The Caridean Shrimps (Crustacea: Decapoda) of the *Albatross* Philippine Expedition 1907–1910, Part 6: Superfamily Palaemonoidea

FENNER A. CHACE, Jr.,
and
A. J. BRUCE

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Fenner A. Chace, Jr., and A.J. Bruce

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ABSTRACT

Chace, Fenner A., Jr., and A.J. Bruce. The Caridean Shrimps (Crustacea: Decapoda) of the *Albatross* Philippine Expedition, 1907–1910, Part 6: Superfamily Palaemonoidea. *Smithsonian Contributions to Zoology*, number 543, 152 pages 23 figures, 1993.—World checklists are proposed for 194 presumably valid species and subspecies of the genus *Macrobrachium*, together with their synonyms and type localities, and for 70 recognized genera and 408 valid species and subspecies of the subfamily Pontoniinae, with their synonyms, type species, and type localities. Keys are offered to the families and subfamilies of the superfamily Palaemonoidea, to all recognized genera of the Pontoniinae, Gnathophyllidae, and the genera and species of the Hymenoceridae, to the Indo-Pacific genera of the Palaemoninae, to all species and subspecies of *Leander*, *Leandrites*, *Leptocarpus*, *Nematopalaemon*, *Urocaridella*, *Anchistus*, *Coralliocaris*, *Dasella*, *Dasycaris*, *Hamodactylus*, *Harpiliopsis*, *Jocaste*, *Onycocaris*, *Palaemonella*, *Paranchistus*, and *Gnathophyllum*, and to the Philippine-Indonesian species of *Macrobrachium*, *Periclimenaeus*, and *Periclimenes*. The following new species are described: *Urocaridella vestigialis* from Selat Butung, Celebes, Indonesia, in 68 meters; *Periclimenes albatrossae* from the South China Sea off western Luzon, Philippines, in 315 meters; and *Periclimenes calcaratus* from Albay Gulf, southeastern Luzon, Philippines, in about 267 meters. The specimen from Kepulauan Kai, Indonesia, identified by Holthuis (1952) as *Periclimenaeus truncatus* (Rathbun, 1906) proves to be distinct from that species and is designated as the holotype of the new species *Periclimenaeus truncoideus*.

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The Caridean Shrimps (Crustacea: Decapoda) of the *Albatross* Philippine Expedition, 1907–1910, Part 6: Superfamily Palaemonoidea

Fenner A. Chace, Jr., and A.J. Bruce

Introduction

General considerations about the *Albatross* Philippine Expedition and its collections have been presented in Part 1 of this series (Chace, 1983). Repeated below are those format particulars that are common to all of the parts.

The taxa numbered and itemized are those known from the Philippines and Indonesia, whether or not they are represented in the *Albatross* collections; those taken by that Expedition are indicated by an asterisk (*). The genera and species are arranged alphabetically, and the latter are numbered sequentially by order of appearance in the taxonomic portion of the report. The generic entries comprise at least the original reference, followed by designation of the type species and of the gender of the generic name, a diagnosis, and the geographic and, sometimes, bathymetric ranges of the genus. The original reference and range are given for each extraterritorial species and subspecies cited. There has been no attempt to list all references under the taxa headings in the text. Usually the species and subspecies entries are limited to (1) the original reference and type locality of both senior and junior synonyms mentioned; (2) a reference to a published illustration, if possible; (3) a diagnosis; and (4) the range of the taxon. Under "Material" of species and subspecies represented in the *Albatross* collections are listed the following particulars when known: (1) general locality; (2) station number; (3) latitude and longitude; (4) depth in meters (in brackets when estimated); (5) character of bottom; (6) bottom temperature in degrees Celsius; (7) date and astronomical time intervals (hours between midnight and midnight) that the gear operated at the indicated depth; (8) gear used; and (9) the number and sex of the specimens, with minimum and maximum postorbital carapace lengths in millimeters, in brackets (the numbers and size ranges of ovigerous females are included in the female totals, as well as separately). Additional station data may be available in Anonymous (1910).

ACKNOWLEDGMENTS.—If this study had been conducted in one of the physical sciences, the names of at least five of our colleagues would certainly have been added to the by-line. Austin B. Williams, Raymond B. Manning, Brian Kensley, L.B. Holthuis, and Alain Crosnier have made major contributions (some of them covert) to whatever value this report may convey. To identify the respective nature of those offerings might falsely suggest specific critical negligence as a cause of inadvertent errors in the post-review draft of this treatise. The individual benefactors know what they contributed, as do we, and we take this opportunity to thank them to the best of our ability for their sacrifice of personal research time in a truly selfless attempt to improvethe chances for significant progress in research on the palaemonoid shrimps. In addition to the assistance from the five colleagues mentioned above, we must note the special help received from the exchange of *Macrobrachium* checklists with Guido A. Pereira S. of the Instituto de Zoologia, Universidad Central de Venezuela, during his doctoral residency at the University of Maryland and the Smithsonian Institution.

*PALAEMONOIDEA Rafinesque, 1815

PALEMONIA Rafinesque, 1815:98.
PALAEMONIDAE Bruce, 1986a:469.

DIAGNOSIS.—Rostrum immovable; 2nd maxilliped with distal segments articulating serially, not side by side, on penultimate segment; 3rd maxilliped composed of no more than 6 segments; pereopods without exopods or arthrobranchs,

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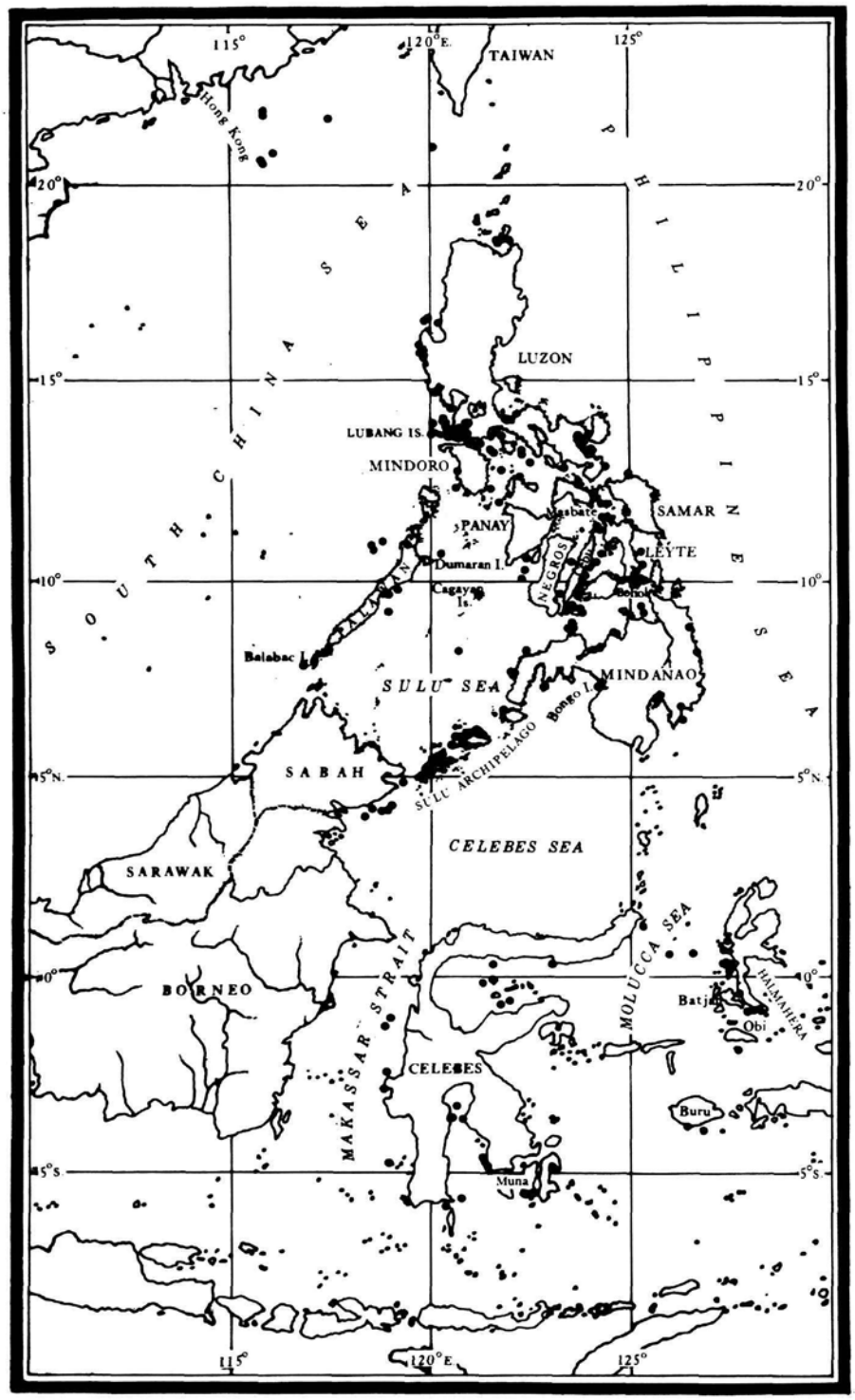

FIGURE 1.—The Philippines and central Indonesia, showing the positions of *Albatross* offshore stations at which caridean shrimps were obtained.

epipods, if present, not large, not extending dorsad into branchial chamber; 1st and 2nd pair of pereopods distinctly chelate, dactyl meeting opposing finger when flexed, not crossing, chelae not terminating in dense brushes of long setae; 1st pereopod not stouter than 2nd; 2nd pereopod with undivided carpus.

RANGE.—Cosmopolitan; freshwater and marine, to a depth of 1820 meters, also subterranean.

CLASSIFICATION.—The following key, modified from the one in Bruce (1986a:469), is still far from definitive. It reflects the belief that *Bathypalaemonella* Balss, 1914a, and *Campylonotus* Bate, 1888, which may or may not comprise the family Campylonotidae Sollaud, 1913, probably are not closely related to the genera here assigned to the superfamily Palaemonoidea. It also discloses our tentative conclusion that *Gnathophyllum*, *Gnathophylloides*, *Pycnocaris*, and *Levicaris*, because of their probably similar larval morphology, are related to the Pontoniinae but that they are distinguished sufficiently from that palaemonid subfamily by their unique, although diverse, mouthparts to negate the possibility of synonymy, thereby preserving the familiar name of the subfamily. There seems to be little doubt that the similarly unique anterior appendages of *Hymenocera*—to a lesser extent *Phyllognathia*—are of familial importance. Likewise, although *Anchistioides* seems to differ little from some of the pontoniines, its larvae, as described by Gurney (1936), seem to us to support familial separation on the basis of seemingly minor adult morphological details. Finally, the virtually single characters that distinguish the Eurafrican and South American freshwater genera *Desmocaris*, Sollaud, 1911, *Euryrhynchus*, Miers, 1877, and *Typhlocaris* Calman, 1909, may be important enough to justify familial recognition of each of those genera. On the other hand, the protean nature of the 70 pontoniine genera currently recognized is such as to overshadow the couple of seemingly evanescent differences that separate them from the other palaemonid genera.

Key to Families and Subfamilies of Palaemonoidea

1. Mandible usually with incisor process prominent, deeply separated from molar process; 1st maxilliped with caridean lobe of exopod distinctly overreaching endite; 3rd maxilliped slender, pereopod-like 2
   Mandible with incisor process vestigial or absent; 1st maxilliped with caridean lobe of exopod not distinctly overreaching endite; 3rd maxilliped with antepenultimate segment broad, at least proximally, sometimes operculate 7
2. Mandible with molar process flared distally; 1st maxilliped with exopodal lash vestigial. (Telson typically with 1 pair of stout spines on posterior margin.) . . . . . ***ANCHISTIOIDIDAE**
   Mandible with molar process conventional, not flared, 1st maxilliped with exopodal lash fully developed 3
3. First maxilliped with palp broadly ovate; 2nd maxilliped with terminal segment broadly ovate, penultimate segment convexly produced mesiad, causing endopod to appear bilobate distally. (Carapace with supraorbital tooth; telson without dorsolateral spines; pleopods without appendix interna) . . . . . **DESMOCARIDIDAE** Borradaile, 1915 (Western and central Africa; fresh water)
   First maxilliped with palp not unusually broad; 2nd maxilliped not markedly bilobate distally 4
4. First maxilliped with caridean lobe acutely produced distally . . . . . **TYPHLOCARIDIDAE** 5
   First maxilliped with caridean lobe of exopod not acutely produced distally . . . . . ***PALAEMONIDAE** 6
5. Carapace divided into 3 longitudinal parts by paired, complete postantennal suture; 3rd antennular flagellum partially fused with dorsal flagellum . . . . . **TYPHLOCARIDINAE** Annandale and Kemp, 1913 (Italy, Libya, and Israel; fresh or brackish water; usually subterranean)
   Carapace without complete longitudinal suture; 3rd antennular flagellum entirely free from fusion with either of other 2 flagella . . . . . **EURYRHYNCHINAE** Holthuis, 1950 (Northeastern South America and western Africa; fresh water)

6. Telson usually with 2 pairs of posterior marginal spines . . . . *PALAEMONINAE
   Telson usually with 3 pairs of posterior marginal spines . . . . . *PONTONIINAE
7. Third maxilliped with antepenultimate segment clearly articulated with and much wider than next proximal segment . . . . . *HYMENOCERIDAE
   Third maxilliped with antepenultimate segment at least partially fused with and not much wider than next proximal segment . . . . . GNATHOPHYLLIDAE

*PALAEMONIDAE Rafinesque, 1815

PALAEMONIA Rafinesque, 1815:98.
PALAEMONIDAE.—Samouelle, 1819:96.

DIAGNOSIS.—Carapace without complete longitudinal suture; telson usually with 2 or 3 pairs of spines on posterior margin; antennule with 2 completely separate flagella, 1 with accessory branch; mandible usually with incisor process; 1st maxilla with mesial coxal lobe not unusually large, mesial basal lobe not reduced; 2nd maxilla with 0, 1, or 2 endites; 1st maxilliped with exopodal lash; 2nd maxilliped with marginal setae on distal segment not especially stout or dense; 3rd maxilliped with antepenultimate segment neither articulated with nor much wider than next proximal segment; 2nd pereopod with dactyl usually not distinctly serrate on extensor margin; 2nd pleopod with appendix masculina in male.

RANGE.—Cosmopolitan, freshwater and marine; littoral to 1285 meters.

*PALAEMONINAE Rafinesque, 1815

DIAGNOSIS.—Telson usually armed with 2 pairs of posterior spines (usually 3 pairs in *Coutierella*) and 2 or more submedian setae; 3rd maxilliped usually with 2 arthrobranchs.

RANGE.—Cosmopolitan, freshwater and marine; subterranean, littoral, and pelagic to 170 meters.

REMARKS.—The 11 palaemonine genera from the Indo-Pacific region recognized herein are incorporated in the following key.

The remaining genera assigned to this subfamily are confined to fresh water in the Americas or western Africa and are included in the comprehensive key in Holthuis (1955:43), except two genera from subterranean fresh water in Mexico: *Bithynops* Holthuis, 1974a:135, and *Neopalaemon* Hobbs, 1973a:25, both of which may be referred to in Hobbs, Hobbs, and Daniel (1977:46, 52).

Key to Indo-West Pacific Genera of Palaemoninae

1. Carapace with branchiostegal spine, sometimes arising posterior to margin . . . 2
   Carapace without branchiostegal spine 9
2. Elevated dentate crest at base of rostrum 3
   No elevated crest at base of rostrum 5
3. Carapace with branchiostegal suture extending posteriorly from anterior margin at point dorsal to branchiostegal spine . . . . . ***Exopalaemon***
   Carapace without branchiostegal suture 4
4. Branchiostegal spine arising from margin of carapace; 2 posterior pairs of pereopods with dactyl longer than combined length of propodus and carpus; 1st pleopod of male without appendix interna on endopod . . . . ***Nematopalaemon***
   Branchiostegal spine arising posterior to margin of carapace; 2 posterior pairs of pereopods with dactyl shorter than propodus; 1st pleopod of male with appendix interna on endopod . . . . . ****Urocaridella***
5. Carapace with branchiostegal suture extending posteriorly from anterior margin at point dorsal to branchiostegal spine 6
   Carapace without branchiostegal suture 8
6. Mandible normally with palp . . . . . ****Palaemon***
   Mandible without palp 7
7. Telson with 3 or more pairs of spines on posterior margin; 1st maxilla with distal endite broad, proximal endite rotated mesially; 2nd maxilla with basal endite deeply bilobate; 1st maxilliped with basal endite mesially ridged, separated from palp by U-shaped notch, coxal endite large, setose . . . . . ***Coutierella*** Sollaud, 1914:318 (Vietnam; Hong Kong)

Telson with 2 pairs of spines on posterior margin; 1st and 2nd maxillae and 1st maxilliped of normal palaemonoid form . . . . . ***Palaemonetes*** Heller, 1869:157, 161
(Eastern Siberia, China, Australia, America, Europe, Near East, Northern and western Africa)

8. Mandible with palp . . . . . ****Leander***
   Mandible without palp . . . . . ***Leandrites***
9. Carapace without hepatic spine 10
   Carapace with hepatic spine 11
10. Rostrum with elevated basal crest; mandible with palp . . . . . ***Leptocarpus***
    Rostrum without elevated basal crest; mandible without palp . . . . . ***Troglindicus*** Sankolli and Shenoy, 1979:84
    (Freshwater well at Ratnagiri, Maharashtra, western India
11. Carapace without branchiostegal suture; 3 posterior pairs of pereopods with dactyl biunguiculate; 1st pleopod of male with appendix interna on endopod . . . . . ***Brachycarpus*** Bate, 1888:781
    (Red Sea; Tanzania; Sri Lanka; Ponape, Caroline Islands; eastward to America; western and eastern Atlantic; Mediterranean)

    Carapace with branchiostegal suture extending posteriorly from anterior margin at point dorsal to branchiostegal spine; 3 posterior pairs of pereopods with dactyl simple; 1st pleopod of male without appendix on endopod . . . . . ****Macrobrachium***

Exopalaemon Holthuis, 1950

Exopalaemon Holthuis, 1950a:5,9,45 [type species, by original designation: *Palaemon styliferus* H. Milne Edwards, 1840:638; gender: masculine].

DIAGNOSIS.—Rostrum with elevated dentate basal crest; carapace with branchiostegal spine and branchiostegal suture, without hepatic spine; 4th thoracic sternite without slender median process; mandible with palp; 3 posterior pairs of pereopods with dactyl simple, not biunguiculate, shorter than propodus; endopod of male 1st pleopod without appendix interna.

RANGE.—Indonesia, Vietnam, China, Korea, Japan; littoral, also brackish and fresh water.

REMARKS.—The characteristically crested rostrum seems sufficient to justify full generic status for the six or seven species originally assigned to the subgenus *Exopalaemon* by Holthuis (1950a). Only the type species has been recorded from the Philippine-Indonesian region.

1. *Exopalaemon styliferus* (H. Milne Edwards, 1840)

P[alaemon] longirostris H. Milne Edwards, 1837:394 [type locality: mouth of the Ganges; not *P. longirostris* H. Milne Edwards, 1837:392].
P[alaemon] styliferus H. Milne Edwards, 1840:638.
Leander styliferus.—Kemp, 1917:214, figs. 5, 6*a*, *b*, pl. 8: fig. 2.
Palaemon (Exopalaemon) styliferus.—Holthuis, 1950a:46, fig. 8.

DIAGNOSIS.—Rostrum armed with 5–7 teeth on basal crest, 1–3 dorsal subterminal teeth, and 6–10 ventral teeth; 4 posterior abdominal somites not sharply carinate in dorsal mid-line; antennular peduncle with distolateral spine on basal segment barely overreaching adjacent distal margin of segment, free part of shorter branch of dorsolateral flagellum several times as long as fused part; 2nd pereopod with carpus considerably shorter than chela; 3rd pereopod with dactyl no more than 1/2 as long as propodus; maximum carapace length nearly 20 mm.

RANGE.—India, Pakistan, Burma, Thailand, Borneo, and Java; shallow, salt, brackish, and fresh water.

**Leander* E. Desmarest, 1849

Leander E. Desmarest, 1849:92 [type species, by monotypy: *Leander erraticus* E. Desmarest, 1849:92 (= *Palaemon tenuicornis* Say, 1818:249); gender: masculine].
Cryptoleander Gurney, 1938:35 [this name was proposed as a uninomial collective-group name; Gurney and Lebour (1941:145, 159) referred *Leander tenuicornis* to the name, thereby according it true generic status].

DIAGNOSIS.—Rostrum without elevated basal crest; carapace with submarginal branchiostegal spine, without hepatic spine or branchiostegal suture; 4th thoracic sternite without slender median process; mandible with palp; 3 posterior pairs of pereopods with dactyl simple, not biunguiculate, shorter than propodus; endopod of male 1st pleopod with appendix interna.

RANGE.—Red Sea to Japan, Philippines, Indonesia, Australia, New Zealand, western Atlantic, eastern Atlantic, and Mediterranean; on floating weed in the open sea and among

attached plants in shallow water.

REMARKS.—It is suggested that *Urocaridella*, which was treated as a synonym of *Leander* by Holthuis (1950a:6 and 1955:45), be reestablished as a distinct genus. Only the three species covered in the following key are therefore recognized herein as belonging to this genus.

Key to Species of *Leander*

1. Rostrum sexually dimorphic, expanded vertically in female; basal antennular segment straight or concave distally lateral to 2nd segment; stylocerite distinctly overreaching midlength of basal antennular segment . . . . . *3. ***L. tenuicornis***

   Rostrum not sexually dimorphic, not expanded vertically in either sex; basal antennular segment sinuous distally lateral to 2nd segment; stylocerite not extending beyond level of midlength of basal antennular segment 2

2. Fifth abdominal somite with pleuron rounded, not dentate, posteroventrally; basal antennular segment with convex distal lobe not reaching level of tip of distolateral spine; stylocerite not reaching level of midlength of basal antennular segment; 2nd pereopod without teeth on opposable margins of either finger . . . . 2. ***L. kempi***

   Fifth abdominal somite with pleuron dentate posteroventrally; basal antennular segment with convex distal lobe reaching level of tip of distolateral spine; stylocerite reaching about to level of midlength of basal antennular segment; 2nd pereopod with 1 or 2 teeth on opposable margin of each finger . . . . . ***L. paulensis*** Ortmann, 1897:191 (Western Atlantic; littoral [see Manning, 1961])

2. *Leander kempi* Holthuis, 1950

Leander kempi Holthuis, 1950a:31 [type locality: Manado anchorage, northeastern Celebes (55 meters) and Beo, Kepulauan Talaud].

DIAGNOSIS.—Rostrum not sexually dimorphic; 4th and 5th abdominal somites with pleuron rounded, unarmed; basal antennular segment with distal margin sinuous lateral to 2nd segment, stylocerite short, not reaching level of mid-length of basal segment of antennular peduncle; 2nd pereopod without teeth on opposable margin of either finger; maximum carapace length about 8 mm.

RANGE.—Known only from three specimens in the Indonesian type series.

*3. *Leander tenuicornis* (Say, 1818)

Astacus locusta J.C. Fabricius, 1781:513 [type locality: "in Oceano. Mus. Dom. Banks"; not *Astacus locusta* Pennant, 1777].

?Penaeus punctatissimus Bosc, 1802:109, pl. 14: fig. 3 [type locality: North Atlantic "sur les fucus nageans"].

P[alaemon] tenuicornis Say, 1818:249 [type locality: Banks of Newfoundland].

?Penaeus adspersus Tilesius, 1819:4, pl. 21a: fig. 1 [type locality: high seas].

P[alaemon] natator H. Milne Edwards, 1837:393 [type locality: Indian Ocean, "sur du fucus natans"].

Palemon latirostris De Haan, 1833–1850:170, pl. 45: fig. 12 [type locality: Japan].

Leander erraticus E. Desmarest, 1849:92 [type locality: Guadeloupe].

P[alaemon] torensis Paulson, 1875:116, pl. 17: fig. 3 [type locality: Red Sea].

Leander tenuicornis.—Holthuis, 1950a:26, figs. 1, 2; 1952b:155, pls. 41, 42.—Manning, 1961:531–534, fig. 2*d* [n.b.], *f*.

DIAGNOSIS.—Rostrum sexually dimorphic, vertically expanded in female; pleura of 4th and 5th abdominal somites dentate posteroventrally; basal antennular segment with distal margin straight or concave lateral to 2nd segment; stylocerite long, overreaching mid-length of basal segment of antennular peduncle; 2nd pereopod without teeth on opposable margin of fixed finger; maximum carapace length about 8 mm.

MATERIAL.—PHILIPPINES. Port Matalvi, western Luzon; [15°29′N, 119°56′E]; 23 Nov 1908; 130′ seine: 1 female [6.4].—Cagmanaba Bay, southeastern Luzon; [13°03′N, 123°18′E]; mouth of small stream; 11 Mar 1909: 1 ovig female [6.1].—Port Busin, Burias Island; [13°08′, 122°58′E]; tide pool; 8 Mar 1909 (0800); copper sulfate: 1 female [4.3].—South of Panay near sta 5184; surface under seaweed; 30[?] Mar 1908 [labeled "3/20/08"]: 1 juv [1.2].

RANGE.—Red Sea and South Africa to Japan, Philippines, Indonesia, Australia, New Zealand, and the Atlantic Ocean from Newfoundland to the Falkland Islands in the west and from the Mediterranean to the Tropic of Cancer in the east; associated with floating weed in the open sea and with attached vegetation in shallow water. The species is commonly believed to frequent all tropical and subtropical seas, except those off the Pacific coast of America, but the easternmost Pacific records in the literature seem to be those from New Zealand, and there are no identified specimens in the Smithsonian collections from the Pacific east of the Palau Islands.

REMARKS.—The juvenile specimen from south of Panay near *Albatross* station 5184 has the pleura of the fourth and fifth abdominal somites unarmed posteroventrally and a short stylocerite and short fingers of the second pereopod reminis-

cent of *L. kempi*, but the examination of series of western Atlantic specimens indicates that those characteristics are not atypical of juveniles of *L. tenuicornis*.

Leandrites Holthuis, 1950

Leandrites Holthuis, 1950a:4, 6, 30 [type species, by original designation: *Leander celebensis* De Man, 1881:141; gender: masculine].

DIAGNOSIS.—Rostrum without elevated basal crest; carapace with submarginal branchiostegal spine, without hepatic spine or branchiostegal suture; 4th thoracic sternite with slender median process; mandible without palp; 3 posterior pairs of pereopods with dactyl simple, shorter than propodus; endopod of male 1st pleopod with appendix interna.

RANGE.—India, Singapore, and Indonesia; shallow, sometimes brackish water to 56 meters.

REMARKS.—With the proposed transfer of *Leandrites cyrtorhynchus* Fujino and Miyake, 1969a, to *Urocaridella*, only the four species covered in the following key are recognized herein. All four have been recorded from Indonesia or Singapore.

Key to Species of *Leandrites*

1. Rostrum nearly straight, overreaching antennal scale little if at all 2
   Rostrum curved somewhat dorsad, distinctly overreaching antennal scale 3
2. Rostrum armed with 13–17 dorsal teeth, 3–7 ventral; 2nd pereopod overreaching antennal scale by length of chela and part of carpus . . . . . 4. ***L. celebensis***
   Rostrum armed with 11 dorsal teeth, ventral margin unarmed except for 3 small subapical teeth; 2nd pereopod overreaching antennal scale by combined lengths of chela, carpus, and most of merus . . . . . 7. ***L. stenopus***
3. Rostrum armed with 10–12 dorsal and 4 or 5 ventral teeth; 2nd pereopod with carpus distinctly longer than chela . . . . . 5. ***L. deschampsi***
   Rostrum armed with 13–16 dorsal and 8 or 9 ventral teeth; 2nd pereopod with carpus only slightly longer than chela . . . . . 6. ***L. indicus***

4. *Leandrites celebensis* (De Man, 1881)

Leander celebensis De Man, 1881:141 [type locality: Makasar, southwestern Celebes].
Palaemonetes hornelli Kemp, 1925:318, figs. 14, 15 [type locality: Silavathura Lagoon, southern India].
Leandrites celebensis.—Holthuis, 1950a:36, fig. 4.

DIAGNOSIS.—Rostrum nearly straight, reaching to or slightly beyond level of distal end of antennal scale, armed with 13–17 (usually 14 or 15) dorsal teeth, including 2 more widely separated on carapace posterior to level of posterior margin of orbit, and 4–7 (usually 4) teeth extending over major part of ventral margin; 2nd pereopods overreaching antennal scale by length of chela and fully $^1/_2$ of carpus; maximum carapace length about 10 mm.

RANGE.—Southern India, Indonesia, and Northern Territory, Australia; shallow, often brackish water.

5. *Leandrites deschampsi* (Nobili, 1903)

Leander Deschampsi Nobili, 1903a:8 [type locality: Singapore].
Leandrites deschampsi.—Holthuis, 1952a:202, fig. 1.

DIAGNOSIS.—Rostrum curved dorsad, distinctly overreaching antennal scale, armed with 9 or 10 dorsal teeth, including 1 or 2 more widely separated on carapace posterior to level of posterior margin of orbit, and 4 or 5 teeth extending over major part of ventral margin; 2nd pereopods overreaching antennal scale by length of chela and part of carpus; maximum carapace length about 9 mm.

RANGE.—Singapore and China.

6. *Leandrites indicus* Holthuis, 1950

Leander indicus?.—De Man, 1881:139 [not *L. indicus* Heller, 1865].
Leandrites indicus Holthuis, 1950a:37, fig. 5 [type locality: off Makasar, southwestern Celebes].

DIAGNOSIS.—Rostrum curved dorsad, distinctly overreaching antennal scale, armed with 11–14 dorsal teeth, including 2 widely separated on carapace posterior to level of posterior margin of orbit, and 8 or 9 teeth extending over major part of ventral margin; 2nd pereopods overreaching antennal scale by length of chela and part of carpus; maximum carapace length about 8 mm.

RANGE.—Known only from the type series of two specimens from Makasar, Celebes.

7. *Leandrites stenopus* Holthuis, 1950

Leandrites stenopus Holthuis, 1950a:40, fig. 6 [type locality: Selat Madura, Indonesia; 7°25′S, 113°16′E; 56 meters].

DIAGNOSIS.—Rostrum straight, not overreaching antennal scale, armed with 11 dorsal teeth, including 2 widely separated on carapace posterior to level of posterior margin of orbit, ventral margin unarmed except for 3 small subapical teeth; 2nd pereopods overreaching antennal scale by combined lengths of chela, carpus, and nearly entire merus; carapace length about 7 mm.

RANGE.—Known only from the unique holotype from Selat Madura off northeastern Java; 56 meters.

REMARKS.—The virtually unarmed ventral margin of the

rostrum and the unusually long pereopods of the unique female representative of this species emphasize the desirability of determining the still unknown configuration of the endopod of the first pleopod of the male; the absence of an appendix interna on that appendage would suggest that *L. stenopus* might not be congeneric with the other three species assigned to the genus.

Leptocarpus Holthuis, 1950

Leptocarpus Holthuis, 1950a:5, 11, 95 [type species, by original designation: *Leander fluminicola* Kemp, 1917:223; gender: masculine].

DIAGNOSIS.—Rostrum with elevated basal crest; carapace without branchiostegal or hepatic spines, with branchiostegal suture; 4th thoracic sternite with slender median process; mandible with palp; 3 posterior pairs of pereopods with dactyl simple, shorter than propodus; endopod of male 1st pleopod without appendix interna.

RANGE.—India to Indonesia; fresh and brackish water.

REMARKS.—The two closely related species that have been assigned to this species since its establishment may be distinguished by the following key.

Key to Species of *Leptocarpus*

Rostrum overreaching antennal scale by no more than 1/4 rostral length, armed ventrally with 3–5 teeth; 2nd pereopod with fingers rather deeply excavate longitudinally, about as long as palm; 5th pereopod overreaching antennal scale by little more than length of dactyl . . . . . ***L. fluminicola*** (Kemp, 1917:223)
(India and Burma; fresh and slightly brackish water)

Rostrum overreaching antennal scale by more than 1/4 rostral length, armed ventrally with 6–10 teeth; 2nd pereopod with fingers obscurely excavate longitudinally, little more than 2/3 as long as palm; 5th pereopod overreaching antennal scale by length of dactyl and at least 1/2 of propodus . . . . . 8. ***L. potamiscus***

8. *Leptocarpus potamiscus* (Kemp, 1917)

Leander potamiscus Kemp, 1917:225, fig. 7 [type locality: Pattini River, below Pattini, Peninsular Thailand; fresh water under tidal influence].
Leptocarpus potamiscus.—Holthuis, 1950a:97.

DIAGNOSIS.—Rostrum overreaching antennal scale by more than 1/4 rostral length, armed ventrally with 6–10 teeth; 2nd pereopod with fingers obscurely excavate longitudinally, little more than 2/3 as long as palm; 5th pereopod overreaching antennal scale by length of dactyl and at least 1/2 of propodus; maximum carapace length about 10 mm.

RANGE.—India, Andaman Islands, Thailand, Malaya, Sumatra, and Java; fresh and brackish water.

**Macrobrachium* Bate, 1868

Macrobrachium Bate, 1868a:363 [type species, selected by Fowler, 1912:558: *Macrobrachium americanum* Bate, 1868a:363; gender: neuter].
Eupalaemon Ortmann, 1891:696, 697 [type species, selected by Holthuis, 1955:53: *Palaemon acanthurus* Wiegmann, 1836:150; gender: masculine].
Parapalaemon Ortmann, 1891:696, 731 [type species, selected by Holthuis, 1955:53: *Palaemon dolichodactylus* Hilgendorf, 1879:840 (= *Palaemon scabriculum* Heller, 1862a:527); gender: masculine].
Macroterocheir Stebbing, 1908:39 [type species, by monotypy; *Palaemon lepidactylus* Hilgendorf, 1879:838; gender: masculine].

DIAGNOSIS.—Rostrum rarely with elevated basal crest; carapace without branchiostegal spine, with hepatic spine, and branchiostegal suture; 4th thoracic sternite with median process; mandible with palp; 3 posterior pairs of pereopods with dactyl simple, shorter than propodus; endopod of male 1st pleopod without appendix interna.

RANGE.—Pantropical and subtropical, occasionally temperate, commonly fresh, sometimes brackish water, some species marine as juveniles.

REMARKS.—More than 175 valid species and subspecies of *Macrobrachium* are now generally recognized throughout the world. As there has been no attempt to compile a complete checklist of the genus since Holthuis (1950a:12–19) did so, we offer the following list of species described prior to 1990 for what it may be worth to our colleagues who have to cope with this difficult genus.

Checklist of Species of *Macrobrachium*

Valid species-group names (boldface italics)

Synonyms and species inquirendae (italics)

Type localities (roman)

Macrobrachium acanthochirus Villalobos, 1967;168
Rio Valdeflores, Valdeflores de Tonameca, Pochutla, Estado de Oaxaca, Mexico

P[alaemon] (Eupalaemon) acanthosoma Nobili, 1899:242
"Katau" [?= Binaturi River, near Fly River], Papua New Guinea
= ***Macrobrachium equidens***

Macrobrachium acanthurus (Wiegmann, 1836)
Palaemon acanthurus Wiegmann, 1836:150
"Brazilian coast"
Palaemon forceps
Palaemon Swainsonii
Palaemon mexicanus
Macrobrachium longidigitum
Palaemon dasydactylus
Palaemon sexdentatus
Palaemon Potiete
Macrobrachium acanthurus panamensis—See ***Macrobrachium panamense***
Macrobrachium acherontium Holthuis, 1977:188
Grutas del Cocona, near Teapa, Tabasco, Mexico
Macrobrachium coconaensis
Palaemon acutirostris Dana, 1852a:26
Hawaii
= ***Macrobrachium grandimanus***
Macrobrachium adscitum adscitum Riek, 1951:363
Queensland, Australia
Macrobrachium aemulum (Nobili, 1906)
Palaemon (Parapalaemon) aemulus Nobili, 1906a:258
Gatavake, Gambier Islands, Tuamotu Archipelago
Palaemon aequatorialis—See *P. appuni* var. *aequatorialis*
Macrobrachium africanum Bate, 1868a:366
"Tambo River" [Peru]
= ***Cryphiops caementarius*** (Molina, 1782)
Palaemon africanus Kingsley, 1882:107
West coast of Africa
= ***Macrobrachium macrobrachion***
Palaemon africanus Bouvier—See *P. jamaicensis* var. *africanus*
Macrobrachium ahkowi Chong and Koo, 1987b:561
Replacement name for *M. johnsoni* Chong and Koo, 1987a (not ***M. johnsoni*** Ravindranath, 1979)
Palaemon (Eupalaemon) Alcocki Nobili, 1903b:9, fig. 5
Pondicherry, southeastern India
= ***Macrobrachium rude***
Palaemon alphonsianus Hoffmann, 1874:33, pl. 9: figs. 63–65
La Réunion
= ***Macrobrachium australe***
Macrobrachium altifrons altifrons (Henderson, 1893)
Palaemon altifrons Henderson, 1893:444, pl. 40: figs. 4–6
Northern India
Macrobrachium altifrons ranjhai Tiwari, 1964:237
Kabul River at Nowshera, Peshawar District, Pakistan
Macrobrachium amazonicum (Heller, 1862)
P[alaemon] amazonicus Heller, 1862b:418
Amazon River
Palaemon ensiculus
Palaemon Dieperinkii
Macrobrachium americanum Bate, 1868a:363
Lake Amatitlan, Guatemala
Macrobrachium andamanicum (Tiwari, 1952)
Palaemon andamanicum Tiwari, 1952:30
Andaman Islands
Palaemon angolensis—See *P. (Macrobrachium) jamaicensis*, var. *angolensis*
Palaemon Appuni Von Martens, 1869:31, pl. 2: fig. 5
Puerto Cabello, Venezuela
= ***Macrobrachium heterochirus***
Palaemon appuni var. *aequatorialis* Ortmann, 1891:723, pl. 47: fig. 6
Ecuador
= ***Macrobrachium brasiliense***
Macrobrachium aracamuni Rodriguez, 1982:379, fig. 2
Cerro Aracamuni, a tepuy or flat-top mountain, Territorio Federal Amazonas, Venezuela, 680 m above sea level
Palaemon armatus—See *P. (Parapalaemon) trompi armatus*
Palaemon asper Stimpson, 1860:41 [not Latreille, 1818]
Chinese rivers and streams near Kuangchou
= ***Macrobrachium nipponense***
Macrobrachium asperulum (Von Martens, 1868)
Palaemon asperulus Von Martens, 1868: pl. 1: fig. 5
Shanghai fish market ?
Palaemon asperulus var. *brevirostris*
Palaemon asperulus var. *brevirostris* Yu, 1931:287, fig. 4
China
?= ***Macrobrachium asperulum***
Macrobrachium assamense assamense (Tiwari, 1958)
Palaemon assamensis Tiwari, 1958:297
Someswari River, near Siju, Garo Hills, Assam, India
Macrobrachium assamense peninsulare (Tiwari, 1958)
Palaemon assamensis peninsularis Tiwari, 1958:298
Nerbudda River at Khetgaon, Mandla District, Madhya Pradesh, India
Macrobrachium atabapense Pereira, 1986:202, figs. 4, 5, 6A
Atabapo River, Sta. Cruz, Territorio Federal Amazonas, Venezuela; 3°20′N, 67°29′W
Macrobrachium atactum atactum Riek, 1951:364, fig. 5
Conondale, Mary River, Queensland, Australia
Macrobrachium atactum ischnomorphum Riek, 1951:364, fig. 6
Elimbah, Elimbah Creek, Queensland, Australia
Macrobrachium atactum sobrinum Riek, 1951:364, fig. 7
Muttaburra, Queensland, Australia
*9. ***Macrobrachium australe*** (Guérin-Méneville, 1838)
Palaemon australis Guérin-Méneville, 1838:37
Tahiti
Palaemon sundaicus

Palaemon dispar
Palaemon alphonsianus
Palaemon parvus
Palaemon Malliardi
Palaemon (Eupalaemon) ustulatus
Leander lepidus

Macrobrachium australiense australiense Holthuis, 1950a:13, 174
Gayndah, Rockhampton, and Peak Downs (Homestead), eastern Queensland, Australia

Macrobrachium australiense crassum Riek, 1951:366, fig. 11
Cairns, Queensland, Australia

Macrobrachium australiense cristatum Riek, 1951;366, fig. 9
Pallal, Horton River, near Bingara, New South Wales

Macrobrachium australiense eupharum Riek, 1951:365, fig. 8
Burdekin River, Macrossan, Queensland, Australia

Palaemon australis Guérin-Méneville, 1838—See ***Macrobrachium australe***

Palaemon australis Ortmann, 1891 (not Guérin-Méneville, 1838)
= ***Macrobrachium australiense***

Palaemon aztecus De Saussure, 1857:504
Vera Cruz, Mexico
= ***Macrobrachium carcinus***

Macrobrachium banjare (Tiwari, 1958)
Palaemon banjarae Tiwari, 1958:299
Banjar River off Aonrai Forest Village, Baihar Tehsil (Dist. Balaghat, M.P.), India

Palaemon baramensis—See *P. (Eupalaemon) sundaicus* var. *baramensis*

*10. ***Macrobrachium bariense*** (De Man, 1892)
Palaemon (Macrobrachium) bariensis De Man, 1892:496, pl. 29: fig. 50
Berit, western Flores, Indonesia

Palaemon bataviana—See *P. sundaicus* var. *bataviana*

Macrobrachium birai Lobao, Melo, and Fernandes, 1986;50
Rio Branca, Brazil; 24°54′44″S 47°58′30″W

Palaemon birmanicus—See *P. spinipes* Var. *birmanicus*

Palaemon boninensis Stimpson, 1860:41
Bonin Islands, in mountain streams
= ***Macrobrachium japonicum***

Macrobrachium borellii (Nobili, 1896)
Palaemon Borellii Nobili, 1896:2
San Lorenzo (Provincia de Jujuy) and Provincia de San Luis, Argentina

Urocaridella borradailei Stebbing, 1923:8, pl. 14
Mhlatuze River, Natal
= ***Macrobrachium equidens***

Palaemon brachydactyla Nobili—See *P. (Eupalaemon) sundaicus* var. *brachydactyla*

Palaemon brachydactylus Wiegmann, 1836:148
East coast of Mexico
= ***Macrobrachium carcinus***

Macrobrachium brasiliense (Heller, 1862)
P[alaemon] brasiliensis Heller, 1862b:419, pl. 2: fig. 46
Brazil
Palaemon appuni var. *aequatorialis*

Palaemon brevicarpus De Haan, 1849:172
Purportedly but in all probability *not* "Japan'
= ***Macrobrachium carcinus***

Palaemon brevicarpus var. *heterochirus* Yu, 1936:305, figs. 1, 2 [not *P. heterochirus* Wiegmann, 1836]
Ning-Erh, Yunnan, China
= ***Macrobrachium yui***

Palaemon brevidigitus—See *P. (Parapalaemon) horsti brevidigitus*

Palaemon brevimanus—See *P. (Parapalaemon) modestus brevimanus*

Palaemon brevirostris—See *P. asperulus* var. *brevirostris*

Macrobrachium bullatum Fincham, 1987:351, fig. 1
Northern Territory, Australia

Palaemon cacharensis—See *P. hendersoni cacharensis*

Macrobrachium caledonicum (J. Roux, 1926)
Palaemon (Macrobrachium) caledonicus J. Roux, 1926:224, figs. 52-54
New Caledonia

11. ***Macrobrachium callirrhoe*** (De Man, 1898)
Palaemon (Macrobrachium) callirrhoe De Man, 1898:152, pl. 8
Kapuas Basin, Central Borneo

Macrobrachium canarae (Tiwari, 1958)
Palaemon canarae Tiwari, 1958:298
Sitanadi River near Ghata, South Kanara, Madras State, India

Macrobrachium carcinus (Linnaeus, 1758)
Cancer Carcinus Linnaeus, 1758:631
"Americae fluviis"
Cancer (Astacus) Jamaicensis
Palaemon brachydactylus
Palemon punctatus
Palemon brevicarpus
Palaemon aztecus
?*Palaemon Montezumae*
Palaemon laminatus
Palemon ornatus Torralbas

Macrobrachium cavernicola (Kemp, 1924)
Palaemon cavernicola Kemp, 1924:42, pl. 3: figs. 1–4
Siju Cave, Garo Hills, Assam, India

Macrobrachium chevalieri (J. Roux, 1935)
Palaemon chevalieri (Macrobrachium) J. Roux, 1935a:193, figs. 1, 2
Paul, Ilha de Sao Antao, Cape Verde Islands

Macrobrachium choprai (Tiwari, 1949)
Palaemon choprai Tiwari, 1949a:333, figs. 1, 2

Varanasi fish market, caught near Dufferin Bridge close to Varanasi, Utter Pradesh, northeastern India
Palaemon choprai choprai
Macrobrachium malcolmsonii choprai

12. ***Macrobrachium clymene*** (De Man, 1902)
Palaemon (Macrobrachium) clymene De Man, 1902:794, pl. 25: fig. 50
Batang Baram, Sarawak, Borneo
Macrobrachium cocoense Abele and Kim, 1984:951, figs. 1, 2
Stream on east side of Wafer Bay, Isla del Coco, Costa Rica
Macrobrachium coconaensis Guzman, Cabrera, and Kensler, 1977:208—Nomen nudum
= ***Macrobrachium acherontium***
Palaemon (Eupalaemon) cognatus—Species inquirenda
Palaemon congoensis—See *P. (Eupalaemon) dux* var. *congoensis*
Palaemon consobrinus De Saussure, 1857:504
Veracruz, Mexico
= ***Macrobrachium olfersii***
Macrobrachium cortezi Rodriguez, 1982:383, fig. 3
Tobogan, near Puerto Ayacucho, Rio Orinoco, Venezuela

13. ***Macrobrachium cowlesi*** Holthuis, 1950a:13, 257
Manila water supply, Luzon, Philippines
Macrobrachium crassum—See ***Macrobrachium australiense crassum***
Macrobrachium crebrum Abele and Kim, 1989:6, fig. 2
Miraflores Third Locks Lake, Panama Canal
Macrobrachium crenulatum Holthuis, 1950b:95
Rio Peje Bobo, Panama
Macrobrachium cristatum—See ***Macrobrachium australiense cristatum***
Macrobrachium crybelum Chace, 1975:30, figs. 1–4
Cave at Ciudad del Caribe (18°58′N, 70°23′W), Santo Domingo, D.N., Dominican Republic
= ***Macrobrachium faustinum lucifugum***
Palaemon cubanus (Guérin-Méneville ms.) Sharp, 1893:123
Cuba
= ***Macrobrachium faustinum faustinum***
Palaemon d'Acqueti Sunier, 1925:cxvii
Ambon [?]
= ***Macrobrachium rosenbergii***
Macrobrachium danae (Heller, 1865)
Palaemon Danae Heller, 1865:120, pl. 11: fig. 3
Sydney, Australia
Palaemon dasydactylus Streets, 1871:225, pl. 2: fig. 3
Rio Coatzacoalcos, Isthmus of Tehuantepec, Mexico
= ***Macrobrachium acanthurus***
Macrobrachium dayanum (Henderson, 1893)
Palaemon Dayanus Henderson, 1893:443, pl. 40: figs. 7–13
India
Palaemon delagoae Stebbing, 1915:74, pl. 16
Delagoa Bay, Mozambique
= ***Macrobrachium equidens***
Palaemon De Mani—See *P. sundaicus* var. *De Mani*
P[alaemon] Desausuri Heller, 1862b:420, pl. 2: fig. 47
Colombia
= ***Macrobrachium olfersii***
Palaemon Dieperinkii (De Haan ms.) De Man, 1879:167
Surinam
= ***Macrobrachium amazonicum***
Macrobrachium dierythrum Pereira, 1986:204, figs. 7–9, 12c
Aguaro River, Paso Garzerito, Edo, Guarico, Venezuela; 8°10′N, 66°W
Macrobrachium digitum Abele and Kim, 1989:8, figs. 3, 4
Miraflores Locks, Panama Canal
Macrobrachium digueti (Bouvier, 1895)
Palaemon Digueti Bouvier, 1895:159, figs. 1, 2
Mulege River, Baja California, Mexico
Leander dionyx Nobili, 1905a:482, Pl. 12: fig. 2
Bogadjim [= Stephansort], Papua New Guinea
= ***Macrobrachium lar***
Palaemon dispar Von Martens, 1868:41
Pulau Adonara, east of Flores, Indonesia
= ***Macrobrachium australe***
Palaemon (s.s.) *dolichodactylus* Hilgendorf, 1879:840 pl. 4: fig. 18
Tete, Mozambique
= ***Macrobrachium scabriculum***
P[alaemon] dubius Henderson and Matthai, 1910:300, pl. 18: fig. 9
Chingleput District, southeastern India
= ***Macrobrachium scabriculum***
Palaemon dulcis Thallwitz, 1891:99
Northern Celebes
= ***Macrobrachium esculentum***
Macrobrachium dux (Lenz, 1910)
Palaemon (Eupalaemon) dux Lenz, 1910:129, pl. 3: figs. 2–5
Ituri River at Avakubi, Zaire
Palaemon (Eupalaemon) Lenzii
Palaemon (Eupalaemon) dux var. *congoensis*
Palaemon (Eupalaemon) dux var. *tenuicarpus*
Palaemon (Eupalaemon) dux var. *congoensis* De Man, 1912a:416
Kole River, tributary of the Aruwimi, Uppere Zaire
= ***Macrobrachium dux***
Palaemon (Eupalaemon) dux var. *tenuicarpus* De Man, 1925:47, fig. 12k (part)
"Kikada," Zaire
= ***Macrobrachium dux***
Macrobrachium edentatum Liang and Yan, 1986:109,

figs. 1–4
Sichuan, China
Palaemon (Eupalaemon) elegans De Man, 1892:440, pl. 26: fig. 36 [not *P. elegans* Rathke, 1837]
Bogor and "Sinagar," Java, Indonesia
= ***Macrobrachium sintangense***
Palaemon (Eupalaemon) endehensis De Man, 1892:465, pl. 27: fig. 42
Flores, Indonesia
= ***Macrobrachium latidactylus***
Palaemon ensiculus Smith, 1869a:26, 40, pl. 1: fig. 2
Para, Brazil
= ***Macrobrachium amazonicum***

*14. ***Macrobrachium equidens*** (Dana, 1852)
Palaemon equidens Dana, 1852a:26
Singapore
Palaemon sundaicus var. *bataviana*
P[alaemon] (Eupalaemon) sundaicus var *brachydactyla*
P[alaemon] sundaicuis var. *De Mani*
P[alaemon] (Eupalaemon) acanthosoma
Palaemon (Eupalaemon) sundaicus var. *baramensis*
Palaemon (Eupalaemon) nasutus
Palaemon sulcatus
Palaemon delagoae
Urocaridella borradailei
Macrobrachium eriocheirum Dai, 1984:247, 251, figs. 13–17
Jungsan, Xishuangbanna Dai Aut. Pref., Yunnan Province, China

15. ***Macrobrachium esculentum*** (Thallwitz, 1891)
Palaemon esculentus Thallwitz, 1891:98
Northern Celebes, Indonesia
Palaemon dulcis
Macrobrachium eupharum—See ***Macrobrachium australiense eupharum***
Palaemon euryrhynchus Ortmann, 1891:738, pl. 47; Fig. 12
Fiji Islands
= ***Macrobrachium latimanus***
Macrobrachium faustinum faustinum (De Saussure, 1857)
Palaemon Faustinus De Saussure, 1857:505
Near Jacmel, Haiti
Palaemon cubanus
Palemon spinimanus H. Milne Edwards, 1837 [not Latreille, 1818]
Macrobrachium faustinum lucifugum Holthuis, 1974b:233, figs. 2, 3
Cueva del Agua de Yara, "barrio" Yara, east of Baracoa, Oriente Province, Cuba
Macrobrachium crybelum
Macrobrachium felicinum Holthuis, 1949a:183
Catumbela near Benguela, Angola
Macrobrachium ferreirai Kensley and Walker, 1982:4, figs. 5, 6, 12*b*
Igarappe near Castanhai, Aripuana, Mato Grosso, Brazil
Macrobrachium fluviale (Streets, 1871)
Palaemon fluvialis Streets, 1871:227, pl. 2: fig. 5
Tributary to Coatzacoalcos River, Isthmus of Tehuantepec, Mexico (Atlantic drainage)
Macrobrachium foai (Coutière, 1902)
P[alaemon] (Eupalaemon) Foai Coutière, 1902:517
Upper Congo
Palaemon forceps H. Milne Edwards, 1837:397
Rio de Janeiro, Brazil
= ***Macrobrachium acanthurus***
Macrobrachium formosense Bate, 1868a:364, pl. 31: fig. 1
Tansui River, northern Taiwan
Palemon longipes
Macrobrachium fukienense Liang and Yan, 1980:30
Fujian Province, China
Macrobrachium gallus Holthuis, 1952b:67, fig. 1
Rio Peripa, Ecuador
Macrobrachium gangeticum Bate, 1868a:365—Species inquirenda
"Patna, a distance of 250 miles from Calcutta"
Macrobrachium georgii—See ***Macrobrachium idella georgii***
Macrobrachium geron Holthuis, 1950a:258, fig. 52
Bangka, east of southern Sumatra, Indonesia
= ***Macrobrachium malayanum***
Macrobrachium glypticum Riek, 1951:363, fig. 4
Coen, northern Queensland, Australia
P[alemon] gracilimanus Randall, 1840:143
Hawaii
= ***Macrobrachium grandimanus***

*16. ***Macrobrachium gracilirostre*** (Miers, 1875)
Palaemon gracilirotris Miers, 1875:343
Upolu, Samoa Islands
Palaemon (Parapalaemon) modestus
Palaemon (Parapalaemon) modestus brevimanus
Macrobrachium sophronicum
Macrobrachium grandimanus (Randall, 1840)
P[alemon] grandimanus Randall, 1840:142
Hawaii
P[alemon] gracilimanus
Palaemon acutirostris

17. ***Macrobrachium gua*** Chong, 1989:32, figs. 1, 2
Stream issuing from Gomantong Hill, about 5°N, 118°E, Sabah, Borneo
Macrobrachium guangxiense Liang and Yan, 1981 ?
Guangxi Province, China ?

18. ***Macrobrachium hainanense*** (Parisi, 1919)
Palaemon (Parapalaemon) hainanense Parisi, 1919:87, pl. 3: fig. 1, pl. 6: figs. 1, 7
Keng-kong River, Hainan

Palaemon similis

Macrobrachium hancocki Holthuis, 1950b:96
Esparta, Rio Barranca, Costa Rica

Palaemon (Macrobrachium) handschini J. Roux, 1933:345
Katherine River, Northern Territory, Australia
Species inquirenda

Macrobrachium hendersodayanum (Tiwari, 1952)
Palaemon henderso-dayanus Tiwari, 1952;29
Western Ghats (Satara District to Mysore State), India

Macrobrachium hendersoni hendersoni (De Man, 1906)
Palaemon (Parapalaemon?) Hendersoni De Man, 1906:405 Darjeeling, western Bengal, India
Palaemon yunnanensis

Macrobrachium hendersoni cacharense (Tiwari, 1952)
Palaemon hendersoni cacharensis Tiwari, 1952:32
Assam, India

Macrobrachium hendersoni platyrostre (Tiwari, 1952)
Palaemon hendersoni platyrostris Tiwari, 1952:32
Darjeeling, western Bengal, India

Palaemon Herklotsii—See *P. (Macrobrachium) jamaicensis*, var. *Herklotsii*

Macrobrachium heterochirus (Wiegmann, 1836)
Palaemon heterochirus Wiegmann, 1836:149
East Coast of Mexico
Palaemon Appuni

Palaemon heterochirus Yu, 1936—See *P. brevicarpus* var. *heterochirus*

Macrobrachium hildebrandti (Hilgendorf, 1893)
Bithynis? hildebrandti Hilgendorf, 1893a:244
Central Madagascar

Palaemon (Macrobrachium) Hilgendorfi Coutière, 1899:382
Eastern Madagascar
= ***Macrobrachium lepidactylus***

Macrobrachium hirsutimanus (Tiwari, 1952)
Palaemon hirsutimanus Tiwari, 1952:31
Doi Chaung, Thailand

Macrobrachhium hirtimanus (Olivier, 1811)
Palaemon hirtimanus Olivier, 1811:663
Indian Ocean

Macrobrachium hobbsi Nates and Villalobos, 1990:7, fig. 3
Rio El Naranjo, about 8 km NE of Pijijiapan (Carretera Tonala-Pijijiapan), Chiapas, Mexico

Macrobrachium holthuisi Genofre and Lobao, 1978:273, fig. 1
Guaeca River, Sao Sebastiao, Sao Paulo, Brazil

19. ***Macrobrachium horstii*** (De Man, 1892)
Palaemon (Parapalaemon) Horstii De Man, 1892:460, pl. 27: fig. 39
Palopo, central Celebes
Palaemon (Parapalaemon) horsti brevidigitus

Palaemon (Parapalaemon) horsti brevidigitus J. Roux, 1930:358
Bali, Indonesia
= ***Macrobrachium horstii***

*20. ***Macrobrachium idae*** (Heller, 1862)
P[alaemon] Idae Heller, 1862b:416, pl. 2: fig. 40, 41
Borneo, Indonesia
Palaemon (Eupalaemon) ritsemae
Palaemon (Eupalaemon) Idae, var. *subinermis*
Palaemon (Eupalaemon) Mariae
Palaemon (Eupalaemon) robustus

Palaemon (Eupalaemon) idae, var. *idella*—See ***Macrobrachium idella***

Palaemon idae var. *mammillodactylus*—See ***Macrobrachium mammillodactylus***

P[alaemon] (Eupalaemon) Idae, var. *subinermis* Nobili, 1899:237
San Guiseppe River near Innawi, Meheo District, Papua New Guinea
= ***Macrobrachium idae***

Macrobrachium idella idella (Hilgendorf, 1898)
Palaemon (Eupalaemon) idae, var. *idella* Hilgendorf, 1898:29, fig. A
Tanzania
Palaemon (Eupalaemon) multidens

Macrobrachium idella georgii Jayachandran and Joseph, 1985a:130, fig. 1
Southwestern India

Macrobrachium iheringi (Ortmann, 1897)
Palaemon iheringi Ortmann, 1897:211, pl. 1: fig. 7, 8
São Paulo State, Brazil

Macrobrachium inca Holthuis, 1950b:93
Rio Moche near Salaverry, Peru

Macrobrachium indicum Jayachandran and Joseph, 1986:217, figs. 1–4
Vellayani Lake, southern India; 8°24′09″–8°6′30″N, 76°59′08″–76°59′47″E

Palaemon inermis—See *P. Idae*, var. *inermis*

Macrobrachium inflatum Liang and Yan, 1985:254, 258
China

Macrobrachium inpa Kensley and Walker, 1982:6, figs. 7–9, 12*c*
Igarape da Cachoeira, Amazonas, Brazil

Macrobrachium insulare (Parisi, 1919)
Palaemon (Parapalaemon) insularis Parisi, 1919:85, pl. 3: figs. 2, 3, pl. 6: fig. 12
Taiwan

Macrobrachium intermedium (Stimpson, 1860)
Leander intermedius Stimpson, 1860:41
Port Jackson, Australia (marine); 2 fathoms

Macrobrachium ischnomorphum—See ***M. atactum ischnomorphum***

21. ***Macrobrachium jacobsoni*** Holthuis, 1950a:227, fig. 47
Pulau Simeulue, off northwestern Sumatra, Indonesia

Cancer (Astacus) Jamaicensis Herbst, 1792:57, pl. 27: fig. 2

"Jamaica in Flussen"
= ***Macrobrachium carcinus***
Palaemon jamaicensis var. *africanus* Bouvier, 1895:160
Assini, Ivory Coast
= ***Macrobrachium vollenhovenii***
Palaemon (Macrobrachium) jamaicensis, var. *angolensis* De Man, 1904:314, pl. 19: figs. 39–45, pl. 20: figs. 46, 48–53
Catumbela, Angola
= ***Macrobrachium vollenhoveni***
Palaemon (Macrobrachium) jamaicensis, var. *Herklotsii* De Man, 1912b:239
"Mayumba" [Mayumbe, near Isiro ?], Zaire
= ***Macrobrachium vollenhovenii***
Macrobrachium japonicum (De Haan, 1849)
Palaemon japonicum De Haan, 1849:172
Japan
Palaemon boninensis

*22. ***Macrobrachium jaroense*** (Cowles, 1914)
Palaemon jaroensis Cowles, 1914:385, pl. 3: fig. 8
Hibucawan River near Jaro, Leyte, Philippines

23. ***Macrobrachium javanicum*** (Heller, 1862)
P[alaemon] javanicus Heller, 1862b:421, pl. 2: fig. 48
Java
Palaemon (Eupalaemon) neglectus
Macrobrachium jelskii (Miers, 1877)
Palaemon jelskii Miers, 1877:661, pl. 67: fig. 1
Oyapock, French Guiana
Macrobrachium jiangxiense Liang and Yan, 1985:256, 258
China
Macrobrachium johnsoni Ravindranath, 1979:184, figs. 1, 2
Fish market, Guntur, Andhra Pradesh State, India
Macrobrachium johnsoni Chong and Khoo, 1987a:360, figs. 1–3 [not Ravindranath, 1979]
Gunong Palai, peninsular Malaysia
= ***Macrobrachium ahkowi***

24. ***Macrobrachium joppae*** Holthuis, 1950a:233, fig. 48
Pulau Nias, west of Sumatra, Indonesia
Macrobrachium kempi (Tiwari, 1949)
Palaemon kempi Tiwari, 1949b:330
Small stream between Chittagong and Sultan Bagu Bastan, Bangladesh
Macrobrachium kistnense (Tiwari, 1952)
Palaemon kistnensis Tiwari, 1952:28
India and Sri Lanka
Macrobrachium kiukianense (Yu, 1931)
Palaemon kiukianensis Yu, 1931:279, fig. 1
Kiukiang, Kiangsi Province, China
Macrobrachium kotreeanum—See ***Macrobrachium malcolmsonii kotreeanum***
Macrobrachium lamarrei lamarrei (H. Milne Edwards, 1837)
P[alemon] lamarrei H. Milne Edwards, 1837:397
"cotes du Bengale"
Macrobrachium lamarrei lamarroides (Tiwari, 1952)
Palaemon lamarrei lamarroides Tiwari, 1952:28
Logtak Lake, Manipur, Assam, India
Palaemon lamarroides—See ***Macrobrachium lamarrei lamarroides***
P[alaemon] laminatus (Gollmer manuscript) Von Martens, 1869:24
Caracas, Venezuela
= ***Macrobrachium carcinus***
Palaemon (Macrobrachium) lampropus De Man, 1892:493, pl. 29: fig. 49
Celebes and Timor, Indonesia
= ***Macrobrachium latidactylus***

*25. ***Macrobrachium lanceifrons*** (Dana, 1852)
Palaemon lanceifrons Dana, 1852a:26
Manila, Luzon, Philippines
Palaemon lanceifrons var. *montalbanensis*
Palaemon lanceifrons var. *montalbanensis* Cowles, 1914:371, pl. 2, fig. 6
Montalban, near Manila, Luzon, Philippines
= ***Macrobrachium lanceifrons***
Macrobrachium lanchesteri (De Man, 1911)
Palaemon paucidens Lanchester, 1901 [not De Haan, 1841, or Hilgendorf, 1898]
Pal[aemon] (Eupalaemon) Lanchesteri De Man, 1911a:264
Songkhla, Peninsular Thailand
Palaemon Lar Weber, 1795:94—Nomen nudum
= ***Macrobrachium lar***

*26. ***Macrobrachium lar*** (Fabricius, 1798)
Palaemon Lar Fabricius, 1798:402
"in India Dom. Daldorff"
Palaemon longimanus
Palaemon ornatus
Palaemon tridens
Palaemon vagus
Palaemon spectabilis
Palaemon ruber
Palaemon mayottensis
Palaemon reunionnensis
Palaemon madagascariensis
Leander dionyx
Cancer teatae

*27. ***Macrobrachium latidactylus*** (Thallwitz, 1891)
Palaemon latidactylus Thallwitz, 1891:97
Northern Celebes, Indonesia
Palaemon (Eupalaemon) endehensis
Palaemon (Macrobrachium) lampropus
Palaemon (Macrobrachium) latidactylus minor (J. Roux manuscript) Woltereck, 1941:153—Nomen nudum

*28. ***Macrobrachium latimanus*** (Von Martens, 1868)
Pal[aemon] latimanus Von Martens, 1868:44

Loquilocon, Samar, Philippines
Palaemon euryrhynchus
Palaemon (Macrobrachium) singalangensis
Palaemon (Eupalaemon) Lenzii De Man, 1911b:225
Congo River, probably near Boma
= ***Macrobrachium dux***

*29. ***Macrobrachium lepidactyloides*** (De Man, 1892)
Palaemon (Macrobrachium) lepidactyloides De Man, 1892:497, pl. 29: fig. 51
River above waterfall at "Mbawa," Flores ("Rakambaha, W. Flores," according to Holthuis, 1950a:251), Indonesia
?= ***Macrobrachium placidum***
Macrobrachium lepidactylus (Hilgendorf, 1879)
Palaemon (s.s.) *lepidactylus* Hilgendorf, 1879:838, pl. 4: figs. 14–16
Mozambique
Palaemon (Macrobrachium) Hilgendorfi
Leander lepidus De Man, 1915:410, pl. 28: fig. 6
Mouths of small streams at "Oinake," east of Teluk Jos Sudrso, West New Guinea, Indonesia
= ***Macrobrachium australe***
Palaemon leptodactylus—See *P. pilimanus* var. *leptodactylus*
Macrobrachium longidigitum Bate, 1868:365, pl. 31: fig. 2
Type locality unknown
= ***Macrobrachium acanthurus***
Macrobrachium longidigitum Dai, 1984:248, 251, figs. 18–22 [not *M. longidigitum* Bate, 1868a]
Ganlanba, Lancang River, Yunnan Province, China
Palaemon longimanus Weber, 1795:94—Nomen nudum
= *P. longimanuss* Fabricius
Palaemon longimanus Fabricius, 1798:402
"in India orientali Dom. Daldorff"
= ***Macrobrachium lar***
Palemon longipes De Haan, 1849:171 [not *Palemon longipes* Olivier, 1811]
Japan
= ***Macrobrachium formosense***
Palaemon longipes Lockington, 1878:161 [not *P. longipes* Olivier, 1811]
Mulege River, Baja California, Mexico
= ***Macrobrachium tenellum***

30. ***Macrobrachium lorentzi*** (J. Roux, 1921)
Palaemon (Parapalaemon) lorentzi J. Roux, 1921:596, pl. 16: figs. 1–3
Sungai Lorentz Basin, southwestern New Guinea (Irian Jaya), Indonesia
Macrobrachium lucifugum—See ***Macrobrachium faustinum lucifugum***
Macrobrachium lujae (De Man, 1912)
Palaemon (Eupalaemon) Lujae De Man, 1912a:415
Sankuru River at Kondue near Lusambo, Kasai District, Zaire
Macrobrachium macrobrachion (Herklots, 1851)
Palemon macrobrachion Herklots, 1851:25
Butri, near Dixcove, Ghana
Palaemon africanus Kingsley, 1882
Macrobrachium maculatum Liang and Yan, 1980:31 (fig'd.)
Fujian Province, China
Palaemon madagascariensis Hoffmann, 1874:35, pl. 7: fig. 58
"l'ile de Nossy-Faly" = "Nosi Fali, NW. Madagascar," acc. to Holthuis (1950a:188)
= ***Macrobrachium lar***

31. ***Macrobrachium malayanum*** (J. Roux, 1935)
Palaemon (Macrobrachium) pilimanus malayanus J. Roux, 1935b:32
"Lasah, Plus Valley, East Perak," peninsular Malaysia
Macrobrachium geron
Macrobrachium malcolmsonii malcolmsonii (H. Milne Edwards, 1844)
Palemon Malcolmsonii H. Milne Edwards, 1844:8
Nagpur, central India
Palaemon spinipes Var. *birmanicus*
Macrobrachium malcolmsonii chopra Johnson, 1973:274, 279—See ***Macrobrachium choprai***
Macrobrachium malcolmsonii kotreeanum Johnson, 1973:274, 279
Kotree, Indus River, Pakistan
Palaemon Malliardi Richters, 1880:166, pl. 18: figs. 1–3
Mauritius
= ***Macrobrachium australe***

32. ***Macrobrachium mammillodactylus*** (Thallwitz, 1892)
Palaemon idae var. *mammillodactylus* Thallwitz, 1892:15
Luzon, Philippines, and northern Celebes, Indonesia (acc. to Holthuis, 1950a:150)
Palaemon (Eupalaemon) Wolterstorffi
Palaemon philippinensis
?*Palaemon talaverae*
Macrobrachium manipurense (Tiwari, 1952)
Palaemon manipurensis Tiwari, 1952:30
Manippur Assam States, India
Palaemon (Eupalaemon) Mariae Coutière, 1900:1266
Madagascar
= ***Macrobrachium idae***
Palaemon mayottensis Hoffmann, 1874:32, pl. 9: figs. 61, 62
Ile de Mayotte, Comoro Islands, and "l'ile Nossy-Faly," Madagascar
= ***Macrobrachium lar***
Macrobrachium meridionalis Liang and Yan, 1983:213, 214
Hainan Island, China

Palaemon mexicanus De Saussure, 1857:504
Cuba and Mexico
= ***Macrobrachium acanthurus***
Macrobrachium michoacanus Guzman, Cabrera, and Kensler, 1977
Nomen nudum
Macrobrachium michoacanus Nates and Villalobos, 1990:2, fig. 2
Rio Mexcalhuacan, about 40 km NE of Playa Azul (Carretera Azul-Caleta de Campos), Michoacan, Mexico
Macrobrachium microps Holthuis, 1978:210, figs. 1, 2
Danmin Cave, near Konogusgus, New Ireland
Macrobrachium mieni Dang, 1975:68
Vietnam

33. ***Macrobrachium minutum*** (J. Roux, 1917)
Palaemon minutus J. Roux, 1917:599, pl. 27: figs. 1–3
Sentani Lake, northeastern Irian Jaya (West New Guinea), Indonesia

34. ***Macrobrachium mirabile*** (Kemp, 1917)
Palaemon mirabilis Kemp, 1917:227, pl. 10
Rangoon, Burma
Palaemon (Parapalaemon) modestus De Man, 1892:469, pl. 27: fig. 43 [not *P. modestus* Heller, 1862]
River at "Wukur," not far from Sika, southeastern Flores, Indonesia
= ***Macrobrachium gracilirostre***
Palaemon (Parapalaemon) modestus brevimanus J. Roux, 1934a:228, figs. 9, 10
Bimun, New Ireland
= ***Macrobrachium gracilirostre***
Palaemon montalbanensis—See *P. lanceifrons* var. *montalbanensis*
Palaemon Montezumae De Saussure, 1857:504
Veracruz, Mexico
?= ***Macrobrachium carcinus***
Macrobrachium moorei (Calman, 1899)
Palaemon moorei Calman, 1899:709, pl. 40: figs. 20–24
Lake Tanganyika, 15 meters
Palaemon (s.s.) *Mossambicus* Hilgendorf, 1879:839, pl. 4: fig. 17
= ***Macrobrachium rude***
Palaemon (Eupalaemon) multidens Coutière, 1900:1266
Branch of Onilahy River, western Madagascar
= ***Macrobrachium idella***
Macrobrachium naso (Kemp, 1918)
Palaemon naso Kemp, 1918:91, pl. 25: figs. 1–5
Inle Lake region, Burma
Palaemon (Eupalaemon) nasutus Nobili, 1903a:9, 1 fig.
Singapore
= ***Macrobrachium equidens***
Macrobrachium nattereri (Heller, 1862)
P[alaemon] Nattereri Heller, 1862b:414, pl. 2: figs. 36, 37
Rio Negro, Brazil

35. ***Macrobrachium natulorum*** Holthuis, 1984a:164, figs. 2, 3
Jawej River near Tigi Lake, Irian Jaya, Indonesia
Palaemon (Eupalaemon) neglectus De Man, 1905:201, pl. 15: fig. 6
Mergui Archipelago and northeastern Sumatra
= ***Macrobrachium javanicum***
Macrobrachium nepalense Kamita, 1974:10
Nepal
Macrobrachium niloticum (P. Roux, 1833)
Palaemon Niloticus P. Roux, 1833:73, pl. 7: fig. 2
Nile River
Macrobrachium niphanae Shokita and Takeda, 1989:148, figs. 1, 2, pl. 1
Nang Rong waterfall stream, Thailand
Macrobrachium nipponense (De Haan, 1849)
Palaemon nipponensis De Haan, 1849:171
Japan
Palaemon asper Stimpson, 1860 [not Latreille, 1818]
Palaemon sinensis
Macrobrachium nobilii (Henderson and Matthai, 1910)
Palaemon nobilii Henderson and Matthai, 1910:295, pl. 17: fig. 6
Walajabad, Chingleput district, India
Macrobrachium novaehollandiae (De Man, 1908)
Pal[aemon] (Eupalaemon) novae-hollandiae De Man, 1908:370, pl. 16
Sydney, Australia
Macrobrachium obtusifrons Dai, 1984:246, 251, figs. 6–12
Guanting Reservoir, Miyun County, Beijing, China
Macrobrachium occidentale Holthuis, 1950a:95
Rio de los Esclavos, Guatemala

36. ***Macrobrachium oenone*** (De man, 1902)
Palaemon (Macrobrachium) oenone De Man, 1902:784, pl. 25: fig. 49
Northern Halmahera, Indonesia
Palaemon (Macrobrachium) oenone papuana
Palaemon (Macrobrachium) oenone papuana J. Roux, 1927:324, fig. 2
Mamberamo River, northern Irian Jaya, Indonesia
= ***Macrobrachium oenone***
Macrobrachium ohione (Smith, 1874)
Palaemon Ohionis Smith, 1874:640
Ohio River at Cannelton, Ohio
Palaemon sallei
Macrobrachium olfersii (Wiegmann, 1836)
Palaemon Olfersii Wiegmann, 1836:150
"Brazilian Coast"
Palemon spinimanus
Palaemon consobrinus
Palaemon Desausuri

Palaemon Potiporanga
Palaemon ornatus Olivier, 1811:660
East Indies
= ***Macrobrachium lar***
Palemon ornatus (Forns manuscript) Torralbas,1917:6l6, figs. 56, 57 [not Olivier, 1811]
Cuba
= ***Macrobrachium carcinus***

37. ***Macrobrachium palaemonoides*** Holthuis, 1950a:136, fig. 31
Lake Tawar, northern Simaloer, off west coast of Sumatra, Indonesia, at 2°50′N, 95°50′E
Macrobrachium palawanensis Johnson, 1962a:307, fig. 1
Palawan, Philippines
?= ***Macrobrachium idae***
Macrobrachium panamense Rathbun, 1912
Macrobrachium acanthurus panamense Rathbun, 1912:13
Rio Calobre [not "Rio Calabre"], Panama
Palaemon papuana—See *P.(Macrobrachium) oenone papuana*
Palaemon parvus Hoffmann, 1874:35, pl. 7: fig. 59
"Nosy Faly," Madagascar
?= ***Macrobrachium australe***
Macrobrachium patsa (Coutière, 1899)
Palaemon (Parapalaemon) Patsa Coutière, 1899:382
Madagascar
Palaemon (Eupalaemon?) paucidens Hilgendorf, 1893b:155 [not *P. paucidens* De Haan, 1841]
Adeli, near Bismarckbourg, Togo
= ***Macrobrachium raridens***
Palaemon paucidens Lanchester, 1901:568, pl. 33: fig. 4 [not *P. paucidens* De Haan, 1841]
Songkhla, peninsular Thailand
= ***Macrobrachium lanchesteri***
Macrobrachium pectinatum Pereira, 1986:200, figs. 2, 3, 6B
Atabapo River, Sta. Cruz, Territorio Federal Amazonas, Venezuela; 3°20′N, 67°29′W
Macrobrachium peguense (Tiwari, 1952)
Palaemon peguensis Tiwari, 1952:27
Burma
Palaemon peninsularis—See ***Macrobrachium assamense peninsulare***
Macrobrachium petersii (Hilgendorf, 1879)
Palaemon (s.s.) *Petersii* Hilgendorf, 1879:841, pl. 4: fig. 19
Tete, Mozambique
Macrobrachium petiti (J. Roux, 1934)
Palaemon (Macrobrachium) Petiti J. Roux, 1934b:537, figs. 1–3
Vatomandry, eastern Madagascar
Macrobrachium petronioi Melo, Lobao, and Fernandes, 1986:51
Rio Branco, Brazil
Palaemon philippinensis Cowles, 1914:340, pl. 2: fig. 2
San Juan and Pasig rivers, near Manila, Philippines
= ***Macrobrachium mammillodactylus***

38. ***Macrobrachium pilimanus*** (De Man, 1879)
Palaemon pilimanus De Man, 1879:181
Muaralabuh, near Padang, western Sumatra, Indonesia
Palaemon pilimanus, var. *leptodactylus*
Palaemon (Macrobrachium) pygmaeus
Palaemon pilimanus, var. *leptodactylus* De Man, 1892:476, pl. 28: fig. 44i–l
Bogor, Java, Indonesia
= ***Macrobrachium pilimanus***
Palaemon (Macrobrachium) pilimanus malayanus—See ***Macrobrachium malayanum***
Macrobrachium pinguis Dai, 1984:245, 250, figs. 1–5
Longhai County, Fujian Province, China

*39. ***Macrobrachium placidulum*** (De Man, 1892)
Palaemon (Macrobrachium) placidulus De Man, 1892:489, pl. 28: fig. 48
Indonesia
?= *Palaemon spinimanus* Latreille, 1818

40. ***Macrobrachium placidum*** (De Man, 1892)
Palaemon (Macrobrachium) placidus De Man, 1892:483, pl. 28: fig. 46
Kajutanam, north of Padang, western Sumatra, Indonesia
?= *Palaemon (Macrobrachium) lepidactyloides*
Palaemon platyrostris—See ***Macrobrachium hendersoni platyrostre***

41. ***Macrobrachium poeti*** Holthuis, 1984b:143, fig. 1
Luwang Jurangjero, south central Java, Indonesia (8°S, 111°E), about 100 m below entrance
Palaemon Potiete Muller, 1892:184, 188, 190
Type locality not indicated
= ***Macrobrachium acanthurus***, according to Holthuis (1952b:46)
Palaemon Potiporanga Muller, 1880:152
Brazil?
= ***Macrobrachium olfersii***, according to Holthuis (1952b:96)
Macrobrachium potiuna (Muller, 1880)
Palaemon Potiuna Muller, 1880:152
Itajahy River near Blumenau, Santa Catarina state, Brazil
Macrobrachium praecox (J. Roux, 1928)
Palaemon (Eupalaemon) praecox J. Roux, 1928a:43
Venezuela and Colombia
Macrobrachium pumilum Pereira, 1986:208, figs. 11, 12b
Aguaro River, Cachimbo Pass, Edo. Guarico, Venezuela; 8°10′N, 66°35′W
P[alemon] punctatus Randall, 1840:146

"East Indies?" and/or West Indies
= ***Macrobrachium carcinus***

Palaemon (Macrobrachium) pygmaeus J. Roux, 1928b:222, figs. 1–4
"Kastobo" Lake, Pulau Bawean, Java Sea, Indonesia
= ***Macrobrachium pilimanus***

Macrobrachium quelchi (De Man, 1900)
Palaemon (Macrobrachium) Quelchi De Man, 1900:57, pl. 6: figs. 1–8
Upper Mazaruni River, Guyana

Macrobrachium ranjhai—See ***Macrobrachium altifrons ranjhai***

Macrobrachium raridens (Hilgendorf, 1893)
Palaemon (Eupalaemon) raridens Hilgendorf, 1893c:181
Adeli, near Bismarckbourg, Togo
Palaemon (Eupalaemon?) paucidens Hilgendorf, 1893

Macrobrachium rathbunae Holthuis, 1950b:94
Hog Creek Valley, San Jose Island, Archipielago de las Perlas, Gulf of Panama

Palaemon reunionnensis Hoffmann, 1874:33, pl. 9: figs. 66, 67
La Réunion
= ***Macrobrachium lar***

Macrobrachium reyesi Pereira, 1986:198, figs. 1, 6C
Quebrada Corral de Piedra, El Limon, Maracay, Edo. Aragua, Venezuela; 10°15′N, 67°35′W

Palaemon (Eupalaemon) ritsemae De Man, 1897:774
Atjeh, northwestern Sumatra, Indonesia
= ***Macrobrachium idae***

Palaemon riukiuensis Kubo, 1940a:21, figs. 12, 13
RyuKyu Islands—Species inquirenda

Palaemon (Eupalaemon) robustus De Man, 1902:771, pl. 24: fig. 48
Halmahera, Indonesia
= ***Macrobrachium idae***

Macrobrachium rodriguezi Pereira, 1986:206, figs. 10, 12a
Caris River, El Tigre, Edo. Anzoategui, Venezuela; 8°45′N, 64°50′W

Macrobrachium rogersi (Tiwari, 1952)
Palaemon rogersi Tiwari, 1952:31
Burma

Palaemon rosalesi Rodriguez de la Cruz R., 1965:100, pl. 7
Ciudad del Carmen, Campeche, Mexico—Species inquirenda
(probably juvenile *Macrobrachium*)

*42. ***Macrobrachium rosenbergii rosenbergii*** (De Man, 1879)
Palaemon Rosenbergii De Man, 1879:167
Andai, northwestern Irian Jaya, Indonesia
P[alaemon] whitei
Palaemon spinipes Schenkel, 1902
Palaemon d'Acqueti

Macrobrachium rosenbergii schenkeli Johnson, 1973:274, 277
Tavoy, Burma

Palaemon ruber Hess, 1865:165, pl. 7: fig. 20
Fiji Islands
= ***Macrobrachium lar***

Macrobrachium rude (Heller, 1862)
Palaemon rudis Heller, 1862a:527
Sri Lanka
Palaemon (s.s.) *Mossambicus*
Palaemon (Eupalaemon) Alcocki

P[alaemon] sallei (Guérin-Méneville ms) Kingsley, 1882:108
Mississippi
= ***Macrobrachium ohione***

Macrobrachium sankollii Jalihal and Shenoy, 1988:11 (illus.)
Karnataka, India

43. ***Macrobrachium scabriculum*** (Heller, 1862)
Palaemon scabriculus Heller, 1862b:527
Sri Lanka
Palaemon (s.s.) *dolichodactylus*
Palaemon dubius

Macrobrachium schenkeli—See ***Macrobrachium rosenbergii schenkeli***

Macrobrachium scorteccii Maccagno, 1961:336
"Cal Galloan," Somalia

Palaemon sexdentatus Streets, 1871:226, pl. 2: fig. 5
Tidewater of Rio Coatzacoalcos, Veracruz state, Mexico
= ***Macrobrachium acanthurus***

Macrobrachium shokitai Fujino and Baba, 1973:101, figs. 1–4
River head, Urauchi River, Iriomote Island, Ryukyu Islands

Palaemon similis Yu, 1931:281, fig. 2
Amoy, China
= ***Macrobrachium hainanense***

Palaemon sinensis Heller, 1862a:528
Shanghai, China
= ***Macrobrachium nipponense***

Palaemon (Macrobrachium) singalangensis Nobili, 1900a:487
"Aier Mantcior, presso il Monte Singalang," Sumatra, Indonesia
= ***Macrobrachium latimanus***

44. ***Macrobrachium sintangense*** (De Man, 1898)
Palaemon (Eupalaemon) sintangensis De Man, 1898:138, pl. 6
Sintang, Kapuas River, Borneo
Palaemon (Eupalaemon) elegans De Man, 1892

Macrobrachium siwalikense (Tiwari, 1952)
Palaemon siwalikensis Tiwari, 1952:28
Base of Simla Hills, Punjab, India

Macrobrachium sobrinum—See ***Macrobrachium atac-***

tum sobrinum

Macrobrachium sollaudii (De Man, 1912)
Palaemon (Eupalaemon) Sollaudii De Man, 1912a:413
Near Mobayi-Mbongo, Zaire
Macrobrachium sophronicum Holthuis, 1950a:198, fig. 40
"Wukur River," Sika, southeastern Flores, Indonesia
= ***Macrobrachium gracilirostre***
Palaemon spectabilis Heller, 1862a:527
Tahiti
= ***Macrobrachium lar***
Palaemon spinimanus Latreille, 1818:5, pl. 319; fig. 1
Type locality ?
?= Senior synonym of ***Macrobrachium placidulum***
Palemon spinimanus H. Milne Edwards, 1837:399 [not *Palaemon spinimanus* Latreille, 1818]
Antilles and coasts of Brazil
= ***Macrobrachium faustinum*** and ***M. olfersii***
Palaemon spinipes Schenkel, 1902:501, pl. 9: fig. 7 [not *P. spinipes* Desmarest, 1817]
Kema, Minahasa, northeastern Celebes, Indonesia
= ***Macrobrachium rosenbergii***
Palaemon spinipes Var. *birmanicus* Schenkel, 1902:503 pl. 9: fig. 8
Burma
= ***Macrobrachium malcolmsonii***
Macrobrachium srilankense H.H. Costa, 1979:60, fig. 6, pl. 1: fig. D
Sri Lanka
Palaemon (Parapalaemon) stresemanni J. Roux, 1918:113, figs. 1, 2—Species inquirenda
Pulau Tjelukanbawang, Bali, Indonesia
Palaemon subinermis—See *P. (Eupalaemon) Idae*, var. *subinermis*
Palaemon sulcatus Henderson and Matthai, 1910:289, pl. 16: fig. 4
Cochin, southern India
= ***Macrobrachium equidens***

45. ***Macrobrachium sulcicarpale*** Holthuis, 1950a:220, fig. 45
Bangkalan River, Pulau Salajar, Indonesia
P[alaemon] sundaicus Heller, 1862b:415, pl. 2: figs. 38, 39
Java, Indonesia
= ***Macrobrachium australe***
Palaemon (Eupalaemon) sundaicus var. *baramensis* De Man, 1902:770
Baram River, Sarawak, Borneo
= ***Macrobrachium equidens***
Palaemon sundaicus var. *bataviana* De Man, 1897:784
Djakarta, Java, Indonesia
= ***Macrobrachium equidens***
P[alaemon] (Eupalaemon) sundaicus var *brachydactyla* Nobili, 1899:238
Ambon
= ***Macrobrachium equidens***
P[alaemon] sundaicus var. *De Mani* Nobili, 1899:239
Atjeh
= ***Macrobrachium equidens***
Macrobrachium superbum (Heller, 1862)
Palaemon superbus Heller, 1862a:528
Shanghai, China
Macrobrachium surinamicum Holthuis, 1948:1112
Plantation "Geyersvlijt," Paramaribo, Surinam
Pal[aemon] Swainsonii (Leach ms) White, 1847:78
Type locality ?
= ***Macrobrachium acanthurus***
Palaemon talaverae Blanco, 1939a:168, pl. 2
Lake Sampaloc, San Pablo, Laguna Province, Luzon, Philippines
?= ***Macrobrachium mammillodactylus***
Cancer teatae Curtiss, 1938:162
Tahiti
= ***Macrobrachium lar***
Macrobrachium tenellum (Smith, 1871)
Palaemon tenellus Smith, 1871:98
Polvon, western Nicaragua
Palaemon longipes Lockington, 1878
Palaemon tenuicarpus—See *P. (Eupalaemon) dux* var. *tenuicarpus*
Macrobrachium therezieni Holthuis, 1965:281, fig. 1
Maningory River, Fenerive district, Tamatave province, eastern Madagascar
Palaemon (Parapalaemon) thienemanni J. Roux, 1932:570, figs. a, b
Sungai Musinear Muarakelingi, southern Sumatra, Indonesia
= ***Macrobrachium trompii***
Macrobrachium thysi Powell, 1980:318, figs. 1–3
Banco National Park, near Abidjan, Ivory Coast
Macrobrachium tiwarii Jalihal, Shenoy, and Sankolli, 1988:27
Karnataka, India
Macrobrachium tolmerum Riek, 1951:362, fig. 1
Black River, Macrossan, Queensland, Australia
Macrobrachium transandicum Holthuis, 1950b:94
Rio Telembi, tributary of Rio Patia, near San Lorenzo, southwestern Colombia
Pal[aemon] tridens (Leach ms) White, 1847:78
Mauritius ?
= ***Macrobrachium lar***

46. ***Macrobrachium trompii*** (De Man, 1898)
Palaemon (Parapalaemon) Trompii De Man, 1898:144, pl. 7
"Kapuas Basin," central Borneo, Indonesia
Palaemon (Parapalaemon) thienemanni
Palaemon (Parapalaemon) trompi armatus
Palaemon (Parapalaemon) trompi armatus J. Roux, 1936:30

Gunong Pulai Estate, Johore, Malaysia
= ***Macrobrachium trompii***

Macrobrachium unikarnatakae Jalihal, Shenoy, and Sankolli, 1988:21
Karnatak, India

P[alaemon] (Eupalaemon) ustulatus Nobili, 1899:241
Rigo, southeastern Papua
= ***Macrobrachium australe***

P[alaemon] vagus Heller, 1862b:417, pl. 2: figs. 42, 43
Ambon. Indonesia
= ***Macrobrachium lar***

Macrobrachium veliense Jayachandran and Joseph, 1985b:185, figs. 1, 2
Veli Lake, near Trivandrum, southwestern India

Macrobrachium venustum (Parisi, 1919)
Palaemon (Eupalaemon) venustus Parisi, 1919:92, 93, pl. 4: fig. 1, pl.. 6: figs. 5, 13
Hainan, South China

Macrobrachium villalobosi Hobbs, 1973b:77, fig. 3
Cueva del Nacimiento del Rio San Antonio, 10 km SSW Acatlan, Oaxaca, Mexico

Macrobrachium villosimanus (Tiwari, 1949)
Palaemon villosimanus Tiwari, 1949b:329
Pulta Waterworks, Calcutta, India

Macrobrachium vollenhovenii (Herklots, 1857)
Palaemon Vollenhovenii Herklots, 1857:96
Ghana
Palaemon jamaicensis var. *africanus* Bouvier, 1895
Palaemon jamaicensis, var. *angolensis*
Palaemon (Macrobrachium) jamaicensis, var. *Herklotsii*

47. ***Macrobrachium weberi*** (De Man, 1892)
Palaemon (Eupalaemon) Weberi De Man, 1892:421, pl. 25: fig. 33
Southwestern Celebes, Indonesia

P[alaemon] whitei (Guérin-Méneville ms) Sharp, 1893:122
Bombay
= ***Macrobrachium rosenbergii schenkeli***

Palaemon (Eupalaemon) Wolterstorffi Nobili, 1900b:1
Surabaja, eastern Java, Indonesia
= ***Macrobrachium mammillodactylus***

Macrobrachium yeti Dang Ngoc Thanh, 1975:67 (illustr.)
Vietnam

Macrobrachium yui Holthuis, 1950a:211
Ning-Erh, Yunnan, southern China
Palaemon brevicarpus var. *heterochirus* Yu, 1936

Palaemon yunnanensis Yu, 1936a:308, figs. 3, 4
Mann-Tchi-Pan, Yunnan, China
= ***Macrobrachium hendersoni***

Macrobrachium zariquieyi Holthuis, 1949a:178, figs. 1, 2
Bioko, equatorial Guinea

Of these species, 39 seem to have been recorded from the Philippine-Indonesian region, a count that will certainly increase as current surveys of the freshwater fauna of that area are pursued. Rather than attempt to match the excellence of the key to all of the recognized species prepared by Holthuis (1950a:105–111), we have restricted our attention to the Philippine and Indonesian species, and even those have been embarrassingly equivocal. Because only full-grown males of many of the species can be reliably identified from preserved material and because several of the names currently available were based on females or younger than full-grown males, final determinations of many of the taxa must await new collections from the type localities and, especially, the study of fresh or frozen specimens that may display diagnostic color patterns.

