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Reprinted from PACIFIC SCIENCE, Vol. XXVI, No. 1, January, 1972

CARDED

A Report on a Small Collection of Pontoniid Shrimps from Fiji, with the Description of a New Species of *Coralliocaris* Stimpson (Crustacea, Decapoda, Natantia, Pontoniinae)¹

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THE PONTONIID SHRIMP FAUNA of the Fijian Archipelago has been little studied. The first pontoniid shrimps to be recorded from this locality were reported by Dana (1852a), who described and illustrated *Coralliocaris graminea* (as *Oedipus gramineus*) from corals collected at Rewa, Viti Levu, and also *Anchistus custos* (Forskål) (as *Anchistia aurantiaca*) from the same locality. Miers (1884) reported specimens of *Conchodytes* (as *Pontonia* (*Conchodytes*) *tridacnae*) from the material collected by H.M.S. *Herald* at Matuka and Ngau, but it is not clear whether these specimens should be referred to *C. tridacnae* Peters or *C. meleagrinae* Peters, which are probably both present in Fijian waters. In 1898 Borradaile reported upon a collection of shrimps made partly at Fiji by Professor J. Stanley Gardiner. This report included the original descriptions of *Palaemonella rotumana* (as *Periclimenes rotumanus*) and *Periclimenes vitiensis*. Also recorded were *Harpiliopsis depressus* (Stimpson) (as *Periclimenes spinigerus*) and the further occurrence of *Conchodytes meleagrinae* Peters. There have been few subsequent records except for the report by Boone (1935), in which a further record of *Conchodytes meleagrinae* (as *C. biunguiculatus*) is recorded, on this occasion with the identity of the host. More recently, a new species of *Periclimenes*, *P. hirsutus*, has been described in association with an echinoid (Bruce, 1971). Seven, possibly eight, species of pontoniid shrimp have been previously reported from Fiji. The present small collection therefore considerably augments the numbers of species known from this archipelago and, although

several of the species are known to occur throughout the Indo-West-Pacific region, the report establishes their presence on these islands. In addition to the new species of *Coralliocaris*, which is described in detail, a single further specimen of the newly reported *Periclimenaens stylrostris*, has been found and is now described in detail and figured, to augment the preliminary description already provided (Bruce, 1969).

The material for this report was mainly collected by P. M. J. Woodhead, to whom I am much indebted for the opportunity to examine this collection, from a fringing reef at Sigatoka, Viti Levu, Fiji, during July 1969. Five lots of specimens were received, four of which were obtained from live coral heads at a depth of about 0.5-1.0 m. The corals examined were (1) *Pocillopora damicornis* (L.), (2) *Seriatopora hystrix* (Dana), (3) *Pavona divaricata* (Lam.), and (4) *Euphyllia glabrescens* (Chamiso and Eysenhardt). Numerous alpheid shrimps, including *Alpheus pachychirus* Stimpson, *A. gracilipes* Stimpson, *A. obesomanus* Dana, *A. lottini* Guerin, and *Athanas djiboutensis* Coutière, which were kindly identified by Dr. A. H. Banner, were obtained in addition. The remaining lot of shrimps were commensals of the crown of thorns starfish *Acanthaster planci* (L.). An additional lot of specimens were also received from Dr. F. Schirrer, and have been included in this report.

Stephenson et al. (1931) have reported the presence of shrimps in association with corals of the genus *Euphyllia* on the Great Barrier Reef, but these have never been specifically identified. In the case of the present collection none of the pontoniid shrimps found in association with the colonies of *Euphyllia glabrescens* would appear to have any obligatory relationship to the coral.

¹ Manuscript received 15 March 1971.

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Carapace length in the systematic account refers to the distance between the orbital notch and the posterior margin of the carapace.

LIST OF SPECIES IN THE COLLECTION

Family Palaemonidae Samouelle, 1819

Subfamily Pontoniinae Kingsley, 1878

Genus *Palaemonella* Dana, 1852a

1. *Palaemonella tenuipes* Dana, 1852a
2. *Palaemonella rotumana* (Borradaile, 1898)

Genus *Vir* Holthuis, 1952

3. *Vir orientalis* (Dana, 1852b)

Genus *Periclimenes* Costa, 1844

4. *Periclimenes spiniferus* De Man, 1902
5. *Periclimenes soror* Nobili, 1904

Genus *Periclimenaeus* Borradaile, 1915

6. *Periclimenaeus stylirostris* Bruce, 1969

Genus *Onycocaris* Nobili, 1904

7. *Onycocaris stenolepis* Holthuis, 1952

Genus *Coralliocaris* Stimpson, 1860

8. *Coralliocaris graminea* (Dana, 1852a)
9. *Coralliocaris pavonae* sp. nov.

SYSTEMATIC ACCOUNT

Palaemonella tenuipes Dana, 1852

Restricted Synonymy

Palaemonella tenuipes Dana, 1852a, Proceedings of the Academy of Natural Sciences of Philadelphia, vol. 6, p. 25; Dana, 1852b, United States Exploring Expedition . . . , vol. 13, p. 582; Dana, 1855, United States Exploring Expedition . . . , vol. 13 (atlas), p. 12, pl. 38, fig. 3; Kemp, 1922, Records of the Indian Museum, vol. 24, pp. 129-131, figs. 7b, 8; Holthuis, 1952, Siboga Expeditie, mon. 39a¹⁰, pp. 8, 27-28 (full synonymy); Bruce, 1970, Crustacea, vol. 19, pp. 274-276, fig. 1.

Material examined

Four males were examined.

Measurements

Carapace lengths: 1.8-2.2 mm.

Coloration

No trace of color pattern preserved, other than ring of orange-brown at distal end of carpus and at bases of fingers of second pereiopods in the large specimen.

Habitat

The specimens were obtained from the corals *Pocillopora damicornis* and *Seriatopora hystrix*.

Remarks

This species has not been previously reported from the Fijian Islands, the nearest previously reported occurrence being from Funafuti, Ellice Islands (Borradaile, 1898).

The specimens agree with the previously published descriptions and in all cases a large acute subterminal spine is present distally on the carpus of the second pereiopods. The largest specimen has seven dorsal and two ventral rostral teeth and the rest have six dorsal and two ventral teeth. The two posterior teeth are situated on the carapace.

The association with corals is probably gratuitous as the species is apparently free-living.

Distribution

Species is widespread but sparsely recorded in the Indo-West-Pacific region, from the Comoro Islands, western Indian Ocean, to Palmyra Island, central Pacific Ocean.

Palaemonella rotumana (Borradaile)

Restricted Synonymy

Periclimenes rotumanus Borradaile, 1898b, Annals and Magazine of Natural History, ser. 7, vol. 2, p. 383; Borradaile, 1898a, Proceedings of the Zoological Society of London, 1898, pp. 1-5, pl. 53, figs. 5-5b.

Palaemonella vestigialis Kemp, 1922, Records of the Indian Museum, vol. 24, pp. 321-326, figs. 1-2, pl. 3 fig. 2; Holthuis, 1952, Siboga Expeditie, mon. 39a¹⁰, pp. 8, 24, 27, fig. 3.

Palaemonella rotumana Bruce 1970, Crustacea, vol. 19, pp. 276-279, fig. 2, pl. 1 e-f (full synonymy).

Material Examined

Examined were two juvenile males and one ovigerous female.

Measurements

Carapace lengths: male, 1.8, 2.2 mm; female, 2.5 mm.

Coloration

No trace of color pattern preserved except for a pale brown ring on the fingers of the second pereiopod.

Habitat

Two specimens were obtained from *Euphyllia glabrescens* and one from *Seriatopora hystrix*.

Remarks

Palaemonella rotumana was first reported from the island of Rotuma, north of Fiji, by Borradaile, who referred it to the genus *Periclimenes*. Kemp (1922) subsequently described *Palaemonella vestigialis* from the Andaman Isles, and under this name the species was reported to occur widely throughout the Indo-West-Pacific region and even to have extended through the Suez Canal and to have become established in the Eastern Mediterranean. Few subsequent records of *P. rotumanus* have appeared in the literature. Recently reexamination of the holotype of *P. rotumanus* has shown that it should be correctly referred to the genus *Palaemonella* Dana, 1852a, *P. vestigialis* Kemp being a junior synonym. *Palaemonella rotumana* is therefore of widespread occurrence in the Indo-West-Pacific region and its presence on the main Fijian Islands is now reported for the first time.

The present specimens show no significant differences from the holotype. The largest specimen, the ovigerous female, has eight dorsal and three ventral rostral teeth, the two most posterior dorsal teeth being situated on the anterior carapace. The two males each have seven dorsal and two ventral teeth with one tooth on the carapace.

The species occurs in a wide variety of habitats in tropical waters and there is no special association with corals.

Distribution

From southern Mocambique and northern Red Sea (and eastern Mediterranean) in the west, Hong Kong to Moreton Bay, south Queensland, to Hawaii in the east.

Vir orientalis (Dana)

Fig. 1

Restricted Synonymy

Palaemonella orientalis Dana, 1852a, Proceedings of the Academy of Natural Sciences of Philadelphia, vol. 6, p. 26; Dana, 1852b, United States Exploring Expedition . . . , vol. 13, p. 583; Dana, 1855, United States Exploring Expedition . . . , vol. 13 (atlas), p. 12, pl. 38, fig. 4; Kemp, 1922, Records of the Indian Museum, vol. 24, pp. 131–134, figs. 9–11.

Vir orientalis Holthuis, 1952, Siboga Expeditie, mon. 39a¹⁰, pp. 8, 30 (full synonymy); Holthuis, 1953, Atoll Research Bulletin, no. 24, p. 55; Johnson, 1961, Bulletin of the National Museum, Singapore, vol. 30, table 1, p. 75; Bruce (in press), Proceedings of the Coral Reef Symposium, 1967, Marine Biological Association of India.

Material Examined

Two males, one ovigerous female, and one immature female were examined.

Measurements

Carapace lengths: males, 1.8, 2.1 mm; ovigerous female, 2.7 mm; immature female, 1.8 mm.

Coloration

No data.

Host

Pocillopora damicornis (L.) (Coelenterata, Scleractinia, Pocilloporidae).

