutting edge is laterally situated and complex. A low flat-topped tooth is present at the centre of the cutting edge. Anteriorly a short diastema is present before a row of about ten small teeth which end distally adjacent to a small hooked terminal tooth. The distal teeth of the row are quite discrete, but the teeth become smaller in size and less distinct proximally. Proximally to the central tooth is another small diastema, with a series of 4-5 small irregular crenulations situated in front of the hinge. The ventral tooth is even more robust, almost as long as deep at the hinge. The cutting edge is strongly situated laterally, with a large bicuspid tooth at the middle of its length. A small U-shaped diastema is present distally to this tooth, beyond which lies a row of small low teeth which extend up to and on to the large acute hooked terminal tooth. The proximal teeth are small and indistinct, and so are the distal teeth, but the central ones are more conspicuous. Proximal to the central tooth is a small, irregular diastema, which is separated from the hinge by an irregular series of raised crenulations. On the distal lateral end of the fixed finger is a small raised flange, with a very feebly crenulated, non-dentate upper margin. The dactylus bears

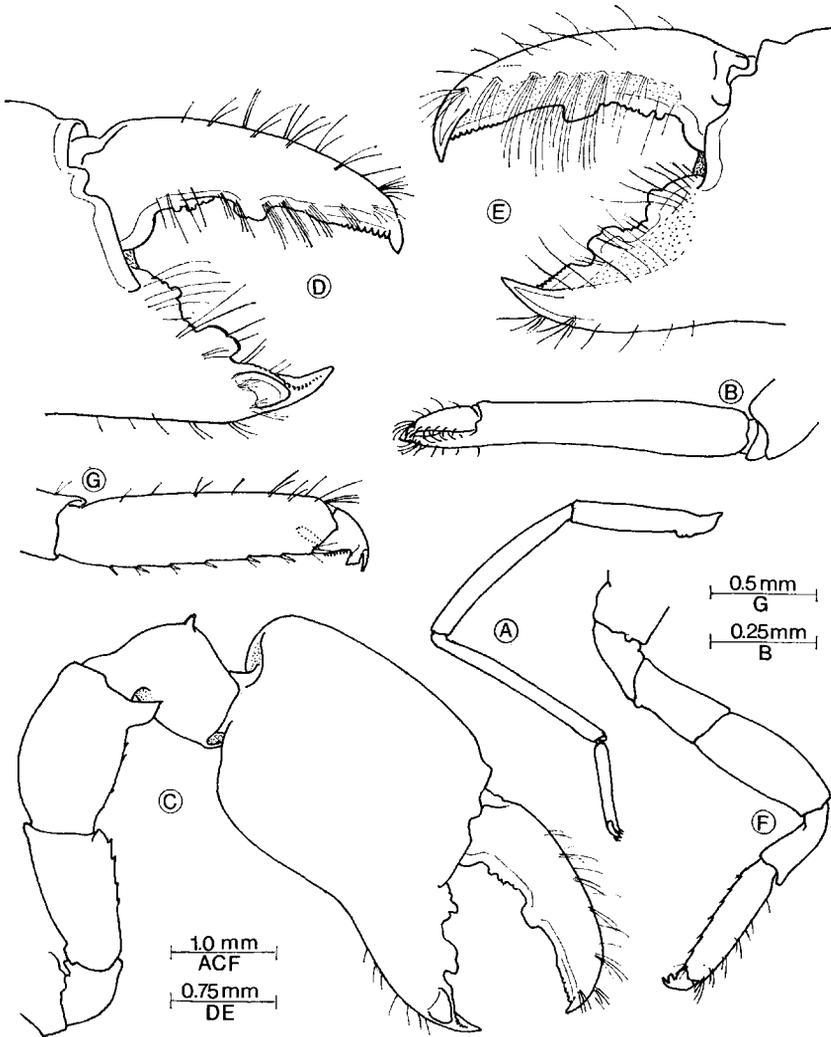


Fig. 9. — *Onyccaris longirostris* sp. nov., holotype, male. A. first pereiopod; B. idem, chela; C. second pereiopod; D. idem, fingers of chela, lateral aspect; E. idem, medial aspect; F. third pereiopod; G. idem, dactyl and propod.

several groups of setae, mainly short on the outer aspect, but longer on the inner side. The fixed finger has scattered isolated long setae. The carpus is stout, expanded and deeply excavated distally, with a large angular lateral lobe. The distal dorsal margin bears a small triangular tooth.