Key to Full-grown Males of Philippine-Indonesian Species of *Macrobrachium*

1. Major 2nd pereopod with soft, dense pubescence on part of palm or on 1 or both fingers 2
   Major 2nd pereopod with chela completely naked or bearing only scattered setae not concealing surface 21
2. Major 2nd pereopod with some soft, dense pubescence on palm 3
   Major 2nd pereopod with soft, dense pubescence limited to at most partial presence on one or both fingers 13
3. Major 2nd pereopod usually with soft, dense pubescence extending at least partially onto fingers 4
   Major 2nd pereopod without soft, dense pubescence on fingers. 10
4. Major 2nd pereopod with fingers completely covered by pubesence 5
   Major 2nd pereopod with fingers naked distally 9
5. Major 2nd cheliped with fingers and entire palm nearly or quite concealed by dense velvety pubescence 6
   Major 2nd cheliped with only fingers and distal portion of palm clothed in dense pubescence 8
6. Minor 2nd pereopod without dense pubescence; lateral branch of uropod with movable spine overreaching fixed lateral tooth . . . . . 31. ***M. malayanum***

Minor 2nd pereopod with velvety, pubescence-like major one; lateral branch of uropod with movable spine weak, indistinct, shorter than fixed lateral tooth . . 7

7. No more than 4 teeth of dorsal rostral series situated on carapace posterior to orbital margin; 2nd pereopods with opposable margins of fingers armed with distinctly unequal teeth . . . . . 17. ***M. gua***

Five or more teeth of dorsal rostral series situated on carapace posterior to orbital margin; 2nd pereopods with opposable margins of fingers armed with teeth of uniform size . . . . . 38. ***M. pilimanus***

8. Rostrum not nearly reaching distal end of antennal scale, armed ventrally with 2 or 3 teeth; 1st pereopod with chela 2/3 as long as carpus . . . . . 35. ***M. natulorum***

Rostrum reaching as far as or slightly beyond distal end of antennal scale, armed ventrally with 4–6 teeth; 1st pereopod with chela less than 1/2 as long as carpus . . . . . 46. ***M. trompii***

9. Major 2nd pereopod without longitudinal grooves on carpus . . . . . 43. ***M. scabriculum***

Major 2nd pereopod with 2 deep longitudinal grooves on carpus . . . . . 45. ***M. sulcicarpale***

10. Rostrum armed with 2 teeth on ventral margin 11

Rostrum with 3–5 teeth on ventral margin 12

11. Major 2nd pereopod with pubescence on palm restricted to 2 large proximal patches . . . . . 13. ***M. cowlesi***

Major 2nd pereopod with entire palm covered with woolly hairs . . . . . 15. ***M. esculentum***

12. Antennal scale with lateral margin straight or slightly convex; 2nd pereopods rather similar in shape, unequal in length, palm compressed . . . . . 21. ***M. jacobsoni***

Antennal scale with lateral margin slightly concave; 2nd pereopods distinctly unequal in length and shape, palm subcylindrical . . . . . 24. ***M. joppae***

13. Rostrum armed with 8–14 teeth on ventral margin; telson with posterior apex overreaching posterolateral spines; maximum postorbital carapace length about 100 mm . . . . . *42. ***M. rosenbergii***

Rostrum armed with 2–7 ventral teeth; telson with posterior apex not overreaching posterolateral spines; maximum postorbital carapace length about 30 mm 14

14. Three posterior pairs of pereopods with spines or scales prevalent on propodus 15

Three posterior pairs of pereopods without numerous spines or scales on propodus 18

15. Rostrum with dorsal teeth subequally spaced, except posteriormost sometimes slightly more remote 16

Rostrum with dorsal teeth unequally spaced 17

16. Rostrum dorsally convex; 2nd pereopods similar and subequal, fingers 2/3 as long as palm . . . . . 18. ***M. hainanense***

Rostrum dorsally sinuous; 2nd pereopods similar but unequal, fingers longer than palm . . . . . 30. ***M. lorentzi***

17. Four to 6 teeth of dorsal rostral series situated on carapace posterior to orbital margin; major 2nd pereopod with chela compressed . . . . . *22. ***M. jaroense***

One or 2 teeth of dorsal rostral series situated on carapace posterior to orbital margin; major 2nd pereopod with chela subcylindrical . . . . . 47. ***M. weberi***

18. Second pereopod with chela shorter than carpus . . . . . *20. ***M. idae***

Second pereopod with chela longer than carpus 19

19. Second pereopod without denticles on opposable margin of movable finger . . . . . *14. ***M. equidens***

Major 2nd pereopod with double row of denticles on opposable margin of movable finger 20

20. Second pereopods similar but unequal; major 2nd pereopod with pubescence on movable finger reaching nearly to tip . . . . . *25. ***M. lanceifrons***
Second pereopods subequal; distal 1/3 of movable finger naked . . . . . 44. ***M. sintangense***
21. Major 2nd pereopod with chela less than 3/4 as long as carpus 22
Major 2nd pereopod with chela nearly as long as to much longer than carpus 23
22. Rostrum with dorsal teeth subequally spaced, 4 ventral teeth; branchiostegal suture not extending posteroventrally past hepatic spine; 2nd pereopod with fingers shorter than palm; 3rd pereopod overreaching antennal scale by length of dactyl and 1/2 of propodus . . . . . 33. ***M. minutum***
Rostrum with dorsal teeth unequally spaced, 6–9 ventral teeth; branchiostegal suture extending posteroventrally past hepatic spine; 2nd pereopod with fingers longer than palm; 3rd pereopod barely overreaching antennal scale . . . . . 37. ***M. palaemonoides***
23. Second pereopods dissimilar 24
Second pereopods similar (not necessarily equal) 31
24. Major 2nd pereopod with chela less than 2 1/2 times as long as carpus 25
Major 2nd pereopod with chela more than 2 1/2 times as long as carpus 30
25. Third pereopod with propodus bare except for groups of long setae and sometimes slight pubescence or minute spinules 26
Third pereopod with propodus bearing numerous appressed scales or spines over most of surface 28
26. Major 2nd pereopod with chela subcylindrical, little longer than carpus; minor 2nd pereopod with palm partially furred . . . . . *9. ***M. australe***
Major 2nd pereopod with chela somewhat compressed, more than 1 1/2 times as long as carpus; minor 2nd pereopod without fur on palm 27
27. Major 2nd pereopod with carpus shorter than merus, fingers not gaping . . . . . *10. ***M. bariense***
Major 2nd pereopod with carpus longer than merus, fingers strongly bowed, gaping . . . . . *27. ***M. latidactylus***
28. Minor 2nd pereopod with fingers 1–2 1/2 times as long as palm; 3rd pereopod overreaching antennal scale by length of dactyl and 1/3–1/2 of propodus . . . . . *29. ***M. lepidactyloides***
Minor 2nd pereopod with fingers little if at all longer than palm; 3rd pereopod overreaching antennal scale by little more than length of dactyl 29
29. Major 2nd pereopod with fingers seldom more than 2/3 as long as palm, carpus shorter than merus . . . . . *39. ***M. placidulum***
Major 2nd pereopod with fingers about as long as palm or longer, carpus longer than merus . . . . . 40. ***M. placidum***
30. Two or 3 teeth of dorsal rostral series situated on carapace posterior to orbital margin; major 2nd pereopod with fingers about 2/3 as long as palm . . . . . 12. ***M. clymene***
Six or 7 teeth of dorsal rostral series situated on carapace posterior to orbital margin; major 2nd pereopod with fingers 1–1 3/4 times as long as palm . . . . . 36. ***M. oenone***
31. Major 2nd pereopod with palm somewhat compressed 32
Major 2nd pereopod with palm subcylindrical 35
32. Major 2nd pereopod with chela nearly or quite 3 times as long as carpus . . . 33
Major 2nd pereopod with chela about twice as long as carpus 34
33. Three or 4 teeth of dorsal rostral series situated on carapace posterior to orbital margin; 3rd pereopod with propodus bare except for groups of long setae and sometimes slight pubescence or minute spinules; maximum carapace length less than 10 mm . . . . . 11. ***M. callirrhoe***

One or 2 teeth of dorsal rostral series situated on carapace posterior to orbital margin; 3rd pereopod with propodus bearing numerous appressed scales or spines over most of surface; maximum carapace length more than 30 mm . . . . . *28. ***M. latimanus***

34. Major 2nd pereopod with each finger bearing row of tubercles (in mature males only) on either side of distal 1/2 of opposable margin . . . . . 19. ***M. horstii***
Major 2nd pereopod without row of tubercles (even in mature males) either side of distal 1/2 of opposable margin . . . . . 23. ***M. javanicum***

35. Major 2nd pereopod with chela less than twice as long as carpus, palm no longer than carpus 36
Major 2nd pereopod with chela at least 3 times as long as carpus, palm longer than carpus 38

36. Two or 3 teeth of dorsal rostral series situated on carapace posterior to orbital margin . . . . . 32. ***M. mammillodactylus***
Four to 6 teeth of dorsal rostral series situated on carapace posterior to orbital margin 37

37. Rostrum without dorsal crest; major 2nd pereopod with fingers shorter than palm; 3rd pereopod overreaching antennal scale by length of dactyl and 1/2 of propodus, latter bearing numerous appressed scales or spines over most of surface . . . . . *16. ***M. gracilirostre***
Rostrum with dorsal crest; major 2nd pereopod with fingers longer than palm; 3rd pereopod overreaching antennal scale by length of dactyl only; propodus bare except for groups of long setae and sometimes light pubescence or minute spinules . . . . . 34. ***M. mirabile***

38. Rostrum with 2–4 ventral teeth; major 2nd pereopod with fingers shorter than palm; maximum carapace length more than 55 mm . . . . . *26. ***M. lar***
Rostrum with 1 ventral tooth; major 2nd pereopod with fingers longer than palm; maximum carapace length about 15 mm . . . . . 41. ***M. poeti***

In an attempt to minimize the danger of recording misidentifications of material collected by the *Albatross* Expedition, only those lots containing full-grown males with second pereopods (amounting to 40 lots and 382 specimens) are recorded below. Not included are 8 lots, 52 specimens tentatively identified as *M. australe;* 1 specimen as *M. equidens;* 1 lot, 3 specimens as *M. idae;* 1 lot, 3 specimens as *M. lanceifrons;* 9 lots, 24 specimens as *M. latidactylus;* and 37 lots, 632 specimens determined only to the genus *Macrobrachium.*

Illustrations of the anterior carapace and third pereopod of the species presumably represented in the *Albatross* collections are offered in support or contradiction of our identifications.

*9. *Macrobrachium australe* (Guérin-Méneville, 1838)

FIGURE 2

Palaemon australis Guérin-Méneville, 1838:37 [type locality: Tahiti].

P[alaemon] sundaicus Heller, 1862b:415, pl. 2: figs. 38, 39 [type locality: Java].

Palaemon dispar Von Martens, 1868:41 [type locality: Pulau Adonara, east of Flores].

Palaemon alphonsianus Hoffmann, 1874:33, pl. 9: figs. 63–65 [type locality: La Réunion].

Palaemon parvus Hoffmann, 1874:35, pl. 7: fig. 59 [type locality: "Nosy Faly," Madagascar].

Palaemon Malliardi Richters, 1880:166, pl. 18: figs. 1–3 [type locality: Mauritius].

P[alaemon] (Eupalaemon) ustulatus Nobili, 1899:241 [type locality: Rigo, southeastern Papua].

Leander lepidus De Man, 1915:410, pl. 28, fig. 6 [type locality: mouths of small streams at "Oinake," east of Teluk Jos Sudarso, West New Guinea].

DIAGNOSIS.—Rostrum reaching nearly as far as or beyond

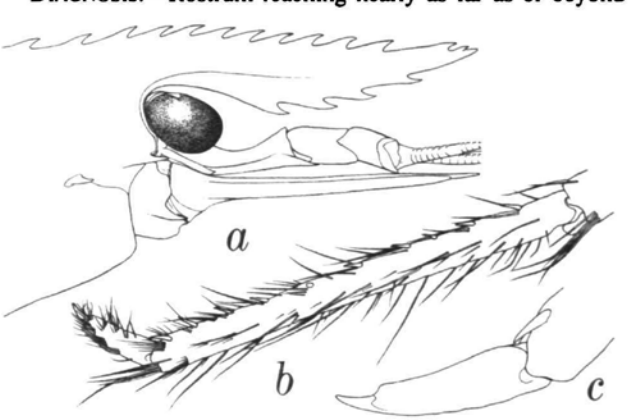

FIGURE 2.—*Macrobrachium australe* from Malaga River, Hinunangan Bay, Leyte, Philippines: *a*, anterior carapace and appendages, lateral aspect, of male with carapace length of 20.0 mm; *b*, right 3rd pereopod, dactyl, and propodus, of male with carapace length of 20.2 mm; *c*, same, dactyl, denuded.

level of distal end of antennal scale, dorsal margin faintly sinuous, rostral formula: 2–4 + 7–10/2–8, usually with gap near anterior end of dorsal series; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight or slightly convex; 1st pereopod with chela less than 1/2 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm subcylindrical, fingers and palm not concealed by dense pubescence, fingers dentate on opposable margins, not gaping, less than 2/5 as long as palm, chela slightly longer than carpus, palm about 3/4 as long as carpus, carpus less than twice as long as merus, without longitudinal grooves; minor pereopod with fingers less than 1/2 as long as palm; 3rd pereopod overreaching antennal scale by less than length of dactyl, propodus not covered with spines or scales; maximum postorbital carapace length more than 27 mm.

MATERIAL.—PHILIPPINES. Naujan River, Mindoro; [13°16′N, 121°19′E]; 5 Jun 1908; 18 males [7.5–18.5] 4 females [10.2–22.2], 2 ovig [10.5–22.2].—Malaga River, Hinunangan Bay, Leyte; [10°24′N, 125°12′E]; 30 Jul 1909; 8 males [15.9–27.6] 6 females [11.7–15.3], 3 ovig [13.2–15.2].—Mananga River, Cebu; [10°14′N, 123°50′E]; 25 Aug 1909: 15 males [5.2–22.2] 15 females [5.9–16.3], 4 ovig [11.3–15.3], 3 juv [5.1–5.2].

INDONESIA. Sungai Gorontalo, Celebes; [0°30′N, 123°03′E]; 15 Nov 1909; 25′ seine; 30 males [6.2–20.2] 11 females [4.9–15.5], 2 ovig [9.2, 9.2].

RANGE.—Previously known from Madagascar and the Seychelles through the Indian Ocean to Taiwan, Philippines, Indonesia, and the Pacific islands as far as the Marshall Islands in the North Pacific and the Marquesas Islands in the South Pacific.

*10. *Macrobrachium bariense* (De Man, 1892)

FIGURE 3

Palaemon (Macrobrachium) bariensis De Man, 1892:496, pl. 29: fig. 50 [type locality: Berit, western Flores, Indonesia].
Macrobrachium bariense.—Holthuis, 1950a:236, fig. 49.

DIAGNOSIS.—Rostrum reaching nearly to level of distal end of antennal scale, dorsal margin nearly straight, faintly convex, rostral formula: 4–6 + 8/2–4, teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight or slightly convex; 1st pereopod with chela more than 1/2 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm compressed, forming carinate flange on flexor margin, fingers and palm not concealed by dense pubescence, fingers sparsely dentate on opposable margins, not gaping, about as long as or shorter than palm, chela about twice as long as carpus, palm about 1 1/4 times as long as carpus, carpus somewhat shorter than merus, without longitudinal grooves; minor 2nd pereopod with fingers gaping, 1 1/2 to less than twice as long as palm; 3rd pereopod overreaching antennal scale by about length of dactyl, propodus not covered with spines or scales; maximum postorbital carapace length little more than 15 mm.

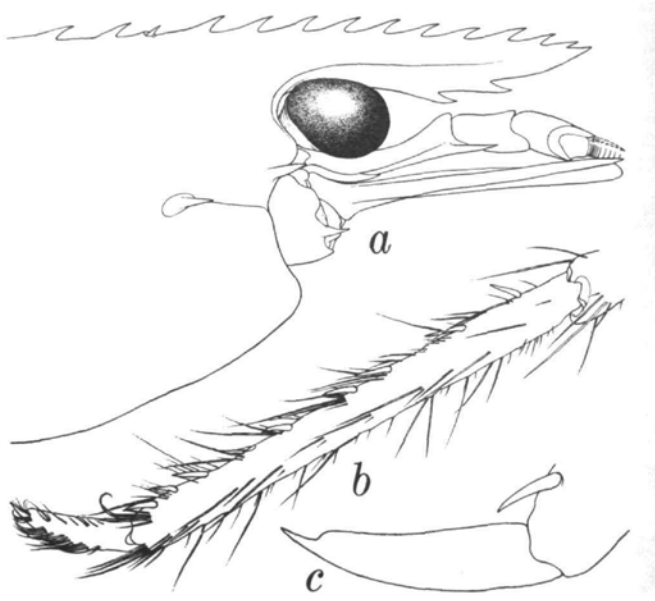

FIGURE 3.—*Macrobrachium bariense* from Malabang River, Mindanao, Philippines: *a*, anterior carapace and appendages, lateral aspect, of male with carapace length of 12.9 mm; *b*, right 3rd pereopod, dactyl, and propodus, of male with carapace length of 13.0 mm; *c*, same, dactyl, denuded.

MATERIAL.—PHILIPPINES. Malabang River, Mindanao; [7°36′N, 124°04′E]; 1 1/2 m; 21 May 1908 (1500); 130′ seine: 3 males [10.2–13.0].

RANGE.—Previously known from five Indonesian localities; also, there are specimens in the Smithsonian collections from the Palau Islands. Apparently the species has not been reported previously from the Philippines.

11. *Macrobrachium callirrhoe* (De Man, 1898)

Palaemon (Macrobrachium) callirrhoe De Man, 1898:152, pl. 8 [type locality: Sungai Mandai and Sungai Ketungau, central Borneo].

DIAGNOSIS.—Rostrum reaching level of distal end of antennal scale, dorsal margin nearly straight, faintly convex, rostral formula: 3–4 + 6–7/2–3, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin slightly convex; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods somewhat unequal in length, similar in form; major 2nd pereopod with palm slightly compressed, fingers and palm not concealed by dense pubescence, fingers dentate on opposable margins, slightly gaping, shorter than palm, chela

less than 3 times as long as carpus, palm less than 1 2/3 times as long as carpus, carpus shorter than merus, without longitudinal grooves; minor 2nd pereopod with fingers about as long as palm; 3rd pereopod with propodus not covered with spines or scales; maximum postorbital carapace length less than 10 mm.

RANGE.—Known only from the type series from two rivers in central Borneo.

ETYMOLOGY.—The specific name of this species was undoubtedly transliterated from the name assigned to any of three different women in Greek mythology or to a famous spring in Athens. Whatever the connotation, the apparently commonest spelling of the name was the one used by DeMan and repeated here: Callirrhoe.

12. *Macrobrachium clymene* (De Man, 1902)

Palaemon (Macrobrachium) clymene De Man, 1902:794, pl. 25: fig. 50 [type locality: Batang Baram, Sarawak].

DIAGNOSIS.—Rostrum reaching at most to level of distal end of antennal scale, dorsal margin nearly straight, faintly sinuous, rostral formula: 2-3 + 5-7/2-4, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex reaching about to level of tips of longer posterolateral spines; antennal scale with lateral margin faintly convex; 1st pereopod with chela less than 2/3 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm compressed, fingers and palm not concealed by dense pubescence, fingers dentate on opposable margins, gaping, 2/3 as long as palm, chela 4 times as long as carpus, palm 2 1/2 times as long as carpus, carpus 1/3 as long as merus, without deep longitudinal grooves; minor 2nd pereopod with fingers more than 3/4 as long as palm; 3rd pereopod not overreaching antennal scale; maximum postorbital carapace length about 15 mm.

RANGE.—Known only from the river in Sarawak representing the type locality.

13. *Macrobrachium cowlesi* Holthuis, 1950

Palaemon sp. Cowles, 1914:397, pl. 3: fig. 11.

Macrobrachium cowlesi Holthuis, 1950a:257 [type locality: Manila water supply, Luzon, Philippines].

DIAGNOSIS.—Rostrum not reaching level of distal end of antennular peduncle and falling far short of that of distal extremity of antennal scale, dorsal margin slightly convex, rostral formula: 6-7 + 8/2, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm compressed, fingers not concealed by dense pubescence, bearing teeth and tubercles on opposable surface, gaping, subequal to palm in length, palm bearing dense patches of pubescence at extreme proximal end, chela 3 times as long as carpus, palm 1 3/4 times as long as carpus, carpus shorter than merus, without longitudinal grooves; minor 2nd pereopod with fingers less than 1 1/2 times as long as palm; 3rd pereopod overreaching antennal scale by length of dactyl and 1/5 of propodus, latter not covered with spines or scales, maximum postorbital carapace length 20 mm.

RANGE.—Known only from two syntypes from the Manila water supply, Philippines, and from seven specimens recorded from Sumba in the Lesser Sunda Islands of Indonesia by Holthuis (1978b).

*14. *Macrobrachium equidens* (Dana, 1852)

FIGURE 4

Palaemon equidens Dana, 1852a:26 [type locality: Singapore].

Palaemon sundaicus var. *bataviana* De Man, 1897:784 [type locality: Djakarta, Java].

P[alaemon] (Eupalaemon) sundaicus var. *brachydactyla* Nobili, 1899:238 [type locality: Ambon].

P[alaemon] (Eupalaemon) acanthosoma Nobili, 1899:242 [type locality: "Katau" [?= Binaturi River, near Fly River], Papua New Guinea].

Palaemon (Eupalaemon) sundaicus var. *baramensis* De Man, 1902:770 [type locality: Baram River, Sarawak].

Palaemon (Eupalaemon) nasutus Nobili, 1903a:9, 1 fig. [type locality: Singapore].

Palaemon sulcatus Henderson and Matthai, 1910:289, pl. 16: fig. 4 [type locality: Cochin, southern India].

Palaemon sundaicus.—Cowles, 1914:355, pl. 2: fig. 3 [not *P. sundaicus* Heller, 1862].

Palaemon delagoae Stebbing, 1915:74, pl. 16 [type locality: Delagoa Bay, Mozambique].

Urocaridella borradailei Stebbing, 1923:8, pl. 14 [type locality: Mhlatuze River, Natal].

Macrobrachium equidens.—Holthuis, 1950a:162, fig. 36.—Johnson, 1973:283.

DIAGNOSIS.—Rostrum reaching nearly as far as or beyond level of distal end of antennal scale, dorsal margin convex or slightly sinuous, rostral formula: 2-4 + 7-9/4-7, dorsal teeth unequally spaced, usually with wider gaps near posterior and anterior ends of series; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight or convex; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods subequal in length, similar in form, palm subcylindrical, fingers covered with soft, dense pubescence, not dentate on opposable margins, not gaping (in full-grown males), about 3/4 as long as palm, latter completely naked, without pubescence, chela longer than carpus, palm 2/3–3/4 as long as carpus, carpus 1 2/3–1 3/4 as long as merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by length of dactyl, propodus partially pubescent, not covered with spines or scales; maximum postorbital carapace length about 30 mm.

MATERIAL.—INDONESIA. Pulau Sebatik, Borneo; [4°10′N, 117°45′E]; 1 Oct 1909: 3 males [12.8-21.2].

RANGE.—South Africa, southern India to Fukien Province, China, Philippines, Indonesia, and Palau Islands eastward to New Britain, the Solomon Islands, and Nigeria [possibly

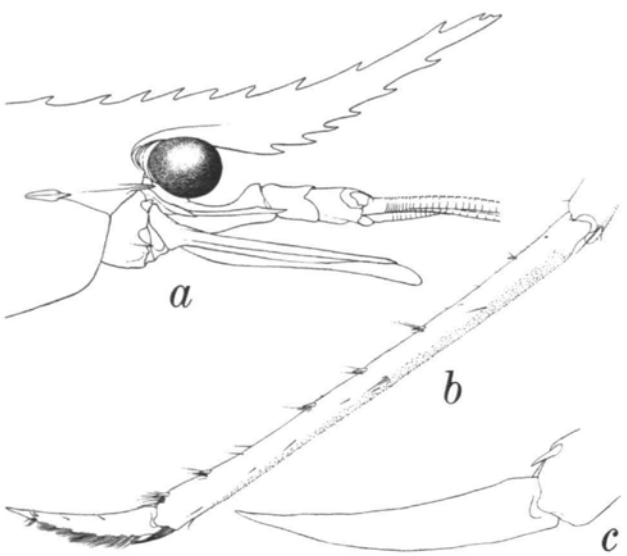

FIGURE 4.—*Macrobrachium equidens* from Pulau Sebatik, Borneo: *a*, anterior carapace and appendages, lateral aspect, of male with carapace length of 16.6 mm; *b*, right 3rd pereopod, dactyl, and propodus, of male with carapace length of 21.2 mm; *c*, same, dactyl, denuded.

introduced]; high salinity brackish and salt water, rarely in pure fresh water.

REMARKS.—That Holthuis (1950a) was justified in assigning Dana's name to this species is borne out by the description of its habitat by Johnson (1973:285): "*M. equidens* is pre-eminently an inhabitant of high-salinity brackish water. It is also found in shallow, inshore, marine waters, where it very probably is capable of breeding. It rarely enters pure freshwater." In the original description, Dana (1852a) noted that the type specimen of *M. equidens* was found "in mare prope portum 'Singapore'."

The differences between *M. equidens* and *M. mammillodactylus* are not always apparent, especially in females and subadult males or in the absence of the second chelipeds, but there is little doubt that the two species are distinct. Cowles (1914) noted that *M. equidens* lacks the conspicuous T-shaped pigment mark present on the lateral surface of the carapace in fresh material of *M. mammillodactylus*, but the second chelipeds of *M. equidens* are marbled like tortoise shell, whereas they are longitudinally striped in *M. mammillodactylus*.

The antennal scale in the specimens from Borneo is little more than three times as long as wide, in contradistinction to the proportions of 3.5 to 4 indicated by Holthuis (1950a:165). In the illustration furnished by that author (Figure 36*a*), however, the scale is barely three times as long as wide.

15. *Macrobrachium esculentum* (Thallwitz, 1891)

Palaemon esculentus Thallwitz, 1891:98 [type locality: northern Celebes].
Palaemon dulcis Thallwitz, 1891:99 [type locality: northern Celebes].
Macrobrachium esculentum.—Holthuis, 1950a:257.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, rostral formula: 5–6 + 7–8/2; 1st pereopod with chela more than 1/2 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm compressed, fingers not covered with dense pubescence, dentate on opposable margins, gaping, longer or shorter than palm, latter entirely covered with woolly hairs, chela longer than carpus, palm longer than carpus, carpus shorter than merus, without longitudinal grooves; minor 2nd pereopod with fingers longer than palm; maximum postorbital carapace length less than 25 mm.

RANGE.—Known with certainty only from northern Celebes; reported from Thailand and the Philippines.

*16. *Macrobrachium gracilirostre* (Miers, 1875)

FIGURE 5

Palaemon gracilirostris Miers, 1875:343 [type locality: Upolu, Samoa Islands].
Palaemon (Parapalaemon) modestus De Man, 1892:469, pl. 27: fig. 43 [type locality: River at "Wukur," not far from Sika, southeastern Flores, Indonesia; not *P. modestus* Heller, 1862a].
Palaemon (Parapalaemon) modestus brevimanus J. Roux, 1934a:228, figs. 9, 10 [type locality: Bimun, New Ireland].
Macrobrachium sophronicum Holthuis, 1950a:198, fig. 40 [type locality: "Wukur River," Sika, southeastern Flores, Indonesia].
Macrobrachium gracilirostre.—Holthuis, 1959:199.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin nearly straight, faintly convex or

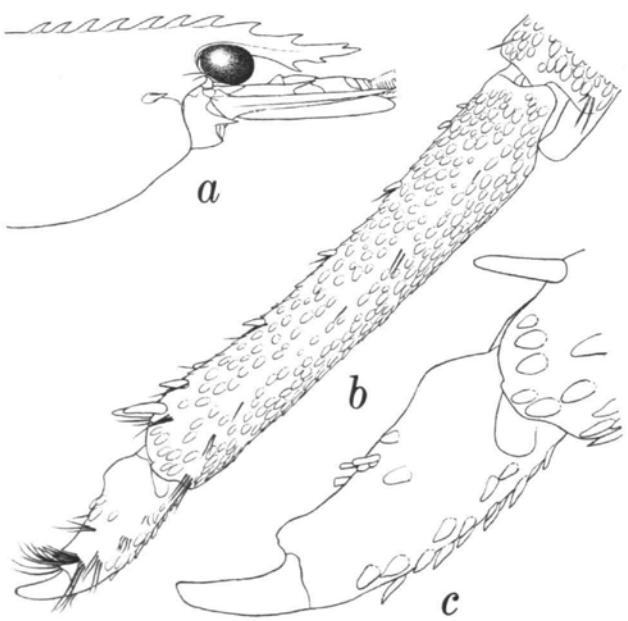

FIGURE 5.—*Macrobrachium gracilirostre*, male from Malaga River, Leyte, Philippines, carapace length 15.2 mm: *a*, anterior carapace and appendages, lateral aspect; *b*, right 3rd pereopod, dactyl, and propodus; *c*, same, dactyl, denuded.

sinuous, rostral formula: 5–6 + 3–4/2, dorsal teeth more widely spaced anteriorly; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela less than 2/3 as long as carpus; 2nd pereopods subequal in length and similar in form, with fingers naked except for scattered setae, opposable margins dentate, not gaping noticeably, 3/4 as long as palm, palm without dense pubescence, chela about 1 1/2 times as long as carpus, palm subequal to carpus in length, carpus longer than merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by length of dactyl and 1/2 of propodus, latter covered with appressed scales; maximum carapace length about 25 mm.

MATERIAL.—PHILIPPINES. Malaga River, Hinunangan Bay, Leyte; [10°24′N, 125°12′E]; 30 Jul 1909: 3 males [14.0–18.0].

RANGE.—Previously known from the Ryukyu Islands, Taiwan, the Moluccas, Lesser Sunda Islands, New Ireland, and Fiji and Samoa islands. Apparently the species has not been recorded before from the Philippines.

17. *Macrobrachium gua* Chong, 1989

Macrobrachium gua Chong, 1989:32, figs. 1, 2 [type locality: stream at resurgence from Gomantong Hill, about 5°33′N, 118° 06′E, Sabah, Borneo].

DIAGNOSIS.—Rostrum not quite overreaching antennal scale, dorsal margin faintly convex, rostral formula: 3–4 + 6–9/2–3, dorsal teeth subequally spaced; telson with posterior apex not overreaching longer posterolateral spines; antennal scale with lateral margin nearly straight; 2nd pereopods subequal in length and similar in form, palm of major member of pair slightly compressed, fingers with surfaces more or less concealed by tufts of moderately long, velvety hairs, also on distal 1/2 to 2/3 of chela, fingers dentate on opposable margins, not appreciably gaping, nearly or fully as long as palm, chela about 4 times as long as carpus, carpus about 2/3 as long as merus; maximum postorbital carapace length about 20 mm.

RANGE.—Known only from the type locality at the effluent of an underground stream in Sabah.

18. *Macrobrachium hainanense* (Parisi, 1919)

Palaemon (Parapalaemon) hainanense Parisi, 1919:87, pl. 3: fig. 1; pl. 6: figs. 1, 7 [type locality: Keng-kong River, Hainan].
Palaemon similis Yu, 1931:281, fig. 2 [type locality: Amoy, China].
Macrobrachium hainanense.—Holthuis, 1950a:158, fig. 35.

DIAGNOSIS.—Rostrum falling considerably short of level of distal end of antennal scale, dorsal margin nearly straight or faintly sinuous, rostral formula: 3–4 + 6–11/3, dorsal teeth subequally spaced, except posteriormost often remote from 2nd; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods subequal in length and similar in form, palm subcylindrical, fingers with narrow longitudinal band of pubescence in basal part either side of opposable margin, latter dentate, fingers not noticeably gaping, 2/3 as long as palm, latter spinulose but not pubescent, chela 1 1/2 times as long as carpus, palm about as long as carpus, carpus 1 1/2 times as long as merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale little, if at all, propodus covered with spinules; maximum carapace length about 25 mm.

RANGE.—Southeastern China and Java, Indonesia.

19. *Macrobrachium horstii* (De Man, 1892)

Palaemon (Parapalaemon) Horstii De Man, 1892:460, pl. 27: fig. 39 [type locality: River at Polopo, central Celebes].
Palaemon (Parapalaemon) horsti brevidigitus J. Roux, 1930:358 [type locality: Bali].
Macrobrachium horstii.—Holthuis, 1950a:203, fig. 42.

DIAGNOSIS.—Rostrum not reaching level of distal margin of antennal scale, dorsal margin moderately convex, rostral formula: 4 + 8/2–3, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela more than 1/2 as long as carpus; 2nd pereopods subequal in length, similar in form, palm somewhat compressed, fingers and palm spinulose, not pubescent, fingers with teeth on opposable margins, not broadly gaping, 1/2–3/4 as long as palm, chela less than twice as long as carpus, palm 1–1 1/4 times as long as carpus, carpus slightly longer than merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by about length of dactyl; maximum carapace length about 20 mm.

RANGE.—Taiwan and Celebes, Bali, and Lombok, Indonesia.

*20. *Macrobrachium idae* (Heller, 1862)

FIGURE 6

P[alaemon] Idae Heller, 1862b:416, pl. 2: figs. 40, 41 [type locality: Borneo].
Palaemon (Eupalaemon) ritsemae De Man, 1897:774 [type locality: Atjeh, northwestern Sumatra].
P[alaemon] (Eupalaemon) Idae, var. *subinermis* Nobili, 1899:237 [type locality: San Guiseppe River near Innawi, Meheo District, Papua].
Palaemon (Eupalaemon) Mariae Coutière, 1900:1266 [type locality: Madagascar].
Palaemon (Eupalaemon) robustus De Man, 1902:771, pl. 24: fig. 48 [type locality: Halmahera].
Macrobrachium idae.—Holthuis, 1950a:142, fig. 33.
?*Macrobrachium palawanensis* Johnson, 1962a:307, fig. 1 [type locality: Palawan, Philippines].
?*Macrobrachium palawanense*.—Johnson, 1973:274, 282.

DIAGNOSIS.—Rostrum reaching nearly as far as or slightly beyond level of distal end of antennal scale, dorsal margin straight or faintly sinuous, rostral formula: 2–3 + 6–9/3–4, dorsal teeth rather subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with

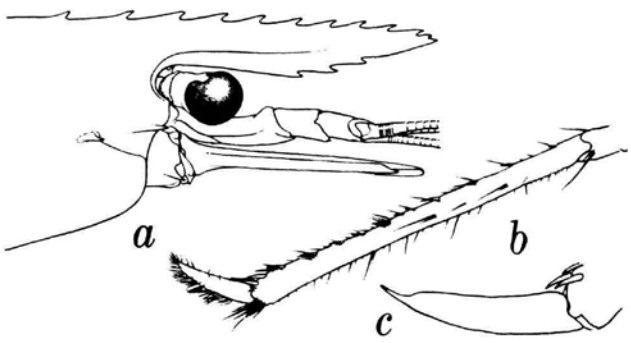

FIGURE 6.—*Macrobrachium idae*, male from Naujan River, Mindoro, Philippines, carapace length 16.7 mm: *a*, anterior carapace and appendages, lateral aspect; *b*, right 3rd pereopod, dactyl, and propodus; *c*, same, dactyl, denuded.

posterior apex not overreaching posterolateral spines; antennal scale with lateral margin slightly convex; 1st pereopod with chela less than 3 times as long as carpus; 2nd pereopods similar in form but not usually equal in length, palm subcylindrical, fingers pubescent, especially either side of proximal part of opposable margins, latter dentate proximally, fingers not noticeably gaping, 1/2 as long as palm, latter naked, chela shorter than carpus, palm more than 1/2 as long as carpus, carpus more than twice as long as merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by more than length of dactyl, propodus not covered with spines or scales; maximum postorbital carapace length about 20 mm.

MATERIAL.—PHILIPPINES. Naujan River, Mindoro; [13°16′N, 121°19′E]; 5 Jun 1908: 1 male [16.9].

RANGE.—Madagascar to southern India, Philippines, Indonesia, and eastward as far as the Admiralty Islands.

REMARKS.—The identity of the specimen assigned to this species (Figure 6) is somewhat tentative, but it agrees almost exactly with the illustrations by De Man (1902) of *M. robustus*, which Holthuis (1950a:145) noted "undoubtedly belongs to *M. idae*."

Macrobrachium palawanense may be a valid species, but we have been unable to distinguish it from *M. idae* on the basis of the descriptions and illustrations published by Johnson (1962a, 1973). That author convincingly separated the species from *M. weberi* but mentioned no characters that do not apply as well to our concept of *M. idae*.

21. *Macrobrachium jacobsoni* Holthuis, 1950

Macrobrachium jacobsoni Holthuis, 1950a:227, fig. 47 [type locality: Sinabang, Pulau Simeulue, off northwestern Sumatra].

DIAGNOSIS.—Rostrum reaching nearly or quite as far as level of distal end of antennal scale, dorsal margin nearly straight, faintly convex or sinuous, rostral formula: 5–6 + 7–9/3–4, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin nearly straight; 1st pereopod with chela about 1/2 as long as carpus; 2nd pereopods distinctly unequal in length but rather similar in form; major 2nd pereopod with palm somewhat compressed, fingers without dense pubescence, dentate on opposable margins, not gaping, about as long as palm, latter partially covered with dense pubescence, chela 3 1/2 times as long as carpus, palm 1 3/4 times as long as carpus, carpus more than 4/5 as long as merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by length of dactyl or less, propodus not covered with spines or scales; maximum postorbital carapace length less than 25 mm.

RANGE.—Known only from the Sinabang area of Pulau Simeulue off the Indian Ocean coast of northwestern Sumatra, Indonesia, and from Mindanao, Philippines.

*22. *Macrobrachium jaroense* (Cowles, 1914)

FIGURE 7

Palaemon jaroensis Cowles, 1914:385, pl. 3: fig. 8 [type locality: Hibucawan River near Jaro, Leyte, Philippines].
Macrobrachium jaroense.—Holthuis, 1950a:205.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin sinuous but without distinct dorsal crest, rostral formula: 4–6 + 5–7/2(3), dorsal teeth unequally spaced, more widely separated posteriorly; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela more than 2/3 as long as carpus; 2nd pereopods unequal in length but similar in form; major 2nd pereopod with palm compressed; fingers dentate on opposable margins but teeth concealed by dense pubescence on either

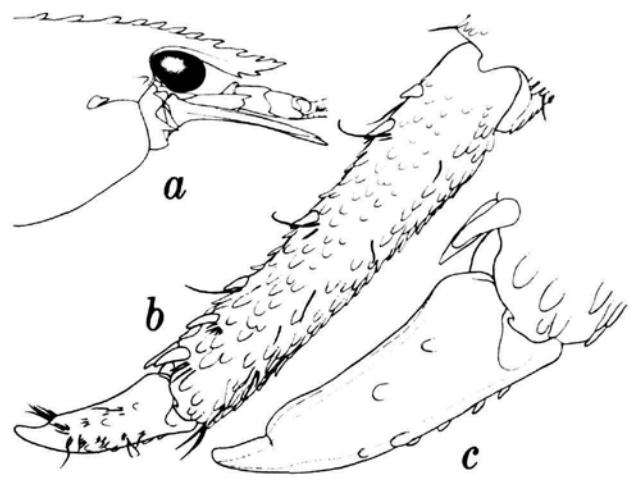

FIGURE 7.—*Macrobrachium jaroense* from Mananga River, Cebu, Philippines: *a*, anterior carapace and appendages, lateral aspect, of male with carapace length of 16.0 mm; *b*, right 3rd pereopod, dactyl, and propodus, of male with carapace length of 16.5 mm; *c*, same, dactyl, denuded.

side, fingers slightly gaping, 3/4–1 3/4 times as long as palm, latter without dense pubescence, chela less than twice as long as palm, latter without dense pubescence, less than twice as long as carpus, palm about as long as carpus, carpus longer than merus, with distinct but shallow longitudinal groove on carpus; minor 2nd pereopod with fingers 1 1/4 times as long as palm; 3rd pereopod overreaching antennal scale by length of dactyl and 1/3 of propodus, latter covered with appressed scales; maximum postorbital carapace length less than 20 mm.

MATERIAL.—PHILIPPINES. Mananga River, Cebu; [10°14′, 123°50′E]; 25 Aug 1909: 24 males [8.2–17.8] 24 females [8.3–13.8], 19 ovig [9.4–13.81].

RANGE.—Known previously only from Taiwan and the 23 specimens in the type series from Leyte, Philippines.

23. *Macrobrachium javanicum* (Heller, 1862)

P[alaemon] javanicus Heller, 1862b:421, pl. 2: fig. 48 [type locality: Java].
Palaemon (Eupalaemon) neglectus De Man, 1905:201, pl. 15: fig. 6 [type locality: Mergui Archipelago and northeastern Sumatra].
Macrobrachium javanicum.—Holthuis, 1950a:190, fig. 38.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin somewhat sinuous, rostral formula: 3 + 8–10/3–5, dorsal teeth subequally spaced, except posteriormost tooth often more remote; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin nearly straight; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods subequal in length and rather similar in form, palm somewhat compressed, fingers without dense pubescence, dentate on opposable margins, not widely gaping, 1/2–3/4 as long as palm, latter not densely pubescent, even in part, chela twice as long as carpus, palm 1–1 1/2 times as long as carpus, carpus longer than merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by less than length of dactyl, propodus not covered with spines or scales; maximum postorbital carapace length about 32 mm.

RANGE.—Mergui Archipelago, Malaya, Thailand, and Indonesia.

24. *Macrobrachium joppae* Holthuis, 1950

Macrobrachium joppae Holthuis, 1950a:233, fig. 48 [type locality: Pulau Nias, off northwestern coast of Sumatra].

DIAGNOSIS.—Rostrum not quite reaching level of distal end of antennal scale, dorsal margin nearly straight, rostral formula: 4–5 + 9–10/4–5, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin concave; 1st pereopod with chela longer than 1/2 of carpus; 2nd pereopods unequal in length, dissimilar in form; major 2nd pereopod with palm subcylindrical, fingers without dense pubescence, dentate on opposable margins, partially gaping, 3/4–1 1/3 times as long as palm, latter with single dense patch of long, soft hair, chela 3 1/4 times as long as carpus, palm 1 1/3–1 3/4 times as long as carpus, carpus as long as or slightly longer than merus, without longitudinal grooves; minor 2nd pereopod with fingers fully 1 1/2 times as long as palm; 3rd pereopod overreaching antennal scale little if at all, propodus not covered with spines or scales; maximum postorbital carapace length less than 20 mm.

RANGE.—Known only from nine syntypes from Pulau Nias of the Indian Ocean coast of northwestern Sumatra, Indonesia.

*25. *Macrobrachium lanceifrons* (Dana, 1852)

FIGURE 8

Palaemon lanceifrons Dana, 1852a:26 [type locality: Manila, Luzon, Philippines].—Cowles, 1914:364, pl. 2: fig. 4.
Palaemon lanceifrons var. *montalbanensis* Cowles, 1914:371, pl. 2: fig. 6 [type locality: Montalban, near Manila, Luzon, Philippines].
Macrobrachium lanceifrons var. *lanceifrons*.—Holthuis, 1950a:154.
Macrobrachium lanceifrons var. *montalbanense*.—Holthuis, 1950a:154.

DIAGNOSIS.—Rostrum reaching nearly as far as to slightly beyond level of distal end of antennal scale, dorsal margin sinuous, sometimes simply convex, rostral formula: 1–2 + 7–11/2–4, dorsal teeth subequally spaced or more widely spaced in anterior part; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin nearly straight; 1st pereopod with chela about 1/2 as long as carpus; 2nd pereopods somewhat unequal in length, similar in form; palm subcylindrical, fingers covered with dense pubescence, dentate on opposable margins, not noticeably gaping, 1/2–1 1/2 times as long as palm, palm naked, chela slightly longer than carpus to slightly more than 1 1/2 times as long, palm 1/2–3/4 as long as carpus, carpus 1 1/4–1 3/4 times as long as merus, without longitudinal grooves; 3rd pereopod barely overreaching antennal scale, if at all, propodus not covered with spines or scales; maximum postorbital carapace length about 20 mm.

MATERIAL.—PHILIPPINES. Santa Cruz, Laguna de Bay, Luzon; [14°17′N, 121°25′E]; 17 Dec 1907: 15 males [5.4–

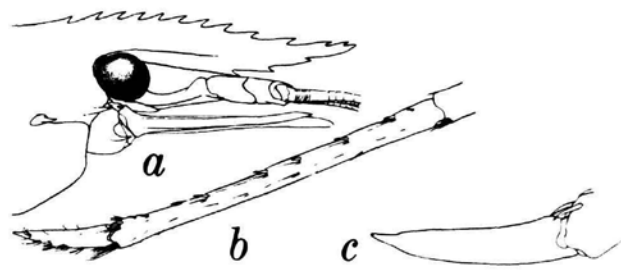

FIGURE 8.—*Macrobrachium lanceifrons* from Santa Cruz, Laguna de Bay, Luzon, Philippines: *a*, anterior carapace and appendages, lateral aspect, of male with carapace length of 14.5 mm; *b*, right 3rd pereopod, dactyl, and propodus, of male with carapace length of 16.3 mm; *c*, same, dactyl, denuded.

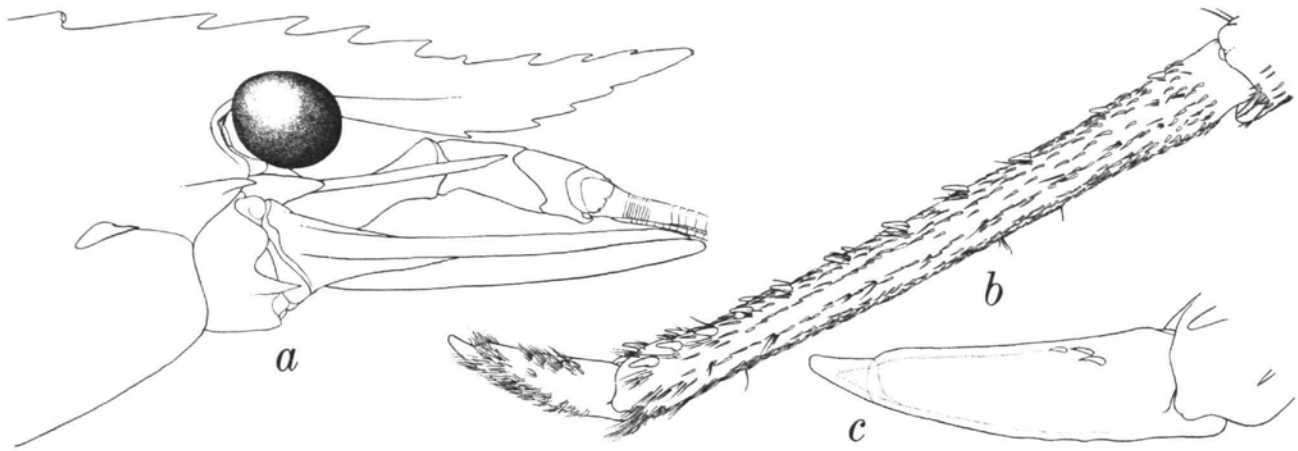

FIGURE 9.—*Macrobrachium lar* from the Philippines: *a*, anterior carapace and appendages, lateral aspect, of male from Varadero Mountain, Mindoro, with carapace length of 38.2 mm; *b*, right 3rd pereopod, dactyl, and propodus, of male from Nonucan River, Mindanao, with carapace length of 41.0 mm; *c*, same, dactyl, denuded.

14.8] 15 females [6.1–10.1], 9 ovig [6.1–10.1].—Marikina River at Wawa, Luzon; [14°44′, 121°11′E]; 1 Jan 1908; 9 males [6.4–14.8] 8 females [6.1–8.0].—Antipolo, Luzon; [14°35′N, 121°10′E]; 26 Jan 1908:1 male [16.3].

RANGE.—Known only from the general vicinity of Manila, Luzon, Philippines.

REMARKS.—The single male from Antipolo agrees with Cowles' description of *M. lanceifrons* var. *montalbanense* but it was collected only a few miles from the Marikina River at Wawa, where typical specimens of *M. lanceifrons* occurred, and we can therefore see little reason for regarding that variety as a subspecies, particularly as Cowles (1914:379) noted that both forms had similar distinctive color patterns.

*26. *Macrobrachium lar* (Fabricius, 1798)

FIGURE 9

Palaemon Lar Weber, 1795:94 [nomen nudum].
?*Palaemon longimanus* Weber, 1795:94 [nomen nudum].
Palaemon Lar Fabricius, 1798:402 [type locality: "in India Dom. Daldorff" (? = Tranquebar)].
?*Palaemon longimanus* Fabricius, 1798:402 [type locality: "in India orientali Dom. Daldorff" (? = Tranquebar)].
Palaemon ornatus Olivier, 1811:660 [type locality: East Indies].
Pal[aemon] tridens White, 1847:78 [type locality: Mauritius ?].
P[alaemon] vagus Heller, 1862b:417, pl.2: figs. 42, 43 [type locality: Ambon].
Palaemon spectabilis Heller, 1862a:527 [type locality: Tahiti].
Palaemon ruber Hess, 1865:165, pl. 7: fig. 20 [type locality: Fiji Islands].
Palaemon mayottensis Hoffmann, 1874:32, pl. 9: figs. 61, 62 [type locality: Ile de Mayotte, Comoro Islands, and l'île Nosy Fali, Madagascar].
Palaemon reunionnensis Hoffmann, 1874:33, pl.9: figs. 66, 67 [type locality: La Réunion].
Palaemon madagascariensis Hoffmann, 1874:35, pl. 7: fig. 58 [type locality: Nosy Fali, N.W. Madagascar].
Leander dionyx Nobili, 1905b:482, pl. 12: fig. 2 [type locality: Bogadjim (= Stephansort), Papua New Guinea].
Palaemon lar.—Cowles, 1914:380, pl. 2: fig. 7.
Macrobrachium lar.—Holthuis, 1950a:176, fig. 37.

DIAGNOSIS.—Rostrum falling slightly short of level of distal end of antennal scale, rostral formula: 2 + 5–7/2–4, posteriormost tooth of dorsal series more remote than others; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin convex; 1st pereopod with chela about 1/2 as long as carpus; 2nd pereopods usually unequal in length, similar in form, palm subcylindrical, fingers bearing scattered setae not concealing surface, dentate on opposable margins, fingers usually gaping (in full-grown males), fingers from 3/4 to quite as long as palm, palm not clothed in dense pubescence anywhere, chela more than 3 1/2 times as long as carpus, palm slightly longer than to twice as long as carpus, carpus shorter than merus, with shallow longitudinal groove; 3rd pereopod overreaching antennal scale by less than length of dactyl, propodus bearing numerous appressed spines; maximum postorbital carapace length more than 55 mm.

MATERIAL.—PHILIPPINES. Sablan, Benguet, Luzon; [16°30′, 120°40′E]; 14 Mar 1908: 2 males [35.7, 37.7].—Small creek at Varadero Bay, Mindoro; [13°30′N, 120°59′E]; 27 Oct 1909; dynamite: 2 males [15.1, 16.8] 1 female [16.3].—"Varadero Mountain," [probably] Mindoro; 23 Jul 1908: 11 males [16.2–38.2] 2 females [24.3–27.7].—Calawagan River 3 miles from mouth, Mindoro; [13°25′N, 120°28′E]; 11 Dec 1908 (1500); 16′ seine: 1 male [24.2].—Mananga River, Cebu; [10°14′N, 123°50′E]; 25 Aug 1909: 2 pairs of 2nd pereopods.—Nonucan River, Iligan Bay, Mindanao; 8°13′N, 124°12′E; 6 Aug 1909 (0800); dynamite: 1 male [41.0].—Small stream at Mati, Pujada Bay, Mindana; [6°57′N, 126°13′E]; 15 May 1908: 8 males [9.2–26.3] 7 females [20.2–20.9].

INDONESIA. Stream, Pulau Ambon; [3°40;S, 128°10′]; 5 Dec 1909; dynamite: 6 males [13.0–26.0].—Ambon Market; [3°43′S, 128°12′E]; 5 Dec 1909; 1 male [24.2] 6 females

[19.6–25.5], 3 ovig [19.6–25.5]).

RANGE.—Widespread throughout the Indo-Pacific region from East Africa to the Marquesas Islands, probably not indigenous on Hawaii.

*27. *Macrobrachium latidactylus* (Thallwitz, 1891)

FIGURE 10

Palaemon latidactylus Thallwitz, 1891:97 [type locality: northern Celebes].—Cowles, 1914:392, pl. 3: fig. 10.

Palaemon (Eupalaemon) endehensis De Man, 1892:465, pl. 27: fig. 42 [type locality: Flores, Indonesia].

Palaemon (Macrobrachium) lampropus De Man, 1892:493, pl. 29: fig. 49 [type locality: Celebes and Timor, Indonesia].

Macrobrachium latidactylus.—Holthuis, 1950a:239, fig. 50.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin slightly convex, rostral formula: 3–5 + 10–11/2–5, interspaces often wider near posterior and anterior ends of dorsal series; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm compressed, fingers not densely pubescent, fingers denticulate on opposable margins, gaping, 2/3–1 1/3 times as long as palm, latter nowhere densely pubescent, chela 1 3/4 times as long as carpus, palm longer than carpus, carpus 1 1/4 times as long as merus, not longitudinally grooved; minor 2nd pereopod with fingers 1 2/3 times as long as palm; 3rd pereopod not overreaching antennal scale, propodus not covered with spines or scales; maximum carapace length about 25 mm.

MATERIAL.—PHILIPPINES. River at Tilik, Lubang Island; [13°49′N, 120°12′E]; 14 Jul 1908: 1 male [17.1].—Malabon Market [probably suburb of Manila, Luzon; 14°39′N, [120°57′E]; 8 Aug 1908: 1 male [17.7].—River at Batangas, Luzon; [13°45′N, 121°03′E]; 7 Jun 1909: 2 males [12.0, 12.2] 5 females [3.8–11.7], 2 ovig [10.0, 11.7].—"Yom River, (Tayabas) Luzon;" 25 Feb 1909: 1 male [13.8].—Basud River, Luzon; [14°06′N, 123°E]; 15 Jun 1909: 1 male [10.2].—Nato River, Lagonoy Gulf, Luzon; [13°36′N, 123°33′E]; tidewater; 18 Jun 1909 (0630): 24 males [6.5–13.8] 12 females [5.1–8.3], 2 ovig [8.0, 8.3].—Yawn River. Legaspi, Luzon; [13°10′N, 123°45′E]; 7 Jun 1909 (0600): 36 males [4.9–21.5] 21 females [8.0–13.8], 14 ovig [8.0–13.4].—"Damaea River," Luzon; 25 Feb 1909: 2 males [12.2, 15.8].—Naujan River, Mindoro; [13°16′N, 121°19′E]; 5 Jun 1908: 12 males [6.0–15.0] 3 females [4.6–10.3], 2 ovig [8.6, 10.3].—Pangauaran River, Port Caltom, Busuanga Island; [12°11′N, 120°05′E]; 16 Dec 1908 (0700); 25′ seine: 2 males [11.0, 12.9] 1 ovig female [12.0].—Malaga River, Hinunangan Bay, Leyte; [10°24′N, 125°12′E]; 30 Jul 1909: 10 males [13.0–20.0].—Surigao River, Mindanao; [9°48′N, 125°29′E]; 8 May 1908: 8 May 1908: 1 male [10.3].—Vicars Landing, Lake Lanao, Mindanao; [7°47′N, 124°11′E]; 22 May 1908; seine: 4 males [7.2–18.5].—Zamboanga River, Mindanao; [6°54′N, 122°04′E]; 9 Oct 1909: 1 male [20.2].

RANGE.—Malaya, Taiwan, Philippines, and Indonesia.

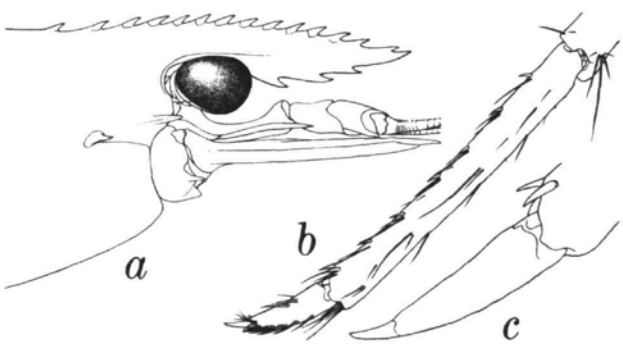

FIGURE 10.—*Macrobrachium latidactylus*, male from Zamboanga River, Mindanao, Philippines, carapace length 20.2 mm: *a*, anterior carapace and appendages, lateral aspect; *b*, right 3rd pereopod, dactyl, and propodus; *c*, same, dactyl, denuded.

*28. *Macrobrachium latimanus* (Von Martens, 1868)

FIGURE 11

Pal[aemon] latimanus Von Martens, 1868:44 [type locality Loquilocon, Samar, Philippines].

Palaemon euryrhynchus Ortmann, 1891:738, pl. 47: fig. 12 [type locality: Fiji Islands].

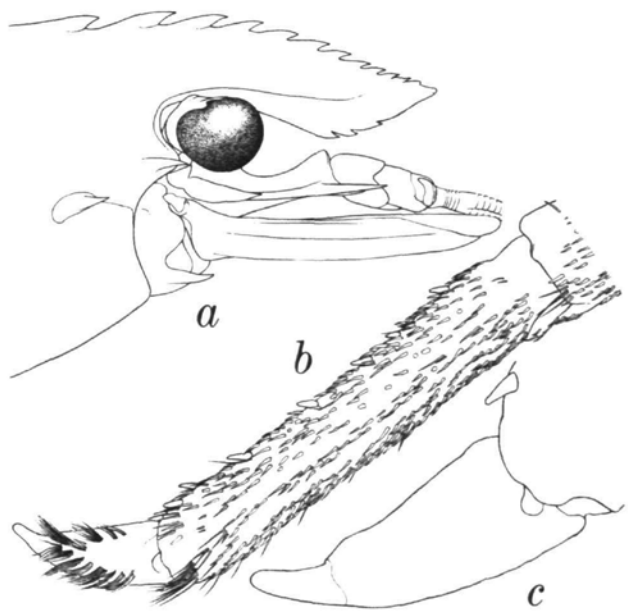

FIGURE 11.—*Macrobrachium latimanus*, male collected at altitude of 1200–1800 meters on Mount Apo, Mindanao, Philippines, by E.A. Mearns, 1904 (USNM 53869), carapace length 32.0 mm: *a*, anterior carapace and appendages, lateral aspect; *b*, right 3rd pereopod, dactyl, and propodus; *c*, same, dactyl, denuded.

Palaemon (Macrobrachium) singalangensis Nobili, 1900a:487 [type locality: "Aier Mantcior, presso il Monte Singalang," Sumatra].
Macrobrachium latimanus.—Holthuis, 1950a:205, fig. 43.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin convex, rostral formula: 1–2 + 5–10/2–4, dorsal teeth typically more crowded anteriorly; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight or slightly concave; 1st pereopod with chela 2/3 as long as carpus; 2nd pereopods subequal in length, similar in form, palm compressed, fingers not densely pubescent, fingers dentate on opposable margins, not noticeably gaping, 1/2 to quite as long as palm, latter nowhere densely pubescent, chela about 3 times as long as carpus, palm 1–2 times as long as carpus, carpus shorter than merus, with faint longitudinal groove; 3rd pereopod overreaching antennal scale by less than length of dactyl, propodus rather densely spinulose; maximum postorbital carapace length more than 30 mm.

MATERIAL.—PHILIPPINES. Stream at Maagnas, Lagonoy Gulf, Luzon; [13°43′N, 123°40′E]; 17 Jun 1909: 1 male [15.0] 1 female [10.0].

RANGE.—India, Sri Lanka, Ryukyu Islands, Philippines, and Indonesia, eastward to the Marquesas Islands.

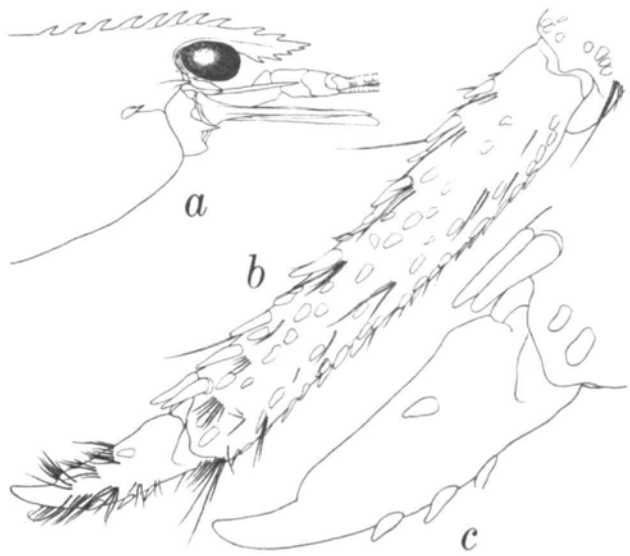

FIGURE 12.—*Macrobrachium lepidactyloides*, male from Zamboanga River, Mindanao, Philippines, carapace length 16.3 mm: *a*, anterior carapace and appendages, lateral aspect; *b*, right 3rd pereopod, dactyl, and propodus; *c*, same, dactyl, denuded.

*29. *Macrobrachium lepidactyloides* (De Man, 1892)

FIGURE 12

Palaemon (Macrobrachium) lepidactyloides De Man, 1892:497, pl. 29: fig. 51 [type locality: "Raka-mbaha, W. Flores" (Holthuis, 1950a:251)].
Palaemon lepidactylus.—Cowles, 1914:389, pl. 3: fig. 9. [Not *P. lepidactylus* Hilgendorf, 1879.]
Macrobrachium hirtimanus.—Holthuis, 1950a:245 [part], fig. 51a.
Macrobrachium lepidactyloides.—Holthuis, 1952a:210, pl. 15: fig. 2.

DIAGNOSIS.—Rostrum not nearly reaching level of distal end of antennal scale, dorsal margin somewhat sinuous, rostral formula: 5–7 + 4–6/2–4, dorsal teeth unequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela 2/3 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm compressed, fingers not densely pubescent, fingers dentate on opposable margins, not markedly gaping, longer than palm, latter nowhere densely pubescent, chela more than twice as long as carpus, palm about as long as carpus, carpus about as long as merus, with shallow longitudinal groove; minor 2nd pereopod with fingers about 1 3/4 times as long as palm; 3rd pereopod overreaching antennal scale by length of dactyl and about 1/2 of propodus, propodus bearing numerous flattened spines or subacute scales; maximum postorbital carapace length more than 25 mm.

MATERIAL.—PHILIPPINES. Zamboanga River, Mindanao: [6°54′N, 122°04′E]; 9 Oct 1909: 3 males [16.2–19.0] 1 ovig female [10.6].

RANGE.—Philippines, Indonesia, and Fiji Islands.

REMARKS.—The two males from the Zamboanga River in which the major second cheliped is intact have the palm less broad than it is in typical specimens of the species, much as in *M. placidum*, suggesting the possibility that *M. lepidactyloides* and *P. placidum* may eventually prove to be indistinguishable.

30. *Macrobrachium lorentzi* (J. Roux, 1921)

Palaemon (Parapalaemon) lorentzi J. Roux, 1921:596, pl. 16: figs. 1–3 [type locality: Sungai Lorentz basin, southwestern New Guinea (Irian Jaya)].
Macrobrachium lorentzi.—Holthuis, 1950a:213, fig. 44.

DIAGNOSIS.—Rostrum not overreaching antennal scale, dorsal margin distinctly sinuous, rostral formula: 3–4 + 6–10/2–4, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight or slightly concave; 1st pereopod with chela more than 1/2 as long as carpus; 2nd pereopods unequal in length but similar in form, palm slightly compressed, fingers densely pubescent, fingers partially dentate on opposable margins, not gaping, 1–1 1/2 times as long as palm, latter nowhere densely pubescent, chela 1 1/2–1 3/4 times as long as carpus, palm 2/3–3/4 as long as palm, carpus longer than merus, with shallow longitudinal groove; 3rd pereopod barely overreaching antennal scale, propodus somewhat spi-

nose; maximum postorbital carapace length about 25 mm.

RANGE.—Known only from Papua New Guinea and western New Guinea (Irian Jaya).

31. *Macrobrachium malayanum* (J. Roux, 1935)

Palaemon (Macrobrachium) pilimanus malayanus J. Roux, 935b:32 [type locality: "Lasah, Plus Valley, East Perak," Malay Peninsula].
Macrobrachium geron Holthuis, 1950a:258, fig. 52 [type locality: Pulau Bangka, east of Sumatra, Indonesia].
Macrobrachium malayanum.—Chong and Khoo, 1987a:904, figs. 1-3, 4*a*.

DIAGNOSIS.—Rostrum not or barely overreaching antennal scale, dorsal margin straight or convex, rostral formula: 3-4 + 5-8/3-6, dorsal teeth slightly more widely spaced posteriorly than anteriorly; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin nearly straight; 1st pereopod with chela more than 1/2 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm compressed, fingers and palm covered with dense carpet of short velvety hair, fingers dentate on opposable margins, not widely gaping, chela at least twice as long as carpus, no longer than merus; minor 2nd pereopod with fingers slightly shorter than palm; maximum postorbital carapace length about 17 mm.

RANGE.—Peninsular Malaysia, Singapore, Sumatra, Borneo; slow to rapid flowing streams in or near forested areas.

32. *Macrobrachium mammillodactylus* (Thallwitz, 1892)

FIGURE 13

Palaemon idae var. *mammillodactylus* Thallwitz, 1892:15 [type locality: Luzon, Philippines, or northern Celebes (acc. to Holthuis, 1950a:150)].
Palaemon (Eupalaemon) Wolterstorffi Nobili, 1900b:1 [type locality: Surabaja, eastern Java].
Palaemon philippinensis Cowles, 1914:340, pl. 2: fig. 2 [type locality: San Juan and Pasig rivers, near Manila, Philippines].
?*Palaemon talaverae* Blanco, 1939a:168, pl. 2 [type locality: Lake Sampaloc, San Pablo, Laguna Province, Luzon, Philippines].
Macrobrachium mammillodactylus.—Holthuis, 1950a:148, fig. 34.

DIAGNOSIS.—Rostrum variable, not overreaching antennal scale, dorsal margin somewhat sinuous, rostral formula: 2-3 + 9-12/2-5, dorsal teeth more widely spaced posteriorly than anteriorly; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight or concave; 1st pereopod with chela less than 1/2 as long as carpus; 2nd pereopods subequal in length and similar in form, palm subcylindrical, fingers not densely pubescent, partially dentate on opposable margins, gaping slightly, not widely, 1/2 to quite as long as palm, latter nowhere densely pubescent, chela 1 1/4-1 1/2 times as long as carpus, palm 1/2 to quite as long as carpus, carpus as long as to twice as long as merus, not longitudinally grooved; 3rd pereopod overreaching antennal scale by more than length of dactyl, propodus not profusely spinose or scaly but bearing numerous minute spines; maximum postorbital carapace length more than 40 mm.

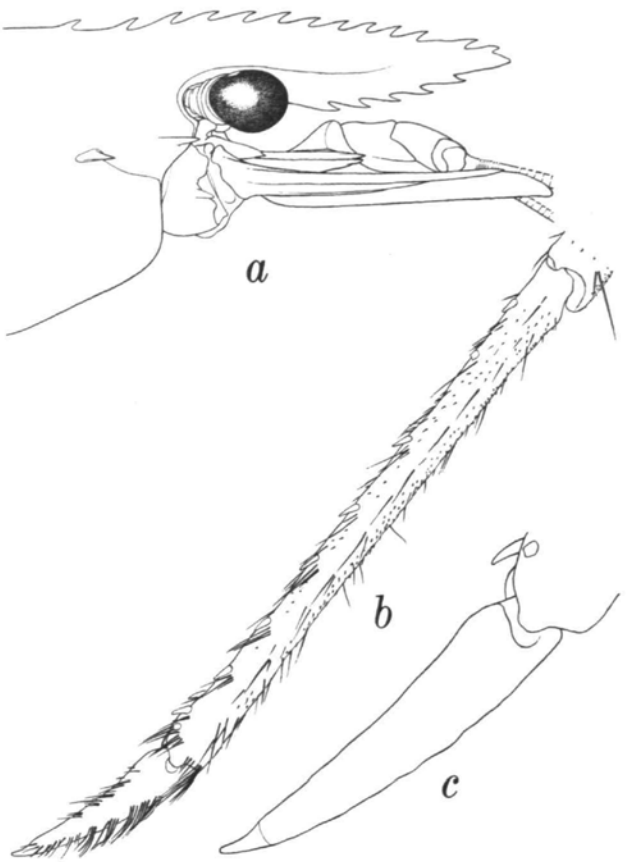

FIGURE 13.—*Macrobrachium mammillodactylus* from Luzon, Philippines: *a*, anterior carapace and appendages, lateral aspect, of male collected by D.G. Frey from Aringay River, La Union, with carapace length of 25.1 mm; *b*, right 3rd pereopod, dactyl, and propodus, of male from San Juan River, near Manila (identified by R.P. Cowles as *Palaemon philippinensis*), with carapace length of 28.0 mm (USNM 54619); *c*, same, dactyl, denuded.