Remarks

The specimens agree with the redescription as given by Kemp (1922). The rostrum of the largest specimen, the ovigerous female, is largely missing but the two most posterior teeth are situated on the carapace. The smaller female

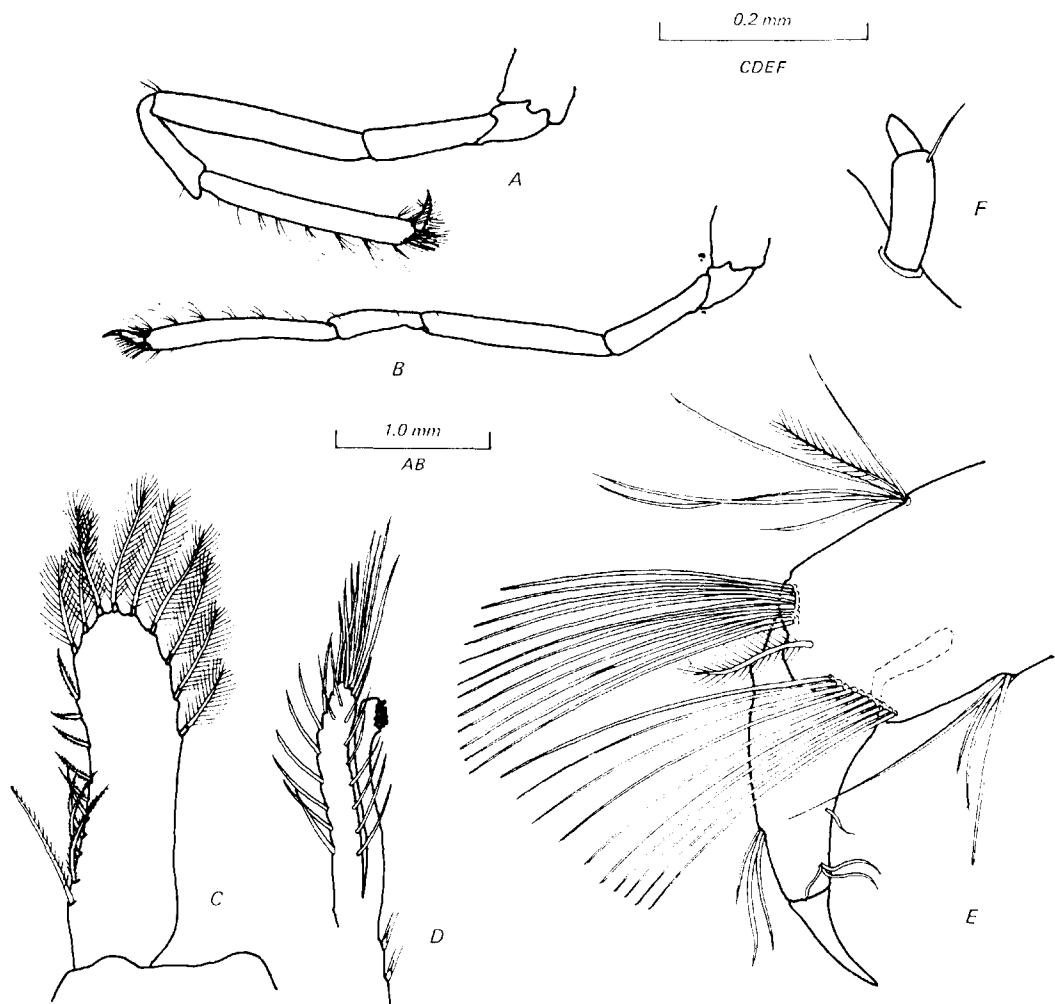


FIG. 1. *Vir orientalis* de Man: A, male third pereiopod; B, female third pereiopod; C, endopod of male first pleopod; D, appendix masculina and appendix interna, male second pleopod; E, dactylus of male third pereiopod; F, mandibular palp.

has seven dorsal teeth and one ventral rostral tooth, with only the most posterior tooth on the carapace. The two male specimens have six and seven dorsal rostral teeth, respectively, and each has a single ventral rostral tooth. The larger specimen has the two most posterior teeth situated on the carapace whereas the smaller only has one. The fourth thoracic sternite is armed with a distinct median ventral process. In the largest female this is broadened and rather triangular, but in the other three specimens it is more slender and fingerlike.

The mandibular palp in the dissected speci-

men closely resembles Dana's illustration and consists of two segments, the distal segment being much smaller than the proximal, which bears a single short simple seta distally. The specimen described by Kemp had only a single segmented palp.

The second pereiopods are distinctly more robust in the males than in the females and a well-developed fossa is present at the base of the dactylus. The ambulatory pereiopods are relatively robust with a stout dactylus. The propods are about 8.5 times longer than broad, with long setae on the dorsal border and thick

tufts of setae at the distal end. No spines could be discerned, in contrast to Kemp's specimen in which a single distal ventral spine was reported on the propod. The dactylus is stout and compressed with a distinct slender unguis. A group of slender simple setae arises from the dorsal aspect, with two smaller groups of setae distolaterally.

The endopod of the first male pleopod and the appendices of the male second pleopod have not been previously described. The endopod of the first pleopod is narrow, about three times longer than broad, and concave on the medial border. There is no medial lobe. The medial border bears 11 robust setae, which decrease markedly in length distally. The proximal setae are feebly setulose and the distal setae are more strongly spinulose. The distal median, anterior, and distal third of the lateral border bear nine plumose setae. The proximal two-thirds of the lateral border is devoid of setae. The appendix masculina is well developed, slender, and slightly exceeds the appendix interna. The median and lateral borders of the dorsal surface each bears a row of six-seven stout simple setae and about eight more are clustered together at the distal end. The appendix interna is slender with a group of about 10 concinni distally.

The telson bears two pairs of small dorsal spines, at 0.6 and 0.8 of the telson length. Kemp's specimen, with only a single dorsal spine, must be considered abnormal in this respect.

In the ovigerous female, the ova are moderately numerous, estimated at about 94 in number, and with a longest diameter of 0.62 mm.

De Man (1888) reported the occurrence of this species with a comatulid crinoid. The two specimens need to be reexamined in order to confirm their identification with Dana's species.³ De Man's report gives no indication that he examined the mouthparts and it is not, therefore, certain that in these specimens the mandibular palp is present. If De Man's specimens are proved to be identical with Dana's,

³ I have recently been informed that De Man's specimens, originally in the Zoologisches Institut und Museum der Universität, Göttingen, were destroyed during World War II (Dr. P. Kuenzer, personal communication).

then the possibility of an accidental association with a crinoid must be considered, although this seems unlikely since two specimens were obtained. De Man considered that the differences between his specimens and Dana's were due to differences in the sex of the specimens, but this cannot now be assumed. From the appearance of the chelae of the second pereiopods given in Dana's Figure 4a, it does seem probable that the specimen, when one compares it with the Fijian specimens, is a female.

Distribution

Previously recorded only from Fort Blair, Andaman Islands (Kemp, 1922), the Sulu Sea (Dana, 1852), and Hawaii (Edmondson, 1925, 1946).

Periclimenes spiniferus (De Man)

Restricted Synonymy

Anchistia inaequimana Heller, 1865, Zool . . . , vol. 2, p. 109.

Periclimenes petitthouarsi var. *spinifera* De Man, 1902, Abhandlungen hrsg. von der Senckenbergischen Naturforschenden Gesellschaft, vol. 25, p. 824.

Periclimenes (Falciger) spiniferus Borradaile, 1917, Transactions of the Linnean Society of London, ser. 2, vol. 17, pp. 324, 369, pl. 52 fig. 1.

Periclimenes (Aencylocaris) spiniferus Kemp, 1922, Records of the Indian Museum, vol. 24, pp. 195-196.

Periclimenes (Harpilius) spiniferus Holthuis, 1952, Siboga Expeditie, mon. 39a¹⁰, pp. 12, 76-77, fig. 30 (full synonymy); Holthuis, 1953, Atoll Research Bulletin, no. 24, p. 56; Johnson, 1961, Bulletin of the National Museum, Singapore, vol. 30, pp. 58, 62, 76, table 1. Patton, 1966, Crustaceana, vol. 10, p. 271; McNeill, 1968, Scientific Reports of the Great Barrier Reef Expedition, vol. 7, pp. 7, 23.

Material Examined

Examined were one juvenile male and three females, one of which was ovigerous.

Measurements

Carapace length: male, 2.3 mm; ovigerous female, 2.3 mm; other females, 2.1 and 2.2 mm.

Coloration

The color pattern, as reported by Kemp (1922), is still discernible in the preserved specimens.

Habitat/Host

The specimens were obtained from the corals *Pocillopora damicornis* and *Seriatopora hystrix*.

Remarks

The specimens are typical of this abundant and widespread Indo-West-Pacific species, which is found commonly on all coral reefs, although not an obligatory associate of corals, and frequently found under free-living conditions. The rostral formula varied from 6/3 to 7/4 in the undamaged specimens. The ovigerous female carried only five ova although there was no sign of recent hatching and this species normally carries a much larger number.

Distribution

Widespread in the Indo-West-Pacific region, other than the northwest Indian Ocean, Red Sea, and Persian Gulf.

Periclimenes soror Nobili

Restricted Synonymy

Periclimenes soror Nobili, 1904, Bulletin du Muséum (national) d'histoire naturelle, vol. 10, p. 232; Nobili, 1906a, Annales des sciences naturelles, (b) Zoologie, vol. 4, p. 50, pl. 2 fig. 6; Gordon, 1939, Annals and Magazine of Natural History, ser. 11, vol. 4, pp. 395-400, figs. 1-3; Jacquotte, 1964, Recueil des travaux de la Station Marine d'Endoume, bull. 32, pp. 180-181; Bruce, 1965, Annals and Magazine of Natural History, ser. 13, vol. 8, p. 493; Bruce, 1968, Bulletin du Muséum (national) d'histoire naturelle, vol. 39, p. 1167; Bruce, 1971, Zoologische Verhandelingen, Leiden.