The carpus is about 0.55 of the length of the palm of the chela. The merus is robust, slightly compressed, 1.6 times longer than deep and 1.6 times longer than the palm, with a very large acute disto-ventral spine and a few minute ventral spinules. The ischium is about 0.9 of the length of the merus, 1.8 times longer than wide, tapering proximally, without a disto-ventral tooth, but with a series of four small acute ventral spinules. The basis and coxa are robust, without special features. The third pereiopod is robust and exceeds the scaphocerite by half the propod. The dactylus is short and stout, strongly compressed, with a clearly demarkated curved acute unguis, equal to about half the length of the dorsal margin of the corpus, which slightly exceeds the length of the proximal width. The ventral border is convex for the proximal three quarters, with a series of nine small acute denticles. The distal fourth bears a large trapezoidal laminar accessory spine. The propod is about 4.2 times the maximum length of the dactylus, which is subequal to the average width of the propod. The ventral border is armed with six small acute spines and a pair of disto-ventral spines. The carpus is equal to 0.6 of the propod length, about 2.5 times longer than wide, and unarmed. The merus is as long as the propod, 2.4 times longer than wide, with the greatest width centrally, without ventral spinules or a disto-ventral tooth. The ischium is more slender, tapered proximally and equal to two thirds of the merus length. The basis is normal and the ischium stout. The fourth and fifth pereiopods are similar but more slender. The dactyls are essentially similar. The propod of the fourth pereiopod has four ventral spines and the fifth two and a single disto-ventral spine only. The dactylus of the fourth pereiopod has eight ventral spinules and the fifth ten.

The pleopods have broad peduncles, the second is about twice longer than broad. The endopod of the first pleopod is about 3.2 times longer than the greatest width, which is situated at about 0.25 of its length. Its base is oblique, the medial border straight and the lateral concave and convergent to a narrow rounded tip. The distal third of the medial margin bears four long simple setae, while the proximal two thirds bear six, mainly short, simple spiniform setae. On the second pleopod the appendix masculina is normally developed, with about 6-8 subterminal concinna. The corpus of the appendix masculina is obsolete. Two long slender spinulate setae arise from its site of origin.

The uropod has a short protopodite, laterally unarmed. The exopod is broad, twice as long as wide, with the lateral border mainly straight,

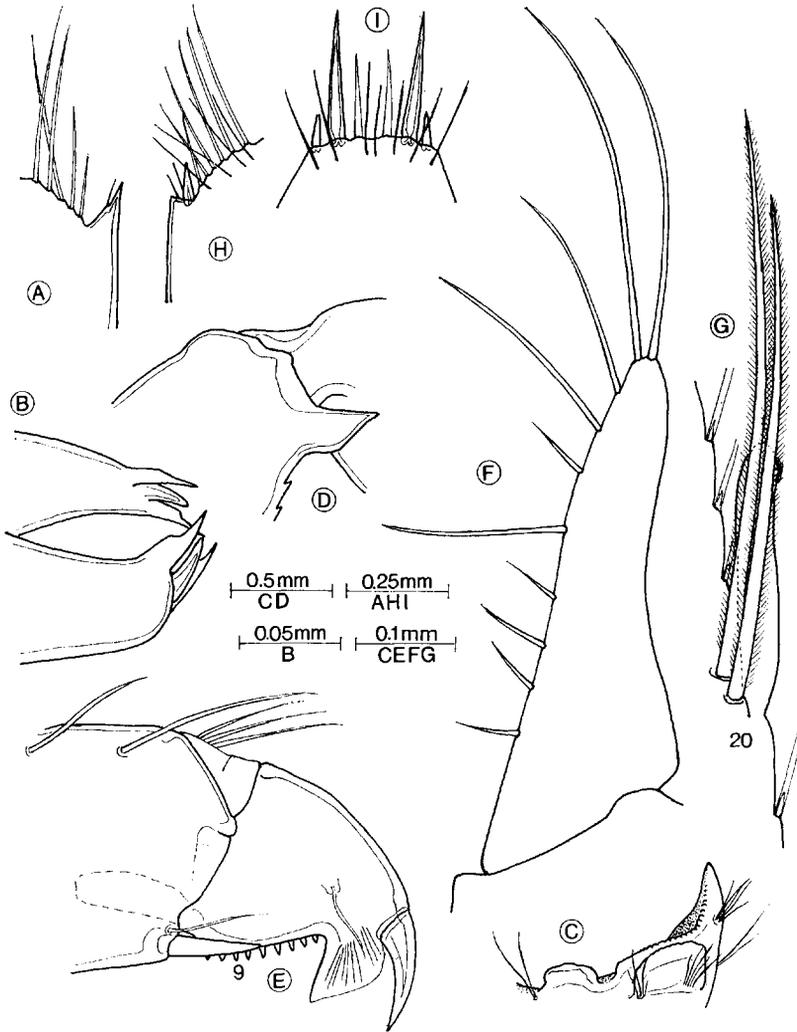


Fig. 10. — *Onycocaris longirostris* sp. nov., holotype, male. A. disto-lateral angle of scaphocerite; B. tips of fingers of first pereiopod; C. tip of fixed finger of second pereiopod; D. disto-lateral angle of merus of second pereiopod; E. dactyl of third pereiopod; F. endopod of first pleopod; G. appendix masculina and appendix interna of second pleopod; H. disto-lateral angle of exopod of uropod; I. posterior telson spines

ending in a short subrectangular tooth, with a mobile spine medially. The lamina extends only a short distance beyond the disto-lateral tooth. The endopod is more slender, about 2.7 times longer than broad, 0.75 of the width of the exopod, which it slightly exceeds in length.

Type. — The single specimen is designated as the holotype and is deposited in the collections of the Museum National d'Histoire Naturelle, Paris, registration number: NA 3695.