RANGE.—Philippines and Indonesia.

33. *Macrobrachium minutum* (J. Roux, 1917)

Palaemon minutus J. Roux, 1917:599, pl. 27: figs. 1-3 [type locality: Sentani Lake, northeastern Irian Jaya (West New Guinea)].
Macrobrachium minutum.—Holthuis, 1950a:140, fig. 32.

DIAGNOSIS.—Rostrum slightly overreaching antennal scale or not, dorsal margin faintly sinuous, rostral formula: 3 + 9-10/4, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin slightly concave; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods slightly unequal in

length but nearly similar in form, palm subcylindrical, fingers not covered with dense pubescence, partially dentate on opposable margins, not gaping, 1/2–2/3 as long as palm, latter without any dense pubescence, chela less than 3/4 as long as carpus, palm about 2/5 as long as carpus, carpus 1 3/4 times as long as merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by length of dactyls and 1/2 of propodus, propodus not profusely spinose or scaly; maximum postorbital carapace length less than 15 mm.

RANGE.—Known only from the type locality in Sentani Lake, Irian Jaya.

34. *Macrobrachium mirabile* (Kemp, 1917)

Palaemon mirabilis Kemp, 1917:227, pl. 10 [type locality: Rangoon, Burma (= Myanmar)].
Macrobrachium mirabile.—Holthuis, 1950a:174.

DIAGNOSIS.—Rostrum not nearly reaching level of distal end of antennal scale, with rather high dorsal crest, rostral formula: 4–6 + 9–10/1–2, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela more than 1/2 as long as carpus; 2nd pereopods subequal in length and similar in form, palm subcylindrical, fingers not concealed by dense pubescence, not dentate on opposable margins, not gaping, fingers 1 2/3 times as long as palm, latter without any dense pubescence, chela 1 3/4 times as long as carpus, palm less than 3/4 as long as carpus, carpus more than 3/4 as long as merus, not longitudinally grooved; 3rd pereopod overreaching antennal scale by length of dactyl, propodus not profusely spinose or scaly; maximum carapace length less than 15 mm.

RANGE.—Brackish water in the Gangetic delta, Burma (Myanmar), Thailand, and Borneo.

REMARKS.—Kemp (1917:230, 231) obviously believed this species to be more closely related to the species of *Leander* (= *Palaemon*) than to those of *Palaemon* (= *Macrobrachium*), but the presence of an hepatic spine led him to assign it to the latter genus, in order to avoid tampering with accepted classification. Examination of specimens from Thailand in the Smithsonian collections indicates to us that the species does not belong in the genus *Macrobrachium*, because of the form of the second pereopods, the unusually long and slender fourth and fifth pereopods, and the possibility that females may be larger than males (as in most palaemonid genera except *Macrobrachium*.) On the other hand, the species does not fit comfortably in *Palaemon* because of the presence of an hepatic spine and perhaps other characters. The assignment of the species to a distinct, monotypic genus would seem to be the best solution to the problem. Only the absence of males in our collections and the hope that they may reveal generic characters other than those displayed by the females has prevented us from proposing such a genus here.

35. *Macrobrachium natulorum* Holthuis, 1984

Macrobrachium natulorum Holthuis, 1984a:164, figs. 2, 3 [type locality: Jawej River near Tigi Lake, Wissel Lakes, Irian Jaya, Indonesia].

DIAGNOSIS.—Rostrum not nearly reaching level of distal end of antennal scale, dorsal margin slightly sinuous, rostral formula: 4–5 + 9–13/2–3, dorsal teeth nearly subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterior spines; antennal scale with lateral margin straight; 1st pereopod with chela 2/3 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm slightly compressed, fingers concealed by dense pubescence, dentate on opposable margins, somewhat gaping, slightly longer than palm, palm with distal end clothed in dense pubescence-like fingers, chela more than twice as long as carpus, palm about as long as carpus, carpus about as long as merus, without longitudinal grooves; minor 2nd pereopod with fingers twice as long as palm; 3rd pereopod barely, if at all, overreaching antennal scale, propodus neither spinose nor scaly; maximum postorbital carapace length 25 mm.

RANGE.—Wissel Lakes region, Irian Jaya (New Guinea), Indonesia.

36. *Macrobrachium oenone* (De Man, 1902)

Palaemon (Macrobrachium) oenone De Man, 1902:784, pl. 25: fig. 49 [type locality: northern Halmahera].
Palaemon (Macrobrachium) oenone papuana J. Roux, 1927:324, fig. 2 [type locality: Mamberamo River, northern Irian Jaya].
Macrobrachium oenone.—Holthuis, 1950a:256.

DIAGNOSIS.—Rostrum not overreaching antennal scale, dorsal margin convex or faintly sinuous, rostral formula: 6–7 + 6–9/2–3, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods unequal in length, somewhat dissimilar in form; major 2nd pereopod with palm somewhat compressed, fingers not concealed by dense pubescence, dentate on opposable margins, somewhat gaping, fingers 1–1 3/4 times as long as palm, latter without any dense pubescence, chela 2 3/4–3 1/4 as long as carpus, palm 1 1/3–1 1/2 times as long as carpus, carpus 9/10 as long as merus, without longitudinal grooves; minor 2nd pereopod with fingers twice as long as palm; 3rd pereopod overreaching antennal scale by length of dactyl and 1/2 of propodus; propodus not profusely spinose or scaly; maximum postorbital carapace length less than 20 mm.

RANGE.—Halmahera and New Guinea.

37. *Macrobrachium palaemonoides* Holthuis, 1950

Macrobrachium palaemonoides Holthuis, 1950a:136, fig. 31 [type locality: "Lake Tawar, Laulo Lake, northern Simaloer, off Sumatra" at 2°50′N, 95°50′E].

DIAGNOSIS.—Rostrum overreaching antennal scale, dorsal

margin sinuous, rostral formula: 1–2 + 6–7/6–9, dorsal teeth unequally spaced; branchiostegal suture extending posteroventrally beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight or slightly concave; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods subequal in length, similar in form, palm subcylindrical, fingers not clothed in dense pubescence, not dentate on opposable margins, not gaping, 1 1/3 times as long as palm, palm without any dense pubescence, chela more than 1/2 as long as carpus, palm 1/4 as long as carpus, carpus 1 1/2 times as long as merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by more than length of dactyl, propodus not profusely spinose or scaly; maximum postorbital carapace length less than 20 mm.

RANGE.—Known only from the type locality, about which L.B. Holthuis has contributed the following remarks: "The type locality of *M. palaemonoides* is Lake Tawar (= Lake Laulo = Laut Tawar = Bawa Laulo) in N. Simaloer (= Simalur = Simeuloee = Simeuloee = Simeulue) at 2°50′N 95°50′E. The collector (W.C. van Heurn) wrote in a letter of 16 August 1913 from Sibigo, N. Simaloer: 'Day before yesterday we started early in a canoe with 1 boy and 3 oarsmen. First we crossed the Bay (= Sibigo Bay), 1 hour rowing, then we entered the Lauloe River, but soon the rain came down in torrents and the river started to flood, so that we progressed but extremely slowly, fighting barricades of floating bamboo, fallen trees, creepers hanging down over the water, etc. After wrestling that way for 5 hours we reached Laut Tawar (= Tawar Lake). This freshwater lake is supposed to be bewitched and by now I believe it really is.' And then follows a sorrowful tale of all the bad luck they had. Van Heurn was notorious because of his pessimistic view of everything, but in the meantime he got excellent collections together. Anyhow you can be certain that the type locality is Laulo Lake (= Lake Tawar), N. Simeulue. In my paper with A.M. Husson (1973) on 'Jonkheer Drs. Willem Cornelis von Heurn (1887–1972)' in Zoologische Bijdragen, Leiden, no. 16, you will find a sketch map of Simeulue on p. 14 (fig. 2), and on p. 15 the Dutch lines, cited above in translation."

REMARKS.—This species, like *M. mirabile*, is retained in the genus *Macrobrachium* with considerable reservation. Except for the presence of an hepatic spine and the absence of a branchiostegal spine, it would almost certainly be assigned to the genus *Palaemon*, as suggested by the unique posteroventral extension of the branchiostegal suture. On the other hand, the hepatic spine in *M. palaemonoides* is situated dorsal to the branchiostegal suture, whereas, in *Palaemon*, the branchiostegal spine—which seems to be the ontogenetic homologue of the hepatic spine (see Holthuis, 1950a:130, fig. 29)—is situated ventral to the anterior end of the branchiostegal suture.

38. *Macrobrachium pilimanus* (De Man, 1879)

Palaemon pilimanus De Man, 1879:181 [type locality: Muaralabuh, near Padang, western Sumatra].

Palaemon pilimanus, var. *leptodactylus* De Man, 1892:476, pl. 28: fig. 44i–l [type locality: Bogor, Java].

Palaemon (Macrobrachium) pygmaeus J. Roux, 1928b:222, figs. 1–4 [type locality: "Kastobo" Lake, Pulau Bawean, Java Sea].

Macrobrachium pilimanus.—Holthuis, 1950a:214.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin convex, rostral formula: 3–5 + 6–10/1–3, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela 2/3 as long as carpus; 2nd pereopods unequal in length but rather similar in form; major 2nd pereopod with palm compressed, fingers with surfaces more or less concealed by long, soft hairs, dentate on opposable margins, not gaping, 3/4 to quite as long as palm, much of latter covered by long, soft hairs, chela more than 5 times as long as carpus, palm 1 1/4 to more than twice as long as carpus, carpus 1/2–2/3 as long as merus, without longitudinal grooves; minor 2nd pereopod with fingers 1 1/2 times as long as palm; 3rd pereopod overreaching antennal scale by about length of dactyl, propodus not profusely spinose or scaly; maximum postorbital carapace length 28 mm.

RANGE.—Malaya, Sumatra, Java, and Borneo.

*39. *Macrobrachium placidulum* (De Man, 1892)

FIGURE 14

?*Palaemon spinimanus* Latreille, 1818:5, pl. 319: fig. 1 [type locality ?].

Palaemon (Macrobrachium) placidulus De Man, 1892:489, pl. 28: fig. 48 [type localities: Celebes, Pulau Selajar, Flores, and Timor].

Macrobrachium placidulum.—Holthuis, 1950a:253, fig. 51*c*.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin convex, rostral formula: 4–6 + 5–7/1–2, dorsal teeth more widely spaced anteriorly than posteriorly; branchiostegal suture very short, not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin concave; 1st pereopod with chela more than 1/2 as long as carpus; 2nd pereopods unequal in length and somewhat dissimilar in form; major 2nd pereopod with palm compressed, fingers not clothed in dense pubescence, dentate on opposable margins, slightly gaping, 2/3–1 1/3 times as long as palm, palm without any dense pubescence, chela 1 1/2–2 1/3 times as long as as carpus, palm 2/3–1 1/3 times as long as carpus, carpus shorter than merus, without longitudinal grooves; minor 2nd pereopod with fingers 2/5–9/10 as long as palm; 3rd pereopod overreaching antennal scale by more than length of dactyl, propodus bearing rather numerous subacute scales; maximum postorbital carapace length less than 20 mm.

MATERIAL.—PHILIPPINES. Calawagan River, Mindoro, 3 miles from mouth, Mindoro; [13°25′N, 120°28′E]; 11 Dec 1908 (1500); 16′ seine: 1 male [15.0].—Yawa River, Legaspi,

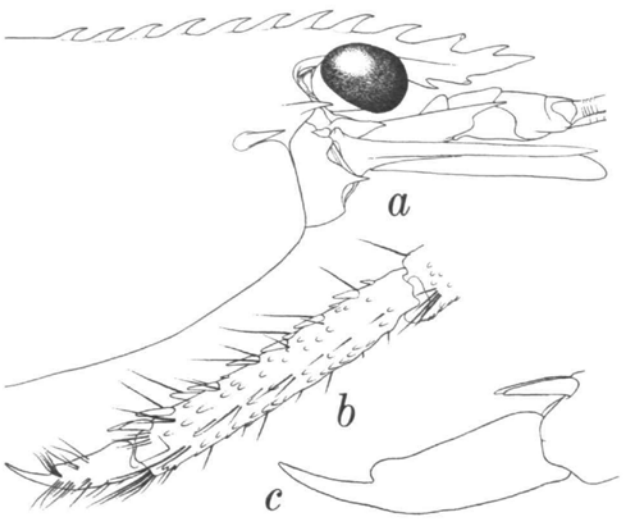

FIGURE 14.—*Macrobrachium placidulum* from the Philippines: *a*, anterior carapace and appendages, lateral aspect, of male from Zamboanga River, Mindanao, with carapace length of 12.7 mm; *b*, right 3rd pereopod, dactyl, and propodus, of male from Yawa River, Luzon, with carapace length of 10.2 mm; *c*, same, dactyl, denuded.

Luzon; [13°10′N, 123°45′E]; 7 Jun 1909 (0600): 5 males [7.7–11.1] 1 ovig female [8.8].—Malaga River, Hinunangan Bay, Leyte; [10°24′N, 125°12′E]; 30 Jul 1909: 3 males [12.0–13.5].—Zamboanga River, Mindanao; [6°54′N, 122°04′E]; 9 Oct 1909: 1 male [12.7].

RANGE.—This species seems not to have been recorded previously from the Philippines. It was known from eastern Indonesia from Makassar Strait to New Guinea, as well as from New Hanover in the Bismarck Archipelago, Palau, and Fiji.

40. *Macrobrachium placidum* (De Man, 1892)

Palaemon (Macrobrachium) placidus De Man, 1892:483, pl. 28: fig. 46 [type locality: Kajutanam, north of Padang, western Sumatra].
Macrobrachium placidum.—Holthuis, 1950a:251, fig. 51b.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin slightly convex, rostral formula: 5–7 + 4–6/2–4, dorsal teeth rather subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; 1st pereopod with chela more than 1/2 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm compressed, fingers not clothed in dense pubescence, dentate on opposable margins, fingers slightly gaping proximally, longer or shorter than palm, palm without any dense pubescence, chela twice as long as carpus, palm longer or shorter than carpus, carpus $1^1/_4$–$1^1/_2$ as long as merus, without longitudinal grooves; minor 2nd pereopod with fingers longer or shorter than palm; 3rd pereopod overreaching antennal scale by length of dactyl, propodus bearing numerous small spines; maximum postorbital carapace length about 25 mm.

RANGE.—Ryukyu Islands and western Sumatra and Java, Indonesia.

REMARKS.—As noted under *M. lepidactyloides*, there is a possibility that that species may eventually prove to be synonymous with *M. placidum*.

41. *Macrobrachium poeti* Holthuis, 1984

Macrobrachium poeti Holthuis, 1984b:143, fig. 1 [type locality: Luwang Jurangjero, south central Java (8°S, 111°E), about 100 m below entrance].

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin nearly straight, rostral formula: 4–5 + 5–8/1, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela 3/5 as long as carpus; 2nd pereopods subequal in length and similar in form, palm subcylindrical, fingers without dense pubescence, denticulate on opposable margins, not gaping, $1^1/_3$ times as long as palm, palm without any dense pubescence, chela 3 times as long as carpus, palm $1^1/_2$ times as long as carpus, carpus more than 1/2 as long as merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by length of dactyl, propodus without numerous spines or scales; maximum postorbital carapace length less than 15 mm.

RANGE.—Caves in the Pegunungan Sewu region, near the south coast of central Java, Indonesia.

*42. *Macrobrachium rosenbergii* (De Man, 1879)

FIGURE 15

Palaemon Rosenbergii De Man, 1879:167 [type locality: Andai, northwestern Irian Jaya].
P[alaemon] whitei (Guérin-Méneville ms) Sharp, 1893:122 [type locality: Bombay].
Palaemon spinipes Schenkel, 1902:501, pl. 9: fig. 7 [type locality: Kema, Minahasa, northeastern Celebes; not *P. spinipes* Desmarest, 1817].
Palaemon d'Acqueti Sunier, 1925:cxvii [type locality: Ambon ?].
Palaemon carcinus.—Cowles, 1914:324, pl. 1: fig. 1 [not *Cancer carcinus* Linnaeus, 1758].
Macrobrachium rosenbergii.—Holthuis, 1950a:111, fig. 25.—Kuris, Ra'anan, Sagi, and Cohen, 1987:219.

DIAGNOSIS.—Rostrum overreaching antennal scale or not, dorsal margin variably sinuous, rostral formula: 2–3 + 9–11/8–15, dorsal teeth unequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex overreaching posterolateral spines; antennal scale with lateral margin straight; 1st pereopod with chela less than 1/2 as long as carpus; 2nd pereopods subequal in length and similar in form, palm subcylindrical or somewhat compressed, movable finger clothed in dense pubescence on

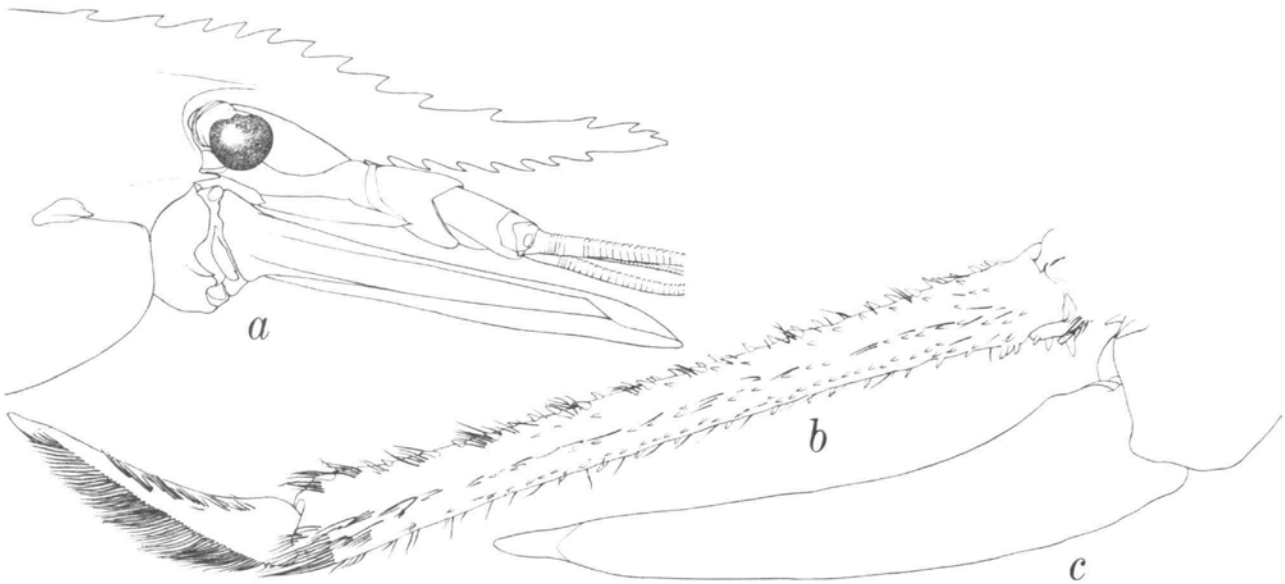

FIGURE 15.—*Macrobrachium rosenbergii* from the Philippines: *a*, anterior carapace and appendages, lateral aspect, of male collected from Jaro River, Panay, by H.C. Keller (Naval Eclipse Expedition, 1929), with carapace length of 66.0 mm (USNM 10526); *b*, right 3rd pereopod, dactyl, and propodus, of male from Zamboanga River, Mindanao, with carapace length of 81.3 mm; same, dactyl, denuded.

proximal 3/4 of length (in adults), fixed finger without pubescence, fingers dentate on proximal 1/2 of opposable margins (in adults), somewhat gaping in large males, 3/4 to quite as long as palm, palm without any dense pubescence, chela slightly to 1 3/4 times as long as carpus, palm 1/2 to quite as long as carpus, carpus slightly to nearly 1 1/2 times as long as merus, with indistinct longitudinal groove; 3rd pereopod overreaching antennal scale by less than length of dactyl, propodus bearing rather numerous spines or sharp scales; maximum postorbital carapace length about 100 mm.

MATERIAL.—PHILIPPINES. Zamboanga River, Mindanao; [6°54′N, 122°04′E]; 9 Oct 1909: 1 male [81.3].

RANGE.—India to southern China, Philippines, Indonesia, and northern Australia, in fresh, brackish, and sometimes salt water; widely introduced elsewhere throughout the tropical and subtropical parts of the world in propagation operations.

REMARKS.—Although Johnson (1973) made a fairly convincing case for the recognition of at least two geographic subspecies of *M. rosenbergii*, subsequent analyses of sympatric male morpho-types (e.g., Kuris, Ra'anan, Sagi, and Cohen, 1987) suggest that causative factors for the variability of the species may be more complex than realized heretofore. The single large male in the *Albatross* collection, from the Zamboanga River, Mindanao, Philippines, seems to represent the typical variety on the basis of the characters proposed by Johnson, but it is apparent that far more effort must be devoted to the problem before a satisfactory solution is obtainable.

43. *Macrobrachium scabriculum* (Heller, 1862)

Palaemon scabriculus Heller, 1862a:527 [type locality: Sri Lanka].

Palaemon (s.s.) *dolichodactylus* Hilgendorf, 1879:840, pl. 4: fig. 18 [type locality: Tete, Mozambique].

P[alaemon] dubius Henderson and Matthai, 1910:300, pl. 18: fig. 9 [type locality: Chingleput District, SE. India].

Macrobrachium scabriculum.—Holthuis, 1950a:224.

DIAGNOSIS.—Rostrum not reaching level of distal end of antennal scale, dorsal margin convex, rostral formula: 4–5 + 8–10/2–3, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin concave; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm compressed, fingers densely pubescent at extreme proximal ends, dentate on opposable margins, gaping, about as long as palm, palm completely covered in dense pubescence (in large males), chela 2 3/4–3 1/2 times as long as carpus, palm 1 1/3 to twice as long as carpus, carpus from 4/5 to quite as long as merus, with distinct longitudinal groove; minor 2nd pereopod with fingers 1 1/4–1 1/2 times as long as palm; 3rd pereopod not overreaching antennal scale; maximum postorbital carapace length about 40 mm.

RANGE.—Eastern Africa, Madagascar, India, Sri Lanka, and Indian Ocean coast of Sumatra.

44. *Macrobrachium sintangense* (De Man, 1898)

Palaemon (Eupalaemon) elegans De Man, 1892:440, pl. 26: fig. 36 [type locality: Bogor and "Sinagar," Java; not *P. elegans* Rathke, 1837].
Palaemon (Eupalaemon) sintangensis De Man, 1898:138, pl. 6 [type locality: Sintang, Kapuas River, Borneo].
Macrobrachium sintangense.—Holthuis, 1950a:151.

DIAGNOSIS.—Rostrum typically overreaching antennal scale, dorsal margin nearly straight, rostral formula: 2-3 + 7-10/2-5, dorsal teeth unequally or subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin straight or concave; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods subequally long and similar in form, palm subcylindrical, fingers partially clothed in dense pubescence, dentate (in adults) on opposable margins, not gaping, 3/4–1 1/4 times as long as palm, palm without any dense pubescence, chela slightly longer than carpus, palm 1/2–3/4 as long as carpus, carpus 1 1/2–1 3/4 as long as merus, without longitudinal groove; 3rd pereopod with propodus not profusely spinose or scaly; maximum postorbital carapace length 20 mm.

RANGE.—Malaya, Thailand, Sumatra, Java, and Borneo.

45. *Macrobrachium sulcicarpale* Holthuis, 1950

Macrobrachium sulcicarpale Holthuis, 1950a:220, fig. 45 [type locality: Bangkalan River, Pulau Salajar, Indonesia].

DIAGNOSIS.—Rostrum reaching nearly to level of distal end of antennal scale, dorsal margin nearly straight, rostral formula: 6 + 9/2, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; antennal scale with lateral margin concave; 1st pereopod with chela 1/2 as long as carpus; 2nd pereopods unequal in length and dissimilar in form; major 2nd pereopod with palm subcylindrical, fingers with proximal portions clothed in dense pubescence, dentate on opposable margins, not gaping, 1 1/2 times as long as palm, palm clothed distally in dense pubescence, bare proximally, chela twice as long as carpus, palm shorter than carpus, carpus longer than merus, with 2 deep longitudinal grooves; minor 2nd pereopod with fingers 1 1/2 times as long as palm; 3rd pereopod without numerous spines or scales on propodus; maximum postorbital carapace length less than 20 mm.

RANGE.—Known only from the unique holotype from Pulau Salajar, Indonesia.

46. *Macrobrachium trompii* (De Man, 1898)

Palaemon (Parapalaemon) Trompii De Man, 1898:144, pl. 7 [type locality: "Kapuas Basin," central Borneo].
Palaemon (Parapalaemon) thienemanni J. Roux, 1932:570, figs. a,b [type locality: Sungai Musi, near Muarakelingi, southern Sumatra].
Palaemon (Parapalaemon) trompi armatus J. Roux, 1936:30 [type locality: Gunong Pulai Estate, Johor, Malaysia].
Macrobrachium trompii.—Holthuis, 1950a:211.

DIAGNOSIS.—Rostrum reaching as far as or slightly beyond level of distal end of antennal scale, dorsal margin nearly straight, rostral formula: 3-4 + 7-8/4-6, dorsal teeth subequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spine; telson with posterior apex not overreaching posterolateral spines; 1st pereopod with chela less than 1/2 as long as carpus; 2nd pereopods nearly subequal in length and slightly dissimilar in form, palm somewhat compressed, fingers densely pubescent, dentate on opposable margins, not gaping, slightly shorter than palm, palm pubescent distally, chela 1 1/4–1 3/4 times as long as carpus, palm 3/4 to quite as long as carpus, carpus slightly longer than merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by length of dactyl, propodus not profusely spinose or scaly; maximum postorbital carapace length about 16 mm.

RANGE.—Malaya, Sumatra, and Borneo.

47. *Macrobrachium weberi* (De Man, 1892)

Palaemon (Eupalaemon) Weberi De Man, 1892:421, pl. 25: fig. 33 [type locality: southwestern Celebes].
Macrobrachium weberi.—Holthuis, 1950a:122, fig. 26.—Johnson, 1973:280.

DIAGNOSIS.—Rostrum reaching nearly to or beyond level of distal end of antennal scale, dorsal margin sinuous, rostral formula: 1-2 + 9-12/4-6, dorsal teeth unequally spaced; branchiostegal suture not extending posteriorly beyond hepatic spines; telson with posterior apex not extending posteriorly beyond posterolateral spines; antennal scale with lateral margin slightly convex; 2nd pereopods unequal in length but similar in form, palm subcylindrical, fingers clothed in dense pubescence, dentate on opposable margins, not gaping, fingers 1/2 as long as palm, palm without any dense pubescence, chela shorter than carpus, palm less than 2/3 as long as carpus, carpus 1 3/4 times as long as merus, without longitudinal grooves; 3rd pereopod overreaching antennal scale by less or more than length of dactyl, propodus bearing numerous small, appressed spines; maximum postorbital carapace length about 30 mm.

RANGE.—Perhaps confined to Celebes.

Nematopalaemon Holthuis, 1950

Nematopalaemon Holthuis, 1950a:5, 9, 44 [type species, by original designation: *Leander tenuipes* Henderson, 1893:440; gender: masculine].

DIAGNOSIS.—Rostrum with elevated basal crest; carapace with marginal branchiostegal spine, without branchiostegal suture or hepatic spine; mandible with palp; 3 posterior pairs of pereopods with dactyl simple, not biunguiculate, longer than propodus; 1st pleopod of male without appendix interna on endopod.

RANGE.—South Africa, India, Burma, Philippines, Taiwan, eastern Pacific off Colombia, Guiana region of northeastern

South America, and West Africa from Liberia to Angola; littoral in marine, brackish, and freshwater habitats.

REMARKS.—The elevated crest at the base of the rostrum, combined with the long, tenuous posterior pereopods, seems sufficient cause to grant full generic recognition to the subgenus *Nematopalaemon*, as used by Holthuis (1980:107). Of the five closely related species distinguished in the following key, only one seems to be known from the Philippine-Indonesian region.

Key to Species of *Nematopalaemon*

1. Rostral crest armed with 7–11 teeth . . . . . ***N. hastatus*** (Aurivillius, 1898:27) (Eastern Atlantic from Liberia to Angola)
   Rostral crest armed with 3–6 teeth 2
2. Rostrum armed with 7–9 ventral teeth . . . . . ***N. schmitti*** (Holthuis, 1950b:97) (Guiana region of northeastern South America)
   Rostrum armed with 2–7 ventral teeth 3
3. Rostrum not reaching end of antennal scale . . . . . ***N. karnafuliensis*** (Khan, Fincham, and Mahmood, 1980:85, figs. 1, 2) (Karnafuli Estuary, Chittagong, Bangladesh)
   Rostrum distinctly overreaching antennal scale 4
4. Sixth abdominal somite fully 3/4 as long as carapace . . . . . ***N. colombiensis*** (Squires and Mora, 1971:102, fig. 1) (Pacific coast of Colombia)
   Sixth abdominal somite no more than 2/3 as long as carapace . . . 48. ***N. tenuipes***

48. *Nematopalaemon tenuipes* (Henderson, 1893)

Leander tenuipes Henderson, 1893:440, pl. 40: figs. 14, 15 [type localities: Bombay and Madras, India, and Gulf of Martaban, Burma].

Palaemon luzonensis Blanco, 1939b:201, pl. 1 [type locality: Aparri, northern Luzon].

Palaemon (Nematopalaemon) tenuipes.—Holthuis, 1950a:44, fig. 7.

Nematopalaemon tenuipes.—Holthuis, 1980:108.

DIAGNOSIS.—Rostrum overreaching antennal scale, rostral formula: 1–3 + 3 + 1/2–6; 6th abdominal somite no more than 2/3 as long as postorbital carapace length.

RANGE.—South Africa, Somalia?, India, Burma, Thailand, Philippines, Taiwan, New Zealand?; littoral to 17 meters, brackish and marine.

REMARKS.—This species is not represented in the Smithsonian collections. Comparison of series from the entire Indo-Pacific region may be needed to determine the status of *N. colombiensis*, which seems to differ from *N. tenuipes* chiefly in the proportionately longer sixth abdominal somite.

**Palaemon* Weber, 1795

Palaemon Weber, 1795:94 [type species, designated by plenary action of the International Commission on Zoological Nomenclature, Opinion 564 (1959): *Palaemon adspersus* Rathke, 1837:368; gender: masculine].

Palaemon Fabricius, 1798:378, 402 [placed on *Official Index of Rejected and Invalid Generic Names in Zoology* as a junior homonym of, and a junior objective synonym of, *Palaemon* Weber, 1795, in Opinion 564 (1959) of the International Commission on Zoological Nomenclature].

Palaeander Holthuis, 1950a:5, 8, 55 [type species, by original designation: *Palaemon elegans* Rathke, 1837:370; gender: masculine].

DIAGNOSIS.—Rostrum without elevated basal crest; carapace with branchiostegal spine and branchiostegal suture, without hepatic spine; 4th thoracic sternite with slender median process; mandible normally with palp; 3 posterior pairs of pereopods with dactyl simple, shorter than propodus; endopod of male 1st pleopod without marginal appendix, except in *P. concinnus*.

RANGE.—Worldwide in tropical and temperate salt, brackish, and fresh water; usually littoral.

REMARKS.—Recent studies of the mandibular palp in *Palaemon* (Fujino and Miyake, 1968a, and Chace, 1972a) indicate that that appendage is less constant than it was believed to be when Holthuis (1950a:55) proposed the subgenus *Palaeander* for those species of *Palaemon* bearing a two-segmented, rather than a three-segmented mandibular palp. That taxon is therefore not recognized herein. With the inclusion of the species assigned to that subgenus and those eliminated by the elevation of *Exopalaemon* and *Nematopalaemon* to distinct full genera, the genus *Palaemon* is now believed to comprise about 34 species, including a half-dozen described since the publication of the fine report on the Palaemoninae of the *Siboga* Expedition by Holthuis (1950a): *P. folliirostris* Phan Chuu Duc, 1971, from the Lenkoransk area of the Caspian Sea; *P. ogasawaraensis* Kato and Takeda, 1981, from the Ogasawara Islands, Japan; *P. okiensis* (Kamita, 1951) from the Oki Gunto, Sea of Japan; *P. paivai* Filho, 1965, from Ceara, Brazil; *P. rosalesi* Rodriguez de la Cruz, 1965, from eastern Mexico; and *P. yamashitai* Fujino and Miyake, 1970, from the Yellow Sea in a depth of 26 meters. Of that total, only the five species covered in the following key seem to have been recorded from the Philippines and/or Indonesia.

Key to Philippine-Indonesian Species of *Palaemon*

1. Only 1 tooth of dorsal rostral series situated on carapace posterior to level of orbital margin 2
   Two or 3 teeth of dorsal rostral series situated on carapace posterior to level of orbital margin 4
2. Rostrum dorsally unarmed on anterior 1/3 of length; 1st pereopod with carpus less than twice as long as chela . . . . . 52. ***P. semmelinkii***
   Rostrum with subterminal dorsal tooth; 1st pereopod with carpus more than twice as long as chela 3
3. Basal antennular segment with distolateral spine distinctly overreaching adjacent convex distal margin; dorsal antennular flagellum with free part of shorter branch more than 3 times as long as fused part; 1st pleopod of male with marginal appendix on endopod . . . . . *49. ***P. concinnus***
   Basal antennular segment with distolateral spine not overreaching adjacent convex distal margin; dorsal antennular flagellum with free part of shorter branch subequal in length to fused part; 1st pleopod of male with margin of endopod entire, without appendix . . . . . *50. ***P. debilis***
4. Rostrum ascending anteriorly with margins tapering slightly in anterior 1/2; basal antennular segment with distolateral spine distinctly overreaching adjacent convex distal margin of segment. . . . . 51. ***P. pacificus***
   Rostrum usually nearly horizontal with margins tapering to sharp apex in anterior 1/2; basal antennular segment with distolateral spine barely, if at all, overreaching adjacent convex distal margin of segment . . . . . 53. ***P. serrifer***

*49. *Palaemon concinnus* Dana, 1852

Palaemon concinnus Dana, 1852a:26 [type locality: Fiji Islands].
Palaemon exilimanus Dana, 1852a:26 [type locality: Fiji Islands].
Leander longicarpus Stimpson, 1860:40 [type locality: Hong Kong].
Palaemon lagdaoensis Blanco, 1939a:167, pl. 1 [type locality: Cagayan River at Aparri, north coast of Luzon, Philippines].
Palaemon (Palaemon) concinnus.—Holthuis, 1950a:61, fig. 12.

DIAGNOSIS.—Rostrum usually ascending slightly in anterior 1/2, tapering gradually to subapical dorsal tooth, rostral formula 1 + 4–7 + 1/3–7; basal antennular segment with disto-lateral spine distinctly overreaching adjacent convex distal margin of segment; dorsal antennular flagellum with free part of shorter branch 3 1/2–6 times as long as fused part; 1st pereopod with carpus 2 1/2–3 times as long as chela; 1st pleopod of male with marginal appendix on endopod;; maximum postorbital carapace length probably about 13 mm.

MATERIAL.—PHILIPPINES. Pucot River (near Mariveles), Luzon; [14°26′N, 120°29′E]; 29 Jan 1909; dynamite: 1 female [6.0].—Santiago River, Pagapas Bay, Luzon; [13°52′N, 120°39′E]; 1.2 m; mud, gravel; 20 Feb 1909 (0800); 130′ seine: 1 male [4.2].—Batangas market, Luzon; [13°45′, 121°03′E]; 6 Jun 1908: 1 male [4.2].—"Batangas" River, Batangas, Luzon; [13°45′N, 121°03′E]; 7 Jun 1908; 15′ seine: 9 males [6.0–8.2) 12 females [6.9–10.7], 2 ovig [10.2, 10.5].—Nato River, Lagonoy Gulf, Luzon; 13°36′N, 123°33′E]; tidewater; 18 Jun 1909 (0630); 25′ seine: 22 males [5.2–10.3] 16 females [6.5–11.0], 5 ovig [8.1–10.3].—Paluan River, Mindoro; [13°25′N, 120°28′E]; 4 Dec 1908; seine, 130′: 1 female [4.8].—Naujan River, Mindoro; [13°16′N, 121°19′E]; 5 Jun 1908: 7 males [5.0–7.5] 28 females [7.0–11.0], 2 ovig [7.3,8.0].—Iwahig River and tributaries at Princesa Point, Palawan; [9°44′N, 118°44′E]; 4 Apr 1909 (0700); dynamite: 1 male [7.2] 1 female [7.2].—Kotkot River, Cebu; [10°26′N, 124°00′E]; 5 Apr 1908; Paul Bartsch: 1 female [8.0].—Mahinog, Camiguin Island, Mindanao Sea; [9°09′N, 124°47′E]; 3 Aug 1909; tidepools: 2 females [8.9,9.2], 1 ovig [8.9].—Zamboanga Canal, Mindanao; [6°54′N, 122°04′E]; 8 Oct 1909; 25′ seine: 3 females [8.2–9.2], 2 ovig [8.9, 9.2].—Cotabato, Mindanao, small stream on south side of river; [7°13′N, 124°15′E]; 20 May 1908: 12 males [3.8–6.3] 17 females [3.9–10.2], 3 ovig [8.9–10.2], 4 juv [2.6–3.6].—Baganga River, Mindanao; [7°35′N, 126°33′E]; 13 May 1908(1300): 17 males [6.0–8.7] 5 females [8.8–9.8] 34 juv [2.7–3.3].—Mati, Pujada Bay, Mindanao, small stream; [6°57′N, 126°13′E]; 15 May 1908: 1 male [7.8].

RANGE.—Suez to South Africa and eastward to Hong Kong, Philippines, Indonesia, to Marshall Islands and Tuamotu Archipelago; salt, brackish, and fresh water.

*50. *Palaemon debilis* Dana, 1852

Palaemon debilis Dana, 1852a:26 [type locality: Hawaii]. *Palaemon debilis* var. [alpha] Dana, 1852a:26 [type locality: Hawaii].
Palaemon debilis var. [beta], *attenuatus* Dana, 1852a:26 [type locality: Hawaii].
Leander gardineri Borradaile, 1901:98 [type locality: Ekasdu, Miladummadulu Atoll, Maldive Islands; fresh water].

Leander beauforti J. Roux, 1923:18, figs. 1, 2 [type locality: Kairatu, Ceram, Indonesia; brackish water].
Palaemon (Palaemon) debilis.—Holthuis, 1950a:66, fig. 13.

DIAGNOSIS.—Rostrum rather strongly ascendant anteriorly, tapering almost imperceptibly to subapical dorsal tooth, rostral formula: 1 + 1-7 + 1/3-10; basal antennular segment with distolateral spine falling short of adjacent convex distal margin of segment; dorsal antennular flagellum with free part of shorter branch slightly longer or shorter than fused part; 1st pereopod with carpus usually somewhat more than twice as long as chela; 1st pleopod of male without appendage on margin of endopod; maximum postorbital carapace length probably no more then 10 mm.

MATERIAL.—PHILIPPINES. River at Hamilo Point, Luzon; [14°10′N, 120°34′E]; 13 Jul 1908; 12′ seine: 1 male [4.5] 1 ovig female [6.0].—Santiago River, Pagapas Bay, Luzon; [13° 52′N, 120°39′E]; 1.2 m; mud, gravel; 20 Feb 1909 (0800); 130′ seine: 2 males [4.6, 4.9].—Biri Island, San Bernardino Strait; [12°40′N, 124°22′E]; sea beach; 1 Jun 1909: 2 males [4.7,5.3] 6 females [6.3-7.3], 3 ovig [6.6-7.3].—Mahinog, Camiguin Island, Mindanao Sea; [9°09′N, 124°47′E]; 3 Aug 1909; tidepools: 2 females [8.9,9.2], 1 ovig [8.9].—Malabang River, Mindanao; [7°36′N, 124°04′E]; 21 May 1908 (1500); 130′ seine: 1 male [3.2].—Jolo, Jolo Island, Sulu Archipelago; [6°00′N, 121°00′E]; 6 Mar 1908; shore: 1 male [3.2].

RANGE.—Red Sea to South Africa to Ryukyu Islands, Philippines and Indonesia, Great Barrier Reef of Australia, and eastward to Hawaii and the Tuamotu Archipelago; shallow, salt, brackish, and fresh water.

51. *Palaemon pacificus* (Stimpson, 1860)

Leander pacificus Stimpson, 1860:40 [type localities: Hong Kong, Hawaii, and Shimoda].
Palaemon (Palaemon) pacificus.—Holthuis, 1950a:87, fig. 19.

DIAGNOSIS.—Rostrum usually ascending slightly in anterior 1/2, tapering gradually to subapical dorsal tooth, rostral formula: 2-3 + 6-8/3-5; basal antennular segment with distolateral spine distinctly overreaching adjacent convex distal margin of segment; dorsal antennular flagellum with free part of shorter branch 3 1/2-4 times as long as fused part; 1st pereopod with carpus 1 1/2-1 2/3 times as long as chela; 1st pleopod of male without appendage on margin of endopod; maximum postorbital carapace length probably little more than 10 mm.

RANGE.—Suez Canal and Red Sea and eastern and South Africa, India, Hong Kong, Japan, Indonesia, New Caledonia, and Hawaii; littoral.

52. *Palaemon semmelinkii* (De Man, 1881)

Leander semmelinkii De Man, 1881:137 [type locality: Makasar, Celebes].
Palaemon (Palaeander) semmelinkii.—Holthuis, 1950a:57, fig. 11.

DIAGNOSIS.—Rostrum ascending in anterior 1/2, tapering directly to sharp apex, without subapical tooth, rostral formula: 1 + 6-10/2-5; basal antennular segment with distolateral spine distinctly overreaching adjacent convex distal margin of segment; dorsal antennular flagellum with free part of shorter branch 1 1/2-2 times as long as fused part; 1st pereopod with carpus less than twice as long as chela; 1st pleopod of male without appendix arising from margin of endopod; maximum postorbital carapace length probably less than 10 mm.

RANGE.—India, Burma, Malaya, Thailand, Singapore, Philippines, Indonesia, and northern Australia; shallow marine, sometimes brackish water.

53. *Palaemon serrifer* (Stimpson, 1860)

Leander serrifer Stimpson, 1860:41 [type localities: Hong Kong and O Shima; littoral].
Leander Fagei Yu, 1930:555, 561, fig. 2 [type locality: Shandong Peninsula].
Leander serrifer var. *longidactylus* Yu, 1930:555, 570, fig. 4B'C' [type localities: "Yangmatoa," Peitaiho, "Tangkou," and Yent'ai (Chefoo), China].
Palaemon (Palaemon) serrifer.—Holthuis, 1950a:83, fig. 18.

DIAGNOSIS.—Rostrum often nearly horizontal, sometimes ascending in anterior 1/2, often tapering directly to acute apex, rostral formula: 2-3 + 7-13/3-5; basal antennular segment with distolateral spine barely, if at all, overreaching adjacent convex distal margin of segment; dorsal antennular flagellum with free part of shorter branch 3 times as long as fused part; 1st pereopod with carpus about 1 1/2 times as long as chela; 1st pleopod of male without appendix arising from margin of endopod; maximum postorbital carapace length probably about 10 mm.

RANGE.—India. Burma, Thailand, Taiwan, China, Korea, Vladivostok, and Japan and Indonesia and northern Australia; littoral marine waters.

**Urocaridella* Borradaile, 1915

Urocaridella Borradaile, 1915:207 [type species, by monotypy: *Urocaridella gracilis* Borradaile, 1915:210 (= *Leander urocaridella* Holthuis, 1950a:6, 28); gender: feminine].

DIAGNOSIS.—Rostrum armed with 2 strong basal teeth elevated into semblance of crest; carapace with strong median tooth at about mid-length of dorsal surface, with submarginal branchiostegal spine, without hepatic spine or branchiostegal suture; mandible with or without palp; 3 posterior pairs of pereopods with dactyl simple, not biunguiculate, shorter than propodus; endopod of male 1st pleopod with marginal appendix.

RANGE.—Maldive Islands, India, Andaman Islands, Mergui Archipelago, Indonesia, Japan, Palau Islands; sublittoral to 130 meters.

REMARKS.—The proposed re-establishment of the genus *Urocaridella* for *U. urocaridella*—which was transferred to

Leander by Holthuis (1950a)—and the similar-looking *Periclimenes antonbrunii*—which differs most significantly from *U. urocardella* in the absence of a mandibular palp—was suggested by the discovery in the *Albatross* collections of an apparently undescribed species with a vestigial mandibular palp that otherwise appears to be closely related to *P. antonbrunii*. This attempt to give greater weight to the configuration of the carapace and rostrum than to the usually more stable mandibular palp may prove to be premature. Some of our colleagues may contend that *U. urocaridella* differs from the other two species in characters other than the presence of a well-developed mandibular palp, such as a narrowly triangular endpiece on the telson, more robust third maxilliped, and different proportionate lengths of the segments of the pereopods. It seems to us, however, that the proposal may be defended as a possibly valid rearrangement of generic characters that requires the involvement of no previously unknown genera.

Key to Species of *Urocaridella*

1. Telson terminating posteriorly in narrowly triangular endpiece; mandible with well-developed 2-segmented palp; 1st pereopod with fingers longer than palm, chela more than twice as long as carpus; 2nd pereopod with fingers considerably longer than palm, palm longer than carpus; 3rd pereopod with propodus less than 3 times as long as dactyl; 4th and 5th pereopods with propodus less than 4 times as long as dactyl . . . . . 54. ***U. urocaridella***

   Telson with posterior margin rather simply triangular without narrow endpiece; mandible with vestige of palp or none at all; 1st pereopod with fingers subequal to palm in length, chela much shorter than carpus; 2nd pereopod with fingers more or less subequal to palm in length, palm no longer than carpus; 3rd pereopod with propodus at least 4 times as long as dactyl; 4th pereopod with propodus more than 4 times as long as dactyl; 5th pereopod with propodus more than 5 times as long as dactyl 2

2. Branchiostegal spine removed from margin by at least twice length of spine; 3rd abdominal somite with nearly subrectangular dorsal profile; 5th abdominal pleuron rounded posteroventrally; mandible without trace of palp . . . . . ***U. antonbrunii*** (Bruce, 1967a:45) (Comoro Islands, Japan, Great Barrier Reef, and Palau Islands [USNM])

   Branchiostegal spine removed from margin by no more than length of spine; 3rd abdominal somite with moderately convex (not nearly subrectangular) dorsal profile; 5th abdominal pleuron strongly acute posteroventrally; mandible with vestigial palp . . . . . *55. ***U. vestigialis,*** new species

54. *Urocaridella urocaridella* (Holthuis, 1950)

FIGURE 16

Urocaridella gracilis Borradaile, 1915:210 [type locality: Maldive Islands]; 1917:352, pl. 53: fig. 2.—Bruce, 1990a:150.

Leander urocaridella Holthuis, 1950a:6, 28 [new name for secondary junior homonym *Leander gracilis* (Borradaile)].

DIAGNOSIS.—Carapace with apex of branchiostegal spine reaching nearly or quite as far as margin; 3rd abdominal somite with dorsal profile nearly subrectangular; 5th abdominal pleuron with small acute tooth at posteroventral angle; telson terminating posteriorly in narrowly triangular endpiece; antennal scale about 4 times as long as wide; mandible with well-developed 2-segmented palp; 1st pereopod with fingers $1^1/_2$ times as long as palm, chela more than twice as long as carpus; 2nd pereopod with fingers $1^2/_3$ times as long as palm, palm distinctly longer than carpus; 3rd pereopod with propodus $2^3/_4$ times as long as dactyl; 4th pereopod with propodus $3^1/_4$ times as long as dactyl; 5th pereopod with propodus $3^2/_3$ times as long as dactyl; maximum postorbital carapace length probably about 5 mm.

RANGE.—Maldive Islands, northeastern India, Andaman Islands, Mergui Archipelago, Indonesia, and New Caledonia; littoral to 130 maters.

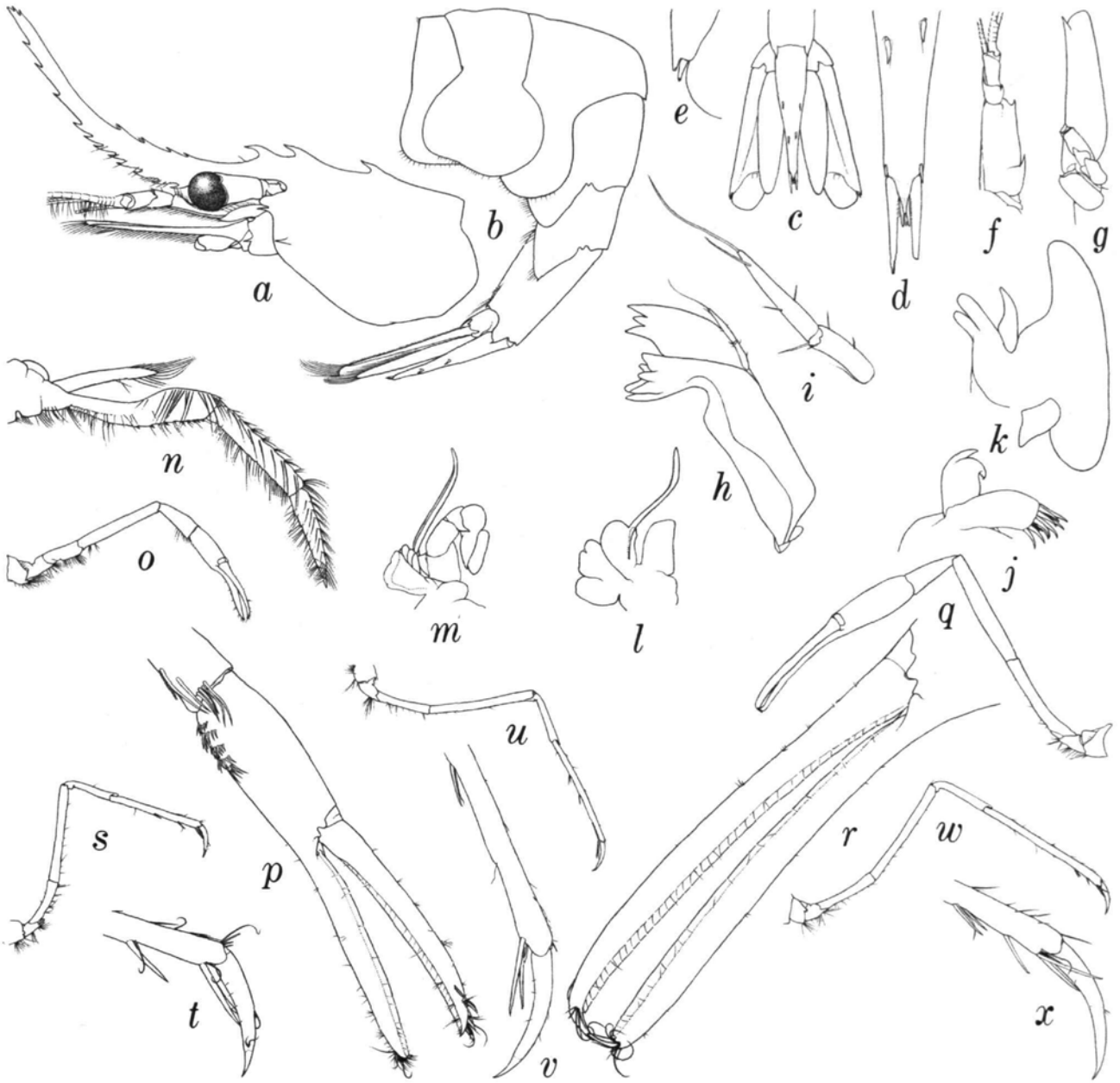

FIGURE 16.—*Urocaridella urocaridella*, ovigerous female from Port Blair, Andaman Islands, carapace length 4.7 mm (USNM 54164): *a*, carapace and anterior appendages, lateral aspect; *b*, abdomen, lateral aspect; *c*, tail fan; *d*, posterior end of telson; *e*, distolateral angle of left uropod; *f*, right antennule, dorsal aspect; *g*, right antenna, ventral aspect; *h*, right mandible; *i*, same, palp; *j*, right 1st maxilla; *k*, left 2nd maxilla; *l*, right 1st maxilliped; *m*, right 2nd maxilliped; *n*, left left 3rd maxilliped; *o*, right 1st pereopod; *p*, same, chela; *q*, left 2nd pereopod; *r*, same, fingers; *s*, right 3rd pereopod; *t*, same, dactyl; *u*, right 4th pereopod; *v*, same, dactyl; *w*, right 5th pereopod; *x*, same, dactyl.

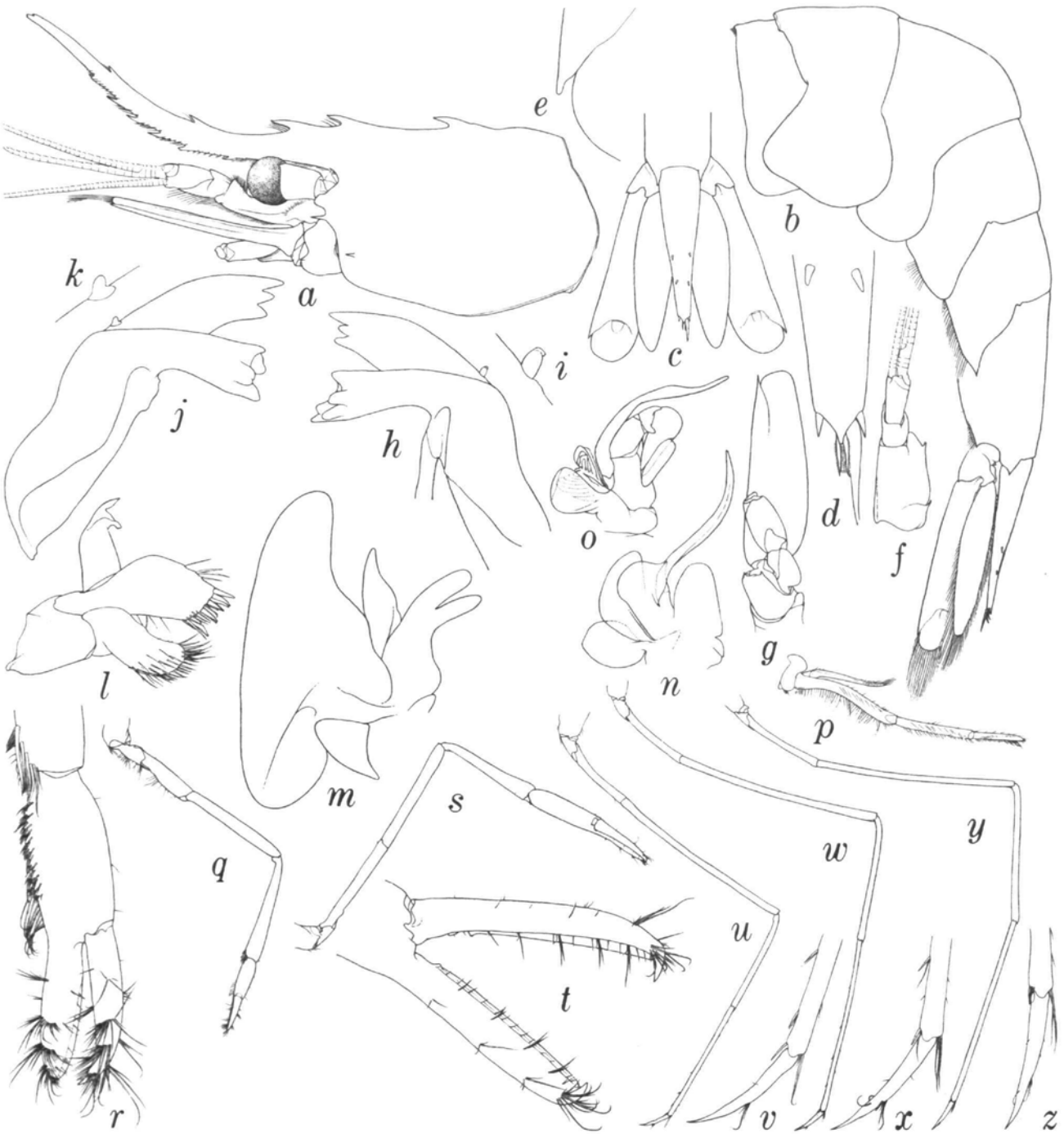

FIGURE 17.—*Urocaridella vestigialis*, new species, female holotype from *Albatross* sta 5642 (Selat Butung, Celebes), carapace length 6.4 mm: *a*, carapace and anterior appendages, lateral aspect; *b*, abdomen, lateral aspect; *c*, tail fan; *d*, posterior end of telson; *e*, distolateral angle of left uropod; *f*, right antennule, dorsal aspect; *g*, right antenna, ventral aspect; *h*, right mandible; *i*, same, palp; *j*, left mandible; *k*, same, palp; *l*, right 1st maxilla; *m*, right 2nd maxilla; *n*, right 1st maxilliped; *o*, right 2nd maxilliped; *p*, right 3rd maxilliped; *q*, right 1st pereopod; *r*, same, chela; *s*, right 2nd pereopod; *t*, same, fingers; *u*, right 3rd pereopod; *v*, same, dactyl; *w*, right 4th pereopod; *x*, same, dactyl; *y*, right 5th pereopod; *z*, same, dactyl.

*55. *Urocaridella vestigialis*, new species

FIGURE 17

DIAGNOSIS.—Carapace with apex of branchiostegal spine removed from margin by about length of spine (Figure 17*a*); 3rd abdominal somite with moderately convex dorsal profile (Figure 17*b*); 5th abdominal pleuron sharply acute at posteroventral angle (Figure 17*b*); telson with posterior margin acutely triangular but without distinct endpiece (Figure 17*d*); antennal scale fully 3 times as long as wide (Figure 17*g*); mandibles with vestigial, socketed palps, better formed on right side than left (Figure 17*h–j*); 1st pereopod with fingers about as long as palm (Figure 17*r*), chela shorter than carpus (Figure 17*q*); 2nd pereopod with fingers about as long as palm (Figure 17*s*), palm shorter than carpus (Figure 17*s*); 3rd pereopod with propodus 4 times as long as dactyl (Figure 17*u*); 4th pereopod with propodus 4 1/2 times as long as dactyl (Figure 17*w*); 5th pereopod with propodus more than 5 times as long as dactyl (Figure 17*y*); postorbital carapace length of female 6.4 mm.

MATERIAL.—INDONESIA. Selat Butung, Celebes: sta 5642; 4° 31′40″S, 122°49′42″E; 68 m; gray mud; 14 Dec 1909 (1100–1117); 12′ Agassiz beam trawl: 1 female [6.4], holotype (USNM 252657).

TYPE LOCALITY.—Same as above.

RANGE.—Known only from the type locality.

REMARKS.—As indicated in the key, both *U. antonbrunii* and *U. vestigialis* differ from the type species, *U. urocaridella*, in lacking a narrowly triangular posterior endpiece on the telson; in lacking a well-developed palp on the mandible; in having the fingers of the first pereopod about as long as, rather than longer than, the palm, and the chela shorter than, rather than twice as long as the carpus; in having the fingers of the second pereopod about as long as, rather than distinctly longer than the palm, and the palm no longer than the carpus; and in having the propodus of the walking legs less than four, rather than four to to more than five times as long as the dactyl. *Urocaridella vestigialis* differs from *U. antonbrunii* in having the branchiostegal spine less far removed from the carapace margin; in having the dorsal profile of the third abdominal somite simply convex rather than subrectangular; in having the pleuron of the fifth abdominal somite sharply acute rather than rounded posteroventrally; and in having the mandibular palp vestigial rather than completely absent.

ETYMOLOGY.—Derived from the Latin *vestigium* (trace or vestige), in reference to the vestigial mandibular palp.

*PONTONIINAE Kingsley, 1878

Pontoniinae Kingsley, 1878:64.

DIAGNOSIS.—Telson typically armed with 3 pairs of posterior spines.

RANGE.—All tropical and subtropical, occasionally temperate, seas, especially on tropical reefs, often in association with other reef organisms; littoral to 1820 meters.

REMARKS.—Although only about half of the more than 60 currently recognized pontoniine genera are here reported from the Philippine-Indonesian region, that apparent representation is certain to increase as the rich coral-reef fauna of the area is further investigated; several of the genera not yet known from the region occur in neighboring waters, especially in the Indian Ocean and on the Great Barrier Reef of Australia. For that reason, we have rashly attempted the following checklist of all of the genera and species and key to all of the genera known at least through 1989 in the hope that they may be helpful to the study of an incompletely known area and that the subsequent correction of their shortcomings may eventually produce a better product than might otherwise be probable.

Checklist of Genera and Species of Pontoniinae

Valid genus- and species-group names (boldface italics)

Synonyms and species inquirendae (italics)

Type localities (roman)

ALCIOPE Rafinesque, 1814:24
Type species: *Alciope heterochelus*
= ***Pontonia***

Alciope heterochelus Rafinesque, 1814:24
Sicily
= ***Pontonia flavomaculata***

Allopontonia Bruce, 1972a:1
Type species: ***Allopontonia iaini***

Allopontonia iaini Bruce, 1972a:7, figs. 1–4
Zanzibar Harbor; 6°09.5′S, 39°10.2′E; 20 m, on echinoid, *Salmacis*

Alpheus amethystea—See ***Periclimenes amethysteus***

Alpheus scriptus—See ***Periclimenes scriptus***

Alpheus Tyrhenus Risso, 1816:94, pl. 2
Nice, France
= ***Pontonia pinnophylax***

ALTOPONTONIA Bruce, 1990a:191
Type species: ***Altopontonia disparostris***

Altopontonia disparostris Bruce, 1990a:192, figs. 26–33
Off New Caledonia; 23°03, 167°19′E; 503 m

Amphipalaemon Gasti—See ***Balssia gasti***

AMPHIPONTONIA Bruce, 1991b:381
Type species: ***Amphipontonia kanak***

Amphipontonia kanak Bruce, 1991b:382, figs. 58–63
Loyalty Islands

ANAPONTONIA Bruce, 1966a:584, 596
Type species: ***Anapontonia denticauda***

56. ***Anapontonia denticauda*** Bruce, 1966a:597, figs. 1–4
Pange Reef, Zanzibar; on scleractinian, *Galaxea*

Anchista tenuipes Holmes, 1900:216 [not ***Palaemonella tenuipes*** Dana, 1852]
Santa Catalina Island, California
= ***Palaemonella holmesi***

ANCHISTIA Dana, 1852a:17
Type species: *Anchistia gracilis*
= ***PERICLIMENES***
Anchistia aesopia—See ***Periclimenes aesopius***
Anchistia amboinensis—See ***Periclimenes amboinensis***
Anchistia americana—See ***Periclimenes americanus***
Anchistia aurantiaca Dana, 1852a:25
Fiji Islands
= ***Anchistus custos***
Anchistia brachiata Stimpson, 1860:39
Bonin Islands
Species inquirenda
Anchistia Brockii—See ***Periclimenes brockii***
Anchistia Edwardsii—See ***Periclimenes edwardsii***
Anch[istia] elegans—See ***Periclimenes elegans***
Anchistia ensifrons—See ***Periclimenes ensifrons***
Anchistia gracilis—See ***Periclimenes gracilis***
Anchistia grandis—See ***Periclimenes grandis***
Anchistia inaequimana Heller, 1861:28
Egypt
= ***Periclimenes petitthouarsii***
Anchistia Kornii—See ***Periclimenes kornii***
Anchistia longimana—See ***Periclimenes longimanus***
Anchistia spinigera—See ***Harpiliopsis spinigera***
Anchistia tenella—See ***Periclimenes tenellus***
****ANCHISTUS*** Borradaile, 1898a:387
Type species: ***Harpilius Miersi***
TRIDACNOCARIS
MARYGRANDE
ENSIGER

57. ***Anchistus australis*** forma ***typica*** Bruce, 1977a:56, figs. 7–9
"Capre Cay," Swain Reefs, Great Barrier Reef, Australia; in bivalve mollusk, *Tridacna whitleyi* (= *T. maxima*)
Anchistus australis forma ***dendricauda*** Bruce, 1977a:62, fig. 10
"West Cay," Diamond Islets, Australia; in bivalve mollusk, *Tridacna squamosa*
Anchistus biunguiculatus Borradaile, 1898:387
Tubetube, Engineer Group, Papua; in bivalve mollusk, *Tridacna*
= ***Paranchistus armatus***
58. ***Anchistus custoides*** Bruce, 1977a:50, figs. 4–6
"N.W. end Gillett Cay, Queensland. 21°43′S 152°25′E in bivalve mollusk *Atrina vexillum*. Stn 1" (teste, Roger Springthorpe)
59. ***Anchistus custos*** (Forskål, 1775)
Cancer custos Forskål, 1775:xxi, 94
Al Luhayyah, Yemen
Pontonia inflata
Anchistia aurantiaca
Harpilius inermis
Pontonia pinna Ortmann
60. ***Anchistus demani*** Kemp, 1922:256, figs. 86–88
Aberdeen, Port Blair, Andaman Islands; from bivalve mollusk, *Tridacna* at low tide
Anchistus gravieri Kemp, 1922:252, figs. 82–84
Vanikoro, Santa Cruz Islands
*61. ***Anchistus miersi*** (De Man, 1888)
Harpilius Miersi De Man, 1888a:274, pl. 17: figs. 6–10
Elphinstone Island, Mergui Archipelago, Burma
Anchistus mirabilis (Pesta, 1911)
Marygrande mirabilis Pesta, 1911:571, figs. 1–5
Samoa
Species inquirenda
Anchistus misakiensis Yokoya, 1936:136, fig. 5
Misaki, Shikoku, Japan; in bivalve mollusc, *Amusium japonicum*
= ***Anchistus pectinis***
Anchistus oshimai Kubo, 1949:26, figs. 1, 2
Palau Islands
= ***Paranchistus armatus***
Anchistus pectinis Kemp, 1925:327, figs. 19, 20
Octavia Bay, Nancowry Harbor, Nicobar Islands; in bivalve mollusk, *Pecten*
ANCYLOCARIS Schenkel, 1902:563
Type species: *Ancylocaris brevicarpalis*
= ***PERICLIMENES***
Ancylocaris brevicarpalis—See ***Periclimenes brevicarpalis***
APOPONTONIA Bruce, 1976a:301
Type species: ***Apopontonia falcirostris***
Apopontonia dubia Bruce, 1981a:225, figs. 1–3
Shag Rock, east of North Stradbroke Island, Queensland, Australia; 27°25′S, 153°32′E; 20 m, in sponge, *Ircinia*
Apopontonia falcirostris Bruce, 1976a:303, figs. 1–5
Northwest coast of Madagascar; 12°44.5′S, 48°25.2′E; 73 m
Apopontonia tridentata Bruce, 1988b:1270, figs. 4–7
Northwest Shelf of Australia, 19°41.9′S, 17°57.15′E; 54 m
ARAIOPONTONIA Fujino and Miyake, 1970a:1
Type species: ***Araiopontonia odontorhyncha***
Araiopontonia odontorhyncha Fujino and Miyake, 1970a:2, figs. 1–4
Koniya, Amami O Shima, Ryukyu Islands, Japan
BALSSIA Kemp, 1922:267
Type species: *Amphipalaemon Gasti*
Balssia gasti (Balss, 1921)
Amphipalaemon Gasti Balss, 1921a:524, figs. 1–8
Golfo di Napoli; on *Corallium rubrum*
Brachycarpus audouini Bate, 1888:798, pl. 129: fig. 5
Cook Strait, New Zealand
= ***Periclimenes yaldwyni***
Cancer custos—See ***Anchistus custos***
CARINOPONTONIA Bruce, 1988b:1263

Type species: ***Carinopontonia paucipes***

Carinopontonia paucipes Bruce, 1988b:1264, figs. 1-3
Northwest Shelf, Australia; 83 m

CAVICHELES Holthuis, 1952c:204
Type species: *Cavicheles kempi*
= ***JOCASTE***

Cavicheles kempi Holthuis, 1952c:17, 205, figs. 99-101
Ternate, Indonesia; 4 m
?= ***Jocaste japonica***

CHACELLA Bruce, 1986b:485
Type species: *Dasycaris kerstitchi*

Chacella kerstitchi (Wicksten, 1983)
Dasycaris kerstitchi Wicksten, 1983:6, 16, fig. 2
Punta Doble, San Carlos, Sonora, Mexico; 30 m

CHERNOCARIS Johnson, 1967:500
Type species: ***Chernocaris placunae***

62. ***Chernocaris placunae*** Johnson, 1967:500, figs. 1-12
Singapore; in bivalve mollusk *Placuna placenta*

CONCHODYTES* Peters, 1852:588, 591
Type species: ***Conchodytes tridacnae***

63. ***Conchodytes kempi*** Brucei, 1989:183, fig. 3b-e
Andaman Islands; in bivalve mollusk, *Pinna bicolor*

*64. ***Conchodytes maculatus*** Bruce, 1989:182, figs. 1-6
Northeast Shelf west of Cape Leveque, Western Australia; 40 m, in pearl oyster, *Pinctada maxima*

65. ***Conchodytes meleagrinae*** Peters, 1852:594
Type locality: Ibo, Cabo Delgado, Mozambique

66. ***Conchodytes monodactylus*** Holthuis, 1952c:200, figs. 96-98
Southern Taiwan (in bivalve mollusk, *Pinna*), Timor, and Ambon

*67. ***Conchodytes nipponensis*** (De Haan, 1844)
Hymenocera niponensis De Haan, 1844: pl. 46: fig. 8 [corrected to *H. nipponensis* by plenary powers of the ICZN, 1956]
Japan
Pontonia biunguiculata

68. ***Conchodytes tridacnae*** Peters, 1852:594
Ibo, Cabo Delgado, Mozambique

CORALLIOCARIS* Stimpson, 1860:38
Replacement name for *OEDIPUS* Dana, 1852 [not Berthold, 1827, Tschudi, 1838, or Lesson, 1840]
OEDIPUS Dana
Coralliocaris Agassizi—See ***Coutierea agassizi***
Coralliocaris atlantica—See ***Periclimenaeus atlanticus***
Coralliocaris (Onycocaris) aualitica—See ***Onycocaris aualitica***

Coralliocaris brevirostris Borradaile, 1898:386
Tuvalu
Coralliocaris Camerani Nobili, 1901:3
= ***Pontonia margarita***

*69. ***Coralliocaris graminea*** (Dana, 1852)
OEdipus gramineus Dana, 1852a:25
Fiji Islands
Coralliocaris inaequalis
Coralliocaris hecate—See ***Periclimenaeus hecate***
Coralliocaris inaequalis Ortmann, 1890:510, pl. 36: fig. 21
Kagoshima, Japan, and Samoa
= ***Coralliocaris graminea***
Coralliocaris lamellirostris Stimpson, 1860:38
Ryukyu Islands; among corals in 4 m
?= ***Jocaste lucina***
C[oralliocaris] lucina—See ***Jocaste lucina***

Coralliocaris macrophthalma (H. Milne Ewards, 1837)
P[ontonia] macrophthalma H. Milne Edwards, 1837:359
Seas of Asia

Coralliocaris nudirostris (Heller, 1861)
O[edipus] nudirostris Heller, 1861:27
Red Sea
Coralliocaris tahitoei

Coralliocaris pavonae Bruce, 1972b:77, figs. 8-11
Fringing reef at Singatoka, Viti Levu, Fiji; from coral, *Pavona*
Coralliocaris taiwanensis
Coralliocaris pearsei—See ***Periclimenaeus pearsei***
Coralliocaris quadridentata—See ***Periclimenaeus quadridentatus***
Coralliocaris rathbuni Borradaile, 1917:385
Replacement name for *Coralliocaris quadridentata*
= ***Periclimenaeus tridentatus***
Coralliocaris (Onycocaris) rhodope—See ***Periclimenaeus rhodope***

*70. ***Coralliocaris superba*** (Dana, 1852)
OEdipus superbus Dana, 1852a:25
Tongatapu Island, Tonga Islands
Oed[ipus] dentirostris
Coralliocaris superba var. *japonica*—See ***Jocaste japonica***
Coralliocaris tahitoei Boone, 1935:180, fig. 12, pl. 49
Pointe Venus reef, Tahiti
= ***Coralliocaris nudirostris***
Coralliocaris taiwanensis Fujino and Miyake, 1972:92, figs. 1-3
"Herngchuen, Shiangtiau Bay," southern Taiwan; 2-5 m, in branching coral
= ***Coralliocaris pavonae***
Coralliocaris? tridentata—See ***Periclimenaeus tridentatus***
Coralliocaris truncatus—See ***Periclimenaeus truncatus***

71. ***Coralliocaris venusta*** Kemp, 1922:274, figs. 100, 101
"N.E. Tholayiram Paar," Gulf of Mannar, India; on madrepore coral

72. ***Coralliocaris viridis*** Bruce, 1974a:222, fig. 1A, B
Seaward reefs of Mombasa Island, Kenya
Coralliocaris wilsoni—See ***Periclimenaeus wilsoni***

Corallocaris perlatus—See ***Periclimenaeus perlatus***

CORNIGER Borradaile, 1915:207 [not Agassiz, 1831, or Boehm, 1879]
= ***PERICLIMENES***

COUTIEREA Nobili, 1901b:4
Type species: *Coralliocaris Agassizi*

Coutierea agassizi (Coutiere, 1901)
Coralliocaris Agassizi Coutiere, 1901:115
Off Barbados; 172 m

CRISTIGER Borradaile, 1915:207 [not Gistel, 1848]
Type species: *Periclimenes (Cristiger) commensalis*
= ***PERICLIMENES***

CTENOPONTONIA Bruce, 1979a:423
Type species: ***Ctenopontonia cyphastreophila***

Ctenopontonia cyphastreophila Bruce, 1979a:425, figs. 1–6
Enewetak Atoll, Marshall Islands; 9–27 m, on faviid coral, *Cyphastrea*

CUAPETES Clark, 1919:199
Replacement name for *FALCIGER* Borradaile
= ***PERICLIMENES***

****DASELLA*** Lebour, 1945:279.
Replacement name for *DASIA* Lebour, 1939 [not Gray, 1839, nor Van der Goot, 1918]
Type species: *Dasia herdmaniae*
DASIA Lebour

Dasella ansoni Bruce, 1983a:22, figs. 1–5
Arafura Sea; in tunicate, *Phallusia*

Dasella brucei Berggren, 1990:558
Heron Island, Queensland, Australia; 15 m, in tunicate, *Herdmannia*

*73. ***Dasella herdmaniae*** (Lebour, 1939)
Dasia herdmaniae Lebour, 1939:650, pl. 1
Tuticorin, Gulf of Mannar, India; in tunicate, *Herdmania*

DASIA Lebour, 1939:650
Type species: *Dasia herdmaniae*
= ***DASELLA***

Dasia herdmaniae—See ***Dasella herdmaniae***

DASYCARIS Kemp, 1922:240
Type species: ***Dasycaris symbiotes***
DASYGIUS

74. ***Dasycaris ceratops*** Holthuis, 1952c:176, figs. 87, 88
Makassar Strait, Indonesia; 2°25′S, 117°43′E; 50–0 m

Dasycaris doederleini (Balss, 1924)
Dasygius doederleini Balss, 1924:49, fig. 2
Zushi, Sagami Nada, Honshu, Japan; 130 m

Dasycaris kerstitchi—See ***Chacella kerstitchi***

Dasycaris symbiotes Kemp, 1922:240, figs. 76, 77, pl. 9
Off east coast of India and Mergui Archipelago; 27–64 m

Dasycaris zanzibarica Bruce, 1973a:247, figs. 1–6
Chango Island, Zanzibar; 6°06.2′S, 39°08.9′E; on antipatharian, *Cirripathes*

DASYGIUS Balss, 1924:48
Erroneous name for ***DASYCARIS***

Dasygius doederleini—See ***Dasycaris doederleini***

DENNISIA Norman, 1861:278
Type species: *Dennisia sagittifera*
= ***PERICLIMENES***

Dennisia sagittifera Norman, 1861:278, pl. 13: figs. 8–13
?= ***Periclimenes sagittifer***

ENSIGER Borradaile, 1915:207
Type species: *Anchistia aurantiaca*
= ***ANCHISTUS***

DIAPONTONIA Bruce, 1986c:125
Type species: ***Diapontonia maranulus***

Diapontonia maranulus Bruce, 1986c:126, figs. 1–5
Off Wood Cay, West End, Grand Bahama Island; 26°42.55′N, 79°01.72′W; 244–309 m, associated with asterostomatid echinoid, *Palaeopneustes tholoformis*

EPIPONTONIA Bruce, 1977b:304
Type species: ***Epipontonia spongicola***

Epipontonia anceps Bruce, 1983b:19, figs. 1–10
Queensland, Australia; in sponge, *Dysidea*

Epipontonia spongicola Bruce, 1977b:308, figs. 1–5
Wasini Channel, Kenya; 4°39.4′S, 39°22.2′E; 11 m, in sponge, *Reniera*

EUPONTONIA Bruce, 1971a:225
Type species: ***Eupontonia noctalbata***

Eupontonia noctalbata Bruce, 1971a:227, figs. 1–5
Anse Etoile, Mahe, Seychelles, 04°35′12″S, 55°27′48″E; reef flats

EXOPONTONIA Bruce, 1988a:122
Type species: ***Exopontonia malleatrix***

Exopontonia malleatrix Bruce, 1988a:123, figs. 1–5
Ashmore Reef, Timor Sea, 12°16′S, 123°02′E; intertidal

FALCIGER Borradaile, 1915:207 [not Say, 1824; Buchholz, 1869, or Trouessart and Magnin, 1883]
Type species: *Periclimenes (Falciger) nilandensis*
= ***PERICLIMENES***

FENNERA Holthuis, 1951a:10, 171
Type species: ***Fennera chacei***

Fennera chacei Holthuis, 1951a:171, pl. 54
Bay of South Island, Islas Secas, Panama; shallow water, on scleractinian, *Porites*

HAMIGER Borradaile, 1916:87
Type species: *Periclimenes (Hamiger) novaezealandiae*

Hamiger novaezealandiae (Borradaile, 1916)
Periclimenes (Hamiger) novae-zealandiae Borradaile, 1916:87, fig. 4
Seven miles [11.2 km] E of North Cape, New Zealand; 128 m

HAMODACTYLOIDES Fujino, 1973a:171

Type species: *Hamodactylus incompletus*

Hamodactyloides incompletus (Holthuis, 1958)

Hamodactylus incompletus Holthuis, 1958:11, fig. 4

Sharm ash Shaykh, Sinai Peninsula, Egypt

Hamodactyloides ishigakiensis Fujino, 1973a:174, figs. 1–3

Kabira Bay, Ishigaki-shima, Ryukyu Islands, Japan; 1 m, coral reef

= ***Hamodactyloides incompletus***

HAMODACTYLUS Holthuis, 1952c:6, 18, 208

Type species: ***Hamodactylus boschmai***

Hamodactylus aqabai Bruce and Svoboda, 1983:26, figs. 10–14

Aqaba, Jordan; 6 m, on alcyonacean, *Litophyton*

75. ***Hamodactylus boschmai*** Holthuis, 1952c:209, figs. 102–104

Ternate, off Halmahera, and Djedan, Kepulauan Aru, Indonesia; 2–13 m

Hamodactylus incompletus—See ***Hamodactyloides incompletus***

76. ***Hamodactylus noumeae*** Bruce, 1970a:539, fig. 2

Between Île aux Canards and Ilot Maître, Nouméa, New Caledonia; 25 m, on gorgonian

HAMOPONTONIA Bruce, 1970b:37

Type species: ***Hamopontonia corallicola***

77. ***Hamopontonia corallicola*** Bruce, 1970b:41, figs. 1–4

"Kat O Chau, Mirs Bay," New Territories, Hong Kong; 22°32.1′N, 114°17.95′E; about 1 m, on massive coral, *Goniopora*