Periclimenes (*Periclimenes*) *soror* Kemp, 1922, Records of the Indian Museum, vol. 24, pp. 141, 165. Holthuis, 1952, Siboga Expedi-

tie, mon. 39a¹⁰, pp. 9, 51-53, fig. 17; Holthuis, 1959, Zoölogische mededeelingen. Rijksmuseum van natuurlijke historie te Leiden, vol. 36, p. 194 (full synonymy).

Material Examined

Sixteen specimens, including eight ovigerous females and two nonovigerous females, were examined.

Measurements

Carapace length: ovigerous females, 2.1-2.7 mm; nonovigerous females, 1.8 and 1.9 mm; juveniles, 1.1-1.7 mm.

Coloration

No data.

Host

Acanthaster planci (L.), (Echinodermata, Asteroidea, Echinasteridae).

Remarks

The specimens agree closely with the previous description given by Gordon (1939) but the general size of the fully grown females appears to be rather greater than in specimens obtained from the other common hosts of this shrimp, *Protoreaster nodosus* (L.), *Calcita schmiedelianae* (Retzius), and *C. novaeguineae* Müller and Troschel. In the ovigerous females the number of rostral teeth varied from 10 to 13, four specimens having 12. The smallest specimens, carapace length 1.1, 1.2 mm, had only nine dorsal rostral teeth.

Distribution

Previously recorded from Jibuti, Red Sea; Tulear, Madagascar; Egmont Reef, Seychelle Islands; Sanoer, Bali; Sipankot, Sulu Islands; Fairfax and Green Islands, Queensland, Australia; Noumea, New Caledonia; and Oahu, Hawaii.

Periclimenaeus stylirostris Bruce

Figs. 2-6

Periclimenaeus stylirostris Bruce, 1969, Zoölogische mededeelingen. Rijksmuseum van natuurlijke historie te Leiden, vol. 44, pp. 167-168.

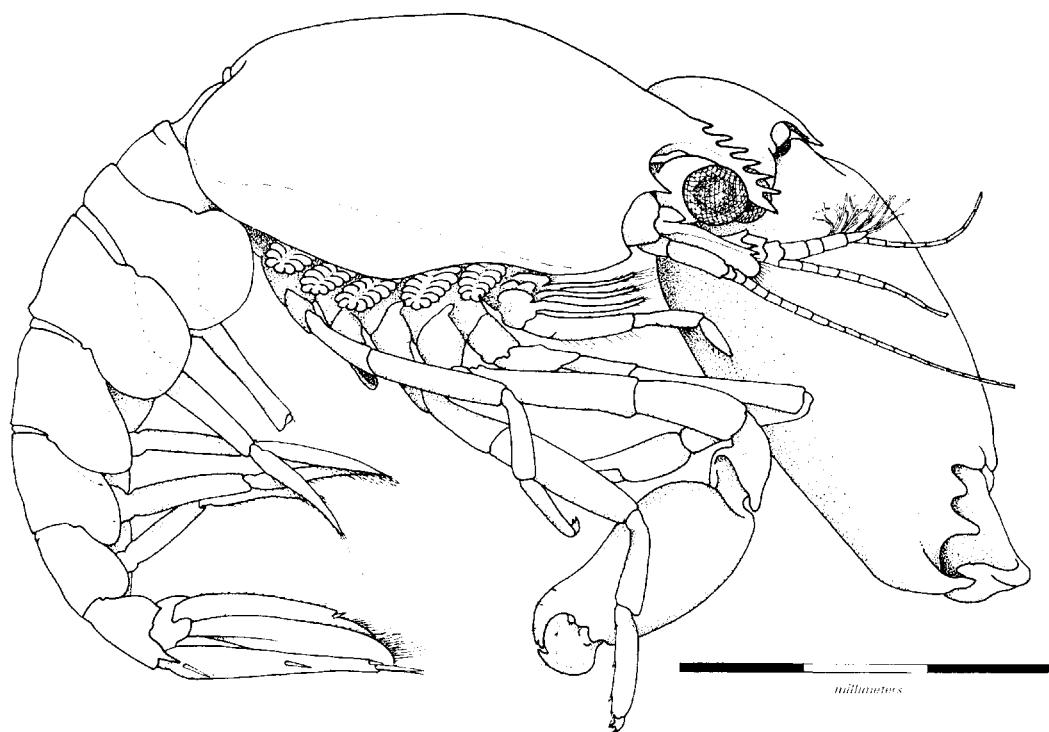


FIG. 2. *Periclimenaeus stylirostris* Bruce.

Diagnosis

Medium sized. Rostrum well developed, with six dorsal teeth, all anterior to posterior margin of orbit, and no ventral teeth. Supraorbital spines absent. Antennal spine slender, acute. Dorsal margin of first abdominal segment not produced anteriorly. Basal segment of antennule with distolateral angle acutely produced. Spine of scaphocerite short, exceeded by lamella. Incisor process of mandible with two acute teeth. Endite of maxilla not bilobed. First pereiopod slender, fingers of chela stout, subequal to palm. Major second pereiopod with very large smooth chela with compressed, strongly curved fingers. Dactylus with poorly developed, elongated molar process, feebly defined anteriorly. Minor second pereiopod much smaller, with compressed fingers. Dactylus laminar, subcircular, cutting edge convex, entire. Merus of second pereiopods ventrally smooth. Ambulatory pereiopods slender, propodus only feebly spinulate. Dactylus short, stout, biunguiculate, with proximal ventral border unarmed.

Lateral border of exopod of uropod entire. Telson slender, with dorsal spines at 0.2 and 0.6 of telson length.

Material Examined

One male was examined.

Description

A medium-sized, rather slender species of *Periclimenaeus*. The carapace is smooth with a well-developed, tapering, slightly depressed rostrum reaching anteriorly to the distal margin of the intermediate segment of the antennular peduncle. The dorsal margin of the rostrum bears six acute teeth all situated anteriorly to the orbital margin. The posterior tooth is slightly shorter and more triangular than the anterior teeth, which are long and slender. The midrib is indistinct. The ventral rostral margin is very feebly convex and without teeth. There are no supraorbital spines or tubercles. The orbit is feebly developed. The inferior orbital angle is poorly developed and feebly produced,

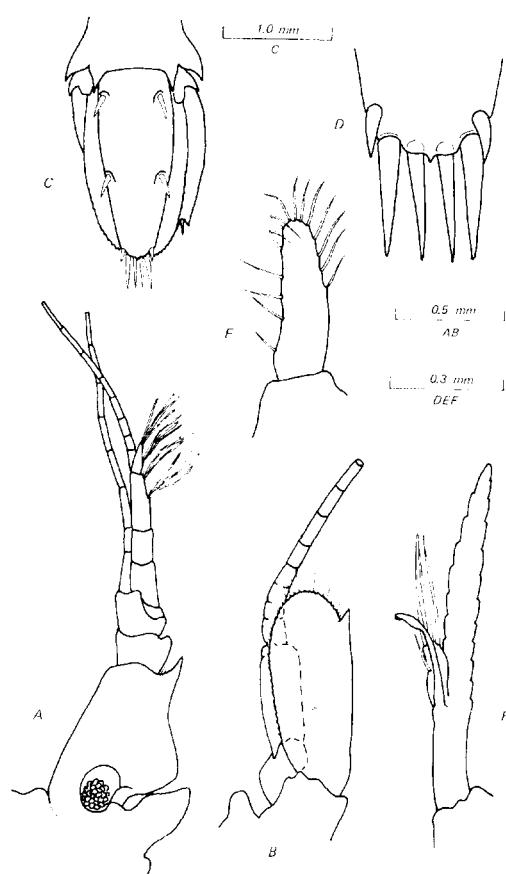


FIG. 3. *Perilimenesus stylirostris* Bruce: A, antennule; B, antenna; C, telson and uropods; D, terminal telson spines; E, endopod of first pleopod; F, endopod of second pleopod.

but the antennal spine is large and acute, arising from the anterior margin of the carapace overlying the inferior orbital angle. The hepatic spine is absent. The anterolateral angle of the carapace is bluntly produced.

The abdominal segments are smooth. The first segment is not produced anteriorly in the dorsal midline and the third segment is not produced posteriorly. The sixth segment is dorsoventrally compressed and the posterior lateral angles are produced as long spines. The pleura of the five anterior segments are broadly rounded. The posterior ventral angle of the sixth segment is produced and acutely pointed. The telson is slender, tapering with slightly convex lateral borders, about 2.5 times

longer than wide. The two pairs of dorsal spines are well developed, submarginal, situated at 0.2 and 0.6 of the telson length from the anterior margin, equal to about one-eighth of the telson length. Three pairs of terminal spines are present. The lateral spines arise a little in advance of the intermediate spines and are about 0.6 of the length of the dorsal spines. The intermediate spines are stout, equal to 0.2 of the telson length. The submedian spines are similar to the intermediate spines but are more slender and are nonsetose.

The eyes are normally developed with a stout eyestalk and an oblique, hemispherical cornea.

The antennae are small. The antennule has a broad basal segment, about 1.5 times longer than wide, with the lateral border expanded and the distolateral angle produced as a slender acute process that extends nearly to the level of the base of the intermediate segment. The ventral medial border is without a spine. The stylcerite is short, broad, and leaflike, well separated from the body of the basal segment. The statocyst is well developed and the statolith is composed of numerous small granules. The intermediate and distal peduncular segments are short and stout, together equal to one-third of the length of the basal segment. The lateral border of the intermediate segment is produced, forming a small lamina. The flagella are short. The upper flagellum is biramous with the three proximal segments fused. The shorter free ramus consists of only a single free segment. The shorter ramus bears four groups of aesthetascs distally. The longer free ramus is filiform and consists of eight free segments. The lower flagellum is also slender and filiform, consisting of eight segments.

The antenna has a robust basicerite without a lateral spine. The scaphocerite extends slightly beyond the tip of the rostrum. The lateral margin is straight and bears a short stout tooth distally. The lamella is about 2.5 times longer than broad and the rounded anterior margin distinctly exceeds the tip of the distolateral spine. The carpocerite is subcylindrical, reaching to about two-thirds of the length of the lamella and not exceeding the tip of the rostrum.

The mandible is slender and without a palp.

