Key to Philippine Species of *Athanas*

1. Orbit with supracorneal tooth (sometimes rounded) 2
   Orbital without supracorneal tooth 4
2. Infracorneal tooth, if present, overreaching extracorneal tooth; 1st pereopod with merus deeply excavate on flexor surface . . . . . 81. ***A. djiboutensis***
   Infracorneal tooth absent or, if present, not overreaching extracorneal tooth; 1st pereopod with merus not deeply excavate on flexor surface 3
3. Major chela subcylindrical; 2nd pereopod with 5 carpal articles . . . . . 78. ***A. areteformis***
   Major chela compressed; 2nd pereopod with 4 carpal articles . . 79. ***A. borradailei***
4. Third pereopod with dactyl simple, not biunguiculate 5
   Third pereopod with dactyl biunguiculate 6
5. Adult female with carpus of 1st pereopod longer than chela . . . 80. ***A. dimorphus***
   Adult female with carpus of 1st pereopod no longer than palm of chela . . . . . 85. ***A. marshallensis***
6. Second pereopod with 4 carpal articles 7
   Second pereopod with 5 carpal articles 8
7. Rostrum not overreaching 2nd antennular segment . . . . . 82. ***A. dorsalis***
   Rostrum overreaching 2nd antennular segment . . . . . 83. ***A. indicus***
8. Without infracorneal tooth below orbit . . . . . *84. ***?A. jedanensis***
   With sharp infracorneal spine below orbit . . . . . 86. ***A. parvus***

78. *Athanas areteformis* Coutière, 1903

Athanas areteformis Coutière, 1903:;79, figs. 17, 18 [type locality: Naifaro Reef and Hulele Male Atoll, Maldive Islands].—D.M. and A.H. Banner, 1973:304, fig. 2.—A.H. and D.M. Banner, 1983:73.

Athanas Naifaroensis Coutière, 1903:77, figs. 14–16 [type locality: Naifaro Reef and Hulele Male Atoll, Maldive Islands].

Athanas erythraeus Ramadan, 1936:13, pl. 1: fig. 1 [type locality: Hurghada, Egypt].

Athanas dubius A.H.Banner, 1956:322, fig. 2 [type locality: Saipan, Mariana Islands].

DIAGNOSIS.—Rostrum usually overreaching 2nd antennular segment; orbit with sometimes obscure supracorneal tooth, strong extracorneal tooth, and sometimes rounded infracorneal tooth, extracorneal far overreaching infracorneal tooth; major cheliped with chela subcylindrical, carpus shorter than palm in mature female, merus not deeply excavate on flexor surface; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl simple, not biunguiculate, about 1/3 as long as propodus; maximum carapace length to base of rostrum about 6 mm.

RANGE.—Red Sea to South Africa, Maldive and Laccadive islands, Philippines, Australia, and Marshall, Fiji, Tonga, Samoa, and Society islands; often in dead coral on reef flats and deeper.

79. *Athanas borradailei* (Coutière, 1903)

Arete Borradailei Coutière, 1903:80, figs. 19–24 [type locality: Hulele Male Atoll, Maldive Islands].

Arete ghardaqensis Ramadan, 1936:36, pl. 1: figs. 2–8 [type locality: Harghada, Egypt].

Athanas polynesia A.H. and D.M. Banner, 1966a:152, fig. 7 [type locality: Alofau, Tutuila, American Samoa].

Athanas borradailei.—A.H. and D.M. Banner, 1983:73.

DIAGNOSIS.—Rostrum not usually overreaching 2nd antennular segment; orbit with supracorneal tooth and extracorneal tooth, but no infracorneal tooth; major cheliped with chela compressed, carpus shorter than palm in mature female, merus not deeply excavate on flexor surface; 2nd pereopod with 4 carpal articles; 3rd pereopod with dactyl simple, not biunguiculate, about 1/2 as long as propodus; maximum carapace length to base of rostrum about 5 mm.

RANGE.—Red Sea, eastern Africa, Madagascar, Maldives, Philippines, Australia, and American Samoa; subtidal. The Philippine record stems from a single specimen collected at Lalaan, Negros, in 1978.

80. *Athanas dimorphus* Ortmann, 1894

Athanas dimorphus Ortmann, 1894:12, pl. 1: fig. 1 [type locality: Dar es Salaam, Tanzania, Upanga Reef; holes and recesses in coral].—D.M. and A.H. Banner, 1973:313, fig. 6.—A.H. and D.M. Banner, 1983:76.

Athanas solenomerus Coutière, 1897a:381 [type locality: Red Sea].

Athanas leptocheles Coutière, 1897a:381 [type locality: Red Sea].

Athanas dispar Coutière, 1897b:233 [type locality: Djibouti and El Suweis; under stones at low tide].

Athanas setoensis Kubo, 1951:265, figs. 5, 6 [type locality: Shirahama, Wakayama Prefecture, southwest of Kii Peninsula, Japan].

Athanas dimorphus seedang A.H. and D.M. Banner, 1966b:28, fig. 4 [type locality: Koh Kradard, Thailand].

DIAGNOSIS.—Rostrum usually overreaching 2nd antennular segment; orbit without supracorneal tooth, extracorneal tooth acute, infracorneal tooth rounded, not overreaching extracorneal; major cheliped with chela subcylindrical, carpus longer than chela in mature female, merus deeply excavate on flexor surface; 2nd pereopod with 5 carpal articles; 3rd pereopod with

dactyl simple, not biunguiculate, about 1/3 as long as propodus; maximum carapace length to base of rostrum nearly 10 mm.

RANGE.—Red Sea and eastern Africa, Thailand, Philippines, Hong Kong, Japan, Australia, New Caledonia; commonly amid detritus on shallow reef flats, rarely to a depth of 115 meters.

81. *Athanas djiboutensis* Coutière, 1897

Athanas Djiboutensis Coutière, 1897a:234 [type locality: Djibouti].

Athanas sulcatipes Borradaile, 1898:1011, pl. 65: fig. 9 [type locality: Funafuti, Ellice Islands].

Athanas djiboutensis.—D.M. and A.H. Banner, 1973:306, fig. 3.—A.H. and D.M. Banner, 1983:77.

DIAGNOSIS.—Rostrum variable in length; orbit with supracorneal, extracorneal, and infracorneal teeth, latter overreaching extracorneal teeth; major cheliped with chela subcylindrical, merus deeply excavate on flexor surface, minor cheliped of mature female with carpus shorter than palm; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl simple, not biunguiculate, about 1/2 as long as propodus; maximum carapace length to base of rostrum about 3 mm.

RANGE.—Red Sea, eastern and South Africa, Maldive and Laccadive islands, Indonesia, Philippines, Japan, Coral Sea coast of Australia, and eastward through the Pacific islands to the Marquesas and Society groups; under rocks at low tide and in dead coral. More than 30 specimens of *A. djiboutensis* were collected at the Visayan Islands, northern Negros, and one specimen at the Cuyo Islands in the northern Sulu Sea in 1978.

82. *Athanas dorsalis* (Stimpson, 1860)

Arete dorsalis Stimpson, 1860:32 [type locality: Lyemun Strait, Hong Kong; among sublittoral rocks].

Arete dorsalis var. *Pacificus* Coutière, 1903:87, fig. 30 [type locality: Hong Kong(?), Samoa, New Caledonia, Central America ("sans indic. de versant")].

Arete Maruteensis Coutière, 1905:864 [type locality: Marutea, Tuamotu Archipelago].

Arete maruteensis, var. *salibabuensis* De Man, 1910:313 [type locality: anchorage off Lirung, Palau Salebabu, Kepulauan Talaud, Indonesia; to 36 meters].

DIAGNOSIS.—Rostrum usually not overreaching 2nd antennular segment; orbit without supracorneal tooth, with extracorneal tooth, and without infracorneal tooth; major cheliped with chela compressed, not subcylindrical, merus not deeply excavate on flexor surface, carpus shorter than palm in mature female; 2nd pereopod with 4 carpal articles; 3rd pereopod with dactyl biunguiculate, about 1/3 as long as propodus; maximum carapace length to base of rostrum about 6 mm.

RANGE.—There is little doubt that *A. dorsalis* occurs throughout the Indo-Pacific area from the Red Sea and Indian Ocean to Thailand, Indonesia, Philippines, China, Japan, Australia, and eastward to the Tuamotu Archipelago. Coutière (1899:544) mentioned a specimen from the West Indies and (1903:86–88) included Central America in the range, but both of these extensions need confirmation. The Smithsonian Philippine Expedition of 1978 collected two specimens of *A. dorsalis* at the Cayo Islands, northern Sulu Sea. This shrimp frequents reef flats and rather shallow sublittoral depths; it is commonly, perhaps obligatorily, associated with echinoderms, usually echinoids.

83. *Athanas indicus* (Coutière, 1903)

Arete dorsalis var. *Indicus* Coutière, 1903:84, figs. 25–29 [type locality: Djibouti and Hulele Male Atoll, Maldive Islands].

Arete Iphianassa De Man, 1910:312 [type locality: off Sawan, Pulau Siau, Kepulauan Sangi, Indonesia; reef].

Arete intermedius Yu, 1931:513, fig. 1 [type locality: Amoy(?), China].

Athanas indicus.—Suzuki, 1970:5, figs. 4–7.—D.M. and A.H. Banner, 1973:327, fig. 11; 1981:42.

DIAGNOSIS.—Rostrum overreaching 2nd antennular segment; orbit without supracorneal tooth, with extracorneal tooth, without infracorneal tooth; major cheliped with chela compressed, merus not deeply excavate on flexor surface, carpus shorter than palm in mature female; 2nd pereopod with 4 carpal articles; 3rd pereopod with dactyl biunguiculate, about 1/3 as long as propodus; maximum carapace length to base of rostrum about 7 mm.

RANGE.—Red Sea, Mozambique, Madagascar, Persian Gulf, Indian Ocean, Indonesia, Philippines, China, Japan, and Australia, eastward to the Tuamotu Archipelago; possibly always associated with echinoids situated in the upper sublitorral zone.

REMARKS.—*Athanas kominatoensis* Kubo, 1942, is probably a synonym of this species, but Suzuki (1970:5) chose to regard it as distinct until the importance of the angulate versus rounded pterygostomian margin and the obtuse rather than acute distal part of the palm of the first cheliped can be evaluated more reliably.

*84. *?Athanas jedanensis* De Man, 1910

Athanas jedanensis De Man, 1910:313 [type locality: Djedan, Kepulauan Aru, Indonesia; 13 meters]; 1911:154, pl. 2: fig. 7.

DIAGNOSIS.—Rostrum reaching about to level of distal margin of 2nd antennular segment; orbit without supracorneal tooth, with extracorneal tooth, and without infracorneal tooth; major cheliped with chela subcylindrical, merus deeply excavate on flexor surface, carpus longer than chela in mature female; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, about 1/3 as long as propodus; maximum carapace length to base of rostrum about 5 mm.

MATERIAL.—PHILIPPINES. Off Tawitawi, Sulu Archipelago: sta 5157; 5°12′30″N, 119°55′50″E; 33 m; fine sand; 21 Feb 1908 (0904–0909); 9′ Johnston oyster dredge: 1 male [1.9].

RANGE.—This questionable record is apparently the first for the species since the original male and three ovigerous females

were described from Kepulauan Aru in the Arafura Sea south of West New Guinea, at a depth of 13 meters.

REMARKS.—The single representative of the genus *Athanas* in the *Albatross* collections lacks both members of the first pair of chelipeds. It has been tentatively assigned to *A. jedanensis* only because it seems to agree reasonably well with De Man's description and illustrations in all other particulars.

85. *Athanas marshallensis* Chace, 1955

Athanas marshallensis Chace, 1955:17, fig. 8 [type locality: Bogombogo Island, Eniwetok Atoll, Marshall Islands; intertidal].—A.H. and D.M. Banner, 1983:151.

DIAGNOSIS.—Rostrum not overreaching 2nd antennular segment; orbit without supracorneal tooth, with extracorneal tooth, with rounded infracorneal tooth; major cheliped with chela subcylindrical, merus deeply excavate on flexor surface, carpus more than 1/2 as long to longer than palm in mature female; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl simple, not biunguiculate, about 1/5 as long as propodus; maximum carapace length to base of rostrum 5 mm.

RANGE.—Until the limits of variation of this nominal species are better known, its range—as well as its appropriate name—must remain somewhat questionable. The most recent analysis (A.H. and D.M. Banner, 1983:151) suggests that *A. marshallensis* occurs in the Red Sea and western Indian Ocean, the Philippines, and Micronesia; shallow subtidal.

REMARKS.—As alluded to above, it is still indeterminate whether *A. rhothionastes* A.H. and D.M. Banner, 1960a, is a synonym of *A. marshallensis* and even whether the latter species is distinct from *A. esakii* Kubo, 1940b, from the Caroline Islands, or even the Japanese *A. lamellifer* Kubo, 1940a, which is generally believed to be a synonym of *A. japonicus* Kubo, 1936.

86. *Athanas parvus* De Man, 1910

Athanas Sibogae De Man, 1910:314 [type locality: six different Indonesian *Siboga* stations; 13–36 meters]; 1911:151, pl. 2: fig. 6.—Miya and Miyake, 1968:134, fig. 2.—D.M. and A.H. Banner, 1973:321, fig. 9.

Athanas parvus De Man, 1910:315 [type locality: south coast of Timor, Indonesia; 8°39.1'S, 127°4.4'E; 34 meters]; 1911:148, pl. 1: fig. 4.