Hamopontonia essingtoni Bruce, 1986d:158, figs. 11–14, 15D–G

Coral Bay, Port Essington, Cobourg Peninsula, Arnhem Land, Northern Australia; 11°11.05′S, 132°03.4′E; 6 m, associated with scleractinian, *Stylophora pistillata*

****HARPILIOPSIS*** Borradaile, 1917:324, 329–334, 336–338, 341–343, 347–351, 379, 395

Type species: *Palaemon Beaupresii*

*78. ***Harpiliopsis beaupresii*** (Audouin, 1826)

Palaemon Beaupresii Audouin, 1826:91

Type locality: Egypt

Pontonia (Harpilius) dentata

*79. ***Harpiliopsis depressa*** (Stimpson, 1860)

Harpilius depressus Stimpson, 1860:38

Hawaii; among madreporarians

Periclimenes pusillus

*80. ***Harpiliopsis spinigera*** (Ortmann, 1890)

Anchistia spinigera Ortmann, 1890:511, pl. 36: fig. 23

Samoa

Harpilius depressus var. *gracilis*

HARPILIUS Dana, 1852a:17

Type species: *Harpilius lutescens*

= ***PERICLIMENES***

Harpilius consobrinus De Man, 1902:836, pl. 26: fig. 54

Ternate, Indonesia

= ***Periclimenes consobrinus***

Harpilius depressus—See ***Harpiliopsis depressa***

Harpilius depressus var. *gracilis* Kemp, 1922:234, fig. 71

Andaman Islands

= ***Harpiliopsis spinigera***

Harpilius Gerlachei—See ***Philarius gerlachei***

Harpilius gracilis—See *Harpilius depressus* var. *gracilis*

Harpilius imperialis—See ***Philarius imperialis***

Harpilius inermis Miers, 1884:291, pl. 32: fig. B

Port Molle, Queensland, Australia; from coral reef in bivalve mollusk, *Pinna*

= ***Anchistus custos***

Harpilius latirostris Lenz, 1905:380, pl. 47: fig. 14

Mkokotoni and Bawi, Zanzibar

= ***Periclimenes brevicarpalis***

Harpilius lutescens—See ***Periclimenes lutescens***

Harpilius Miersi—See ***Anchistus miersi***

Harpilius spinuliferus Miers, 1884:291, pl. 32: fig. B

Port Molle, Queensland, Australia; in bivalve mollusk, *Pinna*

Species inquirenda

Hymenocera niponensis—See ***Conchodytes nipponensis***

ISCHNOPONTONIA Bruce, 1966a:584

Type species: *Philarius lophos*

81. ***Ischnopontonia lophos*** (Barnard, 1962)

Philarius lophos Barnard, 1962:242, fig. 2

Ilha da Inhaca, Baia de Lourenco Marques, Mozambique

ISOPONTONIA Bruce, 1982a:54

Type species: ***Isopontonia platycheles***

Isopontonia platycheles Bruce, 1982a:55, figs. 1–5

"North Cay," Ilot du Passage, Iles Chesterfield; 19°48.0′S, 158°17.0′E; seaward reef slope, 15 m

****JOCASTE*** Holthuis, 1952c:17, 192

Type species: *Coralliocaris lucina*

CAVICHELES

82. ***Jocaste japonica*** (Ortmann, 1890)

Coralliocaris superba var. *japonica* Ortmann, 1890:509, pl. 36: fig. 22

?*Cavicheles kempi*

Kagoshima, Japan

*83. ***Jocaste lucina*** (Nobili, 1901)

C[oralliocaris] lucina Nobili, 1901c:5

Eritrea

?*Coralliocaris lamellirostris*

LAOMENES Clark, 1919:199

Replacement name for *CORNIGER* Borradaile

= ***PERICLIMENES***

LIPKEBE Chace, 1969:263

Type species: ***Lipkebe holthuisi***

Lipkebe holthuisi Chace, 1969:263, figs. 8, 9
Gulf of Mexico west-northwest of Dry Tortugas, Florida; 25°13′N, 83°55′W; 119 m
MARYGRANDE Pesta, 1911:571
Type species: *Marygrande mirabilis*
= ***ANCHISTUS***
Marygrande mirabilis—See ***Anchistus mirabilis***
MESOPONTONIA Bruce, 1967a:13
Type species: ***Mesopontonia gorgoniophila***
84. ***Mesopontonia gorgoniophila*** Bruce, 1967a:13, figs. 5–9
ESE of Hong Kong; 21°47.7′N, 116°28.5′E; 117–132 m; on gorgonian
Mesopontonia gracilicarpus Bruce, 1990a:202, figs. 34–37, 39, 1 m
New Caledonia; 22°56, 167°14′E; 398–410 m
Mesopontonia monodactylus Bruce, 1991b:392, figs. 65–69
Off Ouvea, Loyalty Islands, 20°35′S, 166°54′E; 460 m
METAPONTONIA Bruce, 1967a:24
Type species: ***Metapontonia fungiacola***
Metapontonia fungiacola Bruce, 1967a:24, figs. 10–12
Pamanzi Reef, Ile de Mayotte, Comoro Islands; on the madrepore coral, *Fungia*
MIOPONTONIA Bruce, 1985a;167
Type species: ***Miopontonia yongei***
Miopontonia yongei Bruce, 1985a:168, figs. 1–5
Australian Northwest Shelf; 19°04.3′S, 118°15.5′E; 80 m
NEOANCHISTUS BRUCE, 1975a:149
Type species: ***Neoanchistus cardiodytes***
Neoanchistus cardiodytes Bruce, 1975a:151, figs. 1–6
"Nosy Be," Madagascar
Neoanchistus nasalis Holthuis, 1986:264, figs. 1, 2
Raysut, southern Oman; in scallop, *Chlamys townsendi*
NEOPONTONIDES Holthuis, 1951a:11, 189
Type species: *Periclimenes beaufortensis*
Neopontonides beaufortensis (Borradaile, 1920)
Periclimenes beaufortensis Borradaile, 1920:132
Beaufort, North Carolina; on "sea feathers"
Neopontonides chacei Heard, 1986:472, figs. 1a, 2, 3, 4B–D
Reef just south of Marigot Bay, St. Lucia Island, West Indies; 4–6 m
Neopontonides dentiger Holthuis, 1951a:193, pl. 61
Cabo de San Francisco, Ecuador
Neopontonides principis—See ***Pseudopontonides principis***
NOTOPONTONIA Bruce, 1991c:607
Type species: ***Notopontonia platycheles***
Notopontonia platycheles Bruce, 1991c:608, figs. 1–6
Northwest of Robe, South Australia, 36°53′S, 139°53′E; 64 m
OEDIPUS Dana, 1852a:17
Type species: *Oedipus superbus*
= ***CORALLIOCARIS***
Oed[ipus] dentirostris Paulson, 1875:112, pl. 14: fig. 7
Red Sea
= ***Coralliocaris superba***
OEdipus gramineus—See ***Coralliocaris graminea***
O[Edipus] nudirostris—See ***Coralliocaris nudirostris***
OEdipus superbus—See ***Coralliocaris superba***
ONYCOCARIDELLA Bruce, 1981b:241
Type species: ***Onycocaridella prima***
Onycocaridella monodoa (Fujino and Miyake, 1969)
Onycocaris monodoa Fujino and Miyake, 1969b:405, figs. 1–5
Type locality: Kasari Saki, Amami O Shima, Ryukyu Islands, Japan; 1 m
Onycocaridella prima Bruce, 1981b:243, figs. 1–6
Wistari Reef, Heron Island, Capricorn Islands, Queensland, Australia; 12 m, in sponge, *Mycale*
85. ***Onycocaridella stenolepis*** (Holthuis, 1952)
Onycocaris stenolepis Holthuis, 1952c:15, 148, figs. 66–68
Pearl Bank, southern Sulu Sea, Philippines; 15 m
ONYCOCARIDITES Bruce, 1987a:771
Type species: ***Onycocaridites anomodactylus***
Onycocaridites anomodactylus Bruce, 1987a:772, figs. 1–4
Arafura Sea; 10°40′S, 133°50′E; 60 m
ONYCOCARIS Nobili, 1904:232
Type species: *Coralliocaris (Onycocaris) aualitica*
Onycocaris amakusensis Fujino and Miyake, 1969b:413, figs. 6, 8a–c, 9a–c
Tsujino-shima, Amakusa Shimo Jima, Japan; low tide level, in sponge
Onycocaris anomala—See ***Typton anomalus***
Onycocaris aualitica (Nobili, 1904)
Coralliocaris (Onycocaris) aualitica Nobili, 1904:233
Djibouti
Onycocaris callyspongiae Fujino and Miyake, 1969b:422, figs. 10–12
Tomioka, Amakusa Shimo Jima; in sponge
Onycocaris furculata Bruce, 1979c:324, figs. 1–4
La Saline, La Réunion; approximately 21°20′S, 55°00′E; 20 m, outer reef slope under dead base of the madrepore coral, *Acropora*
Onycocaris longirostris Bruce, 1980a:15, figs. 6–10
Ilot Maître, Nouméa, New Caledonia; 20 m, in sponge, *Siphonochalina*
Onycocaris monodoa—See ***Onycocaridella monodoa***
Onycocaris oligodentata Fujino and Miyake, 1969b:415, figs. 7, 8d–f, 9d–f
Tomioka, Amakussa Shimo Jima; 35 m, in sponge
86. ***Onycocaris profunda*** Bruce, 1985b:241, figs. 8–11

Mompog Pass, northeast of Marinduque, Philippines; 81–84 m

Onycocaris quadratophthalma (Balss, 1921)
Pontonia quadratophthalma Balss, 1921b:15, fig. 7
Cape Jaubert, Western Australia

Onycocaris seychellensis Bruce, 1971b:208
Anse Etoile, Mahé, Seychelles; from small sponge encrusting base of coral colony

Onycocaris spinosa Fujino and Miyake, 1969b:429, figs. 13–15
"Terasaki," Yoron Jima, Ryukyu Islands; 1 m, in sponge

Onycocaris stenolepis—See ***Onycocaridella stenolepis***

Onycocaris trullata Bruce, 1978a:269, figs. 36–41
Tany Kely, Madagascar; 13°28′S, 48°12′E; 28 m

Onycocaris zanzibarica Bruce, 1971c:293, figs. 1, 2
Channel between Chumbe Island and main island of Zanzibar; 6°16.0′S, 39°12.6′E; 18 m

ORTHOPONTONIA Bruce, 1982b:163
Type species: *Periclimenaeus ornatus*

Orthopontonia ornata (Bruce, 1970)
Periclimenaeus ornatus Bruce, 1970c:313
Heron Island, Great Barrier Reef, Australia; on littoral sponge, *Jaspis stellifera*

Palaemon Beaupresii—See ***Harpiliopsis beaupresii***

Palaemon Petitthouarsii—See ***Periclimenes petitthouarsii***

****PALAEMONELLA*** Dana, 1852a:17
Type species: ***Palaemonella tenuipes***

Palaemonella aberrans Nobili, 1904:234
Djibouti
= ***Periclimenes brevicarpalis***

Palaemonella affinis Zehntner, 1894—See ***Periclimenes affinis***

Palaemonella amboinensis Zehntner, 1894:206, pl. 9: fig. 27 [not ***Periclimenes amboinensis*** De Man, 1888]
Ambon
= ***Periclimenes brevicarpalis***

Palaemonella asymmetrica Holthuis, 1951a:19, pl. 5
Bahia de Sullivan, Isla San Salvador, Galápagos Islands

Palaemonella atlantica Holthuis, 1951b:152, fig. 31
Sao Pedro Bay, Sao Vicente, Cape Verde Islands; 16°50′N, 25°04′W

Palaemonella batei—See ***Periclimenes batei***

Palaemonella biunguiculata Nobili, 1904:233
Djibouti
Species inquirenda

Palaemonella burnsi Holthuis, 1973:24, figs. 8, 9
Small lava pool near coast of Keoneoio (= La Perouse) Bay at extreme east end of Cape Kinau Peninsula, Maui, Hawaii

Palaemonella crosnieri Bruce, 1978a:210, figs. 2–4
Iles Glorieuses; 11°28.1′S, 27°[sic] 21.1′E; 20 m

Palaemonella disalvoi Fransen, 1987:511, figs.7–12
Tahai, west coast of Easter Island; 35 m

Palaemonella dolichodactylus Bruce, 1991a:232, figs. 6f–l, 7
New Caledonia; 22°14.5′S, 167°02.0′E; 65–70 m

Palaemonella elegans Borradaile, 1915:210
Salomon Island
= ***Palaemonella tenuipes***

Palaemonella holmesi (Nobili, 1907)
Anchista tenuipes Holmes
Periclimenes Holmesi Nobili, 1907:5
Replacement name for *Anchista tenuipes* Holmes

Palaemonella laccadivensis—See ***Periclimenes laccadivensis***

87. ***Palaemonella lata*** Kemp, 1922:127, figs. 3–6
Aberdeen. Fort Blair, Andaman Islands; Rock pool at low tide

Palaemonella longirostris—See ***Periclimenes longirostris***

Palaemonella orientalis—See ***Vir orientalis***

88. ***Palaemonella pottsi*** (Borradaile, 1915)
Periclimenes (Falciger) pottsi Borradaile, 1915:212
Torres Strait; on crinoid, *Comanthus*

Palaemonella pusilla Bruce, 1975b:169, figs. 1–5
Kisiti Island, Wasini, Kenya; 4°43.3′S, 39°22.15′E; sheltered coral reef, low water

*89. ***Palaemonella rotumana*** (Borradaile, 1898)
Periclimenes rotumanus Borradaile, 1898:383
Rotuma, Fiji Islands
Palaemonella vestigialis

Palaemonella spinulata Yokoya, 1936:135, fig. 4
Misaki, Japan

90. ***Palaemonella tenuipes*** Dana, 1852a:25
Sulu Sea
Palaemonella tridentata
Palaemonella elegans

Palaemonella tridentata Borradaile,1899:1007, pl. 64: fig. 8
Funafuti
= ***Palaemonella tenuipes***

Palaemonella vestigialis Kemp, 1922:123, figs. 1, 2, pl. 3: fig. 2
Aberdeen, Port Blair, Andaman Islands
= ***Palaemonella rotumana***

Palaemonella Yucatanica—See ***Periclimenes yucatanicus***

Palaemonetes natalensis—See *Periclimenaeus natalensis*

PARACLIMENAEUS Bruce, 1988c:222
Type species: *Periclimenaeus fimbriatus*

Paraclimenaeus fimbriatus (Borradaile, 1915)
Periclimenaeus fimbriatus Borradaile, 1915:213

Mulaku Atoll, Maldive Islands and Providence Island, Seychelles; 70–90 m

PARANCHISTUS Holthuis, 1952c:5, 13, 91
Type species: *Anchistus biunguiculatus*

91. ***Paranchistus armatus*** H. Milne Edwards, 1837
P[ontonia] armata H. Milne Edwards, 1837:359
New Ireland
Anchistus biunguiculatus
Anchistus oshimai

92. ***Paranchistus nobilii*** Holthuis, 1952c:100, figs. 41, 42
Arzanah Island, Ruqq Az Zaqqum Bank, Persian Gulf coast of United Arab Emirates; in bivalve mollusk, *Spondylus gaederopus*

Paranchistus ornatus Holthuis, 1952c:97, figs. 39, 40
Mozambique

Paranchistus pycnodontae Bruce, 1978b:233, figs. 1–5, pl. 39
Heron Island, Capricorn Group, Queensland, Australia; central lagoon, 3 m, in giant clam, *Pycnodonta hyotis*

93. ***Paranchistus serenei*** Bruce, 1983c:890, fig. 9
Indonesia; in oyster, *Ostrea*

Paranchistus spondylis Suzuki, 1971:15, figs. 8, 9
"Shiraiso," near Manazuru Marine Biological Laboratory, Sagami Bay, Honshu, Japan; rocky shore, in bivalve mollusk, *Spondylus barbatus*

PARAPONTONIA Bruce, 1968a:1148
Type species: ***Parapontonia nudirostris***

Parapontonia nudirostris Bruce, 1968a:1149, figs. 1–5
Tiaré Bay, Nouméa, New Caledonia; 22°10′S, 166°15′E

PARATYPTON Balss, 1914b:83
Type species: ***Paratypton siebenrocki***

94. ***Paratypton siebenrocki*** Balss, 1914a:84, fig. 1
Senafir, Koseir, and Sherm al Sheikh, Red Sea; Jaluit, Marshall Islands; and Samoa

PELIAS P. Roux, 1831:25 [not *PELIAS* Merrem, 1820]
Type species: *Alpheus amethystes*
= ***PERICLIMENES***

Pelias notatus Heller, 1862a:526
Nicobars
Species inquirenda

****PERICLIMENAEUS*** Borradaile, 1915:207
Type species: ***Periclimenaeus robustus***

Periclimenaeus arabicus (Calman, 1939)
Periclimenes (Periclimenaeus) arabicus Calman, 1939:210, fig. 4
Khalij al Masirah, eastern Oman; 19°22.6′N, 57°53.0′E; 13.5 m, from surface of sponge, *Periclimenaeus ohshimai*

Periclimenaeus ardeae Bruce, 1970c:310
Heron Island, Great Barrier Reef, Australia; in littoral sponges

95. ***Periclimenaeus arthrodactylus*** Holthuis, 1952c:122, figs. 51–53
Pulau Sailus-ketjil, Kepulauan Tengah, Indonesia

Periclimenaeus ascidiarum Holthuis, 1951a:80, pl. 22: figs. g–l, pl. 23
Bird Key Reef, Dry Tortugas, Florida

Periclimenaeus atlanticus (Rathbun, 1901)
Coralliocaris atlantica Rathbun, 1901:122, fig. 26
Off St. Thomas, Virgin Islands; 37–42 m

Periclimenaeus bermudensis (Armstrong, 1940)
Periclimenes (Periclimenaeus) bermudensis Armstrong, 1940: 4, figs. 2, 3A–F
The Reach, St. George Island, Bermuda; in black sponge

Periclimenaeus bidentatus Bruce, 1970c:305
Heron Island, Great Barrier Reef, Australia; in littoral sponges

Periclimenaeus bouvieri (Nobili, 1904)
Typton Bouvieri Nobili, 1904:233
Djibouti

Periclimenaeus bredini Chace, 1972b:26, fig. 5
Isla Mujeres, Quintana Roo, Mexico; 1–3 feet, grass flats

Periclimenaeus caraibicus Holthuis, 1951a:110, pls. 32*h–j*, 34
Buccoo Reef, Tobago, West Indies

Periclimenaeus chacei Abele, 1971:38, figs. 1, 2
Northeastern Gulf of Mexico; 28°31′N, 84°16′W; 26 m

Periclimenaeus crassipes (Calman, 1939)
Periclimenes (Ancylocaris) crassipes Calman, 1939:211, fig. 5
Ghubbat Sawquirah, southeastern Oman, 18°025.5′N, 57°025′E; 38 m, possibly associated with calcareous sponges

Periclimenaeus diplosomatis Bruce, 1980b:39, figs. 1–6
Heron Island, Capricorn Islands, Queensland, Australia; 23°26.9′S, 151°55′E; low water, in ascidian, *Diplosoma*

Periclimenaeus djiboutensis Bruce, 1970c:307
Djibouti

Periclimenaeus fimbriatus—See ***Paraclimenaeus fimbriatus***

Periclimenaeus garthi Bruce, 1976b:443, figs. 2–4
"Dunidu Is.," Malé Atoll, Maldive Islands

Periclimenaeus gorgonidarum (Balss, 1913)
Periclimenes gorgonidarum Balss, 1913:236
Sagami Nada near Misaki, Japan; 20–30 m, on gorgonian

Periclimenaeus hancocki Holthuis, 1951a:97, pl. 29
Bahia Pina, Panama; 59 m

Periclimenaeus hebedactylus Bruce, 1970c:308
Makunduchi, Zanzibar

96. ***Periclimenaeus hecate*** (Nobili, 1904)

Coralliocaris hecate Nobilii, 1904:232
Djibouti

97. ***Periclimenaeus holthuisi*** Bruce, 1969a:159
Kepulauan Banda, Indonesia; 17 m

Periclimenaeus jeancharcoti Bruce, 1991b:371, figs. 50–55
Off New Caledonia, 21°31′S, 166°21′E; 375–450 m

Periclimenaeus leptodactylus Fujino and Miyake, 1968b:90, figs. 3–5
Kasari-cho, Amami O Shima, Japan; in small pits on surface of sponge

Periclimenaeus lobiferus Bruce, 1978a:260, figs. 30–35
Mozambique Channel; 15°21.7′S, 46°12.6′E; 80–85 m

Periclimenaeus manihinei Bruce, 1976c:138, figs. 29, 30
Saint Anne Bay, Praslin Island, Seychelles

Periclimenaeus maxillulidens (Schmitt, 1936)
Periclimenes maxillulidens Schmitt, 1936:371, pl. 13
Entrance to Lac, Bonaire; 1 m

*98. ***Periclimenaeus minutus*** Holthuis, 1952c:134, figs. 57–59
Banda, Indonesia; 9–36 m

Periclimenaeus natalensis (Stebbing, 1915)
Palaemonetes natalensis Stebbingg, 1915:78, pl. 19
Cape Natal [South Africa], N by E 24 miles [38.4 km]; 800 m
Species inquirenda

Periclimenaeus nobilii Bruce, 1974c:1577, figs. 13F, 14
Red Sea

Periclimenaeus odontodactylus—See ***Periclimenoides odontodactylus***

Periclimenaeus ohshimai Miyake and Fujino, 1967:275, fig. 1
Takamatsu, Amakusa Shimo Jima, Kyushu, Japan
= ***Periclimenaeus arabicus***

Periclimenaeus orbitospinatus Bruce, 1969a:160
Gulf of Carpentaria, Australia; 18–27 m

Periclimenaeus ornatus—See ***Orthopontonia ornata***

Periclimenaeus orontes Bruce, 1986d:151, figs. 1B, 6–10
Orontes Reef, Port Essington, Cobourg Peninsula, Arnhem Land, Northern Australia; 11°03.6′S, 132°05.0E; 3 m, associated with sponge, *Jaspis*

Periclimenaeus pachydentatus Bruce, 1969a:162
Great Barrier Reef, Australia; 14°12′N, 142°48′E; 35 m

Periclimenaeus pacificus Holthuis, 1951a:85, pl. 25
Bahia Pina, Panama; 59 m

Periclimenaeus palauensis Miyake and Fujino, 1968:417, fig. 5
Ngadarak Reef, Palau Islands

Periclimenaeus pearsei (Schmitt, 1932)
Coralliocaris pearsei Schmitt, 1932:123, fig. 1
Dry Tortugas, Florida; 46 m, in soft black sponge

Periclimenaeus perlatus (Boone, 1930)
Corallocaris perlatus Boone, 1930:45, fig. 8
Baie des Gonaives, Haiti

Periclimenaeus quadridentatus (Rathbun, 1906)
Coralliocaris quadridentata Rathbun, 1906:920, fig. 69, pl. 24: fig. 1
Auau Channel between Maui and Lanai, Hawaii; 51–79 m

Periclimenaeus rastrifer Bruce, 1980a:27, figs. 13A, B
Ilot Maître, Nouméa, New Caledonia; 20 m, in sponge, *Dysidea*

Periclimenaeus rhodope (Nobili, 1904)
Coralliocaris (Onycocaris) rhodope Nobili, 1904:232
Djibouti

Periclimenaeus robustus Borradaile, 1915:213
Amirante Islands, Seychelles; 37–71 m

Periclimenaeus schmitti Holthuis, 1951a:90, pl. 27
Dry Tortugas, Florida

Periclimenaeus spinicauda Bruce, 1969a:164
South China Sea; 20°57.5′N, 115°55.0′E—20°57.5′N, 115°58.6′E; 64–66 m

Periclimenaeus spinimanus Bruce, 1969a:165
Off Ras Asir, Somalia; 11°37′N, 51°27′E—11°38′N, 51°27′E; 68–73 m

Periclimenaeus spinosus Holthuis, 1951a:113, pl. 35
Near Viradores Sur Island, Puerto Culebra, Costa Rica; shallow water, coral

99. ***Periclimenaeus spongicola*** Holthuis, 1952c:137, figs. 60–62
Java Sea; 4°41′S, 113°02′E; 28–32 m, in sponge

100. ***Periclimenaeus storchi*** Bruce, 1989c:181, fig. 5
Cuaming Island, Bohol Strait, Philippines

Periclimenaeus stylirostris Bruce, 1969a:167
South China Sea; 20°34.0′N, 113°30.5′E—20°30.3′N, 113°29.0′E; 90–91 m

Periclimenaeus tchesunovi Duris, 1990a:615, figs. 1, 2
Genego Island, North Nilandu Atoll, Maldive Islands; 20 m

101. ***Periclimenaeus tridentatus*** (Miers, 1884)
Coralliocaris? tridentata Miers, 1884:294, pl. 32: fig. C
Thursday Island, Torres Strait

Periclimenaeus trispinosus Bruce, 1969a:169
Mkokotoni, Zanzibar

Periclimenaeus truncatus (Rathbun, 1906)
Coralliocaris truncata Rathbun, 1906:920, fig. 70, pl. 24: fig. 2
South coast of Molokai, Hawaii; 4–90 m

102. ***Periclimenaeus truncoideus,*** new species
Periclimenaeus truncatus Holthuis, 1952c:117, figs. 48–50 [not *Coralliocaris truncata* Rathbun, 1906]
2.3 miles [3.7 km] N, 63°W from north point of Kai

Besar, Kepulauan Kai, Indonesia; 5°36.5′S, 132°55.2′E; 90 m

Periclimenaeus tuamotae Bruce, 1969a:170
Mururoa Island, Tuamotu Archipelago

Periclimenaeus uropodialis Barnard, 1958:18, fig. 6
Baia de Lourenco Marques, Mozambique

Periclimenaeus usitatus Bruce, 1969a:172
Off Mafia Island, Tanzania; 7°46′48″S, 39°42′36″E; 20 m

Periclimenaeus wilsoni (Hay, 1917)
Coralliocaris wilsoni Hay, 1917:71
Fishing grounds, 20 miles [32 km] off Beaufort, North Carolina

Periclimenaeus zanzibaricus Bruce, 1969a:174
Uroa, Zanzibar; littoral sponges

Periclimenaeus zarenkovi Duris, 1990a:620, figs. 3, 4
Genego Island, North Nilandu Atoll, Maldive Islands; 0.7 m

PERICLIMENES Costa, 1844:290
Type species: *Periclimenes insignis*
PELIAS P. Roux
ANCHISTIA
HARPILIUS
UROCARIS
DENNISIA
ANCYLOCARIS
CORNIGER Borradaile
CRISTIGER Borradaile
FALCIGER
LAOMENES
CUAPETES

Periclimenes aesopius (Bate, 1863)
Anchistia aesopia Bate, 1863:502, pl. 41: fig. 5
Gulf of St. Vincent, South Australia

*103. ***Periclimenes affinis*** (Zehnter, 1894)
Palaemonella affinis Zehntner, 1894:208
Ambon
Periclimenes (Falciger) affinis Borradaile, 1915:211 [not *Palaemonella affinis* Zehntner, 1894]
Saloman Island, Chagos Archipelago
= ***Periclimenes longirostris***

Periclimenes agag Kemp, 1922
Periclimenes (Ancylocaris) agag Kemp, 1922:197, figs. 47–50, pl. 7: fig. 9
Ross Channel, Port Blair, Andaman Islands; 7–15 m

Periclimenes akiensis Kubo, 1936
Periclimenes (Ancylocaris) akiensis Kubo, 1936:47, pl. 14
"Simokamogari-mura, Province Aki," Japan; trawled in "weedy shallow water"

*104. ***Periclimenes albatrossae***, new species
South China Sea off western Luzon, Philippines; 16°33′ 52″N, 119°52′54″E; 315 m

105. ***Periclimenes alcocki*** Kemp, 1922
Periclimenes (Periclimenes) alcocki Kemp, 1922:154, figs. 21–24
Laccadive Sea; 9°34′57″N, 75°36′30″E; 743 m

Periclimenes aleator Bruce, 1991b:315, figs. 10–14
Loyalty Islands, 20°53′S, 167°17′E; 570–610 m

Periclimenes alegrias Bruce, 1986d:143, figs. 1A, 2–5, 15A–C
Coral Bay, Port Essington, Arnhem Land, Northern Australia; 11°11.2′S, 132°02.8′E; 2–4 m, associated with crinoid, *Stephanometra spicata*

Periclimenes (Ancylocaris) amamiensis Kubo, 1940b:44, figs. 11, 12
Amami O Shima, Ryukyu Islands
= ***Periclimenes lutescens***

106. ***Periclimenes amboinensis*** (De Man, 1888)
Anchistia amboinensis De Man, 1888b:546, pl. 22a: fig. 2
Ambon
?= ***Periclimenes cornutus***

Periclimenes americanus (Kingsley, 1878)
Anchistia americana Kingsley, 1878:65
Key West, Florida
Periclimenes (Ancylocaris) bermudensis Lebour
Pariclemenes (Ancylocaris) rhizophorae

Periclimenes amethysteus (Risso, 1827)
Alpheus amethystea Risso, 1827:77, pl. 4: fig. 16
Southern Europe (Nice?)
Periclimenes insignis

*107. ***Periclimenes amymone*** De Man, 1902:829, pl. 25: fig. 53
Ternate, Indonesia

Periclimenes anacanthus Bruce, 1988d:105, figs. 1–5
Moreton Bay, Queensland, Australia; sea-grass beds

108. ***Periclimenes andamanensis*** Kemp, 1922
Periclimenes (Ancylocaris) andamanensis Kemp, 1922:204, figs. 54–57
Ross Channel, Port Blair, Andaman Islands; 7–15 m

Periclimenes andresi Macpherson, 1988:52, figs. 1–4
Namibia, southwestern Africa; 17°15′S, 11°27′E; 185 m

Periclimenes anthophilus Holthuis and Eibl-Eibesfeldt, 1964
Periclimenes (Periclimenes) anthophilus Holthuis and Eibl-Eibesfeldt, 1964:185, figs. 1–4
Whalebone Bay, Bermuda; 2–3 m, on sea anemones

Periclimenes antonbruunii Bruce, 1967a:45, figs. 19–22
Pamanzi Island reef, Dzaoudzi, Ile de Mayotte, Comoro Islands
= ***Urocaridella antonbruunii***

Periclimenes (Periclimenaeus) arabicus—See ***Periclimenaeus arabicus***

109. ***Periclimenes attenuatus*** Bruce, 1971d:533, figs. 1–5
"Waterhouse Cove, Burukuk," Duke of York Group, New Ireland, Bismarck Archipelago; 4°7.3′E,

152°27.3′E; 1–2 m, on crinoid

110. ***Periclimenes batei*** (Borradaile, 1917)
Palaemonella batei Borradaile, 1917:357, 358
Off Sibago Island, Sulu Archipelago, Philippines; 6°47′N, 122°28′E; 46 m
Periclimenes batei Holthuis, 1950a;22 [not *Palaemonella batei* Borradaile, 1917]
= ***Periclimenes yaldwyni***
Periclimenes bayeri Holthuis, 1981:792, fig. 3a–h
Ine village, Arno Atoll, Marshall Islands; outer edge of sea reef, on coral, *Pocillopora*
Periclimenes beaufortensis—See ***Neopontonides beaufortensis***
Periclimenes (Periclimenaeus) bermudensis Armstrong, 1940 -
See ***Periclimenaeus bermudensis***
Periclimenes (Ancylocaris) bermudensis Lebour, 1949a;1115, fig. 6 [not *Periclimenes (Periclimenaeus) bermudensis* Armstrong, 1940]
Mangrove Lake, Bermuda
= ***Periclimenes americanus***
Periclimenes bicolor Edmondson, 1935:10, fig. 3
Kaneohe Bay, Oahu, Hawaii; on asteroid, *Linckia multiflora*, in shallow water
= ***Periclimenes soror***
Periclimenes borradailei Rathbun, 1904:34
[Replacement name for *Periclimenes tenuipes* Borradaile, 1898]
Periclimenes Borradailei Nobili, 1905b:159 [not *Periclimenes borradailei* Rathbun, 1904]
Persian Gulf off coast of United Arab Emirates; 25°10′N, 55°10′N, 24°55′N, 54°40′E
Species inquirenda
Periclimenes bowmani Chace, 1972b:32, figs. 1, 2
Reef south of Marigot Harbour, St. Lucia, Windward Islands; 2–3 m

111. ***Periclimenes brevicarpalis*** (Schenkel, 1902)
Palaemonella amboinensis Zehntner
Ancylocaris brevicarpalis Schenkel, 1902:563, pl. 13: fig. 21
Ujung Pandang, Celebes, Indonesia
Palaemonella aberrans
Harpilius latirostris
Periclimenes potina
Periclimenes hermitensis
Periclimenes brevinaris Nobili, 1906b:42, pl. 3: fig. 7, 7a
Persian Gulf off coast of United Arab Emirates; 25°10′N, 55°10′E—24°55′N, 54°40′E
Periclimenes Borradailei Nobili
Periclimenes brevirostris Bruce 1991b:322, figs. 15–20
Off Ile des Pins, New Caledonia, 22°05.8′S, 167°10.3′E; 500–550 m
Periclimenes brocketti Borradaile, 1915
Periclimenes (Falciger) brocketti Borradaile, 1915:212
Male Atoll, Maldive Islands
?= ***Periclimenes affinis***

112. ***Periclimenes brockii*** (De Man, 1888)
Anchistia Brockii De Man, 1888b:548, pl. 22a: fig. 3
Ambon
Periclimenes brucei Duris, 1990b:1, figs. 1, 2
Genego Island, North Nilandu Atoll, Maldive Islands; 52 m

*113. ***Periclimenes calcaratus***, new species
Albay Gulf, Philippines; 13°12′N, 123°49′18″E; [267 m]
Pariclimenes calmani Tattersall, 1921:385, pl. 27: fig. 11, pl. 28: figs. 14, 15
Sudanese coast of Red Sea
Periclimenes (Harpilius) calmani Johnson, 1962b:59 [not ***Periclimenes calmani*** Tattersall, 1921]
Pasir Laba, Singapore; 1°21′N, 103°38′E; in *Enhalus* beds
= ***Periclimenes johnsoni***
Periclimenes carinidactylus Bruce, 1969b:254
Bottle and Glass Rocks, Port Jackson, Sydney Harbour, Australia; 6 m

114. ***Periclimenes ceratophthalmus*** Borradaile, 1915
Periclimenes (Corniger) ceratophthalmus Borradaile, 1915:211
Male Atoll, Maldive Islands
Periclimenes colemani Bruce, 1975c;488, figs. 1–8
Heron Island, Queensland, Australia; on echinoid, *Areosoma thetidis*

115. ***Periclimenes commensalis*** Borradaile, 1915
Periclimenes (Cristiger) commensalis Borradaile, 1915: 211
Torres Strait; on crinoid, *Comanthus annulatus*
Periclimenes compressus Borradaile, 1915
Periclimenes (Falciger) compressus Borradaile, 1915:212
Saya de Malha Bank, western Indian Ocean; 265 m

116. ***Periclimenes consobrinus*** (De Man, 1902)
Harpilius consobrinus De Man, 1902:836, pl. 26: fig. 54
Ternate, Indonesia

117. ***Periclimenes coriolis*** Bruce, 1985b:234, figs. 4–7
Southwest of Manila Bay, Luzon, Philippines; 14°01.0′N, 120°17.1′E; 186–184 m
Periclimenes (Corniger) cornutus Borradaile, 1915:211
Male Atoll, Maldive Islands; on crinoid
?= ***Periclimenes amboinensis***
Periclimenes (Ancylocaris) crassipes—See ***Periclimenaeus crassipes***
Periclimenes crinoidalis Chace, 1969:251, figs. 1, 2
Jan Thiel Beach, Curaçao, Netherlands Antilles; 38 m, on crinoid

118. ***Periclimenes cristimanus*** Bruce, 1965:487, figs. 1, 2
Pulau Sudong, near Pulau Salu, Singapore; 1°12.7′N, 103°43.65′E; on echinoid, *Diadema setosum*

Periclimenes curvirostris Kubo, 1940
Periclimenes (Periclimenes) curvirostris Kubo, 1940b:35, figs. 3–5
Kumano Nada, off Mie Prefecture, southern Honshu, Japan; about 311 m

Periclimenes darwiniensis Bruce, 1987b:29, figs. 1–5
Weed Reef, Darwin Harbour, Northern Territory, Australia; 12°31.6′S, 130°47.3′E; intertidal pool

Periclimenes delagoae Barnard, 1958:14, fig. 4B
Baia de Lourenco Marques, Mozambique, in coral

Periclimenes demani Kemp, 1915:279, fig. 27, pl. 13: fig. 10
Chilka Lake, India; salt to nearly fresh water

Periclimenes denticulatus Nobili, 1906
Pariclimenes Petitthouarsi var. *Denticulata* Nobili, 1906a:257
Gatavake, Iles Gambier, Tuamotu Archipelago

*119. ***Periclimenes dentidactylus*** Bruce, 1984a:7, figs. 1–6
Makassar Strait, Indonesia; 0°31.4′N, 117°50.1′E; 592–595 m

Periclimenes difficilis Bruce, 1976c;111, figs. 15–17
Saint Anns Bay, Praslin Island, Seychelle Islands; 6 m, on coral, *Porites*

120. ***Periclimenes digitalis*** Kemp, 1922
Periclimenes (Ancylocaris) digitalis Kemp, 1922:224, fig. 65, pl. 8: fig. 12
Off Viper Island, Port Blair, Andaman Islands; 6–9 m

121. ***Periclimenes diversipes*** Kemp, 1922
Periclimenes (Ancylocaris) diversipes Kemp, 1922:179, figs. 36–39 [part]
Kilakarai, Gulf of Mannar, southern India: low tide, on coral, *Montipora*

Periclimenes (Falciger) dubius Borradaile, 1915:211
Minicoy, Laccadive Islands
= ***Periclimenes elegans***

Periclimenes edwardsii (Paulson, 1875)
Anch[istia] Edwardsii Paulson, 1875:114, pl. 17: fig. 2-2b
Red Sea

*122. ***Periclimenes elegans*** (Paulson, 1875)
Anch[istia] elegans Paulson, 1875:113, pl. 17: fig. 1
Red Sea
Periclimenes (Falciger) dubius

Periclimenes elegans Gourret, 1884:15 [not *Anchistia elegans* Paulson]
"Golfe de Marseille"
Nomen nudum
?= ***Periclimenes scriptus***

123. ***Periclimenes ensifrons*** (Dana, 1852)
Anchistia ensifrons Dana, 1852a:25
Balabac Strait, North Borneo

Periclimenes exederens Bruce, 1969b:255
South China Sea; 20°36.0′N, 113°54.2′E—20°38.8′N, 113°57.8′E; 86–88 m

Periclimenes finlayi Chace, 1972b:35, fig. 8
Off Marigot Bay, St. Lucia, Windward Islands; 165 m, mollusk trap

Periclimenes forcipulatus Bruce, 1991a:330, figs. 21–25
Loyalty Islands, 20°166°54′E; 460 m

124. ***Periclimenes foresti*** Bruce, 1981c:201, figs. 10–11, 17c
Southwest of Manila Bay, Luzon, Philippines; 14°00.0′N, 120°18.0′E—14°01.7′N, 120°20.2′E; 189–209 m

125. ***Periclimenes foveolatus*** Bruce, 1981c:196, figs. 6–9, 17a,b, 18b,c
Southwest of Manila Bay, Luzon, Philippines; 14°01.0;N, 120°15.8′E—13°59.2′N, 120°18.8′E; 191–188 m

Periclimenes franklini Bruce, 1990e:55
Coral Sea

Periclimenes (Cristiger) frater Borradaile, 1915:210
Seychelles
= ***Periclimenes soror***

Periclimenes fujinoi Bruce, 1990a:161, figs. 8–11, 39a,b
Chesterfield Islands; 22°06.9′S, 159°24.6′E; 487–610 m

126. ***Periclimenes galene*** Holthuis, 1952
Periclimenes (Harpilius) galene Holthuis, 1952c:62, fig. 24
Ambon (0–2 m) and islet off Manado [northern Celebes]

Periclimenes gonioporae Bruce, 1989c:149, figs. 1–3, 4a
Ras Iwatine, Mombasa, Kenya; 4°01.15′S, 39°43.78′E; low water spring tide level, on coral, *Goniopora*

Periclimenes gorgonicola Bruce, 1969b:257
South China Sea; 21°47.7′N, 116°28.5′E—21°43.3′N, 116°28.0′E; 110–132 m, on gorgonian, *Melithea*

Periclimenes gorgonidarum—See ***Periclimenaeus gorgonidarum***

Periclimenes (Ancylocaris) gracilirostris Kubo, 1940b:41, figs. 8–10
Kumano Nada off Mie Prefecture, Japan; about 310 m
= ***Periclimenes hertwigi***

127. ***Periclimenes gracilis*** (Dana, 1852)
Anchistia gracilis Dana, 1852a:25
Sulu Sea, Philippines

128. ***Periclimenes grandis*** (Stimpson, 1860)
Anchistia grandis Stimpson, 1860;39
Amami O Shima, Ryukyu Islands
Periclimenes vitiensis

Periclimenes granulatus Holthuis, 1950

Periclimenes (Periclimenes) granulatus Holthuis, 1950c:10, fig. 1, pl. 1
Algeria; 100 m, among pearl oysters and alcyonarians

Periclimenes granulimanus Bruce, 1978a:237, figs. 16–19
Tany Kely, northwest coast of Madagascar near Nosy Be; on antipatharian

Periclimenes granuloides Hayashi in Baba, Hayashi, and Toriyama, 1986:102, figs. [62], 18
Tosa Bay, Japan; 130 m

Periclimenes harringtoni Lebour, 1949a:1110, fig. 3
Harrington Sound, Bermuda

Periclimenes hermitensis Rathbun, 1914:655, pl. 1: figs. 1–3
Hermite, Monte Bello Islands
= ***Periclimenes brevicarpalis***

129. ***Periclimenes hertwigi*** Balss, 1913:235
Sagami Bay, Japan; 120 m, on echinoid
Periclimenes (Ancylocaris) gracilirostris

Periclimenes hirsutus Bruce, 1971e:91, figs. 1–6
Nukulau Island, Lauthala Bay, Suva, Viti Levu, Fiji Islands; on echinoid

Periclimenes Holmesi—See ***Palaemonella holmesi***

*130. ***Periclimenes holthuisi*** Bruce, 1969b:258
Leung Ha Bay, N.T., Hong Kong; 22°18.5′N, 114°18.2′E; 4 m, on sea anemones

Periclimenes hongkongensis Bruce, 1969b:259
Rocky Harbour, Hong Kong; 22°20.0′N, 114°21′E; 26 m

Periclimenes (Pariclimenes) impar Kemp, 1922:147, figs. 16, 17, pl. 3: fig. 1
Port Blair, Andaman Islands; 9 m, on pinkish sponge
= ***Periclimenes incertus***

Periclimenes imperator Bruce, 1967a:53, figs. 23–25
Zanzibar; on nudibranch

*131. ***Periclimenes incertus*** Borradaile, 1915
Periclimenes (Cristiger) incertus Borradaile, 1915:210
Maldive Islands
Periclimenes (Pariclimenes) impar

132. ***Periclimenes indicus*** (Kemp, 1915)
Urocaris indica Kemp, 1915:275, fig. 26, pl. 13: fig. 9
Chilka Lake, India; fresh and brackish water

Periclimenes infraspinis (Rathbun, 1902)
Urocaris infraspinis Rathbun, 1902:903
Bahia Concepcion, Baja California, Mexico

Periclimenes ingressicolumbi Berggren and Svane, 1989;432, figs. 1–5
Off San Salvador Island, Bahama Islands; 579 m, on spines of echinoid, *Palaeopneustes tholoformis*

133. ***Periclimenes inornatus*** Kemp, 1922
Periclimenes (Ancylocaris) inornatus Kemp, 1922:191, figs. 43–46
Port Blair, Andaman Islands; on sea anemones

Periclimenes insignis O.G. Costa in O.G. Costa and A. Costa, 1844:[4], pl. 6; figs. 1–6
Naples
= ***Periclimenes amethysteus***

Periclimenes insolitus Bruce, 1974b:293, figs. 1–8
Waikiki Beach, Oahu, Hawaii; 21°15.9′N, 157°50.5′W;
rocky flat outside surf zone, on echinoid, *Pseudoboletia*

Periclimenes investigatoris Kemp, 1922
Periclimenes (Periclimenes) investigatoris Kemp, 1922:160, figs. 26, 27, pl. 5: fig. 6
Persian Gulf; 29°20′N, 48°47′E; 24 m, on alcyonarian

Periclimenes iridescens Lebour, 1949a:1112, figs. 4, 5
Off Castle Roads, Bermuda

Periclimenes ischiospinosus Bruce, 1991a:240, figs. 3b, 9–12
New Caledonia; 21°44′S, 166°32′E; 50 m

134. ***Periclimenes johnsoni*** Bruce, 1987c:115, figs. 1–5
Replacement name for *Periclimenes (Harpilius) calmani* Johnson, 1961 [not Tattersall, 1921]

135. ***Periclimenes jugalis*** Holthuis, 1952
Periclimenes (Harpilius) jugalis Holthuis, 1952c:67, fig. 26
Djedan, Kepulauan Aru, Indonesia; 13 m

136. ***Periclimenes kempi*** Bruce, 1969b:260
Hurghada, Red Sea coast of Egypt; 27°14′N, 38°50′E; 1 m, associated with alcyonarians

Periclimenes (Falciger) kolumadulensis Borradaile, 1915: 213
Kolumadulu Atoll, Maldive Islands
= ***Periclimenes tenuipes***

Periclimenes kornii (Lo Bianco, 1903)
Anchistia Kornii Lo Bianco, 1903:250, pl. 7: fig. 13
Off Capri; 1080 m

137. ***Periclimenes kororensis*** Bruce, 1977c:33, figs. 1–4
Koror, Palau Islands; associated with fungiid coral, *Heliofungia*

Periclimenes laccadivensis (Alcock and Anderson, 1894)
Palaemonella laccadivensis Alcock and Anderson, 1894:157
Laccadive Sea; 770–1353

*138. ***Periclimenes lanipes*** Kemp, 1922
Periclimenes (Periclimenes) lanipes Kemp, 1922:156, pl. 4: fig. 4
Mergui Archipelago; 12°48′N, 98°16′10″E; 44 m

139. ***Periclimenes latipollex*** Kemp, 1922
Periclimenes (Periclimenes) latipollex Kemp, 1922:150, fig. 18, pl. 4: fig. 3
Mergui Archipelago; 12°15′20″N, 97°10′10″E; 113 m

Periclimenes lepidus Bruce, 1978a:244, figs. 20–24
Northwest coast of Madagascar near Nosy Be; 40 m

Periclimenes leptodactylus Bruce, 1991b:338, figs. 26–30
Loyalty Islands, 20°37.8′S, 167°02.7′E; 825–370 m

Periclimenes leptopus Kemp, 1922
Periclimenes (Ancylocaris) leptopus Kemp, 1922:173, figs. 31–33
Brigade Creek, Port Blair, Andaman Islands; 4–9 m

Periclimenes lifuensis—See ***Philarius lifuensis***

Periclimenes longicarpus Bruce and Svoboda, 1983:13, figs. 4–8
Al Aqaba, Jordan; 15 m, on actinian, *Entacmaea*

Periclimenes longicaudatus (Stimpson, 1860)
Urocaris longicaudatus Stimpson, 1860:39
"Coast of Carolina"

Periclimenes longimanus (Dana, 1852)
Anchistia longimana Dana, 1852a:25
Type locality unknown

Periclimenes longipes (Stimpson, 1860)
Urocaris longipes Stimpson, 1860:39
Amami O Shima, Ryukyu Islands; 37 m

140. ***Periclimenes longirostris*** (Borradaile, 1915)
Palaemonella longirostris Borradaile, 1915:210
Naifaro Island, Fadiffolu Atoll, Maldive Islands
Periclimenes (Falciger) affinis Borradaile, 1915
Periclimenes (Ancylocaris) proximus

Periclimenes lucasi Chace, 1937
Periclimenes (Ancylocaris) lucasi Chace, 1937:133, fig. 8
San Lucas Bay, Baja California, Mexico; 22°53′N, 109° 54′W; 6–17 m

141. ***Periclimenes lutescens*** (Dana, 1852)
Harpilius lutescens Dana, 1852a:25
Tongatapu Island, Tonga Islands
Periclimenes (Ancylocaris) amamiensis
Periclimenes macrophthalmus Fujino and Miyake, 1970
Periclimenes (Harpilius) macrophthalmus Fujino and Miyake, 1970b:250, figs. 3–5
East China Sea west of Goto Retto, Kyushu, Japan; 32°36.7′N, 127°42.8′E; 145 m

Periclimenes madreporae Bruce, 1969b:262
Erskine Island, Capricorn Group, Great Barrier Reef, Queensland, Australia; 6–11 m, in scleractinian corals

142. ***Periclimenes magnificus*** Bruce, 1979d:195, figs. 1–5, pl. 1A–C
Wistari Reef, Heron Island, Queensland, Australia; 26–29 m, with coral, *Catalaphyllia*

Periclimenes magnus Holthuis, 1951
Periclimenes (Harpilius) magnus Holthuis, 1951a:52, pl. 15
Gulf of Mexico off Aransas, Texas; 27°40′, 96°34′W; 50 m

Periclimenes mahei Bruce, 1969b:263
North West Bay, Mahé, Seychelles; 4°36′15″S, 55°26′01″E; 2–4 m, on scleractinian corals

Periclimenes maldivensis Bruce, 1969b:264
Suvadiva Atoll, Maldive Islands, on echinoid

Periclimenes maxillulidens—See ***Periclimenaeus maxillulidens***

Periclimenes meyeri Chace, 1969:255, figs. 3, 4
Jan Thiel Beach, Curaçao, Netherlands Antilles; 24 m, on crinoid

Periclimenes milleri Bruce, 1986e:637, figs. 1–5
Off San Salvador, Bahama Islands; 24°02.75′N, 74°32.53′W; 527 m, associated with asterostomatid echinoid, *Heterobrissus hystrix*

143. ***Periclimenes nilandensis*** Borradaile, 1915
Periclimenes (Falciger) nilandensis Borradaile, 1915:211
Nilandu Atoll, Maldive Islands

Periclimenes novaecaledoniae Bruce, 1968a:1157, figs. 6–9
Ilot Maître, Nouméa, New Caledonia; 22°20′20″S, 116°25′E, on crinoid, *Tropiometra afra*

Periclimenes (Hamiger) novae-zealandiae—See ***Hamiger novaezealandiae***

Periclimenes (Periclimenes) noverca—See ***Zenopontonia noverca***

Periclimenes obscurus Kemp, 1922
Periclimenes (Periclimenes) obscurus Kemp, 1922:144, figs. 14, 15
Springhaven, Madras Harbor, India; near encrusted buoys and piles

Periclimenes ordinarius Bruce, 1991b:344, figs. 31–35
Off New Caledonia, 18°o 04′S, 163°27.5′E

Periclimenes ornatellus Bruce, 1979e:219, figs. 4–6, pl. 1C–E
Enewetak Atoll, Marshall Islands; 1–2 m, with actinian, *Radianthus*

144. ***Periclimenes ornatus*** Bruce, 1969b:266
"Lung Ha Bay," N.T., Hong Kong; 22°18.5′, 114°18.2′E; 4 m, on actiniarian

Periclimenes orontes—See ***Periclimenaeus orontes***

Periclimenes paivai Chace, 1969:259, figs. 5–7
Cananeia, Estado de São Paulo, Brazil

Periclimenes pandionis Holthuis, 1951
Periclimenes (Periclimenes) pandionis Holthuis, 1951a:41, pl. 11
Off Key West, Florida; 24°21′55″N, 81°58′25″W; 179 m

Periclimenes paraornatus Bruce, 1979d:207
Nomen nudum

Periclimenes paraparvus Bruce, 1969b:267
South China Sea; 20°28.2′N, 112°52.2′E; 84–88 m

Periclimenes parasiticus Borradaile, 1898:384
New Britain; on starfish, *Linckia*
?= ***Periclimenes soror***

Periclimenes parvispinatus Bruce, 1990a:154, figs. 3–6

S.W. Recif Jouan, New Caledonia; 200 m, trap

Periclimenes parvus Borradaile, 1898:384
Rakaiya, Blanche Bay, New Britain

Periclimenes pauper Holthuis, 1951
Periclimenes (Harpilius) pauper Holthuis, 1951a:50, pl. 14
Isla Cubagua, Venezuela; rocky shore

145. ***Periclimenes pectiniferus*** Holthuis, 1952
Periclimenes (Periclimenes) pectiniferus Holthuis, 1952c:48, figs. 15, 16
Pulau Kabaladua, Makassar Strait, Indonesia; 22 m

Periclimenes pectinipes Bruce, 1991b:351, figs. 36–40, 75
Off New Caledonia, 23°41.2′S, 168°00.5′E; 280 m

Periclimenes pedersoni Chace, 1958:125, figs. 1–17
Lyford Cay, New Providence Island, Bahama Islands; associated with sea anemone, *Bartholomea annulata*

Periclimenes perlucidus Bruce, 1969b:268
South China Sea; 16°06.5′N, 114°41.5′E—16°05.8′N, 114°38.2E; 79–81 m, on gorgonian

Periclimenes perryae Chace, 1942
Periclimenes (Periclimenes) perryae Chace, 1942:82, pl. 24
Off Sanibel Island, Florida; 10 m, associated with basket star, *Astrophyton muricatum*

Periclimenes perturbans Bruce, 1978a:253, figs. 25, 26
Northwest coast of Madagascar near Nosy Be; 40 m, on alcyonarian, *Morchellana*

Periclimenes petitthouarsii (Audouin, 1826)
Palaemon Petitthouarsii Audouin, 1826:91
Egypt
Anchistia inaequimana

Periclimenes Petitthouarsi var. *denticulata*—See ***Periclimenes denticulatus***

Periclimenes petitthouarsii var. *spinifera*—See ***Periclimenes spinifer***

Periclimenes pholeter Holthuis, 1973:30, figs. 10, 11, pl. 1: fig. 1
"Ras Muhammad's Crack," Ras Muhammad, Sinai Peninsula, Egypt; 27°44′N, 34°15′E

146. ***Periclimenes pilipes*** Bruce and Zmarzlyy, 1983:644, figs. 1–6
"Medren Islet," Enewetak Atoll, Marshall Islands; 11°24′N, 162°22′E; 3 m, with crinoid, *Comanthina*

Periclimenes platalea Holthuis, 1951
Periclimenes (Harpilius) platalea Holthuis, 1951b:157, fig. 32
Off Guinea; 9°23′N, 15°07′W; 30–34 m

147. ***Periclimenes platycheles*** Holthuis, 1952
Periclimenes (Harpilius) platycheles Holthuis, 1952c:85, fig. 33
Pulau Fau west of Pulau Gebe (31 m) and off Atiationin, west coast of New Guinea (to 57 m)

Periclimenes platyrhynchus Bruce, 1991a:358, figs. 41–44
Off New Caledonia, 19°04S, 163°27′E; 260 m

Periclimenes potina Nobili, 1905b:159
Arabian coasts; on a pelagic brown alga
= ***Periclimenes brevicarpalis***

Periclimenes (Falciger) pottsi—See ***Palaemonella pottsi***

Periclimenes poupini Bruce, 1990b:852, figs. 1–6a
Tubuai, French Polynesia; 23°19′S, 142°22′W; 430–520 m, on actiniarian on gastropod shell associated with pagurid, *Trizopagurus*

Periclimenes (Ancylocaris) proximus Kemp, 1922:201, figs. 51–53
Ross Channel, Port Blair, Andaman Islands; 7–15 m
= ***Periclimenes longirostris***

*148. ***Periclimenes psamathe*** (De Man, 1902)
Urocaris psamathe De Man, 1902:816, pl. 25: fig. 51
Ternate, Indonesia

Periclimenes pusillus Rathbun, 1906:921, fig. 71, pl. 24: fig. 7
Diamond Head Light, Oahu, Hawaii, S 62°, E 3.9; surface over 24 m
= ***Harpiliopsis depressa***

Periclimenes rapanui Fransen, 1987:519, figs. 13–15
Tahai, W. coast of Easter Island

Periclimenes rathbunae Schmitt, 1924a:70, figs. 5, 6
Spanish Port, Curaçao

149. ***Periclimenes rectirostris*** Bruce, 1981c:204, figs. 12–15
Southwest of Manila Bay, Luzon, Philippines; 13°53.1′N, 120°08.9′E—13°53.3′, 120°10.7′E; 134–129 m, possibly associated with echinoid, *Eremopyga*

Periclimenes rex Kemp, 1922
Periclimenes (Periclimenes) rex Kemp, 1922:158, fig. 25, pl. 5: fig. 5
Ross Channel, Port Blair, Andaman Islands; 15 m, possibly associated with a sponge

Periclimenes (Ancylocaris) rhizophorae Lebour, 1949b:605
Replacement name for *Periclimenes (Ancylocaris) bermudensis* Lebour
= ***Periclimenes americanus***

Periclimenes richeri Bruce, 1990a:181, figs. 20, 39f
New Caledonia; 24°54.5′S, 168°23.3′E; 527 m

Periclimenes rotumanus—See ***Palaemonella rotumanus***

Periclimenes ruber Bruce, 1982c:197
Queensland, Australia; associated with crinoid, *Zygometra*

Periclimenes sagittifer (Norman, 1861)
Dennisia sagittifera Norman, 1861:278, pl. 13: figs. 8–13

Periclimenes scriptus (Risso, 1822)

Alpheus scriptus Risso, 1822:247
Nice, France
?*Periclimenes elegans* Gourret
Urocaris de Mani

Periclimenes setirostris Bruce, 1991b:364, figs. 45–49
Chesterfield Islands, 25°32.8′S, 159°46.1′E; 300 m
Periclimenes (Periclimenes) setoensis Fujino and Miyake, 1969a:149, figs. 4, 5
Shiso-jima, Tanabe-wan, Wakayama pref., Japan; 5 m
= ***Periclimenes sinensis***

150. ***Periclimenes seychellensis*** Borradaile, 1915
Periclimenes (Falciger) seychellensis Borradaile, 1915:212
Praslin, Seychelles

151. ***Periclimenes sibogae*** Holthuis, 1952
Periclimenes (Harpilius) sibogae Holthuis, 1952c:73, figs. 28, 29
Anchorage at Kepulauan Banda, Indonesia; 9–36 m

Periclimenes signatus Kemp, 1925
Periclimenes (Periclimenes) signatus Kemp, 1925:322, figs. 16, 17
Andaman Islands

*152. ***Periclimenes sinensis*** Bruce, 1969b:270
Hong Kong; on alcyonarian

153. ***Periclimenes soror*** Nobili, 1904:232
Djibouti
Periclimenes (Cristiger) frater
Periclimenes bicolor

154. ***Periclimenes spinifer*** De Man, 1902
Periclimenes petitthouarsii var. *spinifera* De Man, 1902:824
Ternate, Pulau Damar-Besar, Teluk Djakarta, Ambon, Indonesia, and Tahiti, French Polynesia

Periclimenes suvadivensis Borradaile, 1915
Periclimenes (Falciger) suvadivensis Borradaile, 1915:212
Suvadiva Atoll, Maldive Islands

Periclimenes tenellus (Smith, 1882)
Anchistia tenella Smith, 1882:55, pl. 9: fig. 1
Continental slope off South Carolina; 32°07′N, 78°37′05″W; 419 m

*155. ***Periclimenes tenuipes*** Borradaile, 1898:384
New Britain
Periclimenes borradailei
Periclimenes (Falciger) kolumadulensis

Periclimenes tenuirostris Bruce, 1991a:247, figs. 13–16
New Caledonia; Grand Récif Sud; 22°35.1′S, 166°59.5′E; 82 m

156. ***Periclimenes tenuis*** Bruce, 1969b:272
Chukwani, Zanzibar; 6°15.1′S, 39°12.7′E; 1 foot, on crinoid

*157. ***Periclimenes toloensis*** Bruce, 1969b:275
"Ap Chau," Tolo Channel, Hong Kong; 9–27 m

Periclimenes tonga Bruce, 1990d:23, figs. 1–5
Nuapapa Island, Tonga; on scyphozoan, *Cassiopeia*

158. ***Periclimenes tosaensis*** Kubo, 1951
Periclimenes (Ancylocaris) tosaenssis Kubo, 1951:268, figs. 7, 8
Tosa Bay, off Usa, Shikoku, Japan

Periclimenes ungujaensis Bruce, 1969b:275
Unguja Ukuu Pwani, Zanzibar; 6°18.8′S, 39°21.1′E; 1 foot

Periclimenes uniunguiculatus Bruce, 1990a:167, figs. 12–15, 39e
New Caledonia; 23°06S, 167°47′E. 540–600 m

Periclimenes vaubani Bruce, 1990:174, figs. 16–19, 38a–d
New Caledonia; 23°38′S, 167°42′E; 470 m

Periclimenes veleronis Holthuis, 1951
Periclimenes (Harpilius) veleronis Holthuis, 1951a:67, pl. 20
La Libertad, Ecuador; 7 m

159. ***Periclimenes venustus*** Bruce, 1990f:230, figs. 1–6, 7a, 8a
Port Essington, Northern Australia; 3 m, on actiniarians

Periclimenes vitiensis Borradaile, 1898:383
Fiji
= ***Periclimenes grandis***

Periclimenes watamuae Bruce, 1976d:16, figs. 5, 6
Watamu Park, Kenya; 3°22.0′S, 40°00.5′E; 2 m, from alcyonarian

Periclimenes yaldwyni Holthuis, 1959
Brachycarpus audouini
Brachycarpus Antonini
Periclimenes batei Holthuis
Periclimenes (Harpilius) yaldwyni Holthuis, 1959:197
Cook Strait, New Zealand

Periclimenes yucatanicus (Ives, 1891)
Palaemonella Yucatanica Ives, 1891:183, pl. 5: fig. 8
Off Progreso, Estado de Yucatan, Mexico

Periclimenes zanzibaricus Bruce, 1967a:62, figs. 26–29
Fawatu Reef, Zanzibar; low tide, on echinoid, *Echinothrix*

Periclimenes zerinae Duris. 1990b:4, figs. 3, 4
Genego Island, North Nilandu Atoll, Maldive Islands; 52 m

PERICLIMENOIDES Bruce, 1990c:616
Type species: ***Periclimenaeus odontodactylus***

*160. ***Periclimenoides odontodactylus*** (Fujino and Miyake, 1968)
Periclimenaeus odontodactylus Fujino and Miyake, 1968b:85, figs. 1, 2
Ushitaka, Amakusa Island, Japan

****PHILARIUS*** Holthuis, 1952c:5, 15, 151

Type species: *Harpilius Gerlachei*

*161. ***Philarius gerlachei*** (Nobili, 1905)
Harpilius Gerlachei Nobili, 1905b:160
Northeast of Arzanah Island, Persian Gulf

162. ***Philarius imperialis*** (Kubo, 1940)
Harpilius imperialis Kubo, 1940c:1, figs. 1–3
"Nankin-Hama," Haha-Jima, Bonin Islands

Philarius lifuensis (Borradaile, 1898)
Periclimenes lifuensis Borradaile, 1898:384
Lifou, Loyalty Islands

Philarius lophos —See ***Ischnopontonia lophos***

PLATYCARIS Holthuis, 1952c:5, 16, 172
Type species: ***Platycaris latirostris***

163. ***Platycaris latirostris*** Holthuis, 1952c:173, figs. 85, 86
Ende, Flores, Lesser Sunda Islands, Indonesia

PLATYPONTONIA Bruce, 1968b:289
Type species: *Pontonia? brevirostris*

Platypontonia brevirostris (Miers, 1884)
Pontonia? brevirostris Miers, 1884:562, pl. 51: fig. B
Seychelles; 22m, in "clamp shells"

164. ***Platypontonia hyotis*** Hipeau-Jacquotte, 1971:126, figs. 1–7
Near Tuléar, southwestern Madagascar; in bivalve mollusk, *Pycnodonta*
Platypontonia pterostreae

Platypontonia pterostreae Suzuki, 1971:5, figs. 3, 4, pl. 3
Hatsu-shima, Sagami Bay, Honshu, Japan; in bivalve mollusk, *Pterostrea*
= ***Platypontonia hyotis***

PLESIOPONTONIA Bruce, 1985b:248
Type species: ***Plesiopontonia monodi***

165. ***Plesiopontonia monodi*** Bruce, 1985b:250, figs. 15–17
Balayan Bay, southern Luzon, Philippines; 13°49.6′N, 120°51′E; 299–320 m

PLIOPONTONIA Bruce, 1973b:97
Type species: ***Pliopontonia furtiva***

166. ***Pliopontonia furtiva*** Bruce, 1973b:99, figs. 1–5, pl. 1
Ras Iwatine, Mombasa, Kenya; 4°00.55′S, 39°44.17′E; 1 m, on coralliomorph zoantharian, *Rhodactis*

PONTONELLA Heller, 1856:629
Type species: *Pontonella glabra*
= ***TYPTON***

Pontonella glabra Heller, 1856:634, pl. 9
Zadar, Yugoslavia
= ***Typton spongicola***

*****PONTONIA*** Latreille, 1829:96
Type species: *Palaemon pinnophylax*
ALCIOPE

Pontonia anachoreta Kemp, 1922:264, figs. 93–95
Off Madras coast; 37 m, in ascidian

Pontonia ardeae Bruce, 1981d:113, figs. 1–8
Wistari Reef, Heron Island, Capricorn Group, Queensland, Australia; 23°27.5′S, 151°55.0′E; 18–21 m, in bivalve mollusk, *Chama*

P[ontonia] armata—See ***Paranchistus armatus***

167. ***Pontonia ascidicola*** Borradaile, 1898:389
Blanche Bay, New Britain; in ascidian

Pontonia biunguiculata Paulson, 1875:111, pl. 15: fig. 1
Red Sea
= ***Conchodytes nipponensis***

Pontonia? brevirostris—See ***Platypontonia brevirostris***

Pontonia californiensis Rathbun, 1902:902
Off Santa Cruz Island, California; 34°00′N, 119°29′30″W; 55 m

Pontonia chimaera Holthuis, 1951a:125, pl. 39
West of El Cocal, Isla Pedro Gonzalez, Archipielago de las Perlas, Panama; subtidal, in mantle cavity of young bivalve mollusk, *Strombus galeatus*

Pontonia custos Guérin-Méneville, 1832:366, pl. 37: fig. 1
= ***Pontonia pinnophylax***

Pontonia (Harpilius) dentata Richters, 1880:165, pl. 17: figs. 36–38
Ilot Fouquets, Mauritius, Indian Ocean
= ***Harpiliopsis beaupresii***

Pontonia Diazonae Joliet, 1882:118
Mediterranean Sea; in ascidian
= ***Pontonia flavomaculata***

Pontonia domestica Gibbes, 1850:196
South Carolina
Pontonia occidentalis

Pontonia flavomaculata Heller, 1864:51
Adriatic Sea
Alciope heterochela
Pontonia phallusiae
Pontonia diazonae

Pontonia grayi Rathbun, 1901:122
San Juan, Puerto Rico
= ***Pontonia mexicana***

Pontonia heterochelis Guérin-Méneville, 1832:37 [cited as manuscript name]
= ***Pontonia pinnophylax***

Pontonia hurii Holthuis, 1981:796, fig. 4
Arno Atoll, Marshall Islands; from mantle cavity of bivalve mollusk, *Spondylus*

Pontonia inflata H. Milne Edwards, 1840:633
Sri Lanka and "Vanicoso" [= Vanikoro, Santa Cruz Islands]
= ***Anchistus custos***

168. ***Pontonia katoi*** Kubo, 1940b:55, figs. 21–23
Off Shimoda, Shizuoka Prefecture, Japan; in branchial cavity of ascidian, *Halocynthia*

Pontonia longispina Holthuis, 1951a:128, pl. 40
"Puerto Refugio," Isla Angel de la Guardia, Golfo de California; shore, rocky reef

P[ontonia] macropthalma—See ***Coralliocaris***

macrophthalma

Pontonia maculata Stimpson, 1860:38
Bonin Islands, in bivalve mollusk, *Tridacna*
Species inquirenda

Pontonia maldivensis—See ***Pontonides maldivensis***

Pontonia margarita Smith, 1869b:245
Bay of Panama
Coralliocaris Camerani

Pontonia medipacifica Edmondson, 1935:6, fig. 2
Midway Island; shallow water

Pontonia mexicana Guérin-Méneville, 1855:xix, pl. 2: fig. 12
Atlantic coast of Mexico
Pontonia grayi

Pontonia minuta Baker, 1907:189, pl. 24: figs. 9–12
South Australia

Pontonia miserabilis Holthuis, 1951a:148, pl. 47d–i
Off Vieques Island, Puerto Rico; 29 m, coral

Pontonia monnioti Bruce, 1990a:183, figs. 21–24, 38e–h, 39i, j
Chesterfield Islands; 24°46.6′S, 159°40.3′E; 285 m, in ascidian, *Ascidia*

Pontonia occidentalis Gibbes, 1848; app; xvi [nomen nudum]
= ***Pontonia domestica***

*169. ***Pontonia okai*** Kemp, 1922:261, figs. 89–92
Off Cape Negrais, Burma; 15°25′N, 93°45′E; 73–126 m, in ascidian, *Ascidia*

Pontonia parasitica P. Roux, 1831:26
Peloponnesus, Greece; in bivalve mollusk, *Pinna*
= ***Pontonia pinnophylax***

Pontonia phallusiae Marion, 1879:226
Marseille
= ***Pontonia flavomaculata***

Pontonia pinnae Lockington, 1878:163
Bahia de Los Angeles, Bahia de Mulege, and Isla San Jose, Gulf of California

Pontonia pinnae Ortmann, 1894:16, pl. 1: fig. 3 [not ***Pontonia pinnae*** Lockington, 1878]
Dar es Salaam, Tanzania; in bivalve mollusk, *Pinna*
= ***Anchistus custos***

Pontonia pinnophylax (Otto, 1821)
Palaemon pinnophylax Otto, 1821:12
Naples, in bivalve mollusk, *Pinna*
Pontonia parasitica
Pontonia custos Guérin-Méneville
Pontonia heterochelis Guérin-Méneville

Pontonia pulsatrix Nardo, 1847:5, 6, 35
Gulf of Venice
= ***Typton spongicola***

Pontonia pusilla Holthuis, 1951a:142, pl. 45
Isla Salango, Ecuador; 6 m

Pontonia quadratophthalma—See ***Onycocaris quadratophthalma***

Pontonia quasipusilla Chace, 1972b:41, fig. 10
Charlotte Point, Enflish Harbour, Antigua, Leeward Islands

170. ***Pontonia sibogae*** Bruce, 1972c:182, fig. 1
Curtis Channel, Port Curtis, Queensland, Australia; in ascidian, *Styela whiteleggei*

Pontonia simplex Holthuis, 1951a:135, pl. 42
Bahia Tenacatita, Estado de Jalisco, Mexico; lagoon, in bivalve mollusks, *Pinna*

Pontonia spighti Fujino, 1972:293, figs. 1–3
"Playa del Coco," Costa Rica; sublittoral, in ascidian, *Rhopalaea*

171. ***Pontonia stylirostris*** Holthuis, 1952c:169, figs. 82–84
Between Pulau Misool and New Guinea; 1°42.5S, 130°47.5W; 32 m

Pontonia unidens Kingsley, 1880:422, pl. 14: fig. 9
Species inquirenda

Pontonia Vagans Gourret, 1888:39
Golfe de Marseille between île de Tiboulen and Port de Mejean; 64 m
?= ***Typton spongicola***

****PONTONIDES*** Borradaile, 1917:387
Type species: *Pontonia maldivensis*

Pontonides maldivensis (Borradaile, 1915)
Pontonia maldivensis Borradaile, 1915:213
Fadiffolu Atoll, Maldive Islands

Pontonides sympathes De Ridder and Holthuis, 1979:101, figs. 1–3
Punta Pitt, northeast coast of Isla San Cristobal, Galápagos Islands; 8 m, on antipatharian *Antipathes galapagensis*

Pontonides unciger Calman, 1939:213, figs. 6, 7
Southern Red Sea; 13°31′N, 42°31′E; 55 m

PONTONIOPSIS Borradaile, 1915:207
Type species: ***Pontoniopsis comanthi***

172. ***Pontoniopsis comanthi*** Borradaile, 1915:213
Torres Strait, on crinoid, *Comanthus*

Pontoniopsis paulae Gore, 1981:139, fig. 1
Carysfort Reef, off Key Largo, Monroe County, Florida; 25°10.30′N, 80°12.82′W; 62.5 m, on ventral surface of echinoid, *Meoma ventricosa*

PROPONTONIA Bruce, 1969c:141
Type species: ***Propontonia pellucida***

Propontonia pellucida Bruce, 1969c:142, figs. 1–5
Remire Reef, Amirante Isles, Seychelles; 5°04′S, 53°22′E; 1.5 m, on alcyonarian *Sarcophyton crassicaule*

PSEUDOCOUTIEREA Holthuis, 1951a:11, 182
Type species: ***Pseudocoutierea elegans***

Pseudocoutierea antillensis Chace, 1972b:43, fig. 11
Saba Bank, Leeward Islands; 17°28′N, 63°13′W; 13 m

Pseudocoutierea conchae Criales, 1981:174, fig. 1
11°18′N, 74°10′W; 15 m, on alcyonarian, *Leptogorgia*

Pseudocoutierea edentata Criales, 1981:168, figs. 2–5

Bahia Concha, Colombia; 11°18′N, 74°10′W; 18 m

Pseudocoutierea elegans Holthuis, 1951a:182, pl. 55
0.5 mile [0.8 km] east of Long Point, Santa Catalina Island, southern California: 82–91 m

PSEUDOPONTONIDES Heard, 1986:479
Type species: ***Neopontonides principis***

Pseudopontonides principis (Criales, 1980)
Neopontonides principis Criales, 1980:75, figs. 25–29
Awa di Oostpunt, Curaçao; 18 m

STEGOPONTONIA Nobili, 1906a:258
Type species: ***Stegopontonia commensalis***

Stegopontonia commensalis Nobili, 1906a:258
Lagoon at Hao, Tuamotu Archipelago; commensal with echinoid, *Echinothrix*

TECTOPONTONIA Bruce, 1973c:169
Type species: ***Tectopontonia maziwiae***

Tectopontonia maziwiae Bruce, 1973c:172, figs. 1–4
Maziwi Island, off Pangani, Tanzania; 5°30.0′S, 39°04.1′E; 4 m, on coral, *Acropora*

****THAUMASTOCARIS*** Kemp, 1922:244
Type species: ***Thaumastocaris streptopus***

*173. ***Thaumastocaris streptopus*** Kemp, 1922:244, figs. 78–80
Nouméa, New Caledonia

TRIDACNOCARIS Nobili, 1899:235
Replacement name for ***ANCHISTUS***

TULEARIOCARIS Hipeau-Jacquotte, 1965:247
Type species: ***Tuleariocaris holthuisi***

Tuleariocaris holthuisi Hipeau-Jacquotte, 1965:248, pls. 1–5
Tuléar, Madagascar; on echinoids, *Echinometra* and *Stomopneustes*

Tuearíocaris neglecta Chace, 1969:266, figs. 10, 11
Bellairs Research Institute of McGill University, St. James, Barbados; on echinoid, *Diadema*

Tuleariocaris zanzibarica Bruce, 1967a:33, figs. 13–18
Mtoni, Zanzibar; low tide, on echinoid, *Astropyga*

TYPTON O.G. Costa, 1844:288
Type species: ***Typton spongicola***
PONTONELLA

Typton anomalus (Bruce, 1979)
Onycocaris anomala Bruce, 1979b:69, figs. 1–4
Between North and South Shell Islands, Darwin, Northern Australia; 6–13 m

Typton australis Bruce, 1973d:254, figs. 1–4
Great Barrier Reef, Australia

Typton bawii Bruce, 1972d:243, figs. 1–5
South of Bawi Island, Zanzibar; 6°9.7′S, 39°8.3′E; 18–25 m, in sponge

Typton Bouvieri—See ***Periclimenaeus bouvieri***

Typton carneus Holthuis, 1951a:162, pl. 51: figs. a,e,k,l
Dry Tortugas, Florida

Typton crosslandi Bruce, 1978c:294, figs. 1–3
Off Isla Onslow, near Isla Santa Maria, Galápagos Islands; 7 m

Typton dentatus Fujino and Miyake, 1969c:80, figs. 1, 2
"Ukachi," Yoron-jima, Ryukyu Islands; from sponge

Typton dimorphus Bruce, 1986f:278, figs. 1–4
Ashmore Reef, Timor Sea; 12°15′S, 123°E; 5 m

Typton distinctus Chace, 1972b:49, figs. 13, 14
Los Arroyos, Provincia de Pinar del Rio, Cuba

Typton gnathophylloides Holthuis, 1951a:159, pl. 50
Dry Tortugas, Florida; 82 m

Typton hephaestus Holthuis, 1951a:159, pl. 49: figs. o–p
Southern Gulf of California; 24°12′N, 109°55′W; 18 m

Typton nanus Bruce, 1987d:49, figs. 1–5
Australian North-West Shelf; 16°34′S, 121°27′E; 40–46 m

Typton prionurus Holthuis, 1951a:165, pl. 52
Dry Tortugas, Florida; 18 m

Typton serratus Holthuis, 1951a:167, pl. 53
Tagus Cove, Isla Isabella, Galápagos Islands; in red sponge

Typton spongicola O.G. Costa, 1844:289
Naples
Pontonia pulsatrix
Pontonella glabra
Typton spongiosus
?*Pontonia Vagans*

Typton spongiosus Bate, 1868b:119, pl. 11: fig. 1
British
= ***Typton spongicola***

Typton tortugae McClendon, 1911:57, pl. 1: fig. 2
Dry Tortugas, Florida

Typton vulcanus Holthuis, 1951a:157, pl. 1: figs. a–n
South of Dry Tortugas, Florida

Typton wasini Bruce, 1977d:272, figs. 1–6
Wasini Island Channel, Kenya; 4°39.4′S, 39°22.2′E; 11 m, in sponge, *Reniera*

UROCARIS Stimpson, 1860:39
Type species: *Urocaris longicaudata*
= ***PERICLIMENES***

Urocaris de Mani Balss, 1816:29, fig. 10
Sette Cama, Gabon
= ***Periclimenes scriptus***

Urocaris indica—See ***Periclimenes indicus***

Urocaris infraspinis—See ***Periclimenes infraspinis***

Urocaris longicaudatus—See ***Periclimenes longicaudatus***

Urocaris longipes—See ***Periclimenes longipes***

Urocaris psamathe—See ***Periclimenes psamathe***

VELERONIA Holthuis, 1951a:11, 195
Type species: ***Veleronia serratifrons***

Veleronia laevifrons Holthuis, 1951a:199, pl. 63: figs. f–m

Bahia de Gardner, Isla Espanola, Galápagos Islands; 7 m

Veleronia serratifrons Holthuis, 1951a:196, pls. 62, 63: figs. a–e
La Libertad, Ecuador; 7 m

VELERONIOPSIS Gore, 1981:145
Type species: ***Veleroniopsis kimallynae***

Veleroniopsis kimallynae Gore, 1981:147, fig. 2
Elbow Reef, off Key Largo, Monroe County, Florida; 25°07.70'N, 80°15.90'W; 18.3 m, from relict coral, *Montastraea*

VIR Holthuis, 1952c:4, 6, 29
Type species: *Palaemonella orientalis*

174. ***Vir orientalis*** (Dana, 1852)
Palaemonella orientalis Dana, 1852a:26
Sulu Sea

175. ***Vir philippinensis*** Bruce and Svoboda, 1984:87, figs. 1–4
Cebu, Philippines; associated with scleractinian coral, *Plerogyra sinuosa*

WALDOLA Holthuis, 1951a:11, 185
Type species: ***Waldola schmitti***

Waldola schmitti Holthuis, 1951a:186, pls. 58, 59: figs. a–f
Isla Isabela, Nayarit, Mexico; 18–46 m

ZENOPONTONIA Bruce, 1975d:275
Type species: *Periclimenes (Periclimenes) noverca*