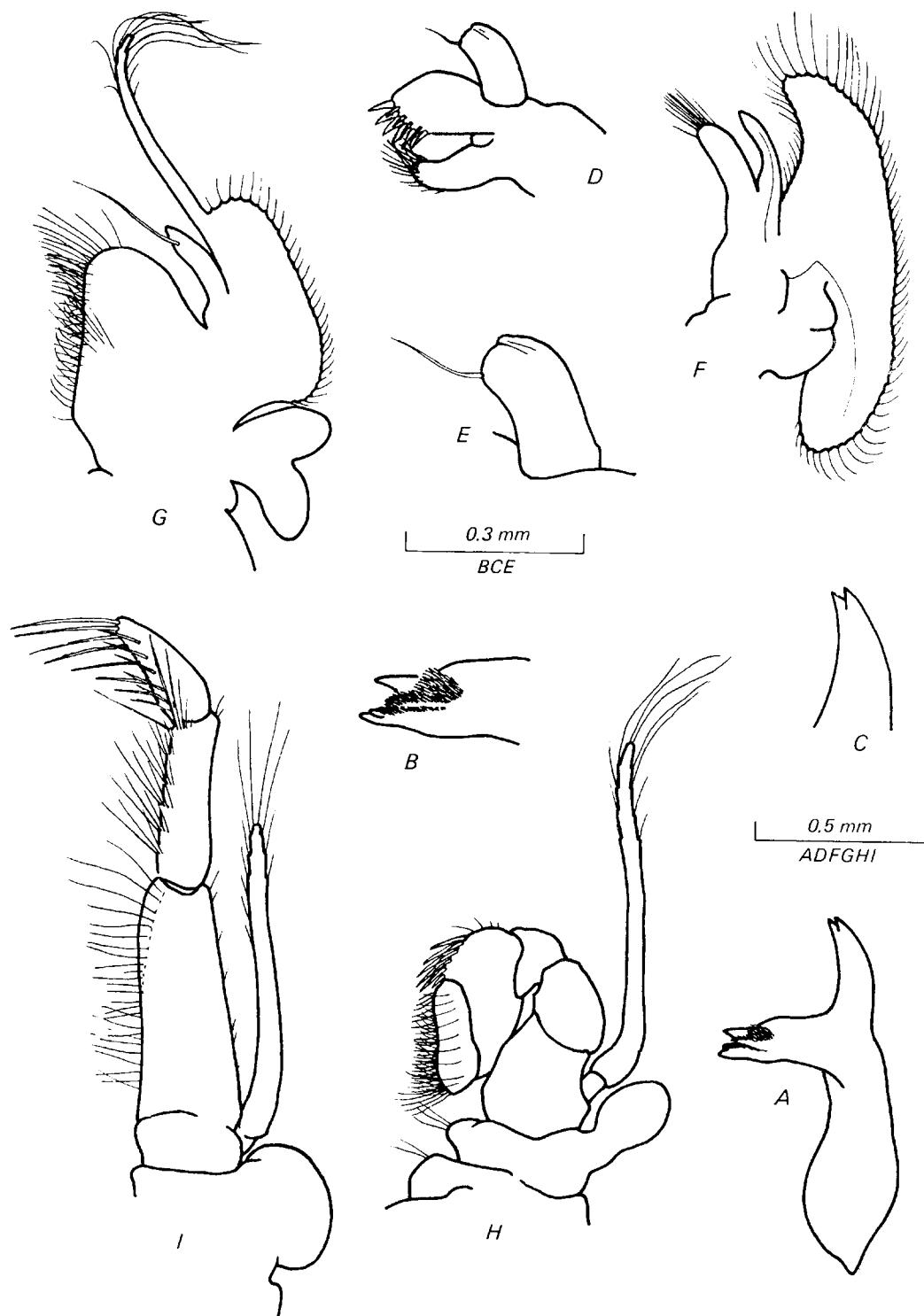
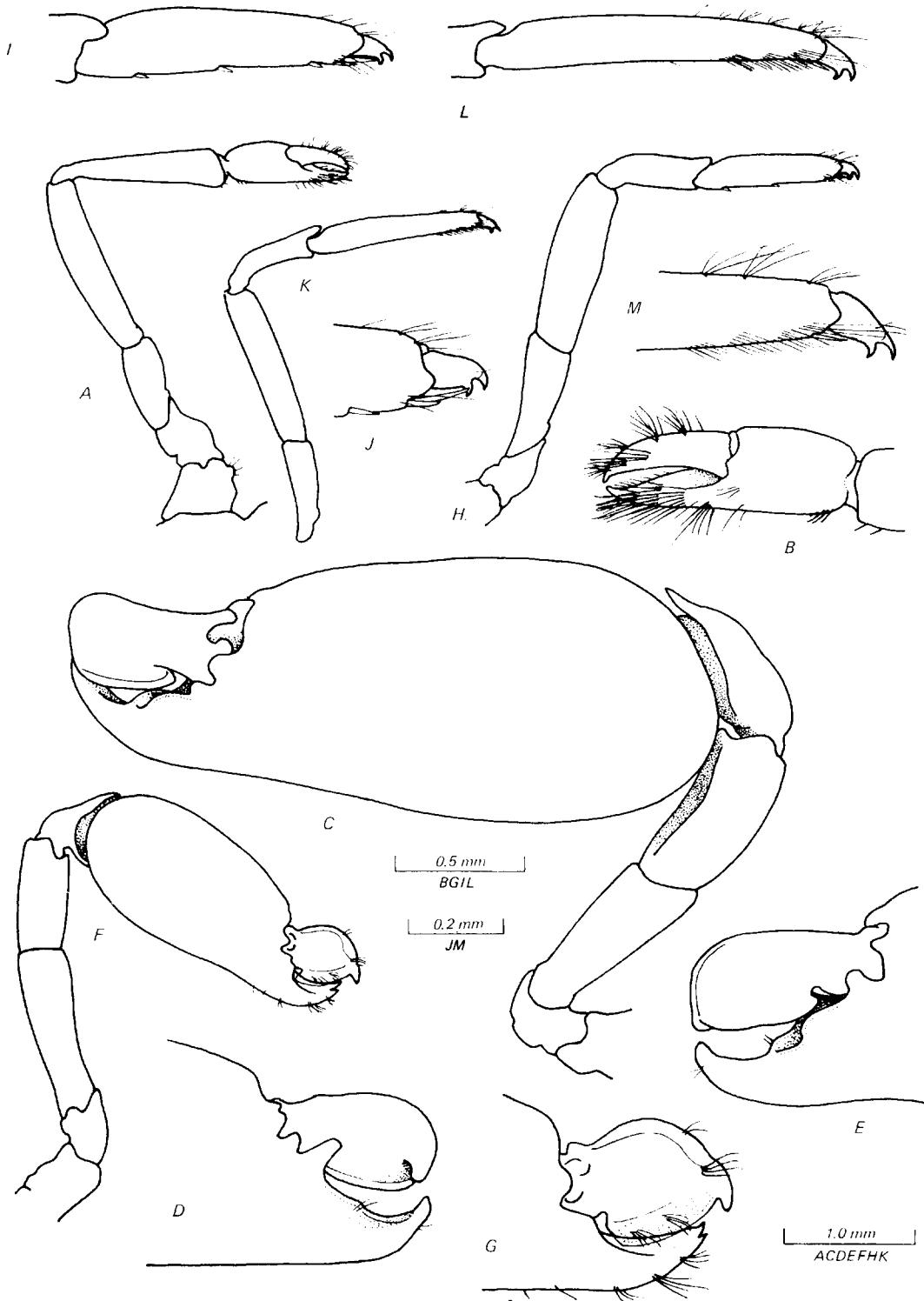


FIG. 4. *Periclimenaeus stylostris* Bruce: A, mandible; B, molar process of mandible; C, incisor process of mandible; D, maxillula; E, palp of maxillula; F, maxilla; G, first maxilliped; H, second maxilliped; I, third maxilliped.



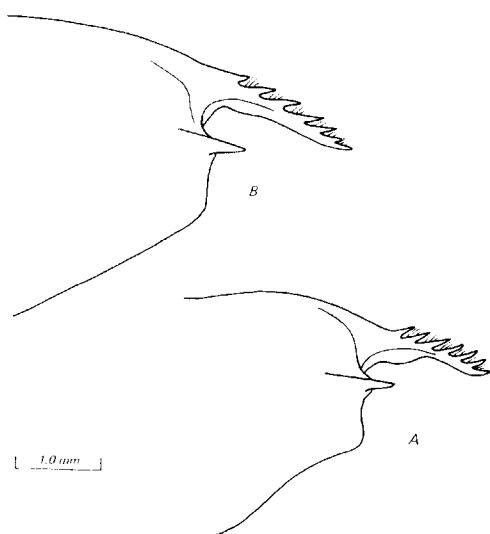


FIG. 6. *Periclimenaeus stylostris* Bruce: A, rostrum and anterior carapace of holotype female; B, rostrum and anterior carapace of allotype male.

The molar process is moderately robust with some distinct teeth distally and some dense patches of short setae. The incisor process is slender and tapering distally, bearing two large acute teeth terminally.

The maxillula has a normal upper lacinia bearing two rows of short stout simple spines distally. The lower lacinia is more slender with numerous slender setae distally. The palp is well developed, not bilobed, and with a single long slender simple seta distally.

The maxilla bears an elongated, slender, tapering, nonsetose palp and a single simple endite, about twice as broad as the palp, with a dozen slender simple setae distally. The scaphognathite is well developed, narrow, medially curved, and tapered anteriorly.

The first maxilliped has a well-developed subcylindrical palp bearing a long simple subterminal seta. The coxal and basal endites are not distinguishable. The anterior margin of the endite is rounded, the medial border straight, emarginated proximally, and with numerous

long simple setae. The exopod is well developed with a slender flagellum with numerous setae distally and an elongated caridean lobe proximally. A bilobed epipod is also present.

The second maxilliped is normal. The distal segment of the endopod is small with numerous slender simple setae along its medial border. The penultimate segment is large and broad with a rounded anterior aspect bearing two rows of stout simple spines. The coxa is produced medially as a rounded lobe. The exopod is well developed with numerous setae. A rounded epipod, without a podobranch, is also present.