Measurements. — Post-orbital carapace length : 3.2 mm, carapace and rostrum: 4.4 mm, total length (approx.): 12.0 mm, chela of second pereopod : 4.7 mm.

Colouration. — Transparent, whitish, with no special markings.

Host. — *Siphonochalina* sp. [Porifera].

Systematic position. — *Onycocaris longirostris* is most closely related to two species known from the western Indian Ocean, *O. seychellensis* BRUCE and *O. zanzibarica* BRUCE. Both these species are characterized by small multidentate rostra. *O. longirostris* may be readily separated from these two species by (i) the greater length of the rostrum, which is better developed than in any other species of the genus, and reaches almost to the level of the distal end of the antennular peduncle, rather than that of the proximal peduncular segment; (ii) the presence of a large acute disto-ventral tooth on the merus of the second pereopod; (iii) the short, stout dactyls of the ambulatory pereopods, with 9-10 uniform small acute denticles on the ventral border of the corpus; (iv) the disto-lateral spine of the scaphocerite is particularly broad. Of the two species, *O. longirostris* appears closer to *O. zanzibarica*, particularly with reference to the better development of the rostral teeth, the longer more slender first pereopod, the armament of the fingers of the second pereopod and the smooth palm of the chela, the stouter ambulatory pereopods, and the more robust dactyls.

Remarks. — It is unfortunate that only a single second pereopod has been preserved. In *O. seychellensis*, the chelae of the second pereopods are unequal and dissimilar, whereas in *O. zanzibarica*, they are subequal and similar.

The mouthparts of *O. longirostris* show a very close resemblance to those of *O. seychellensis*, but those of *O. zanzibarica* have not been described (BRUCE, 1971, 1971 a).

The second pereopods of *O. longirostris* show a small disto-lateral flange, very similar to one found in *O. zanzibarica*, that is, without an acute distal tooth and a series of small proximal denticulations, as occurs in *O. seychellensis*. The distal cutting edge of the dactylus opposes into the slot between this flange and the tip of the dactylus, when the fingers are fully closed distally, the posterior two thirds of the cutting edge are not in contact and a clear gap is present. The central tooth on the dactylus opposes the diastema posterior to the central tooth on the fixed finger but does not occlude it.

Periclimenaeus arabicus (CALMAN) (Fig. 11)

Restricted synonymy:

Periclimenes (*Periclimenaeus*) *arabicus* CALMAN, 1939, *Sc. Rep. John Murray Exped.*, 6 : 210-211, Fig. 4 BRUCE, 1974, *Bull. Mus. Hist. nat.*, Paris, (3) 258 : 1563-1568, Figs. 3 *c-f*; 4-6; 7 *c-h*.

Material examined. — 2 ♂, 2 ♀, 2 ovig. ♀, 1 juv., C.Ls. 2.9, 2.75; 3.8, 3.6; 4.3, 3.7; 2.0 mm, Ilot Maitre, Nouméa, 20 m, October 1978.

Description. — The specimens agree closely with the data provided by CALMAN (1939) and BRUCE (1974).

All specimens have a rostrum provided with six dorsal teeth and a single ventral rostral tooth. The lamina is slightly shallower than in the Jibuti specimens and more closely resembles that of the holotype. In all specimens small acute supra-orbital tubercles are distinct.

The palm of the chelae of the second pereopods are very densely covered with minute acute tubercles and numerous setae with short transverse bare areas. The palm of the major chela in the female is subcylindrical, slightly compressed and about twice as long as deep. The dactyl is equal to about half the palm length with a strongly convex outer margin and a hooked tip terminating in a small corneous tooth. The distal half of the cutting edge is entire and the proximal half bears a robust molar process. The fixed finger is thickened, with a small hooked tip bearing a terminal corneous tooth. The central region bears a deep fossa, bordered by a broad blunt tooth ventrally and a more acute tooth dorsally. The minor chela is subequal to the palm length of the major chela and has the palm about 1.5 times longer than deep and covered also with minute tubercles.