Zenopontonia noverca (Kemp, 1922)
Periclimenes (Periclimenes) noverca Kemp, 1922:162, figs. 28–30
New Caledonia

Key to Genera of Pontoniinae

1. Third maxilliped bearing exopod (reduced in *Metapontonia*, vestigial in *Balssia* and *Tectopontonia*) 2
   Third maxilliped without exopod 54
2. Carapace bearing hepatic spine (nearly postorbital in *Tulеariocaris*, minute in adult *Paranchistus armatus*) 3
   Carapace without hepatic spine 14
3. Hepatic spine movable 4
   Hepatic spine immovable 7
4. Rostrum dentate throughout length of dorsal margin 5
   Rostrum unarmed on posterior 1/2 of dorsal margin 6
5. Rostrum armed with ventral tooth; protopod of uropod distolaterally blunt . . . . . ***Allopontonia***
   (Kenya, Zanzibar, Great Barrier Reef of Australia, and Gulf of California)
   Rostrum unarmed ventrally; protopod of uropod distolaterally acute . . . . . ***Zenopontonia***
   (Zanzibar, Madagascar, Queensland,Australia, and New Caledonia; on oreasterid asteroids)
6. Rostrum unarmed anterodorsally; telson with dorsolateral spines robust; associated with ascidians . . . . . ****Dasella***
   Rostrum feebly to moderately armed anterodorsally; telson with dorsolateral spines slender; associated with mollusks . . . . . ***Paranchistus***
7. Lateral rostral carina forming broad supraocular eave 8
   Lateral rostral carina not forming broad supraocular eave 9
8. Rostrum unarmed dorsally and ventrally; supraocular eave dentate; epistome bearing large paired submedian horn-like processes; 3rd pereopod composed of 7 segments, merus and ischium not fused . . . . . ***Parapontonia***
   (Great Barrier Reef of Australia and New Caledonia; associated with crinoids)
   Rostrum dentate dorsally; supraocular eave not dentate; epistome not bearing horn-like processes; 3rd pereopod composed of 6 segments, merus and ischium indistinguishably fused . . . . . ***Tulеariocaris***
   (Western Indian Ocean, Hawaii, and West Indies; associated with echinoids)

9. Rostrum elongate, subequal to carapace length, dorsal teeth obsolescent; cornea of eye ogival . . . . . ***Carinopontonia***
(Northwest Shelf of Australia; 83 m)

Rostrum generally shorter than carapace length, dorsally dentate; cornea generally globular (except occasionally in *Periclimenes* 10

10. Second pereopods very dissimilar; 3rd pereopod with conspicuous, hoof-shaped protuberance on dactyl . . . . . ****Jocaste***

Second pereopods similar, even if unequal; 3rd pereopod without protuberance on dactyl unless concealed by flexion into propodal slot 11

11. Carapace either strongly depressed or with sinuous, lobate, or grossly dentate dorsal profile, especially in males 12

Carapace somewhat compressed laterally, dorsal profile not very uneven . . . 13

12. Rostrum unarmed ventrally; carapace not unusually depressed, dorsal profile sinuous, lobate, or dentate, especially in males; 3rd pereopod with dactyl neither twisted nor with carinate margins . . . . . ***Dasycaris***

Rostrum dentate ventrally; carapace strongly depressed, faintly convex in dorsal profile; 3rd pereopod with dactyl twisted, with more or less carinate margins . . . . . ****Harpiliopsis***

13. Fifth abdominal somite with pleura sharp-pointed; mandible with palp . . . . . ****Palaemonella***

Fifth abdominal somite usually with pleura not sharp-pointed; mandible without palp . . . . . ****Periclimenes***

14. Body strongly compressed; lateral branch of uropod without marginal distolateral tooth but with large, laterally curved spine at diaeresis . . . . . ***Ischnopontonia***

Body not strongly compressed; lateral branch of uropod with marginal distolateral tooth, without hook-like spine at diaeresis 15

15. Lateral branch of uropod armed laterally with 5 or 6 strong, curved, hook-like teeth . . . . . ***Anapontonia***

Lateral branch of uropod without series of hook-like teeth 16

16. Lateral branch of uropod with fixed tooth 17

Lateral branch of uropod usually armed only with mobile spines or unarmed 42

17. Third pereopod with hollowed, hoof-shaped protuberance on dactyl . . . . . ****Coralliocaris***

Third pereopod without hoof-shaped protuberance on dactyl 18

18. Lateral carina of rostrum expanded into broad supraorbital or postorbital eave 19

Rostrum not broadly expanded into supraorbital or post-orbital eave 22

19. Rostrum dentate dorsally, supraorbital eave armed with 1 or 2 anterior teeth . 20

Rostrum not dentate in dorsal midline, supraorbital eave unarmed 21

20. Carapace unarmed in dorsal midline; abdomen with pleura of 5th somite rounded; 3rd maxilliped with well-developed exopod . . . . . ***Araiopontonia***
(Ryukyu Islands, Great Barrier Reef of Australia, and Marshall Islands)

Carapace armed with 3 large teeth in dorsal midline; abdomen with pleura of 5th somite sharp-pointed; 3rd maxilliped with exopod vestigial . . . . . ***Balssia***
(Mediterranean Sea and Guinea; 45–70 m, associated with Precious Coral)

21. Body robust, squat, strongly depressed; 2nd pereopods subequal, strongly compressed . . . . . ***Notopontonia***
(South Australia; 80 m)

Body elongate, subcylindrical; 2nd pereopods markedly unequal, subcylindrical . . . . . ***Stegopontonia***
(Kenya and Zanzibar to Tuamotu Archipelago; associated with echinoids)

22. Carapace bearing antennal spine 23
Carapace without antennal spine 41
23. Antennal scale rudimentary . . . . . ***Typton***
(Kenya, Zanzibar, La Reunion, Ryukyu Islands, Australia, Galapagos Islands, Gulf of California, western tropical Atlantic, Mediterranean Sea; associated with sponges)
Antennal scale moderately to well developed 24
24. Rostrum dorsally dentate in male, non-dentate in female; 2nd to 5th pereopods with distinct ventrolateral flange on merus . . . . . ***Altopontonia***
(New Caledonia; 350–525 m)
Rostrum similar in male and female; 2nd to 5th pereopods without conspicuous ventrolateral flange on merus 25
25. Rostrum dorsally dentate 26
Rostrum unarmed dorsally 39
26. First pereopod with carpus subdivided . . . . . ****Thaumastocaris***
First pereopods with carpus entire, not subdivided 27
27. Third pereopod with dactyl long, slender, and simple, unlike short, stout, and biunguiculate dactyls of 4th and 5th pereopods . . . . . ***Onycocaridites***
(Arafura Sea; 60 m, in sponge)
Third pereopod with dactyl not very different from those of 4th and 5th pereopods 28
28. Orbit with strong marginal spine at midlength of ventral margin . . ***Epipontonia***
(Kenya and Australia; 12–18 m, associated with sponges)
Orbit unarmed on ventral margin except occasionally at suborbital angle . . . 29
29. Telson with 4 pairs of dorsolateral spines . . . . . ***Plesiopontonia***
Telson with 2 or 3 pairs of dorsolateral spines 30
30. Second pereopods dissimilar 31
Second pereopods similar, not necessarily equal 35
31. Major chela with molar-like tooth on movable finger opposite socket in fixed finger . . . . . ****Periclimenaeus***
Major chela without molar-like tooth on movable finger or socket in fixed finger 32
32. Telson with both pairs of dorsolateral spines arising in anterior $^1/_2$ of length; antennal scale overreaching antennal peduncle by little, if at all; mandible with incisor process acuminate or bifid. 33
Telson with posterior pair of dorsolateral spines arising in posterior $^1/_2$ of length; antennal scale far overreaching antennal peduncle; mandible with incisor process truncate, distal margin dentate 34
33. Antennal scale with distolateral tooth large, far overreaching distal margin of blade; mandible with incisor process acuminate; 2nd maxilla with endite much reduced; minor 2nd chela with movable finger swollen, overreaching fixed finger; 3rd pereopod with dactyl biunguiculate . . . . . ***Exopontonia***
(Timor Sea; intertidal)
Antennal scale with distolateral tooth small, not overreaching distal margin of blade by much, if at all; mandible with incisor process bifid; 2nd maxilla with endite elongate, bifid; minor 2nd chela with movable finger acuminate, not overreaching fixed finger by much; 3rd pereopod with dactyl simple . . . . ***Periclimenoides***
(Hong Kong, southern Japan, Australia; 15 m)
34. Major 2nd chela with movable finger unarmed, distinctly overreaching fixed finger; minor 2nd chela with fingers not densely tuberculate on most of lengths of opposable margins . . . . . ***Hamiger***
(Off North Cape, New Zealand; 128 meters)

Major 2nd chela with movable finger armed with subtriangular tooth on opposable margin, not distinctly overreaching fixed finger; minor 2nd chela with fingers densely tuberculate on opposable margins . . . . . ***Orthopontonia***
(Tanzania and Great Barrier Reef, Australia; associated with sponge ***Jaspis***)

35. Rostrum unarmed ventrally . . . . . ***Pliopontonia***
Rostrum with 1 or more ventral teeth, sometimes very small 36
36. Antennal scale with distolateral tooth not reaching level of distal margin of blade . . . . . ***Vir***
Antennal scale with distolateral tooth reaching to or beyond level of distal margin of blade 37
37. Third pereopod with dactyl armed with series of sharp teeth on flexor margin . . . . . ***Diapontonia***
(Bahamas, western Atlantic; 244–309 meters, associated with echinoid)
Third pereopod with dactyl simple, flexor margin unarmed 38
38. Mandible with small palp . . . . . ***Eupontonia***
(Seychelle Islands; reef flat)
Mandible without palp . . . . . ****Philarius***
39. Second pereopods similar though unequal, chelae strongly compressed, borne in vertical plane with movable finger ventrad . . . . . ***Isopontonia***
(Chesterfield Islands; 15 m)
Second pereopods dissimilar and unequal, chelae subcylindrical, not strongly compressed, borne in horizontal plane with movable finger laterad 40
40. Rostrum not T-shaped, lateral carina feebly developed; eyes small, slender, in obsolescent orbits; 3rd pereopod with flexor margin of dactyl multidentate . . . . . ***Amphipontonia***
(New Caledonia; 300 m, associated with antipatharians and/or ascidians)
Rostrum T-shaped in section, with broad lateral carina; eyes large, in deep orbits; 3rd pereopod with dactyl simply biunguiculate . . . . . ***Pontoniopsis***
41. First pereopod with fingers narrowly spatulate, about as long as palm; 2nd pereopod with fingers not spatulate, palm more than $1\frac{1}{2}$ times as long as deep; 3rd pereopod with dactyl subconical and feebly armed . . . . . ***Onycocaridella***
First pereopod with fingers not spatulate, less than $\frac{1}{2}$ as long as palm; 2nd pereopod with fingers subspatulate, palm less than $1\frac{1}{2}$ times as long as deep; 3rd pereopod with dactyl strongly compressed and elaborately denticulate . . . . ***Onycocaris***
42. Lateral branch of uropod with several movable spines at diaeresis 43
Lateral branch of uropod with single lateral movable spine 44
43. Second pereopods similar and subequal, without molar process or opposing socket on fingers . . . . . ***Apopontonia***
(Madagascar, Australia, New Caledonia)
Second pereopods subequal but dissimilar, major chela with molar process on fixed finger opposing socket on dactyl . . . . . ***Paraclimenaeus***
(Tanzania and Seychelle and Maldive islands; 36–91 m, associated with sponges)
44. Rostrum overreaching anteriorly extended eyes 45
Rostrum not overreaching anteriorly extended eyes 50
45. Antennal scale with distolateral tooth far overreaching distal margin of blade; 3rd pereopod with large, compressed, angulate protuberance on flexor margin of dactyl 46
Antennal scale with distolateral tooth not overreaching distal margin of blade; 3rd pereopod with flexor margin of dactyl slightly convex, at most spinose, in proximal $\frac{1}{2}$ of length. 47

46. Third maxillipeds operculiform with distal and penultimate segments reduced . . . . . ***Chernocaris***
Third maxillipeds conventional, distal segments not unusually reduced . . . . . ***Conchodytes***

47. Telson curving ventrad posteriorly, posterior margin without movable spines, deeply incised and forming pair of fixed teeth separated by U-shaped sinus . . . . . ***Hamopontonia***
Telson not curving ventrad, posterior margin bearing movable spines, not incised 48

48. Rostrum laterally compressed . . . . . ***Anchistus***
Rostrum usually dorsoventrally compressed 49

49. Anterior margin of carapace nearly vertical, not produced anteriorly; 3rd pereopod with dactyl simple, not biunguiculate. . . . . ***Neoanchistus***
(Madagascar, Oman; associated with bivalve mollusks)
Anterior margin of carapace produced moderately or strongly anteriorly as rounded branchiostegal or pterygostomian lobe; 3rd pereopod biunguiculate, subdistal tooth sometimes distalmost spine of series on flexor margin of dactyl . . . . . ***Pontonia***

50. Rostrum armed dorsally with 1 or more teeth 51
Rostrum dorsally unarmed, flattened 53

51. Rostrum with single subrectangular dorsal tooth at base . . . . . ***Metapontonia***
(Western Indian Ocean and Ryukyu Islands; associated with fungiid corals)
Rostrum armed dorsally with 3–6 teeth 52

52. Carapace with several small suborbital spines; 3rd maxilliped with well-developed exopod; 2nd pereopod with chela longer than carpus, movable finger small but normal; telson with posterior spines straight . . . . . ***Fennera***
(Kenya, Seychelles, La Réunion, Maldives, Sri Lanka, Great Barrier Reef of Australia, Hawaii, Galapagos, and Pacific coast of America from Mexico to Colombia; associated with stony corals)
Carapace with large postorbital spine; 3rd maxilliped with rudimentary exopod; 2nd pereopod with chela shorter than carpus, movable finger semispherical; telson with median and submedian posterior spines curved ventrad . . . . . ***Tectopontonia***
(Tanzania; associated with coral *Acropora*)

53. Carapace without antennal spine; telson with dorsal spines slender . . . ***Platycaris***
Carapace with prominent antennal spine; telson with dorsal spines robust . . . . . ***Platypontonia***

54. Frontal margin formed by transverse or convex anterior margins of supraorbital eaves; if transverse, margin armed with about dozen sharp teeth, median one enlarged to form rostrum-like spike; if convex, margin unarmed, not bearing rostral substitute 55
Frontal margin not formed by supraorbital eaves 56

55. Carapace having 2 large, blunt, compressed teeth in dorsal midline and postorbital tubercle laterally, orbit open posteriorly . . . . . ***Chacella***
(Gulf of California; 30 meters, associated with antipatharian)
Carapace without large middorsal prominences or postorbital tubercle, orbit closed posteriorly . . . . . ***Veleronia***
(Ecuador and Galapagos Islands; 4–27 meters)

56. Carapace bearing immovable hepatic or postorbital tooth or spine 57
Carapace without hepatic or postorbital spine 64

57. Rostrum dentate in dorsal midline 58

Rostrum unarmed in dorsal midline 62
58. Rostrum armed ventrally 59
Rostrum unarmed ventrally 60
59. Carapace bearing antennal spine . . . . . ***Propontonia***
(Kenya, Zanzibar, Comoro Islands, Seychelles, Great Barrier Reef of Australia; associated with alcyonarians)
Carapace without antennal spine . . . . . ***Mesopontonia***
60. Carapace without antennal spine . . . . . ***Waldola***
(Pacific coast of America from Mexico to Colombia)
Carapace with antennal spine 61
61. Second pereopods very unequal; 3rd pereopod with strong basal protuberance on dactyl . . . . . ***Hamodactyloides***
(Red Sea, Kenya, Zanzibar, La Réunion, Ryukyu Islands, Great Barrier Reef of Australia; associated with hydroid *Millepora*)
Second pereopods equal; 3rd pereopod with dactyl slender, without basal protuberance . . . . . ***Hamodactylus***
62. Rostrum with lateral carina feebly expanded into unarmed supraorbital eave; 2nd pereopods subequal and similar, merus and ischium dentate on flexor margins . . . . . ***Miopontonia***
(Off Western Australia; 40 m)
Rostrum with lateral carina expanded into broad, anteriorly dentate supraorbital eave; 2nd pereopods unequal, similar or not, merus and ischium unarmed on flexor margins 63
63. Carapace and abdomen distinctly sculptured, former with deep branchiostegal sinus anteroventrally; major 2nd pereopod without proximal tooth on flexor margin of movable finger . . . . . ***Coutierea***
(West Indies; 148 or 165–172 m)
Carapace and abdomen smooth, not sculptured, former without branchiostegal sinus anteroventrally; major 2nd pereopod with large proximal tooth on flexor margin of movable finger . . . . . ***Lipkebe***
(Eastern Gulf of Mexico and off Brazil; 119–150 m, associated with crinoids)
64. Carapace bearing antennal spine 65
Carapace without antennal spine 68
65. Carapace with longitudinal branchiostegal suture; abdomen with pleuron of 5th somite sharply acute posteriorly . . . . . ***Pseudocoutierea***
(Pacific America from southern California to Galapagos Islands, Leeward Islands, and Caribbean coast of Colombia; 13–91 m, associated with gorgonians)
Carapace without branchiostegal suture; abdomen with pleuron of 5th somite rounded 66
66. Carapace with deep pterygostomian notch at anterolateral angle . . . . . ***Pseudopontonides***
(Northern Gulf of Mexico and Netherlands Antilles; associated with antipatharians and alcyonarians)
Carapace without notch at pterygostomian angle 67
67. Rostrum distinctly overreaching anteriorly extended eyes, lateral carina not broadly expanded as supraorbital eave . . . . . ***Neopontonides***
(Pacific America from Gulf of California to Ecuador; associated with gorgonians)

Rostrum overreaching anteriorly extended eyes little if at all, lateral carina broadly expanded into supraorbital eave. . . . . ***Pontonides***

68. Rostrum lacking; antennal scale small, without distolateral spine . . . ***Paratypton***
(Red Sea, Tanzania, Kenya, La Réunion, Great Barrier Reef of Australia, and Marshall, Fiji, and Samoa islands; forming cysts in acroporid corals)

Rostrum present; antennal scale well developed, with disto-lateral spine 69

69. Entire orbital margin spinose; lateral branch of uropod with movable spine mesial to fixed distal tooth . . . . . ***Ctenopontonia***
(Marshall Islands; 5–15 m, on faviid coral *Cyphastraea*)

Orbital margin not spinose; lateral branch of uropod without movable spine mesial to fixed distal tooth . . . . . ***Veleroniopsis***
(Florida Keys; 18 meters, associated with relict stony coral)

Anapontonia Bruce, 1966

Anapontonia Bruce, 1966a:584, 595–597 [type species, by original designation: *Anapontonia denticauda* Bruce, 1966a:596; gender: feminine].

DIAGNOSIS.—Rostrum barely overreaching anteriorly extended eyes, compressed laterally, rostral formula 6–10 + 5–10/0, lateral carina not expanded into broad supraocular or postocular eave; carapace strongly compressed, dorsal profile convex and dentate on anterior 1/2, variably concave and unarmed posteriorly, anterior margin partially produced as blunt lobe, partially deeply concave (notched), without longitudinal ridge parallel with ventral margin or longitudinal branchiostegal suture, unarmed except for acute suborbital angle, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite bluntly angulate, not sharp-pointed; telson not curved strongly ventrad, posterior margin not incised, posterior spines not curved ventrad, without dorsolateral spines; epistome not bearing paired, horn-like processes; antennal scale well developed, distolateral spine unusually robust and overreaching blade by most of length; mandible without palp; 3rd maxilliped with rigid exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar, not necessarily equal, chela much longer than carpus, not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular, palm more than 1 1/2 times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl unarmed on flexor margin, without hoof-shaped or triangular protuberances, merus unarmed on flexor margin; uropod with lateral branch bearing series of strong fixed teeth on distal 1/2 of lateral margin; associated with oculinid corals of genus *Galaxea*.

RANGE.—Zanzibar, Comoro Islands, Singapore, and Great Barrier Reef of Australia.

REMARKS.—Only one species is known.

56. *Anapontonia denticauda* Bruce, 1966

Anapontonia denticauda Bruce, 1966a:595–597 [type locality: Pange Reef, Zanzibar]; 1967a:3, figs. 1–4.

DIAGNOSIS.—Characters of genus; maximum carapace length 3.2 mm.

RANGE.—Western Indian Ocean, Singapore, and Queensland, Australia; living at base of columns of coral *Galaxea* in shallow water.

**Anchistus* Borradaile, 1898

Anchistus Borradaile, 1898a:387 [type species, by original designation: *Harpilius Miersi* De Man, 1888a:274; gender: masculine].

Tridacnocaris Nobili, 1899:235 [replacement name for *Anchistus* Borradaile, 1898; gender: feminine].

Marygrande Pesta, 1911:571 [type species, by monotypy: *Marygrande mirabilis* Pesta, 1911:571; gender: feminine].

Ensiger Borradaile, 1915:207 [type species, designated by Borradaile, 1917:376: *Anchistia aurantiaca* Dana, 1852a:25 (= *Cancer custos* Forskål, 1775:94); gender: masculine].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, compressed laterally, if armed dorsally, teeth confined to anterior 1/2 of length, lateral carina not expanded into broad supraocular or postocular eave; carapace not compressed laterally, dorsal profile slightly convex, not dentate or lobate, anterior margin not partially produced as prominent rounded lobe, not partially deeply concave (notched), without longitudinal ridge parallel with ventral margin or longitudinal branchiostegal suture, with or without antennal spine, otherwise completely unarmed, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite rounded, not sharp-pointed; telson not curved ventrad, posterior margin not deeply incised, median and submedian pairs of posterior spines not curved ventrad, dorsolateral spines slender or minute, not robust; epistome not bearing paired, horn-like processes; antennal scale well developed, distolateral spine not reaching as far as level of distal margin of blade; mandible without palp;

3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar but not necessarily equal, chela much longer than carpus, not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular, palm more than $1^1/2$ times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl sometimes with flexor margin dentate, often with extensor surface densely microspinulate, sometimes biunguiculate, but never with massive hoof-shaped or triangular protuberance, merus unarmed on flexor margin; uropod with lateral branch bearing single movable lateral spine without distinct fixed tooth; living in mantle cavity of bivalve mollusks.

RANGE.—Red Sea and eastern Africa to Philippines and Indonesia and eastward through Pacific Ocean as far as Tuamotu Archipelago.

REMARKS.—Inasmuch as Bruce has modified the composition of the genus since he presented a key to the species (1967b:567) by transferring *Pontonia armata* to the genus *Paranchistus* (1975e:49) and by adding two previously undescribed species (1977a:50,56), it may be desirable to offer below a revision of the earlier key. *Marygrande mirabilis* Pesta, 1911, which Kemp (1922:252) postulated to be based on two forms of *Anchistus*, is still a species inquirenda not included among the eight species in the key. Apparently only two of the species are thus far known from the area covered in this report.

Key to Species of *Anchistus*

1. Carapace bearing distinct antennal spine 2
   Carapace without antennal spine 5
2. Third pereopod with dactyl bearing accessory tooth on flexor margin . . . . . *61. ***A. miersi***
   Third pereopod with dactyl simple, without accessory tooth on flexor margin . . 3
3. Rostrum apically acute, armed with 3 dorsal and 1 ventral teeth . . . . . ***A. gravieri*** Kemp, 1922:252
   Great Barrier Reef, Australia (in bivalve mollusk *Hippopus*), New Caledonia, and Santa Cruz Islands, South Pacific
   Rostrum apically truncate or rounded 4
4. Rostrum bearing about 6 faint marginal elevations anterodorsally and apically; 3rd maxilliped with antepenultimate segment twice as wide as penultimate segment . . . . . 58. ***A. custoides***
   Rostrum armed with 3 distinct teeth on truncate apical margin; 3rd maxilliped with antepenultimate segment little, if any, wider than penultimate segment . . . . . ***A. pectinis*** Kemp, 1925:327
   (Zanzibar, Nicobar Islands, Japan, Great Barrier Reef of Australia, and New Caledonia; in bivalve mollusk *Pecten*)
5. Rostrum unarmed; 3rd maxilliped with antepenultimate segment about twice as wide as penultimate segment; 1st pereopod with chela unusually curled to form open tube; 3rd pereopod with dactyl simple, not biunguiculate . . . . . 59. ***A. custos***
   Rostrum armed with 2 to 5 anterodorsal teeth; 3rd maxilliped with antepenultimate segment little wider than penultimate segment; 1st pereopod with chela normal, not curled; 3rd pereopod with dactyl biunguiculate 6
6. Rostrum apically acute, armed with 4 or 5 anterodorsal and 1 ventral teeth . . . . . 57. ***A. australis***
   Rostrum apically truncate, armed with 2 anterodorsal teeth . . . . . 60. ***A. demani***

57. *Anchistus australis* Bruce, 1977

Anchistus australis, forma *typica* Bruce, 1977a:56, figs. 7-9 [type locality: Capre Cay, Swain Reefs, Great Barrier Reef, Australia; in *Tridacna derasa*].
Anchistus australis.—Bruce, 1983c:892, fig. 10A.

DIAGNOSIS.—Rostrum apically acute, rostral formula 4-5/1; carapace without antennal spine below ventral orbital angle; 3rd maxilliped with antepenultimate segment little wider than penultimate segment; 1st pereopod with chela normal, not cannulate; 3rd pereopod with dactyl biunguiculate; maximum postorbital carapace length about 6 mm.

RANGE.—Indonesia, Great Barrier Reef of Australia, Marshall Islands, New Caledonia, and Fiji Islands; living in *Tridacna derasa*.

58. *Anchistus custoides* Bruce, 1977

Anchistus custoides Bruce, 1977a:50, figs. 4–6 [type locality: N.W. end Gillett Cay (Swain Reefs), Queensland, Australia; 21°43′S, 152°25′E; from *Atrina vexillum*, not "West Cay, Diamond Islets," as erroneously cited in Bruce (1977a:55)]; 1983c:892.

DIAGNOSIS.—Rostrum apically rounded, bearing 4–6 minute and obscure teeth on dorsal and anterior margins, unarmed ventrally; carapace with distinct antennal spine below ventral orbital angle; 3rd maxilliped with antepenultimate segment about twice as wide as penultimate segment; 1st pereopod with chela normal, not cannulate; 3rd pereopod with dactyl simple, not biunguiculate; maximum postorbital carapace length about 9 mm.

RANGE.—Palau Islands, Indonesia, and Great Barrier Reef of Australia; associated with bivalves, *Atrina* and *Pteria*.

59. *Anchistus custos* (Forskål, 1775)

Cancer custos Forskål, 1775: xxi, 94 [type locality: Al Luhayyah, Yemen].
Pontonia inflata H. Milne Edwards, 1840:633 [type locality: Sri Lanka and "Vanicoso" (= Vanikoro, Santa Cruz Islands)].
Anchistia aurantiaca Dana, 1852a:25 [type locality: Fiji Islands].
Harpilius inermis Miers, 1884:291, pl. 32: fig. B [type locality: Port Molle, Queensland, Australia; from coral reef in *Pinna*].
Pontonia pinnae Ortmann, 1894:16, pl. 1: fig. 3 [type locality: Dar es Salaam, Tanzania; in *Pinna*; not *Pontonia pinnae* Lockington, 1894:163].
Anchistus custos.—Holthuis, 1952b:105.

DIAGNOSIS.—Rostrum apically rounded, unarmed; carapace without antennal spine; 3rd maxilliped with antepenultimate segment about twice as wide as penultimate segment; 1st pereopod with chela unusually curled to form open tube; 3rd pereopod with dactyl simple, not biunguiculate; maximum postorbital carapace length about 9 mm.

RANGE.—Red Sea and eastern Africa to Philippines, southward to South Australia, and eastward to the Caroline and Fiji islands; living in bivalve mollusks of the genus *Pinna*.

60. *Anchistus demani* Kemp, 1922

Anchistus demani Kemp, 1922:256, figs. 86–88 [type locality: Aberdeen, Port Blair, Andaman Islands; from *Tridacna* at low tide].—Bruce, 1983c:892.

DIAGNOSIS.—Rostrum apically truncate, armed with 2 or 3 anterodorsal teeth, unarmed ventrally; carapace without antennal spine below ventral orbital angle; 3rd maxilliped with antepenultimate segment about twice as wide as penultimate segment; 1st pereopod with chela normal, palm non-cannulate; 3rd pereopod with dactyl obscurely biunguiculate; maximum postorbital carapace length about 3 mm.

RANGE.—Western Indian Ocean to Andaman Islands, Malaya, Indonesia, Great Barrier Reef of Australia, New Caledonia, and Marshall Islands; living in bivalve, *Tridacna*.

*61. *Anchistus miersi* (De Man, 1888)

Harpilius Miersi De Man, 1888a:274, pl. 17: figs. 6–10 [type locality: Elphinstone Island, Mergui Archipelago, Burma].
Anchistus miersi.—Holthuis, 1952c:110, fig. 45.

DIAGNOSIS.—Rostrum usually apically acute, rostral formula 4-5/0-2; carapace with distinct antennal spine below ventral orbital angle; 3rd maxilliped with antepenultimate segment little wider than penultimate segment; 1st pereopod with chela normal, not cannulate; 3rd pereopod with dactyl biunguiculate; maximum postorbital carapace length at least 7 mm.

MATERIAL.—PHILIPPINES. Quinalasag Island, Masamat Bay, Luzon; [13°56′N, 123°38′E]; 3 m; sand, coral; 12 Jun 1909; dynamite: 1 male [3.2] 1 ovig female [5.5].

RANGE.—Red Sea and eastern Africa to the Philippines and eastward to the Gambier Islands, Tuamotu Archipelago; in bivalve mollusks of genera *Hippopus* and *Tridacna*, possibly also *Pinna* and *Meleagrina*.

Chernocaris Johnson, 1967

Chernocaris Johnson, 1967:500 [type species, by monotypy: *Chernocaris placunae* Johnson, 1967:500; gender: feminine].

DIAGNOSIS.—Rostrum reaching about as far as ends of anteriorly extended eyes, depressed, especially posteriorly, unarmed, lateral carina slightly expanded posteriorly but not forming discrete supraocular or postocular eave; carapace markedly depressed dorsoventrally, dorsal profile nearly straight or slightly concave, not dentate or lobate, anterior margin produced as convex lobe, inflected portion with posteriorly incomplete longitudinal ridge, completely unarmed, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite broadly rounded; telson not curved ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curved ventrad, dorsolateral spines short, not especially robust; epistome not bearing paired, horn-like processes; antennal scale reasonably well developed, distolateral spine overreaching distal margin of blade; mandible without palp; 3rd maxilliped with endopod operculate and with exopod; 4th thoracic sternite without slender median process; 1st pereopods with fingers slender, not spatulate, carpus entire, not subdivided; 2nd pereopods somewhat dissimilar and unequal, chelae not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular, palm more than $1^1/_2$ times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl with large, compressed, biangular lobe proximal to sharp, recurved tooth on flexor margin, merus unarmed on flexor margin; uropod with lateral branch bearing single, minute, movable spine unaccompanied by fixed tooth; living in mantle cavity of bivalve mollusk, *Placuna*.

RANGE.—Singapore and Arafura Sea.

REMARKS.—Only one species is known.

62. *Chernocaris placunae* Johnson, 1967

Chernocaris placunae Johnson, 1967:500, figs. 1–12 [type locality: Telok Paku, Singapore, in *Placuna sella* at low spring tide level].

DIAGNOSIS.—Characters of genus; maximum postorbital carapace length 7.2 mm.

RANGE.—Singapore and Arafura Sea; living in mantle cavity of bivalve mollusk, *Placuna* occurring from low spring tide level to 27 meters.

REMARKS.—The Arafura Sea specimens confirm that the proximal lobe on the flexor margin of the dactyl of the third pereopod of the species is compressed and not "hoof-like" as in *Coralliocaris* or *Jocaste*, as reported in the original description, and indicates a close relationship to *Conchodytes*.

**Conchodytes* Peters, 1852

Conchodytes Peters, 1852:588,591 [type species, selected by Hilgendorf, 1879:835: *Conchodytes tridacnae* Peters, 1852:594; gender: masculine].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, depressed, especially posteriorly, unarmed, lateral carina slightly expanded posteriorly but not forming discrete supraocular or postocular eave; carapace depressed dorsoventrally, dorsal profile slightly convex, not dentate or lobate, anterior margin partially produced as prominent rounded lobe, deeply concave (notched) dorsally thereto, without longitudinal ridge or suture, completely unarmed except for acute ventral orbital angle, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite rounded; telson not curved ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curved ventrad, dorsolateral spines distinct; epistome not bearing paired, horn-like processes; antennal scale well developed, distolateral spine far overreaching distal margin of blade; mandible without palp; 3rd maxilliped with exopod, endopod not operculate; 4th thoracic sternite without slender median process; 1st pereopod with fingers slender, not spatulate, carpus entire, not subdivided; 2nd pereopods with chela not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular, palm more than $1^1/2$ times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl with large, compressed lobe proximally on flexor margin, merus unarmed on flexor margin; uropod with lateral branch bearing single, minute, movable spine unaccompanied by fixed tooth; living in mantle cavity of bivalve mollusks.

RANGE.—Red Sea and Madagascar to Japan, Philippines, Indonesia, Australia, and eastward to Hawaii and Tuamotu Archipelago.

REMARKS.—A key to the species of *Conchodytes* may be found in Bruce (1989b).

63. *Conchodytes kempi* Bruce, 1989

Conchodytes biunguiculatus.—Kemp, 1922:280, fig. 103.—Holthuis, 1952c:199 [not *Pontonia biunguiculata* Paulson, 1875].

Conchodytes kempi Bruce, 1989b:183, fig. 3b–e [type locality; Andaman Islands].

DIAGNOSIS.—Telson with 2 pairs of dorsolateral and 3 pairs of posterior spines; 1st pereopod with carpus and merus subequal in length; 3rd pereopod with dactyl armed with 2 strong, divergent, spine-like teeth, basal process well developed with small marginal tooth; maximum postorbital carapace length 9.2 mm.

RANGE.—Western Indian Ocean, Taiwan, Philippines, Indonesia, and Marshall Islands; in bivalve mollusks.

REMARKS.—The occurrence of this species in the Philippines must be considered tentative for the time being, because of the small size, the somewhat different dactyls of the ambulatory pereopods, and the unusual host (*Isognomon*) of the pair of specimens recorded by Bruce (1989b) from Cebu, the type material having been found in association with *Pinna*.

*64. *Conchodytes maculatus* Bruce, 1989

FIGURE 18

Conchodytes maculatus Bruce, 1989a:182, figs. 1–6 [type locality: West of Cape Leveque, Western Australia; 40 m, in pearl oyster, *Pinctada maxima*].

DIAGNOSIS.—Telson with 2 pairs of dorsolateral and 3 pairs of posterior spines; 1st pereopod with carpus slightly longer than or subequal to merus; 3rd pereopod with dactyl armed with 2 strong, divergent, spine-like teeth, basal process poorly developed, usually sinuous in outline, without marginal tooth; maximum postorbital carapace length 10.3 mm.

MATERIAL.—PHILIPPINES. Pakiputan Strait, off Davao, Mindanao; [7°07′N, 125°40′E]; 18 May 1908; from pearl oysters: 25 males [6.3–9.8] 24 females [6.8–10.2], 23 ovig [6.8–10.2].—Jolo, Jolo Island, Sulu Archipelago; [6°00′N, 121°00′E]; 11 Feb 1908; from pearl oysters: 9 males [6.8–8.9] 6 ovig females [7.8—10.3].

RANGE.—Known only from the type locality on the Australian Northwest Shelf and the two Philippine localities cited above; to a depth of 40 meters, in pearl oysters.

REMARKS.—This series of 64 specimens was originally identified tentatively as *C. meleagrinae* in disagreement with the conclusion by Bruce (1977a:73) that that species can always be distinguished from the closely related *C. tridacnae* by the fact that the carpus of the first pereopod is always distinctly shorter than the merus in the former species. In the *Albatross* series, the carpus-merus ratio varies from 0.91 to 1.18, with an average of 1.02. Most of the specimens in that series agree well with the description of *C. maculatus* in having the movable fingers of the second pereopods strongly carinate on the extensor margin and the basal protuberance on the dactyls of the ambulatory pereopods smoothly sinuous, but a few specimens have the movable fingers of the second pereopods less strongly carinate and the flexor margins of the ambulatory dactyls partially obscurely truncate (Figure 18*i*) rather than smoothly sinuous over the entire proximal part of the segment.

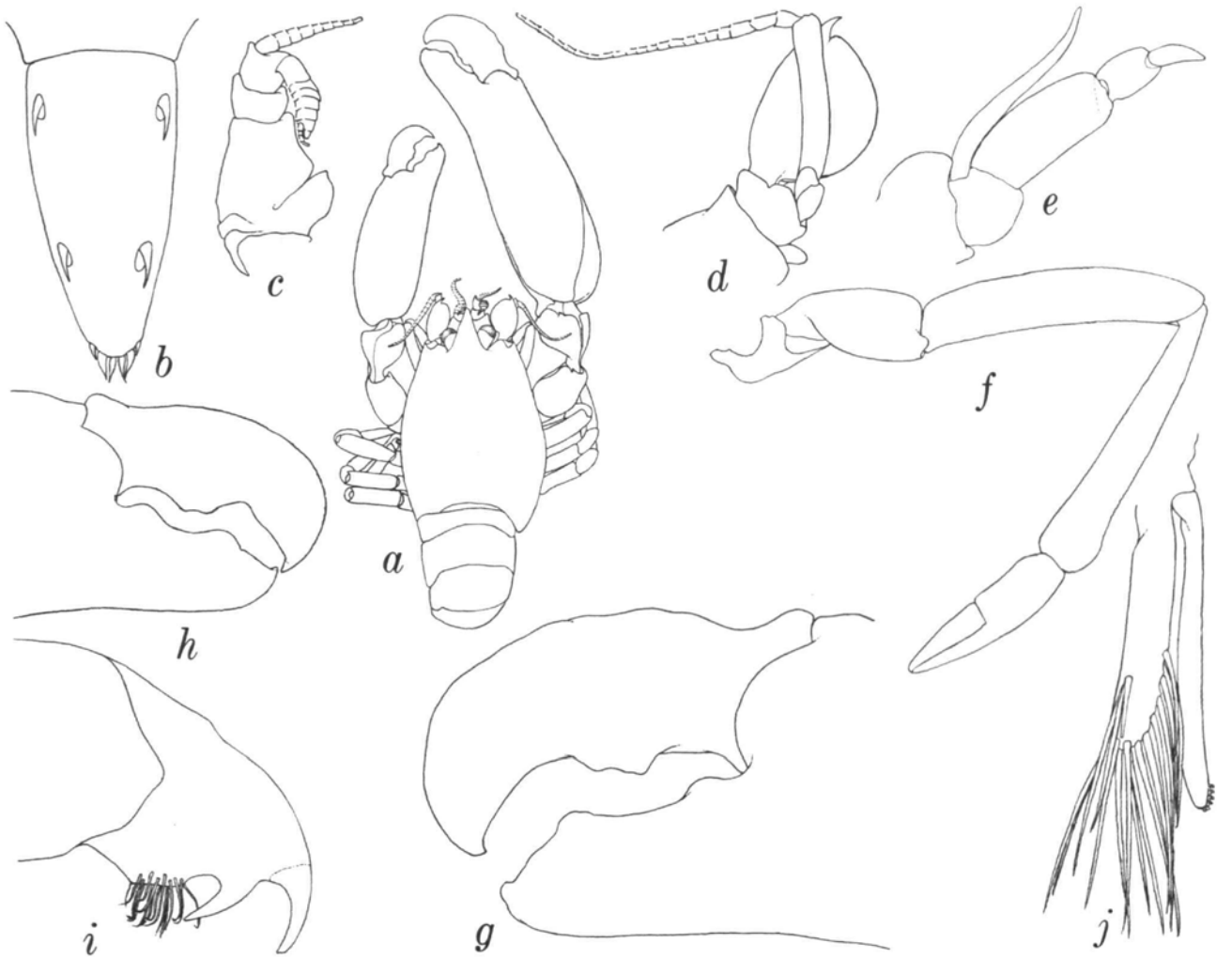

FIGURE 18.—*Conchodytes maculatus*, male from pearl oyster, Pakiputan Strait, Mindanao, carapace length 8.4 mm: *a*, dorsal aspect; *b*, telson, dorsal aspect; *c*, right antennule, dorsal aspect; *d*, right antenna, ventral aspect; *e*, right 3rd maxilliped; *f*, right 1st pereopod; *g*, right (major) chela, fingers, extensor-dorsolateral aspect; *h*, left (minor) chela, fingers, extensor-dorsolateral aspect; *i*, right 3rd pereopod, dactyl; *j*, right appendix masculina and appendix interna.

65. *Conchodytes meleagrinae* Peters, 1852

Conchodytes meleagrinae Peters, 1852:594 [type locality; Ibo, Cabo Delgado, eastern Africa].—Bruce, 1972e:225 [color photo]; 1973e:139; 1977a:73, fig. 14C,D.

DIAGNOSIS.—Telson with 2 pairs of dorsolateral and 3 pairs of posterior spines; 1st pereopod with carpus distinctly shorter than merus; 3rd pereopod with dactyl armed with 2 strong, divergent, spine-like teeth, basal process well developed but without marginal tooth; maximum postorbital carapace length at least 10 mm.

RANGE.—Red Sea and eastern Africa to Hawaii; usually in pearl oysters of the genus *Pinctada*. Although there seem to be no Philippine or Indonesian records of this species by those who consider it distinct from *C. tridacnae*, it almost certainly occurs in both areas.

REMARKS.—In regard to the validity of the species, Bruce (1973e:139) noted that *C. meleagrinae* is "Closely similar to *C. tridacnae* but generally smaller and with the carpus of the first pereiopod definitely much shorter than the merus and he added (1974d:201) that that proportion is "a character which appears to be quite reliable in separating *C. tridacnae* from the closely related *C. meleagrinae*," and (1977a:73) that "the relative lengths of these two segments appears to be the easiest way of distinguishing between these two species."

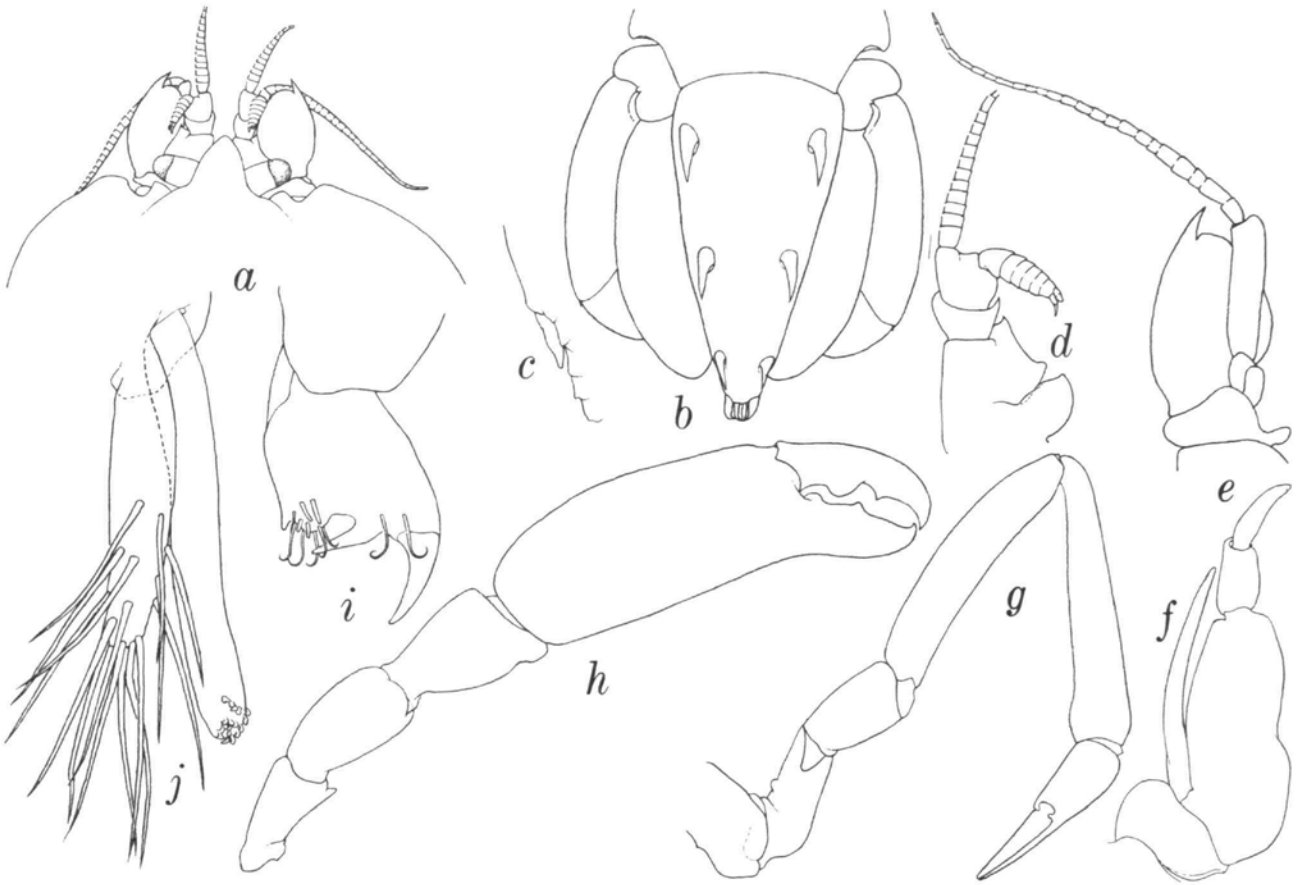

FIGURE 19.—*Conchodytes nipponensis*, male from Tilik, Lubang Island, carapace length 7.0 mm: *a*, anterior carapace and appendages, dorsal aspect; *b*, tail fan; *c*, distolateral angle of lateral branch of left uropod; *d*, right antennule, dorsal aspect; *e*, right antenna, ventral aspect; *f*, right 3rd maxilliped; *g*, right 1st pereopod; *h*, left 2nd pereopod, extensor aspect; *i*, right 3rd pereopod, dactyl; *j*, right appendix masculina and appendix interna.

66. *Conchodytes monodactylus* Holthuis, 1952

Conchodytes monodactylus Holthuis, 1952c:200, figs. 96–98 [type locality; the type series came from two localities: Kaohsiung, Taiwan, in *Pinna* sp., and Lesser Sunda Islands, Indonesia].

DIAGNOSIS.—Telson with 2 pairs of dorsolateral and 3 pairs of posterior spines; 1st pereopod with carpus and merus subequal in length; 3rd pereopod with dactyl bearing single distal spine and basal process well developed with minute marginal tooth; maximum postorbital carapace length about 13 mm.

RANGE.—Singapore, Hong Kong, Amakusa Island, Japan, Indonesia, and Australia; in pinnid bivalve mollusks.

*67. *Conchodytes nipponensis* (De Haan, 1844)

FIGURE 19

Hymenocera niponensis De Haan, 1844: pl. 46: fig. 8 [corrected to *H. nipponensis* by plenary powers of the International Commission on Zoological Nomenclature, 1956; type locality: Japan].

Pontonia nipponensis.—De Haan, 1849:180.

Conchodytes nipponensis.—Kemp, 1922:282, fig. 104.—Bruce, 1977e:97, fig. 1.

DIAGNOSIS.—Telson with 3 pairs of dorsolateral and 2 pairs of posterior spines; 1st pereopod with carpus averaging subequal to merus; 3rd pereopod with dactyl bearing 2 strong, divergent, spine-like teeth, basal process well developed with small marginal tooth; maximum postorbital carapace length perhaps as much as 15 mm.

MATERIAL.—PHILIPPINES. Tilik, Lubang Island; [13°49′N, 120°12′E]; 14 Jul 1908: 1 male [7.0] 1 ovig female [9.6].

RANGE.—Until reported by Bruce (1977e:97) from a single, possibly juvenile specimen from Keppel Bay, Queensland, Australia—on the mainland coast opposite Heron Island, from where Bruce (1981e) recorded no less than 100 other pontoniine species—*C. nipponensis* was known only from

Japan. It is here noted that it was collected in the Philippines more than 80 years ago. It has been taken in Japan from both pectinid and pinnid bivalve mollusks.

68. *Conchodytes tridacnae* Peters, 1852

Conchodytes tridacnae Peters, 1852:594 [type locality: Ibo, Cabo Delgado, eastern Africa].—Bruce, 1977a:71, fig. 14a,b; 1977f: 176, fig. 7.

DIAGNOSIS.—Telson with 2 pairs of dorsal and 3 pairs of posterior spines; 1st pereopod with carpus averaging longer than merus; 3rd pereopod with carpus averaging longer than merus; 3rd pereopod with dactyl bearing 2 strong, divergent, spine-like teeth, basal process well developed, without marginal tooth; maximum postorbital carapace length more than 10 mm.

RANGE.—Widespread throughout the Indo-Pacific region, from the Red Sea to Hawaii, in the mantle cavity of giant clams of the genus *Tridacna*; exact locality records incomplete because of past confusion between this species and *C. meleagrinae*.

REMARKS.—See "Remarks" under *C. meleagrinae*.

Coralliocaris* Stimpson, 1860

OEdipus Dana, 1852a:17 [type species, selected by Kingsley, 1880:423: *OEdipus superbus* Dana, 1852a:25; gender: masculine. Invalid junior homonym of *OEdipus* Berthold, 1827 (Orthoptera), *OEdipus* Tschudi, 1838 (Amphibia), and *OEdipus* Lesson, 1840 (Mammalia)].

Coralliocaris Stimpson, 1860:38 [replacement name for *OEdipus* Dana, 1852; gender: feminine].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, compressed laterally anteriorly, lateral carina expanded posterolaterally into partial, unarmed postocular eave; carapace depressed, dorsal longitudinal profile slightly convex, not dentate or lobate, anterior margin not partially produced as prominent rounded lobe, not partially deeply concave (notched), without longitudinal ridge or longitudinal branchiostegal suture parallel with ventral margin, with antennal spine, without hepatic or any other spines, orbital margin not interrrupted posteriorly; abdomen with pleuron of 5th somite rounded, not sharp-pointed; telson not curved ventrad, posterior margin not deeply incised, median and submedian pairs of posterior spines not curved ventrad, dorsolateral spines slender, not robust; epistome not bearing paired, horn-like processes; antennal scale well developed, distolateral spine not reaching as far as level of distal margin of blade; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with fingers not subspatulate, carpus entire, not subdivided; 2nd pereopods similar, usually subequal, chela much longer than carpus, not borne in vertical plane, movable finger not ventrad; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl with massive, hoof-shaped or triangular protuberance on flexor margin, merus unarmed on flexor margin; uropod with lateral branch bearing single movable spine mesial to strong lateral tooth; associated with scleractinian corals.

RANGE.—Red Sea and Indian Ocean to Indonesia and eastward to the Line Islands.

REMARKS.—The identity of some of the species currently assigned to *Coralliocaris* is uncertain. There would seem to be little doubt that *C. taiwanensis* Fujino and Miyake, 1972, is a junior synonym (by one month) of *C. pavonae* Bruce, 1972. Bruce (1977g:205) suggested the possibility that *C. graminea* may be a junior synonym of *C. macrophthalma*, but those two species are treated as distinct in the key offered below. Bruce (1974a:222) proposed the name *C. viridis* for a species previously confused with but differing in color pattern, as well as in minor morphological rostral characters, from *C. graminiea*. Later (1983d:201), however, he recognized only as "forms" two distinct color varieties of *C. venusta*, perhaps because not even suggestions of accompanying morphological differences could be found to help determine which form was typical of the species. The two forms of *C. venusta* behave like sibling species and will probably prove to be "good species" even though, once preserved, they cannot yet be separated.

Four of the eight species recognized herein have been recorded previously from Indonesia, and two of the four are represented by Philippine material in the *Albatross* collections.

Key to Species of *Coralliocaris*

1. Rostrum unarmed, not overreaching anteriorly extended eyes 2
   Rostrum usually armed with at least 1 dorsal tooth, normally overreaching anteriorly extended eyes 3
2. Second pereopod with extensor margin of movable finger regularly convex . . . . . ***C. brevirostris*** Borradaile, 1898:386 (Willis Islets (Coral Sea) and Marshall and Ellice islands; associated with scleractinian corals of genus *Acropora*)
   Second pereopod with extensor margin of movable finger smoothly sinuous . . . . . ***C. nudirostris*** (Heller, 1861:27) (Red Sea, Indian Ocean, Japan, Kiribati (Gilbert Islands), and Marshall and Society islands; associated with scleractinian corals of genus *Acropora*)

3. Rostrum armed dorsally with 1 or 2 teeth 4
   Rostrum armed dorsally with 3–6 teeth 5
4. Second pereopod with extensor margin of movable finger regularly convex, opposable margin with socket, fixed finger with plunger on opposable margin . . . . . ***C. macrophthalma*** (H. Milne Edwards, 1837:359) (Red Sea and western Indian Ocean, possibly Great Barrier Reef of Australia)
   Second pereopod with extensor margin of movable finger smoothly sinuous, opposable margin without socket, fixed finger without plunger on opposable margin . . . . . 71. ***C. venusta***
5. Second pereopod with extensor margin of movable finger evenly convex and fixed finger with plunger on opposable margin 6
   Second pereopod with extensor margin of movable finger abruptly elevated in proximal 1/2 and fixed finger without plunger on opposable margin 7
6. Rostrum with dorsal and ventral carinae deep and armed with outstanding teeth, especially in adults; color pattern composed of black, white, and red chromatophores in alternating fine longitudinal stripes . . . . . *69. ***C. graminea***
   Rostrum with dorsal and ventral carinae shallow and armed with low teeth; color pattern composed of uniformly scattered mixture of black and yellowish white chromatophores . . . . . 72. ***C. viridis***
7. Antennal scale more than 3 times as long as wide; 3rd maxilliped with penultimate segment more than twice as long as wide; 2nd pereopod with socket on both movable and fixed fingers . . . . . ***C. pavonae*** Bruce, 1972b:77, figs. 8–11 (Taiwan and Fiji Islands; associated with scleractinian corals of genus *Pavona*)
   Antennal scale less than 3 times as long as wide; 3rd maxilliped with penultimate segment less than twice as long as wide; 2nd pereopod without socket in either finger . . . . . *70. ***C. superba***

*69. *Coralliocaris graminea* (Dana, 1852)

OEdipus gramineus Dana, 1852a:25 [type locality: Fiji Islands]; 1855:12, pl. 37: fig. 3 [color].

Coralliocaris graminea.—Bruce, 1974a:222, fig. 1C,D; 1977h:72 [color illustration]; 1984b:163.

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, rostral formula 3-6/0-2, dorsal and ventral carinae deep and armed with outstanding teeth, in adults; antennal scale about 2 3/4 times as long as wide; 3rd maxilliped with penultimate segment less than twice as long as wide; 2nd pereopod with movable finger regularly convex on extensor margin, opposable margin with socket into which fits plunger on fixed finger; color bright green, pattern composed of black, white, and red chromatophores confined to alternating fine, longitudinal lines; maximum postorbital carapace length about 7 mm.

MATERIAL.—PHILIPPINES. Marungas Island (south side), Sulu Archipelago; [6°06′N, 120°58′E]; 1 1/4–2 1/2 m; scattered coral and sand; 10 Feb 1908 (1330–1500); diving, coral heads taken ashore: 1 male [3.6] 3 females [2.9–3.0], 2 ovig [2.9, 3.0].

RANGE.—Exact locality records uncertain because of past confusion of *C. viridis* with this species, but Bruce (1984b:163) indicated that both species occur from the Red Sea to Indonesia and eastward to one or more of the island groups east of the Samoa Islands; associated with scleractinian corals of the genus *Acropora*.

*70. *Coralliocaris superba* (Dana, 1852)

OEdipus superbus Dana, 1852a:25 [type locality: Tongatapu Island, Tonga Islands]; 1855:12, pl. 37: fig. 2 [color].

Coralliocaris superba.—Kemp, 1922:272, figs. 98, 99.—Holthuis, 1952c:189, fig. 92.

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, rostral formula 4–5/2, dorsal and ventral carinae deep; antennal scale about 2 3/4 times as long as wide; 3rd maxilliped with penultimate segment less than twice as long as wide; 2nd pereopod with movable finger abruptly wider on extensor margin in proximal than distal 1/2, without socket or plunger on opposable margin of either finger; color, carapace and anterior abdomen white, posterior abdomen and appendages translucent yellow with brown dots, posterior margin of tail fan purple; maximum postorbital carapace length less than 7 mm.

MATERIAL.—PHILIPPINES. Marungas Island (south side), Sulu Archipelago; [6°06′N, 120°58′E]; 1 1/4–2 1/2 m; scattered coral and sand; 10 Feb 1908 (1330–1500); diving, coral heads taken ashore: 2 females [2.8, 5.0], 1 ovig [5.0].

RANGE.—Red Sea to Indonesia and eastward to the Society Islands; associated with scleractinian corals of the genus *Acropora*.

71. *Coralliocaris venusta* Kemp, 1922

Coralliocaris venusta Kemp, 1922:274, figs. 100, 101 [type locality: "N.E. Tholayiram Paar," Gulf of Mannar, India; on madrepore coral].—Holthuis, 1952c:191, fig. 93.—Bruce, 1976d:32, fig. 12; 1977h:73 [color illustration]; 1978a:282, fig. 42; 1979f:240; 1983d:201.

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, rostral formula 0–4/0–2, dorsal and ventral carinae not very deep; antennal scale about $2^3/_4$ times as long as wide; 3rd maxilliped with penultimate segment less than twice as long as wide; 2nd pereopod with movable finger smoothly sinuous on extensor margin, fingers dentate on opposable margins, without socket or plunger; color translucent with linear speckling of dark red or black, two color forms, with and without conspicuous white patches; maximum postorbital carapace length about 3 mm.

RANGE.—Red Sea to Indonesia, Great Barrier Reef, and Samoa Islands; associated with scleractinian corals of the genus *Acropora*.

REMARKS.—This taxon is represented by two color forms which appear to represent good species. At present neither can be specifically associated with the type material described by Kemp (1922).

72. *Coralliocaris viridis* Bruce, 1974

Coralliocaris viridis Bruce, 1974a:222, fig. 1A,B [type locality: seaward reefs of Mombasa Island, Kenya]; 1984b:163.

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, rostral formula 3–5/1, dorsal and ventral carinae shallow and armed with rather inconspicuous teeth; antennal scale about $2^3/_4$ times as long as wide; 3rd maxilliped with penultimate segment less than twice as long as wide; 2nd pereopod with movable finger angularly convex on extensor margin, opposable margin with socket into which fits plunger on fixed finger; color bright green, pattern composed of uniformly scattered mixture of black and yellowish white chromatophores; maximum postorbital carapace length about 5 mm.

RANGE.—Eastern Africa to Indonesia and southern Great Barrier Reef, Australia; associated with scleractinian corals of the genus *Acropora*.

**Dasella* Lebour, 1945

Dasia Lebour, 1939:650 [type species, by monotypy: *Dasia herdmaniae* Lebour, 1939:650; gender: feminine. Invalid junior homonym of *Dasia* Gray, 1839 (Reptilia) and *Dasia* Van der Goot, 1918 (Hemiptera)].
Dasella Lebour, 1945:297 [replacement name for *Dasia* Lebour, 1939].

DIAGNOSIS.—Rostrum distinctly overreaching anteriorly extended eyes, compressed laterally, unarmed dorsally, lateral carina indistinct, not expanded into broad supraocular or postocular eave; carapace about as wide as high, dorsal profile slightly convex, not dentate or lobate, without longitudinal ridge or suture, with antennal and movable hepatic spines, otherwise unarmed, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite rounded; telson not curved ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curved ventrad, dorsolateral spines strong; epistome not bearing paired, horn-like processes; antennal scale well developed, distolateral spine not overreaching distal margin of blade; mandible without palp; 3rd maxilliped bearing exopod; 4th thoracic sternite without slender median process; 1st pereopod with fingers subspatulate, carpus entire, not subdivided; 2nd pereopods similar but unequal, chela much longer than carpus, not borne in vertical plane, movable finger not ventrad, fingers not provided with socket or plunger, movable finger normal, not semicircular, palm about $2^3/_4$ times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl with large, compressed lobe on flexor margin, merus unarmed on flexor margin; uropod with lateral branch bearing minute single lateral tooth with movable spine mesial thereto; associated with ascidians.

RANGE.—Moçambique, southern India, Sulu Archipelago, Arafura Sea, and Great Barrier Reef of Australia.

REMARKS.—Only the three species noted in the following key are known.

Key to Species of *Dasella*

1. Dactyl of ambulatory pereopod with basal process bearing small acute tooth . . . . . ***D. ansoni*** Bruce, 1983a:22, figs. 1–5 (Arafura Sea; 27 m)

   Dactyl of ambulatory pereopod with basal process lacking acute tooth 2

2. Ambulatory propodus with small club-shaped distal and flexor spines . . . . . *73. ***D. herdmaniae***

   Ambulatory propodus with distal and flexor spines acute, not club-shaped . . . . . ***D. brucei*** Berggren, 1990:558 (Great Barrier Reef of Australia)

*73. *Dasella herdmaniae* (Lebour, 1939)

Dasia herdmaniae Lebour, 1939:650, pl. 1 [type locality: Tuticorin, Gulf of Mannar, Madras, India, associated with ascidian *Herdmania pallida* (= *H. momus*)].

DIAGNOSIS.—First pereopod with opposable margins of fingers entire, not minutely pectinate; 3rd pereopod with lobe on flexor margin of dactyl bluntly rounded, without terminal tooth; maximum postorbital carapace length little more than 3 mm.

MATERIAL.—PHILIPPINES. Near Siasi, Sulu Archipelago; sta 5147; 5°41′40″N, 120°47′10″E; 38 m; coral sand, shells; 16 Feb 1908 (11:27–11:47); 12′ Agassiz beam trawl, mud bag: 1

ovig female [3.0].

RANGE.—Moçambique, southern India, and Philippines; associated with ascidians.

REMARKS.—The single Philippine specimen agrees with the type series, as described by Berggren (1990), in lacking any suggestion of a ventral denticle on the rostrum, having the anterolateral margin of the carapace only slightly concave, having a minute hepatic spine, lacking an acute tooth on the flexor process of the dactyl of the third pereopod, and displaying two club-shaped spines on the propodus of that pereopod. Those spines are "a little more elongated than those found on specimens from Moçambique," as noted by Berggren (1990:558) about the syntypes of *D. herdmaniae*. It may be significant that Van Name (1928:79) recorded three specimens of the ascidian *Pyura pallida* (= *Herdmania momus*, the host of the type series of the species) from *Albatross* station 5147.

Dasycaris Kemp, 1922

Dasycaris Kemp, 1922:240 [type species, by monotypy: *Dasycaris symbiotes* Kemp, 1922:240; gender: feminine].—Bruce, 1973a:257.
Dasygius Balss, 1924:48 [erroneous name for *Dasycaris*].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, subcylindrically tapering, unarmed ventrally, without lateral carina or supraocular or postocular eave; carapace rather subcylindrical, dorsal profile dentate or lobate, without longitudinal ridge or suture, not produced anteroventrally, armed laterally only with antennal and immovable hepatic spine, orbital margin not interrupted posteriorly; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curving ventrad, dorsolateral spines not robust; epistome not bearing horn-like processes; antennal scale well developed; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with fingers not subspatulate, carpus entire, not subdivided; 2nd pereopods similar but unequal, chela much longer than carpus, not borne in vertical plane, movable finger not ventrad, fingers not provided with socket or plunger, movable finger normal, not semicircular, palm more than 3 times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl simple, not biunguiculate, merus unarmed on flexor margin; uropod with lateral branch bearing movable spine, with or without fixed tooth lateral thereto; associated with alcyonarians and antipatharians.

RANGE.—Zanzibar, India, Mergui Archipelago, Japan, Indonesia, Great Barrier Reef of Australia, and New Caledonia.

REMARKS.—The brief and somewhat inadequate description of *D. doederleini* by Balss (1924:49) complicates the task of contructing a key to the four known species of *Dasycaris*, only one of which has thus far been recorded from the Philippine-Indonesian region. The following key is modified from the one offered by Bruce (1973a:258).

Key to Species of *Dasycaris*

1. Rostrum, proper, completely unarmed; carapace with dorsal profile variably sinuous, prominences usually rounded, sometimes denticulate; adult female usually with broadly rounded pleura on all abdominal somites, those of 4th and 5th somites sometimes with small, acute tooth at posteroventral angle . . . . . ***D. zanzibarica*** Bruce, 1973a:247, figs. 1–6
(Zanzibar (4–22 m, associated with antipatharian), Great Barrier Reef of Australia, and New Caledonia)

   Rostrum, proper, armed with 1 or more dorsal teeth; carapace with dentate dorsal profile, teeth broadly acute; adult female with pleura of at least 3rd to 5th abdominal somites produced into prominent, acute projections 2

2. Rostrum with 1 or 2 dorsal teeth in anterior 1/2 of length; adult female with pleura acutely produced on all abdominal somites . . . . . ***D. doederleini*** (Balss, 1924:49, fig. 2)
(Sagami Nada; 130 meters)

   Rostrum unarmed in anterior 1/2 of length; adult female with pleuron of 1st and usually 2nd abdominal somites broadly rounded 3

3. Second, 3rd, and 4th of 5 teeth in dorsal midline of rostrum and carapace broadly compressed and forming basal rostral crest; eye with cornea bearing conical projection; uropod with lateral branch bearing only lateral movable spine, without fixed tooth lateral thereto . . . . . 74. ***D. ceratops***

   None of 6 teeth in dorsal midline of rostrum and carapace broadly compressed, no real basal rostral crest on carapace; eye with cornea hemispherical, without conical projection; uropod with lateral branch bearing strong fixed tooth lateral to movable spine . . . . . ***D. symbiotes*** Kemp, 1922:240, text-figs. 76, 77, pl. 9
(Madras coast of India, Mergui Archipelago, and New Caledonia; associated with sea pen *Pteroeides*)

74. *Dasycaris ceratops* Holthuis, 1952

Dasycaris ceratops Holthuis, 1952c:176, figs. 87, 88 [type locality: Borneo Bank, Makassar Strait, Indonesia; 2°25'S, 117°43'E; 50–40 m; fine coral sand].

DIAGNOSIS.—Rostrum unarmed over anterior $^2/_3$ of length; 5 teeth in dorsal mid-line of rostrum and carapace, 2nd, 3rd, and 4th teeth broadly compressed, acute, forming basal rostral crest; adult female with pleura of 3rd to 5th abdominal somites produced into prominent acute projections; eye with cornea bearing conical prominence; uropod with lateral branch bearing only lateral movable spine unaccompanied by fixed lateral tooth; postorbital carapace length 3 mm.

RANGE.—Zanzibar Harbour (on *Pteroeides, Scleroblemnon,* and *Virgularia*) and Makassar Strait, Indonesia; about 50 m.

Hamodactylus Holthuis, 1952

Hamodactylus Holthuis, 1952c:6, 18, 208 [type species, by original designation: *Hamodactylus boschmai* Holthuis, 1952c:209; gender: masculine].

DIAGNOSIS.—Rostrum reaching nearly to or beyond end of anteriorly extended eyes, compressed laterally, armed dorsally with 4–6 distinct teeth, ventrally with none, lateral carina not strong, forming indistinct, unarmed, and shallow eave postocularly; carapace about as wide as high, dorsal profile very slightly convex or sinuous, without longitudinal ridge or suture, armed with antennal, immovable hepatic, and sometimes supraorbital spines, orbital margin not interrupted posteriorly; telson not curving ventrad, posterior margin not incised, posterior spines not curved ventrad, dorsolateral spines very small; antennal scale well developed, distolateral spine not nearly reaching level of distal margin of blade; mandible without palp; 3rd maxilliped without exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar, sometimes unequal, fingers not provided with socket or plunger, movable finger not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl simple, not biunguiculate, merus unarmed on flexor margin; uropod with lateral branch bearing movable spine, without fixed tooth lateral thereto; associated with alcyonarians.

RANGE.—Red Sea, Kenya, Tanzania, Madagascar, Hong Kong, Singapore, Indonesia, Australia, and New Caledonia; 4–27 m.

REMARKS.—Two of the three species currently recognized in the genus *Hamodactylus* have been found in Indonesia. The following key is offered as an emendation of the one published by Bruce (1970a:544), which included *H. incompletus* before that species was transferred to *Hamodactyloides* and, naturally, did not include the subsequently described *Hamodactylus aqabai*. Most of the characters used in this key are ones that have been accorded generic importance under other circumstances. That observation serves both as a suggestion that *Hamoodactyloides* may have been ill-conceived or as counter-evidence against the charge that students of the pontoniines habitually are incorrigible "splitters."

Key to Species of *Hamodactylus*

1. Carapace bearing supraorbital spine; antennular peduncle with single distolateral tooth on basal segment . . . . . 75. ***H. boschmai***
   Carapace without supraorbital spine; antennular peduncle with more than 1 distolateral spine on basal segment 2
2. First pereopod with fingers little more than $^1/_4$ as long as palm, each with distinct tooth on distal $^1/_2$ of opposable margin; 2nd pereopod appearing nonchelate because of nearly complete reduction of fixed finger . . . . . ***H. aqabai*** Bruce and Svoboda, 1983:26, figs. 10–14 (Gulf of Aqaba, Red Sea, and Queensland, Australia; associated with alcyonarians)
   First pereopod with fingers more than $^1/_2$ as long as palm, without tooth on opposable margins; 2nd pereopod with normal chela, fingers subequal in length . . . . . 76. ***H. noumeae***

75. *Hamodactylus boschmai* Holthuis, 1952

Hamodactylus boschmai Holthuis, 1952c:18, 209, figs. 102–104 [type locality: Ternate, off Halmahera (2–4 m) and Djedan,Kapulauan Aru (13 m), Indonesia].—Bruce, 1982e:272, figs. 25, 26.

DIAGNOSIS.—Carapace with supraorbital spine; antennular peduncle with single distolateral spine on basal segment; 1st pereopod with fingers distinctly more than $^1/_2$ as long as palm, without subdistal tooth on opposable margin of each; 2nd pereopod with fixed finger about $^1/_2$ as long as movable one.

RANGE.—Kenya, Zanzibar, Madagascar, Indonesia, and New Caledonia; associated with gorgonians.

76. *Hamodactylus noumeae* Bruce, 1970

Hamodactylus boschmai nov. var.? Holthuis, 1952c:212, fig. 105.

Hamodactylus noumeae Bruce, 1970a:539, fig. 2 [type locality; between Ile aux Canards and Ilot Maître, near Nouméa, New Caledonia; 25 m, associated with gorgonian *Mopsella*].

DIAGNOSIS.—Carapace without supraorbital spine; antennular peduncle with 2 or 3 distolateral spines on basal segment; 1st pereopod with fingers more than 1/2 as long as palm, without teeth on opposable margins; 2nd pereopod with normal chela, fingers subequal in length.

RANGE.—Kenya, Tanzania, Indonesia, Australia, and New Caledonia; 4–27 m, associated with gorgonians.

Hamopontonia Bruce, 1970

Hamopontonia Bruce, 1970b:37 [type species, by original designation: *Hamopontonia corallicola* Bruce, 1970b:41; gender: feminine].

DIAGNOSIS.—Rostrum slightly overreaching anteriorly extended eyes, compressed laterally, armed dorsally with 5–7 distinct teeth, ventrally unarmed, lateral carina not expanded into broad supraocular or postocular eave; carapace subcylindrical, dorsal profile faintly convex, without longitudinal ridge or suture, armed with antennal spine only, without supraorbital or hepatic spines, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite rather broadly rounded; telson curving ventrad posteriorly, posterior margin deeply incised, without posterior spines, dorsolateral spines not robust; epistome unarmed; antennal scale well developed, distolateral spine not nearly overreaching distal margin of blade; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with fingers feebly subspatulate, carpus entire, not subdivided; 2nd pereopods similar but unequal, chela much longer than carpus, fingers not provided with socket and plunger closure, movable finger normal, not semicircular, palm nearly 3 times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl simple, not biunguiculate, merus unarmed on flexor margin; uropod with lateral branch bearing single, movable, lateral spine.

RANGE.—Hong Kong, Japan, Indonesia, and Northern Territory and Great Barrier Reef, Australia; associated with poritid coral of genus *Goniopora*.

REMARKS.—Known from only two closely related species.

Key to Species of *Hamopontonia*

Posterior notch of telson uniformly concave . . . . . 77. ***H. corallicola***

Posterior notch of telson with small blunt median process . . . . . ***H. essingtoni*** Bruce, 1986d:158, figs. 1c, 11–14, 15d–g (Port Essington, Australia)

77. *Hamopontonia corallicola* Bruce, 1970

Hamopontonia corallicola Bruce, 1970b:41, figs. 1–4 [type locality: "Kat O Chau, Mirs Bay," New Territories, Hong Kong; 22°32.1'N, 114°17.95'E; about 1 m, on massive coral *Goniopora*]; 1983c:896, fig. 10G.

DIAGNOSIS.—Deeply incised posterior notch of telson without small median process; maximum postorbital carapace length 7.0 mm.

RANGE.—Hong Kong, Japan, Indonesia, and Great Barrier Reef of Australia; associated with poritid coral of genus *Goniopora*.

**Harpiliopsis* Borradaile, 1917

Harpiliopsis Borradaile, 1917:324, 329–334, 336–338, 341–343, 347–351, 379, 395 [type species, by original designation: *Palaemon Beaupresii* Audouin, 1826:91; gender: feminine].—Holthuis, 1952c:90, 180.

DIAGNOSIS.—Rostrum far overreaching anteriorly extended eyes, compressed laterally, armed dorsally with 4–7 distinct teeth, ventrally with 2–5, lateral carina not expanded into broad supraocular or postocular eave; carapace somewhat depressed dorsoventrally, dorsal profile faintly convex, without longitudinal ridge or suture, armed with antennal and immovable hepatic spines only, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite sharp-pointed; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curved ventrad, dorsolateral spines not robust; epistome not bearing paired, horn-like processes; antennal scale well developed, distolateral spine not overreaching distal margin of blade; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with fingers not subspatulate, carpus entire, not subdivided; 2nd pereopods similar and subequal, chela much longer than carpus, fingers not provided with socket and plunger closure, movable finger normal, not semicircular, palm 3 to 4 3/4 times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl simple, with unique lateral twist, not biunguiculate, merus unarmed on flexor margin; uropod with lateral branch bearing single fixed lateral tooth and movable spine mesial thereto; associated with stony corals.

RANGE.—Red Sea to Pacific coast of America.

REMARKS.—All three of the species of *Harpiliopsis* recognized in the following key have been recorded previously from Indonesia and all three were collected in the Sulu Archipelago by the *Albatross* Expedition.

Key to Species of *Harpiliopsis*

(Adapted from Kemp, 1922:228)

1. Carapace with antennal spine arising considerably ventral to orbital angle, on same level as hepatic spine; 3rd maxilliped with antepenultimate segment about 3 times as long as wide; 2nd pereopod with movable finger armed with 1 tooth on opposable margin and fixed finger with 2, ischium with 1 distal spine on extensor margin and 2 on flexor margin . . . . . *78. ***H. beaupresii***

   Carapace with antennal spine arising only slightly below orbital angle, on level considerably dorsad to that of hepatic spine; 3rd maxilliped with antepenultimate segment about 6 times as long as wide; 2nd pereopod with movable finger armed with 2 teeth on opposable margin and fixed finger with 3 teeth, ischium without distal spine on extensor margin, 1 on flexor margin 2

2. Telson with posterior pair of dorsolateral spines arising much nearer to anterior pair than to posterior end; 2nd pereopod with palm and merus each about 3 times as long as wide . . . . . *79. ***H. depressa***

   Telson with posterior pair of dorsolateral spines arising about midway between anterior pair and posterior end; 2nd pereopod with palm and merus each about 5 times as long as wide . . . . . *80. ***H. spinigera***

*78. *Harpiliopsis beaupresii* (Audouin, 1826)

Palaemon Beaupresii Audouin, 1826:91 [type locality: Egypt].
Pontonia (Harpilius) dentata Richters, 1880:165, pl. 17: figs. 36–38 [type locality: Ile aux Fouquets, Mauritius].
Harpilius beaupresi.—Kemp, 1922:229, figs. 67, 68.
Harpiliopsis beaupresi.—Holthuis, 1952c:181, fig. 89.—Bruce, 1977i:8.
Harpiliopsis beaupresii.—Bruce, 1976c:124, figs. 21, 22.

DIAGNOSIS.—Carapace with antennal spine arising considerably ventrad of orbital angle, on same level as hepatic spine; telson with posterior pair of dorsolateral spines arising about midway between anterior pair and posterior end; 3rd maxilliped with antepenultimate segment about 3 times as long as wide; 2nd pereopod with movable finger armed with 1 tooth on opposable margin and fixed finger with 2, palm about 9 times as long as wide, merus about 3 1/2 times as long as wide, ischium with 1 distal spine on extensor margin, 2 on flexor margin.

MATERIAL.—PHILIPPINES. Marungas Island (south side), Sulu Archipelago; [6°06′N, 120°58′E]; 1 1/4 to 2 1/2 m; scattered coral and sand; 10 Feb 1908 (1330–1500); diving, coralheads taken ashore: 1 male [2.8] 1 female [3.1] (both with paired abdominal bopyrid parasites).

RANGE.—Red Sea to Philippines and Indonesia and eastward to Hawaii and Easter Island; associated with numerous scleractinian corals, mainly of the family Pocilloporidae.

*79. *Harpiliopsis depressa* (Stimpson, 1860)

?*Anchistia gracilis* Dana, 1852a:25 [see *Periclimenes gracilis*].
Harpilius depressus Stimpson, 1860:38 [type locality: Hawaii, among madreporarians].—Kemp, 1922:231, figs. 69, 70.
Periclimenes pusillus Rathbun, 1906:921, fig. 71, pl. 24: fig. 7 [type locality: Off Honolulu, Hawaii (Diamond Head Light, S62°, E 3.9°; surface over 24 m depth)].
Harpiliopsis depressus.—Holthuis, 1951a:70, pls. 21, 22: figs. a–f; 1952c:182, fig. 90.—Bruce, 1976c:127; 1977h:72 [color illustration]; 1977i:91.
Harpiliopsis depressa.—Wicksten, 1983:15.

DIAGNOSIS.—Carapace with antennal spine arising just below orbital angle, on level considerably dorsad to that of hepatic spine; telson with posterior pair of dorsolateral spines arising much nearer to anterior pair than to posterior end; 3rd maxilliped with antepenultimate segment about 6 times as long as wide; 2nd pereopod with movable finger armed with 2 teeth on opposable margin and fixed finger with 3 teeth, palm and merus each about 3 times as long as wide, ischium without distal spine on extensor margin, 1 on flexor margin.

MATERIAL.—PHILIPPINES. Marungas Island (south side), Sulu Archipelago; [6°06′N, 120°58′E]; 1 1/4 to 2 1/2 m; scattered coral and sand; 10 Feb 1908 (1330–1500); diving, coral heads taken ashore: 2 males [2.6–3.8].—Jolo, Jolo Island; [6°00′N, 121°00′E]; 6 Mar 1908; shore: 1 ovig female [4.2].

RANGE.—Red Sea to Philippines and Indonesia and eastward to Pacific coast of America from Gulf of California to Colombia; associated with scleractinian corals, mainly of the family Pocilloporidae.

REMARKS.—See "Remarks" under *Periclimenes gracilis*.

*80. *Harpiliopsis spinigera* (Ortmann, 1890)

Anchistia spinigera Ortmann, 1890:511, pl. 36: fig. 23 [type locality: Samoa].
Harpilius depressus var. *gracilis* Kemp, 1922:234, fig. 71 [type locality: Andaman Islands].
Harpiliopsis depressus var. *spinigerus*.—Holthuis, 1952c:184.
Harpiliopsis spinigerus.—Bruce, 1976c:127; 1977i:9.
Harpiliopsis spinigera.—Bruce, 1977h:72 [color illustration].

DIAGNOSIS.—Carapace with antennal spine arising just below orbital angle, on level considerably dorsad to that of hepatic spine; telson with posterior pair of dorsolateral spines arising about midway between anterior pair and posterior end, 3rd maxilliped with antepenultimate segment about 6 times as

long as wide; 2nd pereopod with movable finger armed with 2 teeth on opposable margin and fixed finger with 3 teeth, palm and merus each about 5 times as long as wide, ischium without distal spine on extensor margin, 1 on flexor margin.