The third maxilliped is normally developed. The basis is distinct from the ischiomerus, which is about 2.3 times longer than its greatest width. The carpus is 0.8 times the length of the ischiomerus and 3.3 times longer than wide. The terminal segment is 0.6 times the length of the carpus. The medial border of the basis is nonsetose; the ischiomerus bears slender simple setae, submarginally distally; the carpus bears transverse rows of stouter setae and the terminal segment sparse long slender simple spines. The exopod is well developed with numerous simple setae distally. A large rounded epipod is present and there is no arthrobranch.

The first pereiopod is robust, elongated, exceeding the scaphocerite by one-third of the merus, carpus, and chela when extended. The chela is stout with a subcylindrical palm. The fingers are also stout, subequal to the length of the palm, with entire blunt, laterally situated cutting edges and numerous bunches of long, minutely spinulate setae. The carpus is 1.4 times the length of the chela and increases in size distally. The merus is of uniform width and very slightly longer than the carpus. The ischium and basis are subequal, equal to about half the length of the merus. The coxa bears a small rounded setose median process.

The second pereiopods are grossly unequal and markedly dissimilar. The chela of the major second pereiopod is massive with the palm

FIG. 5. *Periclimenaeus stylostris* Bruce: A, first pereiopod; B, chela of first pereiopod; C, major second pereiopod; D, finger of major second pereiopod, dorsal aspect; E, fingers of major second pereiopod, ventral aspect; F, minor second pereiopod; G, fingers of minor second pereiopod, ventral aspect; H, third pereiopod; I, propodus and dactylus of third pereiopod; J, dactylus of third pereiopod; K, fifth pereiopod; L, propodus and dactylus of fifth pereiopod; M, dactylus of fifth pereiopod.

subcylindrical, smooth, about twice as long as broad, decreasing slightly in size distally. The fingers are strongly compressed, equal to about one-third of the palm and strongly curved dorsomedially. The dactylus is flattened with a rounded distolateral margin terminating in a stout, bluntly hooked tip. The cutting edge is thickened, particularly posteriorly, where it is abruptly truncated. There is no clear demarcation of a distinct molar process but the thick posterior molar region blends with the narrower anterior region of the cutting edge. The fixed finger is similarly robust, compressed, and dorsomedially curved with a stout hooked tip. The anterior cutting edge is normal, blunt, entire, and the posterior region is excavated to form a depression that will enclose the molar region of the cutting edge of the dactylus. The proximal regions of the margins of this depression bear blunt processes, longer and more slender on the dorsal border than on the ventral. The carpus, about one-fourth of the length of the palm, is laterally excavated, with the distolateral angle produced into an acute lobe. The merus is subequal to the carpus, with the ventral surface excavated and without spines or tubercles. The ischium is subequal to the merus and unarmed.

The minor chela is less than half the length of the major chela and much less massive. The palm is subcylindrical, smooth, 1.8 times longer than wide, and decreasing slightly in size distally. The fingers are a little greater than one-third of the length of the palm. The dactylus is expanded forming a strongly compressed subcircular lamina with a strong, hooked, distal tooth and a broad, entire convex cutting edge. The fixed finger is also compressed but slender and grooved longitudinally along the cutting edge to receive the opposing edge of the dactylus. The tip is bifid, bearing two small acute teeth. The carpus is distally excavated but without a distolateral process. The merus is not grooved ventrally and is two-thirds of the length of the ischium. The ischium is 3.2 times longer than broad and subequal to the length of the ischium of the major chela.

The third pereiopod is robust but exceeds the scaphocerite by the dactylus, propodus, and half the length of the carpus. The biunguiculate

dactylus is short and stout, and strongly hooked, one-sixth of the length of the propodus. The unguis is stout and the accessory spine is subequal, strongly recurved. Proximally the ventral border of the dactylus is unarmed. The propodus is 4.4 times longer than broad, slightly swollen proximally. The ventral border bears three short stout isolated spines with a pair of longer spines distally. The carpus is 0.8 times the length of the propodus and 0.6 times the length of the merus, which is stout. The ischium is 0.75 times the length of the merus and both segments are devoid of spines. The fourth pereiopod is similar but slightly longer and more slender. The fifth pereiopod is generally similar to the third but the dactylus is more elongated. The propodus is seven times longer than broad and without spinules along the posterior border except for a single distal ventral spine. A series of transverse rows of simple setae are present along the distolateral aspect of the propodus. The carpus, merus, and ischium are similar to the third pereiopod but less robust.

The sternites of the fourth and fifth thoracic segments are unarmed.

The basipodites of the pleopods are elongated, bearing slender plumose rami. The endopod of the first pleopod is three times longer than broad and decreases slightly in width distally. The proximal two-thirds of the medial border bears four slender simple spines and the distal and distolateral margins bear 10 simple setae. The endopod of the second pleopod bears a short stout appendix masculina with three long slender simple setae distally and a similar shorter subterminal seta medially. The appendix interna is long and very slender, greatly exceeding the body of the appendix masculina, with very few terminal concinni. The endopod of the first pleopod is three times longer than broad, and decreases slightly in width distally.

The uropods are normal. The lateral border of the basal segment is not produced and the strongly convex lateral margin of the exopod is entire, with a submarginal row of setae, with an acute tooth distally, with an adjacent mobile spine medially. The endopod exceeds the exopod and extends to the level of the posterior margin of the telson.

Measurements

Carapace length, 3.4 mm; chela of major second pereiopod, 5.1 mm; chela of minor second pereiopod, 2.4 mm.

Coloration

No trace of color pattern, if any, preserved.

Host

Uncertain. Probably from an encrusting sponge associated with the coral *Euphyllia glabrescens*, from which the specimen was obtained at the same time as the specimen of *Onycocaris stenolepis*.

Remarks

The Fijian specimen of *Periclimenaus stylirostris* has been compared with the holotype and allotype of the species and, with the exception of the form of the rostrum, no significant differences can be detected (Fig. 5). In the original description of the species, the name was based upon the form of the rostrum of the female holotype and it was noted that this characteristic was less marked in the male allotype. The form of the rostrum in the male allotype is intermediate between the holotype and the Fijian specimen, which is therefore considered to be conspecific.

The type specimens were obtained from the South China Sea at a position of lat $20^{\circ}34.0' N$, long $113^{\circ}30.5' E$, on 17 December 1963 (R.V. *Cape St. Mary*, Stn. 52, Cr. 7/63). The specimens were obtained from an unidentified sponge collected by trawl from a depth of 49–50 fathoms. The very slender form of the rostrum in the holotype is now considered to be probably an individual variation rather than a specific character but, if further specimens obtained from deeper water should have consistently slender rostrums, then the designation of a new species for the littoral Fijian form will be required.

Onycocaris stenolepis Holthuis, 1952

Fig. 7

Onycocaris stenolepis Holthuis, 1952, Siboga Expeditie, mon. 39a¹⁰, pp. 15, 147, 148–150, figs. 66–68; Holthuis, 1953, Atoll Research Bulletin, no. 24, p. 57.

Material Examined

One ovigerous female was examined.

Measurements

Carapace length: 2.1 mm.

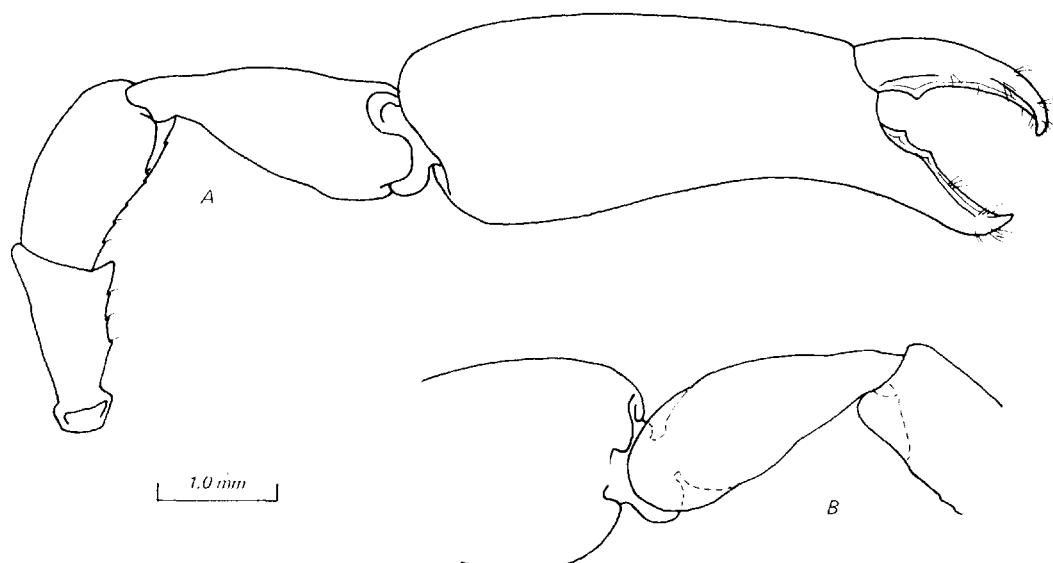


FIG. 7. *Onycocaris stenolepis* Holthuis: A, left second pereiopod, medial aspect; B, carpo-propodal and mero-carpal articulation of left second pereiopod, lateral aspect.

Coloration

Probably transparent. Although freshly preserved in formalin, the specimen showed no traces of any color pattern. The ovary and ova are bright yellow.

Host

Uncertain. The specimen was obtained from the coral *Euphyllia glabrescens* but was most probably associated with an encrusting sponge.

Remarks

The single specimen agrees precisely with the description and illustrations given by Holthuis (1952). The fingers of the first pereiopod are broad and completely spatulate. The coxa is without a median process and the fourth thoracic sternite is unarmed. The second pereiopods are similar but slightly unequal, the major chela being 1.2 times the length of the minor chela. The major chela is more robust than that figured by Holthuis and the second pereiopod shows a distinct resemblance to the same appendage in *Ischnopontonia lophos* (Barnard), movement of joints appearing to take place in a vertical plane. The ventral borders of the merus and ischium are feebly tuberculate. The posterior margin of the telson is provided with the normal three pairs of spines and the presence of four pairs in the holotype must be considered an individual abnormality.

The ova are few in number and relatively large, 16 being present, with a greater diameter of 7.4 mm.