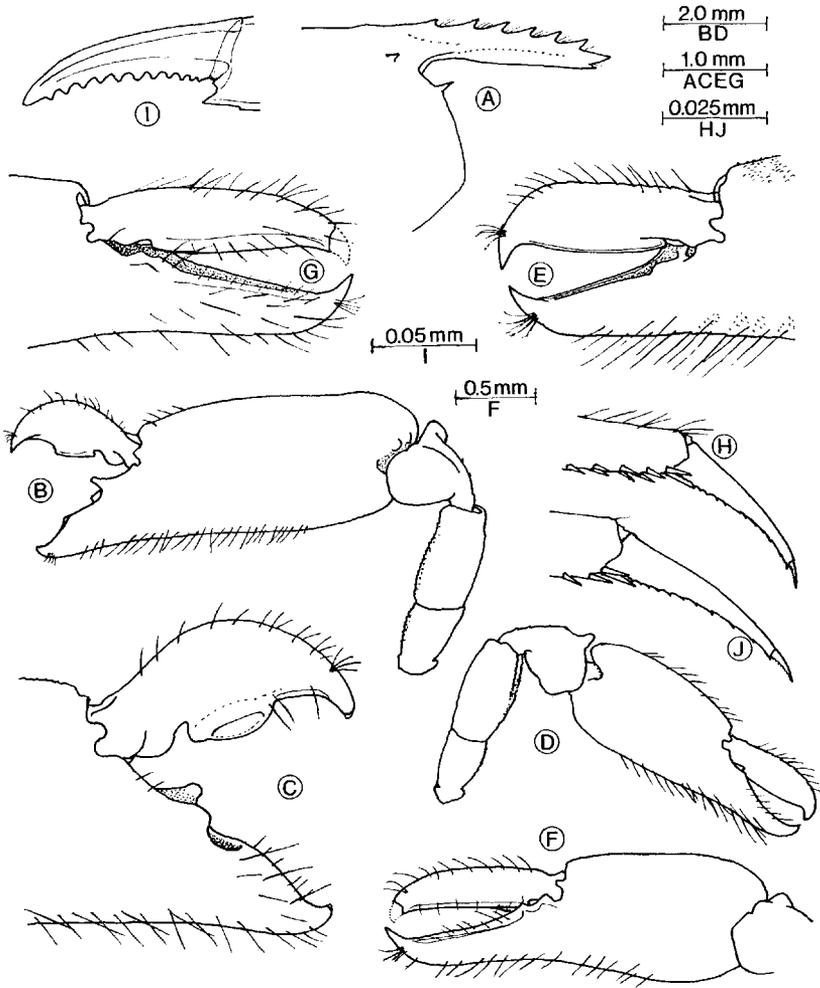


Fig. 11. — *Periclimenaeus arabicus* CALMAN. A. anterior carapace and rostrum; B. major second pereiopod; C. idem, fingers of chela; D. minor second pereiopod; E. idem, fingers of chela; F. minor second pereiopod, chela; G. idem, fingers of chela; H. dactyl of third pereiopod; I. idem; A-E, H. female; F-G, I. male.

The fingers are narrow, with the dactyl equal to 1.4 of the palm length, about 3.0 times longer than deep, with a strong hooked tip and a feebly convex unarmed cutting edge. The fixed finger is tapering, with an acute hooked tip and a channelled cutting edge. In the male the major chela is similar to that of the female but smaller and similarly tuberculate. The

minor chela is also subequal to the palm length of the major chela. The dactyl is equal to about 0.85 of the palm length and is more slender than in the female, about 4.0 times longer than deep, with a more gradual taper distally. The fixed finger is also distinctly channelled along the cutting edge. In all specimens the dorsal surface of the carpus is feebly tubercled, and the ventral aspects of the merus and ischium are densely covered with small acute tubercles.

The ambulatory pereopods are essentially identical with those of the holotype and the Jibuti specimens, except that the dactyls are relatively slightly more slender, about 5.0 times longer than wide at the base in the female and 6.0 times in the male, compared with about 4.0 times in the Jibouti material.

Colouration. — Semitransparent. Without cuticular chromatophores, but with reddish striae within the muscle tissues of the palm of the chelae of the second pereopods.

Host. — *Toxochalina* sp. [Porifera].

Remarks. — *Pereiclimenaeus arabicus* has not been previously recorded from New Caledonia, and in the Pacific Ocean, has been recorded only from Japan (as *P. ohshimai*, FUJINO and MIYAKE, 1967; KIKUCHI and MIYAKE, 1978). All other records are from the western Indian Ocean.

The association with *Toxochalina* represents a new host record. The species has previously been recorded in association with *Callypsongia* and *Acarinus* spp.

In comparison with the Jibouti specimens (BRUCE, 1974), the present material shows only minor differences, most noticeably (i) the more slender rostral lamina, (ii) the much more dense tuberculation of the palms of the chelae of the second pereopods, with smaller more acute tubercles, (iii) the relatively broader dactyl of the minor second pereopod and (iv) the more slender dactyls of the ambulatory pereopods. In these features the Noumean specimens are identical with material from Kenya and Zanzibar.

Pereiclimenaeus rastrifer sp. nov. (Figs. 12, 13 a-b)

Material examined. — 1 ♂, CL. 2.0 mm, Ilot Maitre, Nouméa, 20 m, coll. October 1978.

Description. — A small species of *Periclimenaeus* of slender body form.

The distal rostrum is lacking. The proximal rostrum is slender, slightly depressed and bears three slender acute teeth, with a proximal less acute tooth. All are well in advance of the posterior orbital margin. Supra-orbital spines or tubercles are absent, but a short transverse supra-orbital ridge is present, defining a feebly developed orbit. The inferior orbital angle is distinct, situated medially to a well developed slender acute marginal antennal spine. The antero-lateral angle is very feebly produced.

The antennule is of normal form, about twice as long as wide, with a well developed broad acute disto-lateral process, that reaches to about the middle of the intermediate segment. The stylocerite is short, not reaching the middle of the segments length, broadly leaf-like and distally acute. The statocyst is normally developed and contains a granular statolith. The intermediate and distal segments are subequal, together equal to about half the length of the proximal segment. The intermediate segment bears a small lateral lobe. The upper flagellum is short, biramous, with the three proximal segments of the rami fused. The short free ramus consists of two segments only and the longer of thirteen. About ten groups of aesthetascs are present. The lower flagellum is longer with about twenty segments.