DIAGNOSIS.—Rostrum usually overreaching 2nd antennular segment; orbit without supracorneal tooth, with extracorneal tooth and acute infracorneal tooth, extracorneal overreaching infracorneal tooth; major cheliped with chela subcylindrical, merus deeply excavate on flexor surface, carpus shorter than palm in mature female; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, about 1/3 as long as propodus; maximum carapace length to base of rostrum about 6 mm.

RANGE.—Red Sea, eastern Africa, Singapore, Indonesia, Philippines, Japan, Australia, and Tonga and Samoa islands; common intertidally under rocks and occurring at a maximum depth of 70 meters.

REMARKS.—There is little doubt that A.H. and D.M. Banner (1960a:141) acted as first reviser in citing *A. sibogae* as a junior synonym of *A. parvus*, and the latter name should take precedence over the former, even though the reverse relationship has been adopted by most authors since that date, perhaps in the mistaken belief that the selection is determined solely by page precedence.

Automate De Man, 1888

Arethusa De Man, 1888a:216 [nomen nudum; no type species indicated].

Automate De Man, 1888a:529 [type species, by monotypy: *Automate dolichognatha* De Man, 1888a:529; gender: feminine].

DIAGNOSIS.—Body not unusually compressed; rostrum, if present, inconspicuous, subtriangular or lobate, unarmed extension of frontal margin of carapace; carapace without high carina throughout length of dorsal midline; abdomen without articulated triangular flap at posterolateral angle of 6th somite; telson not terminating posteriorly in triangular tooth; both eyes and eyestalks visible in dorsal aspect; mandible with palp and molar process; 3rd maxilliped not unusually broadened to form partial operculum over other mouthparts; 1st pereopods dissimilar, carried extended with movable finger dorsal or lateral, not ventral, major chela without molar-like tooth on movable finger; 2nd pereopod with fingers about as long as palm, carpus with 5 articles; pereopods with strap-like epipods on 4 anterior pairs; appendix masculina absent.

RANGE.—Pantropical with temperate extensions; intertidal to 250 meters.

REMARKS.—A dozen species seem to have been described in this genus. Eight of them are here presumed to be valid, in line with the conclusions reached by D.M. and A.H. Banner (1973:302). The Banners omitted from their list of acceptable species *A. branchialis* from the eastern Mediterranean and included two names, *A. kingsleyi* and *A. haightae*, which, together with *A. gardineri* and *A. johnsoni*, are here relegated to the synonymy of the variable and wide-ranging *A. dolichognatha*, the only member of the genus thus far known from the Philippines. Inasmuch as Crosnier and Forest (1966:203) reported that they were unable to find the type specimens of *A. talismani* in the Paris Museum, the true identity of that species—which would logically represent an extension of *A. dolichognatha* into the eastern Atlantic and thereby establish the pantropical distribution of the species—may never be determined; it is here tentatively treated as a distinct species, as did the Banners, because the original description by Coutière (1902) indicates that the rostrum is larger than its maximum development in *A. dolichognatha*.

It is hoped that the following provisional key to the species recognized herein may help to clarify eventually the true membership of the genus.

Key to Species of *Automate*

1. Rostrum reaching nearly or quite to level of extreme anterior margin of carapace 2
   Rostrum, if present, not reaching nearly as far as extreme anterior margin of carapace 3
2. Antennal scale overreaching 2nd antennular segment . . . . . ***A. salomoni*** Coutière, 1908:192 (Salomon Islands, Chagos Archipelago)
   Antennal scale reaching barely to level of midlength of 2nd antennular segment . . . . . ***A. talismani*** Coutière, 1902:340 ("Puerto-Grande (Acores), profondeur 20 metres"; probably Porto Grande, Sao Vicente, Cape Verde Islands, according to Holthuis, 1951:115)
3. Antennal scale with lateral margin somewhat sinuous 4
   Antennal scale with lateral margin convex, concave, or nearly strait, not sinuous 5
4. Rostrum small but distinct; antennal scale with distolateral tooth slender and far overreaching distal margin of blade . . . . ***A. anacanthopus*** De Man, 1910:317 (Celebes and Ceram seas, Indonesia; 22–75 meters)
   Rostrum absent; antennal scale with distolateral tooth short, not overreaching distal margin of blade . . . . . ***A. rectifrons*** Chace, 1972:75 (Quintana Roo, Mexico, and possibly Antigua Island, West Indies; shallow water)
5. Third pereopod with about 5 spinules on flexor margin of propodus . . . . . 87. ***A. dolichognatha***
   Third pereopod setose, without spinules on flexor margin of propodus, except for distal pair at base of dactyl 6
6. Basal segment of antennal peduncle (basicerite) armed with minute distal tooth at base of antennal scale . . . . . ***A. branchialis*** Holthuis and Gottlieb, 1958:34 (Mediterranean coast of Israel; 18–73 meters)
   Basal segment of antennal peduncle (basicerite) unarmed 7
7. Major chela rugose on both margins of palm . . . . ***A. rugosa*** Coutière, 1902:341 (Pacific coasts of Mexico and Panama; 27–70 meters)
   Major chela not rugose on margins of palm . . . ***A. evermanni*** Rathbun, 1901:112 (Western Atlantic from Virginia to Texas and Puerto Rico; eastern Atlantic from Cape Verde Islands and Liberia to Nigeria; 12–250 meters)

87. *Automate dolichognatha* De Man, 1888

Automate dolichognatha De Man, 1888a:529, pl. 22: fig 5 [type locality: "Insel Noordwachter," presumably Djaga Utara in the southwestern Java Sea near Djakarta, Indonesia].—D.M. and A.H. Banner, 1973:299, fig. 1.

A[utomate] Gardineri Coutière, 1902:337 [type locality: 4 Maldive atolls, Gilbert Islands, Masqat,and Djibouti].

Automate kingsleyi Hay, 1917:72 [type locality: Beaufort, North Carolina].

Automate haightae Boone, 1931:184, fig. 22 [type locality: north shore of Isla Taboguilla, Bahia de Panama].

Automate johnsoni Chace, 1955:13, fig. 7 [type locality: Bikini Atoll, Marshall Islands].

DIAGNOSIS.—Rostrum acute, subrectangular or rounded, not nearly reaching anteriorly to level of extreme anterior margin of carapace; stylocerite not reaching level of distal margin of 1st antennular segment; antennal scale not overreaching 2nd antennular segment, with lateral margin nearly straight, distolateral tooth slightly overreaching distal margin of blade;

basal segment of antennal peduncle (basicerite) armed with small distal tooth; major chela with margins smooth, not rugose; 3rd pereopod with dactyl simple, not subspatulate, with about 5 spinules on flexor margin of propodus; maximum carapace length to base of rostrum about 7 mm.

RANGE.—Pantropical, except for eastern Atlantic; usually intertidal or shallow subtidal.

*_Batella_ Holthuis, 1955

Cheirothrix Bate, 1888:532 [type species, by monotypy: *Cheirothrix parvimanus* Bate, 1888:533; gender: feminine. Invalid junior homonym of *Cheirothrix* Pictet and Humbert, 1866:51 (Pisces)].

Batella Holthuis, 1955:92 [substitute name for *Cheirothrix* Bate, 1888; type species: *Cheirothrix parvimanus* Bate, 1888; gender: feminine].

DIAGNOSIS.—Body not unusually compressed from side to side; rostrum distinct, acute in dorsal and lateral aspects; carapace without high carina throughout length of dorsal midline; abdomen without triangular flap articulated at posteroventral angle of 6th somite; telson not terminating posteriorly in triangular tooth; eyes largely concealed from dorsal aspect, visible in anterior aspect; mandible with molar process but without palp; 3rd maxilliped not unusually broadened to form partial operculum over other mouthparts; 1st pereopods similar, not necessarily equal, carried extended with movable finger dorsal or lateral, not ventral, major chela without molar-like tooth on movable finger; 2nd chela with fingers about 1/6 as long as palm, carpus with 5 articles; pereopods without strap-like epipods; appendix masculina not overreaching exopod of 2nd pleopod.

RANGE.—Northern East China Sea, Philippines, and Torres Strait; 15–296 meters.

REMARKS.—To my knowledge, only two specimens of *Batella*, which were at first assigned to separate species, have been recorded heretofore. The *Albatross* obtained four specimens in the Philippines, three belonging to the type species and one to an undescribed species, as characterized in the following key.

Key to Species of *Batella*

Pterygostomial angle sharply produced; telson overreaching both branches of uropod, bearing single pair of small sublateral spines, posterior margin transverse; basal antennal segment (basicerite) with ventral lobe strongly produced; 1st pair of pereopods with movable finger very slightly, if at all, overreaching fixed finger; 2nd pair of pereopods with carpus nearly twice as long as chela, distal article about 4 times as long as wide . . . . . *88. ***B. leptocarpus***

Pterygostomial angle less sharply produced; telson not overreaching mesial branch of uropod, bearing 2 pairs of dorsolateral spines, posterior margin mesially convex; basal antennal segment (basicerite) with ventral lobe not unusually produced; 1st pair of pereopods with movable finger far overreaching fixed finger; 2nd pair of pereopods with carpus less than 1 1/2 times as long as chela, distal article barely 3 times as long as wide . . . . . *89. ***B. parvimanus***

*88. *Batella leptocarpus*, new species

FIGURE 17

DIAGNOSIS.—See "Key to Species."

DESCRIPTION.—Front damaged (Figure 17*b*), apparently tridentate. Inconspicuous tubercle in midline of gastric region. Pterygostomian angle sharply produced (Figure 17*a*). Cardiac notch in posterior margin of carapace at base of branchiostegite deep.

Abdomen broadly rounded dorsally, 3 anterior somites with pleura rounded subrectangular, 4th posteroventrally rectangular, 5th posteroventrally bluntly acute, 6th with posteroventral angle obtuse and with broadly acute tooth either side of base of telson. Telson (Figure 17*c*) about twice as long as 6th somite, more than twice as long as anterior width, armed laterally with single pair of lateral spines in posterior 1/4 of length, posterior margin nearly transverse.

Eyes deeply recessed, completely concealed from dorsal and lateral view, quite exposed anteriorly.

Antennules badly damaged, stylocerite sharply produced, distinctly overreaching basal segment.

Antennal scale (Figure 17*d*) 1 3/4 times as long as wide, distolateral tooth not reaching level of angularly convex distal margin of blade. Basal antennal segment with strong, acutely produced ventral lobe. Antennal peduncle reaching distal 1/3 of antennal scale.

Mouthparts as illustrated (Figure 17*e–i*). Mandible with incisor process distally concave. First maxilliped with greatly expanded central lobe and 2nd maxilliped with obscure distal segment, both as in type species. Third maxilliped overreaching antennal scale by nearly 2/3 length of distal segment.

First pair of pereopods slightly unequal (possibly due to

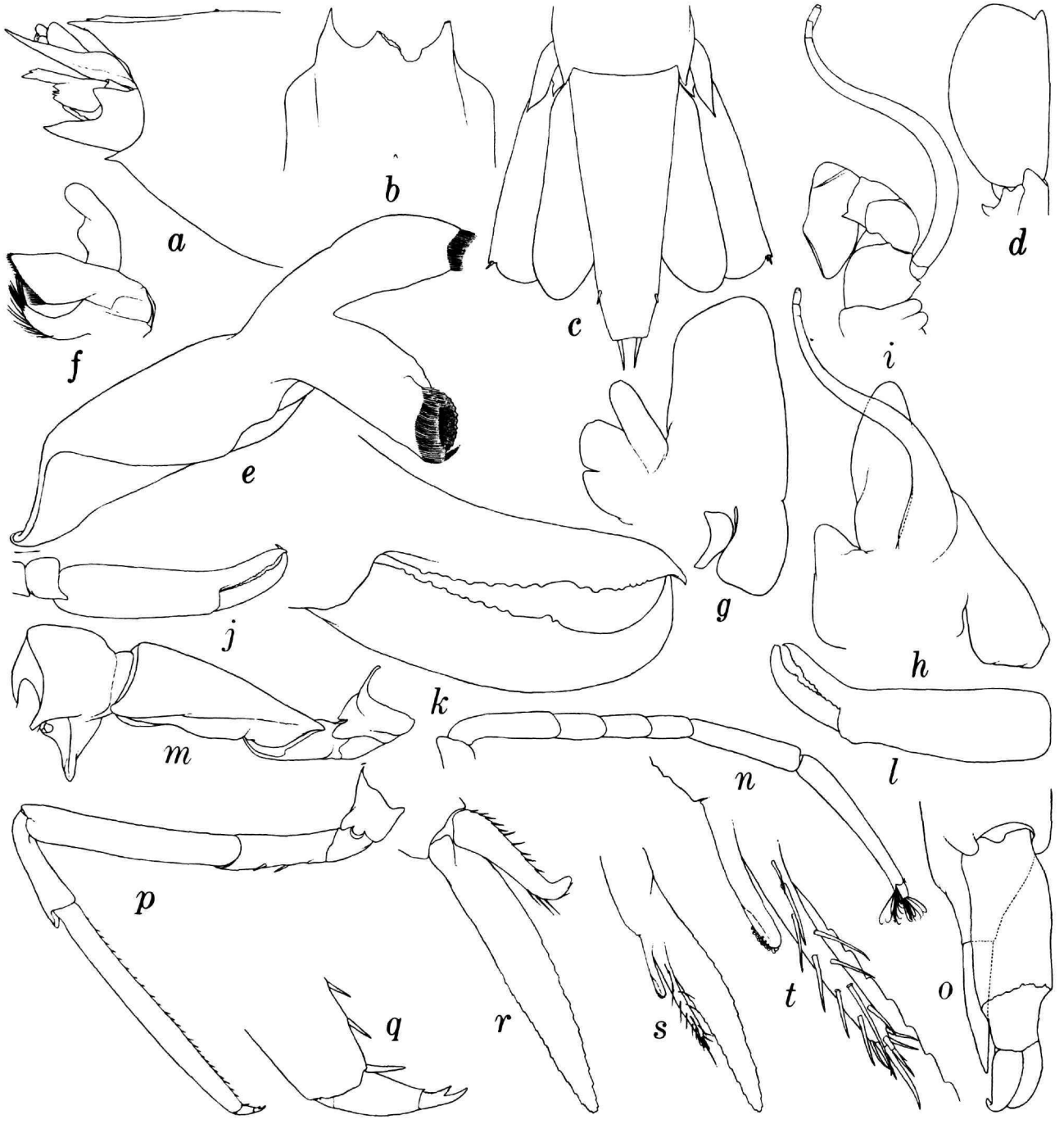

FIGURE 17.—*Batella leptocarpus*, new species, male holotype from *Albatross* sta 5543, carapace length 5.8 mm: *a*, anterior end, lateral aspect; *b*, anterior end of carapace, dorsal aspect; *c*, telson and uropods, dorsal aspect; *d*, right antennal scale; *e*, left mandible; *f*, left 1st maxilla; *g*, left 2nd maxilla; *h*, left 1st maxilliped; *i*, left 2nd maxilliped; *j*, right 1st chela; *k*, same, fingers; *l*, left 1st chela; *m*, left 1st cheliped, proximal segments; *n*, right 2nd pereopod; *o*, same, fingers, denuded; *p*, left 3rd pereopod; *q*, same, dactyl; *r*, left 1st pleopod, posterior aspect; *s*, endopod of left 2nd pleopod; *t*, same, appendices interna and masculina.