The single specimen was collected together with the specimen of *Periclimenes stylirostris*. Collections in other localities have indicated that specimens of *Onycocaris* and *Periclimenaeus* commonly inhabit the same sponges and show that both specimens were probably associated with the same sponge.

Distribution

This species has been previously recorded only from the Sulu Archipelago and Arno Atoll, Marshall Islands.

Coralliocaris graminea (Dana, 1852)

Restricted Synonymy

Oedipus graminea Dana, 1852a, Proceedings of the Academy of Natural Sciences of Phila-

delphia, vol. 6, p. 25; Dana, 1852, United States Exploring Expedition, vol. 13, p. 574; Dana, 1855, United States Exploring Expedition, vol. 13 (atlas), p. 12, pl. 37 fig. 3.

Coralliocaris graminea Stimpson, 1860, Proceedings of the Academy of Natural Sciences of Philadelphia, p. 38; Kemp, 1922, Records of the Indian Museum, vol. 24, pp. 269-272, figs. 96-97; Armstrong, 1941, American Museum Novitates, no. 1137, p. 13; Holthuis, 1952, Siboga Expeditie, mon. 39a¹⁰, pp. 17, 186-189, fig. 91; Miyake and Fujino, 1968, Journal of the Faculty of Agriculture, Kyushu University, vol. 14, pp. 423, 431, fig. 7 a-c; McNeill, 1968, Scientific Reports of the Great Barrier Reef Expedition, vol. 7, pp. 7, 23.

Coralliocaris inaequalis Ortmann, 1890, Zoologische Jahrbücher, Systematik, Ökologie und Geographie der Tiere, vol. 5, p. 510, pl. 36 fig. 21; Borradaile, 1898b, Annals and Magazine of Natural History, ser. 7, vol. 2, p. 385.

Material Examined

One male, one ovigerous female. Tailevu Province, Viti Levu, lat 17°38' S, long 178°35' E. Coll. F. Schiurer, 10 May 1968.

Measurements

Carapace length: male, 3.5 mm; female, 3.9 mm.

Coloration

No trace of color pattern preserved.

Host

Acropora sp. (Coelenterata, Scleractinia, Acroporidae), collected from 5-6 ft of water on fringing reef.

Remarks

The two specimens agree closely with the descriptions of Dana, Kemp, and Kubo, and correspond closely to Dana's illustrations. In each specimen the rostrum bears four dorsal and two ventral teeth. Dana's specimen was also collected from Viti Levu where it was also obtained from live coral at Rewa. The specimens have been found commonly on coral reefs since Dana's original report, generally in association with corals of the genus *Acropora* but

occasionally with other genera of branching corals.

Distribution

Widespread and common on the coral reefs throughout the Indo-West-Pacific region from the Red Sea and Mocambique to Johnston Island. The species has also been recorded from the nearby Loyalty Islands (Borradaile, 1898b) and Samoa (Armstrong, 1941).

Coralliocaris pavonae sp. nov.

Figs. 8-11

Diagnosis

Rostrum slender, not exceeding antennular peduncle but extending beyond basal segment, with four or five dorsal teeth, all anterior to orbital margin, and one or two ventral teeth. Distolateral spine of basal segment of antennular peduncle and stylocerite well developed and slender. Endopod of third maxilliped slender. Fingers of second pereiopod with a single small tooth proximally on cutting edge. Fixed finger with large oval fossa distally to proximal tooth. Dactylus with robust carinae, and an incomplete fossa proximally on cutting edge. Carpus with two or three large acute teeth distolaterally. Propod of first pereiopod with numerous long slender setae distally. Dactylus with slender unguis continuous with dorsal line of body of the dactylus. Ramus of first pleopod with a series of leaflike setae along the anterior border. Telson with one pair of dorsal spines.

Material Examined

Examined were four males and eight ovigerous females.

Description

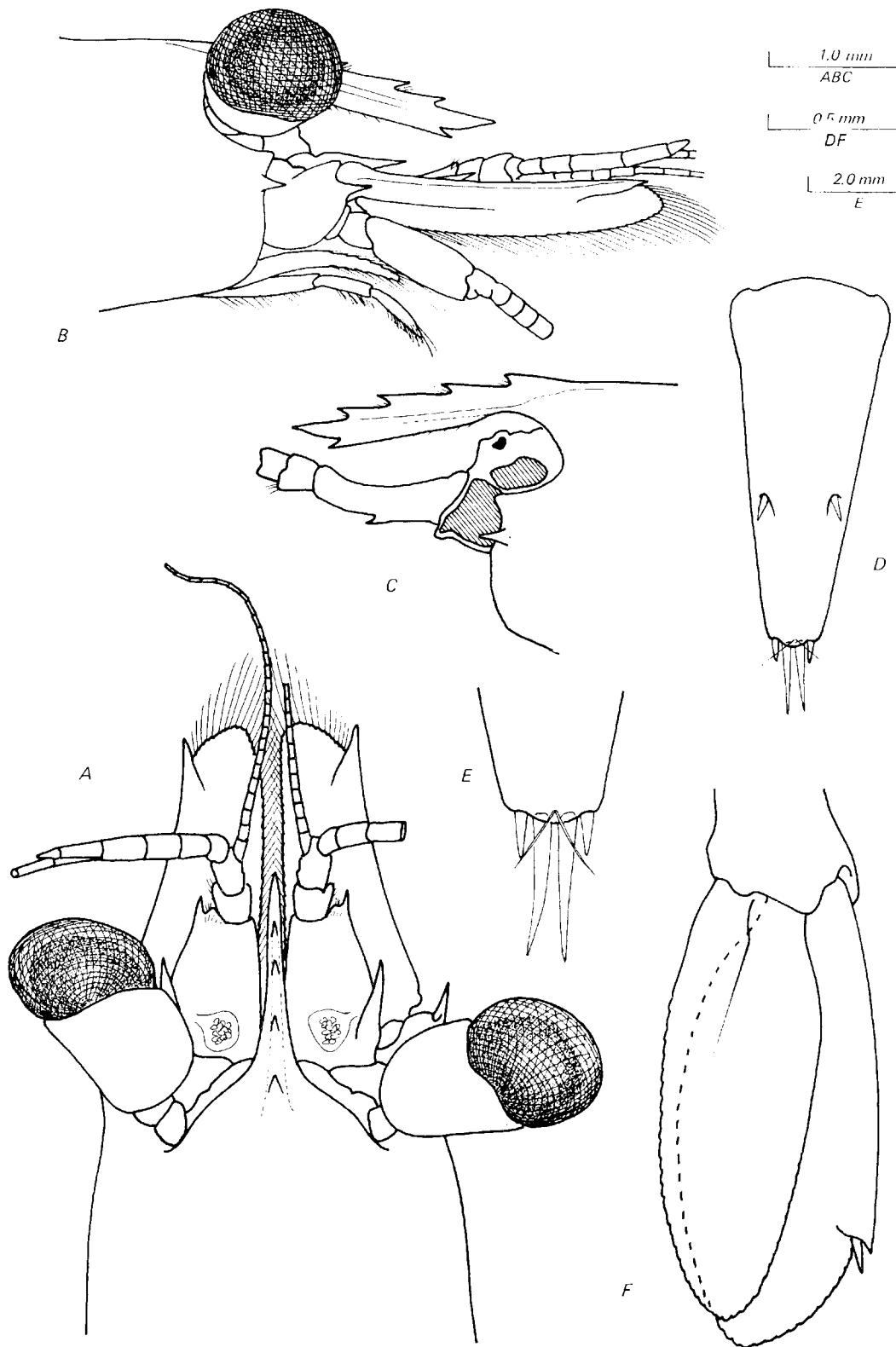
A small species of *Coralliocaris* with distinctly depressed body form. Carapace smooth, with slender, shallow, slightly depressed rostrum extending anteriorly to between the distal border of the intermediate segment and the distal border of the distal segment of the antennular peduncle, rather more slender in males than in females. The dorsal margin bears four or five evenly distributed acute teeth, all situated anteriorly to the orbital margin. The ventral margin bears one or two acute teeth distally, an-

teriorly to the level of the most anterior dorsal tooth. The rostral midrib is feebly developed and continuous with the dorsal orbital margin which is convex in dorsal view. The inferior orbital angle is slightly produced, subacute. The antennal spine is situated submarginally well below the inferior orbital angle. The hepatic spine is absent. The anterolateral angle is bluntly rounded and the posterior margin of the branchiostegite is broadly rounded.

The abdominal segments are smooth. The third abdominal segment is feebly produced posterodorsally. The sixth segment is about twice the length of the fifth and slightly longer than deep. The pleura are broadly rounded and the posterior ventral angle of the sixth segment is acutely produced. The telson is 1.5 times the length of the fifth abdominal segment and 3.5 times longer than wide, with straight tapering sides. Generally only a single pair of dorsal spines are present, situated at four- or five-sixths of the lateral margin. One ovigerous female has two pairs of dorsal spines in similar positions. Three pairs of posterior telson spines are present. The lateral spines are short and stout, similar to the dorsal spines. The intermediate spines are stout and long, equal to one-sixth of the telson length and three times the length of the lateral spines. The submedian spines are more slender than the intermediate and equal to four-fifths of their length but are absent in one specimen.

The eyes are large with a slightly oblique globular cornea. The eyestalk is about as long as wide, slightly compressed and distinctly narrower than the cornea, which extends laterally well beyond the branchiostegite in dorsal view.