MATERIAL.—PHILIPPINES. Marungas Island (south side), Sulu Archipelago; [6°06′N, 120°58′E]; 1 1/4 to 2 1/2 m; scattered coral and sand; 10 Feb 1908 (1330–1500); diving, coral heads taken ashore: 1 male [3.4] 3 females [2.7–3.2], 1 ovig [3.2].

RANGE.—Possibly as widespread through the Indo-Pacific region as *H. depressa*, with which species it has often been confused; associated with several scleractinian corals, mainly of the family Pocilloporidae.

Ischnopontonia Bruce, 1966

Ischnopontonia Bruce, 1966a:584 [type species, by original designation: *Philarius lophos* Barnard, 1962; gender: feminine].

DIAGNOSIS.—Rostrum reaching about as far as distal end of anteriorly extended eyes, compressed laterally, armed dorsally with about 1/2 of series of 7–14 teeth extending posteriorly nearly to mid-length of carapace, ventrally unarmed, not expanded laterally into supraocular or postocular eaves; carapace extremely compressed laterally, dorsal profile convex, armed over most of anterior 1/2 of dorsal mid-line with posterior extension of rostral teeth, unarmed laterally except for acute suborbital angle, without longitudinal ridge or suture, subangularly produced anteroventrally, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite bluntly triangular posteriorly; telson not curving ventrad, posterior margin not incised, armed posterolaterally with 4 pairs of long marginal spines and 1 mesial pair of setae; antennal scale well developed, distolateral spine overreaching distal margin of blade; mandible without palp; 3rd maxilliped with well-developed exopod; 1st pereopod with fingers not spatulate, carpus entire, not subdivided; 2nd pereopods similar and subequal, chelae usually borne in vertical plane with movable finger ventrad, chela longer than carpus, fingers not spatulate, not provided with socket and plunger closure, movable finger normal, not semicircular, palm about twice as long as maximum height; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl simple, strongly curved, not biunguiculate, unarmed, with bluntly triangular prominence proximally on flexor margin, merus unarmed on flexor margin; uropod with lateral branch bearing unusual, single, hooked, fixed, lateral tooth; associated with oculinid coral *Galaxea fascicularis*.

RANGE.—Western Indian Ocean to Ryukyu and Fijian Islands.

REMARKS.—Only one species is known.

81. *Ischnopontonia lophos* (Barnard, 1962)

Philarius lophos Barnard, 1962:242, fig. 2 [type locality: Ilha da Inhaca, Baia de Lourenço Marques, Mozambique].

Ischnopontonia lophos.—Bruce, 1966a:584, figs. 1–5; 1977h:72 [color illustration].

DIAGNOSIS.—Characters of the genus; maximum postorbital carapace length slightly more than 3 mm.

RANGE.—Western Indian Ocean, Ryukyu Islands, eastern Malaya, Singapore, Darwin, Northern Territory and Great Barrier Reef, Australia, and Fijian Islands; to a depth of 15 m, always associated with the oculinid coral *Galaxea fascicularis*.

**Jocaste* Holthuis, 1952

Jocaste Holthuis, 1952c:17, 192 [type species, by monotypy: *Coralliocaris lucina* Nobili, 1901c:5; gender: feminine].

Cavicheles Holthuis, 1952c:6, 17, 204 [type species, by monotypy: *Cavicheles kempi* Holthuis, 1952c:205; gender: feminine].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, compressed laterally, armed dorsally with 3–7 teeth, ventrally with 1–4, lateral carina not expanded into broad supraocular eave; carapace depressed dorsoventrally, dorsal profile somewhat convex, not strongly produced anteroventrally, without longitudinal ridge or suture, armed with antennal and immovable hepatic spines only, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite rounded; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curved ventrad, dorsolateral spines not robust; epistome not bearing paired, horn-like processes, antennal scale well developed, distolateral spine not overreaching distal margin of blade; mandible without palp; 3rd maxilliped with well-developed exopod; 4th thoracic sternite without slender median process; 1st pereopod with fingers subspatulate; 2nd pereopods dissimilar and unequal, major chela borne in vertical plane with movable finger ventrad, chela much longer than carpus, fingers of major chela not provided with true socket and plunger closure, movable finger not semicircular, palm about 2 2/3 times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl of adult with massive, hollowed, hoof-shaped protuberance on flexor margin; uropod with lateral branch bearing single fixed lateral tooth and movable spine mesial thereto; associated with scleractinian corals of genus *Acropora*.

RANGE.—Red Sea to Society Islands.

REMARKS.—The second author has collected a vast number of both recognized species of *Jocaste* from a wide range of Indo-West Pacific localities. In many instances, the populations have spanned the whole size range from postlarvae on. The smallest specimens have always been identifiable as *Cavicheles* and they blend gradually into the morphology of the adult *Jocaste*. Excepting the unlikely possibility that neither adult *Cavicheles* nor juvenile *Jocaste* have been represented in any of these numerous collections, it seems apparent that the two genera are synonymous, as suggested by Bruce (1977i:10), even though it has not yet been possible to assign the small specimens positively to either of the closely related species of *Jocaste*. Adults of those species may be identified from the following key adapted from the table offered by Patton (1966:279).

Key to Species of *Jocaste*

Rostrum typically armed with 4 dorsal and 1 ventral teeth, lateral rostral carina gradually expanded into convex supraocular eave; major 2nd pereopod with 1 tooth on opposable margin of movable finger, palm with distinct clusters of red spots in life . . . . . 82. ***J. japonica***

Rostrum typically with 5 dorsal and 2 or 3 ventral eeth, lateral rostral carina rather abruptly expanded posteriorly into bluntly subrectangular supraorbital eave; major 2nd pereopod with 2 or 3 teeth on opposable margin of movable finger, palm colorless in life . . . . . *83. ***J. lucina***

82. *Jocaste japonica* (Ortmann, 1890)

Coralliocaris superba var. *japonica* Ortmann, 1890:509, pl. 22 [type locality: Kagoshima, Japan].
Jocaste lucina Holthuis, 1952c:17, 193, fig. 94 [part].
?*Cavicheles kempi* Holthuis, 1952c:17, 205, figs. 99–101.—Bruce, 1966b:266, fig. 1; 1977i:10.
Jocaste japonica.—Patton, 1966:279, fig. 36.—Fransen, 1989:146.

DIAGNOSIS.—Rostrum typically armed with 4 dorsal and 1 ventral teeth, lateral rostral carina gradually expanding posteriorly into convex supraocular eave; major 2nd pereopod with 1 tooth on opposable margin of movable finger, palm with distinct clusters of red spots in life.

RANGE.—Western Indian Ocean to Japan and Indonesia and eastward to the Marshall Islands.

*83. *Jocaste lucina* (Nobili, 1901)

C[oralliocaris] lucina Nobili, 1901c:5 [type locality: Eritrea].
Jocaste lucina.—Holthuis, 1952c:17,193, fig. 94 [part].—Patton, 1966:278, fig. 3*a*.

DIAGNOSIS.—Rostrum typically with 5 dorsal and 2 or 3 ventral teeth, lateral rostral carina gradually expanding posteriorly into bluntly subrectangular supraocular eave; major 2nd pereopod with 2 or 3 teeth on opposable margin of movable finger, palm colorless in life.

MATERIAL.—PHILIPPINES. Marungas Island (south side), Sulu Archipelago; [6°06′N, 120°58′E]; 1 1/4 to 2 1/2 m; scattered coral and sand; 10 Feb 1908 (1330–1500); diving, coral heads taken ashore; 2 males [2.1, 2.4] 3 females [2.4–2.9], 2 ovig [2.6, 2.9].

RANGE.—Widespread throughout the Indo-Pacific region from the Red Sea to the Society Islands, but not Hawaii.

Mesopontonia Bruce, 1967

Mesopontonia Bruce, 1967a:13 [type species, by original designation: *Mesopontonia gorgoniophila* Bruce, 1967a:13; gender: feminine].

DIAGNOSIS.—Rostrum well developed, overreaching anteriorly extended eyes, compressed laterally, armed dorsally with 7–10 teeth, ventrally with 1–3, lateral carina not expanded into broad supraocular eave; carapace not very depressed dorsoventrally, dorsal profile nearly straight, not strongly produced anteroventrally, without longitudinal ridge or suture, armed with hepatic spine only, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite rounded; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curving ventrad, dorsolateral spines not particularly robust; antennal scale well developed, distolateral spine not overreaching distal margin of blade; mandible without palp; 3rd maxilliped without exopod; 4th thoracic sternite without slender median process; 1st pereopod with fingers not spatulate; 2nd pereopods markedly asymmetrical, major chela not borne in vertical plane, movable finger not ventrad, chela much longer than carpus, fingers of major chela not provided with socket and plunger closure, movable finger not semicircular, palm about 3 times as long as fingers; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl biunguiculate but without protuberance on flexor margin; uropod with lateral branch bearing single fixed lateral tooth and movable spine mesial thereto; associated with gorgonians.

RANGE.—South China Sea, Philippines, eastern Australia, and New Caledonia; 117–400 m.

REMARKS.—The three described species may be identifiable from the following key.

Key to Species of *Mesopontonia*

1. Third pereopod simple, not biunguiculate . . . . . ***M. monodactylus*** Bruce, 1991b:392, figs. 65–69 (Loyalty Islands; 460 m)

   Third pereopod biunguiculate 2

2. Second pereopods moderately unequal; minor 2nd pereopod with carpus about 0.75 of palm length, 0.45 of chela length, much shorter than merus . . . . . 84. ***M. gorgoniophila***

Second pereopods very markedly unequal; minor second pereopod with carpus about 2.5 times palm length, subequal to merus . . . . . .
. . . . . ***M. gracilicarpus*** Bruce, 1990a:202, figs. 34–37
(New Caledonia; 398–410 m)

84. *Mesopontonia gorgoniophila* Bruce, 1967

Mesopontonia gorgoniophila Bruce, 1967a:13, figs. 5–9 [type locality: ESE of Hong Kong; 21°47.7'N, 116°28.5'E; 117–132 m; on gorgonian]; 1985b:248, fig. 12.

DIAGNOSIS.—Major 2nd pereopod with oblique carina on extensor margin of movable finger; minor 2nd pereopod with carpus less than 1/2 as long as chela; maximum postorbital carapace length 3.5 mm.

RANGE.—South China Sea, Philippines, and Coral Sea; 117–270 meters, associated with gorgonians.

Onycocaridella Bruce, 1981

Onycocaridella Bruce, 1981b:241 [type species, by original designation: *Onycocaridella prima* Bruce, 1981b:243; gender: feminine].

DIAGNOSIS.—Rostrum reduced, not overreaching anteriorly extended eyes, compressed laterally, unarmed or bearing single dorsal apical tooth, lateral rostral carina not expanded into broad supraocular or postocular eave; carapace neither noticeably depressed nor compressed, dorsal profile faintly convex, anterior margin not greatly produced anteriorad, without longitudinal ridge or suture, without antennal, hepatic, or any other spines; abdomen with pleuron of 5th somite rounded; telson not curving ventrad, posterior margin not incised, none of posterior spines curved ventrad, dorsolateral spines relatively small; epistome not bearing paired, horn-like processes; antennal scale well developed with distolateral spine overreaching blade; mandible without palp; 3rd maxilliped with exopod; 1st pereopod with fingers spatulate, carpus entire, not subdivided; 2nd pereopods similar, not necessarily subequal, chelae not borne in vertical plane, chela longer than carpus, fingers not subspatulate, not provided with socket and plunger closure, movable finger not semicircular, palm more than 1 1/2 times as long as high; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl subcylindrical, minutely biunguiculate, without protuberance on flexor margin, merus unarmed on flexor margin, uropod with single fixed lateral spine with movable spine mesial thereto; associated with sponges.

RANGE.—Western Indian Ocean; Ryukyu Islands; Sulu Archipelago, Philippines; Great Barrier Reef, Australia; Marshall and Fiji Islands; associated with sponges.

REMARKS.—A key to the three known species of *Onycocaridella* has been furnished by Bruce (1981b:249).

85. *Onycocaridella stenolepis* (Holthuis, 1952)

Onycocaris stenolepis Holthuis, 1952c:148, figs. 66–68 [type locality: Pearl Bank, southern Sulu Sea, Philippines; 15 m].
O[nycocaridella] stenolepis.—Bruce, 1981b:249.

DIAGNOSIS.—Rostrum not nearly reaching as far as distal end of anteriorly extended eyes, unarmed; ventral orbital angle acute; 2nd pereopod with fingers dentate on opposable margins.

RANGE.—Sulu Archipelago, Philippines; Viti Levu, Fiji Islands; and Arno Atoll, Marshall Islands.

Onycocaris Nobili, 1904

Onycocaris Nobili, 1904:232 [type species, selected by Holthuis, 1952c:14: *Coralliocaris (Onycocaris) aualitica* Nobili, 1904:232; gender: feminine].

DIAGNOSIS.—Rostrum with lateral carina not expanded into broad supraocular or postocular eave; carapace neither noticeably depressed nor compressed, dorsal profile faintly convex, anterior margin not greatly produced anteriad, without longitudinal ridge or suture, without antennal, hepatic, or any other spines (except for possible antennal spine in *O. longirostris*); abdomen with pleuron of 5th somite rounded; telson not curving ventrad, posterior margin not incised, none of posterior spines curving ventrad, dorsolateral spines not large; epistome not bearing paired, horn-like processes; antennal scale well developed, with distolateral spine usually overreaching blade; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with fingers simple or subspatulate, carpus entire, not subdivided; 2nd pereopods similar, not necessarily equal, chelae usually borne in vertical plane, chela longer than carpus, strongly compressed, fingers large, subspatulate, usually ornately dentate, often with distal lateral flange on fixed finger; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl strongly compressed, elaborately dentate on flexor margin; associated with sponges.

RANGE.—Djibouti, eastern Africa, and Madagascar to Hong Kong, Japan, Philippines, Australia, New Caledonia, Wake Island, and Marshall and Fiji islands to Hawaii; 0–84 m, in sponges.

REMARKS.—It may be apparent from the following key to the 12 currently recognized species of *Onycocaris* that they may be subdivided into three or four groups. Perhaps the most distinct one, and therefore the one most deserving of eventual generic status, is represented by *O. longirostris* and *O. zanzibarica*, which are distinguished by the strongly dentate rostrum and the ventral angle of the orbit armed with what simulates a strong antennal spine; also assignable to this group, if it is specifically distinct, are the pair of specimens from Zanzibar mentioned and illustrated by Bruce (1971c:298, fig.1F,G). Three other species with dentate rostra, albeit with less prominent dorsal teeth, are *O. furculata*, *O. profunda*, and *O. seychellensis*, which are otherwise differentiated by having

the fixed finger of the second pereopod deeply bifurcate for the reception of the movable finger. Of the species without any rostral teeth, three apparently close relatives—*O. amakusensis*, *O. callyspongiae*, and *O. quadratophthalma*—have the cornea of the eye clearly subconical, rather than hemispherical, as in all other species of *Onycocaris*.

Key to Species of *Onycocaris*

1. Rostrum armed with sharp dorsal teeth on anterior 1/2; ventral angle of orbit armed with elongate spine 2
   Rostrum unarmed or bearing rather inconspicuous dorsal teeth; ventral angle of orbit rounded or, at most, acutely triangular, not spinose 3
2. Rostrum reaching nearly to level of end of antennular peduncle; 2nd pereopod with acute tooth on extensor surface of carpus and broad distal tooth on flexor margin of merus . . . . . ***O. longirostris*** Bruce, 1980a:15 (New Caledonia; 20 m)
   Rostrum not overreaching basal segment of antennular peduncle; 2nd pereopod with carpus and merus unarmed . . ***O. zanzibarica*** Bruce, 1971c:293, figs. 1, 2 (Kenya and Zanzibar; 7–18 m)
3. Rostrum bearing 2–4 somewhat indistinct dorsal teeth; 2nd pereopod with fixed finger distinctly and subequally bifid for reception of movable finger 4
   Rostrum unarmed; 2nd pereopod with fixed finger at most indistinctly and unequally bifid at distal end 6
4. Ventral orbital angle blunt or rounded; 3rd pereopod with penultimate tooth of dactyl deeply incised, forked . . . . . ***O. furculata*** Bruce, 1979c:324, figs. 1–4 (La Réunion, Indian Ocean; 20 m)
   Ventral orbital angle sharply acute; 3rd pereopod with penultimate tooth of dactyl truncate 5
5. Antennal scale with distolateral spine slender, far overreaching distal margin of blade; 3rd pereopod with penultimate tooth of dactyl transversely truncate . . . . . 86. ***O. profunda***
   Antennal scale with distolateral spine stout, barely reaching level of distal margin of blade; 3rd pereopod with penultimate tooth of dactyl obliquely truncate . . . . . ***O. seychellensis*** Bruce, 1971b:208, figs. 1–6 (Kenya, Seychelles, Japan, and Fiji Islands; less than 1 m)
6. Second pereopod with distal tooth on flexor margins of merus and ischium; 3rd pereopod with unguis of dactyl bearing 4–8 denticles on flexor margin 7
   Second pereopod without distal tooth on flexor margins of merus and ischium; 3rd pereopod with unguis of dactyl not denticulate on flexor margin 10
7. Cornea of eye subconical. 8
   Cornea of eye hemispherical 9
8. Second pereopod with fingers not excavate on opposable surfaces, therefore not bimarginal, not marginally serrate in distal 1/2, without row of acute teeth on mesial surfaces . . . . . ***O. amakusensis*** Fujino and Miyake, 1969b;413, figs. 6, 8a–c, 9a–c (Zanzibar, Japan, Australia; shallow water)
   Second pereopod with fingers distinctly excavate, bimarginal, lateral margin serrate in distal 1/2, mesial margin armed with row of acute teeth . . . . ***O. callyspongiae*** Fujino and Miyake, 1969b:422, figs. 10–12 (Tanzania and Japan)
9. Third pereopod with dactyl bearing 5 acute spinules on flexor margin of unguis . . . . . ***O. aualitica*** (Nobili, 1904:233) (Djibouti and La Réunion)
   Third pereopod with dactyl bearing few blunt denticles on flexor margin of unguis . . . . . ***O. oligodentata*** Fujino and Miyake, 1969b:415, figs. 7, 8d–f, 9d–f (Hong Kong, Japan, Australia; 17–35 m)

10. Ventral orbital angle sharply acute; antennal scale more than 2 1/2 times as long as wide; 2nd pereopod with fingers excavate, spatulate, both margins dentate . . . . . ***O. trullata*** Bruce, 1978a:269, figs. 36–41 (Madagascar; 28 m)

    Ventral orbital angle rounded; antennal scale no more than twice as long as wide; 2nd pereopod with fingers not excavate or spatulate 11

11. Cornea of eye subconical; 2nd pereopod with merus unarmed on flexor margin; 3rd pereopod with subdistal tooth of dactyl not deeply incised . . . . . ***O. quadratophthalma*** (Balss, 1921b:15) (Western Australia and Hong Kong)

    Cornea of eye hemispherical; 2nd pereopod with merus bearing 2 or more teeth on flexor margin; 3rd pereopod with subdistal tooth on dactyl deeply incised, bifid . . . . . ***O. spinosa*** Fujino and Miyake, 1969b:429, figs. 13–15 (Ryukyu Islands; 1 m)

86. *Onycocaris profunda* Bruce, 1985

Onycocaris profunda Bruce, 1985b:241, figs. 8–11 [type locality: Mompog Pass, northeast of Marinduque, Philippines; 81–84 meters].

DIAGNOSIS.—Rostrum slightly overreaching ventral orbital angle, armed dorsally with 3 inconspicuous teeth; carapace armed with short, acute tooth at ventral orbital angle; cornea of eye hemispherical; antennal scale slightly more than twice as long as wide, not including distolateral spine, latter slender, elongate, far exceeding distal margin of blade; 2nd pereopod with fingers deeply grooved on opposable surfaces, hence bimarginal, margins denticulate throughout, fixed finger subequally and sharply bifid for reception of movable finger, carpus unarmed, merus and ischium feebly tuberculate but without distal tooth on flexor margin; ambulatory pereopod with unguis of dactyl without denticles on flexor margin, penultimate tooth transversely truncate, not deeply incised; postorbital carapace length 4 mm.

RANGE.—Known only from the type locality in Mompog Pass, Philippines, in 81–84 meters.

**Palaemonella* Dana, 1852

Palaemonella Dana 1852a:17 [type species, selected by Kingsley, 1880:425: *Palaemonella tenuipes* Dana, 1852a; gender: feminine].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, compressed laterally, armed dorsally and ventrally, lateral carina not expanded into broad supraocular or postocular eave; carapace neither noticeably depressed nor compressed, dorsal profile nearly horizontal, dorsal series of rostral teeth continued onto anterior part of carapace, anterior margin not produced anteriorly or deeply concave (notched), without longitudinal branchiostegal suture, with antennal and immovable hepatic spines, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite sharp-pointed; telson not curved ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curved ventrad dorsolateral spines slender, not robust; antennal scale well developed; mandible with palp; 3rd maxilliped with exopod; 4th thoracic sternite with slender median process; 1st pereopod not subspatulate, carpus entire, not subdivided; 2nd pereopods similar, sometimes unequal, chela longer than carpus, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl not biunguiculate, not provided with massive protuberance on flexor margin, merus unarmed on flexor margin.

RANGE.—Red Sea and southern Africa to Pacific coast of America, eastern Atlantic, and eastern Mediterranean; littoral to 128 meters, usually free-living, one species commensal with crinoids.

REMARKS.—Only four of the 13 currently recognized species of *Palaemonella*, included in the following key, are known from the Philippine-Indonesian area, and only the most commonly collected species is represented in the *Albatross* Philippine Expedition collections.

Key to Species of *Palaemonella*

1. Carapace with supraorbital spine (small in ***P. holmesi***) 2

   Carapace without supraorbital spine (tubercle usually present in *P. rotumana*) 7

2. Second pereopod with merus unarmed on flexor margin 3

   Second pereopod with merus armed with distal tooth on flexor margin 4

3. Second pereopods unequal, major chela with movable finger crested on distal part of extensor margin; 3rd pereopod with dactyl 1/5 as long as propodus . . . . . ***P. asymmetrica*** Holthuis, 1951a:19, pl. 5
(Galapagos Islands; littoral)

Second pereopods subequal, movable finger without crest on extensor margin; 3rd pereopod with dactyl about 1/2 as long as propodus . . . . . ***P. holmesi*** (Nobili, 1907:5)
(Eastern Pacific from southern California to Ecuador and Galapagos Islands; littoral to 128 m)

4. Second pereopod with ischium distoventrally unarmed . . . . . ***P. spinulata*** Yokoya, 1936:135, fig. 4
(Kenya, Tanzania, La Réunion, southwestern Japan, Queensland, Australia)

Second pereopods with ischium bearing distal tooth on extensor margin 5

5. Third pereopod with dactyl about 1/3 of propodal length, slender, about 12 times longer than proximal depth . . . . . ***P. dolichodactylus*** Bruce, 1991a:232, figs. 6f–l, 7
(New Caledonia)

Third pereopod with dactyl about 1/5 of propodal length (or less), 5–6 times longer than proximal depth 6

6. Rostral formula: 8/3 . . . . . ***P. crosnieri*** Bruce, 1978a:260, figs. 2–4
(Kenya and Moçambique Channel; 20 m)

Rostral formula: 6–7/2 . . . . . ***P. disalvoi*** Fransen, 1987:511, figs. 7–12
(Easter Island)

7. Second pereopod with merus armed with sharp distal tooth on flexor margin . . 8

Second pereopod with merus unarmed 11

8. Second pereopod with carpus armed distally with apparently submarginal sharp tooth 9

Second pereopod with carpus armed distally with 1 or 2 marginal teeth 10

9. Antennal scale about 3 times as long as wide; mandible vestigial, with unsegmented palp; 2nd pereopods unequal . . . . . ***P. atlantica*** Holthuis, 1951b:152, fig. 31
(Cape Verde Islands; 40 m)

Antennal scale about 4 times as long as wide; mandible bearing 2-segmented palp; 2nd pereopods subequal . . . . . 90. ***P. tenuipes***

10. Carapace without supraorbital tubercle; 3rd pereopod with flexor margin of dactyl sinuous, distoventral propodal spines short . . . . . 88. ***P. pottsi***

Carapace usually with supraorbital tubercle; 3rd pereopod with flexor margin of dactyl regularly concave, not sinuous, distoventral propodal spines long . . . . . *89. ***P. rotumana***

11. Rostrum not reaching as far as terminal segment of antennular peduncle, armed with 6 dorsal and 1 ventral teeth; mandibular palp vestigial, unsegmented . . . . . ***P. pusilla*** Bruce, 1975b:169, figs. 1–5
(Kenya; littoral)

Rostrum overreaching antennular peduncle, armed with 8 dorsal and 2 or 3 ventral teeth; mandibular palp composed of 2 segments 12

12. Cornea wider than eyestalk; antennal scale with distolateral tooth not reaching as far as distal margin of blade; 2nd pereopod without acute distal teeth on carpus; 3rd pereopod with dactyl less than 1/4 as long as propodus . . . . . ***P. burnsi*** Holthuis, 1973:24, figs. 8, 9
(Hawaii; in anchialine pools)

Eyestalk wider than cornea; antennal scale with distolateral tooth overreaching blade; 2nd pereopod with 2 acute teeth on distal margin of carpus; 3rd pereopod with dactyl about 1/3 as long as propodus . . . . . 87. ***P. lata***

87. *Palaemonella lata* Kemp, 1922

Palaemonella lata Kemp, 1922:127, figs. 3-6 [type locality: Aberdeen, Port Blair, Andaman Islands; rock pool at low tide].—Bruce, 1970d:274, 284, fig. 1.

DIAGNOSIS.—Rostrum overreaching antennular peduncle, rostral formula 2 + 6/3; carapace devoid of supraorbital spine; cornea narrower than eyestalk; antennal scale about 3 times as long as wide, distolateral tooth slightly overreaching blade; mandibular palp composed of 2 segments; 2nd pereopods subequal, movable finger not crested on extensor margin, carpus armed with acute marginal spines, without subterminal spine, merus and ischium unarmed on flexor margins; 3rd pereopod with flexor margin of dactyl regularly concave, not sinuous, about 1/3 as long as propodus; maximum postorbital carapace length 3 mm.

RANGE.—Zanzibar, La Réunion, Andaman Islands, Indonesia, and Hawaii; littoral, possibly associated with sponges.

88. *Palaemonella pottsi* (Borradaile, 1915)

Periclimenes (Falciger) pottsi Borradaile, 1915:212 [type locality: Torres Strait; on *Comanthus*].
Palaemonella pottsi.—Bruce, 1970d:274, 279, figs. 1, 3-7.

DIAGNOSIS.—Rostrum overreaching antennular peduncle, rostral formula 2 + 5-6/2; carapace devoid of supraorbital spine; cornea slightly wider than eyestalk; antennal scale 3 1/3 to 4 times as long as wide, anterolateral tooth overreaching blade; mandibular palp composed of 2 segments; 2nd pereopods subequal, movable finger not crested on extensor margin, carpus armed with 2 small, acute marginal spines, without subterminal spine, merus armed with sharp distal tooth on flexor margin, ischium unarmed; 3rd pereopod with flexor margin of dactyl slightly sinuous, less than 1/5 as long as propodus, disto-ventral propodal spines short; maximum postorbital carapace length 6.6 mm.

RANGE.—Zanzibar; Japan; Singapore; Philippines; Queensland, Australia; New Caledonia; and Marshall Islands; associated with crinoids. Kemp (1922:131) notes that Zehntner's specimen of *P. tenuipes* from Ambon was entirely black, making it virtually certain that it was a specimen of *P. pottsi*, which is very commonly an intense deep blue-red, as near black as does not matter, when on such hosts as *Tropiometra afra*.

*89. *Palaemonella rotumana* (Borradaile, 1898)

Periclimenes rotumana Borradaile, 1898:383 [type locality: Rotuma, Fiji Islands].
Palaemonella vestigialis Kemp, 1922:123, figs. 1, 2; pl. 3: fig. 2 [type locality: Port Blair, Andaman Islands].—Holthuis, 1952c:24, figs. 2a,b, 3.
Palaemonella rotumana.—Bruce, 1970d:276, fig. 2; 1975b:182, fig. 6H.

DIAGNOSIS.—Rostrum overreaching antennular peduncle, rostral formula 2 + 4-6/1-3; carapace with tubercle in lieu of supraorbital spine; cornea wider than eyestalk; antennal scale 3 1/3 to 4 times as long as wide, distolateral tooth overreaching blade; mandibular palp composed of 2 segments; 2nd pereopods subequal, movable finger not crested on extensor margin, carpus armed with 2 small, acute marginal spines, without subterminal spine, merus armed with sharp distal tooth on flexor margin; ischium unarmed; 3rd pereopod with flexor margin of dactyl slightly sinuous, 1/3 to 1/2 as long as propodus, distoventral propodal spines long; maximum postorbital carapace length 4.3 mm.

MATERIAL.—PHILIPPINES. Davao Gulf, Mindanao: sta 5249; 7°06'08"N, 125°40'08"E; 42 m; coral, sand; 18 May 1908 (1102-1109); 9' Johnston oyster dredge: 1 male [2.7]; sta 5253; 7°04'48"N, 125°39'38"E; 51 m; coral; 18 May 1908 (1347-1358); 6' Johnston oyster dredge: 1 male [2.8].—Near Siasi, Sulu Archipelago; sta 5147; 5°41'40"E; 38 m; coral sand, shells; 16 Feb 1908 (1127-1147); 12' Agassiz beam trawl. mud bag: 3 males [2.6-4.3] 3 ovig females [2.7-3.9].

RANGE.—Eastern Mediterranean; Red Sea; and eastern Africa to Philippines and Indonesia; and eastward to Hawaii; associated with dead coral on muddy bottom, to depth of 126-128 m.

90. *Palaemonella tenuipes* Dana, 1852

Palaemonella tenuipes Dana, 1852a:25 [type locality: Sulu Sea, Philippines].—Holthuis, 1952c:27.—Bruce, 1970d:274, fig. 1.

DIAGNOSIS.—Rostrum overreaching antennular peduncle, rostral formula 2 + 4-5/2-3; carapace without supraorbital spine; cornea slightly wider than eyestalk; antennal scale about 4 times as long as wide; mandibular palp composed of 2 segments; 2nd pereopods subequal, movable finger not crested on extensor margin, carpus unarmed distally but with strong, acute subterminal spine, merus with distal tooth on flexor margin, ischium unarmed; 3rd pereopod with flexor margin of dactyl regularly concave, not sinuous, 1/3 as long as propodus; maximum postorbital carapace length 3.6 mm.

RANGE.—Red Sea and western Indian Ocean to Philippines and eastward to International Date Line; littoral, apparently free living, not associated with other animals.

Paranchistus Holthuis, 1952

Paranchistus Holthuis, 1952c:5, 13, 91 [type species, by original designation: *Anchistus biunguiculatus* Borradaile, 1898:387 (= *Pontonia armata* H. Milne Edwards, 1837:359); gender: masculine].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, compressed laterally, armed in anterior 1/2 of dorsal margin and distoventrally, lateral carina not expanded into broad supraocular or postocular eave; carapace neither noticeably depressed nor compressed, dorsal profile faintly sinuous, unarmed, anterior margin not strongly produced anteroventrally or deeply concave (notched), without longitudinal ridge or suture, with antennal and movable hepatic spines, without supraorbital, orbital or suborbital spines, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite

usually broadly rounded, at most obscurely quadrate; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curved ventrad, dorsolateral spines small; antennal scale well developed, distolateral spine distinct; mandible without palp; 3rd maxilliped with well-developed exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar, subequal, chela much longer than carpus, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl without massive protuberance on flexor margin, merus unarmed on flexor margin; uropod with lateral branch bearing lateral movable spine but without fixed lateral tooth.

RANGE.—Mozambique, Madagascar, Comoro Islands, and Persian Gulf to Japan, Palau Islands, Indonesia, New Guinea, New Ireland, and Australia to Gilbert and Marshall islands; living in bivalve mollusks.

REMARKS.—The presence of an hepatic spine—the sole character by which *Paranchistus* is distinguished from *Anchistus*—is usually a valid generic character in the carideans, but the fact that it very nearly disappears in large specimens of *P. armatus* indicates how closely related the two genera are, as pointed out by Bruce (1975e:54).

Also, the questionable distinctions that are supposed to separate three of the six species currently assigned to *Paranchistus* (*P. pycnodontae, P. serenei,* and *P. spondylis*) have made the construction of the following key less than satisfactory.

Key to Species of *Paranchistus*

1. Rostrum tapering toward apex in lateral aspect, directed somewhat ventrad . . . 2
   Rostrum with margins subparallel or diverging in anterior 1/2 in lateral aspect, nearly horizontal . . . 3
2. Second pereopod with movable finger considerably overreaching fixed finger; 3rd pereopod with dactyl biunguiculate; maximum carapace length more than 15 mm; living in *Tridacna* . . . 91. ***P. armatus***
   Second pereopod with movable finger overreaching fixed finger little, if at all; 3rd pereopod with dactyl simple, not biunguiculate; maximum carapace length about 5 mm; living in *Atrina* . . . ***P. ornatus*** Holthuis, 1952c:97, figs. 39, 40 (Zanzibar, Kenya, Madagascar, Comoro Islands, Mozambique)
3. First pereopod with fingers subspatulate and denticulate on opposable margins . . . ***P. pycnodontae*** Bruce, 1978b:233, figs. 1-5, pl. 39 (Heron Island, Capricorn Group, Queensland, Australia; 3 m)
   First pereopod with fingers not subspatulate or denticulate on opposable margins . . . 4
4. Second pereopod with movable finger no longer than fixed finger; 3rd pereopod with dactyl not flattened on extensor margin; living in *Spondylus* . . . ***P. spondylis*** Suzuki, 1971:15, figs. 8, 9 (Sagami Wan, Honshu, Japan)
   Second pereopod with movable finger longer than fixed finger; 3rd pereopod with dactyl flattened on extensor margin . . . 5
5. Third pereopod with accessory tooth on flexor margin of dactyl not covered with spinules distally . . . 92. ***P. nobilii***
   Third pereopod with accessory tooth on flexor margin of dactyl covered with minute spinules distally . . . 93. ***P. serenei***

91. *Paranchistus armatus* (H. Milne Edwards, 1837)

P[ontonia] armata H. Milne Edwards, 1837:359 [type locality: New Ireland, Papua New Guinea].

Anchistus biunguiculatus Borradaile, 1898:387 [type locality: Tubetube, Engineer Group, Papua; in *Tridacna*].

Anchistus oshimai Kubo, 1949:26, figs. 1, 2 [type locality: Palau Islands].

Paranchistus biunguiculatus.—Holthuis, 1952c:93, figs. 36-38.

Paranchistus armatus.—Bruce, 1975e:49, figs. 1-3.

DIAGNOSIS.—Rostrum tapering toward apex in lateral aspect, directed somewhat ventrad; 1st pereopod with fingers subspatulate and pectinate on opposable margins; 2nd pereopod with movable finger longer than fixed finger, hooked distally; 3rd pereopod with dactyl biunguiculate, not flattened on extensor margin, not partially covered with spines or horny tubercles; maximum postorbital carapace length 15.3 mm.

RANGE.—Indonesia; New Guinea; Papua; Palau Islands;

Queensland, Australia; New Ireland; and Gilbert and Marshall islands; in *Tridacna*.

REMARKS.—An ovigerous female of *P. armatus* in the Smithsonian collections from Bikini Atoll, Marshall Islands, has a postorbital carapace length of 15.3 mm.

92. *Paranchistus nobilii* Holthuis, 1952

Anchistus Miersi.—Nobili, 1906b:48 [not *Harpilius Miersi* De Man, 1888].
Paranchistus nobilii Holthuis, 1952c:13,100, figs. 41, 42 [type locality: Arzanah Island, Ruqq Az Zaqqum bank, Persian Gulf coast of United Arab Emirates; from *Spondylus gaederopus*].—Bruce, 1983c:890, figs. 6E, 8I,J.

DIAGNOSIS.—Rostrum widening slightly toward apex, nearly horizontal or directed slightly ventrad; 2nd pereopod with movable finger longer than fixed finger, hooked distally; 3rd pereopod with dactyl biunguiculate, flattened and minutely tuberculate on extensor margin; maximum postorbital carapace length little more than 5 mm.

RANGE.—Persian Gulf, Indonesia, and Kiribati (Gilbert Islands); living in *Spondylus, Pinna,* and *Tridacna.*

93. *Paranchistus serenei* Bruce, 1983

Paranchistus serenei Bruce, 1983c:890, figs. 7H,I, 9 [type locality: Teluk Sawai, Ceram, Indonesia; in *Ostrea cristagalli*].

DIAGNOSIS.—Rostrum widening slightly toward apex, nearly horizontal or directed slightly ventrad; 2nd pereopod with movable finger slightly longer than fixed finger, hooked distally; 3rd pereopod with dactyl biunguiculate, flattened on extensor margin, latter and accessory tooth on flexor margin bearing minute spinules; maximum postorbital carapace length less than 4 mm.

RANGE.—Known only from the type locality on Ceram, Indonesia, living in *Ostrea.*

Paratypton Balss, 1914

Paratypton Balss, 1914a:83 [type species, by monotypy: *Paratypton siebenrocki* Balss, 1914b:84; gender: masculine].

DIAGNOSIS.—Rostrum lacking, represented by transverse straight or concave lamina crossing posterior portion of ophthalmic somite; carapace globular, without antennal, hepatic, suborbital, or supraorbital spines; abdomen with pleura of all somites rounded; telson not curving ventrad, margin ovoid, not incised posteriorly, without dorsolateral spines, posterior spines small to minute; antennal scale small, about twice as long as wide, broadly rounded distally without distolateral spine; maxilliped without exopod; 4th thoracic sternite without median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar, subequal, chela much longer than carpus, fingers not provided with socket and plunger closure, movable finger not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl without protuberance on flexor margin, merus unarmed on flexor margin; uropod without fixed tooth or movable spine on lateral margin of lateral branch.

RANGE.—Red Sea and eastern Africa to Indonesia and the Great Barrier Reef of Australia and the Marshall, Fiji, and Samoa islands; living in barely detectable cysts in *Acropora* corals.

REMARKS.—Only one species is recognized.

94. *Paratypton siebenrocki* Balss, 1914

Paratypton siebenrocki Balss, 1914a:84, fig. 1 [type locality: "Senafir," "Koseir," and "Sherm Sheikh," Red Sea; Jaluit, Marshall Islands; and Samoa].—Bruce, 1969d:172, figs. 1–5, pl. 1; 1983c:897.

DIAGNOSIS.—Characters of genus; maximum postorbital carapace length 4.1 mm.

RANGE.—See "Range" of the genus.

**Periclimenaeus* Borradaile, 1915

Periclimenaeus Borradaile, 1915:207 [type species, selected by Borradaile, 1917:378: *Periclimenaeus robustus* Borradaile, 1915:213; gender: masculine].

DIAGNOSIS.—Rostrum well developed, usually overreaching anteriorly extended eyes, compressed laterally, armed at least dorsally throughout length, lateral carina not expanded into broad supraocular or postocular eave; carapace slightly compressed, dorsal profile straight or slightly convex, with or without 1 or more teeth of dorsal rostral series continuing onto gastric region, anterior margin not produced anteroventrally as prominent convex lobe and not deeply concave (notched), without longitudinal branchiostegal suture, with antennal spine, without hepatic spine, orbital margin often interrupted posteriorly; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curving ventrad, dorsolateral spines not particularly robust; antennal scale well developed; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods dissimilar and unequal, fingers of major chela with socket and plunger closure; 3rd pereopod composed of 7 or 8 segments, merus and ischium not fused; uropod with at least one fixed lateral tooth on lateral branch, accompanied by at least one movable spine mesial thereto.

RANGE.—Red Sea and South Africa to Japan, Indonesia, and Australia, and eastward to Hawaii and Pacific coast of America from Costa Rica to Colombia and western Atlantic from North Carolina and Bermuda to Panama and Trinidad; associated with sponges, alcyonarians, and ascidians, from shallow water to 370+ meters.

REMARKS.—Only eight of the 55 currently recognized species of *Periclimenaeus* are known from the Philippines or Indonesia; a key to those eight species is offered below.

Key to Philippine-Indonesian Species of *Periclimenaeus*

1. Third pereopod with dactyl bearing acute tooth at extreme proximal end of flexor margin between distal spines on flexor margin of propodus 2
   Third pereopod with dactyl unarmed at extreme proximal end of flexor margin 3
2. Third pereopod with dactyl distally simple, not biunguiculate . . . 100. ***P. storchi***
   Third pereopod with dactyl distally biunguiculate . . . . . 101. ***P. tridentatus***
3. Carapace with supraorbital spines, sometimes minute 4
   Carapace without supraorbital spines 6
4. Supraorbital spines large, sharp; 1st pereopod with fingers longer than palm . . . . . 102. ***P. truncoideus,*** new species
   Supraorbital spines minute, inconspicuous; 1st pereopod with fingers no more than $^1/_2$ as long as palm 5
5. Rostral formula 0 + 5/0; antennal scale with distolateral tooth far overreaching distal margin of blade; 3rd pereopod with dactyl simple, composed of 2 distinct segments . . . . . 95. ***P. arthrodactylus***
   Rostral formula 1 + 6/1; antennal scale with blade overreaching distolateral tooth; 3rd pereopod with dactyl biunguiculate, not segmented . . . . . 97. ***P. holthuisi***
6. Third pereopod with dactyl simple, not biunguiculate . . . . . 96. ***P. hecate***
   Third pereopod with dactyl biunguiculate 7
7. Major 2nd pereopod with merus dentate on flexor margin . . . . *98. ***P. minutus***
   Major 2nd pereopod with merus unarmed on flexor margin . . . 99. ***P. spongicola***

95. *Periclimenaeus arthrodactylus* Holthuis, 1952

Periclimenaeus arthrodactylus Holthuis, 1952c:122, figs. 51–53 [type locality: Pulau Sailus-ketjil, Kepulauan Tengah, Indonesia].

DIAGNOSIS.—Rostral formula 0 + 5/0; carapace with small supraorbital spine; telson with posterior pair of dorsolateral spines arising posterior to mid-length; antennal scale with distolateral tooth far overreaching distal margin of blade; 1st pereopod with fingers less than $^1/_2$ as long as palm; major 2nd pereopod with merus rugose but not granulous or dentate on flexor margin; 3rd pereopod with dactyl simple, not biunguiculate, but distinctly 2-segmented, without acute tooth at proximal end of flexor margin; postorbital carapace length less than 3 mm.

RANGE.—Known only from the unique ovigerous female holotype from Kepulauan Tengah, Indonesia.

96. *Periclimenaeus hecate* (Nobili, 1904)

Coralliocaris hecate Nobili, 1904:232 [type locality: Djibouti]; 1906:58, pl. 3: fig. 2.

Periclimenaeus hecate.—Bruce, 1974c:1574, figs. 11, 12, 13E; 1976d:22, figs. 8–11.

DIAGNOSIS.—Rostral formula 0 + 4–5/0; carapace without supraorbital spine; telson with posterior pair of dorsolateral spines arising posterior to mid-length; antennal scale with distolateral tooth not overreaching distal margin of blade; 1st pereopod with fingers subequal to palm in length; major 2nd pereopod with merus not granulous or dentate on flexor margin; 3rd pereopod with dactyl simple, not biunguiculate, not segmented, without acute tooth at proximal end of flexor margin; postorbital carapace length less than 4 mm.

RANGE.—Western Indian Ocean to Indonesia and Great Barrier Reef of Australia; associated with ascidians.

97. *Periclimenaeus holthuisi* Bruce, 1969

Periclimenaeus rhodope.—Holthuis, 1952c:125, figs. 54, 55bis [not *Coralliocaris (Onycocaris) rhodope* Nobili, 1904].

Periclimenaeus holthuisi Bruce, 1969a:159 [type locality: Banda, Moluccas, Indonesia; 17 m].

DIAGNOSIS.—Rostral formula 1 + 6/1; carapace with small supraorbital spine; telson with posterior pair of dorsolateral spines arising posterior to mid-length; antennal scale with distolateral tooth not overreaching distal margin of blade; 1st pereopod with fingers about $^1/_2$ as long as palm; major 2nd pereopod with merus granulous on flexor margin; 3rd pereopod with dactyl biunguiculate, not segmented, without acute tooth at proximal end of flexor margin; postorbital carapace length slightly more than 5 mm.

RANGE.—Indonesia.

*98. *Periclimenaeus minutus* Holthuis, 1952

Periclimenaeus minutus Holthuis, 1952c:134, figs. 57–59 [type locality: Kepulauan Banda, Indonesia; 18–36 m].—Bruce, 1978d:121.

DIAGNOSIS.—Rostral formula 0 + 5/0; carapace without supraorbital spine; telson with posterior pair of dorsolateral spines arising posterior to mid-length; antennal scale with distolateral spine not overreaching distal margin of blade; 1st pereopod with fingers not quite as long as palm; major 2nd pereopod with merus dentate on flexor margin; 3rd pereopod

with dactyl simple, not biunguiculate, not segmented, without acute tooth at proximal end of flexor margin; postorbital carapace length about 2 mm or more.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago; sta 5174; 6°03′45″N, 120°57′E; 37 m; coarse sand; 5 Mar 1908 (1551–1557): 9′ Johnston oyster dredge: 1 male [2.2].

RANGE.—Off Somali Republic, Tanzania, Philippines, and Indonesia; 18–80 m, associated with sponges.

REMARKS.—The specimen from off Jolo Island agrees with the original description of *P. minutus* in most particulars, but the rostrum is armed with six rather than five dorsal teeth, the first pereopod appears to be more slender than in the illustration given by Holthuis (1952c, fig. 58a), and the palm of the minor second pereopod is distinctly compressed rather than cylindrical.

99. *Periclimenaeus spongicola* Holthuis, 1952

Periclimenaeus spongicola Holthuis, 1952c:137, figs. 60–62 [type locality: Java Sea; 4°41′S, 113°02′E; 28–32 m, in sponge].

DIAGNOSIS.—Rostral formula 0 + 5/0; carapace without supraorbital spine; telson with posterior pair of dorsolateral spines arising posterior to mid-length; antennal scale with distolateral tooth not overreaching distal margin of blade; 1st pereopod with fingers about as long as palm; major 2nd pereopod with merus devoid of granules or spines on flexor margin; 3rd pereopod with dactyl biunguiculate, not segmented, without acute tooth at proximal end of flexor margin; postorbital carapace length nearly 3 1/2 mm.

RANGE.—Known only from the type locality in the Java Sea.

100. *Periclimenaeus storchi* Bruce, 1989

Periclimenaeus storchi Bruce, 1989b:181, fig. 5 [type locality: Cuaming Island, Bohol Strait, Philippines].

DIAGNOSIS.—Rostral formula 0 + 3/0; carapace without supraorbital spines or tubercles; telson with posterior pair of dorsolateral spines arising posterior to mid-length; antennal scale with distolateral tooth not overreaching distal margin of blade; 1st pereopod with fingers slightly shorter than palm; major 2nd pereopod with merus devoid of tubercles or spines; 3rd pereopod with dactyl simple, not biunguiculate, not composed of 2 segments, but with acute tooth at proximal end of flexor margin; postorbital carapace length 2.25 mm.

RANGE.—Known only from the pair of specimens from the type locality between Cebu and Bohol, Philippines, associated with an unidentified tunicate.

101. *Periclimenaeus tridentatus* (Miers, 1884)

Coralliocaris ?tridentata Miers, 1884:294, pl. 32: fig. C [type locality: Thursday Island, Torres Strait].

Periclimenaeus tridentatus.—Holthuis, 1952c:140, figs. 63–65 [part, specimens from *Siboga* station 99 only].—Bruce, 1974c:1576, fig. 150; 1979f:235; 1983d:206.

DIAGNOSIS.—Rostral formula 0 + 3–4/0; carapace without supraorbital spine, occasionally represented by obscure tubercle; telson with posterior pair of dorsolateral spines arising posterior to mid-length; antennal scale with distolateral tooth not overreaching distal margin of blade; 1st pereopod with fingers fully as long as palm; major 2nd pereopod with merus devoid of granules or teeth on flexor margin; 3rd pereopod with dactyl biunguiculate, not segmented, with acute tooth at proximal end of flexor margin; maximum postorbital carapace length about 6 mm.

RANGE.—Known with certainty from Singapore; Sulu Archipelago, Philippines; Torres Strait; and northern and eastern Australia; associated with the ascidian *Diplosoma*.

REMARKS.—The real *P. tridentatus* may be distinguished from other currently known Philippine-Indonesian species by the presence of an acute, proximal tooth on the flexor margin of the dactyls of the three posterior pairs of pereopods.

102. *Periclimenaeus truncoideus*, new species

Periclimenaeus truncatus Holthuis, 1952c:117, figs. 48–50.—Bruce, 1981c:211, figs. 16, 17d. [Not *Coralliocaris truncata* Rathbun, 1906.]

DIAGNOSIS.—Rostral formula 0 + 7–8/0; carapace with strong supraorbital spine reaching proximal margin of cornea of anteriorly extended eyes; telson with posterior pair of dorsolateral spines arising posterior to mid-length; antennal scale with distolateral tooth overreaching distal margin of blade; 1st pereopod with fingers slightly longer than palm; major 2nd pereopod with merus unarmed; 3rd pereopod with dactyl biunguiculate, not segmented, with 4–6 spine-like teeth on flexor margin but none at extreme proximal end of that margin; maximum postorbital carapace length about 2 1/2 mm.

TYPE LOCALITY.—*Siboga* Station 260; 2.3 miles (3.7 km) N, 63°W from north point of Kai Besar, Kepulauan Kai, Indonesia; 5°36.5′S, 132°55.2′E; 90 m. Holotype in Zoological Museum, University of Amsterdam, The Netherlands.

RANGE.—Zanzibar, Philippines, and Indonesia; 70–90 m.

REMARKS.—Comparison of the female holotype of *Coralliocaris truncata* Rathbun, 1906:920, fig. 70, pl. 24: fig. 2, which has a postorbital carapace length of 2.0 mm, with the description and illustrations of the adult specimen assigned to that species by Holthuis (1952c) and Bruce (1981c) reveals that the Indonesian and Philippine specimens are not conspecific with the Hawaiian example. The latter is distinguished by having the rostrum armed with eight teeth, the three anteriormost forming a vertical row, the eighth being ventral and shorter than the sixth and seventh, as illustrated by Rathbun (Figure 70), rather than having the rostrum terminating in a sharp point, with all of the rostral teeth dorsal and posterior thereto. The supraorbital tooth is larger and not quite as long as in the Philippine-Indonesian specimens, not reaching as far as the anteriorly extended cornea of the eye. The antennal spine is large and submarginal. The telson is missing from the holotype. The dorsolateral branch of the antennular flagellum is fused for

slightly more than two segments, rather than four segments, as described by Holthuis. The antennal scale most closely resembles the left one illustrated by Holthuis (Figure 48b). The third maxilliped is like that illustrated by Bruce (1981c, fig. 16b), as is the first pereopod (Bruce, fig. 16c). The second pereopods are more or less covered with subacute granules in the holotype of *C. truncata*; the right (major) chela has the margin proximal to that of the fixed finger nearly straight, without a bulge, the movable finger with two subtriangular teeth on the proximal half of the opposable margin, the fixed finger with a small, blunt proximal tooth closing between the two on the movable finger and a convex, distally rectangular lobe occupying most of the distal half of the opposable margin, extensor margin notched to form two blunt distal lobes, hardly "two small teeth" (Rathbun, 1906:921); minor, left chela with fingers regularly tapering, crossing distally, one and one-fourth times as long as the palm, unarmed on the opposable margins, the merus with a slightly angular distal lobe on the flexor margin, the extensor margin with a rectangular lobe resulting from a gap similar to the one on the major cheliped. The third pereopod has the dactyl stout, little more than twice as long as wide, strongly convex on both margins, the terminal teeth strongly curved, the penultimate one subperpendicular to the flexor margin, the latter bearing four spine-like teeth, the proximal one and the distal one at the base of the penultimate terminal tooth distinctly smaller than the others. The uropod has the lateral margin curving onto the diaeresis, the curve being armed with a row of seven marginal spines, the three on the lateral margin being the smallest, the fourth broken, and the remaining three (on the diaeresis) being much longer. Perhaps the most important character for distinguishing *P. truncoideus* from *P. truncatus* is the dactyl of the third pereopod, in which the terminal teeth curve less strongly from the axis of the segment and the flexor margin is nearly straight rather than distinctly convex.

ETYMOLOGY.—The Latin adjectival suffix "-oideus," denoting "like" or "resembling," is combined with the root of the specific name "*truncatus*."

**Periclimenes* O.G. Costa, 1844

Pelias P. Roux, 1831:25 [type species, selected by Holthuis, 1955:57: *Alpheus amethystea* Risso, 1827:77; gender: masculine. Invalid junior homonym of *Pelias* Merrem, 1820 (Reptilia)].

Periclimenes O.G. Costa, 1844:290 [type species, by monotypy: *Periclimenes insignis* O.G. Costa, 1844:291 (= *Alpheus amethystea* Risso, 1827:77); gender: masculine].

Anchistia Dana, 1852a:17 [type species, selected by Kingsley, 1880:424: *Anchistia gracilis* Dana, 1852a:25; gender: feminine].

Harpilius Dana, 1852a:17 [type species, by monotypy: *Harpilius lutescens* Dana, 1852a:25; gender: masculine].

Urocaris Stimpson, 1860:39 [type species, by original designation: *Urocaris longicaudata* Stimpson, 1860:39; gender: feminine].

Dennisia Norman, 1861:278 [type species, by monotypy: *Dennisia sagittifera* Norman, 1861:278; gender: feminine].

Ancylocaris Schenkel, 1902:563 [type species, by monotypy: *Ancylocaris brevicarpalis* Schenkel, 1902:563].

Corniger Borradaile, 1915:207 [type species, selected by Borradaile, 1917:365: *Periclimenes (Corniger) ceratophthalmus* Borradaile, 1915:211; gender: masculine. Invalid junior homonym of *Corniger* Agassiz, 1831 (*Pisces*) and *Corniger* Boehm, 1879 (Pycnogonida)].

Cristiger Borradaile, 1915:207 [type species, selected by Holthuis, 1955:61: *Periclimenes (Cristiger) commensalis* Borradaile, 1915:211; gender: masculine. Invalid junior homonym of *Cristiger* Gistl, 1848 (*Hymenoptera*)].

Falciger Borradaile, 1915:207 [type species, selected by Holthuis, 1955:61: *Periclimenes (Falciger) nilandensis* Borradaile, 1915:211; gender: masculine. Invalid junior homonym of *Falciger* Say, 1824 (Coleoptera), *Falciger* Bucholz, 1869 (Arachnoidea), and *Falciger* Trouessart and Megnin, 1883 (Arachnoidea)].

Laomenes Clark, 1919:199 [replacement name for *Corniger*; gender: masculine].

Cuapetes Clark, 1919:199 [replacement name for *Corniger;* gender: masculine].

DIAGNOSIS.—Rostrum well developed, usually overreaching anteriorly extended eyes, compressed laterally; carapace moderately compressed, dorsal profile straight or slightly convex, with or without 1 or more teeth of dorsal rostral series continuing onto gastric region, anterior margin not produced anteroventrally as prominent convex lobe and not deeply concave (notched), without longitudinal branchiostegal suture, with antennal and immovable hepatic spines, orbital margin usually not interrupted posteriorly; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curving ventrad, dorsolateral spines not particularly robust; epistome not bearing paired, horn-like processes; antennal scale well developed; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite with or without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar, chelae not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl not bearing hoof-shaped protuberance; uropod with lateral branch bearing at least 1 movable lateral spine.

RANGE.—All tropical and most subtropical seas; littoral to 1820 meters, usually but not always associated with other marine invertebrates.

REMARKS.—Of the 164 valid species of *Periclimenes* recognized herein, the 57 covered in the following key are here considered to occur in the Philippines or Indonesia. The *Siboga* specimens identified by Holthuis (1952c:64) as *Periclimenes (Harpilius)* ? *calmani* are not included in this key because they probably represent a distinct species. They are not now sufficiently intact, however, to permit determination of their exact status (Bruce, 1987c:124). Also, the *Siboga* specimen identified as *Periclimenes (Periclimenes) parvus* by Holthuis (1952c:40) is omitted from the Philippine-Indonesian list because it may be distinct from Borradaile's species.

Key to Philippine-Indonesian Species of *Periclimenes*

1. Carapace with supraorbital or postorbital tooth 2
   Carapace without supraorbital or postorbital tooth, at most with obscure tubercle 13
2. One or 2 teeth of dorsal rostral series situated on carapace posterior to orbital margin 3
   All dorsal rostral teeth situated on rostrum, proper, anterior to posterior orbital margin 10
3. Second pereopod with distal tooth on flexor margin of merus 4
   Second pereopod without distal tooth on flexor margin of merus 9
4. Second pereopod with carpus armed distally with 1–3 teeth 5
   Second pereopod with carpus unarmed distally 8
5. Fifth pereopod reaching as far as or beyond end of antennal scale 6
   Fifth pereopod not reaching as far as end of antennal scale 7
6. Posteriormost tooth of dorsal rostral series situated posterior to level of hepatic spine; 2nd pereopod without sound-producing fossae on opposable margins of both fingers . . . . . 108. ***P. andamanensis***
   Posteriormost tooth of dorsal rostral series situated in line with or anterior to level of hepatic spine; 2nd pereopod with sound-producing fossae on opposable margins of both fingers . . . . . 154. ***P. spiniferus***
7. Second pereopod with carpus armed with 2 distal spines . . . . *122. ***P. elegans***
   Second pereopod with carpus armed with 1 distal spine . . . . . 128. ***P. grandis***
8. Second pereopod with carpus about 5 times as long as distal width; uropod overreaching extended telson . . . . . 123. ***P. ensifrons***
   Second pereopod with carpus 7–8 times as long as distal width; uropod not overreaching extended telson . . . . . 140. ***P. longirostris***
9. Posteriormost tooth of dorsal rostral series isolated from rest of series; antennal scale with distolateral tooth far overreaching distal margin of blade . . . . . *107. ***P. amymone***
   Posteriormost tooth of dorsal rostral series not isolated from rest of series; antennal scale with distolateral tooth reaching to or slightly beyond level of distal margin of blade . . . . . 143. ***P. nilandensis***
10. Eye with cornea more or less produced distally, ogival; basal antennular segment armed with 1 distolateral spine 11
    Eye with cornea nearly hemispherical, not ogival; basal antennular segment armed with 2 or 3 distolateral spines 12
11. Rostrum with 1 ventral tooth; telson without discernible spines anterior to posterior margin . . . . . 106. ***P. amboinensis***
    Rostrum unarmed ventrally; telson with 2 pairs of distinct lateral spines anterior to posterior margin . . . . . 114. ***P. ceratophthalmus***
12. Rostrum with 1–3 ventral teeth; basal antennular segment armed with 2 distolateral spines; 2nd pereopod with fingers about as long as palm . . . . . 115. ***P. commensalis***
    Rostrum unarmed ventrally; basal antennular segment armed with 3 distolateral spines; 2nd pereopod with fingers no more than 1/2 as long as palm . . . . . 118. ***P. cristimanus***
13. Posteriormost tooth of dorsal rostral series arising from carapace anterior to level of hepatic spine 14
    Posteriormost tooth of dorsal rostral series arising from carapace at or posterior to level of hepatic spine 31
14. Second pereopod with distal tooth on flexor margin of merus 15
    Second pereopod without distal tooth on flexor margin of merus 19

15. Rostrum with 1 or 2 teeth on ventral margin 16
Rostrum with 3–9 teeth on ventral margin 17
16. Telson with anterior pair of dorsolateral spines arising anterior to midlength; 2nd pereopod with carpus longer than palm, about 9 times as long as distal width . . . . . 120. ***P. digitalis***
Telson with anterior pair of dorsolateral spines arising slightly posterior to midlength; 2nd pereopod with carpus 1/2 as long as palm, 1 1/2 times as long as distal width . . . . . 141. ***P. lutescens***
17. Dorsal rostral series consisting of 9–12 teeth; 2nd pereopod with carpus armed distally with 1 obscure tooth. . . . . *155. ***P. tenuipes***
Dorsal rostral series consisting of 6–8 teeth; 2nd pereopod with carpus armed distally with 2 teeth 18
18. Antennal scale with distolateral tooth not overreaching blade . 137. ***P. kororensis***
Antennal scale with distolateral tooth reaching distinctly beyond truncate distal margin of blade . . . . . 147. ***P. platycheles***
19. Third pereopod with dactyl biunguiculate (abnormally so in *P. albatrossae*) 20
Third pereopod with dactyl simple, not biunguiculate 27
20. Telson with more than 2 pairs of dorsolateral spines anterior to posterior margin 21
Telson with 2 pairs of dorsolateral spines anterior to posterior margin 22
21. Rostrum overreaching antennal scale; telson with 7 pairs of dorsolateral spines anterior to posterior margin; 3rd pereopod with dactyl truncate subdistally, propodus without spinules on flexor margin . . . *104. ***P. albatrossae***, new species
Rostrum not overreaching antennal scale; telson with 3–5 pairs of dorsolateral spines anterior to posterior margin; 3rd pereopod with dactyl not truncate subdistally, propodus with few spinules on flexor margin . . . . 105. ***P. alcocki***
22. Posteriormost tooth of dorsal rostral series not distinctly isolated from rest of series; orbital angle not ovate 23
Posteriormost tooth of dorsal rostral series more widely separated from next anterior tooth than any other pairs of adjacent teeth of series; orbital angle subovate, with or without acute tip 24
23. Rostrum not slender or rod-like; carapace with hepatic spine located posteroventral to antennal spine; 3rd pereopod with accessory tooth on dactyl stouter than distal tooth . . . . . *131. ***P. incertus***
Rostrum slender, rod-like; carapace with hepatic spine located directly posterior to antennal spine; 3rd pereopod with accessory tooth on dactyl weaker than distal tooth . . . . . 139. ***P. latipollex***
24. Abdomen without compressed prominence on 3rd somite; antennal scale more than 3 times as long as wide 25
Abdomen with low, compressed median prominence on 3rd somite; antennal scale less than 3 times as long as wide 26
25. Second pereopod with carpus nearly or quite twice as long as palm . . . . . 132. ***P. indicus***
Second pereopod with carpus less than 1/2 as long as palm . . . . . *157. ***P. toloensis***
26. Hepatic spine larger than antennal spine; antennal scale with lateral margin convex . . . . . 142. ***P. magnificus***
Hepatic spine no larger than antennal spine; antennal scale with lateral margin straight . . . . . 159. ***P. venustus***
27. Rostrum directed anteroventrad; carapace with hepatic spine larger than antennal spine; 3rd pereopod with flexor margin of dactyl sinuous . . . . 124. ***P. foresti***

Rostrum directed anteriad or anterodorsad; carapace with hepatic spine not noticeably larger than antennal spine; 3rd pereopod with flexor margin of dactyl regularly concave 28

28. Rostrum of typical palaemonid form, ventral margin armed with 3–5 (very rarely 2) teeth 29

Rostrum slender, ventral margin armed with 0–2 teeth 30

29. Only 1 tooth of dorsal rostral series situated on carapace posterior to orbital margin; eyestalk without dorsal tubercle; 1st pereopod overreaching antennal scale . . . . . 134. ***P. johnsoni***

Two teeth of dorsal rostral series situated on carapace posterior to orbital margin; eyestalk with distinct dorsal tubercle; 1st pereopod not overreaching antennal scale . . . . . 150. ***P. seychellensis***

30. Rostrum overreaching antennal scale, ventral margin unarmed; carapace with hepatic spine located almost directly posterior to antennal spine; 6th abdominal somite about twice as long as 5th; antennal scale moderately wide with straight lateral margin, distolateral tooth not nearly reaching level of distal margin of blade; 2nd pereopod with carpus unarmed distally, nearly 3 times as long as palm . . . . . *148. ***P. psamathe***

Rostrum not overreaching antennal scale, ventral margin bearing 2 teeth; carapace with hepatic spine located posteroventral to antennal spine; 6th abdominal somite only slightly longer than 5th; antennal scale very narrow with lateral margin strongly concave, distolateral tooth distinctly overreaching blade; 2nd pereopod with carpus armed with 3 distal spines, less than 1/2 as long as palm . . . . . 151. ***P. sibogae***

31. Second pereopod with acute distal tooth on flexor margin of merus 32

Second pereopod without acute distal tooth on flexor margin merus 35

32. Third pereopod with dactyl simple, not biunguiculate 33

Third pereopod with dactyl biunguiculate 34

33. Posteriormost tooth of dorsal rostral series arising from carapace posterior to orbital margin, 1 or 2 teeth on ventral margin of rostrum; carapace with hepatic spine located posteroventral to antennal spine; antennal scale with distolateral tooth distinctly overreaching distal margin of blade; 3rd pereopod without spinules on flexor margin of propodus . . . . . 116. ***P. consobrinus***

All dorsal rostral teeth arising from rostrum, proper, anterior to level of posterior orbital margin, 4 or 5 teeth on ventral margin of rostrum; carapace with hepatic spine located directly posterior or even posterodorsal to antennal spine; antennal scale with distolateral tooth reaching about as far as level of distal margin of blade; 3rd pereopod with spinules on flexor margin of propodus . . . . . 149. ***P. rectirostris***

34. Rostrum horizontal, rostral formula: 0 + 5–6/1; antennal scale with distolateral tooth not nearly reaching level of distal margin of blade; 2nd pereopod with carpus armed with 2 distal spines . . . . . 127. ***P. gracilis***

Rostrum directed anteroventrad, rostral formula: 0 + 7–10/0–1; antennal scale with distolateral tooth reaching nearly or quite to level of distal margin of blade; 2nd pereopod with carpus unarmed distally . . . . . *138. ***P. lanipes***

35. Epigastric tooth on carapace widely separated from dorsal rostral series 36

Posteriormost tooth of dorsal rostral series not widely separated from rest of series 37

36. Rostrum with ventral margin nearly straight, unarmed; carapace with hepatic spine located directly posterior or posterodorsal to antennal spine; 1st pereopod not reaching level of distal end of antennal scale . . . . . 126. ***P. galene***

Rostrum with ventral margin concave, bearing 2 small subapical spines; carapace with hepatic spine located posteroventral to antennal spine; 1st pereopod overreaching antennal scale by length of fingers . . . . . 158. ***P. tosaensis***

37. Hepatic spine extending beyond anterior margin of carapace; 3rd pereopod with denticulate lobe on flexor margin of dactyl. 38
Hepatic spine not extending beyond anterior margin of carapace; 3rd pereopod without denticulate lobe on flexor margin of dactyl. 40
38. Antennal scale with distolateral tooth overreaching distal margin of blade little if at all; uropods distinctly overreaching telson . . . . . 129. ***P. hertwigi***
Antennal scale with distolateral tooth distinctly overreaching distal margin of blade; uropods overreaching telson little if at all 39
39. Rostrum not reaching level of distal end of antennal scale, armed ventrally with 1 tooth; telson with both pairs of lateral spines arising in posterior 1/2 of length . . . . . *113. ***P. calcaratus***, new species
Rostrum overreaching antennal scale, armed ventrally with 3 teeth; telson with anterior pair of lateral spines arising in anterior 1/2 of length . . . . . *119. ***P. dentidactylus***
40. Third pereopod with dactyl biunguiculate, accessory tooth sometimes minute (*P. attenuatus, P. soror*) 41
Third pereopod with dactyl simple, not biunguiculate 49
41. Basal antennular segment armed with 2 or 3 distolateral teeth 42
Basal antennular segment armed with 1 distolateral tooth 44
42. Rostrum palaemonoid, with 1 or 2 ventral teeth . . . . . 146. ***P. pilipes***
Rostrum not typically palaemonoid, without ventral teeth 43
43. Rostrum spike-like, armed dorsally with 3 widely spaced teeth, ventral margin straight, without keel; 6th abdominal somite more than twice as long as 5th; antennal scale about 4 times as long as wide, lateral margin sinuous, distolateral tooth nearly reaching level of distal margin of blade; 1st pereopod overreaching antennal scale, fingers not pectinate on opposable margins . . . . . 109. ***P. attenuatus***
Rostrum compressed, armed dorsally with 10–13 anteriorly crowded teeth, ventrally with convex keel; 6th abdominal somite less than twice as long as 5th; antennal scale about 2 1/3 times as long as wide, lateral margin nearly straight, distolateral tooth not nearly reaching level of distal margin of blade, fingers pectinate on opposable margins . . . . . 153. ***P. soror***
44. Rostrum nearly horizontal, directed anteriad rather than anteroventrad; 2nd pereopod with fingers nearly or quite as long as palm 45
Rostrum directed somewhat anteroventrad; 2nd pereopod with fingers no more than 2/3 as long as palm 47
45. Rostrum with ventral margin concave in anterior 1/2; hepatic spine larger than antennal spine; abdomen with compressed dorsal prominence on 3rd somite . . . . . *130. ***P. holthuisi***
Rostrum with ventral margin convex in anterior 1/2; hepatic spine no larger than antennal spine; abdomen without compressed dorsal prominence on 3rd somite 46
46. Rostrum armed with 6 dorsal teeth, all situated on rostrum, proper, anterior to posterior orbital margin; 2nd pereopod with 1 distal spine on carpus . . . . . 110. ***P. batei***
Rostrum armed with 9 or 10 dorsal teeth, posteriormost situated on carapace posterior to orbital margin; 2nd pereopod without distal spine on carpus . . . . . *152. ***P. sinensis***
47. Integument pitted on lateral areas of carapace and abdomen; rostrum with 3–6 ventral teeth; hepatic spine larger than antennal spine; extended 2nd pereopod with carpus less than twice as long as distal width . . . . . 125. ***P. foveolatus***
Integument not pitted; rostrum with 1 or 2 ventral teeth; hepatic spine not noticeably larger than antennal spine; extended 2nd pereopod with carpus more than twice as long as distal width 48

48. Antennal scale with lateral margin slightly convex; 1st pereopod with fingers not pectinate on opposable margins; 3rd pereopod with dactyl nearly straight on flexor margin proximal to accessory tooth . . . . . 117. ***P. coriolis***
Antennal scale with lateral margin slightly concave; 1st pereopod with fingers pectinate on opposable margins; 3rd pereopod with dactyl sinuous on flexor margin proximal to accessory tooth . . . . . 145. ***P. pectiniferus***
49. Rostrum without ventral keel below midrib; 2nd pereopod with fingers 3 times as long as palm . . . . . 156. ***P. tenuis***
Rostrum with ventral keel; 2nd pereopod with fingers less than twice as long as palm, usually shorter than palm 50
50. Rostrum with midrib nearly horizontal, directed more anteriad than anteroventrad 51
Rostrum with midrib directed somewhat anteroventrad 54
51. Rostrum with dorsal margin faintly convex, nearly straight 52
Rostrum with dorsal margin distinctly convex 53
52. Rostrum with ventral margin nearly straight, subparallel with dorsal margin; antennal scale 3 times as long as wide; 4th thoracic sternite without notch in anterior margin; 2nd pereopods unequal . . . . . *103. ***P. affinis***
Rostrum with ventral margin distinctly convex; antennal scale $2^1/_2$ times as long as wide; 4th thoracic sternite with median notch in anterior margin; 2nd pereopods subequal . . . . . 144. ***P. ornatus***
53. First pereopod with fingers pectinate on opposable margins; 2nd pereopod with fingers nearly as long as palm, carpus $1^1/_2$ times as long as distal width . . . . . 111. ***P. brevicarpalis***
First pereopod with fingers not pectinate on opposable margins; 2nd pereopod with fingers $^1/_2$ as long as palm, carpus 3 times as long as distal width . . . . . 136. ***P. kempi***
54. Rostrum overreaching antennal scale; 3rd pereopod with blunt subdistal projection on flexor margin of dactyl . . . . . 112. ***P. brockii***
Rostrum not overreaching antennal scale; 3rd pereopod without subdistal projection on flexor margin of dactyl 55
55. Dorsal margin of rostrum distinctly convex; hepatic spine arising directly posterior to antennal spine . . . . . 121. ***P. diversipes***
Dorsal margin of rostrum faintly convex; hepatic spine arising posteroventral to antennal spine 56
56. All dorsal rostral teeth confined to rostrum, proper, anterior to orbital margin; hepatic spine arising only slightly below level of antennal spine; 6th abdominal somite $1^1/_2$ times as long as 5th; 1st pereopod with fingers pectinate on opposable margins; 2nd pereopod with carpus little longer than distal width . . . . . 133. ***P. inornatus***
Posteriormost tooth of dorsal rostral series arising from carapace posterior to orbital margin; hepatic spine arising distinctly below level of antennal spine; 6th abdominal somite about twice as long as 5th; 1st pereopod with fingers pectinate on opposable margins; 2nd pereopod with carpus more than 3 times as long as distal width . . . . . 135. ***P. jugalis***

*103. *Periclimenes affinis* (Zehntner, 1894)

Palaemonella affinis Zehntner, 1894:208 [type locality: Ambon, Indonesia].
Periclimenes (Harpilius) affinis.—Holthuis, 1958:6, fig. 2.
Periclimenes affinis.—Bruce, 1980a:2, figs. 1–3.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, nearly horizontal, rostral formula 0–1 + 6–7/1–2, posteriormost tooth not isolated from remainder of dorsal rostral series, situated in line with or anterior to level of hepatic spine; carapace without supraorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle ovate; abdomen without compressed dorsal

prominence on 3rd somite, 6th somite 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, both pairs arising in posterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 or 2 distolateral spines on basal segment; antennal scale 3 times as long as wide, lateral margin nearly straight, distolateral tooth not reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopods unequal, fingers 1/2 as long as palm, carpus less than 1/2 as long as palm, about 1 3/4 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin somewhat sinuous, propodus with few indistinct spinules on flexor margin, not segmented; 5th pereopod reaching nearly to distal end of antennal scale; uropod barely overreaching extended telson; maximum postorbital carapace length about 4 mm.

MATERIAL.—PHILIPPINES. Near Siasi, Sulu Archipelago; sta 5147; 5°41′40″N, 120°47′10″E; coral sand, shells; 16 Feb 1908 (1127–1147); 12′ Agassiz beam trawl, mud bag: 3 ovig females [2.0–3.3].

RANGE.—Northern South China Sea; Sulu Archipelago, Philippines; Ambon, Indonesia; Great Barrier Reef, Australia; and New Caledonia; associated with comatulid crinoids.

*104. *Periclimenes albatrossae*, new species

FIGURE 20

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum (Figure 20*a*) overreaching antennal scale, somewhat palaemonoid, directed slightly anterodorsad anteriorly, rostral formula 1 + 2 + 7/4–5, posteriormost tooth isolated from remainder of dorsal rostral series, situated far posterior to hepatic spine; carapace without supraorbital spine, hepatic spine much larger than antennal spine, arising only slightly posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle ovate; abdomen (Figure 20*c*) without compressed dorsal prominence on 3rd somite, 6th somite more than 1 1/2 times as long as 5th; telson (Figure 20*d*) with 7 pairs of small lateral spines; eye with cornea hemispherical, not produced distally, no wider than eyestalk, and lightly pigmented, antennular peduncle (Figure 20*g*) with 1 distolateral spine on basal segment; antennal scale (Figure 20*i*) about 2 1/3 times as long as wide, lateral margin convex proximally, distolateral tooth not reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod (Figure 20*p,q*) overreaching antennal scale by about length of chela, fingers not pectinate on opposable margins; 2nd pereopods (Figure 20*r,s*) subequal (left slightly longer than right because of proportionately longer carpus), overreaching antennal scale by length of chela, fingers 1/2 as long as palm, carpus about 1/3 as long as palm, about 1 4/5 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod (Figure 20*t,u*) with dactyl subdistally truncate, without denticulate lobe on flexor margin, obscurely biunguiculate, flexor margin straight, convex distally, propodus without spinules on flexor margin, not segmented; uropod (Figure 20*d*) reaching little, if at all, beyond extended telson; postorbital carapace length 10.9 mm.

MATERIAL.—PHILIPPINES. South China Sea off western Luzon; sta 5440; 16°33′52″N, 119°52′54″E; 315 m; fine gray sand, globigerina; 11.8°C; 10 May 1909 (1401–1421); 12′ Agassiz beam trawl, mud bag; 1 ovig female holotype [10.9], USNM 252658.

TYPE LOCALITY.—Same as above.

RANGE.—Known only from the unique ovigerous female holotype from off western Luzon, Philippines; 315 meters.

REMARKS.—There is strong superficial similarity between *P. albatrossae* and *P. alcocki*. These two species are distinguished from all other members of the Pontoniinae by having four or more pairs of dorsolateral spines on the telson. *Periclimenes albatrossae* apparently differs in the slightly longer and more nearly horizontal rostrum; more prominent and subspatulate ventral orbital angle; seven rather than four or five pairs of dorsolateral spines and subcordiform intermediate posterior spines on the telson; three rather than four teeth on the incisor process of the mandible; the second pereopods neither tuberculate nor setose and the movable finger not markedly spatulate; and, especially, in the apparently unique form of the dactyls of the posterior pereopods, which superficially resemble those of *P. hertwigi* more closely than those of *P. alcocki*, as illustrated by Kubo (1940b, fig. 2n), and in the absence of spinules on the flexor margin of the propodus of those pereopods.

There is a temptation to assign more than specific importance to the two species of *Periclimenes* (*P. albatrossae* and *P. alcocki*) that have more than the usual pontoniine complement of two pairs of dorsolateral spines on the telson. That single character may be no more important, however, than the striking difference in the form of the dactyl of the posterior pereopods of those two species.

ETYMOLOGY.—*Periclimenes albatrossae* is named for the U.S. Fisheries Steamer *Albatross* to honor the men who served on that vessel from 1882 to 1920. We like to believe that the diligence and expertise still reflected in the specimens gathered in remote areas by those professional collectors are widely recognized for the major contribution that they represent to our knowledge of what Howard Evans so appropriately referred to as "Life on a Little-known Planet."