regeneration), left larger, overreaching antennal scale by about 3/4 length of chela, movable finger slightly longer than fixed finger, right with fingers subequal in length (Figure 17*j,k*); carpus with at least 1 sharp marginal tooth; merus with staggered convex flanges on flexor margins (Figure 17*m*), most prominent on right side. Second pereopod overreaching antennal scale by fully length of chela; movable finger (Finger 17*o*) terminating in 2 nearly contiguous curved spines but tips of both fingers concealed by plumose setae; carpus (Figure 17*n*) slender, composed of 5 articles, proximal one slightly shorter than distal, each slightly shorter than combined lengths of other 3 articles. Third pereopod (Figure 17*p*) overreaching antennal scale by length of dactyl and nearly all of propodus; dactyl (Figure 17*q*) little more than 1/10 as long as propodus, distinctly biunguiculate; propodus bearing more than 20 fine spinules on flexor margin; carpus unarmed; merus unarmed, more than 4/5 as long as propodus and 5 3/4 times as long as wide; ischium less than 1/2 as long as merus, with 2 marginal spines. Fourth pereopod similar to but shorter than 3rd, overreaching antennal scale by length of dactyl and about 1/3 of propodus. Fifth pereopod similar to but shorter than preceding pairs, reaching only to distal 1/3 of antennal scale.

First pleopod of male (Figure 17*r*) with endopod tapering to blunt tip bent nearly at right angle. Appendix masculina on 2nd pleopod (Figure 17*s,t*) overreaching appendix interna by more than 1/2 length of former, armed with about 17 long spines, including 7 clustered near distal end. Uropod (Figure 17*c*) with lateral branch armed with distolateral tooth and 1 (or 2) movable spines immediately adjacent thereto; transverse suture barely visible near distal margin.

SIZE.—Carapace length of unique male holotype, 5.8 mm.

MATERIAL.—PHILIPPINES. Western Mindanao Sea: sta 5543; 8°47′15″N; 123°35′00″E; 296 m; sand; 12.5°C; 20 Aug 1909 (0904–0921); 12′ Tanner beam trawl: 1 male [5.8], holotype (USNM 205660).

TYPE LOCALITY.—Off Murcielagos Bay, Mindanao, Philippines; 8°47′15″N, 123°35′00″E; 296 meters.

RANGE.—Known only from the unique type specimen taken off Murcielagos Bay, Mindanao, in 296 meters.

REMARKS.—Although I had some reservations about describing a species from a single specimen with damaged front and antennules, the differences between this specimen and the only other species in the genus were sufficient to overcome my reluctance to follow such a course. There is little doubt that *B. leptocarpus* is a distinct species, and the most important characters for distinguishing it seem to be displayed in the single available specimen.

ETYMOLOGY.—The Greek *leptos* ("slender") plus *karpos* ("carpus") describes the slender carpus of the second pereopod, which seems to be one of the most useful characters for separating *B. leptocarpus* from *B. parvimanus*.

*89. *Batella parvimanus* (Bate, 1888)

FIGURE 18

Cheirothrix parvimanus Bate, 1888:533, pl. 96: fig. 2 [type locality: Torres Strait; 10°30′S, 142°18′E; 15 meters; coral mud].

Batella bifurcata Miya and Miyake, 1968b:116, figs. 2–4 [type locality: northwest of Danjo Gunto, northern East China Sea; 32°14.0′N, 127°50.4′E; 156 meters].—Miya, 1984:217.

DIAGNOSIS.—See "Key to Species."

MATERIAL.—PHILIPPINES. Balayan Bay, southern Luzon: sta 5117; 13°52′22″N, 120°46′22″E; 216 m; 21 Jan 1908 (0927–0947); 12′ Tanner beam trawl, mud bag: 1 male [4.9] 2 females [5.3, 6.0], 1 ovig [6.0].

RANGE.— Northern East China Sea, Philippines, and Torres Strait off Cape York, Australia; 15–216 meters.

REMARKS.—I, too, was able to examine the unique male holotype of *B. parvimanus*, through the kind cooperation of R.W. Ingle of the British Museum (Natural History), and I concur with Miya's conclusion that the presumed differences that prompted the description of *B. bifurcata* were based on unfortunate inaccuracies in the original description of *B. parvimanus*. It may be noted from Figure 18*o* that the Philippine specimens identified with this species have the movable finger of the second pereopod terminating in two contiguous curved spines, as in *B. leptocarpus;* this feature could not be discerned in the holotype of *B. parvimanus* without damaging the specimen, but there would seem to be little doubt that Bate's fig. 21″ represents further evidence of careless descriptive effort.

Betaeopsis Yaldwyn, 1971

Betaeopsis Yaldwyn, 1971:88 [type species, by original designation: *Betaeus aequimanus* Dana, 1852a:23; gender: feminine].

DIAGNOSIS.—Body not unusually compressed from side to side; rostrum absent, front emarginate; carapace without high carina throughout length of dorsal midline; abdomen without triangular flap articulated at posterolateral angle of 6th somite; telson not terminating posteriorly in triangular tooth; eyes concealed from dorsal view, partially so in anterior aspect; mandible with palp and molar process; 3rd maxilliped with antepenultimate segment flattened but not unusually broadened to form partial operculum over other mouthparts; 1st pereopods similar, subequal, carried extended with movable finger ventral, major chela without molar-like tooth on movable finger; 2nd cheliped with fingers nearly as long as palm, carpus with 5 articles; pereopods with slender, strap-like epipods on 2 anterior pairs; appendix masculina not overreaching exopod of 2nd pleopod.

RANGE.—Red Sea, Philippines, Indonesia, and New Zealand; damp supratidal situations to a depth of 18 meters.

REMARKS.—The two known species of the genus are very similar, differing principally in the appearance of the frontal region, as indicated in the following key.

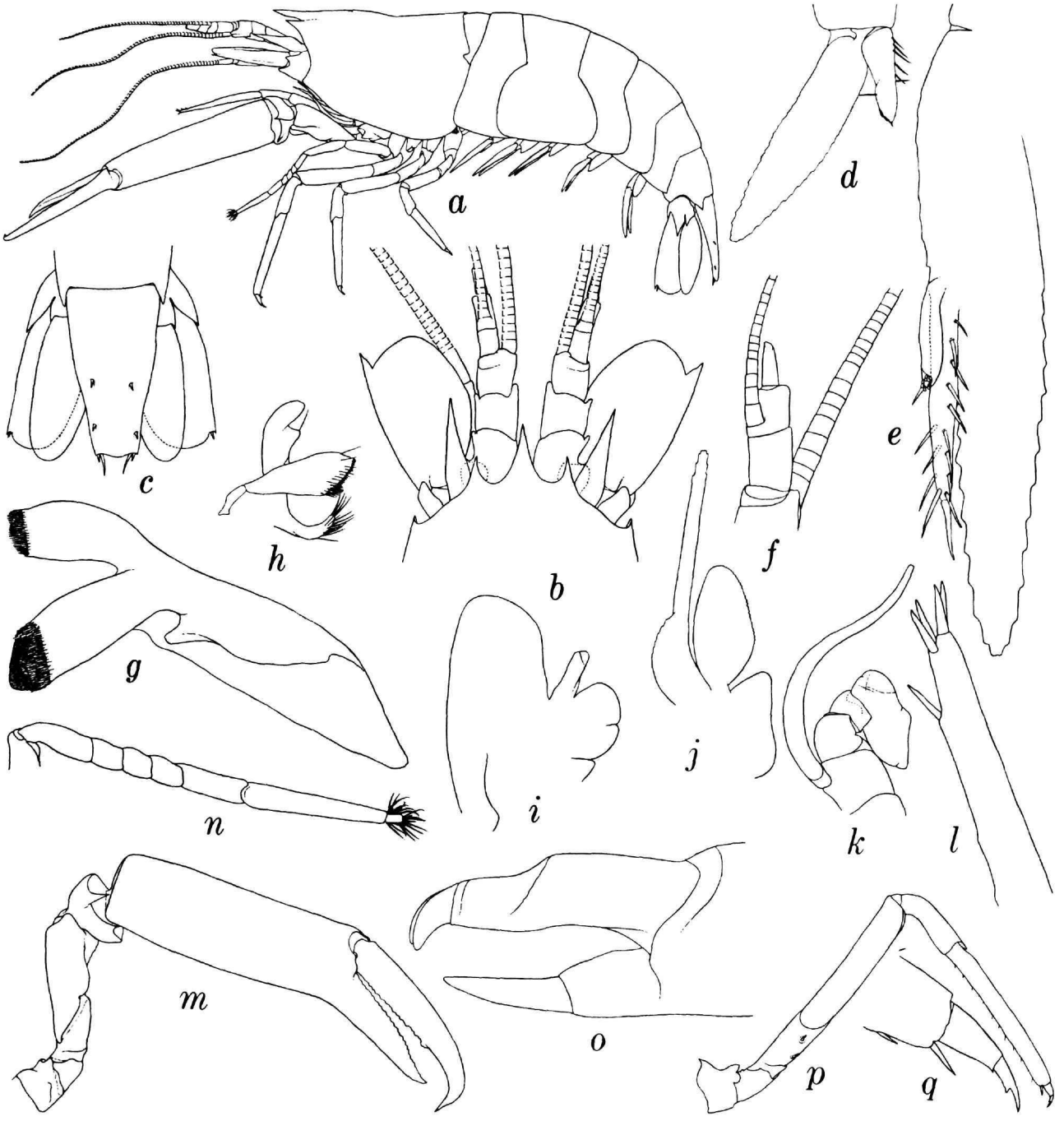

FIGURE 18.—*Batella parvimanus*, *a–e*, male from *Albatross* sta 5117, carapace length 4.9 mm; *f–g*, female from same station, carapace length 5.3 mm: *a*, lateral aspect; *b*, anterior carapace and appendages, dorsal aspect; *c*, telson and uropods, dorsal aspect; *d*, left 1st pleopod, posterior aspect; *e*, endopod of left 2nd pleopod, anterior aspect; *f*, denuded bases of right antennular flagella, dorsolateral aspect; *g*, right mandible; *h*, right 1st maxilla; *i*, right 2nd maxilla; *j*, right 1st maxilliped; *k*, right 2nd maxilliped; *l*, distal end of 3rd maxilliped, lateral aspect; *m*, right 1st pereopod; *n*, right 2nd pereopod, carpus and chela; *o*, same, denuded fingers; *p*, right 3rd pereopod, *q*, same, dactyl.

Key to Species of *Betaeopsis*

Front deeply, triangularly incised; orbital hoods with variably shaped mesial, horizontal flanges sometimes forming secondary emargination above mesial frontal depression . . . . . ***B. aequimanus*** (Dana, 1852)
(New Zealand; supratidal and littoral, under stones)

Front shallowly, broadly emarginate; orbital hoods at most with paired mesial sutures meeting posteriorly . . . . . 90. ***B. indica***

90. *Betaeopsis indica* (De Man, 1910)

Betaeus indicus De Man, 1910:309 [type locality: Labuhanpandan, Lombok, Lesser Sunda Islands, Indonesia; 18 meters]; 1911:173, pl. 4: fig. 15a–f; pl. 5: fig. 15.
Betaeopsis indicus.—D.M. and A.H. Banner, 1981:48.

DIAGNOSIS.—See "Key to Species."

RANGE.—Red Sea, Philippines, Indonesia; 0–18 meters.