The antennular peduncle is well developed, exceeding the tip of the rostrum but reaching only about to the middle of the lamella of the scaphocerite. The basal segment is broad, with the medial border about 1.5 times the greatest width. The lateral border is angulated with the proximal part convex and the distal part feebly concave. The distolateral angle is produced and bears a long slender lateral spine. The stylocerite is acute and slender, reaching to two-thirds of the length of the medial border, which bears a stout ventral spine at half its length. The statocyst is large and contains numerous small granules. The intermediate and distal segments



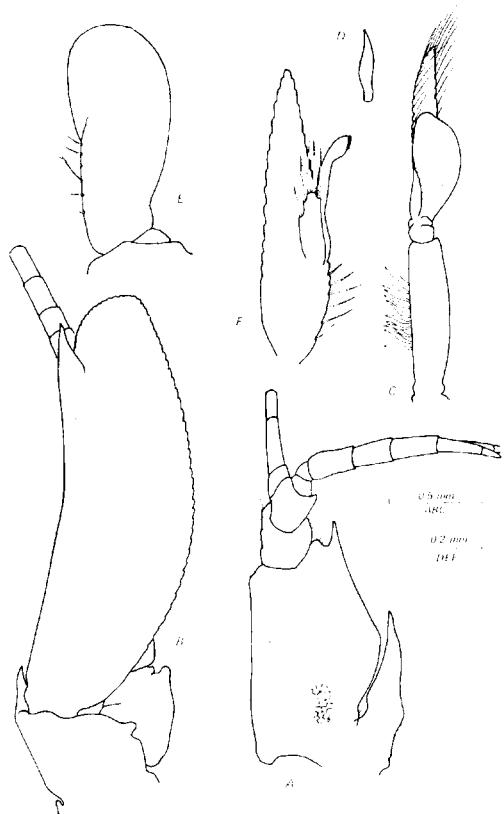


FIG. 8. *Coralliocaris pavonae* sp. nov. Female, paratype, Fiji: A, antennae; B, antenna. Male, paratype, Fiji: C, first pleopod; D, anterior seta from basipodite of first pleopod; E, endopod of first pleopod; F, endopod of second pleopod.

are short, subequal, and equal to about half the length of the basal segment. The lateral border of the intermediate segment is slightly expanded. The lower flagellum is long and slender. The upper flagellum is biramous, with the four proximal segments fused. The shorter ramus consists of two short segments. The longer ramus consists of about seven slender segments. Ten groups of aesthetascs are present on the four distal segments of the short ramus.

The antenna has a robust basicerite with a long slender lateral spine. The scaphocerite extends far beyond the tip of the rostrum. The

lateral margin is distinctly concave and bears a stout tooth distally which does not exceed the anterior margin of the lamella, which is more than three times longer than broad with the greatest width at half the length and with feebly angulated anterior and medial borders. The carpocerite is subcylindrical, extending to the middle of the lamella and just beyond the tip of the rostrum. The flagella are well developed, exceeding the length of the body.

The mandible is without a palp. The molar process is slender, obliquely truncated distally with bristles around the distal margins. The incisor process is slender, feebly tapering with six or seven small acute teeth distally, of which the lateral tooth is slightly larger than the rest, which decrease slightly in size medially.

The maxillula has a normal upper lacinia, obliquely truncated distally with numerous simple setae. The lower lacinia is slender with longer simple setae. The palp is short and broad, simple, with a small curved seta on the anterior lobe.

The maxilla has a slender, subcylindrical, nonsetose palp and a single simple endite, which distinctly exceeds the palp and bears six slender simple setae terminally. The scaphocerite is very broad, rounded anteriorly, and slightly angulated posteriorly.

The first maxilliped has a short, stout, subcylindrical, nonsetose palp. The basal endite is narrow, elongated, and without a distinct separation from the coxal endite. The medial border bears a fringe of numerous, long, slender, simple setae. The coxal endite is sparsely setose and distinctly angled proximally. The exopod is strongly developed, the broad flagellum bearing numerous, long, plumose setae distally, and a caridean lobe with an angulated anterolateral border. A large bilobed epipod is also present.

The second maxilliped is of normal form. The dactylar segment is not enlarged, about three times longer than broad, with a dense row of short stout curved setae along its dorso-medial border. The ventromedial border bears a few longer, more slender setae. The propodal

FIG. 9. *Coralliocaris pavonae* sp. nov. Female, paratype, Fiji: A, antennule; B, antenna. Male, paratype, Fiji: C, first pleopod; D, anterior seta from basipodite of first pleopod; E, endopod of first pleopod; F, endopod of second pleopod.

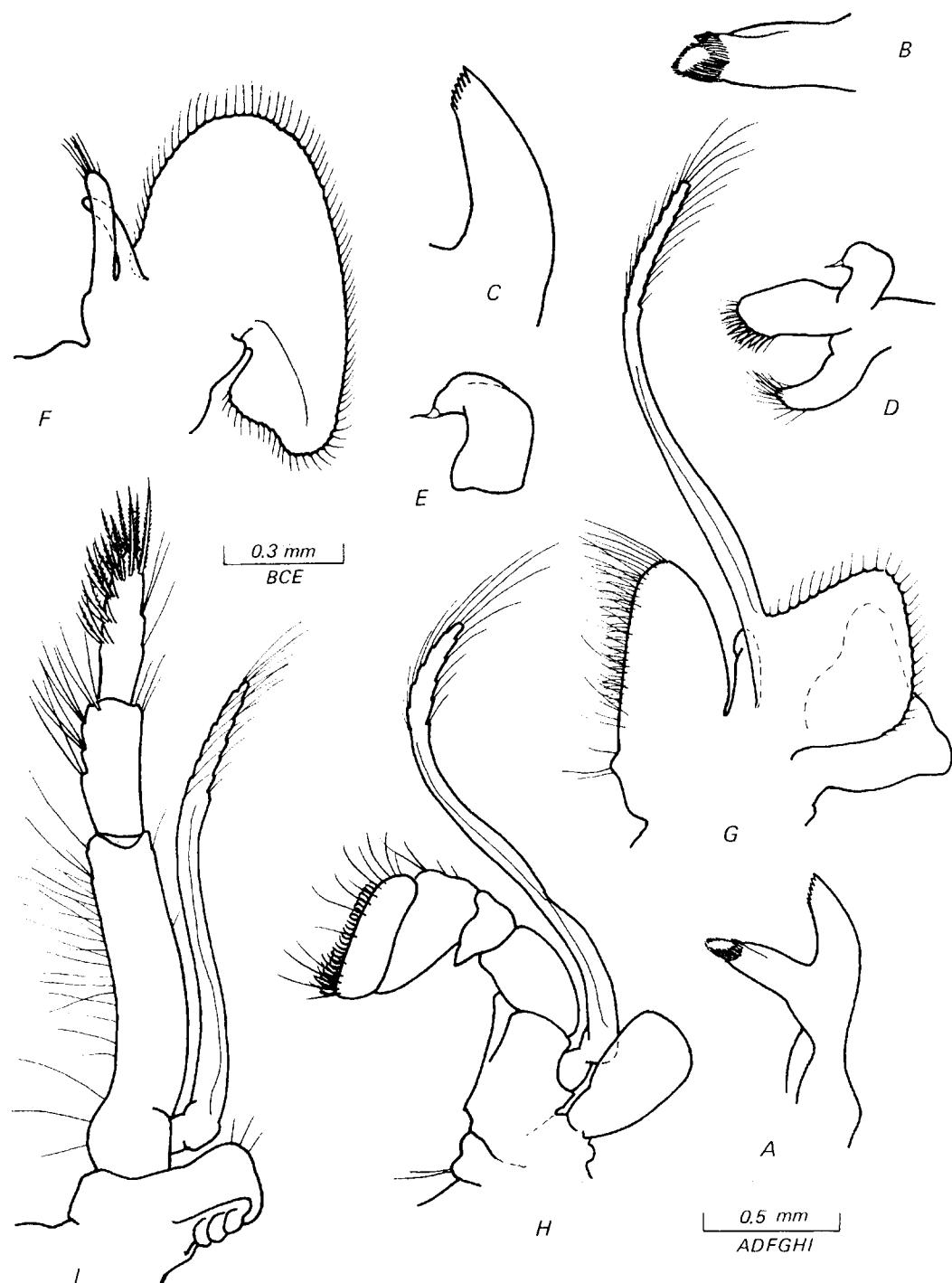


FIG. 10. *Corallioecaris paronae* sp. nov. Female, paratype, Fiji: *A*, mandible; *B*, molar process; *C*, incisor process; *D*, maxillula; *E*, palp of maxillula; *F*, maxilla; *G*, first maxilliped; *H*, second maxilliped; *I*, third maxilliped.

segment does not have the anterior border produced. The coxa is angulated medially and bears a few slender setae. The exopod is strongly developed, broad, with numerous plumose setae distally. The epipod is simple, subrectangular, and without a podobranch.

The third maxilliped has a slender endopod. The basis and ischiomerus are fused, the combined length being about five times the width of the segment. The carpus is slightly shorter than the terminal segment and is equal to half the length of the ischiomeral segment, which bears a row of long, very slender setae along its medial border. The medial border of the carpus bears three groups of slender simple setae and the terminal segment bears several groups of stouter, finely serrate setae of varying length. The basis bears a broad robust exopod which extends beyond the carpal segment of the endopod. A large rounded epipod is present, with a few short setae on its anterior border. A rudimentary arthrobranch with three small lamellae is also present.

The first pereiopod is normally developed, with the merus falling slightly short of the distal end of the carpocrate and the carpus slightly exceeding the anterior margin of the lamella of the scaphocerite. The chela is a little less than half the length of the carpus. The fingers are slender, tapering, bearing several groups of simple setae and with entire cutting edges; subequal to half the length of the palm, which is slightly compressed and with about six transverse rows of anteriorly curved setae ventrally, bearing fine spinules along their anterior aspect. The propodus is subcylindrical, gradually increasing in size distally, and with numerous long simple setae distoventrally. The merus is slightly compressed, broader than the propodus, and equal to five-sixths of its length. The merus is narrowly articulated with the ischium. The ischium and basis are subequal in length. The coxa is without a medial process.