The antenna has short stout unarmed basicerite. The carpoperite is robust, about 3.5 times longer than wide and does not reach the anterior margin of the lamella of the scaphocerite. The flagella are short. The scaphocerite is well developed, about 2.5 times longer than broad, with a feebly concave lateral margin terminating distally in a strong spine, that does not exceed the anterior margin of the lamella, which is moderately angular.

The eyes are well developed, with a strongly oblique, hemispherical cornea. The stalk is subcylindrical, about 1.5 times longer than wide and subequal to the width of the cornea. The proximal medial region of the stalk is swollen dorsally and strongly flattened medially. No accessory pigment spot is present.

The first pereopod is moderately robust, and exceeds the carpoperite by the distal sixth of the merus. The chela is slightly bowed, equal to about 0.85 of the length of the carpus. The palm is subcylindrical, slightly compressed, and about twice as long as deep. The fingers are equal to about 0.85 of the palm length, and are broadly spatulate. The dactyl is provided with a small hooked tip. A distinct diastema is present proxi-

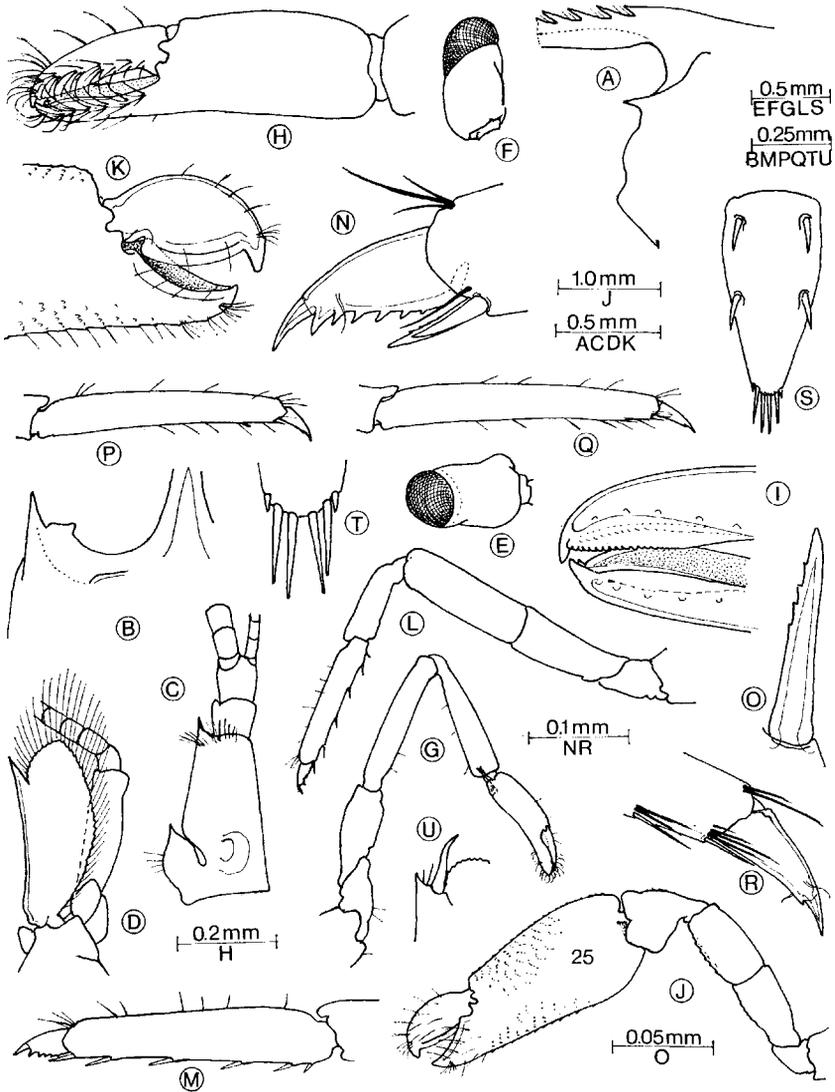


Fig. 12. — *Periclimenaeus rastrifer* sp. nov., holotype, male. A. anterior carapace and rostrum; B. orbital region, dorsal aspect; C. antennule; D. antenna; E. eye, lateral; F. idem, dorsal; G. first pereiopod; H. idem, chela; I. idem, fingers of chela, setae omitted; J. minor second pereiopod; K. idem, fingers of chela; L. third pereiopod; M. idem, dactyl and propod; N. dactyl and distal propod; O. idem, disto-ventral spine of propod; P. fourth pereiopod, propod and dactyl; Q. fifth pereiopod, propod and dactyl; R. idem, dactyl; S. telson; T. terminal telson spines; U. disto-lateral angle of exopod of uropod.

mally, with the cutting edges well developed distally, with short pectinations present on both medial and lateral halves of the cutting edge. The pectinations are most strongly developed distally and decrease in size proximally. The fixed finger is similar but provided with two distal teeth, and the cutting edges are devoid of pectinations. The carpus is about 4.7 times longer than wide distally, and strongly attenuated proximally. The merus is 1.14 times the length of the carpus, uniform, 5.7 times longer than wide. The ischium is a little shorter than the chela and about 0.75 of the length of the carpus. The basis is 0.65 of the carpus length. The coxa is robust, without a ventro-medial process.