REMARKS.—The inclusion of *B. indica* in the Philippine fauna is based on a male specimen, with a carapace length of 5.6 mm, collected on 13 May by the Smithsonian Philippine Expedition of 1978 at Maloh, Negros Island (9°03′08″N, 122°59′30″E) and identified in 1983 by A.H. Banner. That specimen has been compared with 5 specimens of *B. aequimanus* from New Zealand in the Smithsonian collections to construct the key to the two known species of the genus.

Metalpheus Coutière, 1908

Metalpheus Coutière, 1908:213 [type species, selected by Shelford, 1909:2631: *Alpheus rostratipes* Pocock, 1890:522; gender: masculine].—Chace, 1972:78.—D.M. and A.H. Banner, 1982:280.

DIAGNOSIS.—Body not unusually compressed from side to side; rostrum distinct, acute in lateral aspect; carapace without high carina throughout length of dorsal midline; abdomen without triangular flap articulated at posterolateral angle of 6th somite; telson not terminating posteriorly in triangular tooth; eyes concealed from dorsal and all but anteroventral aspects; mandible with palp and molar process, incisor process unusually expanded; 3rd maxilliped broadened to form partial operculum over other mouthparts; 1st pereopods dissimilar and unequal, carried extended with movable finger dorsal or lateral, not ventral; major chela with molar-like tooth on movable finger; 2nd cheliped with fingers about as long as palm, carpus with 5 articles; pereopods with strap-like epipods on 3 anterior pairs; appendix masculina overreaching exopod of 2nd pleopod of male.

RANGE.—Pantropical; intertidal to 20 meters.

REMARKS.—A key to the three usually recognized species of *Metalpheus* has been published by D.M. and A.H. Banner, (1982:282). A distinction between *M. paragracilis* and *M. rostratipes* not emphasized previously is the difference in the structure of the appendix masculina; although this appendage overreaches the exopod of the second pleopod of males of both species, it is indistinguishably fused with the endopod in at least Atlantic specimens of *M. rostratipes*, whereas there is no such fusion in *M. paragracilis*.

91. *Metalpheus paragracilis* (Coutière, 1897)

Alpheus paragracilis Coutière, 1897b:304 [type locality: "l'ile Tague"(?); this origin of the unique holotype was not repeated among the localities listed for the species by Coutière in 1905:883].
Metalpheus paragracilis.—D.M. and A.H. Banner, 1982:282, fig. 86.

DIAGNOSIS.—Rostrum reaching about to level of distal margin of 1st antennular segment; antennal scale overreaching antennular peduncle, lateral margin concave in proximal ½ of length; major chela with distinct shoulder on margin proximal to fixed finger; 2nd pereopod with 2nd carpal article nearly twice as long as wide; 3rd pereopod with merus armed with strong distal tooth on flexor margin; maximum carapace length about 7 mm.

RANGE.—Probably pantropical; intertidal to 20 meters.

Nennalpheus A.H. and D.M. Banner, 1981

Nennalpheus A.H. and D.M. Banner, 1981:219 [type species, by original designation: *Alpheopsis Sibogae* De Man, 1910:307; gender: masculine].

DIAGNOSIS.—Body not unusually compressed from side to side; rostrum distinct, acute in lateral aspect; carapace without high carina throughout length of dorsal midline; abdomen with or without triangular flap articulated at posterolateral angle of 6th somite; telson not terminating posteriorly in triangular tooth; eyes largely concealed from dorsal view, partially visible from other aspects; mandible with palp and molar process; 3rd maxilliped not unusually broadened to form partial operculum over other mouthparts; 1st pereopods similar, carried extended with movable finger ventral, without molar-like tooth; 2nd pereopod with fingers no shorter than palm, carpus with 5 articles; pereopods with strap-like epipods on 4 anterior pairs.

RANGE.—Philippines and Indonesia; 19 to at least 208 meters.

Key to Species of *Nennalpheus*

Orbital hoods unarmed; abdomen without flap articulated at posterolateral angle of 6th somite . . . . . 92. *N. inarticulatus*

Each orbital hood armed with acute marginal tooth; abdomen with triangular flap articulated at posterolateral angle of 6th abdominal somite . . . . . *N. sibogae* De Man, 1910:307 (Lesser Sunda Islands, Indonesia; 19–70 meters)

92. *Nennalpheus inarticulatus* A.H. and D.M. Banner, 1981

Nennalpheus inarticulatus; A.H. and D.M. Banner, 1981:221, fig. 1a–r [type locality: southwest of Manila Bay, Luzon, Philippines; 13°59.2'N, 120°20.3'E; 208–222 meters].

DIAGNOSIS.—See "Key to Species."

RANGE.—Known from only two stations southwest of Manila Bay, Philippines; 191–200 and 208–222 meters.

Neoalpheopsis A.H. Banner, 1953

Neoalpheopsis A.H. Banner, 1953:20 [type species, by original designation: *Neoalpheopsis hiatti* A.H. Banner, 1953:21 (= *Alpheopsis? Euryone* De Man, 1910:308); gender: feminine].

DIAGNOSIS.—Body not unusually compressed from side to side; rostrum distinct, acute in lateral aspect; carapace without high carina throughout length of dorsal midline; abdomen with triangular flap articulated at posterolateral angle of 6th somite; telson terminating posteriorly in acutely triangular endpiece; eyes concealed from dorsal view, visible in anterior aspect; mandible with palp and molar process; 3rd maxilliped not unusually broadened to form partial operculum over other mouthparts; 1st pereopods similar, carried flexed, movable finger without molar-like tooth; 2nd pereopod with fingers no shorter than palm, carpus with 5 articles; pereopods with strap-like epipods on 4 anterior pairs, vestigal on 4th; appendix masculina slightly longer than appendix interna but not nearly overreaching endopod or exopod of 2nd pleopod of male.

RANGE.—Kenya, Philippines, Indonesia, Hawaii, Galapagos Islands, Gulf of California, Bermuda, and Bonaire; intertidal to 6 meters.

REMARKS.—D.M. and A.H. Banner (1985:36–39) are probably justified in suggesting that *Parabetaeus* Coutière, 1896, may be a senior synonym of *Neoalpheopsis* and that *P. Cullierei* Coutière, 1896, its type species from Papeete, may be a senior synonym of *N. euryone* based on a specimen with a deformed rostral region, but the evidence is not yet sufficiently positive to support adoption of the synonymy unequivocally.

93. *Neoalpheopsis euryone* (De Man, 1910)

Alpheopsis? Euryone De Man, 1910:308 [type locality: off Kawio Pulau and Kamboling Pulau, Kawio Pulau-Pulau, Indonesia; reef]; 1911:184, pl. 5: fig. 19.

Alpheopsis hummelincki Schmitt, 1936:364, fig. 1 [type locality: Kralendijk, Bonaire, Lesser Antilles; from under sandy coral debris, about 1 meter].

Neoalpheopsis hiatti A.H. Banner, 1953:21, fig. 6 [type locality: Hanauma Bay, Hawaii; 6 meters].

Neoalpheopsis euryone.—A.H. Banner, 1953:25.—A.H. and D.M. Banner, 1983:86.—Wicksten, 1983:40.—D.M. and A.H. Banner, 1985:36.

DIAGNOSIS.—Characters of the genus.

RANGE.—See generic "Range."

Prionalpheus A.H. and D.M. Banner, 1960

Prionalpheus A.H. and D.M. Banner, 1960b:292 [type species, by original designation: *Prionalpheus triarticulatus* A.H. and D.M. Banner, 1960b:293; gender: masculine].

DIAGNOSIS.—Body not unusually compressed from side to side; rostrum represented by dorsally and laterally acute projection usually discrete from orbital hoods; carapace without high carina throughout length of dorsal midline; abdomen with triangular flap articulated at posterolateral angle of 6th somite; telson not terminating posteriorly in triangular tooth; eyes concealed from dorsal view, visible in anterior aspect; mandible without palp or molar process; 3rd maxilliped not unusually broadened to form partial operculum over other mouthparts, 1st pereopods similar, subequal, carried extended with movable finger dorsal or lateral, not ventral, major chela without molar-like tooth on movable finger; 2nd cheliped with fingers at least as long as palm, carpus with 3–5 articles; pereopods without strap-like epipods.

RANGE.—Madagascar, Seychelles, southern Philippines, Australia, and Fiji and Society islands; shallow water to 91–143 meters.

REMARKS.—The four known species of *Prionalpheus* are diagnosed in the key and table in A.H. and D.M. Banner (1971:264). Only one species has been reported from the Philippine-Indonesia region.

94. *Prionalpheus sulu* A.H. and D.M. Banner, 1971

Prionalpheus sulu A.H. and D.M. Banner, 1971:268, fig. 2 [type locality: eastern end of Great Santa Cruz Island, Basilan Strait, off Zamboanga, Mindanao, Philippines; from dead coral head in 3 meters]; 1983:86.

DIAGNOSIS.—Rostrum distinct from orbital hoods; pterygostomial angle produced as acute tooth; slender, acute, mesial tooth between bases of antennules; antennal scale with distal margin of blade in line with distal margin of 2nd antennular

segment; left mandible with anterior tooth of incisor process twice as long as 3 adjacent teeth; 2nd pereopod with 4 carpal articles; 3rd pereopod with distal tooth on extensor margin of dactyl larger than opposite member of pair on flexor margin; lateral branch of uropod with 6 stout spines on lateral part of transverse suture; maximum carapace length to base of rostrum slightly more than 4 mm.

RANGE.—Madagascar, Seychelles, Sulu Archipelago region of Philippines and Kyushu, Japan; 2–4 meters.

Racilius Paulson, 1875

Racilius Paulson, 1875:107 [type species, by monotypy: *Racilius compressus* Paulson, 1875:107; gender: masculine].

DIAGNOSIS.—Body unusually compressed from side to side; rostrum sharp, acute in lateral aspect; carapace with high carina throughout length of dorsal midline; abdomen without flap articulated at posterolateral angle of 6th somite; telson not terminating posteriorly in triangular tooth; eyes concealed from dorsal and lateral view, visible in anterior aspect; mandible with palp and molar process; 3rd maxilliped not unusually broadened to form partial operculum over other mouthparts; 1st pereopods dissimilar, carried more or less extended with movable finger dorsal or lateral, not ventral; major chela with molar-like tooth on movable finger; 2nd cheliped with fingers about as long as palm, carpus with 5 articles, pereopods with prominent strap-like epipods on 4 anterior pairs.

RANGE.—Suez Canal, Red Sea, eastern Africa, South Africa, Singapore, Thailand, Philippines, and Queensland, Australia; probably always associated with corals of the genus *Galaxea*.

REMARKS.—Only one species is recognized.

95. *Racilius compressus* Paulson, 1875

Racilius compressus Paulson, 1875:107, pl. 14: fig. 2 [type locality: Red Sea].—D.M. and A.H.Banner, 1973:350, fig. 19; 1981:48.—A.H. and D.M. Banner, 1983:87.

DIAGNOSIS.—Orbital hoods not inflated, but each with marginal tooth at base of rostrum; telson unarmed dorsally; 2nd pereopod with proximal carpal article 5 times as long as 2nd; 3rd pereopod with dactyl simple, tip lying at right angle to propodus, latter with single distal spine on flexor margin, merus unarmed; maximum carapace length to base of rostrum rarely about 5 mm.

RANGE.—See generic "Range."

Salmoneus Holthuis, 1955

Jousseaumea Coutière, 1896:381 [type species, selected by Holthuis, 1955:88: *Jousseaumea serratidigitus* Coutière, 1896:382; gender: feminine. Name invalidated under the plenary powers in Opinion 673 of the International Commission on Zoological Nomenclature (1963:325)].

Salmoneus Holthuis, 1955:88 [substitute name for *Jousseaumea* Coutière, 1896].

DIAGNOSIS.—Body not unusually compressed from side to side; rostrum represented by triangular extension of carapace; abdomen without flap articulated at posterolateral angle of 6th somite; telson not terminating posteriorly in triangular tooth; eyes at least partially concealed from dorsal view, visible in anterior aspect; mandible with palp and molar process; 3rd maxilliped not unusually broadened to form partial operculum over other mouthparts; 1st pereopods dissimilar and unequal, major cheliped carried in flexed position, without molar-like tooth on movable finger; 2nd pereopod with fingers about as long as palm, carpus with 5 articles; pereopods with strap-like epipods on 4 anterior pairs; appendix masculina not overreaching exopod of 2nd pleopod of male.

RANGE.—Pantropical; intertidal to a maximum depth of 32 meters.

REMARKS.—The often small and fragile members of this genus are in need of intensive collection efforts and study. A good foundation for such research has been laid by D.M. and A.H. Banner (1981:51–54), with an annotated list of the 16 nominal species described to that date and a provisional key to the 14 species recognized by them, offered with "great reservations." Two of those species have been recorded from the Philippines (D.M. and A.H. Banner, 1979:239).

96. *Salmoneus mauiensis* (Edmondson, 1930)

Jousseaumea mauiensis Edmondson, 1930:5, fig. 2 [type locality: Island of Maui, Hawaii; shallow water among dead coral heads].—A.H. Banner, 1953:12, fig. 2.

Salmoneus mauiensis.—D.M. and A.H. Banner, 1979:239.

DIAGNOSIS.—Rostrum rather narrowly acute, overreaching 2nd antennular segment, unarmed ventrally, dorsal carina rounded, confined to rostrum, proper; carapace with orbital teeth horizontal, not upturned, reaching to about level of midlength of 1st antennular segment, without dorsolateral crests; telson with posterior margin broadly emarginate; antennal scale overreaching antennular penduncle; major chela with movable finger not overreaching fixed finger, bearing 5–7 teeth on opposable margin; 3rd pereopod with dactyl simple, about $^1/_3$ as long as propodus; maximum carapace length to base of rostrum more than 4 mm.

