

**\*113. *Synalpheus odontophorus* De Man, 1909**

*Synalpheus odontophorus* De Man, 1909a:113 [type locality: the type series came from 3 different stations in southern and eastern Indonesia; 90 to more than 120 meters].—D.M. and A.H. Banner, 1979:244, fig. 4j–m.

DIAGNOSIS.—Rostrum overreaching 1st antennular segment, apex not upturned, wider 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, anterior pair situated anterior to midlength, posterior angles acute but not projecting; stylocerite reaching to about level of midlength of visible part of 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth not nearly overreaching stylocerite, dorsal tooth spinose, not accompanied by 2nd, proximal tooth; antennal scale with blade well-developed; major chela with movable finger not overreaching fixed finger, palm terminating distally in small 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 about twice as long as flexor tooth, segment neither excavate nor swollen on flexor margin proximal to flexor tooth, merus armed with small, acute distal tooth on flexor margin, without movable spines, uropods with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 7 mm.

MATERIAL.—PHILIPPINES. Off Tawitawi, Sulu Archipelago: sta 5153; 5°18'10"N, 120°02'55"E; 90 m; coral sand, shells; 19 Feb 1908 (0908–0922); 12' Agassiz beam trawl, mud bag: 1 [5.2].

RANGE.—Southern Japan; South China Sea south of Hong Kong; Sulu Archipelago, Philippines; and southern and eastern Indonesia; 55 to more than 120 meters, sometimes associated with crinoids.

REMARKS.—Although D.M. and A.H. Banner (1979:244) were doubtful about the potential importance of the two characters that seemed most useful in distinguishing *S. odontophorus* from *S. stimpsonii* (the relative lengths of the rostrum and of the stylocerite), it may be desirable to direct attention to the single *Albatross* specimen that manifests this distinction, especially because it was found in somewhat deeper water than were any of the more numerous specimens of *S. stimpsonii* in the collection.

**114. *Synalpheus paraneomeris* Coutière, 1905**

*Synalpheus paraneomeris* Coutière, 1899:456, 466, 486, 501 [nomen nudum]; 1905:872, pl. 71: fig. 7 [type locality: the type series apparently came from Goidu Island in the Maldives and Minicoy, southernmost island of the Laccadives, as well as from Djibouti in the Gulf of Aden, Masqat in the Gulf of Oman, and Mahe Island in the Seychelles].—D.M. and A.H. Banner, 1975:383, fig. 29.—A.H. and D.M. Banner, 1983:103.—D.M. and A.H. Banner, 1985:52.

*S[synalpheus] paraneomeris prolatus* Coutière, 1909:9 [nomen nudum].

*S[synalpheus] paraneomeris oxyceros* Coutière, 1909:9 [nomen nudum].

*Synalpheus townsendi* Coutière, 1909:34 [part; syntype without pereopods from French Frigate Shoals, Hawaii, determined to be *S. paraneomeris* by A.H. Banner, 1953:44, fig. 14; "type" designated by Coutière (USNM 38392) represented by 11 specimens from northeastern Gulf of Mexico].

*Synalpheus paraneomeris*, var. *halmaherensis* De Man, 1909a:122 [type locality: "Wunoh-bay," northwest coast of Pulau Waigeo, Irian Java, Indonesia].

*Synalpheus paraneomeris*, var. *praedabunda* De Man, 1909a:123 [type locality: the type series came from 4 different stations in Indonesia; reef to 27 meters].

*Synalpheus paraneomeris* var. *prolatus* De Man, 1911:241, pl. 8: fig. 35 [type locality: "Wunoh-bay," northwest coast of Pulau Waigeo, Irian Jaya, and Pulau Kabaena, Celebes, Indonesia; shallow water (doubtfully referred to the nomen nudum *S. paraneomeris prolatus* Coutière, 1909)].

*Synalpheus Sluiteri* De Man, 1920:107 [type locality: Teluk Djakarta, Java].

*S[synalpheus] paraneomeris praslini* Coutière, 1921:415, pl. 61: fig. 6 [type locality: Praslin Island, Seychelles; reef].

*S[synalpheus] paraneomeris seychellensis* Coutière, 1921:415, pl. 61: fig. 7 [type locality: Seychelles].

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 small but distinct, both pairs frequently situated in posterior 1/2 of telson, posterior angles usually subrectangular; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) not overreaching stylocerite, dorsal margin usually not produced; antennal scale usually with well-developed blade, major chela with movable finger not appreciably overreaching fixed finger, palm slightly produced distally at level of articulation with movable finger; minor chela without patterned row of setae on extensor surface of movable finger, each finger terminating in single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, flexor tooth usually considerably stouter than extensor tooth, segment usually with bulge on margin proximal to flexor tooth, merus unarmed on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 5 mm.

RANGE.—Red Sea and western Indian Ocean to (Thailand excepted ?) Japan (variety ?), Philippines, Indonesia, Australia, and the Pacific islands at least as far eastward as Hawaii; shallow subtidal to 126 meters.

**\*115. *Synalpheus pescadorensis* Coutière, 1905**

*Synalpheus Pescadorensis* Coutière, 1905:877, pl. 73: fig. 15 [type locality: Miladummadulu, Nilandu, and Male atolls, Maldive Islands, and P'enghu Lichtao (Pescadores), Formosa Strait].

*Synalpheus pescadorensis*.—D.M. and A.H. Banner, 1975:301, fig. 6

DIAGNOSIS.—Rostrum not nearly reaching level of distal margin of 1st antennular segment, apex upturned, narrower at base than orbital teeth; 6th abdominal somite with acute projection either side of base of telson, posterior margin unarmed mesially; telson with dorsal spines unusually large, anterior pair slightly smaller than posterior pair and situated in anterior 1/2 of telson, posterior angles subrectangular;

stylocerite not overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth overreaching stylocerite, armed dorsally with long, spinose tooth, not accompanied by 2nd, proximal tooth; antennal scale with blade narrow but not vestigial; major chela with movable finger overreaching fixed finger, palm terminating in convex projection armed with acute tooth at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, latter terminating in 2 teeth, fixed finger in 1; 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 proximal to flexor tooth, merus unarmed on flexor margin; uropod without transverse articulation on lateral branch, protopod with unusually long lateral tooth reaching nearly or quite to midlength of lateral branch; maximum carapace length of carapace to base of rostrum probably about 6 mm.

**MATERIAL.**—PHILIPPINES. Southwest of Manila Bay, Luzon: sta 5109; 14°13'45"N, 120°16'30"E; 18 m; coral; 1911:285, pl. 12: fig. 57.—A.H. Banner, 1958:161. 9' *Albatross-Blake* beam trawl (trawl immediately torn on coral): 1 [5.3]. Davao Gulf, Mindanao: sta 5250; 7°05'07"N, 125°39'45"E; 42 m; coral, sand; 18 May 1908 (1124–1127); 6' Johnston oyster dredge: 1 [4.3]; sta 5253; 7°04'48"N, 125°39'38"E; 51 m; coral; 18 May 1908 (1347–1358); 6' Johnston oyster dredge: 1 [4.1].

**RANGE.**—Somalia to Formosa Strait, Philippines, Indonesia, Australia, and the Caroline and Solomon Islands; shallow water to 51 meters.

#### 116. *Synalpheus quadriarticulatus* D.M. and A.H. Banner, 1975

*Synalpheus quadriarticulatus* D.M. and A.H. Banner, 1975:297 fig. 5 [type locality: between Hammond and Waiwea islands, Torres Strait, Queensland, Australia; 3 meters, in sponge].