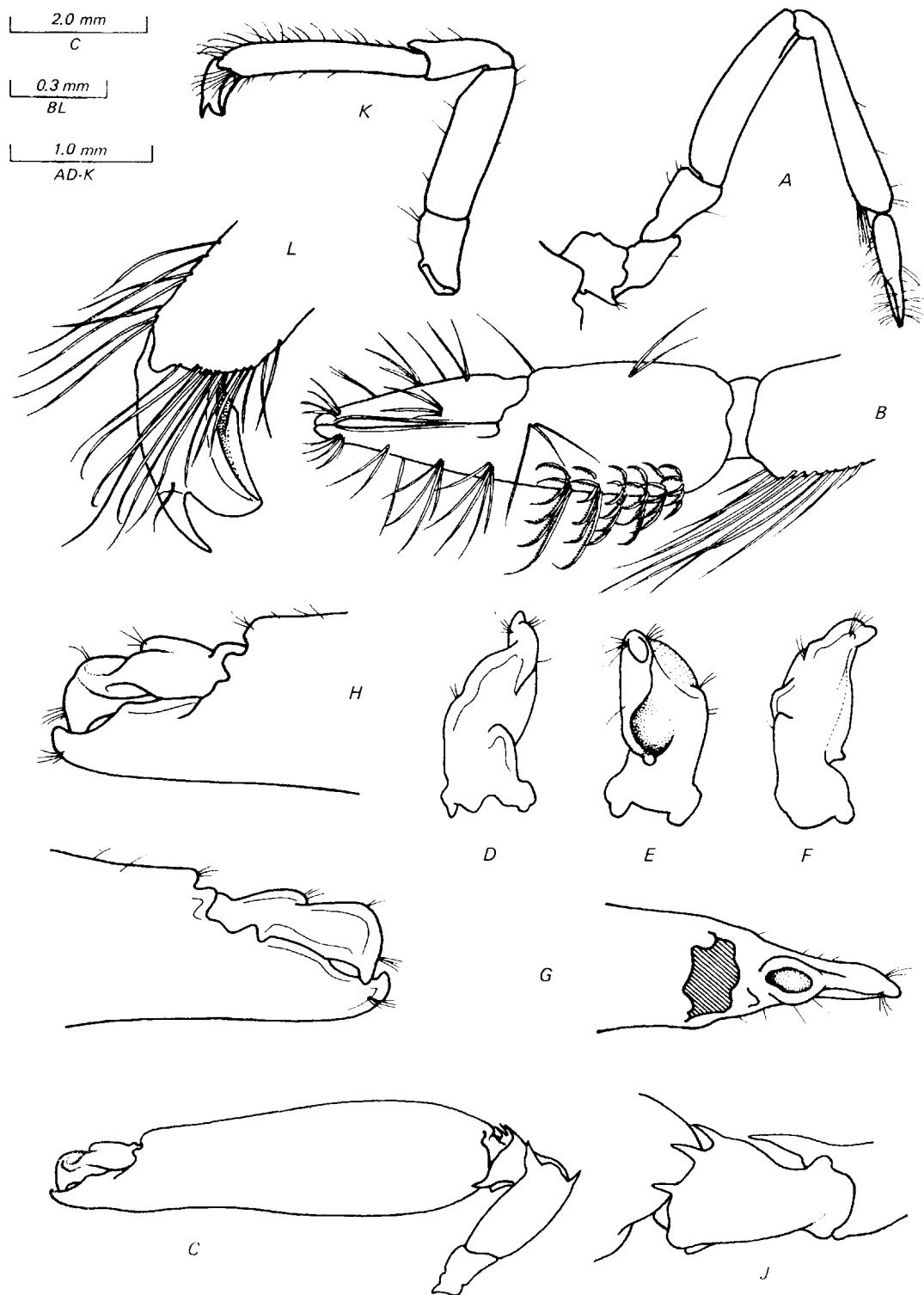
The second pereiopods are large and robust, similar and subequal. The palm of the chela is subcylindrical, slightly compressed, broadest proximally and tapering distally, about three times longer than the greatest width. The fingers are short, the fixed finger being equal to about one-fourth of the length of the palm.

The dactylus bears a stout bluntly hooked tip. The lateral margin is carinate distally and bears a robust angular process proximally. A stout carina is present distolaterally, continuous with a proximal ventral swelling. The cutting edge is stout and blunt, cupped posteriorly where there is a single small blunt tooth. The fixed finger also has a stout, blunt, hooked tip, with a stout blunt cutting edge anteriorly, continuous with a thick rimmed fossa posteriorly, and with a small blunt tooth separately, just in front of the hinge. The cup-shaped depression in the dactylus opposes to the fossa on the fixed finger. The carpus is short and stout, almost one-fifth of the length of the chela, and markedly expanded distally where the dorsolateral border bears two or three, rarely four, long slender acute spines. The medioventral angle bears a very large slender acute process. The merus is one-third of the length of the palm, generally flattened and concave dorsally, broadest centrally with a small slender acute tooth distolaterally and a much larger, broader tooth medially. The ischium is flattened, about half the length of the merus, and unarmed.

The ambulatory pereiopods, which are mainly detached, are robust. The dactylus, which is one-fourth of the length of the propodus, bears a well-developed, elongated, hoof-shaped ventral process with sharply carinate lateral borders, bordering a deep central depression. The unguis is distinct, long, and slender, reaching to the distal border of the ventral process. The propodus is 6.5 times longer than broad, slightly expanded distally, and with numerous long slender setae distoventrally. The dorsal border also bears numerous groups of long setae. The carpus, merus, and ischium are normal, equal to one-half, four-fifths, and one-third of the length of the propodus, respectively. The distodorsal border of the carpus is produced and the carpus, merus, and ischium are unarmed.

The fourth and fifth thoracic sternites are unarmed.

The pleopods of the female are normal, with slender rami. In the male the anterior border of the basipodite bears a longitudinal row of flattened leaflike setae. The length of the endopod is slightly more than twice the greatest width.



The distal half of the lamina is slightly expanded with a uniformly rounded margin, devoid of setae. The proximal half of the medial border bears a row of six or seven slender simple setae. The basipodite of the second and remaining pleopods is without phylliform setae. The endopod bears a long slender appendix interna, far exceeding the short stout appendix masculina, which bears five stout simple setae on its distal third.

The uropods are normal. The postero-lateral angle of the basipodite is bluntly rounded. The lateral margin of the exopod is feebly convex, terminating in an acute tooth distally, with a strong mobile spine medially. Both exopod and endopod extend well beyond the tip of the telson spines.

In a dissected female, 37 ova were present, with the longer axis of a typical ovum being 0.6 mm.

Measurements

Carapace length: males, 1.7–2.1 mm; females, 1.5–2.6 mm.

The chela of the largest detached second pereiopod measured 6.5 mm.

Coloration

The coloration in life was not recorded but the specimens were received freshly preserved in formalin and distinct traces of the color pattern remained. The posterior and lateral regions of the carapace bear several longitudinal orange striae, which continue along the length of the abdomen in greater numbers and more closely disposed. The scaphocerite is heavily spotted with orange dots which are similarly present on the ambulatory pereiopods and pleopods. The second pereiopods are uniformly orange-reddish. The caudal fan is without spots.

Host

Pavona divaricata (Lam.) (Coelenterata, Scleractinia, Agariciidae).

Types

An ovigerous female, carapace length 2.3 mm, has been selected as the holotype and is deposited in the collections of the Rijksmuseum van Natuurlijke Historie te Leiden, registration number D-27148. Paratypes have been deposited in the British Museum (Natural History), the U.S. National Museum, and the Australian Museum.

Remarks

The discovery of a new species of *Coralliocaris* in association with a coral of the genus *Pavona* is of particular interest as shrimps of this genus are normally found in association with corals of the genus *Acropora* and occasionally in association with *Pocillopora* and *Stylophora* (Bruce, in press). The only pontoniid shrimp previously reported in association with *Pavona* is *Periclimenes diversipes* Kemp, a common species occurring on a very wide variety of coral hosts.

Coralliocaris pavonae is a small species of the genus, most closely related to the much larger species *C. superba* (Dana) or the similarly sized *C. vennsta* Kemp. It may be distinguished from both these species by the form of the fingers of the chela of the second pereiopod. In both these species the endopod of the third maxilliped is broad and with a small, well-developed arthrobranch in comparison with *C. pavonae*, where it is slender and with a poorly developed arthrobranch. The dactylus of the ambulatory pereiopod is comparatively elongated especially when compared with that of *C. vennsta*, with the unguis rising distally and not close to the base of the basal process. In *C. vennsta* and also in *C. graminea* and *C. superba* the ventral process is very large compared with the dorsal part in which the unguis arises from a small short process situated on the dorsal aspect of the ventral process (Miyake and Fujino, 1968).

The presence of the unusual leaflike setae

FIG. 11. *Coralliocaris pavonae* sp. nov. Female, paratype, Fiji: A, first pereiopod; B, chela of first pereiopod; C, second pereiopod, ventral aspect; D, dactylus of second pereiopod, dorsal aspect; E, dactylus of second pereiopod, ventral aspect; F, dactylus of second pereiopod, medial aspect; G, fixed finger of second pereiopod, lateral aspect; H, fingers of second pereiopod, ventral aspect; I, fingers of second pereiopod, dorsal aspect; J, carpus of second pereiopod, lateral aspect; K, third pereiopod; L, dactylus of third pereiopod.

on the anterior aspect of the basipodite of the male first pleopod has not been previously reported, but it can be confirmed that some similar setae are present in the male of *C. graminea* (Dana) but not in *C. superba*.

It appears very probable that *C. pavonae* may be identified, in addition to the morphological characteristics, by its characteristic color pattern. In life the orange spots are probably blackish as the similar chromatophores found in *C. graminea* assume a similar coloration when freshly preserved.

RÉSUMÉ

Nous faisons une brève revue de l'occurrence, reportée jusqu'à présent, des crevettes pontoniinide, dans l'Archipel de Fiji. Nous décrivons une petite collection récente de crevettes provenant surtout de Sigatoga, sur Viti Levu. La collection consiste de neuf espèces dont sept n'avaient pas encore étées trouvées à Fiji. Une nouvelle espèce, *Coralliocaris pavonae*, une associée du corail agaracide *Pavona divaricata* (Lam.), est décrite et illustrée. C'est la première occurrence notée d'une espèce de *Coralliocaris* associée surtout avec un corail non-acroporide. Aussi décrite et illustrée, est la crevette *Periclimenes stylirostris* Bruce, dont nous achérons la description préliminaire. Les espèces peu communes, *Onycocaris stenolepis* Holthuis, et *Vir orientalis* (Dana) sont notées, de même que l'association de *Periclimenes soror* Nobili avec l'étoile de mer, la "couronne d'épines" *Acanthaster planci* (L.), dans les eaux Fijiannes.

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**INVERTEBRATE
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