RANGE.—Philippines and Hawaii; tide line to 3 meters.

97. *Salmoneus serratidigitus* (Coutière, 1896)

Jousseaumea latirostris Coutière, 1896:382 [type locality: Red Sea].

Jousseaumea serratidigitus Coutière, 1896:382 [type locality: Red Sea].

Jousseaumea Sibogae De Man, 1910:303 [type locality: Banda Sea south of Kepulauan Lucipara, Indonesia; reef].

Salmoneus sibogae.—D.M. and A.H.Banner, 1979:239.

Salmoneus serratidigitus.—D.M. and A.H. Banner, 1981:58, figs. 7, 8.—Wicksten, 1983:40.

DIAGNOSIS.—Rostrum rather narrowly acute, overreaching 2nd antennular segment, unarmed ventrally, not carinate dorsally; carapace with orbital teeth horizontal, not upturned, reaching fully as far as midlength of 1st antennular segment,

without dorsolateral crests; telson with posterior margin broadly emarginate or with narrow, U-shaped notch; antennal scale reaching level of distal end of antennular peduncle; major chela with movable finger not noticeably overreaching fixed finger, bearing 10–16 teeth on opposable margin; 3rd pereopod with dactyl simple, about 1/3 as long as propodus; maximum carapace length to base of rostrum about 6 mm.

RANGE.—Red Sea, eastern Africa, Madagascar, Aldabra, Seychelles, Philippines, Indonesia, and Baja California, Mexico; shallow water. Just when the passage of time begins to cast doubt on the documentation of the record of the occurrence of six specimens of *S. serratidigitus* in the Gulf of California (Coutière, 1899:463, 544, and D.M. and A.H. Banner, 1981:65), because of the apparent absence of the species anywhere in the intervening Pacific Ocean and the presence of a related species (*S. mauiensis*) in Hawaii, Wicksten (1983:40) records another specimen from Cabo San Lucas. Such are the happenings that contradict the apocryphal boredom of taxonomic research!

**Synalpheus* Bate, 1888

Homaralphaeus Bate, 1876:378 [nomen nudum].

Homaralpheus Bate, 1888:539 [type species, selected by Holthuis, 1955:93: *Alpheus minus* Say, 1818:245; gender: masculine].

Synalpheus Bate, 1888:572 [type species, by monotypy: *Synalpheus falcatus* Bate, 1888:574 (= *Alpheus Comatularum* Haswell, 1882:762); gender: masculine].

Alpheinus Borradaile, 1899:415 [type species, by monotypy: *Alpheinus tridens* Borradaile, 1899:415; gender: masculine].

DIAGNOSIS.—Rostrum acute in lateral aspect; carapace without high carina throughout length of dorsal midline; abdomen without triangular flap articulated at posterolateral angle of 6th somite; telson not terminating posteriorly in triangular tooth; eyes concealed from dorsal view; mandible with palp and molar process; 3rd maxilliped not unusually broadened to form partial operculum over other mouthparts; 1st pereopods dissimilar and unequal, carried extended with movable finger dorsal or lateral, not ventral, major chela usually with molar-like tooth on movable finger; 2nd pereopod with fingers about as long as palm, carpus with 4 or 5 articles; pereopods without strap-like epipods on any pair; no appendix masculina on 2nd pleopod of male.

RANGE.—Virtually all tropical and subtropical and some temperate seas; intertidal to at least 250 meters.

REMARKS.—Of the approximately 115 currently recognized species of the genus *Synalpheus*, 30 have been recorded from the Philippines, and 18 are represented in the *Albatross* collections, including six species not previously known from those islands.

There is little doubt that *Synalpheus* will eventually be restricted to the small group of species related to *S. comatularum* (Haswell, 1882), but I, like D.M. and A.H. Banner (1975:273), hesitate to adopt this generally desirable change because of the temporary taxonomic confusion that might be engendered by such a move. Probably the only available name (see below) for the majority of species now assigned to *Synalpheus* is *Homaralpheus*, which was first (invalidly) suggested for an abbreviated larval form by Bate some 12 years before *Synalpheus* was proposed by the same author. The problem relates to the exact identity of the concept represented by *Homaralpheus*. If *Alpheus minus* is accepted as the type species, as proposed by Holthuis (1955), there is no problem, but some taxonomists might contend that *A. minus* is the one taxon that was eliminated from consideration as the type species by the statement by Bate (1888:539): "The Megalopa [so named] was got from the ovum of a near ally of *Alpheus minus*, but differing in having a long powerful tooth on the outer margin of the scaphocerite, the foliaceous part being smaller, membranous and very thin." There would seem to be little doubt, however, that *Homaralpheus* represents one of the dominant group of species of *Synalpheus*, sensu lato (to which *Alpheus minus* belongs), despite the disbelief of Coutière (1899:415) that the larva depicted by Bate is an alpheid. I at first feared that satisfactory resolution of this dilemma might involve review of the case by the International Commission on Zoological Nomenclature, a time-consuming procedure that few would cheerfully anticipate, but Dr. Holthuis has convinced me (in correspondence) that all the requirements of Article 69a (i)(l) of the *Code* were complied with in his designation of *Alpheus minus* as the type species of *Homaralpheus*, that the differences mentioned by Bate had no bearing on this action, and that *A. minus* is therefore legally the type species of *Homaralpheus* both by subsequent monotypy and subsequent selection.

Evidence recently deposited in the Smithsonian files by D.M. Banner indicates that the type specimens of *Alpheinus tridens* Borradaile, 1899—the type species of the only other synonym of *Synalpheus*—belong to the *Synalpheus comatularum* complex. *Alpheinus* must therefore be assumed to be a subjective synonym of *Synalpheus*, sensu stricto.

Key to Philippine Species of *Synalpheus*

1. Sixth abdominal somite with acute posterior projection either side of base of telson 2
   Sixth abdominal somite without acute posterior projection either side of base of telson 8
2. Sixth abdominal somite with posterior margin unarmed between acute lateral projections 3

Sixth abdominal somite with posterior margin armed with 1 or more teeth between acute lateral projections 5

3. Rostrum distinctly longer and wider than orbital teeth; 3rd pereopod with acute distal tooth on flexor margin of merus; uropod with transverse articulation on lateral branch . . . . . *120. ***S. stimpsonii***

Rostrum narrower and little if at all longer than orbital teeth; 3rd pereopod with merus unarmed on flexor margin; uropod without transverse articulation on lateral branch 4

4. Uropod with lateral tooth of protopod unusually long, extending nearly to midlength of lateral branch . . . . . *115. ***S. pescadorensis***

Uropod with lateral tooth of protopod not elongate, not overreaching proximal 1/4 of lateral branch . . . . . *118. ***S. sciro***

5. Rostrum not overreaching 1st antennular segment; 6th abdominal somite armed on posterior margin with 2 or more teeth between acute lateral projections; telson with posterior angles not projecting posteriorly 6

Rostrum overreaching 1st antennular segment; 6th abdominal somite armed on posterior margin with single median tooth; telson with posterior angles projecting posteriorly 7

6. Sixth abdominal somite armed with 2 teeth on posterior margin between acute lateral projections; 3rd pereopod unarmed on flexor margin of merus . . . . . *117. ***S. quadrispinosus***

Sixth abdominal somite armed with more than 2 teeth on posterior margin between acute lateral projections; 3rd pereopod with series of movable spines on distal 1/2 of flexor margin of merus . . . . . 119. ***S. septemspinosus***

7. Major chela with movable finger not significantly overreaching fixed finger; 3rd pereopod with 0–3 spines on flexor margin of merus . . . *124. ***S. triacanthus***

Major chela with movable finger distinctly overreaching fixed finger; 3rd pereopod with more than 4 spines on flexor margin of merus . . . . *125. ***S. trispinosus***

8. Third pereopod with dactyl clearly triunguiculate 9

Third pereopod with dactyl biunguiculate, at most with rounded proximal lobe on flexor margin 11

9. Third pereopod with merus armed with series of movable spines on flexor margin . . . . . *112. ***S. nilandensis***

Third pereopod with merus unarmed on flexor margin 10

10. Telson with dorsolateral spines minute, obscure; basal antennal segment (basicerite) with 2nd tooth proximal to dorsal tooth . . . . . *104. ***S. demani***

Telson with dorsolateral spines prominent; basal antennal segment (basicerite) without 2nd tooth proximal to dorsal tooth . . . . . *105. ***S. fossor***

11. Third pereopod with merus armed with 1 or more movable spines on flexor margin 12

Third pereopod without movable spines on flexor margin of merus 15

12. Telson with both pairs of dorsolateral spines situated posterior to midlength in mature individuals; 3rd pereopod with extensor tooth of dactyl less than 1/2 as long and 1/2 as wide as flexor tooth . . . . . *110. ***S. neomeris***

Telson with anterior pair of dorsolateral spines usually situated anterior to midlength; 3rd pereopod with extensor tooth of dactyl longer or only slightly shorter than flexor tooth 13

13. Rostrum extending to about level of midlength of 1st antennular segment; major chela with palm terminating distally in 1 or, usually, 2 blunt tubercles at level of articulation with movable finger; 3rd pereopod with extensor tooth of dactyl about twice as long as flexor tooth . . . . . *101. ***S. bituberculatus***

Rostrum usually overreaching midlength of 1st antennular segment; major chela with palm terminating distally in acute tooth at level of articulation with movable finger; 3rd pereopod with extensor tooth of dactyl slightly longer or slightly shorter than flexor tooth 14

14. Third pereopod with terminal teeth of dactyl much reduced, 1/10–1/6 as long as segment . . . . . *108. ***S. iocasta***
Third pereopod with terminal teeth of dactyl longer, 1/4–1/3 as long as segment . . . . . *121. ***S. streptodactylus***
15. Antennal scale with blade vestigial or absent 16
Antennal scale with blade well-developed, overreaching midlength of lateral margin 20
16. Basal antennal segment (basicerite) with dorsal margin rounded to slightly projecting 17
Basal antennal segment (basicerite) with dorsal margin sharply projecting . . . 19
17. Minor chela with each finger terminating in 2 or 3 teeth . . . . . 100. ***S. antenor***
Minor chela with each finger terminating in single tooth 18
18. Dorsolateral spines on telson stout; ventrolateral tooth of basal antennal segment (basicerite) not far overreaching stylocerite; 3rd maxilliped usually with terminal circlet of stout spines on distal segment . . . . . *111. ***S. neptunus***
Dorsolateral spines on telson elongate; ventrolateral tooth of basal antennal segment (basicerite) far overreaching stylocerite; 3rd maxilliped usually with terminal dense brush of long setae on distal segment . . . . . *123. ***S. theano***
19. Rostrum not sharply upturned at apex; telson with posterior angles not projecting posteriorly; stylocerite not overreaching 1st antennular segment; 2nd pereopod with 4 carpal articles; uropod without transverse articulation on lateral branch . . . . . 116. ***S. quadriarticulatus***
Rostrum upturned nearly vertically at apex; telson with posterior angles projecting posteriorly as pointed teeth nearly 1/2 as long as remainder of telson; stylocerite overreaching 1st antennular segment; 2nd pereopod with 5 carpal articles; uropod with transverse articulation on lateral branch . . . . . 122. ***S. thai***
20. Rostrum wider at base than orbital teeth 21
Rostrum narrower than orbital teeth 24
21. Third pereopod with merus unarmed on flexor margin 22
Third pereopod with merus armed with acute distal tooth on flexor margin 23
22. Rostrum not reaching level of distal margin of 1st antennular segment . . . . . 98. ***S. albatrossi***
Rostrum overreaching 1st antennular segment . . . . . *126. ***S. tropidodactylus***
23. Stylocerite reaching to about level of midlength of 1st antennular segment . . . . . *113. ***S. odontophorus***
Stylocerite reaching nearly to level of or overreaching distal margin of 1st antennular segment . . . . . *120. ***S. stimpsonii***
24. Ventrolateral tooth on basal antennal segment (basicerite) not overreaching stylocerite 25
Ventrolateral tooth on basal antennal segment (basicerite) overreaching stylocerite 34
25. Basal antennal segment (basicerite) with dorsal margin usually rounded or truncate 26
Basal antennal segment (basicerite) with dorsal margin acutely produced . . . 31
26. Telson with posterior angles rectangular 27
Telson with posterior angles usually acutely produced 30
27. Third pereopod with dactyl comparatively slender, neither excavate nor swollen on flexor margin proximal to flexor tooth 28
Third pereopod with dactyl rather stout, with either "pocket" or bulge on flexor margin proximal to flexor tooth 29
28. Stylocerite not overreaching 1st antennular segment; major chela with palm terminating distally in strong spinose tooth extending obliquely from near articulation with movable finger . . . . . 99. ***S. amabilis***

Stylocerite overreaching 1st antennular segment; major chela with palm terminating bluntly near articulation with movable finger or with terminal tooth continuing marginal contour of palm, not oblique . . . . . 127. ***S. tumidomanus***

29. Third pereopod with dactyl excavate on flexor margin proximal to blunt, stout flexor tooth . . . . . 102. ***S. charon***

Third pereopod with bulge on dactyl proximal to flexor tooth . . . . . 4. ***S. paraneomeris***

30. Telson with posterior angles produced posteriorly into strong teeth usually overreaching midlength of adjacent spine; minor chela with patterned row of setae on extensor margin of movable finger . . . . . *107. ***S. hastilicrassus***