**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 base of telson, posterior margin unarmed mesially; telson with dorsolateral spines distinct, anterior pair situated near midlength of telson, posterior angles subquadrangular; stylocerite not overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth overreaching stylocerite, armed dorsally with prominent spine-like tooth, not accompanied by 2nd, proximal tooth; antennal scale without blade; major chela with movable finger slightly overreaching fixed finger, palm terminating distally in tubercle armed with 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 4 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth longer and more slender than flexor tooth, segment neither excavate nor

swollen on flexor margin proximal to flexor tooth, merus unarmed on flexor margin; uropod without transverse articulation on lateral branch; maximum carapace length to base of rostrum about 4 mm.

**RANGE.**—Known previously only from the type series from the vicinity of Thursday Island, Torres Strait, at a depth of about 3 meters. The Philippine record stems from 7 Smithsonian specimens collected by the *Alpha Helix* at station M-136 in Pujada Bay, southeastern Mindanao, 9–18 meters, 21 July 1979, and identified by A.H. Banner in 1983.

#### \*117. *Synalpheus quadrispinosus* De Man, 1910

*Synalpheus quadrispinosus* De Man, 1910:298 [type locality: the type series came from 5 stations in southern and eastern Indonesia; 13–70 meters]; 1911:285, pl. 12: fig. 57.—A.H. Banner, 1958:161.

*Synalpheus quadridens* De Man, 1910:299 [type locality: off northeast point of Timor, Indonesia, 8°25.2'S, 127°18.4'E; 27–54 meters]; 1911:284, pl. 12: fig. 56.

**DIAGNOSIS.**—Rostrum not nearly reaching level of distal margin of 1st antennular segment, apex sometimes slightly upturned, narrower at base than blunt orbital teeth; 6th abdominal somite projecting posteriorly either side of base of telson, posterior margin armed with 2 small additional teeth separated by concave mesial margin of somite; telson with dorsolateral spines distinct, anterior pair situated in anterior 1/2 of length, posterior angles subacute but not projecting; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth reaching nearly to level of distal end of stylocerite, dorsal tooth strong, not accompanied by 2nd, proximal tooth; antennal scale with blade narrow but not by any means vestigial; major chela with movable finger distinctly overreaching fixed finger, palm terminating distally in variably projecting 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 than flexor tooth, segment neither excavate nor swollen on flexor margin proximal to flexor tooth, merus unarmed on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 8 mm.

**MATERIAL.**—PHILIPPINES. Visayan Sea north of Cebu: sta 5401; 11°24'45"N, 124°06'E; 55 m; fine sand; 16 Mar 1909 (1005–1032); 6' McCormick trawl: 1 [4.1]. Davao Gulf, Mindanao: sta 5254; 7°05'42"N, 125°39'42"E; 38 m; sand, coral; 18 May 1908 (1426–1431); 6' Johnston oyster dredge: 1 [3.5].

**RANGE.**—Singapore, Indonesia, Philippines, and Gilbert Islands; 13–70 meters, probably commensal with crinoids at Singapore, according to Johnson (1962:51).

**REMARKS.**—The two specimens from the Gilbert Islands have been re-examined; they are larger than either of the Philippine specimens, with carapace lengths of 4.5 and 4.6, the

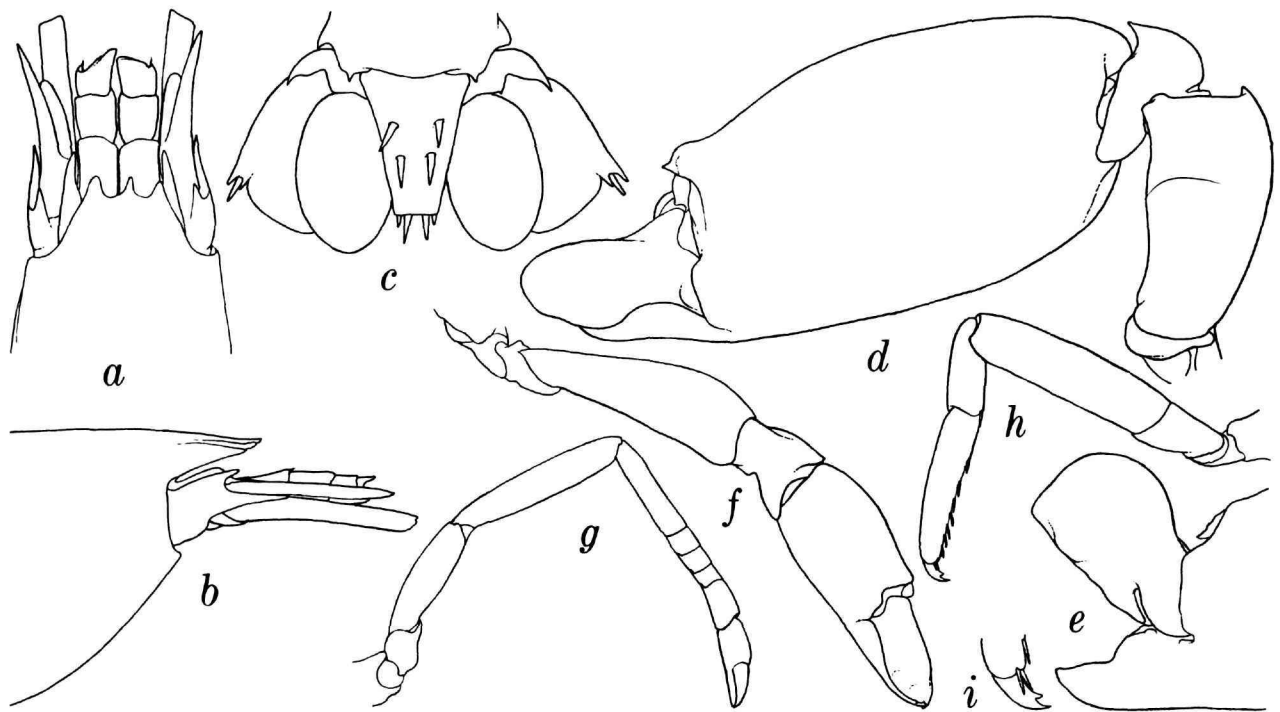


FIGURE 21.—*Synalpheus sciro*, specimen from *Albatross* sta 5482, carapace length 5.7mm: a, anterior carapace and appendages, dorsal aspect; b, same, lateral aspect; c, telson and uropods, dorsal aspect; d, left 1st (major) cheliped; e, same, fingers; f, right 1st (minor) cheliped; g, right 2nd pereopod; h, left 3rd pereopod; i, same dactyl.

smaller being ovigerous. The three ovigerous specimens recorded by De Man (1911:284, 285) were 12, 16, and 23 mm overall; the smallest compares in size with the ovigerous female from Onotoa, and the largest must be about twice as large.

\*118. *Synalpheus sciro* D.M. and A.H. Banner, 1975

FIGURE 21

*Synalpheus sciro* D.M. and A.H. Banner, 1975:304, fig. 7 [type locality: northwest of Bluff Point, Western Australia, 27°40'S, 113°20'E; 14 meters].

DIAGNOSIS.—Rostrum not nearly reaching level of distal margin of 1st antennular segment, apex slightly upturned, narrower at base than orbital teeth; 6th abdominal somite with acute projection either side of base of telson, posterior margin unarmed mesially; telson with dorsolateral spines unusually large, anterior pair situated on anterior  $\frac{1}{2}$  of telson, posterior angles subrectangular; stylocerite not overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth overreaching stylocerite, dorsal tooth strong, spinose, not accompanied by 2nd, proximal tooth; antennal scale with blade narrow but not vestigial; major chela with movable finger overreaching fixed finger, palm terminating distally in tubercle armed with distal acute tooth at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, latter terminating in 2 distal teeth, fixed finger in 3; 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 proximal to flexor tooth, merus unarmed on flexor margin; uropod without transverse articulation on lateral branch, protopod with lateral tooth not extending far beyond proximal  $\frac{1}{4}$  of lateral branch; maximum carapace length to base of rostrum probably about 6 mm.