The major second pereopod is lacking. The chela of the minor second pereopod is well developed. The palm is subcylindrical, moderately compressed, slightly tapering distally, with the dorsal aspects provided with numerous transverse rows of small acute tubercles. The palm is 1.65 times longer than deep and about twice the length of the dactyl, which is compressed, semicircular, with a strongly convex outer margin, a strong acute distal tooth and moderately convex entire cutting edge. The fixed finger is short and stout, with a feebly acute tip. The cutting edge is deeply grooved, with the dorsal lip much deeper than the ventral, and with a small distal notch. The carpus is short and stout, expanded distally, equal to about half the palm length, unarmed, with a few minute tubercles disto-laterally. The merus is robust, also equal to half the palm length, about 1.6 times longer than wide and distinctly tuberculate ventrally. The ischium is subequal to the merus, twice as long as wide and more feebly tuberculate ventrally. The basis and coxa are normally robust.

The ambulatory pereopods are normal. The third exceeds the carpo-cerite by two thirds of the length of the propod. The dactyl is about 2.5 times longer than deep. The unguis is distinct, curved, simple, equal to 0.3 of the corpus length. The corpus is about 2.25 times longer than deep, with a concave dorsal and ventral margin. The ventral margin bears a well developed distal accessory spine, with five smaller acute denticles distributed along the length of the margin, decreasing in size proximally. The propod is about four times as long as the dactyl, five times longer than deep, and tapering slightly distally. The ventral border is armed with five single robust spines and a pair of larger disto-ventral spines. The larger of the disto-ventral spines has a series of small denticles present on the dorsal aspect. The carpus is about 0.7 of the propod length, three times longer than its distal width and unarmed. The merus is subequal

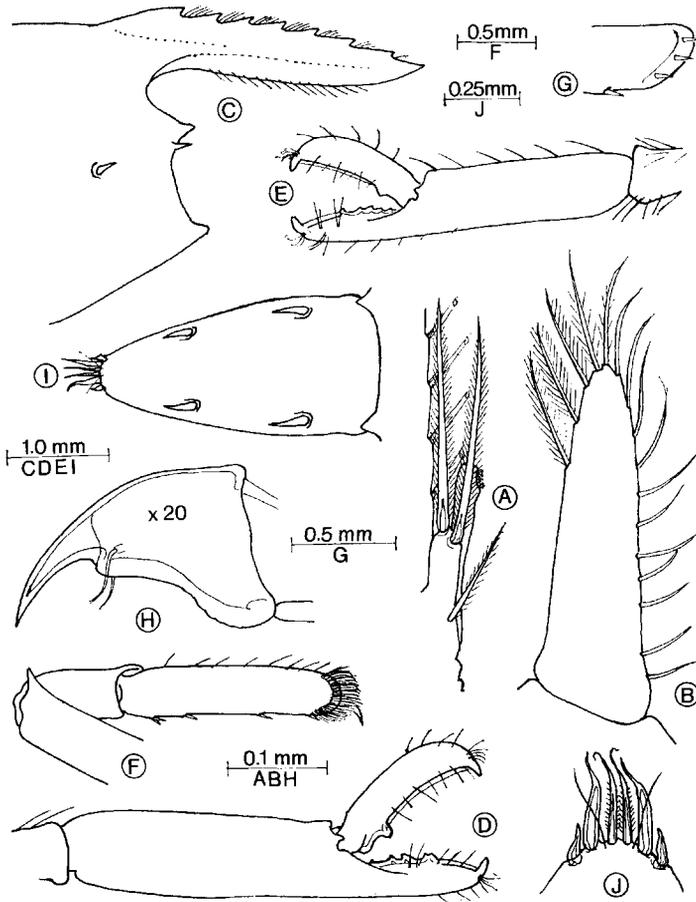


Fig. 13. — *Periclimenaeus rastrifer*, sp. nov., holotype, male. A. endopod of first pleopod; B. appendix masculina and appendix interna of second pleopod. *Zenopontonia noverca* KEMP, ovigerous female. C. anterior carapace and rostrum; D. chela of major second pereiopod; E. chela of minor second pereiopod; F. third pereiopod, dactyl propod, carpus and distal merus; G. idem, distal propod; H. dactyl. *Pontonia katoi* KUBO, ovigerous female. I. telson; J. posterior telson spines.

to the propod length, uniform, about three times longer than deep and unarmed. The ischium is normal, unarmed, equal to 0.82 of the propod length. The fourth and fifth pereiopods are generally similar, but more slender. The dactyls have only a small acute accessory spine and the ventral margins without denticles. The dactyl of the fifth pereiopod is about 2.5 times longer than deep. The propods of the fourth and fifth

pereiopods are 0.93 and 0.97 of the length of the third, and are 7.0 and 7.7 times longer than deep respectively. The ventral border of the fourth bears a single small spine, with a similar disto-ventral spine, and the fifth has slender spinules only.