Telson with posterior angles produced posteriorly into shorter teeth usually not reaching level of midlength of adjacent spine; minor chela with scattered setae not arranged in patterned row on extensor margin of movable finger . . . . . 127. ***S. tumidomanus***

31. Minor chela with patterned row of setae on extensor or lateral surface of movable finger 32

Minor chela without patterned row of setae on extensor or lateral surface of movable finger 33

32. Rostrum not reaching level of distal margin of 1st antennular segment; telson with posterior angles rectangular; major chela with palm terminating distally in blunt tooth directed obliquely from near articulation with movable finger; minor chela with patterned row of setae on lateral surface of movable finger . 103. ***S. coutierei***

Rostrum reaching to or beyond level of distal margin of 1st antennular segment; telson with posterior angles strongly projecting posteriorly; major chela with palm terminating distally in blunt tooth directed distally from near articulation with movable finger; minor chela with patterned row of setae on extensor margin of movable finger . . . . . *107. ***S. hastilicrassus***

33. Rostrum reaching level of mid length of antennular segment; antennal scale with blade narrow, subequal in width to base of distolateral spine; 3rd pereopod with merus 5 times as long as wide . . . . . 106. ***S. gracilirostris***

Rostrum, at most, not overreaching proximal 1/4 of 2nd antennular segment; antennal scale with blade wider than base of distolateral spine; 3rd pereopod with merus usually less than 5 times as long as wide . . 127. ***S. tumidomanus***

34. Telson with posterior angles acute, slightly projecting; basal antennal segment (basicerite) dorsally produced into long, spinose tooth . . . . . 109. ***S. laticeps***

Telson with posterior angles subrectangular; basal antennal segment (basicerite) usually rounded dorsally, slightly projecting at most 35

35. Dorsolateral spines on telson stout; ventrolateral tooth of basal antennal segment (basicerite) not far overreaching stylocerite; 3rd maxilliped usually with terminal circlet of stout spines on distal segment . . . . . *111. ***S. neptunus***

Dorsolateral spines on telson elongate;ventrolateral tooth of basal antennal segment (basicerite) far overreaching stylocerite; 3rd maxilliped usually with terminal dense brush of long setae on distal segment . . . . . *123. ***S. theona***

98. *Synalpheus albatrossi* Coutière, 1909

Synalpheus albatrossi Coutière, 1909:89, fig. 54 [type locality: Laysan Island Light, Hawaii, N. 67°, E. 1.5'; 18'35 meters].—A.H. Banner, 1953:30, fig. 9.—A.H. and D.M. Banner, 1981:223; 1983:89.

DIAGNOSIS.—Typically, rostrum not reaching level of distal margin of 1st antennular segment, tip not upturned, wider at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of telson, posterior margin unarmed mesially; telson with dorsolateral spines slender but distinct, anterior pair situated anterior to midlength of telson, posterolateral angles obtuse; stylocerite typically not overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth not nearly overreaching stylocerite, dorsal tooth strong, not accompanied by second, proximal tooth; antennal scale with well-developed blade; major chela with movable finger typically slightly overreaching fixed finger, palm terminating distally in weak, conical prominence at level of articulation with movable finger; minor chela without

patterned row of setae on extensor margin of movable finger, each finger terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth considerably larger than flexor tooth, segment neither excavate nor swollen on flexor margin, merus unarmed on flexor margin; maximum carapace length to base of rostrum about 3 mm.

RANGE.—Réunion, Mauritius, southwest of Manila Bay, Philippines, Hawaii; shallow subtidal to 194 meters (see "Remarks").

REMARKS.—A.H. and D.M. Banner, (1983:89) expressed some doubt about the identity of material identified since 1909 with the species represented by the unique holotype from off Laysan Island, Hawaii. Re-examination of that type specimen tends to accentuate that doubt, but it is probably best to follow the Banner advice and consider all 13 specimens that have been assigned to the species as conspecific until the variability of the taxon is better known.

99. *Synalpheus amabilis* De Man, 1910

Synalpheus amabilis De Man, 1910:295 [type locality: Banda, Indonesia; 9–36 meters]; 1911:275, pl. 11: fig. 52.—D.M. and A.H. Banner, 1979:240.

DIAGNOSIS.—Rostrum not nearly reaching level of distal margin of 1st antennular segment, apex not upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of telson, posterior margin unarmed mesially; telson with dorsolateral spines reasonably prominent, anterior pair situated anterior to midlength of telson, posterolateral angles rectangular; stylocerite attaining level of distal margin of 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth not overreaching stylocerite, dorsal margin oblique, obtuse, not dentate; antennal scale with well-developed blade; major chela with movable finger overreaching fixed finger, palm terminating distally in acute, divergent tooth at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, each finger terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth longer and slightly wider at base than flexor tooth, segment neither excavate nor swollen on flexor margin, merus unarmed on flexor margin; maximum size not recorded.

RANGE.—Basilan Strait and Sulu Archipelago, Philippines, and Banda Sea, Indonesia; intertidal to 9–36 meters, associated with coralline algae, sponges, and coral heads.

100. *Synalpheus antenor* De Man, 1910

Synalpheus Antenor De Man, 1910:293 [type locality: 2 stations in the eastern Halmahera Sea off western New Guinea and 1 station off Banda, Banda Sea; 9 to 59–83 meters]; 1911:294, pl. 13: fig. 62.
Synalpheus antenor.—D.M. and A.H. Banner, 1979:240.

DIAGNOSIS.—Rostrum not nearly reaching level of distal margin of 1st antennular segment, tip not upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of telson, posterior margin unarmed mesially; telson with dorsolateral spines fairly prominent, anterior pair situated just anterior to midlength of telson, posterolateral angles rectangular; stylocerite distinctly overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth slightly overreaching stylocerite, dorsal tooth subacute, not spinose, not accompanied by 2nd, proximal tooth; antennal scale with blade rudimentary or absent, major chela with palm terminating distally in acute tooth in male, in blunt tubercle in female; minor chela without patterned row of setae on extensor margin of movable finger, movable finger terminating in 2 acute teeth and 1 truncate lobe, fixed finger in 4 acute teeth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth longer than but basally subequal in width to flexor tooth, segment neither excavate nor swollen on flexor margin, merus unarmed on flexor margin; maximum carapace length to base of rostrum about 13 mm.

RANGE.—Southern Philippines and Indonesia; intertidal to 59–83 meters, associated with sponges, coral heads, and brittle star.

*101. *Synalpheus bituberculatus* De Man, 1910

Synalpheus bituberculatus De Man, 1910:294 [type locality: 7 stations in Indonesia; shallow subtidal to 36 meters]; 1911:276, pl. 11: fig. 53.—D.M. and A.H. Banner, 1975:307, fig. 8.

DIAGNOSIS.—Rostrum not nearly overreaching 1st antennular segment, apex upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with dorsolateral spines prominent, anterior pair situated anterior to midlength of telson, posterior angles subacute but not projecting; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth overreaching stylocerite, dorsal tooth acute but short, not accompanied by 2nd, proximal tooth; antennal scale with blade narrow but not vestigial; major chela with movable finger slightly overreaching fixed finger, palm terminating distally in usually 2 blunt tubercles at level of articulation with movable finger; minor chela with movable finger not bearing patterned row of setae on extensor margin, terminating in 2 acute teeth, fixed finger terminating in single strong tooth and, sometimes, small accessory tooth; 2nd pereopod with 5 carpal articles, 3rd pereopod with dactyl biunguiculate, extensor tooth about twice as long as flexor tooth, segment neither excavate nor swollen on flexor margin, merus armed with series of movable spines on distal $^1/_2$ of flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 7mm.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago: 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: 2 [3.6, 4.7], 1 ovig [4.7]. Near Siasi, Sulu Archipelago; sta 5146; 5°46′40″N, 120°48′50″E; 44 m; coral

sand, shells; 16 Feb 1908 (1011–1031); 12′ Agassiz beam trawl, mud bag: 2 [4.1, 5.0], 1 ovig [5.0]. San Juanico Strait, between Samar and Leyte: sta 5205; 11°19′30″N, 124°58′05″E; 15 m; 13 Apr 1908 (0928); 12′ Agassiz beam trawl, 3 mud bags (fouled bottom; trawl lost; mud bag only recovered; sounding with hand lead): 1 ovig [5.9].

RANGE.—Réunion, Mauritius, Singapore, Thailand, Indonesia, Philippines, Japan and Australia; to a depth of 44 meters, commonly in sponges and dead coral.

102. *Synalpheus charon* (Heller, 1861)

A[lpheus] charon Heller, 1861:27 [type locality: Red Sea].
Alpheus prolificus Bate, 1888:556, pl. 99: fig. 4 [type locality: off Honolulu, Hawaii; 33 meters].
Synalpheus Charon.—De Man, 1911:245, pl. 8: fig. 37.
Synalpheus Helleri De Man, 1911:194, 246 [type locality: Nicobar Islands].
Synalpheus charon obscurus A.H. Banner, 1956:329, fig. 5 [type locality: southeast side of Unai Obyan, Saipan, Mariana Islands; reef flat].
Synalpheus charon.—D.M. and A.H. Banner, 1975:369, fig. 25.—A.H. and D.M. Banner, 1983:90.

DIAGNOSIS.—Rostrum not overreaching 1st antennular segment, apex not upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with rather small dorsolateral spines, both pairs sometimes situated in posterior 1/2 of telson, posterior angles obtuse, stylocerite distinctly overreaching 1st antennular segment; basal antennal segment (basicerite) not overreaching stylocerite, dorsal margin little dentate, usually rounded; antennal scale with well-developed blade; major chela with movable finger not clearly overreaching fixed finger, palm terminating distally in slight, blunt protrusion at level of articulation with movable finger; minor chela with movable finger not bearing patterned row of setae on extensor margin, fingers not terminating in more than 1 tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth slender, with lateral flange, segment excavate on flexor margin proximal to flexor tooth, merus unarmed; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 7 mm.

RANGE.—Red Sea to South Africa, Japan to Australia, and Gulf of California to Ecuador; shallow subtidal to 33 meters, perhaps confined to living heads of branching corals.

103. *Synalpheus coutierei* A.H. Banner, 1953

Synalpheus biunguiculatus?—Coutière, 1898f:232, figs. 1–4 [not *Alpheus biunguiculatus* Stimpson, 1860:31].
Synalpheus coutierei A.H. Banner, 1953:36 [type locality: *S. coutierei* was proposed as a replacement name for *S. biunguiculatus* Coutiere, 1898f:232, a misidentification based on material from Ambon; Pulau Damar-Besar; Zanzibar; Bahia de Ferñao Veloso, Mocambique; D'Arros Island, Amirante Isles; El Suweis, Egypt; Rameswaran, southern India; Holothuria Reefs, Timor Sea; Arafura Sea; and Djibouti].—D.M. and A.H. Banner, 1975:343, fig. 18a–i; 1979:241, fig. 4a,b.—A.H. and D.M. Banner, 1983:91, fig. 10.

DIAGNOSIS.—Rostrum not overreaching 1st antennular segment, apex not upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with dorsolateral spines prominent, anterior pair situated anterior to midlength of telson, posterior angles rectangular; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth reaching to about level of tip of stylocerite, dorsal tooth strong, spinose, unaccompanied by 2nd, proximal tooth; antennal scale with blade narrow but not vestigial; major chela with movable finger overreaching fixed finger, palm terminating distally in bluntly acute, divergent tooth and adjacent tubercle at level of articulation with movable finger; minor chela with movable finger bearing somewhat patterned series of stiff setae, fingers terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth slightly longer than flexor tooth, segment neither excavate nor swollen on flexor margin, merus unarmed; uropod with tranverse articulation on lateral branch; maximum carapace length to base of rostrum at least 8 mm.

RANGE.—Suez Canal and eastern Africa to Philippines, Indonesia, Australia, and most of Pacific islands, but not including Japan, Hawaii, or Society Islands; shallow subtidal to 77 meters, in dead coral and sponges. If the Clipperton Island record mentioned by D.M. and A.H. Banner (1975:344) was based on Chace (1962:612), it is referrable to *S. biunguiculatus* (Stimpson, 1960) and not to this species.

REMARKS.—It is apparent from the discussion in D.M. and A.H. Banner (1975:344) that, if *S. biunguiculatus* var. *exilipes* Coutière, 1905—which was elevated to a full species by Johnson (1962:51)—is included in the synonymy of this species, it must be accorded preference over *S. coutierei* as the senior synonym. It seems best, however, not to make this substitution until the synonymy can be supported by stronger evidence than is currently available.

*104. *Synalpheus demani* Borradaile, 1899

Alpheus triunguiculatus De Man, 1888a:504, pl. 22: fig. 1 [type locality: Ambon; not *A. triunguiculatus* Paulson, 1875:103].
Alpheus spiniger.—Bate, 1888:560, pl. 100: fig. 3 [probably not *A. spiniger* Stimpson, 1860:31].
Synalpheus demani Borradaile, 1899:416 [replacement name for *Alpheus triunguiculatus* De Man, 1888a:504].—D.M. and A.H. Banner, 1975:324, fig. 13.
Synalpheus Brockii Nobili, 1901:2 [replacement name for *Alpheus triunguiculatus* De Man, 1888a:504].