MATERIAL.—PHILIPPINES. Surigao Strait, east of Leyte: sta 5482; 10°27'30"N, 125°18'E; 123 m; broken shells, sand, and green mud; 30 Jul 1909 [0911–0932]; 12' Agassiz beam trawl: 1 [5.7].

RANGE.—The only other known specimen of this species is the holotype from the Indian Ocean off Bluff Point, Western Australia; 14 meters.

REMARKS.—The illustrations (Figure 21) will serve to corroborate the identification of the specimen from Surigao Strait and to depict the major cheliped and the posterior end of the telson, both of which were lacking in the holotype.

119. *Synalpheus septemspinus* De Man, 1910

*Synalpheus septemspinus* De Man, 1910:297 [type locality: east of Pulau Sailus-Besar, Kepulauan Tengah, eastern Java Sea, Indonesia; "up to 36" meters]; 1911:289, pl. 13: fig. 59.—D.M. and A.H. Banner, 1979:245, fig. 4n—r.—A.H. and D.M. Banner, 1983:105.

DIAGNOSIS.—Rostrum not nearly reaching level of distal margin of 1st antennular segment, narrower at base than orbital teeth; 6th abdominal somite acutely projecting posteriorly

either side of base of telson, posterior margin armed with about 5 acute teeth irregularly spaced between posterolateral projections; telson with dorsolateral spines distinct, anterior pair situated anterior to midlength, posterior angles subacute but not projecting; stylocerite reaching level of distal margin of 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth overreaching stylocerite, dorsal tooth strong, sharply acute, 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 2 unequal tubercles at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, fixed finger terminating in 3 or 4 small teeth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth longer than flexor tooth, segment neither excavate nor swollen on flexor margin proximal to flexor tooth, merus bearing series of movable spines on distal  $\frac{1}{2}$  of flexor margin but without fixed distal tooth; maximum carapace length to base of rostrum probably about 4 mm.

RANGE.—Madagascar; Sulu Archipelago, Philippines; and Java Sea, Indonesia; 2 to at least 28 meters.

**\*120. *Synalpheus stimpsonii* (De Man, 1888)**

*Alpheus Stimpsonii* De Man, 1888a:513, pl. 22: fig. 3 [type locality: Ambon, Indonesia].

*Alpheus amboinae* Zehnter, 1894:202, pl. 8: fig. 23 [type locality: Ambon, Indonesia].

*Alpheinus tridens* Borradaile, 1899:415, pl. 38: fig. 12 [type locality: Baie du Sandal, Île Lifou, Admiralty Islands].

*Synalpheus Stimpsoni* var. *Maldivensis* Coutière, 1905:878, pl. 73: fig. 16 [type locality: Hulele, Male Atoll, Maldives Islands; on crinoid].

*Synalpheus consobrinus* De Man, 1909a:111 [type locality: the series came from 4 different stations in Indonesia; reef to 113 meters].

*Synalpheus brucei* Potts, 1915:76, figs. 1A,B, 2A–C, 3 [type locality: Murray Island, eastern Torres Strait, Australia, associated with crinoids].

*Synalpheus striatus* Kubo, 1938:89, figs. 1, 2 [type locality: O Shima, Wakayama Prefecture, Honshu, Japan; 3–7 meters].

*Synalpheus stimpsoni*.—D.M. and A.H. Banner, 1975:292, figs. 2m, 4.

*Synalpheus stimpsonii*.—A.H. and D.M. Banner, 1983:106, 1984:45.—D.M. and A.H. Banner, 1985:54.

DIAGNOSIS.—Rostrum overreaching 1st antennular segment, often slightly concave dorsally, wider at base than orbital teeth; 6th abdominal somite with or without acute tooth at mesial end of posterolateral lobe on either side of base of telson, posterior margin unarmed mesially; telson with dorsolateral spines distinct, anterior pair situated slightly anterior to midlength, posterior angles not projecting; stylocerite reaching nearly to or overreaching level of distal margin of 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth not nearly overreaching stylocerite, dorsal tooth spinose, not accompanied by 2nd, proximal tooth; antennal scale with blade well-developed; major chela with movable finger not overreaching fixed finger, palm usually terminating distally in 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 bent at nearly right angle and fully twice as long as flexor tooth, segment neither excavate nor swollen on flexor margin proximal to flexor tooth, merus armed with small, acute distal tooth on flexor margin, without movable spines; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 13 mm.

MATERIAL.—PHILIPPINES. Southwest of Manila Bay, Luzon: sta 5108; 14°05'05"N, 120°19'45"E; 24 m; coral; 15 Jan 1908 (0834–0835); 9' *Albatross-Blake* beam trawl, mud bag (dredging cable fouled on gin block; trawl not dragged on bottom): 2 [6.4, 6.4]; sta 5109; 14°03'45"N, 120°16'30"E; 18 m; coral; 15 Jan 1908 (1026–1038); 9' *Albatross-Blake* beam trawl (trawl immediately torn on coral): 1 ovig. [8.5]. Davao Gulf, Mindanao: sta 5248; 7°07'25"N, 125°40'24"E; 33 m; coral; 18 May 1908 (1038–1042); 6' Johnston oyster dredge (veered from 49 to 55 meters): 2 [7.7, 9.4], 1 ovig [9.4]; sta 5254; 7°05'42"N, 125°39'42"E; 38 m; sand, coral; 18 May 1908 (1426–1431); 6' Johnston oyster dredge: 1 ovig [9.6]. Off Jolo Island, Sulu Archipelago: sta 5141; 6°09'N, 120°58'E; 53 m; coral sand; 15 Feb 1908 (0847–0905); 12' Agassiz beam trawl, mud bag: 1 [4.3]; 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: 2 [10.2, 12.2], 1 ovig [12.2]; sta 4145; 6°04'30"N, 120°59'30"E; 42 m; coral sand, shells; 15 Feb 1908 (1344–1359); 12' Agassiz beam trawl, mud bag: 1 ovig [10.3]; sta 5174; 6°03'45"N, 120°57'E; 37 m; coarse sand; 5 Mar 1908 (1551–1557); 9' Johnston oyster dredge: 1 [7.7]; sta 5558; 5°51'33"N, 121°01'00"E; 27 m; 18 Sep 1909 (1517–1520); 6' McCormick trawl: 1 ovig [7.5]. Marungas Island, Sulu Archipelago: 1 [6.9]. 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: 8 [2.5–9.8], 3 ovig [9.4–9.8], 1 with egg-shaped, sac-like parasitic capsules on pereopods and pleopods [9.5]. Near Tawitawi, Sulu Archipelago: sta 5165; 4°58'20"N, 119°50'30"E [17 m]; coral; 24 Feb 1908 (1319–1323); 9' Johnston oyster dredge: 2 [9.8, 11.4], 1 ovig [11.4].

RANGE.—Eastern Africa and Madagascar to Singapore, Thailand, Japan, Philippines, Indonesia, Australia, and Marshall, Gilbert, and Loyalty islands; intertidal to 155 meters, frequently associated with crinoids, occasionally with alcyonarians and in dead coral heads and under rocks.

REMARKS.—There is little argument with the conclusion of D.M. and A.H. Banner (1975:296) that *S. stimpsonii* is a "highly variable species." Study of the rather limited material (23 specimens) collected during the *Albatross* Philippine Expedition suggests that those with the longest rostral and orbital teeth also display an acute projection from the posterolateral lobe of the sixth abdominal somite, a character that seems otherwise to be of specific significance.