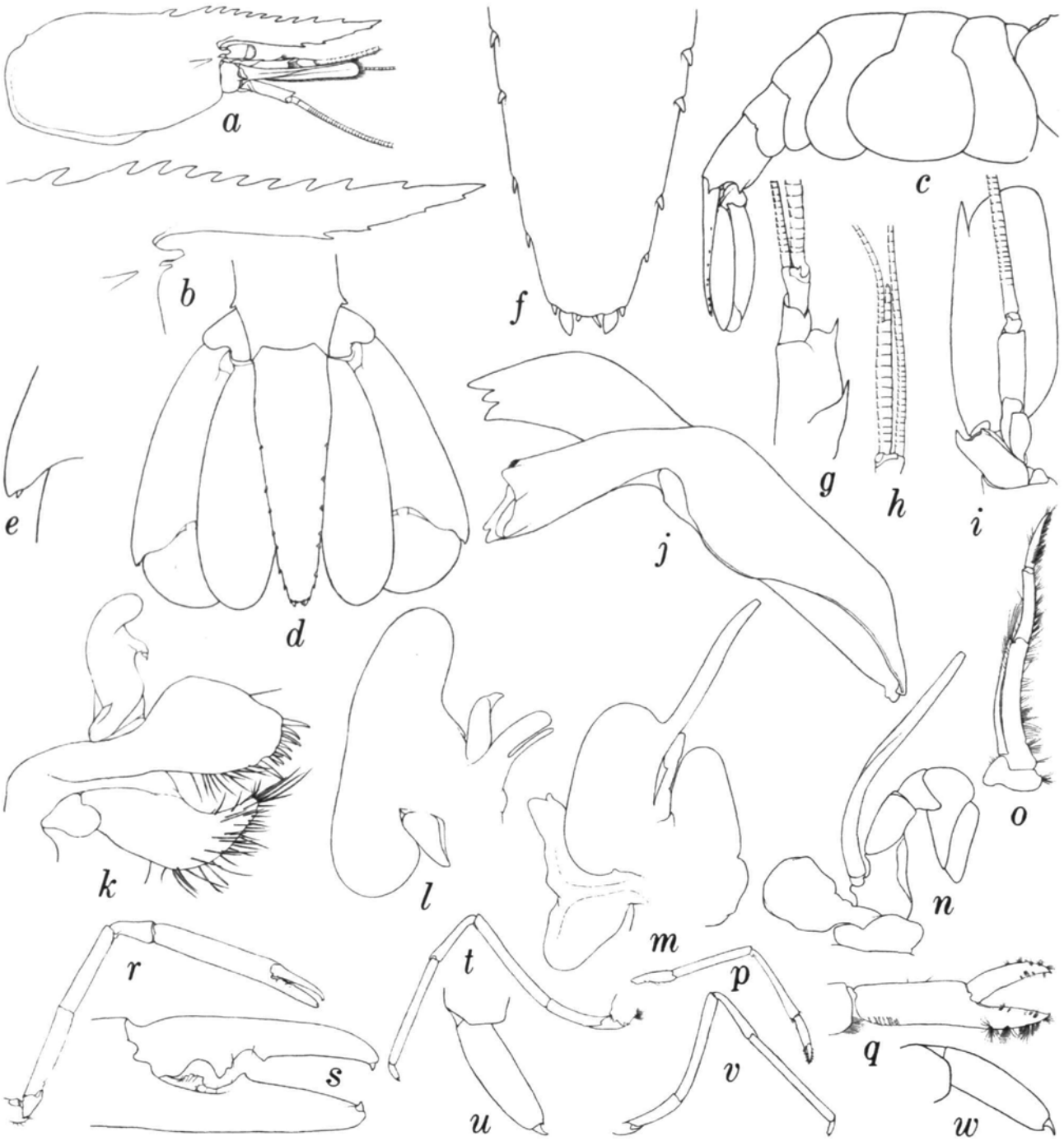

FIGURE 20.—*Periclimenes albatrossae*, new species, ovigerous female holotype from *Albatross* sta 5440 (South China Sea off western Luzon), carapace length 10.9 mm: *a*, carapace and anterior appendages, lateral aspect; *b*, rostrum, lateral aspect; *c*, abdomen, lateral aspect; *d*, tail fan; *e*, distolateral angle of lateral branch of uropod; *f*, posterior end of telson; *g*, right antennule, dorsal aspect; *h*, left antennule, flagella; *i*, right antenna, ventral aspect; *j*, right mandible; *k*, right 1st maxilla; *l*, right 2nd maxilla; *m*, right 1st maxilliped; *n*, right 2nd maxilliped; *o*, right 3rd maxilliped; *p*, right 1st pereopod; *q*, same, chela; *r*, right 2nd pereopod; *s*, same, fingers; *t*, left 3rd pereopod; *u*, same, dactyl; *v*, right 4th pereopod; *w*, same, dactyl.

105. *Periclimenes alcocki* Kemp, 1922

Periclimenes (Periclimenes) alcocki Kemp, 1922:154, figs. 21-24 [type locality: Laccadive Sea; 9°34′57″N, 75°36′30″E; 743 m].—Kubo, 1940b:33, figs. 1, 2.

Periclimenes alcocki.—Bruce, 1981c:190, figs. 1, 2; 1985b:231, fig. 1.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, palaemonoid, directed slightly anteroventrad except near tip, rostral formula 2 + 6-8/2-4, posteriormost tooth somewhat isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or post-orbital spine, hepatic spine larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace; orbital angle ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 1/2 times as long as 5th; telson with 3-5 pairs of lateral spines; eye with cornea small, hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale little more than twice as long as wide, lateral margin convex, distolateral tooth not reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopods unequal, with fingers 1/2 as long as palm, carpus 1/4 as long as palm, barely longer than distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin slightly concave, propodus with very few spinules at distal end of flexor margin, not segmented; 5th pereopod not overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 12 mm.

RANGE.—Madagascar, Laccadive Sea, Japan, Philippines, and Australia; 190-743 meters.

106. *Periclimenes amboinensis* (De Man, 1888)

Anchistia amboinensis De Man, 1888b:546, pl. 22a: fig. 2 [type locality: Ambon, Indonesia].

Periclimenes amboinensis.—Bruce, 1983c:874, 898, 899, figs. 1-3, 7E.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, directed somewhat anteroventrad, rostral formula 0 + 6/1, posteriormost tooth not isolated from remainder of dorsal rostral series, situated distinctly anterior to posterior orbital margin, lateral carina expanded posteriorly into supraorbital eave and spine; carapace with supraorbital tooth, hepatic spine not much larger than antennal spine, arising slightly posteroventral to latter, extending nearly to anterior margin of carapace, orbital angle acute, not ovate; telson without dorsolateral spines anterior to posterior margin; eye with cornea angularly produced distally, not hemispherical; antennular peduncle with 1 distolateral spine on basal segment; antennal scale with lateral margin faintly convex, distolateral tooth not reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by about length of chela; 2nd pereopods unequal, fingers about 2/3 as long as palm, carpus much less than 1/2 as long as palm, little longer than distal width, without distal spines, merus with stout tooth directed distally from flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, obscurely biunguiculate, flexor margin sinuous, propodus with indistinct spinules near distal end of flexor margin, not segmented; uropod barely overreaching extended telson; maximum carapace length about 4 mm.

RANGE.—Indonesia and Great Barrier Reef of Australia; associated with comatulid crinoids. Devaney and Bruce (1987: 222, 230) tentatively recorded the species from Enewetak Atoll, Marshall Islands.

REMARKS.—See "Remarks" under *P. ceratophthalmus*.

*107. *Periclimenes amymone* De Man, 1902

Periclimenes amymone De Man, 1902:829, pl. 25: fig. 53 [type locality: Ternate, Indonesia].—Bruce, 1981f:262, fig. 1E-I 1983c:875, fig. 7C.

Periclimenes (Harpilius) amymone.—Holthuis, 1952c:82, fig. 32.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum overreaching antennal scale or not, palaemonoid, directed anterodorsal in anterior 1/2, rostral formula 1 + 5-7/2-4, posteriormost tooth isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace with supraorbital spine, hepatic spine not noticeably larger than antennal spine, arising slightly posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle rounded, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite 1 2/5 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising anterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale nearly 4 times as long as wide, lateral margin concave, distolateral tooth far overreaching distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod slightly overreaching antennal scale, 2nd pereopod with fingers fully 1/2 as long as palm, carpus fully 1/3 as long as palm, nearly 2 1/2 times as long as distal width, with 3 distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin sinuous, propodus with single spinule at distal end of flexor margin, not segmented; 5th pereopod not overreaching antennal scale; uropod reaching about to posterior margin of extended telson; maximum postorbital carapace length about 3 1/2 mm.

MATERIAL.—PHILIPPINES. Marungas Island (south side), Sulu Archipelago; [6°06′N, 120°58′E]; 1 1/4-2 1/2 m; scattered coral and sand; 10 Feb 1908 (1330-1500); diving, coral heads

taken ashore: 1 male [3.0] 1 ovig female [3.5].

RANGE.—Nicobar Islands, Philippines, Singapore, Indonesia, Australia, New Caledonia, Soloman and Samoa; usually associated with scleractinian corals.

108. *Periclimenes andamanensis* Kemp, 1922

Periclimenes (Ancylocaris) andamanensis Kemp, 1922:204, figs. 54–57 [type locality: Ross Channel, Port Blair, Andaman Islands; 7–15 meters].
Periclimenes andamanensis.—Bruce, 1977j:269.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum reaching level of distal end of antennal scale or beyond, slenderly palaemonoid, directed slightly anterodorsad in anterior 1/2, rostral formula 1 + 6–8/2–4, posteriormost tooth somewhat isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace with supraorbital spine, hepatic spine no larger than antennal spine, arising almost directly posterior to latter, not extending beyond anterior margin of carapace, orbital angle rounded, not ovate; abdomen with 6th somite about 1 3/4 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising anterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale 5–5 1/2 times as long as wide, lateral margin slightly concave, distolateral tooth far overreaching distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod far overreaching antennal scale; 2nd pereopod with fingers 1/2–3/4 as long as palm, carpus 4/5–1 1/5 times as long as palm, 6–7 1/2 times as long as distal width, with 1 or 2 distal spines, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin regularly concave, propodus with spinules on flexor margin, not segmented; 5th pereopod reaching about to distal end of antennal scale or beyond; maximum postorbital carapace length about 4 mm.

RANGE.—Madagascar, Andaman Islands, Ryukyu Islands, and Queensland, Australia; the only Indonesian record is based on a specimen identified by J. Roux and reported by Dammerman (1929:117 and 1948:511, fig. 43) from a brackish pool on Pulau Sertung in Selat Sunda.

109. *Periclimenes attenuatus* Bruce, 1971

Periclimenes attenuatus Bruce, 1971d:533, figs. 1–5 [type locality: Waterhouse Cove, Burukuk, Duke of York Group, St. George's Channel, Bismarck Archipelago; 4°7.3'S, 152°27.3'E; associated with crinoids in 1–2 m]; 1983c:879.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum short, not overreaching anteriorly extended eyes, slender, directed slightly anteroventrad, rostral formula 0 + 3/0, teeth subequally spaced; carapace without supraorbital or postorbital spine, hepatic spine smaller than antennal spine, arising slightly posteroventral to latter, not extending to anterior margin of carapace, orbital angle subovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite nearly 2 1/3 times as long as 5th; telson with 2 pairs of dorsolateral spines, anterior pair arising at about mid-length; eye large, cornea hemispherical, not produced distally; antennular peduncle with 1 or 2 distal spines mesial to usual distolateral spine on basal segment; antennal scale 4 times as long as wide, lateral margin sinuous, distolateral tooth not quite reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of fingers, latter not pectinate on opposable margins; 2nd pereopods unequal and dissimilar, major one with fingers 1/2 as long as palm, carpus 1/3 as long as palm, about 1 1/2 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl lacking denticulate lobe on flexor margin, minutely biunguiculate distally, flexor margin nearly straight, propodus without spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length 2 mm.

RANGE.—Seram, Indonesia; Bismarck Archipelago; and Great Barrier Reef, Australia; associated with comatulid crinoids.

110. *Periclimenes batei* (Borradaile, 1917)

Palaemonella orientalis Bate, 1888:787, pl. 128: fig. 4 [not *Palaemonella orientalis* Dana, 1852].
Palaemonella batei Borradaile, 1917:357, 358 [type locality: off Sibago Island, Sulu Archipelago, Philippines; 6°47'N, 122°28'E].
Periclimenes (Periclimenes) batei.—Holthuis, 1959:195, fig. 1.
Periclimenes batei.—Bruce and Svoboda, 1984:98.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, nearly horizontal, rostral formula 0 + 6/1, posteriormost tooth not isolated from remainder of dorsal rostral series; carapace without supraorbital or postorbital spine, hepatic spine no larger than antennal spine, not extending beyond anterior margin of carapace; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about twice as long as 5th; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 3 times as long as wide, lateral margin faintly concave, distolateral tooth not overreaching distal margin of blade; 1st pereopod overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopod with fingers about 4/5 as long as palm, subequal to carpus in length, latter about 3 1/2 times as long as distal width, with 1 distal tooth, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, sharply biunguiculate, flexor margin straight proximally, concave distally; uropod probably overreaching extended telson; postorbital carapace length about 1 mm.

RANGE.—Known only from the type locality in the Sulu

Archipelago, Philippines, in 47 m.

REMARKS.—The probability that the unique holotype of *P. batei* is a juvenile suggests that the adult characters of the species and, therefore, its relationship with other members of the genus may remain uncertain for an unpredictable period.

111. *Periclimenes brevicarpalis* (Schenkel, 1902)

Palaemonella amboinensis Zehntner, 1894:206, pl. 9: fig. 27 [type locality: Ambon, Indonesia; not *Periclimenes amboinensis* De Man, 1888].

Ancylocaris brevicarpalis Schenkel, 1902:563, pl. 13: fig. 21 [type locality: Makasar, Celebes].

Palaemonella aberrans Nobili, 1904:233 [type locality: Djibouti].

Harpilius latirostris Lenz, 1905:380, pl. 47: fig. 14 [type locality: Mkokotoni and Bawi, Zanzibar].

Periclimenes potina Nobili, 1905b:159 [type locality: southeast coast of Arabia].

Periclimenes hermitensis Rathbun, 1914:655, pl. 1: figs. 1–3 [type locality: Hermite, Monte Bello Islands, Western Australia].

Periclimenes (Ancylocaris) brevicarpalis.—Kemp, 1922:185, figs. 40–42, pl. 6: fig. 8.

Periclimenes (Harpilius) brevicarpalis.—Holthuis, 1952c:69, fig. 27.

Periclimenes brevicarpalis.—Bruce, 1983c:879, fig. 7D,E.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, palaemonoid, nearly horizontal, rostral formula 0 + 1 + 4–7/1-2, posteriormost tooth not isolated from remainder of dorsal rostral series; carapace without supraorbital or postorbital spine, hepatic spine no larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about $1^1/_2$ times as long as 5th; telson with 2 pairs of inconspicuous dorsolateral spines anterior to posterior margin, both pairs arising in posterior $^1/_2$ of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale slightly less than $2^1/_2$ times as long as wide, lateral margin nearly straight, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopods similar, subequal, fingers slightly shorter than palm, carpus about $^1/_2$ as long as palm, about $1^1/_2$ times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, usually simple, rarely biunguiculate, flexor margin slightly sinuous, propodus without spinules or with single distal pair on flexor margin, not segmented; 5th pereopod not reaching distal end of antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about $8^1/_2$ mm.

RANGE.—Red Sea, eastern and South Africa, Ryukyu Islands and Honshu, Japan, south to Capricorn Islands, Great Barrier Reef, Australia, and east to Line Islands; associated with sea anemones.

REMARKS.—Bruce (1983c:880) suggested that more than one species may be represented by the name *P. brevicarpalis* and that one or more of the five names generally synonymized with Schenkel's name may have to be resurrected.

112. *Periclimenes brockii* (De Man, 1888)

Anchistia Brockii De Man, 1888b:548, pl. 22a: fig. 3 [type locality: Ambon, Indonesia].

Periclimenes (Harpilius) brocki.—Holthuis, 1952c:88.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum overreaching antennal scale, modified palaemonoid, directed somewhat anteroventrad, rostral formula 0 + 9–10/1, posteriormost tooth not isolated from remainder of dorsal rostral series; carapace without supraorbital or postorbital spine, hepatic spine no larger than antennal spine, arising short distance posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle subacute, not ovate; telson with 2 pairs of dorsolateral spines anterior to posterior margin; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale with lateral margin nearly straight, distolateral tooth reaching about to level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopod with fingers $^1/_2$ as long as palm, carpus about $^1/_3$ as long as palm, about as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl obscurely truncate subdistally, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin nearly straight, propodus without spinules on flexor margin, not segmented; uropod overreaching extended telson; maximum postorbital carapace length about $2^1/_2$ mm.

RANGE.—Known only from the type locality: Ambon, Indonesia. to a depth of 78 m, from which depth in the Maldive Islands, it was reported by Borradaile (1917:363) to be associated with an echinoid.

*113. *Periclimenes calcaratus*, new species

FIGURE 21

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum (Figure 21*a*) not overreaching antennal scale, slender, directed slightly anteroventrad from horizontal, rostral formula 0 + 5/1, posteriormost tooth not isolated from remainder of dorsal rostral series; carapace without supraorbital or postorbital spine, hepatic spine larger than antennal spine, arising immediately posteroventral to latter, extending beyond anterior margin of carapace, orbital angle slightly subovate; abdomen (Figure 21*c*) without compressed dorsal prominence on 3rd somite, 6th somite about $1^1/_3$ times as long as 5th; telson (Figure 21*d*) with 2 pairs of lateral spines anterior to posterior margin, both pairs arising in posterior $^1/_2$ of length; eye with cornea hemispherical, not produced distally; antennular peduncle (Figure 21*e*) with 1

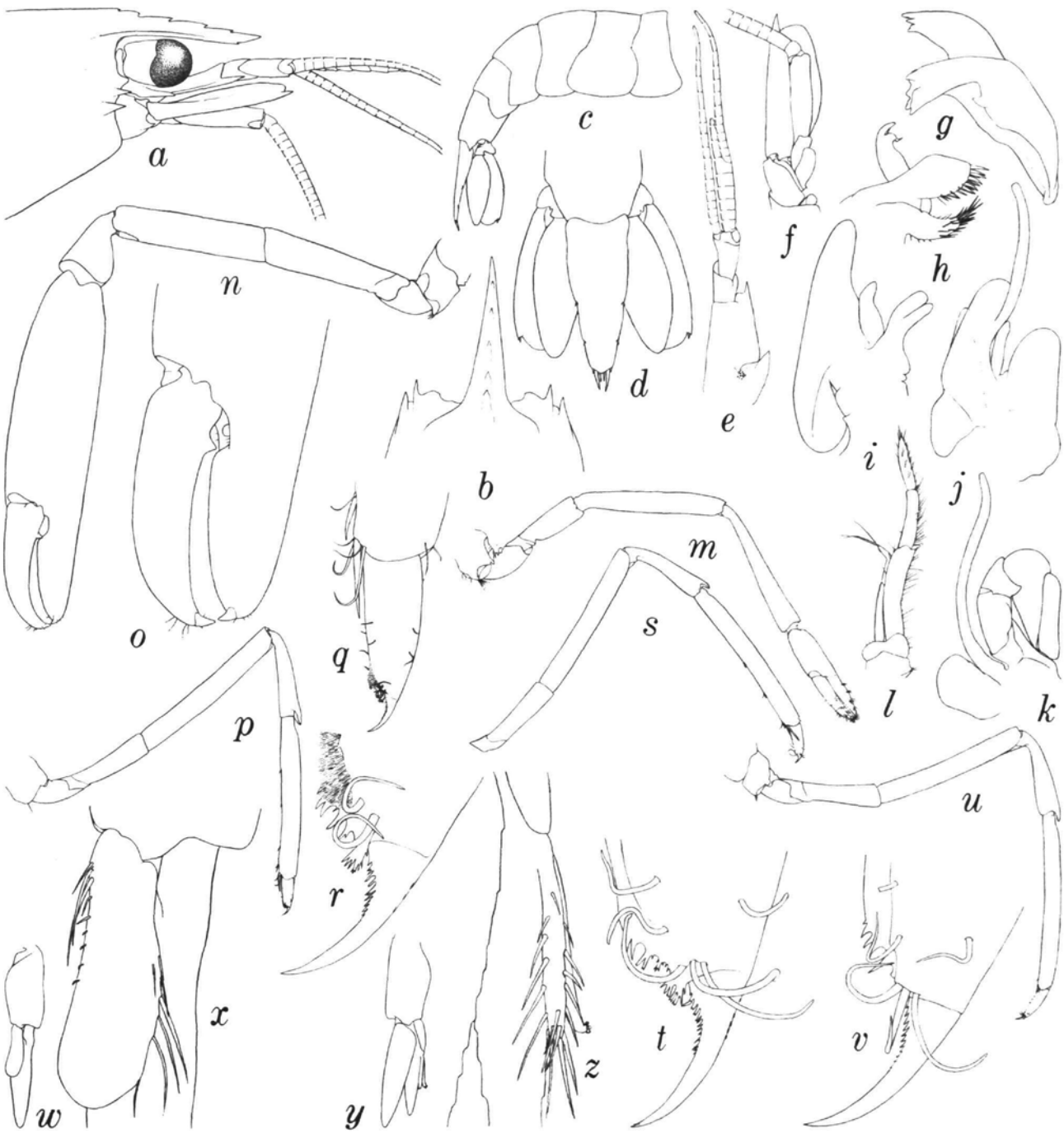

FIGURE 21.—*Periclimenes calcaratus*, new species, male holotype from *Albatross* sta 5453 (Albay Gulf), carapace length 4.2 mm: *a*, anterior carapace and appendages, lateral aspect; *b*, anterior carapace, dorsal aspect; *c*, abdomen, lateral aspect; *d*, tail fan; *e*, right antennule, dorsal aspect; *f*, right antenna, ventral aspect; *g*, right mandible; *h*, right 1st maxilla; *i*, right 2nd maxilla; *j*, right 1st maxilliped; *k*, right 2nd maxilliped; *l*, right 3rd maxilliped; *m*, right 1st pereopod; *n*, left 2nd pereopod; *o*, same, fingers; *p*, right 3rd pereopod; *q*, same, dactyl; *r*, same, distal portion; *s*, 5th pereopod; *t*, same, distal portion of dactyl; *u*, right 5th pereopod; *v*, same, distal portion of dactyl; *w*, right 1st pleopod; *x*, same, endopod; *y*, right 2nd pleopod; *z*, same, appendix masculina and appendix interna.

distolateral spine on basal segment; antennal scale (Figure 21*f*) nearly $2^2/_3$ times as long as wide. lateral margin nearly straight, distolateral tooth distinctly overreaching distal margin of blade; 1st pereopod (Figure 21*m*) overreaching antennal scale by length of chela and about $^1/_3$ of carpus, fingers not pectinate on opposable margins; 2nd pereopod (Figure 21*n*) overreaching antennal scale by length of chela and about $^1/_2$ of carpus, fingers (Figure 21*o*) about $^3/_5$ as long as palm, carpus about $^1/_3$ as long as palm, about $1^1/_5$ times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod (Figure 21*p*) overreaching antennal scale by length of dactyl and about $^4/_5$ of propodus, dactyl (Figure 21*r*) clearly truncate subdistally, with denticulate lobe on flexor margin, not conventionally biunguiculate, flexor margin slightly convex, propodus with few small, indistinct spinules on flexor margin, not segmented; 5th pereopod (Figure 21*u*) overreaching antennal scale by length of dactyl and about $^1/_4$ of propodus; uropod not overreaching extended telson (Figure 21*d*); postorbital carapace length 4.2 mm.

MATERIAL.—PHILIPPINES. Albay Gulf, east of southern Luzon: sta 5453; 13°12′N, 123°49′18″E; [267 m]; 7 Jun 1909 (0944–1004); 12′ Agassiz beam trawl: 1 male holotype [4.2], USNM 252659.

TYPE LOCALITY.—Same as above.

RANGE.—Known only from the unique male holotype from Albay Gulf, Philippines, [267 meters].

REMARKS.—The specimen on which this species is based was originally identified as *P. hertwigi*. It may still prove to fall within the range of variation of that species, but it fails to agree exactly with the descriptions of Balss (1914b:49, figs. 28–30) and Holthuis (1952c:43, figs. 11, 12) and the description of *P. gracilirostris* by Kubo (1940b:41, figs. 8–10). The rostrum bears only five dorsal and one ventral teeth, and none of the dorsal teeth is situated on the carapace posterior to the orbital margin; to be sure, this dentition agrees with Balss's description, but his illustrations show six dorsal and two ventral teeth, as in the females described by Kubo and Holthuis. (Is it possible that this is a sexual character and that Balss described the condition in the only male of the five specimens of *P. hertwigi* recorded thus far?) The sixth abdominal somite is considerably less than one and one-half times as long as the fifth, whereas it is described by Holthuis as "slightly less than twice as long as the fifth" and illustrated by Kubo as about twice as long. The distal margin of the distolateral lobe mesial to the distolateral spine of the basal antennular segment is transverse, rather than sloping posteromesially (see illustrations of Balss and Kubo). The antennal scale has the distolateral spine reaching far beyond the distal margin of the blade, rather than reaching "to or slightly beyond the lamella," as described by Holthuis and figured by Balss. The second pereopod has a socket surrounding a peg-like tooth at the base of the fixed finger, rather than two teeth in this position as described by both Holthuis and Kubo. The dentition near the distal end of the flexor margin of the dactyl of the three posterior pairs of pereopods seems to be more complex than the "shallow lobes" mentioned and illustrated by Holthuis, but the exact form of this margin is difficult to determine, even at high magnification, as noted by Holthuis. Perhaps of major significance is the fact that the uropods fall distinctly short of the posterior end of the telson, whereas they are described as overreaching the telson in all three of the descriptions of *P. hertwigi*. Unfortunately, the sternum of the unique specimen of this species was destroyed by dissection, thereby denying determination of the armature of the fourth sternite.

A male specimen reported from New Caledonia (Bruce, 1990a:151, fig. 2b) has a rostral dentition of 4/1 and closely resembles the present specimen of *P. calcaratus*, but the associated female has a dentition of 5/1, with minute subterminal denticles both dorsally and ventrally. Details of the ambulatory dactyls were not noted. It is possible that these specimens may also belong to *P. calcaratus*.

ETYMOLOGY.—The name is from the Latin *calcar* (spur) and was suggested by the peculiar dentition on the dactyls of the third and fourth pereopods.

114. *Periclimenes ceratophthalmus* Borradaile, 1915

Periclimenes (Corniger) ceratophthalmus Borradaile, 1915:211 [type locality: Hulule, Malé Atoll, Maldive Islands; on crinoid]; 1917:324, 365, pl. 54: fig. 9.

Periclimenes (Periclimenes) ceratophthalmus.—Holthuis, 1952c:56, fig. 20.

Periclimenes ceratophthalmus.—Bruce, 1983c:880, figs. 4A–D, 5, 6A–C, 7F.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, horizontal, rostral formula 0 + 4/0, posteriormost tooth not isolated from remainder of rostral series, situated slightly posterior to mid-length of rostrum, proper, lateral carina expanded posteriorly into dentate supraorbital eave; carapace with supraorbital tooth, hepatic spine not much larger than antennal spine, arising almost directly posterior to latter, orbital angle convex, not ovate; eye with cornea distinctly ogival, antennular peduncle with 1 distolateral spine on basal segment; antennal scale with distolateral tooth not reaching level of distal margin of blade (overreaching blade in Borradaile's illustration); 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of fingers; 2nd pereopod with fingers about $^2/_3$ length of palm, carpus and merus unarmed; uropod considerably overreaching extended telson; carapace length little more than 3 mm.

RANGE.—See "Remarks."

REMARKS.—As noted by Bruce (1983c:880), material that has been assigned to this species displays unusual variation in the form of the rostrum, the distolateral spines on the telson, the presence or absence of epistomal "horns," the degree of corneal extension of the eyes, the form of the incisor process of the mandible, and the range in form of the dactyl of the posterior pereopods from simple to strongly biunguiculate. It is very possible that *P. ceratophthalmus* consists of at least two species, possibly associated with different crinoid host genera.

However, the recent revision of crinoid host generic and specific names has complicated the problem. Borradaile's inadequate description and crude illustrations of the shrimp have not been helpful, nor has the examination of his type material.

RANGE.—Kenya, Zanzibar, Seychelle and Maldive islands, Indonesia, Great Barrier Reef of Australia, and Solomon and Caroline islands.

115. *Periclimenes commensalis* Borradaile, 1915

Periclimenes (Cristiger) commensalis Borradaile, 1915:211 [type locality: Murray Island, Torres Strait; on comatulid crinoids].
Periclimenes (Periclimenes) commensalis.—Holthuis, 1952c:53, figs. 18, 19.
Periclimenes commensalis Bruce, 1983c:883, fig. 4E.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, palaemonoid, directed slightly anteroventrad, rostral formula 0 + 5-7/1-2, posteriormost tooth not isolated from remainder of dorsal rostral series; carapace with supraorbital spine, usually arising from supraorbital eave, hepatic spine slightly larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle subovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite nearly $1^1/_2$ times as long as 5th; telson with 2 pairs of minute dorsolateral spines, both pairs arising in posterior $^1/_2$ of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 2 distolateral spines on basal segment; antennal scale fully 3 times as long as wide, lateral margin nearly straight, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by about length of fingers, latter not pectinate on opposable margins; 2nd pereopod with fingers about as long as palm, finely serrate on distal parts of opposable margins, carpus fully $^1/_3$ as long as palm, about as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin somewhat sinuous, propodus with few spines on flexor margin, not segmented; 5th pereopod not overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 4 mm.

RANGE.—Western Indian Ocean to Ryukyu Islands, Hong Kong, Indonesia, Australia, New Caledonia, and Caroline, Marshall, Solomon, and Fiji islands; associated with comatulid crinoids.

116. *Periclimenes consobrinus* (De Man, 1902)

Harpilius consobrinus De Man, 1902:836, pl. 26: fig. 54 [type locality: Ternate, Indonesia].
Periclimenes consobrinus.—Bruce, 1972f:411, fig. 1B [left drawing]; 1975f:27, fig. 16 [color].—Holthuis, 1981:796, fig. 3i-l.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum barely overreaching antennal scale, palaemonoid, nearly horizontal, slightly sinuous, rostral formula 1 + 6-7/1-2, posteriormost tooth not isolated from remainder of dorsal rostral series, situated in line with or anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle bluntly acute, not ovate; abdomen without compressed dorsal prominence on 3rd somite; telson with 2 pairs of distolateral spines anterior to posterior margin, anterior pair arising at or slightly posterior to mid-length, eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about $3^1/_3$ times as long as wide, lateral margin somewhat sinuous, distolateral tooth distinctly overreaching distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod overreaching antennal scale by nearly length of chela, fingers not pectinate on opposable margins; 2nd pereopod with fingers fully $^2/_3$ as long as palm, carpus less than $^1/_2$ as long as palm, about $1^1/_3$ times as long as distal width, without distal spines, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin sinuous, deeply concave in distal $^3/_4$, propodus without spinules on flexor margin, not segmented; maximum postorbital carapace length 4.6 mm.

RANGE.—Western Indian Ocean, Thailand, Indonesia, and Great Barrier Reef of Australia; associated with scleractinian corals of genus *Pocillopora*.

REMARKS.—The most reliable means of distinguishing *P. consobrinus* from the much more common *P. lutescens* relates to the form of the second maxilliped illustrated by Bruce (1972f, fig. 1). Of similar importance is the presence of a postorbital ridge in *P. consobrinus* and its absence in *P. lutescens*. Whether or not the relative positions of the posteriormost tooth of the dorsal rostral series and the hepatic spine, used in the key offered above, are equally reliable remains to be determined.

117. *Periclimenes coriolis* Bruce, 1985

Periclimenes coriolis Bruce, 1985b:234, figs. 4-7 [type locality: southwest of Manila Bay, Luzon, Philippines; 11°01.0'N, 120°17.1'E to 13°59.9'N, 120°17.5'E; 186-184 m].

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, rather slender, directed slightly anteroventrad, rostral formula 1 + 7/2, posteriormost tooth not isolated from remainder of rostral series, situated slightly anterior to level of hepatic spine; carapace without supraorbital spine, hepatic spine not noticeably larger than antennal spine, arising slightly posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle produced but not ovate; abdomen

without compressed dorsal prominence on 3rd somite, 6th somite about 1 2/5 times as long as 5th; telson with 2 dorsolateral spines anterior to posterior margin, both pairs arising in posterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 2 1/2 times as long as wide, lateral margin slightly convex, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite unarmed; 1st pereopod overreaching antennal scale by length of chela and part of carpus, fingers not pectinate on opposable margins; 2nd pereopod with fingers fully 2/3 as long as palm, carpus about 1/2 as long as palm, about 2 1/2 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not exactly subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin sinuous, propodus with few spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; uropods slightly overreaching extended telson; postorbital carapace length 5.2 mm.

RANGE.—Known only from the unique female holotype found in 185 meters southwest of Manila Bay, Philippines.

118. *Periclimenes cristimanus* Bruce, 1965

Periclimenes cristimanus Bruce, 1965:487, figs. 1, 2 [type locality: Pulau Sudong, near Pulau Salu, Singapore; 1°12.7'N, 103°43.65'E; associated with echinoid]; 1982e:243, fig. 6.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, lanceolate, horizontal, rostral formula 0 + 4-5/0, posteriormost tooth not isolated from remainder of rostral series, situated considerably anterior to level of posterior orbital margin, lateral carina expanded posteriorly into supraorbital eave and spine; carapace with supraorbital tooth, hepatic spine stronger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle not produced; telson with 2 pairs of dorsolateral spines, both pairs arising in posterior 1/2 of length; eye with cornea hemispherical, not ogival; antennular peduncle with 2 or 3 distolateral spines on basal segment; antennal scale about 3 times as long as wide, lateral margin straight, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod with fingers not pectinate on opposable margins, strongly carinate on extensor margins; 2nd pereopod with fingers 2/5 as long as palm, carpus about 2/5 as long as palm, about as wide as long, without distal spines, merus with lobe but no distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin obscurely sinuous, propodus with spinules on flexor margin, not segmented; uropod overreaching extended telson; maximum postorbital carapace length 3 mm.

RANGE.—Singapore, Malaysia, Hong Kong, Great Barrier Reef of Australia, and Marshall Islands; associated with echinoids.

*119. *Periclimenes dentidactylus* Bruce, 1984

FIGURE 22

Periclimenes dentidactylus Bruce, 1984a:7, figs. 1-6 [type locality: Makassar Strait southwest of Tandjung Mangkalihat, Borneo; 0°31.4'N, 117°50.1'E; 592-595 meters].

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum overreaching antennal scale, slenderly palaemonoid, nearly horizontal, dorsally slightly concave, rostral formula 1 + 6/3, posteriormost tooth not isolated from remainder of dorsal rostral series, situated in line with or anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine larger than antennal spine, arising posteroventral to latter, extending distinctly beyond anterior margin of carapace, orbital angle subacutely produced, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 3/5 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising in anterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 strong distolateral spine on basal segment; antennal scale about 3 times as long as wide, lateral margin straight, distolateral tooth overreaching blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of chela, fingers not pectinate on opposable margins; 2nd pereopod with fingers 1/2-3/4 as long as palm, carpus 1/3-2/5 as long as palm, about 1 1/3 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl subdistally truncate, with denticulate lobe on flexor margin, complexly biunguiculate, flexor margin nearly straight, propodus with few small spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; uropod reaching to about level of end of extended telson; maximum postorbital carapace length 8 mm.

MATERIAL.—PHILIPPINES. Iligan Bay, northern Mindanao: sta 5515; 8°34'48"N, 124°01'24"E; about 1280 m (no sounding); 8 Aug 1909 (1042-1110); 12' Tanner beam trawl: 1 ovig female [8.1].

RANGE.—Philippines and Indonesia; 592 to about 1280 m.

REMARKS.—The *Albatross* specimen of *P. dentidactylus* belonged to an undescribed species when it was first examined. The illustrations prepared at that time are reproduced here, not so much to show differences between this ovigerous female and the male holotype as to emphasize the similarities between the type specimen and one of the opposite sex taken at possibly more than twice the depth and more than 1000 km to the north.

120. *Periclimenes digitalis* Kemp, 1922

Periclimenes (Ancylocaris) digitalis Kemp, 1922:224, fig. 65, pl. 8: fig. 12 [type locality: off "Viper Island," Port Blair, Andaman Islands; 5 1/2-9 meters].

Periclimenes digitalis.—Bruce, 1982e:240, figs. 4, 5.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum typically slightly overreach-

FIGURE 22.—*Periclimenes dentidactylus*, ovigerous female from *Albatross* sta 5515 (Iligan Bay), carapace length 8.1 mm: *a*, entire shrimp in lateral view; *b*, anterior carapace, lateral aspect; *c*, same, dorsal aspect; *d*, sternum and bases of pereopods; *e*, tail fan; *f*, right antennule, dorsal aspect; *g*, right antenna, ventral aspect; *h*, right mandible; *i*, right 1st maxilla; *j*, right 2nd maxilla; *k*, right 1st maxilliped; *l*, right 2nd maxilliped; *m*, right 3rd maxilliped; *n*, right 1st pereopod; *o*, same, chela; *p*, right 2nd pereopod; *q*, same, fingers; *r*, right 3rd pereopod; *s*, same, dactyl; *t*, same, distal portion; *u*, right 4th pereopod; *v*, same, dactyl; *w*, same, distal portion; *x*, left 5th pereopod; *y*, same, dactyl, *z*, same, distal portion.↑

ing antennal scale, sometimes shorter, palaemonoid, dorsally horizontal, rostral formula 2 + 6–9/1–2, posteriormost tooth slightly isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace with or without tubercular vestige of supraorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising in anterior 1/2 of length; eye with cornea hemispherical, not ogival; antennular peduncle with 1 distolateral spine on basal segment; antennal scale fully 3 times as long as wide, lateral margin straight or faintly concave, distolateral tooth overreaching distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of chela and fully 1/2 of carpus, fingers not pectinate on opposable margins; 2nd pereopod with fingers 2/3–3/4 as long as palm, carpus slightly longer than palm, nearly 9 times as long as distal width, without distal spines, merus with small, acute distal tooth on flexor margin; 3rd pereopod with dactyl long and slender, not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin regularly concave, propodus without spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale by length of dactyl and more than 1/2 of propodus; maximum postorbital carapace length fully 4 mm.

RANGE.—Zanzibar ? (Bruce, 1982e:243); Andaman Islands, Hong Kong?, and Flores Sea, Indonesia.

REMARKS.—The systematic status of this apparently uncommon species is uncertain because of the presence of a two-segmented mandibular palp in the specimens recorded by Bruce (1982e:243) from Zanzibar and Hong Kong.

121. *Periclimenes diversipes* Kemp, 1922

Periclimenes (Ancylocaris) diversipes Kemp, 1922:179, figs. 36–39 [part; type locality: Kilakarai, Gulf of Mannar, southern India; low tide, among corals of genus *Montipora*].
Periclimenes diversipes.—Bruce, 1979f:221.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not reaching level of distal end of antennal scale, palaemonoid, directed slightly anteroventrad, except more anteriad apically, rostral formula 1 + 4–6/0–2, posteriormost tooth not isolated from remainder of dorsal rostral series, situated slightly anterior to level of hepatic spine; carapace without supraorbital spine, hepatic spine no larger than antennal spine, arising directly posterior to latter, not extending beyond anterior margin of carapace, orbital angle bluntly triangular, not ovate; abdomen with 6th somite about 1 3/4 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising slightly posterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale 2 1/2–2 3/4 times as long as wide, lateral margin nearly straight, distolateral tooth not nearly reaching level of distal margin of blade: 4th thoracic sternite without slender median process; 1st pereopod reaching about to level of distal end of antennal scale, fingers minutely pectinate, visible only under high magnification; 2nd pereopods markedly unequal, dissimilar, fingers varying from 1/2 to more than twice as long as palm, major chela with fixed finger distally bidentate, carpus from less than 1/4 as long to longer than palm, from little longer than wide to more than 2 1/2 times as long, unarmed, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus without distinct spines on flexor margin, not segmented; maximum postorbital carapace length less than 2 1/2 mm.

RANGE.—Red Sea and Madagascar to Singapore and Gulf of Thailand, to Great Barrier Reef of Australia and Coral Sea; associated wiith scleractinian corals.

*122. *Periclimenes elegans* (Paulson, 1875)

Anch[istia] elegans Paulson, 1875:113, pl. 17: fig. 1 [type locality: Red Sea].
Periclimenes (Falciger) dubius Borradaile, 1915:211 [type locality: Minicoy, Laccadive Islands].
Periclimenes (Ancylocaris) elegans.—Kemp, 1922:215, figs. 60–62.
Periclimenes (Harpilius) elegans.—Holthuis, 1952c:81, fig. 31.
Periclimenes elegans.—Bruce, 1983c:884.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum reaching to or beyond level of distal end of antennal scale, palaemonoid, directed slightly anterodorsad anteriorly, rostral formula 1–2 + 5–6/3–6, posteriormost tooth somewhat isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace with supraorbital spine, hepatic spine not noticeably larger than antennal spine, arising slightly posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle convex, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising on anterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale 4 1/2–5 1/2 times as long as wide, lateral margin concave, distolateral tooth distinctly overreaching distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod overreaching antennal scale by about 1/2 length of chela, fingers not pectinate on opposable margins; 2nd pereopod with fingers 2/5–1/2 as long as palm, carpus subequal to palm in length, 4–4 1/2 times as long as distal width, with 2 distal spines, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin slightly concave, propodus with spinules on flexor

margin, not segmented; 5th pereopod not nearly reaching distal end of antennal scale; uropod not reaching level of distal end of extended telson; maximum postorbital carapace length more than 4 mm.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago: sta 5141; 6°09′N, 120°58′E; 53 m; coral sand; 15 Feb 1908 (0847–0905); 12′ Agassiz beam trawl, mud bag: 3 males [2.8–4.1] 9 females [2.7–4.0].—Near Siasi, Sulu Archipelago: sta 5147; 5°41′40″N, 120°47′10″E; 38 m; coral sand, shells; 16 Feb 1908 (1127–1147); 12′ Agassiz beam trawl, mud bag: 3 ovig females [2.0–3.3].

RANGE.—Red Sea and western Indian Ocean to Hong Kong, Philippines, Great Barrier Reef of Australia, and Marshall Islands.

REMARKS.—Until the limits of variation of *P. ensifrons* are better known, the possibility that *P. elegans* is a junior synonym of that species, perhaps with regenerated second pereopods, must be considered (See Bruce, 1971:6 and 1984b:145).

123. *Periclimenes ensifrons* (Dana, 1852)

Anchistia ensifrons Dana, 1852a:25 [type locality: Balabac Strait, North Borneo]; 1855, pl. 38: fig. 1a–g.

Periclimenes ensifrons.—Bruce, 1971f:5; 1984b:145.—Devaney and Bruce, 1987:230.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum reaching about to level of distal end of antennal scale, palaemonoid, curving anterodorsad, rostral formula 1–2 + 5–6/2–3, posteriormost tooth not much isolated from remainder of dorsal rostral series, situated about in line with hepatic spine; carapace with supraorbital spine, hepatic smaller than antennal spine, arising almost directly posterior to latter, not extending beyond anterior margin of carapace, orbital angle not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite not much longer than 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, posterior pair arising only slightly posterior to midlength; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale fully $5^1/_2$ times as long as wide, lateral margin concave, distolateral tooth extending far beyond distal margin of blade; 4th thoracic sternite probably with slender median process; 1st pereopod overreaching antennal scale; 2nd pereopod with fingers about $^3/_4$ as long as palm, carpus nearly as long as palm, nearly 5 times as long as distal width, without distal spines, merus with small distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin regularly concave, propodus with spinules on flexor margin, not segmented; 5th pereopod reaching about to distal end of antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 3 mm.

RANGE.—Red Sea, Comoro Islands and Aldabra, western Indian Ocean; off northern Burma; Marshall Islands; possibly Tuamotu Archipelago.

REMARKS.—The limits of variability and, therefore, the synonymy of *P. ensifrons* may require the study of more extensive collections.

124. *Periclimenes foresti* Bruce, 1981

Periclimenes foresti Bruce, 1981c:201, figs. 10, 11, 17c [type locality: southwest of Manila Bay, Luzon, Philippines; 14°00.0′N, 120°18.0′E—14°01.7′N, 120°20.2′E; 189–209 meters]; 1985b:232, figs. 2, 3.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum rather slender, directed anteroventrad, rostral formula 1–2 + 6–8/1–2, posteriormost tooth distinctly isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine larger than antennal spine, arising nearly in horizontal line with latter, not extending beyond anterior margin of carapace, orbital angle triangularly produced but not ovate; eye with cornea small, hemispherical, not produced distally, antennular peduncle with 1 distolateral spine on basal segment; antennal scale about $2^1/_2$ times as long as wide, lateral margin convex at least proximally, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of chela; fingers not pectinate on opposable margins; 2nd pereopods distinctly unequal, fingers nearly $^2/_3$ as long as palm, carpus about $^1/_4$ as long as palm, little longer than distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl rather abruptly constricted but not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin slightly sinuous, propodus with few indistinct spinules on flexor margin, not segmented; maximum postorbital carapace length 12 mm.

RANGE.—Both recorded specimens of *P. foresti* were collected from the same general area southwest of Manila Bay, Philippines, in 136–209 m.

125. *Periclimenes foveolatus* Bruce, 1981

Periclimenes foveolatus Bruce, 1981c:196, figs. 6–9, 17a,b, 18b,e [type locality: southwest of Manila Bay, Philippines; 14°01.0′N, 120°15.8′E—13°59.2′N, 120°18.8′E; 191–188 meters].

DIAGNOSIS.—Integument pitted on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, slenderly palaemonoid, directed anteroventrad to variable degree, rostral formula 0–1 + 7–9/3–6, posteriormost tooth not isolated from remainder of dorsal rostral series, situated anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine larger than antennal spine, arising somewhat posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle ovate in

male; abdomen without compressed dorsal prominence on 3rd somite, 6th somite 1 2/3 times as long as 5th; telson with 2 pairs of small dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment, antennal scale about 2 2/3 times as long as wide, lateral margin convex, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by at least length of chela, fingers not pectinate on opposable margins; 2nd pereopods slightly unequal, similar, fingers more or less than 1/2 as long as palm, carpus about 1/3 as long as palm, about 1 2/3 as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl devoid of denticulate lobe on flexor margin, but biunguiculate with minute accessory tooth on faintly sinuous flexor margin, propodus with few small spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length 9 1/2 mm.

RANGE.—Known only from the type series from southwest of Manila Bay, Philippines; 187–195 m.

126. *Periclimenes galene* Holthuis, 1952

Periclimenes (Harpilius) galene Holthuis, 1952c:11, 62, fig. 24 [type locality: Ambon and "islet near Menado," Indonesia].

Periclimenes galene.—Bruce, 1976d:12, figs. 3, 4; 1983d:207.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, tapering to slender apex, horizontal, rostral formula 0–1 + 4–7/0, epigastric tooth, if present, movable, isolated from remainder of rostral series, situated in vertical line with hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine fully as large as antennal spine, arising directly posterior or slightly posterodorsad to latter, not extending beyond anterior margin of carapace, orbital angle bluntly lobate, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite fully twice as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising slightly anterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 3 3/4 times as long as wide, lateral margin faintly concave, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod not reaching distal end of antennal scale, fingers distally expanded, not pectinate on opposable margins; 2nd pereopod with fingers 1/2 as long as palm, carpus 1 3/4 times as long as palm, 6 1/4 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod prehensile, dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin regularly concave, propodus expanded subdistally, with strong spines on distal flexor margin, not segmented; uropod overreaching extended telson; maximum postorbital carapace length fully 3 mm.

RANGE.—Eastern Africa, Indonesia, and Great Barrier Reef of Australia; associated with hydroids.

127. *Periclimenes gracilis* (Dana, 1852)?

Anchistia gracilis Dana, 1952a:25; [type locality: Sulu Sea]; 1952b:578; 1955, pl. 37: fig. 5.—Bruce and Svoboda, 1984:97.—Bruce, 1989b:180, fig. 4B.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, palaemonoid, horizontal, rostral formula 0 + 5–6/1, posteriormost tooth not isolated from remainder of dorsal rostral series, situated anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine arising posteroventral to antennal spine, not extending beyond anterior margin of carapace; abdomen without compressed dorsal prominence on 3rd somite; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale with distolateral tooth not nearly reaching level of distal margin of blade; 1st pereopod overreaching antennal scale; 2nd pereopod with fingers about 1/2 as long as palm, carpus about 1/3 as long as palm, about 1 1/5 times as long as distal width, with 2 distal spines, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate (?), flexor margin somewhat sinuous, propodus with spinules on flexor margin, not segmented; postorbital carapace length about 3 1/2 mm.

RANGE.—Known with certainty only from the type locality in the Sulu Sea.

REMARKS.—This species has not been satisfactorily identified with any current pontoniine concept. It is very possible, as suggested by Bruce and Svoboda (1984:97) and by Bruce (1989b:180), that *Anchistia gracilis* Dana, 1852 (= *Periclimenes gracilis*), is a senior synonym of *Harpilius depressus* Stimpson, 1860 (= *Harpiliopsis depressa*). As illustrated by Dana, the former species differs from the latter in having only one tooth, rather than two or three, on the unusual contour of the ventral margin of the rostrum, and apparently in having the dactyl of the third pereopod biunguiculate, rather than simple with double, stout, subdistal setae. In support of that conclusion is the not unusual dentition of the incisor process of the mandible described and illustrated by Dana (1852b:578 and 1855, pl. 37: fig. *5d*) (see illustration of mandible of *H. depressa* in Holthuis, 1952c, fig. 90*a*).

128. *Periclimenes grandis* (Stimpson, 1860)

Anchistia grandis Stimpson, 1860:39 [type locality: Amami O Shima, Ryukyu Islands].

Periclimenes vitiensis Borradaile, 1898:383 [type locality: Viti Levu, Fiji Islands].—Bruce, 1978f:266, fig. 9.

Periclimenes (Ancylocaris) grandis.—Kemp, 1922:210, figs. 58, 59, pl. 7: fig.

10.

Periclimenes grandis.—Bruce, 1975f:23, fig. 1 [color]; 1976d:6, fig. 2; 1978a:217.—Devaney and Bruce, 1987:230.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum reaching to slightly beyond level of distal end of antennal scale, palaemonoid, curving slightly anterodorsad, rostral formula 1–2 + 6–8/2–5, posteriormost tooth not widely separated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace with supraorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle triangular, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising in anterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 4 times as long as wide, lateral margin concave, distolateral tooth distinctly overreaching distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod overreaching antennal scale by length of fingers, latter not pectinate on opposable margins; 2nd pereopod with fingers 1/2 to 4/5 as long as palm, carpus 3/5–9/10 as long as palm, 4 to more than 5 times as long as distal width, with 1 distal spine, merus with distinct distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus with few spinules on flexor margin, not segmented; 5th pereopod not overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length nearly 4 1/2 mm.

RANGE.—Red Sea to Mozambique, eastward to Ryukyu Islands, Kyushu, Indonesia, Great Barrier Reef of Australia, Marshall Islands, and Tuvalu.

REMARKS.—Like *P. elegans*, this species may eventually prove to be a junior synonym of *P. ensiferus*.

129. *Periclimenes hertwigi* Balss, 1913

Periclimenes hertwigi Balss, 1913:235 [type locality: Sagami Nada, Japan; 120 meters, on echinoid].—Bruce, 1983d:208; 1990a:151, figs. 1, 2, 39c.

Periclimenes Hertwigi.—Balss, 1914b:49, figs. 28–30.

Periclimenes (Ancylocaris) gracilirostris Kubo, 1940b:41, figs. 8–10 [type locality: Kumano Nada off Mie Prefecture, Japan; about 310 meters].

Periclimenes (Periclimenes) hertwigi.—Holthuis, 1952c:43, figs. 11, 12.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum reaching to or slightly beyond level of distal end of antennal scale, slender, directed very slightly anteroventrad, rostral formula 1 + 5/2, posteriormost tooth not isolated from remainder of dorsal rostral series, situated anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine larger than antennal spine, arising just posteroventral to latter, extending beyond anterior margin of carapace, orbital angle blunt, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite slightly less than twice as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 2 3/5 times as long as wide, lateral margin nearly straight, distolateral tooth reaching to or slightly beyond level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by entire lengths of chela and carpus, fingers not pectinate on opposable margins except for minor serrations near tips; 2nd pereopod with fingers about 1/2 as long as palm, carpus about 1/3 as long as palm, slightly longer than distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl subdistally truncate, with denticulate lobe on flexor margin, not truly biunguiculate, flexor margin moderately convex, propodus with few obscure spinules on flexor margin, not subdivided; 5th pereopod overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 7 mm.

RANGE.—Japan, East China Sea, Indonesia, Queensland, Australia, and New Caledonia; 120–600 meters, associated with echinoids.

*130. *Periclimenes holthuisi* Bruce, 1969

Urocaris longicaudata.—Pearson, 1905:78, pl. 1: fig. 5 [not *Urocaris longicaudatus* Stimpson, 1860].

Periclimenes (Periclimenes) aesopius.—Holthuis, 1952c:34, figs. 5, 6 [not *Anchistia aesopia* Bate, 1863].

Periclimenes holthuisi Bruce, 1969b:258 [type locality: "Lung Ha Wan," N.T., Hong Kong; 22°18.5'N, 114°18.2'E; 4 meters, associated with sea anemones].—Bruce and Svoboda, 1983:10, fig. 3; 1984:94.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, slender, generally horizontal but arched dorsally and anteriorly directed anteroventrad, rostral formula 1–2 + 7–9/1–2, posteriormost tooth not distinctly isolated from remainder of dorsal rostral series, situated anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine somewhat stronger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle acutely subovate; abdomen with compressed dorsal prominence on 3rd somite, 6th somite twice as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, both pairs arising in posterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 small distolateral spine on basal segment; antennal scale about 2 4/5 as long as wide, lateral margin nearly straight, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by fully length of fingers, latter not pectinate on opposable margins; 2nd pereopods equal, similar, with fingers

nearly or quite as long as palm, carpus also about as long as palm, about 3 1/2 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin variably sinuous, propodus with few spinules on flexor margin, not segmented; 5th pereopod not reaching far beyond end of antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 3 1/4 mm.

MATERIAL.—PHILIPPINES. Sulu Sea, northeast of Dumaran Island: sta 5423; 10°37′50″N, 120°12′E; 93 m; sand; 8 Apr 1909 (1534–1554); 6′ McCormick-Blake beam trawl: 1 ovig female [6.0].

RANGE.—Red Sea and eastern Africa to Maldive Islands, Sri Lanka, South China Sea, Hong Kong, Japan (?), Philippines, Indonesia, New Guinea, Australia, Lord Howe Island, New Caledonia, Palau, and Marshall Islands; 34–45 m, associated with sea anemones, corals, and medusae.

*131. *Periclimenes incertus* Borradaile, 1915

Periclimenes (Cristiger) incertus Borradaile, 1915:210 [type locality: Maldive Islands]; 1917:364, pl. 53: fig. 7.

Periclimenes (Periclimenes) impar Kemp, 1922:140,147, figs. 16, 17, pl. 3: fig. 1 [type locality: Port Blair, Andaman Islands; 9 meters, on pinkish sponge].

Periclimenes (Periclimenes) incertus.—Holthuis, 1959:193.

Periclimenes incertus.—Bruce, 1980a:10, fig. 5.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, palaemonoid, nearly horizontal, rostral formula 1–2 + 7–8/1–2, posteriormost tooth usually somewhat isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 2/3 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length: eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 3 1/5 times as long as wide, lateral margin slightly concave, distolateral tooth not quite reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod reaching about to distal end of antennal scale, fingers not pectinate on opposable margins; 2nd pereopod with fingers about 2/3 as long as palm, carpus about 1/2 as long as palm, about 2 1/3 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin concave, propodus with spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 4 mm.

MATERIAL.—PHILIPPINES. Marungas Island (south side), Sulu Archipelago; [6°06′N, 120°58′E]; 1 1/4–2 1/2 mm; scattered coral and sand; 10 Feb 1908 (1330–1500); diving, coral heads taken shore: 1 male [2.1].—Off Jolo Island, Sulu Archipelago: sta 5139; 6°06′N, 121°02′30″E; 37 m; coral sand; 14 Feb 1908 (1313–1317); 12′ Agassiz beam trawl, mud bag: 1 female [1.7]; sta 5141; 6°09′N, 120°58′E; 53 m; coral sand; 15 Feb 1908 (0847–0905); 12′ Agassiz beam trawl, mud bag: 1 male [1.9]; sta 5145; 6°04′30″N, 120°59′30″E; 42 m; coral sand, shells; 15 Feb 1908 (1344–1359); 12′ Agassiz beam trawl, mud bag: 1 ovig female [2.0].—Near Siasi, Sulu Archipelago: sta 5147; 5°41′40″N, 120°47′10″E; 38 m; coral sand, shells; 16 Feb 1908 (1127–1147); 12′ Agassiz beam trawl, mud bag: 2 males [1.9, 1.9] 1 ovig female [1.9].

RANGE.—Aden to Madagascar, east to Philippines, Indonesia, Australia, and New Caledonia; to a depth of 53 m. (apparently a new depth record), associated with sponges.

132. *Periclimenes indicus* (Kemp, 1915)

Urocaris indica Kemp, 1915:275, fig. 26, pl. 13: fig. 9 [type locality: Chilka Lake, Orissa, India; fresh and brackish water].

Periclimenes (Periclimenes) indicus.—Kemp, 1922:144, fig. 13.—Holthuis, 1952c:39, fig. 8.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, crested above orbit, horizontal, rostral formula 2 + 6–8/1–3, posteriormost tooth isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about twice as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale 3 1/3–3 3/4 times as long as wide, lateral margin straight, distolateral tooth not reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod not overreaching antennal scale; 2nd pereopod with fingers fully as long as palm, carpus slightly more or less than twice as long as palm, fully 5 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin concave, propodus with spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 3 mm.

RANGE.—India, Nicobar Islands, Malaya, Singapore, Indonesia, and Queensland, Australia; to a depth of 55 meters.

133. *Periclimenes inornatus* Kemp, 1922

Periclimenes (Ancylocaris) inornatus Kemp, 1922:191, figs. 43–46 [type locality: Port Blair, Andaman Islands].
Periclimenes aff. *inornatus* Fransen, 1989:136, fig. 2.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum directed anteroventrad not overreaching antennal scale, shallow, ventrally convex, rostral formula 7–8/0–2, posterior tooth not isolated from remainder of dorsal rostral series, situated slightly anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle distinctly produced, subacute, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1.5 times length of 5th; telson with 2 pairs of well-developed dorsal spines, anterior pair at about 0.3 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 small distolateral spine on basal segment; antennal scale about 2.2 times longer than wide, lateral margin feebly convex, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite with transverse ridge with small open median notch; 1st pereopod overreaching antennal scale by fingers of chela, fingers subspatulate, margins pectinate; 2nd pereopod with fingers about $^1/_2$ as long as palm, carpus about $^1/_4$ of palm length, about $1^1/_{10}$ times as long as distal width, without distal spines, merus without tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, flexor margin sinuously concave, propodus without spines, not segmented; 5th pereopod reaching to about $^2/_5$ of scale length; uropod slightly exceeding extended telson; maximum postorbital carapace length more than 4 mm.

RANGE.—Kenya, Zanzibar, Seychelles, Comoro, Maldive and Andaman islands, Ryukyu Islands, Indonesia, South China Sea, Great Barrier Reef, Fiji and Caroline islands.

134. *Periclimenes johnsoni* Bruce, 1987

Periclimenes (Harpilius) calmani.—Johnson, 1962b:59 [not *P. calmani* Tattersall, 1921].
Periclimenes johnsoni Bruce, 1987c:115 [type locality: Pasir Laba, Singapore; 1°21′N, 103°38′E].

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum overreaching antennal scale, palaemonoid, nearly horizontal, rostral formula 1 + 7–9/4–5, posteriormost tooth somewhat isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising slightly posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle convexly triangular, not ovate, abdomen without compressed dorsal prominence on 3rd somite, 6th somite fully $1^2/_3$ times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterioir margin, anterior pair arising anterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 2 distolateral spines on basal segment; antennal scale about $3^1/_2$ times as long as wide, lateral margin nearly straight, distolateral tooth reaching nearly to level of distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopod with fingers subequal to palm in length, carpus $1^1/_4$ times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus with few spinules on flexor margin, not segmented; 5th pereopod not reaching distal margin of antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about $2^1/_2$ mm.

RANGE.—Known only from tidal stream on Singapore.

135. *Periclimenes jugalis* Holthuis, 1952

Periclimenes (Harpilius) jugalis Holthuis, 1952c:11, 67, fig. 26 [type locality: Djedan, Kepulauan Aru, Indonesia; 13 meters].

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, slender, directed slightly anteroventral, rostral formula 1 + 8/2, posteriormost tooth not isolated from remainder of rostral series, situated in line with or anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle not ovate; abdomen with 6th somite nearly twice as long as 5th; telson with 2 pairs of dorsolateral spines, both pairs arising in posterior $^1/_2$ of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale with lateral margin nearly straight, distolateral tooth not reaching level of distal margin of blade; 1st pereopod overreaching antennal scale by length of fingers, latter not pectinate on opposable margins; 2nd pereopod with fingers about $^2/_5$ as long as palm, carpus fully $^2/_3$ as long as palm, about $3^3/_4$ as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin regularly concave, propodus with spinules on flexor margin, not segmented; uropod overreaching extended telson; postorbital carapace length about 4 mm.

RANGE.—Zanzibar and Indonesia.

136. *Periclimenes kempi* Bruce, 1969

Periclimenes (Ancylocaris) diversipes Kemp, 1922:179, figs. 36–39 [part].
Periclimenes kempi Bruce, 1969b:260 [type locality: Hurghada, Red Sea coast of Egypt; 27°14′N, 38°50′E; 1 meter, associated with alcyonarians]; 1979f:224; 1981g:80, fig. 2.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, palaemonoid, nearly horizontal, 0+5-8/0-2, posteriormost tooth not isolated from remainder of dorsal rostral series, situated anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine little longer than antennal spine, arising posteriad and slightly ventrad to latter, not extending beyond anterior margin of carapace, orbital angle acutely produced, not quite subovate; abdomen without distinct compressed dorsal prominence on 3rd somite; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length; eye with cornea hemispherical not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale with distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of fingers, latter pectinate on opposable margins; 2nd pereopod with fingers about 1/2 as long as palm, carpus about 1/3 as long as palm, about 3 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin convex at extreme proximal end of flexor margin, concave distally, propodus with 1 distal spinule on flexor margin, not segmented; uropod distinctly overreaching extended telson; maximum postorbital carapace length about 1 1/2 mm.

RANGE.—Red Sea, Zanzibar, Andaman Islands, Singapore, Australia, and Fiji Islands; associated with alcyonarians.

137. *Periclimenes kororensis* Bruce, 1977

Periclimenes kororensis Bruce, 1977c:33, figs. 1-4 [type locality: Koror, Palau Islands; associated with fungiid coral].—Bruce and Svoboda, 1984:94, figs. 5, 6.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not quite reaching level of end of antennal scale, shallow, directed anterodorsad in anterior 1/2, rostral formula 1-2 + 5-6/3-5, posteriormost tooth not isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine more prominent than antennal spine, arising directly posterior to or somewhat posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle convex, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite 1 4/5 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral tooth on basal segment; antennal scale about 4 3/5 times as long as wide, lateral margin distinctly concave, distolateral tooth not reaching level of distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod overreaching antennal scale by more than length of chela, fingers not pectinate on opposable margins; 2nd pereopods equal and similar, fingers 1/2 as long as palm, carpus about 3/4 as long as palm, 7 1/2 times as long as distal width, with 2 distal spines, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate but slightly constricted at base of unguis, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin faintly sinuous, propodus with single distal spinule on flexor margin, not segmented; uropod overreaching extended telson; maximum postorbital carapace length about 4 1/2 mm.

RANGE.—Cebu, Philippines; Palau Islands; and Queensland, Australia; associated with fungiid corals.

*138. *Periclimenes lanipes* Kemp, 1922

Periclimenes (Periclimenes) lanipes Kemp, 1922:156, pl. 4: fig. 4 [type locality: Mergui Archipelago; 12°48′N, 98°16′10″E; 44 meters].
Periclimenes lanipes.—Bruce, 1971g:11, figs. 3, 4, 5c,d; 1978a:228, fig. 11.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum overreaching antennal scale little if at all, rather shallow, directed distinctly anteroventrad, rostral formula 0 + 7-10/0-1, posteriormost tooth not isolated from remainder of dorsal rostral series, situated anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posterior or posterodoral to latter, not extending beyond anterior margin of carapace, orbital angle triangular, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite little if at all longer than 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale only twice as long as wide, lateral margin convex basally, nearly straight distal thereto, distolateral tooth reaching about to level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by more than length of chela, fingers not pectinate on opposable margins of fingers; 2nd pereopod with fingers less than 1/2 as long as palm, carpus about 1/4 length of palm, about as long as distal width, without distal spines, merus with strong distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, accessory tooth small, flexor margin straight, becoming concave distally, propodus clothed with long, woolly hairs on flexor margin, not segmented, 5th pereopod not reaching distal end of antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 4 1/2 mm.

MATERIAL.—PHILIPPINES. Jolo Island, Sulu Archipelago; [5°58′N, 121°06′E]; shore; 12 Feb 1908: 1 ovig female [3.2].—Near Siasi, Sulu Archipelago: sta 5146; 5°46′40″E, 120°48′50″E; 44 m; coral sand, shells; 16 Feb 1908 (1011-1031); 12′ Agassiz beam trawl, mud bag: 1 male [3.0] 6 ovig females [3.0-4.2]; sta 5147; 5°41′40″N, 120°47′10″E; 38 m;

coral sand, shells; 16 Feb 1908 (1127–1147); 12′ Agassiz beam trawl, mud bag: 2 ovig female [4.1, 4.3].

RANGE.—Somalia to Madagascar, eastward to South China Sea, Philippines, Singapore, Australia, and New Caledonia; associated with basket stars (Euryalida).

139. *Periclimenes latipollex* Kemp, 1922

Periclimenes (Periclimenes) latipollex Kemp, 1922:150, fig. 18, pl. 4: fig. 3 [type locality: Mergui Archipelago; 12°15′20″N, 97°10′10″E; 113 meters].—Holthuis, 1952c:47, figs. 13, 14.

Periclimenes latipollex.—Bruce, 1971f:8; 1981c:195, fig. 3.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum typically overreaching antennal scale, shallow, nearly horizontal, rostral formula 2–3 + 5–6/2–3, posteriormost tooth not distinctly isolated from remainder of dorsal rostral series but arising slightly farther from 2nd tooth than latter from 3rd, situated slightly posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine no larger than antennal spine, arising directly posterior to latter, not extending beyond anterior margin of carapace, orbital angle bluntly triangular, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite $1^1/_2$ times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising slightly anterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale typically about 3 times as long as wide, distolateral tooth reaching to about level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of fingers, latter not pectinate on opposable margins; 2nd pereopod with fingers about $^1/_3$ as long as palm, carpus about $^1/_4$ as long as palm, about $1^1/_2$ times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin straight proximally, concave distally, propodus with spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; maximum postorbital carapace length more than 4 mm.

RANGE.—Eastern Africa to Philippines and Indonesia; 78 to more than 300 meters, possibly associated with gorgonians.

REMARKS.—The records of *P. latipollex* in the literature suggest that it is either an unusually variable species or that the name has been applied to more than one species. The specimens recorded by Holthuis (1952c:47) from Kaulauan Kai in 304 meters have the accessory tooth on the dactyl of the third pereopod microscopic, whereas it is small but distinct in the type specimens from the Mergui Archipelago in 113 meters and in the Philippine specimen identified by Bruce (1981c:195). On the other hand, the latter specimen has the rostrum less shallow, curving dorsad, and armed with 10 dorsal teeth, three of which are situated on the carapace posterior to the level of the orbit, and the antennal scale fully $3^1/_2$ times as long as wide.

140. *Periclimenes longirostris* (Borradaile, 1915)

Palaemonella longirostris Borradaile, 1915:210 [type locality: Naifaro Island, Fadifollu Atoll, Maldive Islands].

Pariclimenes (Falciger) affinis Borradaile, 1915:211 [type locality: Salomon Island, Chagos Archipelago; not *Palaemonella affinis* Zehntner, 1894].

Periclimenes (Ancylocaris) proximus Kemp, 1922:201, figs. 51–53 [type locality: Port Blair, Andaman Islands; 7–15 meters].

Periclimenes (Harpilius) longirostris.—Holthuis, 1958:3, fig. 1.

Periclimenes longirostris.—Bruce, 1981c:195, figs. 4, 18a,d.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum reaching nearly to level of or overreaching antennal scale, shallowly palaemonoid, directed slightly anterodorsad anteriorly, rostral formula 1 + 5–6/2–3, posteriormost tooth not distinctly isolated from remainder of dorsal rostral series but arising slightly farther from 2nd tooth than latter from 3rd, situated posterior to level of hepatic spine; carapace with supraorbital spine, hepatic spine no larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle weakly triangular, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about $1^1/_4$ times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising anterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale $4^1/_2$–$5^4/_5$ times as long as wide, lateral margin distinctly concave, distolateral tooth far overreaching distal margin of narrow blade; 4th thoracic sternite with slender median process; 1st pereopod far overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopod with fingers slightly more or less than $^1/_2$ as long as palm, carpus longer or shorter than palm, 7–8 times as long as distal width, without distal spines, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin distinctly concave, propodus with spinules on flexor margin, not segmented; 5th pereopod reaching about as far as distal end of antennal scale; uropod not overreaching extended telson; maximum postorbital carapace length about $2^1/_2$ mm.

RANGE.—Northern Red Sea and western Indian Ocean to Philippines, Indonesia, Papua, northeastern Australia, and Marshall Islands; to a depth of at least 17 meters.

141. *Periclimenes lutescens* (Dana, 1852)

Harpilius lutescens Dana, 1852a:25 [type locality: Tongatapu Island, Tonga Islands]; 1852b:576; 1855:12, pl. 37: fig. 4.—Kemp, 1922:235, figs. 72, 73.

Periclimenes (Ancylocaris) amamiensis Kubo, 1940b:44, figs. 11, 12 [type locality: Amami O Shima, Ryukyu Islands].

Periclimenes (Harpilius) lutescens.—Holthuis, 1952c:88 [part], fig. 35.

Periclimenes lutescens.—Bruce, 1972f:411, fig. 1A [right drawing]; 1975f:27, fig. 15 [color]; 1976c:98; 1977h:73 [color figure]; 1977i:3.—Holthuis, 1981:796.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, palaemonoid, nearly horizontal, rostral formula 1–2 +

5-7/1-2. posteriormost tooth not isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle triangular, not ovate; abdomen without compressed dorsal prominence on 3rd somite; telson with 2 pairs of dorsolateral spines anterior to posterior margin, both pairs arising in posterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale with distolateral tooth distinctly overreaching distal margin of blade; 4th thoracic sternite with short, stout median process; 1st pereopod exceeding antennal scale by length of chela, fingers not pectinate on opposable margins; 2nd pereopod with fingers fully 2/3 as long as palm, carpus less than 1/2 as long as palm, about 1 1/2 times as long as distal width, without distal spines, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin strongly concave, propodus not segmented, non-spinulate; maximum postorbital carapace length about 7 1/2 mm.

RANGE.—Known with assurance from Red Sea and eastern Africa eastward to Japan, Indonesia, and Great Barrier Reef of Australia, at least to Solomon and Samoa islands, and perhaps eastward to limits of range of *Acropora*; associated with branching corals of genera *Acropora* and, less commonly, *Seriatopora*.

REMARKS.—See "Remarks" under *P. consobrinus*.

The striped color pattern illustrated by Dana (1855, pl. 37: fig. 4) is so different from the one displayed by the species currently associated with the name *P. lutescens* (Bruce, 1975f, fig. 15, and 1977h:73) that there is a tendency to believe that Dana's name is now misapplied to a different species. The remark by Dana (1852b:577), however, "Colors probably not constant for the species" suggests the possibility that his material included more than one species. The single character illustrated by Dana that seems to relate most exactly to the current conception of the species is the peculiar second maxilliped (pl. 37: fig. 4f). Except for the inadvertently missing flexor margin of the penultimate segment, that illustration is remarkably similar to those offered by Holthuis (1952c, fig. 35*e*) and Bruce (1972f, fig. 1A). On the basis of that character and the Samoan record cited by Bruce (1977i:3)—which suggests the presence of the species in the Tonga Islands (Dana's type locality)—would it not be desirable in the interest of stability—to assume the identity of the species described by Dana with the one now generally known by the same name?

142. *Periclimenes magnificus* Bruce, 1979

Periclimenes magnificus Bruce, 1979d:195, figs. 1-5, pl. 1: figs. A-C [type locality: Wistari Reef, Capricorn Islands, Queensland, Australia; 26-29 meters].—Cases and Storch, 1981:15.—Bruce and Svoboda, 1984:96.—Fransen, 1989:143, figs. 4b,c, 5e-8, 6i-m, 7i-p.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, shallow, slightly arched, rostral formula 1 + 7-8/1-2, posteriormost tooth isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle acutely subovate; abdomen with low, compressed dorsal prominence on 3rd somite, 6th somite about twice as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 dorsolateral spine on basal segment; antennal scale about 2 3/5 times as long as wide, lateral margin moderately convex to base of distolateral tooth, latter not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of fingers, latter not pectinate on opposable margins; 2nd pereopod with fingers 4/5 as long as palm, carpus 3/4 as long as palm, 2 3/4 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin concave, propodus with few obscure spinules on flexor margin, not segmented; uropod overreaching extended telson; maximum postorbital carapace length about 6 1/4 mm.

RANGE.—Southern Japan, Philippines, Indonesia, and Great Barrier Reef of Australia; 3-29 meters, associated with scleractinian corals and sea anemones.

143. *Periclimenes nilandensis* Borradaile, 1915

Pariclimenes (Falciger) nilandensis Borradaile, 1915:211 [type locality: Nilandu Atoll, Maldive Islands]; 1917:372, pl. 54: fig. 13.
Periclimenes (Harpilius) nilandensis.—Holthuis, 1952c:58, fig. 22.
Periclimenes nilandensis.—Bruce, 1978a:222, figs. 8, 9.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum reaching as far as or overreaching distal end of antennal scale, palaemonoid, nearly horizontal, rostral formula 2 + 6-8/3-5, posteriormost tooth not isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace with postorbital spine, hepatic spine slightly larger than antennal spine, arising slightly posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle bluntly triangular, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising anterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale fully 3 times as long as wide, lateral margin straight or slightly

concave, distolateral tooth reaching to or slightly beyond level of distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod slightly overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopod with fingers 2/3 as long as palm, carpus 4/5 as long as palm; about about 3 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus with spinules on flexor margin, not segmented; uropod overreaching extended telson; maximum postorbital carapace length about 3 mm.

RANGE.—Eastern Africa to Maldive Islands, South China Sea, Indonesia, and Queensland, Australia; associated with gorgonians and, less commonly, hydroids.

144. *Periclimenes ornatus* Bruce, 1969

Periclimenes ornatus Bruce, 1969b:266 [type locality: Lung Ha Wan, Hong Kong]; 1982e:252, figs. 11, 12.—Fransen, 1989:136, fig. 3a–i.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, rather deep, horizontal, rostral formula 0 + 6–7/0–1, posteriormost tooth not isolated from remainder of dorsal rostral series, situated slightly posterior to level of orbital margin, anterior to hepatic spine; carapace without supraorbital or postorbital tooth, hepatic spine not noticeably larger than antennal spine, arising posteriorly and slightly ventrally to level of latter, not extending beyond anterior margin of carapace, orbital angle acute, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 1/2 times as long as 5th, telson with 2 pairs of well-developed dorsal spines anterior to posterior margin, at about 0.3 and 0.6 of length; eye with cornea hemispherical, not ogival; antennular peduncle with 1 distolateral tooth on basal segment; antennal scale about 2 1/2 times as long as wide, lateral margin straight, distolateral tooth not exceeding distal margin of blade; 4th thoracic sternite with transverse ridge having small closed median notch; 1st pereopod with fingers subspatulate, cutting edges entire; 2nd pereopods similar, subequal, with fingers about 1/2 as long as palm, carpus about 1/3 as long as palm, about 1 3/4 times longer than wide, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus with small distoventral spine only, not segmented; uropod not overreaching extended telson; maximum postorbital carapace length to about 4.8 mm.

RANGE.—Red Sea, Kenya, Japan, Hong Kong, Indonesia, Great Barrier Reef, Norfolk Island to Marshall Islands.

145. *Periclimenes pectiniferus* Holthuis, 1952

Periclimenes (Periclimenes) pectiniferus Holthuis, 1952c:48, figs. 15, 16 [type locality: Pulau Kabaladua, Makassar Strait, Indonesia; 22 m].
Periclimenes pectiniferus.—Bruce, 1983d:209.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum somewhat palaemonid, not overreaching antennal scale, directed slightly anteroventrad, rostral formula 1–2 + 7/1, posteriormost tooth not isolated from remainder of dorsal rostral series, situated nearly in line with hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle triangular, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at mid-length; eye with cornea hemispherical, not ogival; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 3 times as long as wide, lateral margin slightly concave, distolateral tooth not quite reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by slightly more than length of chela, fingers subspatulate, pectinate on greater part of opposable margins; 2nd pereopods slender, subequal, fingers 2/3 as long as palm, carpus 3/5 as long as palm, about 2 1/2 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin nearly straight, propodus with spinules on flexor margin, not segmented; uropod overreaching extended telson; postorbital carapace length about 3 mm.

RANGE.—Known only from a single specimen from east of Townsville, Queensland, Australia, in 30–35m, in addition to the two syntypes from Makassar Strait.

146. *Periclimenes pilipes* Bruce and Zmarzly, 1983

Periclimenes pilipes Bruce and Zmarzly, 1983:644, figs. 1–6 [type locality: southern tip of Medren Islet, Enewetak Atoll, Marshall Islands; 11°24′N,162°22′E; 3 m].—Bruce, 1989b:177, fig. 3a.

DIAGNOSIS.—Integument smooth, not pitted on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, narrowly palaemonid, directed slightly anteroventrad, rostral formula 0 + 5–7/1–2, posteriormost tooth not isolated from remainder of dorsal rostral series, situated slightly anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine more robust than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle triangular, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising slightly posterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with at least 2 distolateral spines on basal segment, antennal scale about 2 3/4 times as long as wide, lateral margin nearly straight, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st

pereopod slightly overreaching antennal scale, fingers minutely crenulate on opposable margins; 2nd pereopods unequal, similar, fingers about 1/3 as long as palm, carpus about 1/3 as long as palm, about 1 1/3 times as long as wide, unarmed, merus with distal angle of flexor margin bluntly produced, not dentate; 3rd pereopod with dactyl very unequally biunguiculate and with 3 long, slender spines in same transverse line arising from distodorsal margin of corpus at base of unguis, flexor margin distinctly sinuous but without denticulate lobe, propodus with few small spines on distal 1/6 of flexor margin, not segmented; uropod considerably overreaching extended telson; postorbital carapace length about 3 1/2 mm.

RANGE.—Philippines and Marshall Islands; associated with crinoids.

147. *Periclimenes platycheles* Holthuis, 1952

Periclimenes (Harpilius) platycheles Holthuis, 1952c:85, fig. 33 [type locality: the 2 syntypes came from two different Indonesian localities: Pulau Fau west of Pulau Gebe, Halmahera Sea (31 m) and off Atiationim, Western New Guinea (to 57 m)].—Miyake and Fujino, 1968:409, fig. 3c-f.
Periclimenes platycheles.—Bruce, 1983d:210.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum slightly overreaching antennal scale, slender, directed anterodorsad in anterior 1/2, rostral formula 1 + 5-6/5-6, posteriormost tooth not isolated from remainder of dorsal rostral series, situated slightly posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle broadly rounded, not spatulate; abdomen with 6th somite 1 1/2 times as long as fifth; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising anterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale 4 3/4 times as long as wide, lateral margin deeply concave, distolateral spine distinctly overreaching truncate distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod overreaching antennal scale by length of chela, fingers not pectinate on opposable margins; 2nd pereopod with fingers 1/2 as long as palm, carpus more than 7 times as long as distal width, with 2 distal spines, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus with spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length less than 3 mm.

RANGE.—Indonesia; Queensland, Australia; and Palau Islands.

*148. *Periclimenes psamathe* (De Man, 1902)

Urocaris psamathe De Man, 1902:816, pl. 25: fig. 51 [type locality: Ternate].
Periclimenes (Harpilius) psamathe.—Holthuis, 1952c:61, fig. 23.—Monod, 1976:14, figs. 1-28.
Periclimenes psamathe.—Bruce and Svoboda, 1984:94.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum far overreaching antennal scale, slender, slightly crested above orbit, directed sinuously anteriorad or anterodorsad, rostral formula 1 + 2 + 2 + 1/0, distoventral margins of 3 posterior teeth finely serrate, posteriormost tooth isolated from remainder of dorsal rostral series, situated variably posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posterior or posterodorsal to latter, not extending beyond anterior margin of carapace, orbital angle variably produced anteriorly, sometimes subspatulate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 3 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, both pairs arising in posterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale 4 2/3 times as long as wide, lateral margin nearly straight, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of chela, fingers pectinate on opposable margins; 2nd pereopods grossly unequal, major chela with fingers about 1/4 as long as palm, carpus 2 4/5 times as long as palm, nearly 25 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin rather deeply concave distally, propodus with spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length more than 7 mm.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago: sta 5141; 6°09′N, 120°58′E; 53 m; coral sand; 15 Feb 1908 (0847-0905); 12′ Agassiz beam trawl, mud bag: 1 male [1.9] 2 ovig females [4.2, 4.3]; sta 5145; 6°04′30″N, 120°59′30″E; 42 m; coral sand, shells; 15 Feb 1908 (1344-1359); 12′ Agassiz beam trawl, mud bag: 3 females [4.0-5.3], 2 ovig [4.0, 5.3].