DIAGNOSIS.—Rostrum reaching to or overreaching level of distal margin of 1st antennular segment, apex not upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with dorsolateral spines inconspicuous or absent, posterior angles acute but not noticeably produced; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth nearly reaching level of tip of stylocerite, dorsal tooth strong, accompanied by much less conspicuous 2nd, proximal

tooth; antennal scale with blade well-developed; major chela with movable finger slightly overreaching fixed finger, palm terminating distally in blunt tooth or tubercle at level of articulation with movable finger; minor chela with movable finger devoid of patterned row of setae on extensor margin, each finger terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl triunguiculate, extensor tooth much weaker than other 2, segment neither excavate nor swollen on flexor margin, merus unarmed on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum fully 10 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: 2 with abdominal parasites [7.2, 7.9].

RANGE.—Red Sea, Japan, Philippines, Indonesia, Australia, and Marshall and Loyalty islands; shallow subtidal to about 50 meters, usually associated with crinoids.

REMARKS.—Inasmuch as De Man (1888a) proposed the name *Alpheus triunguiculatus* as a new species in apparent ignorance of, rather than misidentification of, *A. triunguiculatus* Paulson, 1875, it seems to me that *Synalpheus demani* is a true "replacement name" and that it should be assigned the type locality indicated by the De Man reference—not the locality mentioned by Borradaile (1899) and cited by Miya (1972:62) as the type locality—even though Article 72(e) of the third edition of the *International Code of Zoological Nomenclature* (1985) is, rather characteristically, more ambiguous than the comparable Article 72(d) of the second edition (1964).

*105. *Synalpheus fossor* (Paulson, 1875)

Alph[eus] fossor Paulson, 1875:103, pl. 13: fig. 5 [type locality: Saya de Malha Bank, Seychelles-Mauritius Ridge, Indian Ocean; 47–53 meters].

S[ynalpheus] Bakeri Coutière, 1908:199 [type locality: South Adelaide, South Australia].

Synalpheus fossor, var. *propinqua* De Man, 1909a:121 [type locality: Pearl Bank, Sulu Archipelago, Philippines, and Indonesia between Misool and New Guinea, off Timor, and Lesser Sunda Islands; 13–36 meters].

Synalpheus Bakeri var. *Stormi* De Man, 1911:253 [type locality: Balikpapan, Makassar Strait coast of Borneo, and Atjeh, Sumatra].

Synalpheus fossor.—D.M. and A.H. Banner, 1975:335, fig. 16.—A.H. and D.M. 1983:97.

DIAGNOSIS.—Rostrum not reaching level of or overreaching level of distal margin of 1st antennular segment, apex sometimes upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin not dentate mesially; telson with dorsolateral spines prominent, anterior pair situated anterior to midlength of telson, posterior angles acute, projecting posterolaterally, stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) reaching nearly to level of tip of stylocerite, with strong dorsal tooth, not accompanied by 2nd, proximal tooth; antennal scale with blade narrow but not vestigial; major chela with movable finger not much overreaching fixed finger, palm terminating distally in 1 or 2 blunt tubercles at level of articulation with movable finger; minor chela with movable finger not bearing distinctly patterned row of setae on extensor margin, each finger terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl triunguiculate, extensor tooth shorter than distal flexor tooth, segment not excavate nor swollen on flexor margin, merus unarmed on flexor margin; uropod with tranverse articulation on lateral branch; maximum carapace length to base of rostrum fully 8 mm.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago: sta 5141; 6°09′N, 120°58′E; 53 meters; coral sand; 15 Feb 1908 (0847–0905); 12′ Agassiz beam trawl, mud bag: 1 damaged specimen [?].

RANGE.—Red Sea, Madagascar, Seychelles, Mauritius, Maldive Islands, Thailand, Philippines, Indonesia, and Australia; to a depth of about 50 meters, in dead coral and sponges.

106. *Synalpheus gracilirostris* De Man, 1910

Synalpheus gracilirostris De Man, 1910:291 [type locality: off northeastern point of Timor, Indonesia; 8°25.2′S, 127°18′E; 27–54 meters].—D.M. and A.H. Banner, 1975:372, fig. 26.

DIAGNOSIS.—Rostrum overreaching 1st antennular segment, apex not upurned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with dorsal spines distinct, anterior pair arising at about midlength of telson, posterior angles acute, slightly projecting; stylocerite far overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth not overreaching stylocerite but sometimes reaching equally far, dorsal tooth acute and reasonably prominent, not accompanied proximally by 2nd tooth; antennal scale with blade narrow but not very reduced; major chela with movable finger slightly overreaching fixed finger, palm terminating distally in acute tooth at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, each finger terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth slightly longer but no stronger than flexor tooth, segment neither excavate nor swollen on flexor margin, merus unarmed on flexor margin; maximum carapace length to base of rostrum about 4 mm.

RANGE.—Red Sea, eastern Africa, Réunion, Mauritius, Philippines, Indonesia, and Australia; shallow subtidal to 27–54 meters, sometimes in dead coral.

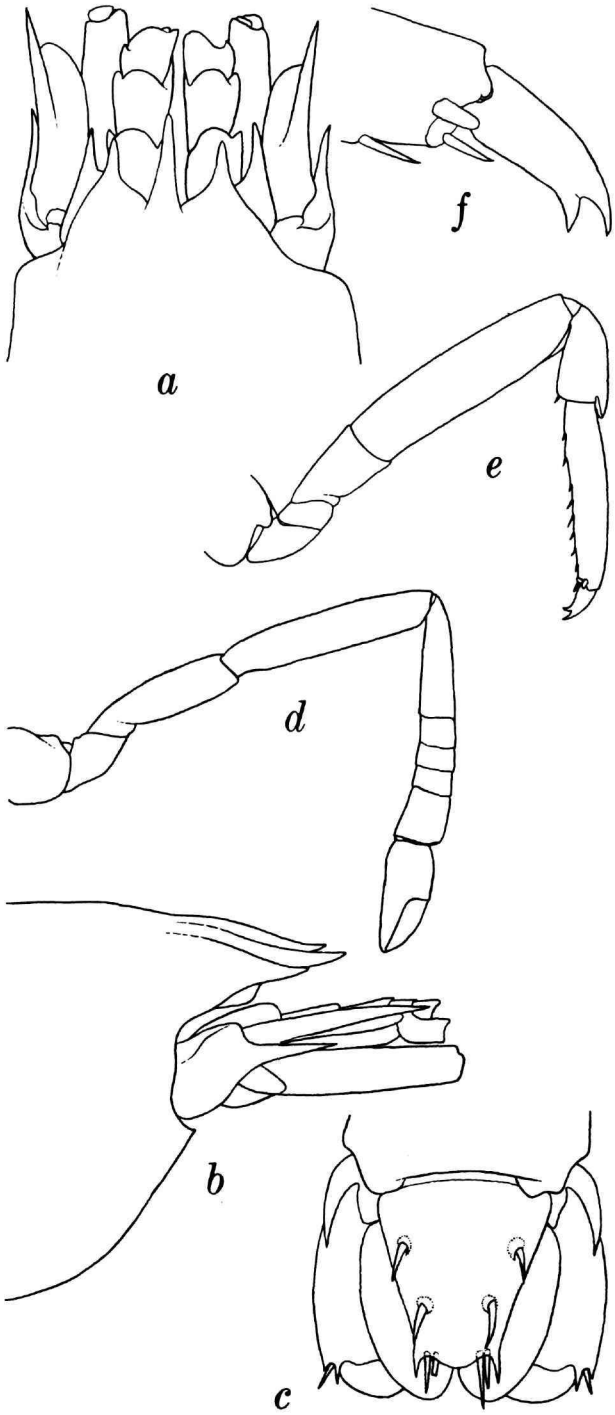

FIGURE 19.—*Synalpheus hastilicrassus*, specimen from *Albatross* sta 5174, carapace length 3.9 mm: *a*, anterior carapace and appendages, dorsal aspect; *b*, same, lateral aspect; *c*, telson and uropods, dorsal aspect; *d*, right 2nd pereopod; *e*, right 3rd pereopod; *f*, same dactyl.

*107. *Synalpheus hastilicrassus* Coutière, 1905

FIGURES 19, 20

Synalpheus hastilicrassus Coutière, 1905:1875, pl. 72: fig. 12 [type locality: the type series came from 4 different atolls in the Maldive Islands].—D.M. and A.H. Banner, 1975:353, fig. 21; 1979:242, fig. 4c,d.

Synalpheus acanthitelsonis Coutière, 1905:875, pl. 72: fig. 13 [type locality: the type series came from 5 different atolls in the Maldive Islands].

Synalpheus hastilicrassus, var. *acanthitelsoniformis* De Man, 1920:108 [type locality: east side of Pulau Pajunga, Teluk Kuandang, north coast of Celebes, Indonesia; reef].

DIAGNOSIS.—Rostrum usually overreaching 1st antennular segment, apex not upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with dorsolateral spines distinct, posterior angles acute, rather strongly projecting; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth reaching about to level of apex of stylocerite, dorsal margin usually unarmed, sometimes acute; antennal scale with blade reasonably well-developed; major chela with movable finger not appreciably overreaching fixed finger, palm terminating distally in more or less acute tooth at level of articulation with movable finger; minor chela with somewhat patterned row of setae on extensor margin, each finger terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, terminal teeth subequal in length, segment neither excavate nor swollen on flexor margin, merus unarmed on flexor margin; uropod with tranverse articulation on lateral branch; maximum carapace length about 7 mm.

MATERIAL.—PHILIPPINES. San Juanico Strait, between Samar and Leyte: sta 5205; 11°19′30″N, 124°58′05″E; 15 m; 13 Apr 1908 (0928); 12′ Agassiz beam trawl, 3 mud bags (fouled bottom; trawl lost; mud bag only recovered; sounding with hand lead): 2 [3.0, 3.1], 1 ovig [3.0]. Off Jolo Island, Sulu Archipelago: sta 5174; 6°03′45″N, 120°57′E; 37 m; coarse sand; 5 Mar 1908 (1551–1557); 9′ Johnson oyster dredge: 1 [3.9].

RANGE.—Red Sea and eastern Africa to the Philippines, Indonesia, Australia, and the Caroline, Marshall and Fiji islands; shallow subtidal to 90 meters, in coral heads, sometimes sponges.

REMARKS.—The three *Albatross* specimens seem to support the data and conclusions of D.M. and A.H. Banner (1975:354, 356). They are in general agreement in all characters except the dorsal margin of the basal antennal segment (basicerite); this segment is dorsally unarmed in the single specimen from the Sulu Sea area (Figure 19), as was material recorded from that region by the Banners, but it is armed with a very strong, spinose, dorsal tooth in both specimens from San Juanico Strait, to the northeast (Figure 20).

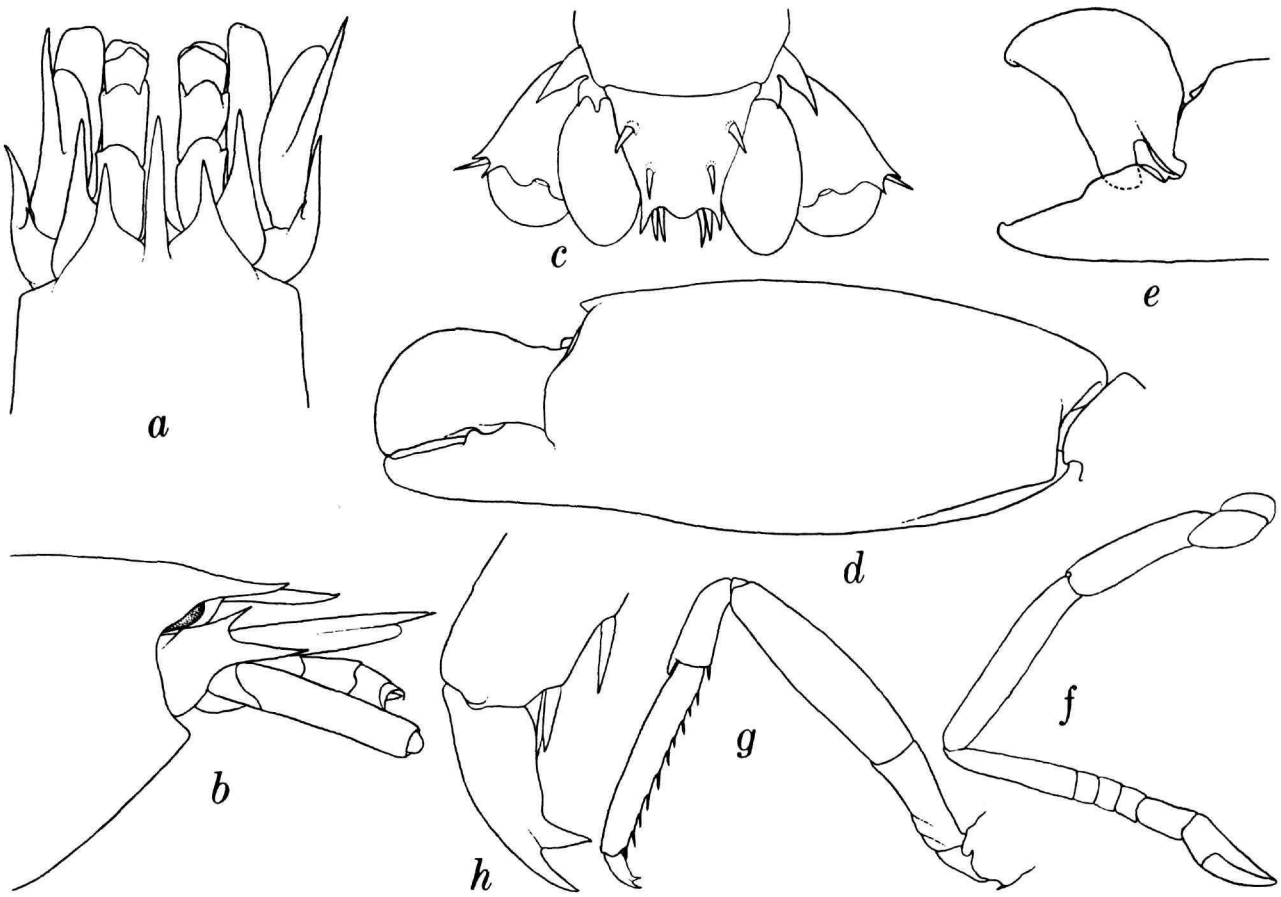

FIGURE 20.—*Synalpheus hastilicrassus*, ovigerous female from *Albatross* sta 5205, carapace length 3.0 mm: *a*, anterior carapace and appendages, dorsal aspect; *b*, same, lateral aspect; *c*, telson and uropods, dorsal aspect; *d*, left 1st (major) chela; *e*, same, fingers; *f*, left 2nd pereopod; *g*, left 3rd pereopod; *h*, same dactyl.