**\*121. *Synalpheus streptodactylus* Coutière, 1905**

*Synalpheus neomeris* var. *streptodactylus* Coutière, 1905:870, pl. 70: fig. 1' [type locality: Haddummati, Suvadiva, and Nilandu atolls, Maldives Islands].

*Synalpheus streptodactylodes* De Man, 1909a:114 [type locality: off northeast point of Timor, Indonesia; 27–54 meters].

*Synalpheus streptodactylus*.—De Man, 1911:226, pl. 7: fig. 29.—D.M. and A.H. Banner, 1975:362, fig. 23; 1981:73.—A.H. and D.M. Banner, 1983:106.—D.M. and A.H. Banner, 1985:55.

*S*[*synalpheus*] *metaneomeris* Coutière, 1921:414, pl. 60: fig. 4 [except fig. 4c'''] [new name for *S. neomeris* sensu Coutière, 1905:869 (not *Alpheus neomeris* De Man, 1897); type locality: 11 Maldives localities cited by Coutière, 1905].

*S*[*synalpheus*] *metaneomeris* var. *streptodactylus* Coutière, 1921:414, pl. 60: fig. 4c'''.  
*S*[*synalpheus*] *streptodactylus* *hadrunus* A. H. and D.M. Banner, 1966a:158 [new name for *S. metaneomeris streptodactylus* sensu Coutière, 1921 (= *S. neomeris streptodactylus* Coutière, 1905); see "Remarks"].

**DIAGNOSIS.**—Rostrum not overreaching 1st antennular segment, faintly convex dorsally, 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, anterior pair usually situated slightly anterior to midlength, posterior angles acute but not much produced; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) not quite overreaching stylocerite, dorsal tooth strong, acute, not accompanied by 2nd, proximal tooth; antennal scale with well-developed blade; major chela with movable finger not far 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 more slender and  $\frac{1}{2}$  to nearly as long as flexor tooth, segment neither excavate nor swollen on flexor margin proximal to flexor tooth, merus bearing 2–5 movable spines on distal  $\frac{1}{2}$  of flexor margin, without acute distal tooth; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum rarely as much as 7 mm.

**MATERIAL.**—PHILIPPINES. Mindoro Strait: sta 5332; 12°47'15"N, 120°41'E; 1362 m; green mud; 3.4°C; 12 Dec 1908 (1150–1210); from driftwood at surface: 1 [3.2]. Marungas Island, Sulu Archipelago [6°06'N, 120°58'E]; 19 Feb 1908; shore, coral head: 2 [4.3, 4.8], 1 ovig [4.8]. 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: 4 [2.8–4.3], 1 ovig [4.3]; sta 5141; 6°09'N, 120°58'E; 53 m; coral sand; 15 Feb 1908 (0847–0905); 12' Agassiz beam trawl, mud bag: 3 [3.7–4.4], 1 ovig [4.4]; 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 ovig [4.7, 5.0]; sta 5174; 6°03'45"N, 120°57'E; 37 m; coarse sand; 5 Mar 1908 (1551–1557); 9' Johnston oyster dredge: 2 [3.8, 4.0]. Near Siasi, Sulu Archipelago: sta 5147; 5°41'40"N, 120°47'10"E; 38 m; coral sand, shells; 16 Feb 1908

(1127–1147); 12' Agassiz beam trawl, mud bag: 2 ovig [4.1, 4.4]. 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: 7 [2.0–4.1].

**RANGE.**—Red Sea and eastern and South Africa to Thailand, Japan, Philippines, Indonesia, and Australia to Hawaii; intertidal to 128 meters. The occurrence of a specimen of *S. streptodactylus* on driftwood in Mindoro Strait—together with four specimens of *Hippolyte ventricosa* H. Milne Edwards, 1837, a frequent denizen of flotsam on the high seas—is interesting evidence of this means of dispersal of normally benthic animals.

**REMARKS.**—If the above synonymy is accepted, there is no problem with the correct name of this shrimp, but the choice is more complex if more than one taxon are believed to be represented. That conclusion would seem to assume that the name *S. streptodactylus* or *S. streptodactylus streptodactylus* is to be retained for the species or subspecies in which the extensor tooth of the dactyl of the third pereopod is one-half as thick and two-thirds as long as the flexor tooth, as indicated by Coutière (1905:870). For the other taxon, in which the extensor tooth of that dactyl is no more than one-third as thick and one-half as long as the flexor tooth, the name *S. metaneomeris* or *S. streptodactylus metaneomeris* would seem to be available (see the *International Code of Zoological Nomenclature*, third edition, 1985, Article 47(b)j and example). It seems to me that *S. streptodactylus hadrunus* A.H. and D.M. Banner, 1966a:158 is a synonym of the typical form of *S. streptodactylus*, the taxon with the extensor tooth of the dactyl of the third pereopod one-half as thick as the flexor tooth; if, on the other hand, *S. s. hadrunus* should prove to represent the alternate form, it would seem to be a junior synonym of *S. s. metaneomeris*.

**122. *Synalpheus thai* A.H. and D.M. Banner, 1966**

*Synalpheus thai* A.H. and D.M. Banner, 1966b:61, fig. 19 [type locality: Koh Samet, Rayong, Thailand]; 1975:427.—D.M. and A.H. Banner, 1979:246, fig. 5a,b.

**DIAGNOSIS.**—Rostrum not overreaching 1st antennular segment, apex sharply 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 strong dorsolateral spines, anterior pair situated in anterior  $\frac{1}{2}$  of length, posterior angles produced posteriorly into teeth nearly  $\frac{1}{2}$  as long as telson in midline; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth reaching about to level of tip of stylocerite, dorsal tooth strong, acute, not accompanied by 2nd, proximal tooth; antennal scale with blade very narrow, vestigial; major chela with movable finger overreaching fixed finger, palm terminating distally in blunt projection at level of articulation with movable finger; minor chela with movable finger bearing patterned row of setae on extensor margin, each

finger terminating acutely; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth more than twice as long as flexor tooth, segment neither excavate nor swollen on flexor margin proximal to flexor tooth, merus unarmed on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 6 mm.

RANGE.—Northeastern Gulf of Thailand, Basilan Strait, southern Philippines, Indonesia, and Hawaii; shallow subtidal.

**\*123. *Synalpheus theano* De Man, 1910**

*Synalpheus Theano* De Man, 1910:296 [type locality: Between Pulau Misool and Pulau Salawati, Indonesia; 1°42.5'S, 130°47.5'E; 32 meters]; 1911:293, pl. 13; fig. 61.

*Synalpheus theano*.—D.M. and A.H. Banner, 1972:20–24, fig. 3F; 1975:314, 318, fig. 10.

DIAGNOSIS.—Rostrum not overreaching 1st antennular segment, dorsal margin slightly concave, 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 long, prominent, anterior pair situated on anterior 1/2 of telson, posterior pair near midlength, posterior angles subrectangular; stylocerite not overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth far overreaching stylocerite, dorsal angle rounded, truncate, or obscurely dentate; antennal scale with blade variably developed; major chela with movable finger overreaching fixed finger, palm terminating distally in acute to obtuse tooth at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin, each finger 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 proximal to flexor tooth, merus unarmed; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum fully 7 mm.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago: sta 5555; 5°51'15"N, 120°58'35"E; 62 m; coarse sand; 18 Sep 1909 (1109–1113); 6' McCormick trawl: 1 [5.5].

RANGE.—Philippines, Indonesia, and Australia; shallow water to 62 meters, in dead coral and sponges.