RANGE.—Eastern Africa to South China Sea, Japan, Philippines, Great Barrier Reef of Australia, New Caledonia, and Marshall Islands; associated with gorgonians.

149. *Periclimenes rectirostris* Bruce, 1981

Periclimenes rectirostris Bruce, 1981c:204, figs. 12-15 [type locality: southwest of Manila Bay, Luzon, Philippines; 13°53.1′N, 120°08.9′E—13°53.3′N, 120°10.7′E; 134-129 meters, probably associated with echinoid *Eremopyga*].

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum overreaching antennal scale, shallow, tapering, horizontal, rostral formula 0 + 11-12/4-5, posteriormost tooth not isolated from remainder of dorsal

rostral series, situated far anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine stouter but not noticeably larger than antennal spine, arising slightly posterodorsal to latter, not extending beyond anterior margin of carapace, orbital angle subquadrate, not spatulate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite fully 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, both pairs arising in posterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 5 times as long as wide, lateral margin nearly straight, distolateral tooth reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by about length of chela, fingers subspatulate, pectinate on opposable margins; 2nd pereopod with fingers nearly as long as palm, carpus about 1/2 as long as palm, about 2 1/2 times as long as distal width, without distal spines, merus with small distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin obscurely sinuously concave, propodus with spinules on flexor margin, not segmented; uropod overreaching extended telson; maximum postorbital carapace length nearly 6 mm.

RANGE.—Known only from the three type specimens from southwest of Manila Bay; 134–129 meters.

150. *Periclimenes seychellensis* Borradaile, 1915

Periclimenes (Falciger) seychellensis Borradaile, 1915:212 [type locality: Praslin, Seychelles].

Periclimenes (Ancylocaris) seychellensis.—Kemp, 1922:176, figs. 34, 35; pl. 6: fig. 7.

Periclimenes seychellensis.—Bruce, 1974d:192.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum overreaching antennal scale slightly, if at all, palaemonoid, directed slightly anterodorsad, rostral formula 2 + 5–8/2–5, posteriormost tooth somewhat but not widely isolated from remainder of dorsal rostral series, situated distinctly posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle bluntly acute, not spatulate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising anterior to midlength; eye with cornea hemispherical, not produced distally, stalk with dorsal tubercle; antennular peduncle with 1 distolateral spine on basal segment; antennal scale 3 or more times as long as wide, lateral margin slightly concave, distolateral tooth reaching nearly or quite to level of distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod not overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopod with fingers fully as long as palm, carpus subequal to or slightly shorter than palm, nearly 4 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus with few spinules on flexor margin, not segmented; 5th pereopod not overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 4 mm.

RANGE.—Red Sea to Mozambique, eastward to Indonesia, Papua, Australia, New Caledonia, and Marshall Islands; in algal communities.

151. *Periclimenes sibogae* Holthuis, 1952

Periclimenes (Harpilius) sibogae Holthuis, 1952c:73, figs. 28, 29 [type locality: anchorage, Kepulauan Banda, Indonesia; 9–36 meters].

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, shallow, sinuously horizontal, rostral formula 1 + 6/2, posteriormost tooth isolated from remainder of dorsal rostral series, situated in line with or slightly posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine smaller than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle shallowly rounded, not spatulate; abdomen with 6th somite only slightly longer than 5th; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 6 times as long as wide, lateral margin deeply sulcate, distolateral tooth distinctly overreaching distal margin of blade; 4th thoracic sternite with short, stout median process; 1st pereopod overreaching antennal scale by length of chela and part of carpus, fingers spatulate, pectinate on opposable margins; 2nd pereopod with fingers 1/2 as long as palm, carpus less than 1/2 as long as palm, more than twice as long as distal width, armed with 3 distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus with spinules on flexor margin, not segmented; postorbital carapace length about 4 mm.

RANGE.—Known only from the unique holotype from Kepulauan Banda, Indonesia; 9–36 meters. (Dr. Holthuis has informed us that the specimens from the Sudanese Red Sea identified by him as *P. sibogae* and reported by Edwards and Emberton (1980:236) may not belong to this species.)

*152. *Periclimenes sinensis* Bruce, 1969

Periclimenes sinensis Bruce, (July)1969b:270 [type locality: Hong Kong; on alcyonarian]; 1982e:255, figs. 13, 14.

Periclimenes (Periclimenes) setoensis Fujino and Miyake, (November)

1969a:149, figs. 4, 5 [type localitty: Shiso-jima, Tanabe Bay, Wakayama Prefecture, Japan; 5 meters, associated with alcyonarian].

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, palaemonoid, nearly horizontal, rostral formula 1 + 8-9/2, posteriormost tooth not isolated from remainder of dorsal rostral series, situated in line with or anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle bluntly triangular, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite more than 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale 2 3/4 times as long as wide, lateral margin nearly straight, distolateral tooth not reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by about length of fingers, latter not pectinate on opposable margins; 2nd pereopods subequal, similar, fingers about as long as palm, carpus 3/4 as long as palm, more than twice as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin concave, propodus with spinules on flexor margin, not segmented; 5th pereopod not overreaching antennal scale; uropod slightly overreaching extended telson; maximum postorbital carapace length 2.3 mm.

MATERIAL.—PHILIPPINES. Off Jolo Islands, Sulu Archipelago: sta 5141; 6°09′N, 120°58′E; 53 m; coral sand; 15 Feb 1908 (0848-0905); 12′ Agassiz beam trawl, mud bag: 1 ovig female [1.3].—Near Siasi, Sulu Archipelago: sta 5147; 5°41′40″N, 120°47′10″E; 38 m; coral sand, shells; 16 Feb 1908 (1127-1147); 12′ Agassiz beam trawl, mud bag: 1 ovig female [2.1].—Off Tawitawi, Sulu Archipelago: sta 5151; 5°24′40″N, 120°27′15″E; 44 m; coarse sand, shells; 18 Feb 1908 (1307-1327); 12′ Agassiz beam trawl, mud bag: 1 cephalothorax [2.0].

RANGE.—Known previously only from Hong Kong and Japan; associated with alcyonarians. The depths at which the species was taken by the *Albatross* (to 53 m) represent a considerable extension of the known bathymetric range.

REMARKS.—The posterior four or five teeth of the dorsal rostral series are articulated (not indicated by Fujino and Miyake) and the distolateral spine on the basal segment of the antennular peduncle resembles the illustration in Bruce (1982e, fig. 14B) more closely than the one in Fujino and Miyake (1969a, fig. 5*a*). On the other hand, the antennal scale and the dactyl of the third pereopod are more like those illustrated by Fujino and Miyake (1969a, fig. 5*a,i*) than those in Bruce (1982e, fig. 14C, and 13I,J).

153. *Periclimenes soror* Nobili, 1904

?*Periclimenes parasiticus* Borradaile, 1898:384 [type locality: Milne Bay, Papua].—Bruce, 1975d:281, fig. 2.

Periclimenes soror Nobili, 1904:232 [type locality: Djibouti].—Gordon, 1939:395, figs. 1-3.—Bruce, 1978e:299, figs. 1-6.—Bruce and Svoboda, 1984:98.

Periclimenes (Cristiger) frater Borradaile, 1915:210 [type locality: Seychelles].

Periclimenes bicolor Edmondson, 1935:10, fig. 3 [type locality: Kaneohe Bay, Oahu, Hawaii; on asteroid].

Periclimenes (Periclimenes) soror.—Holthuis, 1952c:51, fig. 17.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, rather deep, directed anteriorad or very slightly anteroventrad, rostral formula 0 + 10/0, posteriormost tooth not isolated from remainder of dorsal rostral series, situated anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not much larger than antennal spine, arising slightly posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle rather strongly produced triangularly, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 2/3 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, both pairs arising in posterior 1/2 of length; eye with cornea hemispherical, not ogival; antennular peduncle with 2 or 3 distolateral spines on basal segment; antennal scale about 2 1/3 times as long as wide, lateral margin nearly straight, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod not overreaching antennal scale, fingers spatulate, pectinate on opposable margins; 2nd pereopod pectinate on opposable margins; 2nd pereopod with fingers less than 1/2 as long as palm, carpus also less than 1/2 as long as palm, nearly twice as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod without denticulate lobe on flexor margin, obscurely biunguiculate, flexor margin sinuous, propodus with spinules on flexor margin, not segmented; uropod slightly overreaching extended telson; maximum postorbital carapace length about 2.7 mm.

RANGE.—Red Sea to Japan, Philippines, Indonesia, Australia, and eastward to Hawaii and Society and Tuamotu islands to Golfo de Panama on the American coast; associated with asteroids.

*154. *Periclimenes spiniferus* De Man, 1902

Periclimenes petitthouarsii var. *spinifera* De Man, 1902:824 [type locality: Ternate, Pulau Damar-Besar, Teluk Djakarta, and Ambon, in Indonesia, and Tahiti, Society Islands].

Periclimenes (Falciger) spiniferus.—Borradaile, 1917:324, 369, pl. 52.

Periclimenes (Harpilius) spiniferus.—Holthuis, 1952c:76, fig. 30.

Periclimenens spiniferus.—Bruce, 1976c:95, figs. 5, 6.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, shallowly palaemonoid, directed somewhat anterodorsally in anterior 1/2, rostral formula 1 + 5-8/2-5, posteriormost

tooth slightly isolated from remainder of dorsal rostral series, situated in line with or anterior to level of hepatic spine; carapace with supraorbital spine, hepatic spine smaller than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle not produced, not ovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 1/2 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising considerably anterior to mid-length; eye with cornea hemispherical, not ogival; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 5 times as long as wide, lateral margin somewhat concave, distolateral tooth overreaching distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod overreaching antennal scale, fingers spatulate, pectinate on opposable margins; 2nd pereopod with fingers less than 2/3 as long as palm, with sound-producing fossae on opposable margins of each finger, carpus about 1/4 as long as palm, about 1 2/3 times as long as distal width, with 2 distal spines, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus with spinules on flexor margin, not segmented; 5th pereopod overreaching antennal scale; uropod overreaching extended telson; maximum postorbital carapace length about 5 mm.

MATERIAL.—PHILIPPINES. Marungas Island, Sulu Archipelago; [6°06′N, 120°58′E]; 1 1/4–2 1/2 m; scattered coral and sand; 10 Feb 1908 (1330–1500); diving, coral heads taken ashore: 3 males [1.6–3.1], 3 females [2.0–3.0], 2 ovig [2.8, 3.0].

RANGE.—Probably the commonest and most widely distributed pontoniine shrimp in the Indo-West Pacific region, absent only from the northwestern part of the Indian Ocean and the Red Sea; free-living, frequently sheltering in coral colonies.

*155. *Periclimenes tenuipes* Borradaile, 1898

Periclimenes tenuipes Borradaile, 1898:384 [type locality: New Britain].—Bruce and Svoboda, 1983:4, fig. 1.

Periclimenes borradailei Rathbun, 1904:34 [replacement name for *P. tenuipes* Borradaile, 1898].

Periclimenes (Falciger) kolumadulensis Borradaile, 1915:213 [type locality: Kolumadulu Atoll, Maldive Islands].

Periclimenes (Ancylocaris) tenuipes.—Kemp, 1922:220, pl. 8: fig. 11.

Periclimenes (Harpilius) tenuipes.—Holthuis, 1952c:84.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum overreaching antennal scale, shallow, directed anterodorsad in anterior 1/2, rostral formula 1–2 + 8–10/6–9, posteriormost tooth not isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle not spatulate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about 1 1/3 times as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising anterior to mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment, antennal scale 6 1/2–7 times as long as wide, lateral margin distinctly concave, distolateral tooth reaching far beyond distal margin of blade; 4th thoracic sternite with slender median process; 1st pereopod overreaching antennal scale, fingers not pectinate on opposable margins; 2nd pereopod with fingers slightly more than 1/2 as long as palm, carpus about 1 1/3 times as long as palm, about 8 times as long as distal width, with 1 obscure distal spine, merus with distal tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin concave, propodus with short spinules on flexor margin, obscurely segmented, 5th pereopod overreaching antennal scale; uropod overreaching extended telson; maximum carapace length about 6 mm.

MATERIAL.—PHILIPPINES. Off Tawitawi, Sulu Archipelago: sta 5160; 5°12′40″N, 119°55′10″E; 22 m; sand; 22 Feb 1908 (0829–0832); 9′ Johnston oyster dredge: 1 male [3.3].

RANGE.—Red Sea and eastern Africa to Philippines, Indonesia, Great Barrier Reef of Australia, and Palau and Marshall islands; generally free-living, sometimes associated with sea anemones.

REMARKS.—The *Albatross* specimen from off Tawitawi lacks both second pereopods; its positive identification is therefore questionable, but it agrees with the description and illustration by Kemp (1922) in all other particulars.

156. *Periclimenes tenuis* Bruce, 1969

Periclimenes tenuis Bruce, 1969b:272 [type locality: Chukwani, Zanzibar; 6°15.1′S, 39°12.7′E; 1 foot, on crinoids]; 1982c:195, fig. 8c; 1983c:886.

DIAGNOSIS.—Integument smooth, not pitted on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, horizontal, rostral formula 0 + 5/0, posteriormost tooth not isolated from remainder of dorsal rostral series, situated anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine robust, arising well posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle acutely produced, not ovate; abdomen without compressed dorsal prominence on 3rd somite; telson with 2 pairs of dorsolateral spines anterior to posterior margin, both arising on posterior 1/2; eye with cornea hemispherical, not ogival; antennular peduncle with 1 distolateral spine on basal segment; antennal scale narrow, lateral margin straight or slightly concave, distolateral tooth not reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod not overreaching antennal scale, fingers scissor-like, much longer than palm, not pectinate on opposable margins; 2nd pereopods similar, feeble, with fingers 3 times as long as palm, carpus about 1/2 as long as palm, expanded distally but unarmed, merus without distal

tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin nearly straight proximally, strongly concave on unguis, propodus with long, spinulate setae on distal part of flexor margin, not segmented; uropod slightly overreaching extended telson; maximum postorbital carapace length about 2 1/4 mm.

RANGE.—Red Sea, Zanzibar, Ryukyu Islands, Indonesia, Great Barrier Reef of Australia, and Marshall Islands; associated with crinoids.

*157. *Periclimenes toloensis* Bruce, 1969

FIGURE 23

Periclimenes toloensis Bruce, 1969b:275 [type locality: Ap Island, Tolo Channel, Hong Kong; 9–27 meters]; 1982e:258, figs. 15–18.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, rather shallow, horizontal, rostral formula 1–2 + 7/1, posteriormost tooth somewhat isolated from remainder of dorsal rostral series, situated posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine no larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle produced, subovate; abdomen without compressed dorsal prominence on 3rd somite, 6th somite about twice as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, anterior pair arising at about mid-length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 distolateral spine on basal segment; antennal scale about 3 1/2 times as long as wide, distolateral spine not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of fingers, latter not pectinate on opposable margins; major 2nd pereopod with fingers slightly more than 1/2 as long as palm, carpus slightly less than 2/3 as long as palm, about 3 3/4 times as long as distal width, without distal spines, merus without distal tooth on flexor margin; 3rd pereopod overreaching antennal scale by about length of dactyl, latter not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin faintly sinuous, propodus with few spinules on flexor margin, not segmented; uropod overreaching extended telson; maximum postorbital carapace length about 2 1/2 mm.

MATERIAL.—PHILIPPINES. Near Siasi, Sulu Archipelago: sta 5147; 5°41′40″N, 120°47′10″E; 38 m; coral sand, shells; 16 Feb 1908 (1127–1147); 12′ Agassiz beam trawl, mud bag: 1 ovig female [2.2].

RANGE.—Tanzania, Hong Kong, Philippines, and Northern Territory and Great Barrier Reef of Australia; at least sometimes associated with hydroids.

REMARKS.—As the *Albatross* representative of this species was at first believed to differ from the original description, it was described and illustrated as an undescribed species. Those illustrations are reproduced here to confirm the error of that initial belief.

158. *Periclimenes tosaensis* Kubo, 1951

Periclimenes (Ancylocaris) tosaensis Kubo, 1951:268, figs. 7, 8 [type locality: Tosa Wan, off Usa, Shikoku, Japan].
Periclimenes (Harpilius) tosaensis.—Bruce, 1966c:15, figs. 1, 2, 3a, 4a,b.
Periclimenes tosaensis.—Bruce, 1981c:196, fig. 5.

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, shallow, ventrally concave, rostral formula 1 + 6–9/2, posteriormost tooth somewhat isolated from remainder of dorsal rostral series, situated slightly anterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle sinuously and acutely produced, not quite spatulate; abdomen with low, compressed dorsal prominence on 3rd somite, 6th somite fully twice as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, both pairs arising in posterior 1/2 of length; eye with cornea hemispherical, not produced distally; antennular peduncle with 1 small distolateral spine on basal segment; antennal scale about 4 times as long as wide, lateral margin slightly concave, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of fingers, latter not pectinate on opposable margins; 2nd pereopod with fingers subequal to palm in length, carpus slightly longer than palm, about 5 times as long as distal width, without distal spines, merus without tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, simple, not biunguiculate, flexor margin sinuously concave, propodus with few spinules on distal 1/2 of flexor margin, not segmented; 5th pereopod reaching to about distal end of antennal scale; uropod overreaching extended telson; maximum postorbital carapace length more than 5 mm.

RANGE.—Seychelle Islands, South China Sea, southern Japan, and Philippines; to a depth of about 130 meters.

159. *Periclimenes venustus* Bruce, 1990

Periclimenes venustus Bruce, 1989b:178; 1990f:230, figs. 1–6, 7a, 8a [type locality: Port Essington, Cobourg Peninsula, northern Australia; associated with sea anemones].

DIAGNOSIS.—Integument smooth, not pitted, on lateral areas of carapace and abdomen; rostrum not overreaching antennal scale, shallow, ventrally concave, rostral formula 1 + 5–7/0–2, posteriormost tooth somewhat isolated from remainder of dorsal rostral series, situated slightly posterior to level of hepatic spine; carapace without supraorbital or postorbital spine, hepatic spine not noticeably larger than antennal spine, arising posteroventral to latter, not extending beyond anterior margin of carapace, orbital angle strongly acutely produced, subovate; abdomen with low, compressed dorsal prominence on 3rd somite, slightly produced, 6th somite fully twice as long as 5th; telson with 2 pairs of dorsolateral spines anterior to posterior margin, both pairs arising on posterior 1/2 of length;

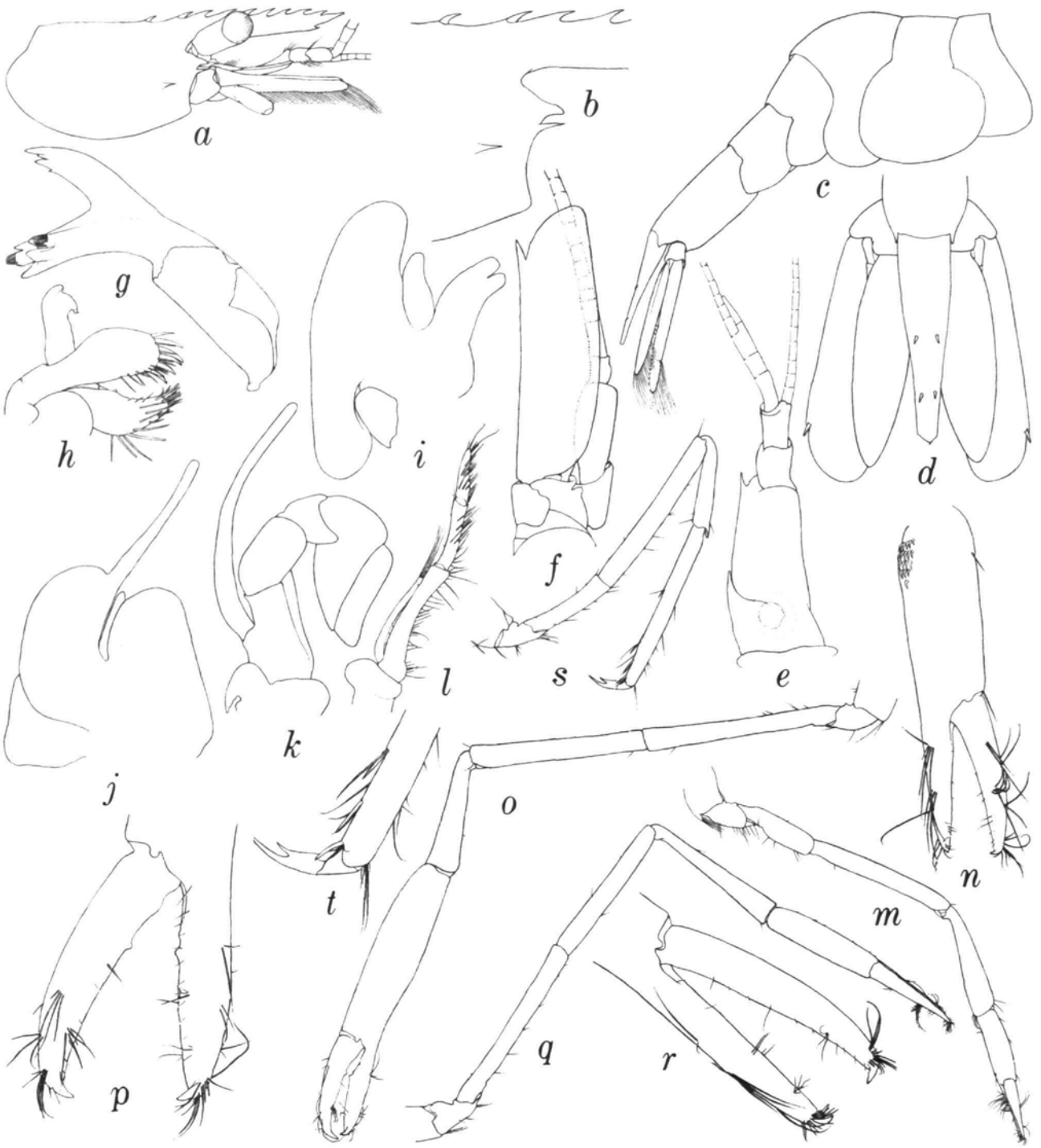

FIGURE 23.—*Periclimenes toloensis*, ovigerous female from *Albatross* sta 5147 (Sulu Archipelago), carapace length 22 mm: *a*, carapace and anterior appendages, lateral aspect; *b*, anterior carapace, lateral aspect; *c*, abdomen, lateral aspect; *d*, tail fan; *e*, left antennule, dorsal aspect; *f*, left antenna, dorsal aspect; *g*, right mandible; *h*, right 1st maxilla; *i*, right 2nd maxilla; *j*, right 1st maxilliped; *k*, right 2nd maxilliped; *l*, right 3rd maxilliped; *m*, right 1st pereopod; *n*, same, chela; *o*, left (major) 2nd pereopod; *p*, same, fingers; *q*, right (minor) 2nd pereopod; *r*, same, fingers; *s*, right 3rd pereopod; *t*, same, dactyl.

eye with cornea hemispherical, not produced distally; antennular peduncle with 1 small distolateral spine on basal segment; antennal scale about 2 1/2 times as long as wide, lateral margin straight, distolateral tooth not nearly reaching level of distal margin of blade; 4th thoracic sternite without slender median process; 1st pereopod overreaching antennal scale by length of chela, fingers not pectinate on opposable margins; 2nd pereopod with fingers subequal to palm in length, carpus subequal to or shorter than palm, about 3–4 times as long as distal width, without distal spines, merus without tooth on flexor margin; 3rd pereopod with dactyl not subdistally truncate, without denticulate lobe on flexor margin, biunguiculate, flexor margin concave, propodus with few short spines on distal 1/6 of flexor margin, not segmented; 5th pereopod reaching to about distal end of antennal scale; uropod overreaching extended telson; maximum postorbital carapace length more than 5 mm.

RANGE.—Ryukyu Islands, Philippines, and northern and western Australia; to a depth of about 5 m.

REMARKS.—Some of the specimens referred in the earlier literature as *P. holthuisi* may well be examples of this species.

Periclimenoides Bruce, 1990

Periclimenoides Bruce, 1990c:616 [type species, by original designation: *Periclimenaeus odontodactylus* Fujino and Miyake, 1968b:85, figs. 1, 2; gender: masculine].

DIAGNOSIS.—Rostrum well developed, overreaching anteriorly extended eyes, compressed laterally, dorsally dentate, lateral carina not expanded into broad supraocular or postocular eave, carapace moderately compressed, dorsal profile straight, without postrostral gastric teeth, anterior margin not produced anteroventrally as prominent convex lobe and not deeply concave (notched), without longitudinal branchiostegal suture, with antennal spine, without hepatic spine, orbital margin not posteriorly interrupted; abdomen with 5th pleuron rounded, not sharp-pointed; telson not curving ventrally, posterior margin not incised, median and submedian pairs of spines not curving ventrally, dorsolateral spines not particularly robust; epistome not bearing paired, horn-like processes; antennal scale well developed; mandible without palp, incisor process bidentate; 3rd maxilliped with exopod; 4th thoracic sternite without median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods with chelae unequal, similar, opposable margins of fingers denticulate, not provided with socket and plunger closure; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl biunguiculate, not bearing hoof-shaped protuberance; uropod with lateral branch bearing teeth and mobile lateral spine.

RANGE.—Japan, Hong Kong, Philippines, Australian Northwest Shelf and Great Barrier Reef; associated with sponges, *Ircinia fasciculata*.

REMARKS=.—Only one species has been recognized.

*160. *Periclimenoides odontodactylus* (Fujino and Miyake, 1968)

Periclimenaeus odontodactylus Fujino and Miyake, 1968b:85, figs. 1, 2 [type locality: Ushitaka, Amakusa Island, Japan].
Periclimenoides odontodactylus.—Bruce, 1990c:617, figs. 2, 3.

DIAGNOSIS.—Characters of genus; maximum postorbital carapace length about 4 mm.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago; sta 5142; 6°06′10″N, 121°02′40″E; 38 m; coral sand and shells; 15 Feb 1908 (1033–1044); 12′ Agassiz Beam trawl, mud bag: 1 ovig female [3.9].

RANGE.—See "Range" of genus.

REMARKS.—This specimen agrees with the original description of *P. odontodactylus* in most particulars, including the unusual telson and the chelae of the first and second pereopods. The rostrum is armed with eight dorsal teeth, compared with six in the holotype and seven in the specimen from Hong Kong.

**Philarius* Holthuis, 1952

Philarius Holthuis, 1952c:5, 15, 151 [type species, by original designation: *Harpilius Gerlachei* Nobili, 1905b:160; gender: masculine].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, compressed laterally, armed at least dorsally throughout length, lateral carina not expanded into broad supraocular or postocular eave; carapace somewhat depressed, dorsal profile straight or slightly convex, with or without 1 or more teeth of dorsal rostral series continuing onto gastric region, anterior margin not produced anteroventrally as prominent convex lobe and not deeply concave (notched), without longitudinal branchiostegal suture, with antennal spine, without hepatic spine, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite blunt or acute; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curving ventrad, dorsolateral spines not particularly robust; epistome not bearing paired, horn-like processes; antennal scale well developed; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite with short stout median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar, chelae not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl not bearing hoof-shaped protuberance, simple, uncinate; uropod with lateral branch bearing 1 movable lateral spine.

RANGE.—Red Sea and eastern Africa to Indonesia, Australia, and the Marshall, Gilbert, and Samoan islands; associated with acroporid corals.

REMARKS.—Bruce (1982d:171) has provided a key to the three species currently assigned to *Philarius*. *Periclimenes brevinaris* Nobili, 1906b:42—still known only from the

disintegrating holotype from the Persian Gulf—was provisionally transferred to *Philarius* by Bruce (1967b:568), but that author subsequently (1982d:172) stated that it is "probably not truly congeneric with the three other species [of that genus] and must still be considered incertae sedis."

*161. *Philarius gerlachei* (Nobili, 1905)

Harpilius Gerlachei Nobili, 1905b:160 [type locality: southern Persian Gulf off Trucial Coast]; 1906b:45, pl. 4: fig. 10.
Philarius gerlachei—Holthuis, 1952c:152 [part], fig. 69.—Bruce, 1982d, fig. 7C.—Fransen, 1989:145.

DIAGNOSIS.—Rostral formula 0 + 3-6/1; carapace without supraorbital spines; 2nd pereopod without distal spine on flexor margin of carpus; maximum postorbital carapace length about 6 mm.

MATERIAL.—PHILIPPINES. Marungas Island (south side), Sulu Archipelago; [6°06′N, 120°58′E.]; 1¼–2½ m; scattered coral and sand; 10 Feb 1908 (1330–1500); diving, coral heads taken ashore: 1 male [2.5].

RANGE.—Red Sea and eastern Africa to Ryukyu Island, Philippines, Indonesia, Great Barrier Reef of Australia, and eastward to Solomon, Marshall, and Samoan islands; associated with acroporid corals.

162. *Philarius imperialis* (Kubo, 1940)

Harpilius imperialis Kubo, 1940c:1, figs. 1–3 [type locality: Nankin-Hama, Haha-Jima, Bonin Islands].
Philarius gerlachei.—Holthuis, 1952c:152 [part].
Philarius imperialis.—Bruce, 1982d, fig. 7B.

DIAGNOSIS.—Rostral formula 1–3 + 6–8/1–3; carapace without supraorbital spines; 2nd pereopod with distinct distal spine on flexor margin of carpus; maximum postorbital carapace length about 6 mm.

RANGE.—Red Sea and eastern Africa to Indonesia, Great Barrier Reef of Australia, and eastward to Bonin, Caroline, and Marshall islands; associated with acroporid corals.

Platycaris Holthuis, 1952

Platycaris Holthuis, 1952c:5, 16, 172 [type species, by monotypy: *Platycaris latirostris* Holthuis, 1952c:173; gender: feminine].

DIAGNOSIS.—Rostrum not overreaching anteriorly extended eyes, depressed dorsally, unarmed, with apically acute tooth, expanded laterally into broad supraocular eave; carapace strongly depressed, dorsal profile nearly straight, unarmed, anterior margin strongly produced anteriorly as prominent convex lobe below orbital notch, without longitudinal branchiostegal suture, without antennal, hepatic, or supraorbital spines, orbital margin strongly recessed posteriorly; abdomen with pleuron of 5th somite rounded; telson not curving ventrad, posterior margin not incised, median and submedian pairs of spines not curving ventrad, dorsolateral spines not robust; antennal scale well developed; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar, subequal, chela not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl without prominent protuberance on flexor margin; uropod with lateral branch bearing movable lateral spine.

RANGE.—Eastern Africa to Okinawa, Indonesia, Great Barrier Reef of Australia, and Fiji Islands; associated with oculinid coral *Galaxea*.

REMARKS.—Only one species has been recognized.

163. *Platycaris latirostris* Holthuis, 1952

Platycaris latirostris Holthuis, 1952c:173, figs. 85, 86 [type locality: Ende, Flores, Indonesia].—Bruce, 1966d:1, figs. 1–5; 1985c:5, figs. 4, 5.

DIAGNOSIS.—Characters of genus; maximum postorbital carapace length about 3 mm.

RANGE.—See "Range" of genus.

Platypontonia Bruce, 1968

Platypontonia Bruce, 1968b:289 [type species, by original designation: *Pontonia? brevirostris* Miers, 1884:562; gender: feminine].

DIAGNOSIS.—Rostrum not overreaching anteriorly extended eyes, depressed dorsally, unarmed except for apical and subapical teeth in *P. hyotis*, not expanded laterally into broad supraocular eave; carapace strongly depressed, dorsal profile faintly convex, with strong antennal spine, without supraocular or hepatic spines, orbital margin strongly recessed posteriorly; abdomen with pleuron of 5th somite rounded; telson not curving ventrad; posterior margin not incised, median and submedian pairs of spines not curving ventrad, dorsolateral spines long or robust or both; antennal scale well developed; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar, subequal, chela not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl without prominent protuberance on flexor margin; uropod with lateral branch bearing minute movable lateral spine.

RANGE.—Madagascar, Seychelles, Japan, and Indonesia; in bivalve mollusks.

REMARKS.—A key to the two species of the genus was published by Hipeau-Jacquotte (1971:139).

164. *Platypontonia hyotis* Hipeau-Jacquotte, 1971

Platypontonia hyotis Hipeau-Jacquotte, (March) 1971:126, figs. 1–7 [type locality: near Tuléar, southwestern Madagascar; in bivalve *Pycnodonta*].—Bruce, 1983c:895, figs. 7J [as "*Pycnodonta hyotis*"], 10B,C.
Platypontonia pterostreae Suzuki, (July) 1971:5, figs. 3, 4, pl. 3 [type locality: Hatsu-shima, Sagami wan, Honshu, Japan; in bivalve *Pterostrea*].

DIAGNOSIS.—Rostrum with strong, anteriorly dentate median ventral carina in distal 1/2; maximum postorbital carapace length 5.3 mm.

RANGE.—Madagascar, Japan, and Indonesia, and eastern Australia.

Plesiopontonia Bruce, 1985

Plesiopontonia Bruce, 1985b:248 [type species, by monotypy: *Plesiopontonia monodi* Bruce, 1985b:250; gender: feminine].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, compressed laterally, armed both dorsally and ventrally, lateral carina not expanded laterally into broad supraocular or postocular eave; carapace subcylindrical, dorsal profile faintly and sinuously convex, none of teeth of dorsal rostral series extending onto gastric region, anterior margin not produced posteroventrally as prominent convex lobe, not deeply concave (notched), without longitudinal branchiostegal suture, with antennal spine, without hepatic spine, orbit not sharply defined; abdomen with pleuron of 5th somite subquadrangular; telson not curving ventrad, posterior margin not incised, median and submedian spines not curving ventrad, dorsolateral spines not robust; antennal scale well developed; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl not bearing hoof-shaped protuberance, not clearly biunguiculate; uropod with lateral branch probably bearing 1 movable spine flanked by acute tooth.

RANGE.—Philippines.

REMARKS.—Only one species is known.

165. *Plesiopontonia monodi* Bruce, 1985

Plesiopontonia monodi Bruce, 1985b:250, figs. 13–17 [type locality: Balayan Bay, southwestern Luzon, Philippines; 13°49.6′N, 120°51.0′E; 299–320 m].

DIAGNOSIS.—Characters of genus; postorbital carapace length 4.4 mm.

RANGE.—Known only from the unique male holotype from Balayan Bay, Luzon, Philippines; possibly associated with bivalve mollusk *Acesta*.

Pliopontonia Bruce, 1973

Pliopontonia Bruce, 1973b:97 [type species, by original designation: *Pliopontonia furtiva* Bruce, 1973b:99; gender: feminine].

DIAGNOSIS.—Rostrum barely overreaching anteriorly extended eyes, if at all, compressed, dentate dorsally, unarmed ventrally, not expanded laterally into broad supraocular eave; carapace somewhat depressed, dorsal profile nearly straight, anterior margin strongly produced anteriorly as prominent convex lobe separated by sinus from suborbital angle, without longitudinal branchiostegal suture, with strong submarginal antennal spine overreaching suborbital angle, without supraorbital or hepatic spines, orbital margin indistinct posteriorly; abdomen with pleuron of 5th somite rounded; telson not curving ventrad, posterior margin not incised, median and submedian pairs of spines not curving ventrad, dorsolateral spines small; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar, unequal, chela not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl without prominent protuberance on flexor margin; uropod with lateral branch armed with small fixed tooth and movable spine mesial to it.

RANGE.—Kenya, Philippines, Indonesia, and Great Barrier Reef of Australia; associated with sea anemones (Actiniaria).

REMARKS.—Only one species is known.

166. *Pliopontonia furtiva* Bruce, 1973

Pliopontonia furtiva Bruce, 1973b:99, figs. 1–5, pl. 1 [type locality: Ras Iwetine, Mombasa, Kenya; 4°00.55′S, 39°44.17′E; associated with actinodiscid *Rhodactis rhodostoma* in 1 meter]; 1981e:22.—Bruce and Svoboda, 1984:97, fig. 7.—Fransen, 1989:144, fig. 8.

DIAGNOSIS.—Characters of genus; postorbital carapace length 4.8 mm.

RANGE.—See "Range" of genus.

**Pontonia* Latreille, 1829

Alciope Rafinesque, 1814:24 [type species, by monotypy: *Alciope heterochelus* Rafinesque, 1814:24 (= *Pontonia flavomaculata* Heller, 1864:51); gender: masculine; name suppressed by plenary action of the International Commission on Zoological Nomenclature, Opinion 522 (1958)].

Pontonia Latreille, 1829:96 [type species, designated by plenary action of the International Commission on Zoological Nomenclature, Opinion 378 (1956): *Palaemon pinnophylax* Otto, 1821:12; gender: feminine].

DIAGNOSIS.—Rostrum usually flattened dorsally, armed dorsally only near tip, if at all, often expanded laterally into supraocular eave; carapace depressed, dorsal profile slightly convex, dorsally unarmed, anterior margin usually produced anteriorly, without longitudinal branchiostegal suture, with or without antennal spine, orbital margin not clearly interrupted posteriorly; abdomen with pleuron of 5th somite rounded, not acute; telson not curving ventrad, posterior margin not incised, median and submedian spines not curving ventrad, dorsolateral spines variable; antennal scale well developed; mandible with palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods similar and subequal or not; chelae not borne in vertical plane, movable finger not ventrad, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl not bearing hoof-shaped protuberance, usually biunguiculate or multiunguiculate; uropod with lateral branch usually bearing 1 mobile lateral spine.

RANGE.—Pantropical and warm temperate waters; living in mollusks and ascidians.

REMARKS.—Of the 22 or 24 currently recognized species of *Pontonia*, only five are known from the Philippines and/or Indonesia. All but one of those have been found in ascidians and are included in the key published by Bruce (1972c:185).

167. *Pontonia ascidicola* Borradaile, 1898

Pontonia ascidicola Borradaile, 1898:389 [type locality: Blanche Bay, New Britain, in ascidian].—Holthuis, 1952c:165, figs. 79–81.

DIAGNOSIS.—Rostrum not overreaching anteriorly extended eyes, dorsally flattened, with faint median carina on dorsal surface but unarmed dorsally and ventrally; carapace with antennal spine, lateral margin somewhat produced anteriorly; telson bearing 2 pairs of conspicuous dorsolateral spines, anterior pair not overreaching bases of posterior pair; antennal scale with distolateral spine curving around lateral margin of blade; 3rd maxilliped with penultimate slightly longer than terminal segment; 2nd pereopods unequal; 3rd pereopod with dactyl biunguiculate, elongate, bearing 7 teeth on flexor margin; maximum postorbital carapace length fully 2 mm.

RANGE.—Red Sea, Madagascar, Indonesia and Bismarck Archipelago, in ascidians.

168. *Pontonia katoi* Kubo, 1940

Pontonia katoi Kubo, 1940b:55, figs. 21–23 [type locality: off Shimoda, Shizuoka Prefecture, Japan, in branchial chamber of ascidiian *Halocynthia*].—Holthuis, 1952c:158 [part], figs. 73*c,d*, 74*a*, 75*c*, 76*a,b,d,e*, 77*b,d* only.

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, dorsally flattened, with faint median carina on dorsal surface, unarmed dorsally but with small, subterminal ventral tooth; carapace with antennal spine, lateral margin somewhat produced anteriorly; telson bearing 2 pairs of conspicuous dorsolateral spines, anterior pair not nearly reaching bases of posterior pair; antennal scale with long distolateral spine closely appressed to lateral margin of blade; 3rd maxilliped with penultimate slightly longer than terminal segment; 2nd pereopods unequal; 3rd pereopod with dactyl biunguiculate, short and stout, bearing 3 teeth on flexor margin; maximum postorbital carapace length fully 2 mm.

RANGE.—Tanzania, Japan, Indonesia, Australia, and New Caledonia; in ascidians.

*169. *Pontonia okai* Kemp, 1922

Pontonia okai Kemp, 1922:261, figs. 89–92 [type locality: off Cape Negrais, Burma; 15°25′N, 93°45′E; 73–126 m, in ascidian *Ascidia*].—Holthuis, 1952c:164, fig. 78.

DIAGNOSIS.—Rostrum not overreaching anteriorly extended eyes, dorsally flattened, with strong median carina on dorsal surface but unarmed dorsally and ventrally; carapace with antennal spine, lateral margin produced anteriorly; telson bearing 2 pairs of conspicuous dorsolateral spines, anterior pair reaching nearly to bases of posterior pair; antennal scale with short distolateral spine overreaching distal margin of blade; 3rd maxilliped with penultimate about twice as long as terminal segment; 2nd pereopods unequal; 3rd pereopod with dactyl biunguiculate, elongate, bearing 11–13 teeth on flexor margin; maximum postorbital carapace length 2.8 mm.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago; sta 5558; 5°51′33″N, 121°01′00″E; 27 m; 18 Sep 1909 (1517–1520); 6′ McCormick trawl: 1 male [2.0] 1 ovig female [2.8], in branchial sac of *Ascidia depressiuscula* Heller.

RANGE.—Kenya, Burma, South China Sea, Philippines, Indonesia, and Australia; in ascidians.

REMARKS.—The pair of specimens from the Sulu Archipelago agrees well with the description in Kemp (1922), except that the tip of the rostrum is slightly less acute and the stylocerite slightly wider in the *Albatross* specimens.

170. *Pontonia sibogae* Bruce, 1972

Pontonia katoi.—Holthuis, 1952c:158 [part], figs. 73*a,b*, 74*b*, 75*a,b,d–f*, 76*c,f,g*, 77*a,e,f* [not *P. katoi* Kubo].

Pontonia sibogae Bruce, 1972c:182, fig. 1 [type locality: Curtis Channel, Port Curtis, Queensland, Australia; 42 meters].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, dorsally flattened, without median carina on dorsal surface, unarmed dorsally, with subapical tooth ventrally; carapace with antennal spine, lateral margin angularly produced anteriorly; telson bearing 5 pairs of conspicuous dorsolateral spines; antennal scale with distolateral spine curving around lateral part of blade; 3rd maxilliped with penultimate slightly longer than terminal segment; 2nd pereopods subequal; 3rd pereopod with dactyl biunguiculate, short and stout, bearing 3 teeth on flexor margin; maximum postorbital carapace length 5.9 mm.

RANGE.—Oman, Madagascar, Queensland, Australia, and Indonesia; 25–45 meters, in ascidians.

171. *Pontonia stylirostris* Holthuis, 1952

Pontonia stylirostris Holthuis, 1952c:169, figs. 82–84 [type locality: between Pulau Misool and New Guinea; 1°42.5′S, 47.5°47.5′E; 32 m].

DIAGNOSIS.—Rostrum overeaching anteriorly extended eyes, subcylindrical, armed dorsally with 2 subapical teeth, unarmed ventrally; carapace with antennal spine, lateral margin not distinctly produced anteriorly; telson bearing 2 pairs of conspicuous dorsolateral spines, anterior pair reaching nearly to bases of posterior pair; antennal scale with short distolateral spine reaching about to level of distalmost margin of blade; 3rd maxilliped with penultimate distinctly longer than terminal segment; 3rd pereopod with dactyl biunguiculate, elongate, bearing 4–6 teeth on flexor margin; maximum postorbital carapace length about 4 mm.

RANGE.—Oman, Tanzania, Indonesia, and Queensland, Australia; 32–45 m, not known to be associated with ascidiaceans.

**Pontonides* Borradaile, 1917

Pontonides Borradaile, 1917:387 [type species, by monotypy: *Pontonia maldivensis* Borradaile, 1915:213; gender: masculine].

DIAGNOSIS.—Rostrum not overreaching anteriorly extended eyes, unarmed dorsally, lateral carina expanded into broad supraocular eave; carapace about as wide as high, dorsal profile somewhat convex, anterior margin produced anteriorly as convex lobe, without longitudinal branchiostegal suture, with antennal spine, without hepatic spine, orbital margin incomplete posteriorly; abdomen with pleura of 5th somite rounded or acute; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curving ventrad, dorsolateral spines small; antennal scale well developed; mandible without palp; 3rd maxilliped without exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopod with chela not borne in vertical plane, fingers not provided with socket and plunger closure, movable finger not ventrad, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl simple, not bearing hoof-shaped protuberance; uropod with lateral branch bearing at least 1 movable lateral spine.

RANGE.—Red Sea and eastern Africa to Japan, Philippines, Indonesia, Great Barrier Reef of Australia, and Caroline and Galápagos islands; associated with alcyonarian, scleractinian, and antipatharian corals.

REMARKS.—The true identity of the Indo-Pacific species referred by Holthuis (1952c) and Fujino and Miyake (1969d) to *Pontonides unciger*—an apparent representative of which was collected at *Albatross* Station 5147—must await the revision of the genus suggested by Bruce (1978a:284).

Pontoniopsis Borradaile, 1915

Pontoniopsis Borradaile, 1915:207 [type species, by monotypy: *Pontoniopsis comanthi* Borradaile, 1915:213; gender: feminine].

DIAGNOSIS.—Rostrum sometimes overreaching anteriorly extended eyes, flattened dorsally, unarmed, lateral carina slightly expanded laterally but not forming broad supraocular eave; carapace with dorsal profile nearly straight, not lobate or dentate, anterior margin very slightly produced anteroventrally, not deeply concave (notched), without longitudinal branchiostegal suture, with antennal spine, without hepatic spine, orbital margin obscurely interrupted posteriorly, abdomen with pleuron of 5th somite narrowly rounded; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curving ventrad, dorsolateral spines not robust; antennal scale well developed; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus entire, not subdivided; 2nd pereopods dissimilar, unequal, movable finger not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl not bearing hoof-shaped protuberance, biunguiculate; uropod with lateral branch bearing 1 movable spine flanked by immovable tooth.

RANGE.—Indo-Pacific from the Red Sea to the Gilbert, Marianna, and Fiji islands, and the Florida Keys in the western Atlantic.

REMARKS.—The two nominate species assigned to this genus are quite distinct (see Gore, 1981, table 3) and are apparently associated with two different classes of echinoderms.

172. *Pontoniopsis comanthi* Borradaile, 1915

Pontoniopsis comanthi Borradaile, 1915:213 [type locality; Mabuaig, Torres Straits, on *Comanthus*].—Holthuis, 1952c:153, figs. 70, 71.—Bruce, 1981h:396, figs. 3D, 4, 5.

DIAGNOSIS.—Rostrum lanceolate, compressed; antennal scale with distolateral tooth not reaching level of distal margin of blade; 3rd maxilliped without arthrobranch; 3rd pereopod distinctly biunguiculate; maximum postorbital carapace length about 1.2 mm.

RANGE.—Gilbert, Marianna, and Fiji islands.

**Thaumastocaris* Kemp, 1922

Thaumastocaris Kemp, 1922:244 [type species, by monotypy: *Thaumastocaris streptopus* Kemp, 1922:244; gender: feminine].

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, compressed laterally, armed dorsally throughout length and ventrally, lateral carina not expanded into broad supraocular or postocular eave; carapace slightly compressed laterally, dorsal profile nearly straight, 3 teeth of dorsal rostral series arising from gastric region, anterior margin not produced anteroventrally as prominent convex lobe and not deeply concave (notched), without longitudinal branchiostegal suture, with antennal spine, without hepatic spine, orbital margin not interrupted posteriorly; abdomen with pleuron of 5th somite rounded; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not curving ventrad, dorsolateral spines long and strong; epistome not bearing paired, horn-like processes; antennal scale well developed; mandible without palp; 3rd maxilliped with exopod; 4th thoracic sternite without slender median process; 1st pereopod with carpus subdivided; 2nd pereopods subsimilar but usually unequal, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl biunguiculate but not bearing hoof-shaped protuberance; uropod with lateral branch bearing 1 movable spine flanked by immovable tooth.

RANGE.—Red Sea and eastern Africa, Philippines, Indone-

sia, New Caledonia, and Caroline and Marshall islands; associated with sponges.

REMARKS.—Only one species is known.

*173. *Thaumastocaris streptopus* Kemp, 1922

Thaumastocaris streptopus Kemp, 1922:244, figs. 78-80 [type locality: Nouméa, New Caledonia].—Holthuis, 1952c:111, figs. 46, 47.—Bruce and Svoboda, 1983:25, fig. 9.

DIAGNOSIS.—Characters of genus; maximum carapace length 8.4 mm.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago: sta 5136; 6°04′20″N, 120°59′20″E; 40 m; sand, shells; 14 Feb 1908 (0907-0927); 12′ Agassiz beam trawl, 2 mud bags: 1 male [7.1]; sta 5145; 6°04′30″N, 120°59′30″E; 42 m; coral sand, shells; 15 Feb 1908 (1344-1359); 12′ Agassiz beam trawl, mud bag: 1 ovig female [8.4].—Near Siasi, Sulu Archipelago; 5°41′ 40″N, 120°47′10″E; 38 m; coral sand, shells; 16 Feb 1908 (1127-1147); 12′ Agassiz beam trawl, mud bag: 1 female [5.2].

RANGE.—See "Range" of genus.

REMARKS.—The first pereopods seem to be unusually variable in this species. In the male from *Albatross* station 5136, both members of the pair are virtually identical, are more robust than the stouter one illustrated by Holthuis (1952c, fig. 46b), overreach the antennal scale by the length of the chela and about one-half of the carpus, and have only one distinct carpal articulation. In the ovigerous female from station 5145, they are very unequal: the right overreaches the antennal scale by slightly more than the length of the chela, is a little more robust than the one depicted by Holthuis (1952c, fig. 46b), and has two distinct carpal articulations; the left overreaches the antennal scale by the length of the chela and most of the carpus, is very like the one shown by Kemp (1922, fig. 80a), and has five carpal articulations. In the smaller female from station 5147, they are also very dissimilar: the right overreaches the antennal scale by the length of the chela and most of the carpus, agrees fairly well with the one illustrated by Holthuis (1952c, fig. 4c), and has five carpal articulations; the left overreaches the antennal scale by the length of the chela and about two-thirds of the carpus, resembles the one in Holthuis (1952c, fig. 46b), and has two and one-half carpal articulations. In an ovigerous female with a carapace length of 4.8 mm collected in Oyster Pass, Iwayama Bay, Palau Islands by F.M. Bayer and identified by L.B. Holthuis (USNM 155130), the first pereopods are only slightly unequal and dissimilar, and both have four carpal articulations. In one of two males associated with a blue trumpet sponge at the same locality (USNM 155131) with a carapace length of 4.3 mm, the first pereopods are subequal in length, but the right member of the pair is distinctly more slender than the left and has four distinct carpal articulations, in contrast with only one articulation on the left side. The other male, with a carapace length of only 3.0 mm, has the first pereopods subequal in length, but the right is slightly more robust and has only three distinct carpal articulations, as compared with four on the left side.

Eyed eggs, apparently nearly ready to hatch, in the female, measure about 0.6 mm in major diameter.

*Vir Holthuis, 1952

Vir Holthuis, 1952c:4, 8, 29 [type specimen, by monotypy: *Palaemonella orientalis* Dana, 1852a:26; gender: masculine.]

DIAGNOSIS.—Rostrum overreaching anteriorly extended eyes, compressed laterally, armed at least dorsally throughout length, lateral carina not expanded into broad supraocular or postocular eave; carapace subcylindrical, dorsal profile nearly straight, with or without 1 tooth of dorsal rostral series on gastric region, anterior margin not produced anteroventrally as prominent convex lobe and not deeply concave (notched), without longitudinal branchiostegal suture, with antennal spine, without hepatic spine, orbital margin not interrupted posteriorly; abdomen with pleuron of fifth somite rounded; telson not curving ventrad, posterior margin not incised, median and submedian pairs of posterior spines not robust;; antennal scale well developed; mandible with inconspicuous palp; 3rd maxilliped with exopod; 4th thoracic sternite with slender median process; 1st pereopod with with carpus entire, not subdivided; second pereopods similar, fingers not provided with socket and plunger closure, movable finger normal, not semicircular; 3rd pereopod composed of 7 segments, merus and ischium not fused, dactyl simple, not bearing hoof-shaped protuberance; uropod with lateral branch bearing 1 movable lateral spine flanked by immovable tooth.

RANGE.—Eastern Africa, Andaman Islands, South China Sea, Ryukyu Islands, Philippines, Great Barrier Reef of Australia, Marianna and Fiji islands and Hawaii; associated with corals.

REMARKS.—Both known species of *Vir* have Philippine type localities.

*174. *Vir orientalis* (Dana, 1852)

Palaemonella orientalis Dana, 1852a:26 [type locality: Sulu Sea].—Kemp, 1922:131, figs. 9-11.

Vir orientalis.—Holthuis, 1952c:30.

DIAGNOSIS.—Dorsal antennular flagellum with branches fused for about 6 articles; 2nd pereopod with palm about $2^1/_2$ times as long as wide and carpus 0.6 as long as palm; 3rd pereopod with propodus 7 times as long as wide; maximum postorbital carapace length about 3.3 mm.

MATERIAL.—PHILIPPINES. Rapu Rapu Island, Lagonoy Gulf; [13°12′N, 124°09′E]; 3-$4^1/_2$ m; sand, coral; 22 Jun 1909 91300-1800) dynamite: 1 male [2.1].

RANGE.—Eastern Africa, Andaman Islands, South China Sea, Philippines, Marianna and Fiji islands, and Hawaii.

REMARKS.—The single male specimen from the *Albatross* collections differs from Kemp's figures in having eight, rather

than seven, dorsal rostral teeth, with the posteriormost tooth situated immediately above, rather than posterior to, the posterior orbital margin, and each finger of the 2nd pereopod armed with two low but distinct teeth.

175. *Vir philippinensis* Bruce and Svoboda, 1984

Vir philippinensis Bruce and Svoboda, 1984:87, figs. 1–4 [type locality: Cebu, Philippines; associated with scleractinian coral *Plerogyra*].

DIAGNOSIS.—Dorsal antennular flagellum with branches fused for 12 or 13 articles; 2nd pereopod with palm about 3 1/2 times as long as wide and carpus 0.8 as long as palm; 3rd pereopod with propodus 11 1/2 times as long as wide; maximum postorbital carapace length 3.0 mm.

RANGE.—Ryukyu Islands, Philippines, and Great Barrier Reef of Australia; associated with corals.

*ANCHISTIOIDIDAE Borradaile, 1915

ANCHISTIOIDIDAE Borradaile, 1915:205.
ANCHISTIOIDINAE Gurney, 1938:2, 41.—Bruce, 1986a:467–469.

DIAGNOSIS.—Carapace without lateral suture; telson typically with 1 pair of stout posterior spines; antennule with 2 completely separate flagella, 1 with accessory branch; mandible with incisor process, without palp; 1st maxilla with mesial coxal lobe not unusually large; 2nd maxilla without endites; 2nd maxilliped with marginal setae on distal segment not unusually stout or dense; 3rd maxilliped with antepenultimate segment neither articulated with nor much wider than next proximal segment; 4th thoracic sternite without slender median process; fingers of chelipeds not pectinate; 2nd pereopod with dactyl not distinctly serrate on extensor margin; all pleopods with appendices internae, at least in male; 2nd pleopod with appendix masculina in male.

RANGE.—Red Sea and Madagascar to Japan, Philippines, Indonesia, Australia, and Tuamotu Archipelago.

REMARKS.—There is little doubt that recognition of this family is justified by the larval characters described by Gurney (1936) and by the typical dentition of the telson and the form of the endopod of the first pleopod of the adult.

Only one genus is recognized.

**Anchistioides* Paulson, 1875

Anchistioides Paulson, 1875:115 [type species, by monotypy: *Anchistioides compressus* Paulson, 1875:115; gender: masculine].
Palaemonopsis Borradaile, 1899:410 [type species, by monotypy: *Palaemonopsis willeyi* Borradaile, 1899:410; gender: feminine. Invalid junior homonym of *Palaemonopsis* Stimpson, 1871 (Crustacea)].
Amphipalaemon Nobili, 1901a:5 [substitute name for *Palaemonopsis* Borradaile, 1899; gender: masculine].

DIAGNOSIS.—Characters of the family.

RANGE.—See "Range" of family.

REMARKS.—Because of persistent uncertainty about the validity and variability of the following nominal species of *Anchistioides*, the compilation of a useful key to the valid species is nearly as difficult today as it was when it was last attempted by Gordon (1935:345):

Periclimenes antiguensis Schmitt, 1924b:84
  Type locality: English Harbour, Antigua, Lesser Antilles; surface
Amphipalaemon australiensis
  See below
Periclimenes barbadensis Schmitt, 1924b, pl. 3
  Type locality: English Harbour, Antigua, Lesser Antilles; surface
  = *P. antiguensis* Schmitt, 1924
Anchistioides compressus Paulson, 1875:115
  Type locality: Red Sea
Amphipalaemon cooperi Borradaile, 1915:209
  Type locality: South Nilandu Atoll, Maldive Islands
  ? = *Palaemonopsis willeyi* Borradaile, 1899
Amphipalaemon gardineri Borradaile, 1915:209
  Type locality: North Male Atoll, Maldive Islands
  ? = *Palaemonopsis willeyi* Borradaile, 1899
Amphipalaemon Seurati Nobili, 1906a:259
  Type locality: "Tearia," Tuamotu Archipelago; 22 meters
Palaemonopsis willeyi
  See below.

176. *Anchistioides australiensis* (Balss, 1921)?

Amphipalaemon australiensis Balss, 1921b:11, figs. 3–6 [type locality: 45 miles west-southwest of Cape Jaubert, Western Australia; 20 meters].
Anchistioides australiensis.—Bruce, 1971g:24, fig. 6.

DIAGNOSIS.—Rostrum with 7 or 8 dorsal and 3 ventral teeth; carapace with sharp postorbital tooth; antennal scale with blade tapering to base of distolateral tooth, not angularly produced; 2nd pereopod with fingers distinctly longer than palm; maximum postorbital carapace length 13 mm.

RANGE.—The specimen assigned to *A. australiensis* by Bruce (1971g) came from a depth of 9 meters in the Arafura Sea off Sungai Buaja, West New Guinea, while the type specimens of *A. australiensis* were found in 20 meters in the extreme eastern part of the Indian Ocean off Cape Jaubert, Western Australia.

REMARKS.—There is a possibility that the specimen from the Arafura Sea represents an undescribed species, rather than the one described by Balss. It is fully three times as large as the Australian specimens, having a postorbital carapace length of 13.0 mm, as opposed to 4 mm. It is armed postorbitally with a sharp tooth directed anteriorly, which seems to be obsolescent in Australian specimens. The telson is unarmed dorsally and bears a pair of "short, stout, intermediate" posterior spines, whereas Balss (1921b, fig. 4) shows two pairs of rather long dorsolateral spines in the anterior half of the telson and a pair of long, slender, intermediate posterior spines. Perhaps most significant is the fact that the blade of the antennal scale tapers

to the base of the distolateral tooth (Bruce, 1971g, fig. 9c), instead of forming an angular distal projection, as in all other described species of the genus. Such a projection seems to be indicated by Balss, 1921b, fig. 3) and distinctly by Gordon (1935, fig. 23d), presumably from one of the type specimens of *A. australiensis*.

*177. *Anchistioides willeyi* (Borradaile, 1899)

Palaemonopsis willeyi Borradaile, 1900:410, pls. 36, 37: fig. 7.
Anchistioides willeyi.—Gordon, 1935:344, figs. 23*a*, 24*a*.—Holthuis, 1952c:214, figs. 106, 107.—Bruce, 1971g:22, fig. 8; 1978a:285, fig. 44.

DIAGNOSIS.—Rostrum typically with 6–8 dorsal and 3 or 4 ventral teeth; carapace with blunt postorbital tooth; antennal scale with blade angularly produced, not overreaching distolateral tooth; 2nd pereopod with fingers slightly longer than palm; maximum postorbital carapace length 10.5 mm.

MATERIAL.—PHILIPPINES. Off Romblon Island, Sibuyan Sea; sta 5179; 12°38′15″N, 122°12′30″E; 68 m; hard sand; 24.3°; 25 Mar 1908 (1049–1104); 12′ Agassiz beam trawl, 3 mud bags: 1 male [7.8] 1 ovig female [9.2].—Western Basilan Strait, southwest of Zamboanga Peninsula, Mindanao; sta 5134; 6°44′45″N, 121°44′45″N, 121°48′E; 46 m; fine sand; 7 Feb 1908 (0722–0742); 9′ Tanner beam trawl, mud bag: 1 male [10.5].—Off Tawitawi, Sulu Archipelago; sta 5151; 5°24′40″N, 120°27′15″E; coarse sand, shells; 18 Feb 1908 (1307–1327); 12′ Agassiz beam trawl, mud bag: 2 males [7.9, 9.4].—Tumindao Reef (south end), Sulu Archipelago; [4°42′N, 119°19′E]; scattered clumps of coral; 26 Feb 1908; electric light; 1 male [5.2] 1 female [6.4].

RANGE.—Madagascar to Philippines, Indonesia, New Britain, and Great Barrier Reef of Australia.

REMARKS.—There seems to be good likelihood that Gordon (1935:344, 345), who compared type specimens of *A. willeyi*, *A. cooperi*, *A. gardineri*, and *A. australiensis*, was correct in believing that these four species are conspecific, but complete confirmation must await the availability of additional collections. Somewhat less certain is the possibility that the four Madagascar specimens with long rostra, rostral formulae of 8–13/6, and unusually long fingers of the second pereopod (Bruce, 1978a:286, 287), belong to that species, and the *Albatross* material does little to clarify the situation. Both specimens of the pair collected at Station 5179, in the Sibuyan Sea, seem to be typical of *A. willeyi*, with a rostral formula of 6/3 and the fingers of the second chela 1.1 times as long as the palm. The male from Basilan Strait (Station 5134) has a rostral formula of 9/4, but the fingers of the second chela are barely as long, comparatively, as those of the typical form. The smaller male from off Tawitawi (Station 5151), has a rostral formula of 9/3, but the second chelipeds are missing; the larger male has a rostral formula of 10/3 but the fingers and palm of the second cheliped are subequal. The male from Tumindao Reef has a rostral formula of 9/4 but the second chelipeds are lacking; the female has a rostral formula of 6/3 and the fingers of the second cheliped very slightly longer than the palm. In other words, four of the seven Philippine specimens have nine or ten dorsal rostral teeth, but in none of the four do the fingers of the second cheliped approach the length of nearly one and one-half times the length of the palm illustrated by Bruce (1978a, fig. 44B).

GNATHOPHYLLIDAE Dana, 1852

GNATHOPHYLLINAE Dana, 1852a:16.

DIAGNOSIS.—Carapace without longitudinal suture; telson with 2 or 3 pairs of spines on posterior margin; antennule with 2 completely separate flagella, 1 with accessory branch; mandible without palp, with incisor process vestigial or absent; 1st maxilla with mesial coxal lobe unusually large, mesial basal lobe reduced; 2nd maxilla without endites; 1st maxilliped with exopodal lash; 2nd maxilliped with distal segment bearing dense marginal row of stout setae; 3rd maxilliped with antepenultimate segment broad, at least proximally; fingers of chelipeds not pectinate; 2nd pereopod with dactyl not distinctly serrate on extensor margin; 1st pleopod without appendix interna on endopod; 2nd pleopod with appendix masculina in male.

RANGE.—Pantropical and subtropical; sometimes associated with sea urchins.

REMARKS.—Comparison of the 12 species representing four genera currently assigned to the family Gnathophyllidae reveals a homogeneity, especially in the anterior mouthparts, that seems to deny the proposed absorption of the heterogeneous palaemonid pontoniines into the family. The mandible is devoid of a palp in *Gnathophylloides mineri* and *Levicaris mammilata* (Edmondson, 1931); a vestigial incisor process is indicated in *Gnathophylloides robustus*, *Gnathophyllum*, and *Pycnocaris*. The first maxilla displays a very large mesial coxal lobe and a reduced mesial basal lobe in the two species of *Gnathophylloides*, in *Gnathophyllum*, and in *Levicaris*, with slightly less massive proportions in *Pycnocaris*. In all four genera, the second maxilla lacks endites. The first maxilliped is provided with a well-developed exopodal lash, and the caridean lobe is unusually produced in *Gnathophylloides*, *Gnathophyllum*, and *Levicaris*, being somewhat more broadly rounded in *Pycnocaris*. In the second maxilliped, on the other hand, disparity is rampant, reaching an extreme in the compact, five-segmented second maxilliped of *Gnathophyllum*; even in this appendage, however, there is structural similarity between the example in *Levicaris*—which is proportionately longer than the second maxilliped of any other decapod—and the tiny counterpart in *Gnathophylloides mineri*. There is discrepancy, also, between the operculate third maxillipeds of *Gnathophylloides mineri*, *Gnathophyllum*, and *Pycnocaris* and the more slender antepenultimate segments of that appendage in *Gnathophylloides robustus* and *Levicaris*.

The following key may serve to distinguish these four genera.

Key to Genera of Gnathophyllidae

1. Third pereopod with dactyl biunguiculate 2
   Third pereopod with dactyl basally broad, subtriangular, armed with single extensodistal spine 3
2. Rostrum dentate dorsally; telson bearing 2 or 3 pairs of spines on posterior margin; 3rd pereopod with extensor tooth of dactyl longer than flexor tooth . . . . . ***Gnathophyllum***
   Rostrum unarmed; telson bearing 1 pair of stout, downcurved spines on posterior margin; 3rd pereopod with flexor tooth of dactyl longer than extensor tooth . . . . . ***Pycnocaris*** Bruce, 1972g:50 (Chagos Archipelago, Indian Ocean; seaward flats, associated with holothurians)
3. Second maxilliped conventional, not elongate . . . . . ***Gnathophylloides***
   Second maxilliped remarkably elongate, overreaching 1st pereopod . . . . . ***Levicaris*** Bruce, 1973f:28 (Ryukyu and Marshall islands, and Hawaii; associated with echinoids *Heterocentrotus*)

Gnathophylloides Schmitt, 1933

Gnathophylloides Schmitt, 1933:5 [type species, by monotypy: *Gnathophylloides mineri* Schmitt, 1933:7; gender: masculine].

DIAGNOSIS.—Rostrum with dorsal teeth; telson with 3 pairs of spines on posterior margin; 2nd maxilliped not unusually elongate; 3rd pereopod with dactyl composed of subtriangular lamina bearing extensodistal spine.

RANGE.—Zanzibar, Seychelles, Western Australia, Hawaii, and western Atlantic; associated with echinoids.

REMARKS.—Neither of the two currently recognized species of *Gnathophylloides* has been recorded from the Philippine-Indonesian region, but it is probable that they will eventually be found there. They are comparatively characterized in Bruce (1973f:27).

178. *Gnathophylloides mineri* Schmitt, 1933

Gnathophylloides mineri Schmitt, 1933:7, fig. 3 [type locality: Ensenada, Puerto Rico]; 1935:167, fig. 31.—Bruce, 1974e:313, fig. 1.

DIAGNOSIS.—Rostrum not overreaching eyes; carapace rounded anteroventrally; telson with lateral margin convex, posterior margin not bilobed, without posteromedian carina; eyestalk not extending distally beyond cornea; antennal scale widest in proximal 1/2, lateral margin distinctly concave; mandible without trace of incisor process; 2nd maxilliped with 2 distal segments, together, subquadrate; 3rd maxilliped with antepenultimate segment 1 3/4 times as long as wide in proximal 1/2, lateral margin slightly convex, exopod longer than endopod; 1st pereopod without acute distal prolongation on basis; 2nd pereopod with chela about 3 times as long as wide, movable finger unarmed on opposable margin; color pattern of single wide longitudinal stripe of dark brown or black; maximum postorbital carapace length 2.3 mm.

RANGE.—Zanzibar, Seychelles, New South Wales, Australia, Tonga Islands, Hawaii, and western Atlantic from Florida to Yucatan and Grenadines: associated with echinoids *Tripneustes*.

179. *Gnathophylloides robustus* Bruce, 1973

Gnathophylloides robustus Bruce, 1973f:17, figs. 1–7 [type locality: off Point Moore, Geraldton, Western Australia; associated with echinoid *Centrostephanus* in 3 meters].

DIAGNOSIS.—Rostrum overreaching eyes; carapace acute anteroventrally; telson with lateral margins nearly straight, posterior margin bilobed, with short posteromedian carina; eyestalk produced distally beyond cornea; antennal scale with margins subparallel, lateral margin nearly straight; mandible with vestige of incisor process; 2nd maxilliped with 2 distal segments, together, elongate triangular; 3rd maxilliped with antepenultimate segment 3 3/4 times as long as wide, lateral margin distinctly concave, exopod shorter than endopod; 1st pereopod with acute distal prolongation on basis; 2nd pereopod with chela about 5 times as long as wide, movable finger with single tooth on opposable margin; color pattern of fine longitudinal red stripes; maximum postorbital carapace length 6.2 mm.

RANGE.—Known only from the type locality off Western Australia; associated with echinoid, *Centrostephanus*.

REMARKS.—Because of the numerous differences, especially in the second and third maxillipeds, between the two species assigned to *Gnathophylloides*, *G. robustus* may qualify as a distinct genus, unless intermediate forms eventually appear.

Gnathophyllum Latreille, 1819

Gnatophyllum Latreille, 1819:72 [type species, selected by H. Milne Edwards in Cuvier, 1837, pl. 52: fig. 2: *Alpheus elegans* Risso, 1816:92; gender: neuter].

Gnathophyllum Desmarest, 1823:322–324 [emendation of *Gnatophyllum* Latreille, 1819].

Drimo Risso, 1827:70 [type species, by monotypy: *Alpheus Elegans* Risso, 1816:92; gender: masculine].

DIAGNOSIS.—Rostrum with dorsal teeth; telson with 2 or 3 pairs of spines on posterior margin; 2nd maxilliped short and broad; 3rd maxilliped operculate; 3rd pereopod biunguiculate.

RANGE.—Pantropical and subtropical; sometimes associated with echinoids.

REMARKS.—Eight currently recognized species of *Gnathophyllum*, covered in the following key, are remarkably similar morphologically but most display diagnostic color patterns.

Key to Species of *Gnathophyllum*

1. Posterior tooth of dorsal rostral series situated on rostrum, proper, anterior to level of posterior orbital margin; nearly uniformly dark colored with or without pale transverse stripes 2

   Posterior tooth of dorsal rostral series situated directly above or posterior to level of posterior orbital margin; color pattern consisting of spots, either few large, discretely distributed, and encircled with dark pigment or numerous small, crowded, not peripherally accentuated 3

2. Cornea of eye distinctly ogival; 3rd pereopod usually more slender, merus 3.2–6.5 times as long as wide; carapace and abdomen, except for 6th somite and telson, dark brown with whitish transverse stripes–6 on carapace, 10 on 5 anterior abdominal somites; ovigerous females with portorbital carapace length 2.3–4.4 mm . . . . . 180. ***G. americanum***

   Cornea of eye with or without distinct distal papilla; 3rd pereopod usually stouter, merus 2.9–4.0 times as long as wide; carapace and abdomen usually uniformly blackish, fading on posterior 1/2 of telson; ovigerous females with postorbital carapace length 1.8–2.3 mm . . . . . ***G. ascensione*** Manning and Chace, 1990:11, figs. 5, 6, 8 (Ascension Island, South Atlantic; probably associated with echinoids)

3. Telson with posterior pair of lateral spines situated so far posteriorly as to be hardly distinguishable from true posterior spines; color pattern consisting of few large spots encircled with dark pigment 4

   Telson with posterior pair of lateral spines variably but distinctly removed anteriorly from posterior spines; color pattern consisting of numerous small, crowded spots not bounded by dark color 5

4. Pereopods slender, dactyl of 3rd pair with accessory tooth on flexor margin sharply acute, propodus more than 12 times as long as wide; color brown marked with discrete darker reddish brown circles . . . . . ***G. circellum*** Manning, 1963:54, figs. 3, 4 (Florida Keys and Bahamas, western Atlantic; cryptic in coral heads to depth of 6 meters)

   Pereopods stouter, dactyl of 3rd pair with accessory tooth on flexor margin broadly rather than sharply acute, propodus less than 8 times as long as wide; color orange marked with cream-colored spots outlined in dark brown or black . . . . . ***G. splendens*** Chace and Fuller, 1971:493, figs. 1–5 (Puerto Rico. western Atlantic)

5. Antennular peduncle with stylocerite overreaching distal margin of 1st segment 6

   Antennular peduncle with stylocerite not reaching level of distal margin of 1st segment 7

6. Rostrum armed with 4 or more dorsal teeth; principal color pattern consisting of light spots on dark brown background . . . . . ***G. panamense*** Faxon, 1893:198 (Gulf of California, Panama, Galapagos Islands; tidepools to 20 meters)

   Rostrum armed with only 2 dorsal teeth; principal color pattern consisting of brown spots on light yellow background . . . . . ***G. precipuum*** Titgen, 1989:203 (Hawaii; 9–12 meters)

7. Brown color not extending as far as anterior margin of carapace ventral to antennal spine . . . . . ***G. elegans*** (Risso, 1816:92, pl. 2: fig. 4)
(Mediterranean and Azores, Madeira, and Canary islands; 2–10 meters)

Brown color extending to entire anterior margin of carapace ventral to antennal spine . . . . . ***G. modestum*** Hay, 1917:395, fig. 14
(North Carolina and Florida Keys, western Atlantic; to a depth of 27 meters)

180. *Gnathophyllum americanum* Guérin-Méneville, 1855

Gnathophyllum americanum Guérin-Méneville, 1855:viii, pl. 2: fig. 14 [type locality: Cuba].—Holthuis, 1949b:244, figs. 5, 6.—Manning, 1963:58, figs. 5, 6.—Bruce, 1975f:25, fig. 12 [color].—Manning and Chace, 1990:12, 13, fig. 7.

Gnathophyllum fasciolatum Stimpson, 1860:28 [type locality: Port Jackson, Australia].

Gnathophyllum zebra Richters, 1880:161, pl. 17: figs. 18–20, 22 [type locality: Ilot Fouquets, Mauritius].

Gnathophyllum pallidum Ortmann, 1890:537 [type locality: Tahiti].

Gnathophyllum tridens Nobili, 1906a:259 [type locality: Rikitea, Tuamotu Archipelago; outer reef].

Gnathophyllum minuscularium Armstrong, 1940:9, fig. 4C–K [type locality: The Reach, St. George Island, Bermuda; surface].

DIAGNOSIS.—Rostrum armed with 3–5 dorsal teeth, posterior tooth of series situated on rostrum, proper, anterior to level of posterior orbital margin; telson with posterior pair of lateral spines variably but distinctly removed anteriorly from posterior spines; cornea of eye distinctly papillate distally; antennular peduncle with stylocerite reaching about to level of articulation with 2nd segment; 3rd pereopod slender, merus $3^1/_4$–$6^1/_2$ times as long as wide; carapace and abdomen, except for 6th somite and telson, dark brown with whitish transverse stripes–6 on carapace, 10 on 5 anterior abdominal somites; ovigerous females with postocular carapace length of 2.3–4.4 mm.

RANGE.—Red Sea to South Africa and eastward through Indo-Pacific region to Tuamotu Archipelago, western Atlantic from Bermuda and southern Florida throughout Gulf of Mexico and Caribbean Sea, eastern Atlantic from Canary Islands; to a depth of 50 meters, occasionally associated with echinoderms and has even "been observed browsing on the papulae of several asteroids by means of the highly modified outer maxillipeds." (Bruce, 1975f:27).

*HYMENOCERIDAE Ortmann, 1890

HYMENOCERIDAE Ortmann, 1890:511.

DIAGNOSIS.—Carapace without longitudinal suture; telson with 2 pairs of spines on posterior margin; antennule with 2 completely separate flagella, 1 with accessory branch, sometimes foliaceous; mandible without palp or incisor process; 1st maxilla with mesial coxal lobe not unusually large, mesial basal lobe not reduced; 2nd maxilla with vestigial endite; 1st maxilliped with exopodal lash; 2nd maxilliped with marginal setae on distal segment not especially stout or dense; 3rd maxilliped with antepenultimate segment articulated with and distinctly wider than next proximal segment; 2nd pereopod with chela compressed toward flexor margin, sometimes foliaceously so, dactyl sometimes serrate on extensor margin; 1st pleopod without appendix interna on endopod; 2nd pleopod with appendix masculina in male.

RANGE.—Red Sea to South Africa and eastward through Indonesia and entire Pacific to Panama.

REMARKS.—The fact that the three foliaceous distal segments of the third maxilliped are articulated, rather than fused, with the next proximal segment seems sufficient reason to resurrect Ortmann's familial designation of the three remarkable species in two genera recognized herein and characterized in the following key.

Key to Genera and Species of Hymenoceridae

1. Antennule with lateral (fused) flagellum greatly expanded into foliaceous form; 3rd maxilliped with penultimate segment wider than antepenultimate; 2nd pereopod with flexor margin of chela greatly expanded foliaceously . . . . . *181. ***Hymenocera picta***

Antennule with both flagella conventional, not foliaceous; 3rd maxilliped with penultimate segment narrower than antepenultimate; 2nd pereopod with chela compressed and serrate on flexor margin but not foliaceous . . . . . ***Phyllognathia*** Borradaile, 1915 2

2. Rostrum slender, not expanded ventrally; eye slightly ogival; antennular peduncle with margins of basal segment subparallel, stylocerite overreaching midlength of segment; antennal scale with subparallel margins; 3rd maxilliped with antepenultimate segment longer than wide; 2nd pereopod with dactyl serrate on extensor margin; 3rd pereopod with dactyl biunguiculate . . . . . ***P. ceratophthalma*** (Balss, 1913:234) (Maldive Islands, Japan, and Great Barrier Reef of Australia)

Rostrum deeply expanded ventrally; eye strongly and sharply produced distally; antennular peduncle with basal segment tapering distally, stylocerite not nearly reaching midlength of segment; antennal scale tapering distally; 3rd maxilliped with antepenultimate segment wider than long, 2nd pereopod with dactyl unarmed on extensor margin; 3rd pereopod with dactyl simple . . . . . ***P. simplex*** Fujino, 1973b:90, figs. 1-3 (Papua New Guinea, Japan, and Great Barrier Reef of Australia; 40-50 meters)

**Hymenocera* Latreille, 1819*

Hymenocera Latreille, 1819:71 [type species, designated under plenary powers of International Commission on Zoological Nomenclature: *Hymenocera picta* Dana, 1852b:593; gender: feminine].

Nematophyllum Bleeker, 1856:37 [type species, selected by Holthuis, 1952d:345: *Hymenocera picta* Dana, 1852b:593; gender: neuter].

DIAGNOSIS.—Antennule with lateral flagellum greatly expanded foliaceously; 3rd maxilliped with penultimate segment wider than antepenultimate; 2nd pereopod with flexor margin of chela greatly expanded foliaceously.

RANGE.—Red Sea to Zululand and eastward through Philippines and Indonesia to Hawaii, Tuamotus, and Panama; preying on starfishes.

REMARKS.—Debelius (1984:53) is the most recent author to recognize two species of harlequin shrimps. He based that conclusion on the fact that the Indian Ocean form is spotted with brown encircled with bright blue, while the Pacific form has wine-red spots. In the absence of apparent morphological differences and even of dissimilarities in the configuration of the spots in illustrations by Debelius and others-except for a sexual difference in "the second color patch on the side of the abdomen" (Wickler, 1973:225), we are disposed to treat those populations as representing color phases of a single species until there is evidence of more definitive taxonomic distinctions. Such evidence might be no more noticeable than minor but consistent disparity in the color pattern, as in *Lysmata amboinensis* (De Man, 1888) and *L. grabhami* (Gordon, 1935) (see Manning and Chace, 1990:23).

**181. Hymenocera picta* Dana, 1852

Hymenocera picta Dana, 1852b:593; 1855, pl. 39: fig. 3 [type locality: Raraka, Tuamotu Archipelago].—Wickler, 1973:225, figs. 1-3.—Debelius, 1984:53, 54 [color photos].

H[ymenocera] elegans Heller, 1861:25 [type locality: Tor (Gulf of Suez)]; 1962c:264, pl. 3: figs. 9-14.—Debelius, 1984:53-55 [color photos].

H[ymenocera] latreillii Sharp, 1893:119 [Indian region; Guérin-Méneville nomen nudum].

DIAGNOSIS.—Characters of genus; maximum postorbital carapace length nearly 10 mm.

MATERIAL.—PHILIPPINES. Tataan, Simalac, off Tawitawi, Sulu Archipelago; 19 Feb 1908: 1 male [3.7].

RANGE.—See "Range" of genus.

REMARKS.—See "Remarks" on genus.

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