The abdomen is normal, without an antero-dorsal lobe on the first segment. The pleura are broadly rounded. The sixth segment has the postero-ventral angles broad and blunt and the postero-lateral one bears a small acute tooth. The telson is about 2.0 times the length of the sixth segment, and is slightly more than twice as long as wide. The lateral margin is convex, slightly swollen anteriorly and tapering posteriorly. Two pairs of large subequal dorsal spines, equal to 0.16 of the telson length are situated submarginally at 0.15 and 0.50 of the telson length. The posterior margin is rounded, without a median point, and one third of the width of the anterior margin. The lateral posterior spines are small, about one fourth of the length of the intermediate spines, which are slender, and equal to about 0.2 of the telson length. The submedian spines are more slender, slightly longer than the intermediate spines and without setules.

The endopod of the first pleopod is three times longer than broad, and tapers gradually distally. The medial border bears 10-11 slender spiniform setae, with two larger ones terminally. The distal lateral margin bears three short plumose setae. The appendix masculina of the second pleopod is short and stout, about twice as long as wide, with two long, robust spiniform setae, with numerous setules, present distally, equal to about 3.75 the length of the corpus of the appendix, and a single short similar seta ventrally. The appendix interna far outreaches the corpus of the appendix masculina.

The uropod has the protopodite unarmed postero-laterally and the lateral margin of the exopod is feebly convex and entire, with a small acute disto-lateral tooth, with a strong mobile spine medially.

Colouration. — The general colouration was a uniform pale red.

Type. — The single specimen is designated as the holotype and deposited in the Museum National d'Histoire naturelle, Paris, registration number: NA 3696.

Measurements. — Post-orbital carapace length: 2.0 mm, total length (approx.): 8.5 mm, minor chela, second pereiopod: 2.45 mm, length of ova: 0.5 mm.

Host. — *Dysidea* sp. [Porifera].

Remarks. — The damaged rostrum and lack of the major second pereopod prevent a complete assessment of the systematic position of this species. Even without details of these features it is clear that *P. rastrifer* is very closely related to *P. leptodactylus* FUJINO and MIYADE, 1968. This small Japanese species is also associated with sponges, and has been found in association with sponges of the genus *Desmacidon* in East African waters.

Periclimenes rastrifer can be distinguished from *P. leptodactylus* by the following features, (i) the disto-lateral spine of the scaphocerite is more robust, (ii) the chela of the first pereopod has the fingers distinctly exceeding half the palm length, fully spatulate, with pectinate cutting edges on both sides of the dactyl and with a well marked proximal diastema, (iii) the palm of the chela of the minor second pereopod is distinctly tuberculate, (iv) the ventral border of the corpus of the dactyl of the third pereopod bears a well developed distal accessory spine and 4-5 large acute denticles, and (v) the larger of the disto-ventral spines of the propod is dorsally denticulate.

Zenopontonia noverca (KEMP) (Fig. 13 c-h)

Restricted synonymy:

Periclimenes (Periclimenes) noverca KEMP, 1922, *Rec. Indian Mus.*, **24** : 141 (key), 162-65, Figs. 28-30.

Zenopontonia noverca BRUCE, 1975, *Crustaceana*, **28** (3) : 275-281, Fig. 1.

Material examined. — 1 ♀, C.L. 4.5 mm, Ilot Maitre, Nouméa, 20 m, coll. October 1978.

Description. — The specimen agrees almost exactly with the previous information. The rostrum reaches to just beyond the end of the antennular peduncle and has a dentition of 7/0, as in the holotype.

The second pereopods are slightly unequal, the smaller being about 0.75 of the length of the larger. In the larger chela the palm is about 3.4 times longer than deep, and the dactyl equals about 0.55 of the palm length. In the smaller chela, the palm is about 3.4 times longer than deep but the dactyl is 0.6 of the palm length. In the larger chela the dactyl has a strongly hooked tip and the cutting edge bears a single small rounded

tooth proximally. The cutting edge of the fixed finger bears three recurved acute teeth. In the smaller finger, the dactyl is similar, about 3.6 times longer than deep, with a single small acute tooth proximally on the cutting edge. The fixed finger bears five small acute recurved teeth on the cutting edge.

The ambulatory pereopods are robust. The dactyl is very short and stout, strongly compressed and largely obscured by the distal setae of the propod. The unguis is acute, curved and distinct from the corpus. The corpus is as long as deep and about 1.2 times the length of the unguis. The ventral border is concave and unarmed. The propod is stout, regular, about 4.5 times longer than deep. The ventral border is armed with a pair of stout proximal spines and three single spines. The rounded anterolateral margin bears a dense brush of short setae, which conceal three short submarginal spines. The fourth and fifth pereopods are similar.

Colouration. — Uniform deep reddish purple.

Host. — *Halityle regularis* Fisher [Asteroidea].