REMARKS.—D.M. and A.H. Banner (1972:21; 1975:318) suggested that *S. theano* could be distinguished from *S. neptunus* by a single character: the terminal excrescence on the distal segment of the third maxilliped, a dense brush of fine setae in *S. theano*, a circlet of heavy spinules in *S. neptunus*. This character is hardly definitive, however, in the well-preserved *Albatross* specimen assigned to *S. theano*, which has the third maxillipeds terminating in somewhat less than dense brushes composed of long spines and longer setae, the setae being more numerous and tending to obscure the spines on the

left member of the pair. This specimen has been identified as *S. theano* because it corresponds so well with the illustrations of that species offered by De Man (1911, supplement (1915)) and by D.M. and A.H. Banner (1975), especially in the long dorsolateral spines on the telson, long ventrolateral tooth on the basal antennal segment (basicerite) in comparison with the stylocerite, and the extension of the movable finger of the major chela beyond its fixed finger.

**\*124. *Synalpheus triacanthus* De Man, 1910**

*Synalpheus triacanthus* De Man, 1910:301 [type locality: Timor Sea, south of Timor; 9°0.3'S, 126°24.5'E; 112 meters. "Living in *Solenocolon* Gray," (a hollow-stemmed gorgonian that is known to harbor shrimps)]; 1911:282, pl. 12; fig. 55.—D.M. and A.H. Banner, 1979:247; 1981:82.—A.H. and D.M. Banner, 1981:224.

DIAGNOSIS.—Rostrum overreaching 1st antennular segment, upcurved, narrower at base than orbital teeth; 6th abdominal somite produced posteriorly into acute tooth either side of base of telson and armed posteromesially with similar acute tooth; telson with dorsolateral spines distinct, anterior pair situated just anterior to midlength, posterior angles acute, projecting; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth not reaching level of distal end of stylocerite, dorsal tooth strong, acute, not accompanied by 2nd, proximal tooth; antennal scale with well-developed blade; major chela with movable finger not clearly overreaching fixed finger, palm terminating distally in bluntly acute tooth slightly proximal to distal margin at articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, each finger terminating acutely; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth twice as long as flexor teeth, segment with flexor margin neither excavate nor swollen proximal to flexor tooth, merus sometimes with 2 or 3 movable spines, usually unarmed, on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 9 mm.

MATERIAL.—PHILIPPINES. Samar Sea, east of Masbate: sta 5213; 12°15'N, 123°57'30"E; 146 m; sand, mud, shells; 20 Apr 1908 (1047–1107); 12' Agassiz beam trawl, mud bag: 2 [6.0, 6.1], 1 ovig [6.1]. Off Jolo Island, Sulu Archipelago: sta 5140; 6°08'45"N, 121°03'E; 139 m; fine coral sand; 14 Feb 1908 (1409–1429); 12' Agassiz beam trawl, reversible net, mud bag: 3 [5.2–8.3], 1 ovig [8.3]; sta 5545; 6°04'45"N, 121°20'20"E; 209 m; fine coral sand; 15 Sep 1909 (0943–0959); 9' Tanner beam trawl: 1 [4.3]. Off Tawitawi, Sulu Archipelago: sta 5166; 4°56'10"N, 19°46'E; 177 m; coral sand; 8°C; 24 Feb 1908 (1505–1507); 12' Agassiz beam trawl, mud bag: 1 bridle top carried away: 2 [5.6, 6.0], 1 ovig [6.0].

INDONESIA. Eastern Molucca Sea near Ternate: sta 5617; 00°49'30"N, 127°25'30"E; 240 m; bottom?; 27 Nov 1909

(1101–1111); 12' Agassiz beam trawl: 1 [5.7].

RANGE.—Red Sea to Philippines and Indonesia: 112–230 meters, at least sometimes living in hollow-stemmed gorgonians.

REMARKS.—See "Remarks" under *S. trispinosus*.

**\*125. *Synalpheus trispinosus* De Man, 1910**

*Synalpheus trispinosus* De Man, 1910:300 [type locality (limited by De Man, 1911:288): "Madura-bay," southern part of Selat Moro, west of Pulau Flores, Indonesia; 70 meters]; 1911:288, pl. 12: fig. 58.—D.M. and A.H. Banner, 1981:82.—A.H. and D.M. Banner, 1981:224, fig. 2a–c; 1983:107.

DIAGNOSIS.—Rostrum overreaching 1st antennular segment, upcurved, narrower at base than orbital teeth; 6th abdominal somite produced posteriorly into acute tooth either side of base of telson and armed posteromesially with similar acute tooth; telson with dorsolateral spines distinct, anterior pair situated just anterior to midlength, posterior angles acute, projecting; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) not reaching level of distal end of stylocerite, dorsal tooth strong, acute, not accompanied by 2nd proximal tooth; antennal scale with well-developed blade; major chela with movable finger clearly overreaching fixed finger, palm terminating in 1 or 2 acute, subdistal teeth near articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, each finger terminating acutely; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth longer than flexor tooth, segment with flexor margin neither excavate nor swollen proximal to flexor tooth, merus with 6–9 movable spines on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 9 mm.

MATERIAL.—PHILIPPINES. Off Jolo Island, Sulu Archipelago: sta 5140; 6°08'45"N, 121°03'E; 139 m; fine coral sand; 14 Feb 1908 (1409–1429); 12' Agassiz beam trawl, reversible net, mud bag: 1 [8.3].

RANGE.—Gulf of Aden and eastern Africa to Philippines and Indonesia; 50–139 meters.

REMARKS.—The rather remarkable similarity between *S. triacanthus* and *S. trispinosus* in characters that are not usually encountered in other members of the genus (long, curved rostrum; tridentate posterior margin of sixth abdominal somite; and acute posterior angles of the telson) and the probability that they differ in only two, sometimes variable characters (proportionately longer and differently shaped movable finger of the major chela and numerous socketed spines on the flexor margin of the merus of the third pereopod) suggests that these two taxa may eventually prove to be synonyms. This possibility is strengthened by the collection of both forms at the same station by the *Albatross*. On the other hand the *Albatross* material tends to accentuate the differences between the two. All seven of the specimens assigned to *S. triacanthus* in which the major chela is attached have that appendage

uniformly distinct from that of the single specimen called *S. trispinosus*, and all nine of the former specimens have the merus of the third pereopod completely unarmed, whereas there are six distinct spines on the flexor margin of that segment in the other specimen. Finally, the possibility that these disparities might be sex-linked seems to be contradicted by the fact that the illustrated syntype of *S. trispinosus* was ovigerous, whereas the *Albatross* specimen of that form has the abdominal pleura sharply dentate, as in presumed males of many species of *Synalpheus*, and, more significantly, the two ovigerous specimens in the collection are quite typical of *S. triacanthus*.

**\*126. *Synalpheus tropidodactylus* D.M. and A.H. Banner, 1975**

FIGURE 22

*Synalpheus tropidodactylus* D.M. and A.H. Banner, 1975:286, fig. 2a–k, o [type locality: west of Geraldton, Western Australia; 28°14'S, 113°14'E; 110 meters].

DIAGNOSIS.—Rostrum overreaching 1st antennular segment, very slightly upturned, wider at base than orbital teeth; 6th abdominal somite not projecting posteriorly either side of base of telson; telson with dorsolateral spines distinct but not large, anterior pair situated near midlength, posterior angles subrectangular; stylocerite reaching about to level of distal margin of 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth not overreaching stylocerite, dorsolateral tooth strong, without 2nd, proximal tooth; antennal scale with well-developed blade; major chela with movable finger not distinctly overreaching fixed finger, palm terminating distally in small, 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 more than twice as long as flexor tooth, segment neither excavate nor swollen proximal to flexor tooth, merus unarmed on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 7 mm.