*108. *Synalpheus iocasta* De Man, 1909

Synalpheus Iocasta De Man, 1909a:119 [type locality: the type series came from 12 different stations in Indonesia; 13–113 meters]; 1911:235, pl. 8: fig. 33.

Synalpheus iocasta.—D.M. and A.H. Banner, 1975:368, fig. 241–n; 1985:42, fig. 4.

DIAGNOSIS.—Rostrum usually reaching level of distal margin of 1st antennular segment, apex not upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with dorsolateral spines small but distinct, anterior pair usually situated anterior to midlength of telson, posterior angles acute and slightly projecting; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth not overreaching stylocerite, dorsal tooth acute, prominent, not accompanied proximally by 2nd tooth; antennal scale with blade well-developed; major chela with movable finger barely overreaching fixed finger, palm terminating distally in slightly arched acute tooth at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, each finger terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, terminal teeth unusually short, extensor tooth much less robust but slightly longer than flexor tooth, segment neither excavate nor swollen on flexor margin, merus armed with 2 stout, movable spines on distal 1/2 of flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 4 mm.

MATERIAL.—PHILIPPINES. Near 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: 2 [2.9, 3.4], 1 ovig. [3.4] (smaller specimen found on surface of sepia-brown sponge). Near Siasi, Sulu Archipelago: sta 5149; 5°33′N, 120°42′10″E; 18 m; coral, shells; 18 Feb 1908

(0932–0952); 12′ Agassiz beam trawl, mud bag: 1 ovig [3.2].

RANGE.—Southeastern South China Sea, Philippines, Indonesia, and Australia; 13–113 meters.

109. *Synalpheus laticeps* Coutière, 1905

Synalpheus laticeps Coutière, 1905:874, pl. 72: fig. 11 [type locality: Male Atoll, Maldive Islands].—A.H. and D.M. Banner, 1966b:68, fig. 23.—D.M. and A.H. Banner, 1979:243, fig. 4e–i.—A.H. and D.M. Banner, 1983:100.

DIAGNOSIS.—Rostrum not reaching level of distal margin of 1st antennular segment, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with dorsolateral spines small but distinct, anterior pair situated anterior to midlength of telson, posterior angles acute, slightly projecting; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth overreaching stylocerite, dorsal tooth long, spinose, not accompanied by 2nd, proximal tooth; antennal scale with blade narrow, rarely vestigial; major chela with movable finger not appreciably overreaching fixed finger, palm terminating in subrectangular angle at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, both fingers broadened, excavate, and terminating in 1 or more distal teeth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth slightly longer and, usually, less stout than flexor tooth, segment neither excavate nor swollen on flexor margin, merus unarmed, maximum carapace length to base of rostrum probably about 4 mm.

RANGE.—Western Indian Ocean, Maldive Islands, Thailand, southern Philippines and Indonesia; in depths of less than 7 meters.

*110. *Synalpheus neomeris* (De Man, 1897)

Alpheus neomeris De Man, 1897:734 [part; type locality: Mergui Archipelago, Burma].

Synalpheus Gravieri Coutière, 1905:870, pl. 70: fig. 2 [type locality: the type series was recorded from 4 atolls in the Maldive Islands, Djibouti, and "mer de Chine"].

Synalpheus miscellaneus De Man, 1909a:118 [type locality: off northeastern point of Timor, Indonesia; 27–54 meters].

Synalpheus neomeris.—D.M. and A.H. Banner, 1975:357, fig. 22.—A.H. and D.M. Banner, 1983:101.—D.M. and A.H. Banner, 1985:51.

DIAGNOSIS.—Rostrum not overreaching 1st antennular segment, usually faintly upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with all dorsolateral spines situated in posterior 1/2 of telson in mature specimens, posterior angles subrectangular, stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) not overreaching stylocerite, dorsal tooth acute or spinose, not accompanied by 2nd, proximal tooth; antennal scale with well-developed blade; major chela with movable finger not appreciably overreaching fixed finger, palm terminating in blunt to acute tooth at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, each finger terminating in single tooth; 2nd pereopod with 5 carpal articles, 3rd pereopod with dactyl biunguiculate, extensor tooth less than 1/2 as long and less than 1/3 as stout at base as flexor tooth, segment neither excavate or swollen on flexor margin, merus without acute distal fixed tooth but armed with 1 or more stout movable spines on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 11 mm.

MATERIAL.—PHILIPPINES. Bohol Strait, east of Cebu: sta 5413; 10°10′35″N, 124°03′15″E [77 m]; 24 Mar 1909 (1134–1140); 6′ McCormick: 4 [3.4–4.8]. Davao Gulf, Mindanao: sta 5249; 7°06′06″N, 125°40′08″E; 42 m; coral, sand; 18 May 1908 (1102–1109); 6′ Johnston oyster dredge: 2 [3.4, 10.0]; sta 5253; 7°04′48″N, 125°39′38″E; 51 m; coral; 18 May 1908 (1347–1358); 6′ Johnston oyster dredge: 4 [4.5–7.0]; sta 5254; 7°05′42″N, 125°39′42″E; 38 m; sand, coral; 18 May 1908 (1426–1431); 6′ Johnston oyster dredge: 6 [4.5–7.3]. Off Jolo Island, Sulu Archipelago: sta 5137, 6°04′25″N, 120°58′30″E; 37 m; sand, shells; 14 Feb 1908 (0955–1015); 12′ Agassiz beam trawl, 2 mud bags: 1 [5.1]; sta 5141; 6°09′N, 120°58′E; 53 m; coral sand; 15 Feb 1908 (0847–0905); 12′ Agassiz beam trawl, mud bag: 2 [4.1, 5.1], 1 ovig [5.1]; sta 5145; 6°04′30″N, 120°59′30″E; 42m; coral sand, shells; 15 Feb 1908 (1344–1359); 12′ Agassiz beam trawl, mud bag: 3 [2.9–3.1]; sta 5555; 5°51′15″N, 120°58′35″E; 62 m; coarse sand; 18 Sep 1909 (1109–1113); 6′ McCormick: 1 [5.9]; sta 5557; 5°51′30″N, 121°01′00″E; 24 m; 18 Sep 1909 (1458–1503); 6′ McCormick: 2 [9.0, 10.2], 1 ovig [10.2]. 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: 4[8.1–10.6], 1 ovig [10.4]; sta 5148; 5°34′40″N, 120°47′30″E; 31 m; coral, shells; 16 Feb 1908 (1307–1325); 12′ Agassiz beam trawl, mud bag: 1 [2.0]. 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 ovig [4.5]; sta 5154; 5°14′50″N, 119°58′45″E; 22 m; coral sand; 19 Feb 1908 (1035–1050); 12′ Agassiz beam trawl, mud bag: 4 [2.5–9.3], 2 ovig [6.3, 9.3]; sta 5165; 4°58′20″N, 119°50′30″E [17m]; coral; 24 Feb 1908 (1319–1323); 9′ Johnston oyster dredge: 1 [8.7].

RANGE.—Suez Canal, Red Sea, eastern Africa, Persian Gulf, Thailand, Japan, Philippines, Indonesia, and Australia; shallow subtidal to 250 meters, commonly associated with alcyonarians, sometimes with sponges.

REMARKS.—Seven of the smaller Philippine specimens collected by the *Albatross*, including all five specimens (one ovigerous) from stations 5141 and 5145 off Jolo Island, Sulu Archipelago, have the anterior pair of dorsolateral spines situated at or anterior to the midlength of the telson. Eight others with carapace lengths of less than about 5 mm, however,

have both pairs of dorsolateral spines situated on the posterior half of the telson. It seems unlikely that this atypical condition is of more than varietal significance, but the possibility that a distinct small species has been confused with *S. neomeris* might be considered in future study of the species.

*111. *Synalpheus neptunus* (Dana, 1852)

Alpheus neptunus Dana, 1852a:22 [type locality (based on neotype designation by D.M. and A.H. Banner, 1972:24): "Tictabon Island, near Zamboanga, Philippines (Sulu Sea)" (presumably currently known as "Tictauan Islands" (6°53′N, 122°09′E), situated on the Moro Gulf (not Sulu Sea) side of Basilian Strait)].

Synalpheus neptunus.—D.M. and A.H. Banner, 1972:24, fig. 3.

Synalpheus neptunus neptunus.—D.M. and A.H. Banner, 1975: 317, fig. 11.

DIAGNOSIS.—Rostrum not overreaching 1st antennular segment, apex not upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with dorsolateral spines stout, prominent, anterior pair situated on anterior 1/2 of telson, posterior angles subrectangular; stylocerite falling short of or overreaching distal margin of 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth reaching about to level of tip of stylocerite, dorsal angle rounded, occasionally slightly projecting; antennal scale with blade sometimes moderately developed, sometimes vestigial; major chela with movable finger not appreciably overreaching fixed finger, palm terminating distally in rounded prominence at level of articulation with movable finger; minor chela with movable finger bearing lateral rows of regularly spaced setae but without patterned row on extensor surface, both fingers broad, excavate, and terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, teeth subequal in length, flexor tooth slightly stouter than extensor tooth, segment neither excavate nor swollen on flexor margin, merus unarmed; uropod with transverse articulation on lateral branch in mature specimens; maximum carapace length to base of rostrum about 9 mm.

MATERIAL.—PHILIPPINES. 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: 2 [3.8, 4.2], 1 ovig [4.2]; 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: 7 [2.5–3.6].

RANGE.—Red Sea to Japan, Philippines, Indonesia, and Australia; shallow subtidal to 70 meters.

REMARKS.—If I am justified in assigning the two specimens from station 5139 to a single species, there seems to be little cause to recognize subspecies in this seemingly very variable species. The smaller specimen is the more nearly typical one of the two, as verified by comparison with the neotype. It displays a rostrum that falls short of the level of the distal margin of the 1st antennular segment and does not overreach the orbital teeth, a stylocerite that similarly does not overreach the 1st antennular segment, an antennal scale without any vestige of a blade, and a uropod with a distinct transverse articulation on the lateral branch. The larger, ovigerous specimen, on the other hand, has a longer rostrum that overreaches both the 1st antennular segment and the orbital teeth, a stylocerite that similarly overreaches the 1st antennular segment, an antennal scale with a well-developed blade, and a uropod with an obscure transverse articulation on the lateral branch. In most other respects, including the distal circlet of spines on the third maxilliped, however, the two specimens agree with each other and with the current concept of *S. neptunus*. Although the collection of two such different specimens at the same station seems to discourage the recognition of subspecies, I have not included *S. neptunus germanus* D.M. and A.H. Banner, 1975:321, in the above synonymy because of the somewhat isolated and apparently uniform population from Western Australia on which it was based.

*112. *Synalpheus nilandensis* Coutière, 1905

Synalpheus Nilandensis Coutière, 1905:871, pl. 70: fig. 4 [type locality: the type series came from 4 atolls in the Maldive Islands].

Synalpheus Nilandensis, var. *oxyceros* Coutière, 1905:871, pl. 70: fig. 5 [type locality: Nilandu Atoll, Maldive Islands].

Synalpheus nilandensis, var. *bandaensis* De Man, 1909a:121 [type locality: Selat Sape, Lesser Sunda Islands, and Banda, Banda Sea, Indonesia].

Synalpheus nilandensis.—D.M. and A.H. Banner, 1975:327, fig. 14.

DIAGNOSIS.—Rostrum not overreaching 1st antennular segment, apex upturned, narrower at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson, posterior margin unarmed mesially; telson with posterolateral spines distinct, anterior pair situated in anterior 1/2 of telson, posterior angles acutely produced; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth of variable length, overreaching stylocerite or not, dorsal tooth strong, acute, without accompanying 2nd, proximal tooth; antennal scale with blade narrow, not vestigial; major chela with movable finger only slightly overreaching fixed finger, palm terminating distally in acute tooth at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, fingers terminating in single distal tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl triunguiculate, extensor tooth smaller than flexor tooth, segment neither excavate nor swollen on flexor margin, merus armed with about 4 strong movable spines on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum fully 5 mm.

MATERIAL.—PHILIPPINES. Off Tawitawi, Sulu Archipelago: sta 5157; 5°12′30″N, 119°55′50″E; 33 m; fine sand; 21 Feb 1908 (0904–0909); 9′ Johnston oyster dredge: 1 [3.2].

RANGE.—Red Sea and eastern Africa to Hong Kong, Philippines, Indonesia, Australia, and, possibly, Tuamotu Archipelago; less than 18 to 134 meters.