Remarks. — This species was first described as a species of *Periclimenes* from New Caledonia by KEMP (1922), on the basis of a single ovigerous female specimen in the collections of the Muséum National d'Histoire Naturelle, Paris. No details of its origin were recorded. Subsequently this species was placed in a separate genus on account of the mobile hepatic spine and other morphological characteristics after the study of some further specimens from New Caledonia, Australia and East Africa (BRUCE, 1975).

This species is generally found in association with subtidal asteroids, being ecologically replaced by *Periclimenes soror* (NOBILI) in intertidal and shallow waters. It has been found in association with asteroids of the genera *Culcita*, *Pentaceraster*, *Poraster* and *Protoreaster*. The association with *Halityle* represents a new host record. The specimens previously recorded from Noumea were associated with *Pentaceraster alveolatus* (PERRIER).

Pontonia katoi KUBO (Figs. 13 i-j, 14)

Restricted synonymy:

Pontonia katoi KUBO, 1940, *Journ. Imp. Fish. Inst.*, Tokyo, **34** : 55-58, Figs. 21-23.

Material examined. — 3 ♂, 2 ♀, 2 ovigerous ♀, C.Ls. 2,3-3.2; 3.6-4.0; 3.4-4.2 mm; Ilot Maitre, Noumea, 20 m, coll. October 1978.

Description. — As previously described. All specimens have two pairs of large dorsal spines on the telson, situated at about 0.25 and 0.65 of the telson length. The posterior margin of the telson is rounded, without

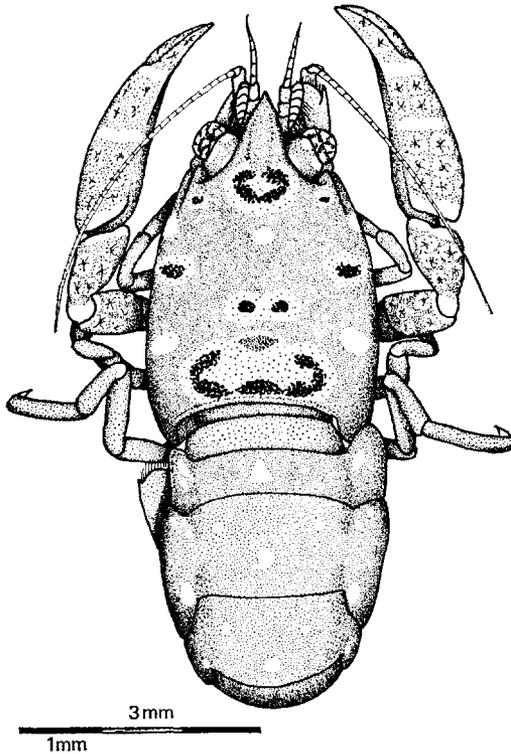


Fig. 14. — *Pontonia katoi* KUBO, ovigerous female. Colour pattern.

a median point, and equal to about 0.28 of the anterior width. The lateral spines are short and stout, sinuous, equal to about one third of the length of the dorsal spines. The intermediate spines are about 2.5 times the length of the lateral spines, swollen but distally slender and twisted. The submedian spines are of similar length, slender and coarsely setulose proximally.

Colouration. — General colouration golden yellow, with unnumerable minute white dots and larger sparse white spots over the body, antennae and caudal fan. On the dorsum of the body is a pattern of pink patches, each surrounded by a rim of bright yellow. The chelae of the second pereopods show a diffuse pink reticular pattern with white chromatophores in the lacunae. The hepatopancreas is bright yellow and the ovary pale yellow.

Host. — All specimens were obtained from *Polycarpa aurata* [Ascidiacea], with two pairs and three single individuals in five specimens.

Remarks. — *Pontonia katoi* has not been previously recorded from New Caledonia, but is known from Japan, Indonesia, Queensland, Australia and Tanganyika. The association with *Polycarpa aurata* represents a new host record. The species has been previously reported as an associate of ascidians of the genera *Cynthia*, *Styela*, *Herdmania* and *Microcosmos*, as well as with *Polycarpa cryptocarpa*.

II. THE PONTONIINE FAUNA OF NEW CALEDONIA

The pontoniine shrimp fauna of New Caledonia has been little studied and undoubtedly a large number of species remain to be collected. As noted above, the first pontoniine shrimp collected from New Caledonian waters appears to be the specimen of *Thaumastocaris streptopus* collected by Abbé CULLERET from Noumea in 1890, and described by KEMP in 1922. Possibly Abbé CULLERET also collected the type specimen of *Zenopontonia noverca* at about the same time. Subsequently several papers by MONOD (1969, 1972, 1973, 1976) and BRUCE (1967, 1970), with HOLTHUIS (1953) recording *Stegopontonia commensalis*, have been published.

At present 29 species are known from New Caledonian reefs. All except one species, *Palaemonella rotumana*, are normally associates of a variety of marine invertebrates. This number is probably only about a quarter or less of the number of species that can be expected on the New Caledonian reefs and from adjacent waters, and the species normally associated with scleractinian corals are particularly poorly represented. The associations of the New Caledonian pontoniine shrimps are outlined in the following table.

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