MATERIAL.—PHILIPPINES. Surigao Strait, east of Leyte: sta 5482; 10°27'30"N, 125°18'E; 123 m; broken shells, sand, and green mud; 30 Jul 1909 (0911–0932); 12' Agassiz beam trawl: 2 [5.1, 5.5].

RANGE.—The only other recorded specimens of this species are the holotype and paratype from the Indian Ocean off Geraldton, Western Australia; 100 meters.

REMARKS.—The most distinctive character of this species, the major cheliped with its curious modification of the plunger on the movable finger into a broad carina, is missing from both *Albatross* specimens, but the remaining characters (Figure 22) seem sufficient to justify the attributed identification. The larger of the two specimens is almost certainly a female that had recently borne eggs. The smaller, illustrated one is probably a male, from the appearance of the abdomen.

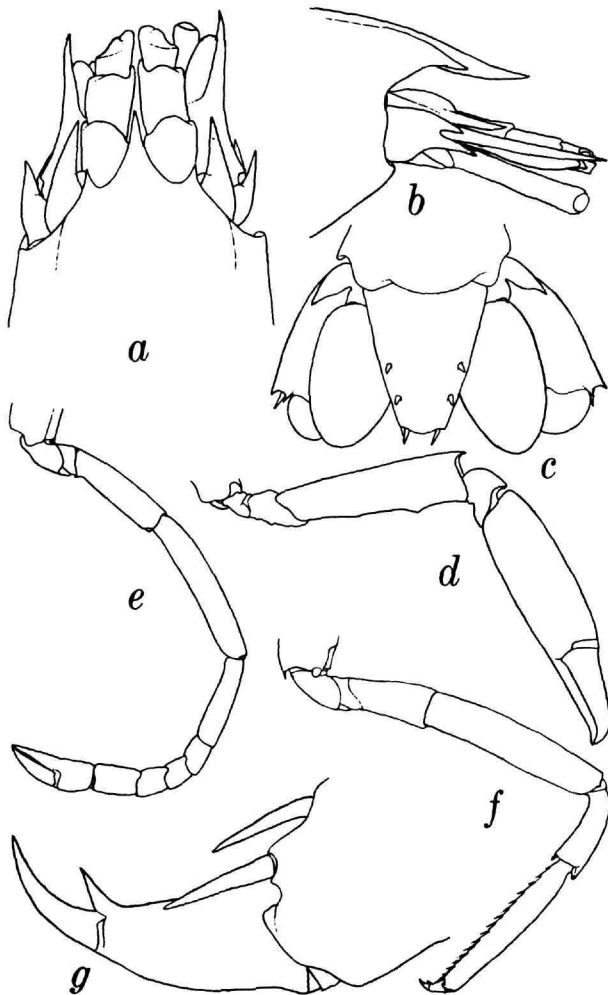


FIGURE 22.—*Synalpheus tropidodactylus*, specimen from *Albatross* sta 5482, carapace length 5.1 mm: *a*, anterior carapace and appendages, dorsal aspect; *b*, same, lateral aspect; *c*, telson and uropods, dorsal aspect; *d*, right 1st (minor) cheliped; *e*, right 2nd pereopod; *f*, right 3rd pereopod; *g*, same, dactyl.

It may be of interest, especially to the believer in the occult, that both this species and *S. sciro*, which were described from two and one specimens, respectively, from CSIRO collections obtained in the vicinity of Geraldston, Western Australia, in 1964 and 1963, were apparently first collected about 45 years earlier and 3000 miles (4800 km) to the north at a single station and with identical respective specimen representation.

#### 127. *Synalpheus tumidomanus* (Paulson, 1875)

*Alph[eus] tumido-manus* Paulson, 1875:101, pl. 13: fig. 2 [type locality: Red Sea].

*Alph. [tumido-manus] var. Alph[eus] gracili-manus* Paulson, 1875:102, pl. 13: fig. 3 [type locality: Red Sea].

*S[ynalpheus] Hululensis* Coutière, 1908:202 [type locality: Maldives].

*S[ynalpheus] Mac-Cullochi* Coutière, 1908:203 [type locality: southwest coast of Australia].

*S[ynalpheus] tumidomanus* var. *exilimanus* Paulson? Coutière, 1909:10 [nomen nudum].

*Synalpheus Theophane* De Man, 1910:292 [type locality: the type series came from 3 localities in Macassar Strait, Celebes, and southeast of Timor, Indonesia; reef to 27–34 meters].

*Synalpheus anisocheir* Stebbing, 1915:86, pl. 87 [type locality: Gordon's Bay, False Bay, South Africa].

*Synalpheus japonicus* Yokoya, 1936:133, fig. 3 [type locality: vicinity of Misaki, Shikoku, Japan].

*Synalpheus tumidomanus*.—D.M. and A.H. Banner, 1975:377, fig. 28; 1981:83.—A.H. and D.M. Banner, 1983:107.

DIAGNOSIS.—Rostrum reaching nearly to or beyond distal margin of 1st antennular segment, 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, anterior pair situated near midlength, posterior angles subrectangular to acutely projecting; stylocerite overreaching 1st antennular segment; basal antennal segment (basicerite) with ventrolateral tooth usually not overreaching stylocerite, dorsally unarmed to acutely projecting; antennal scale with well-developed blade; major chela with movable finger slightly, if at all, overreaching fixed finger, palm terminating distally in acute tooth or no projection at all at level of articulation with movable finger; minor chela without patterned row of setae on extensor margin of movable finger, each finger terminating in essentially single tooth; 2nd pereopod with 5 carpal articles; 3rd pereopod with dactyl biunguiculate, extensor tooth at least twice as long as flexor tooth, segment neither excavate nor swollen on flexor margin proximal to flexor tooth, merus unarmed on flexor margin; uropod with transverse articulation on lateral branch; maximum carapace length to base of rostrum about 9 mm.

RANGE.—Mediterranean coast of Israel and Red Sea to South Africa, eastward to Japan, Philippines, Indonesia, Australia, and across the Pacific to the Phoenix Islands; intertidal to 148 meters, in dead coral and sponges.

#### \**Vexillipar*, new genus

TYPE SPECIES.—*Vexillipar repandum*, new species.

DIAGNOSIS.—Rostrum acute in lateral aspect; carapace without 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 view; mandible with molar and incisor process but without palp; 3rd maxilliped not unusually broadened to form partial operculum over other mouthparts; 1st pereopods similar and equal, carried extended with movable finger ventrolateral; 2nd pereopod with fingers much shorter than palm, carpus with 5 articles; pereopods with strap-like epipods on 3 anterior pairs; appendix masculina not overreach-



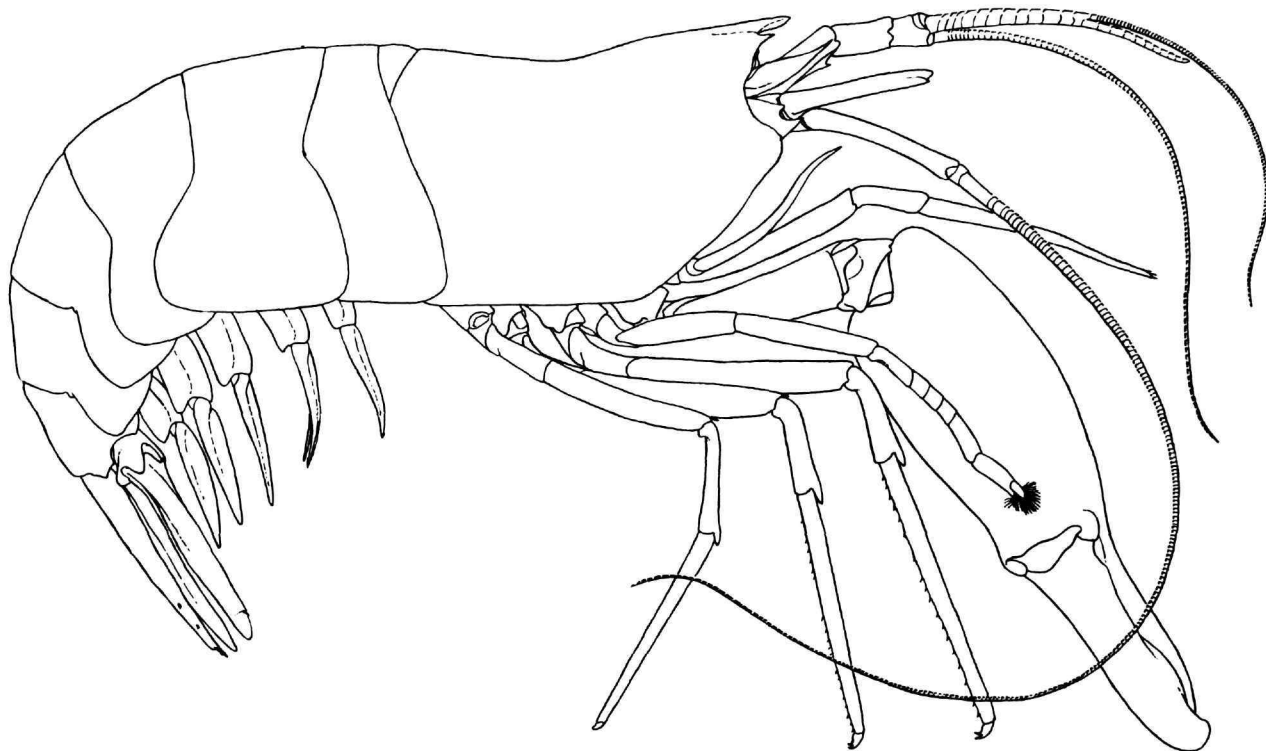


FIGURE 23.—*Vexillipar repandum*, new species, male holotype from *Albatross* sta 5543 (western Mindanao Sea, Philippines), carapace length 12.0 mm.

ing exopod of 2nd pleopod.

RANGE.—Philippines; 296 to 875 meters.

REMARKS.—Although the specimens referred to this genus key out to *Salmoneus* in the generic key by Holthuis (1955), they obviously are not closely related to that genus, as indicated by the absence of a mandibular palp and the virtually unarmed incisor process, the symmetrical 1st pair of pereopods held straight forward, and the biunguiculate dactyls of the 3 posterior pairs of pereopods. *Vexillipar* is almost certainly related to *Batella*, as disclosed by the form of the carapace, the lack of both a mandibular palp and teeth on the incisor process, and the comparable appearance of all 5 pairs of pereopods; it seems to differ fundamentally from that genus, however, by the considerably longer antennal peduncle, the different form of the dorsolateral antennular flagellum, the more conventional aspect of the 3-segmented palp of the 1st maxilliped and of the distal segments of the 2nd maxilliped, by the presence of epipods on the 3 anterior pairs of pereopods, and by the transverse suture on the outer branch of the uropod.

ETYMOLOGY.—From the Latin *vexillum*, ("banner,") and *par*, ("pair,") to honor my good friends and colleagues, Albert H. Banner and his wife Dora May, who so extraordinarily expanded our knowledge of the Indo-Pacific alpheids while

overcoming considerable personal and professional misfortune. The gender is neuter.

**\*128. *Vexillipar repandum*, new species**

FIGURES 23–25

DIAGNOSIS.—Rostrum acute in dorsal aspect, bluntly carinate in dorsal midline, not nearly reaching to level of distal margin of 1st antennular segment (Figure 24a), carapace usually markedly swaybacked (Figure 23), orbital hoods dentate, not reaching anteriorly to level of tip of rostrum, anteroventral margin produced into convex lobe bearing minute and inconspicuous denticle; abdomen with pleura rounded on 3 anterior somites, subrectangular on 4th and 5th, 6th produced laterally into obtuse angle either side of base of telson; telson (Figure 24c) armed with 2 pairs of inconspicuous spinules on posterior  $\frac{1}{3}$  of length; eyes fully exposed in anterior aspect; stylocerite (Figure 24a) reaching nearly to level of anterior margin of 1st antennular segment, latter with subdistal ventral tooth, 2nd segment about  $1\frac{1}{2}$  times as long as wide, lateral flagellum with branches fused for 12–15 articles, shorter, free branch shorter than fused portion; antennal peduncle (basicerite) with sharp ventral tooth not nearly reaching level of

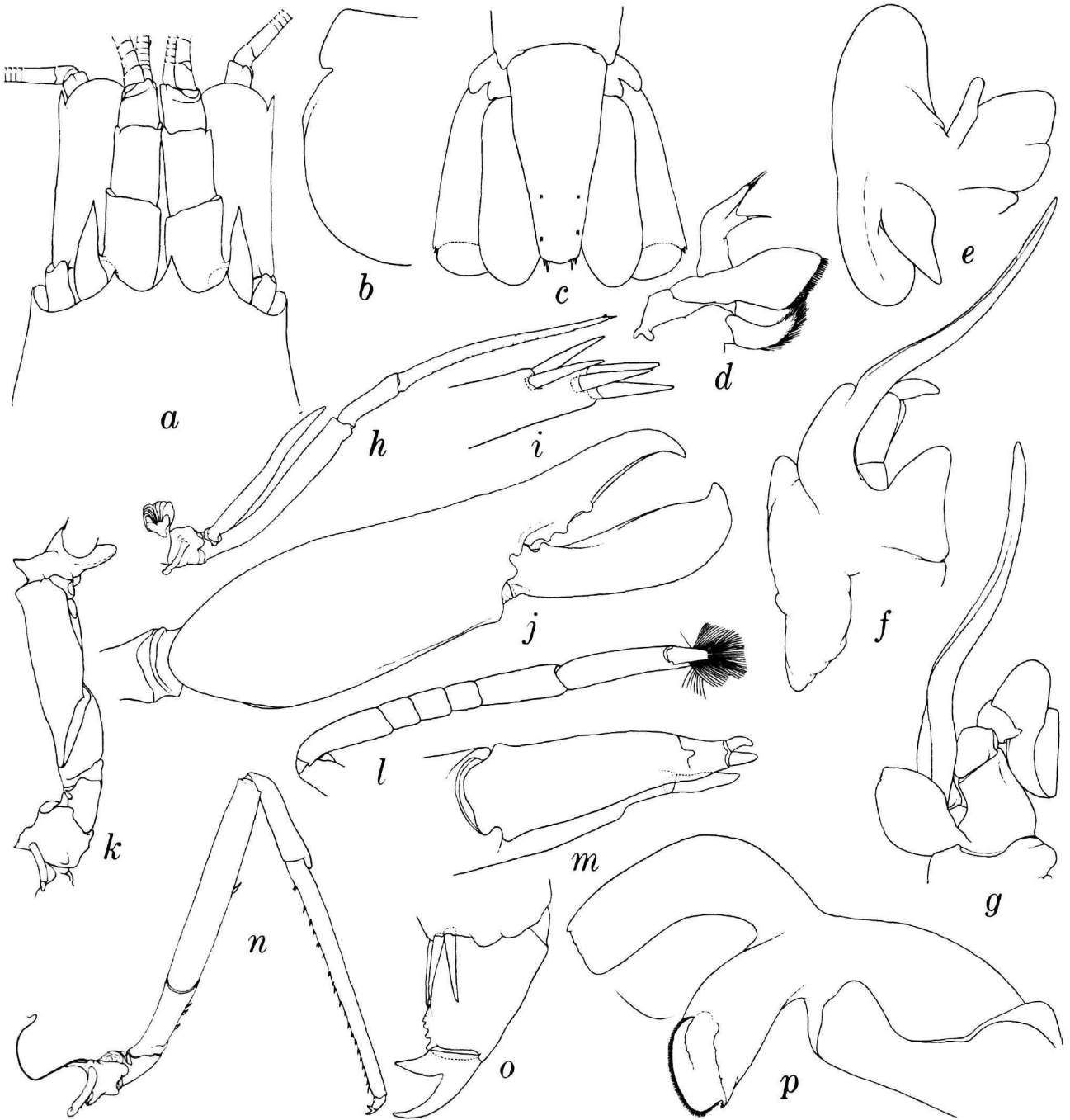


FIGURE 24.—*Vexillipar repandum*, new species, *a*, male holotype from *Albatross* sta 5543, carapace length 12.0 mm; *b–o*, male paratype from same station, carapace length 10.1 mm; *p*, female paratype from same station, carapace length 12.9 mm: *a*, anterior carapace and appendages, dorsal aspect; *b*, posterior margin of carapace; *c*, telson and uropods, dorsal aspect; *d*, right 1st maxilla; *e*, right 2nd maxilla; *f*, right 1st maxilliped; *g*, right 2nd maxilliped; *h*, right 3rd maxilliped; *i*, same, distal end, lateral aspect; *j*, right 1st chela; *k*, right 1st cheliped, proximal segments; *l*, right 2nd pereopod, carpus and chela; *m*, same, denuded fingers; *n*, right 3rd pereopod; *o*, same, dactyl; *p*, right mandible.

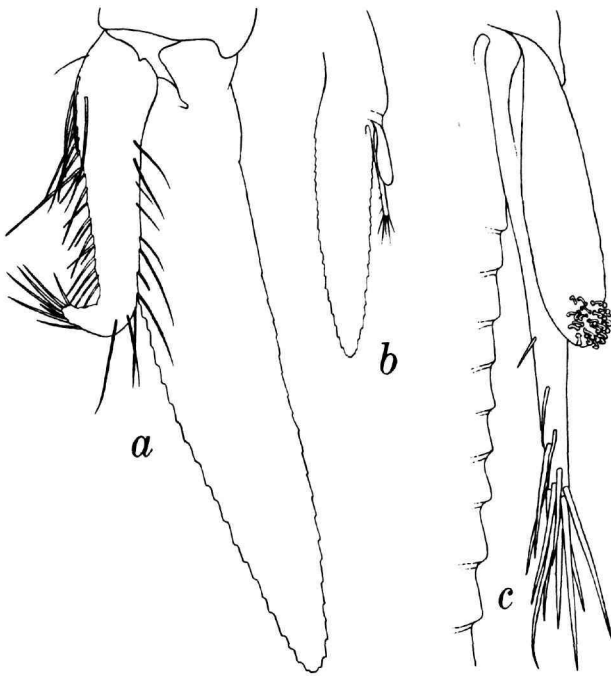


FIGURE 25.—*Vexillipar repandum*, new species, male paratype from *Albatross* sta 5534, carapace length 10.1 mm: a, right 1st pleopod, posterior aspect; b, endopod of right 2nd pleopod, anterior aspect; c, same, appendices interna and masculina.

tip of stylocerite; antennal scale about twice as long as wide, distolateral tooth not reaching level of distal margin of blade; 3rd maxilliped (Figure 24*h,i*) with terminal and subterminal cluster of 5 subequal spines; 1st pereopod with fingers about  $\frac{3}{4}$  as long as palm of chela (Figure 24*j*), movable finger with 1 blunt tooth near proximal end, dilated and grooved on distal  $\frac{1}{2}$  of opposable margin to fit into corresponding furrows in fixed finger, latter with 3 blunt teeth on proximal  $\frac{1}{2}$  of opposable margin, carpus (Figure 24*k*) very short and produced into cristate flanges in 2 directions; merus unarmed; 2nd pereopod (Figure 24*l*) with movable finger (Figure 24*m*) terminating in 2 slightly divergent curved claws concealed in dense tufts of long setae; 3rd pereopod (Figure 24*n*) with dactyl (Figure 24*o*) about  $\frac{1}{10}$  as long as propodus, strongly biunguiculate, with series of marginal tubercles extending proximally from base of robust flexor tooth, merus with 1–3 spines on flexor margin; appendix masculina (Figure 25*c*) overreaching appendix interna by fully  $\frac{1}{3}$  length of former and armed with 12 or more long spines, most clustered near distal end; uropod (Figure 24*c*) with lateral branch armed with distolateral tooth and movable spine mesially adjacent thereto

and with indistinct transverse articulation; maximum carapace length to base of rostrum 14 mm.

**MATERIAL.**—PHILIPPINES. Tayabas Bay, southern Luzon: sta 5374; 13°46'45"N, 121°35'08"E [348 m]; gray mud; 2 Mar 1909 (1157–1230); 12' Tanner beam trawl, mud bag: 1 male [10.8]. Eastern Mindanao Sea: sta 5493; 9°04'N, 125°20'E; 875 m; green mud; 11.2°C; 2 Aug 1909 (0703–0748); 12' Agassiz beam trawl: 1 male [8.1]. Between Negros and Siquijor: sta 5536: 9°15'45"N, 123°22'00"E; 510 m; green mud; 11.9°C; 19 Aug 1909 (1336–1356); 12' Tanner beam trawl: 2 males [10.8, 10.8] 4 females [10.7–12.0], 2 ovig [10.7, 11.2]. Western Mindanao Sea: sta 5516; 8°46'N, 123°32'30"; 320 m; globigerina; 12.4°C; 9 Aug 1909 (1021–1041); 12' Tanner beam trawl: 1 ovig female [11.5]; sta 5517; 8°45'30"N, 123°33'45"E; 309 m; globigerina; 12.4°C; 9 Aug 1909 (1121–1139); 12' Tanner beam trawl: 1 male [8.0]; sta 5516 or 5517; "From Venus Basket": 4 males [7.7–10.1] 5 ovig females [8.8–12.0]; sta 5519; 8°47'N, 123°31'15"E; 333 m; globigerina, sand; 12.4°C; 9 Aug 1909 (1356–1439); 12' Tanner beam trawl: 5 males [9.5–11.0] 8 females [6.9–14.2], 6 ovig [9.2–14.2]; 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: 10 males [7.2–12.0], 1 [12.0] is holotype (USNM 205670), 24 females [7.8–15.2], 18 ovig [8.8–15.2].

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

**RANGE.**—The 66 specimens of this unusual shrimp from seven Philippine stations in depths of 296 to 875 meters—all but one from the Mindanao Sea—make it the commonest alpheid in the *Albatross* Philippine collections, as well as, perhaps, the deepest known member of the family. There is a possibility that the label accompanying the nine specimens combined in one lot from stations 5516 and 5517 ("From Venus Basket"), if it is reliable, may offer a clue to the apparent abundance of the species. If it is, indeed, associated with the hyalospongean *Euplectella*, that discovery might have led to an intensified search for the shrimps whenever the sponge was found in abundance, not only at those two stations, but at station 5519, where 13 specimens were present and at station 5543, where 34 specimens were saved. It may be pertinent that specimens of the stenopodidean *Spongicola*, a genus known to inhabit *Euplectella*, was recorded from *Albatross* station 5519 by Saint Laurent and Cleve (1981:153), but direct correlation with the occurrence of *Euplectella* at the stations where *Vexillipar* was taken is impossible because the *Albatross* Philippine specimens of *Euplectella* have not yet been studied.

**ETYMOLOGY.**—From the Latin *repandus*, -a, -um, ("bent backward" or "turned up") in reference to the typically swaybacked carapace of the species.

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