Records of some pontoniine shrimps from the South China Sea

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SYNOPSIS

Des détails sont donnés sur 55 espèces de crevettes pontoniinides récoltées dans la Mer de Chine méridionale, durant la période 1962-1965, avec les identifications des hôtes pour la plupart des espèces commensales. Avec les espèces déjà signalées de Singapour, un total de 65 espèces est maintenant connu de cette région. Huit n'avaient pas encore été mentionnées dans la région centrale de l'Indo-Pacifique occidental. 33 espèces sont aussi présentes en Indonésie. La faune de la Mer de Chine méridionale est considérée comme moins riche que la faune de l'Afrique orientale centrale, d'où 134 espèces ont été signalées. Cependant, de nouvelles collections, surtout sur les récifs de corail, révéleront sans doute beaucoup d'autres espèces.

ABSTRACT

Few pontoniine shrimps have been recorded from the South China Sea, an interesting zoogeographical region linking the Indian Ocean and Pacific Ocean faunae. Details are provided of fifty five species of this subfamily, many of which have not been previously recorded from this area. Most of the species are considered to be "commensally" associated with other marine invertebrates (83 %) and when possible their hosts have been identified. The hosts of some species still remain unknown, due to the difficulties of sampling in deeper water. Twenty one species are recorded from the South China Sea for the first time. With earlier records, sixty five species are now known from the South China Sea, of which twenty three are known from Indonesian waters. Ten species are not known outside the South China Sea, but there is reason to suppose that further collections elsewhere will show that they are not endemic.

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The pontoniine fauna of the South China Sea has been little studied. The region is of particular interest from the zoogeographical point of view as it forms a northern link between the eastern Indian Ocean and the western Pacific Ocean. The "Challenger" Expedition visited Hong-Kong in 1875, but did not collect any specimens of this subfamily, which is best represented in shallow tropical waters and is particularly abundant on coral reefs. Most of the extensive coral reefs of the South China Sea have not been investigated scientifically. The Macclesfield Bank was visited by H.M.S. *Egeria* in 1888, but few shrimps and no pontoniines were collected. The fauna of the reefs around the Paracel Islands and the large areas of unexplored reefs north of the Palawan Passage remain still to be examined, as do most of the central islands of the South China Sea, such as Spratly Island. KEMP (1922) has reported a few pontoniine shrimps from Pulau Condore, Vietnam, and JOHNSON (1961) has recorded twenty two species from Singapore. The fauna of Hong-Kong is impoverished as there is no extensive development of coral reefs but scattered coral colonies do occur, particularly on the east side of the territory. STIMPSON (1860) recorded the occurence of *Coralliocaris graminea* (Dana) in corals from Hong-Kong, one of the earliest records of an association between a shrimp and another invertebrate.

The present report provides details of a number of pontoniine shrimps obtained principally from the catches of the R.V. *Cape St. Mary*, of the Fisheries Research Station, Hong-Kong, in the course of her investigations into the benthic fauna of the South China Sea in the years 1963-1965, with the addition of collections made from shallow water around Hong-Kong Island and in the New Territories of Hong-Kong.

SYSTEMATIC ACCOUNT

1. *Palaemonella rotumana* (Borradaile)

Restricted synonymy:

Periclimenes rotumanus BORRADAILE, 1898: 1005, pl. 63, figs. 5-5 *b*.

Palaemonella vestigialis KEMP, 1922: 123-126, figs. 1-2, pl. 3, fig. 2. HOLTHUIS, 1952: 8, 24, fig. 3. JOHNSON, 1961: 58, 61, 62, tab. 1.

Palaemonella rotumana BRUCE, 1970: 274 (key), 276-279, fig. 2, pl. 1 *e-f*.

Material examined: Singapore, 3 ovig. ♀, Bedford and Lanchester Collection, Brit. Mus. (Nat. Hist.) 1915.1.21. 1 spm. near Pulau Jong, 1°12.95'N, 103°47.14'E, 2 m, 12 September 1965; 2 spms., near Pulau Renget, 1°13.65'N, 103°50.90'E, 15 July 1965; 6 spms., Pulau Salu, 1°12.90'N, 103°42.80'E, 24 June 1964; 1 ♂, Pulau Sudong, 1°12.70'N, 103°44.1'E, 5 September 1965, coll. R.H. Gooding. 3 ♂, 1 ovig. ♀, Pulau Hantu, 1°13.6'N, 103°44.0'E., 0.5 fm, 11 February 1966. Hong-Kong, 3 spms., (1 ovig. ♀) Kat O Chau, 2 fm, 31 March 1965; 3 spms., Kat O Chau, 1 fm, 18 August 1963; 1 ♀ O Chau, 5-15 fm, trawl, 16 February 1965, coll. D. Eggleston; 3 ♂, 2 ovig. ♀, Sharp Island, intertidal, 29 July 1965. South China Sea: 1 ♂, 19°00.5'N, 113°13.0'E, 69-70 fm, trawl, R.V. *Cape St. Mary*, Cr. 7/63, Stn. 12, 5 December 1963. Macclesfield Bank, 1 ovig. ♀, 16 fm, 21 June 1964; 1 spm., 16-20 fm, 22 June 1964; 1 spm., 12 fm, 23 June 1964, from coral caught in hand lines.

Remarks. — Most of the above specimens have all been previously referred to by BRUCE (1970). A specimen from Pulau Salu and one from Pulau Sudong were infected by the bopyrid parasite *Metaphryxus intutus* (BRUCE, 1965).

Habitat. — Without commensal associations, found commonly around bases of live or dead coral colonies.

Distribution. — Common and widespread throughout most of the Indo-West Pacific region from the Red Sea and Mocambique to Hawaii, and also the western Mediterranean Sea. First recorded in the South China Sea from Singapore by JOHNSON (1961).

2. *Palaemonella pottsi* (Borradaile)

Restricted synonymy:

Palaemonella pottsi KEMP, 1922: 126-127. HOLTHUIS, 1952: 7. JOHNSON, 1961: 57-58, 62, 63, 75, tab. 1. BRUCE, 1970: 274 (key), 279-284, figs. 1, 3-7, pl. 1 *a-d.*

Material examined. — 1 ♂, 1 ovig. ♀, Pulau Hantu, Singapore, 1°13.6'N, 103°44.9'E, 2-3 m, 8 August 1965, coll. R.H. Gooding.

Remarks. — The specimens have been previously referred to in BRUCE (1970). When freshly preserved the specimens were heavily marked with red bands, probably purple in life.

Host. — An unidentified crinoid.

Distribution. — Recorded only from Zanzibar, Singapore (JOHNSON, 1961), Torres Straits, the Marshall Islands, New Caledonia and the Capricorn Islands.

3. *Vir orientalis* (Dana)

Restricted synonymy:

Palaemonella orientalis DANA, 1852: 26; 1855: 12, pl. 38, fig. 4.

Vir orientalis HOLTHUIS, 1952: 8, 30. BRUCE, 1972: 64, 65-67, fig. 1.

Material examined. — 1 ovig. ♀, Macclesfield Bank, 16°04.0'N. 114°42.2'E., R.V. *Cape St. Mary*, Cr. 3/64, Stn. 31, 12 fm, 14 June 1964.

Remarks. — Obtained from an unidentified coral caught on a hand line. Usually found in association with corals of the genus *Pocillopora.*

Distribution. — First reported from the Sulu Sea, this species has since been recorded from Kenya and Zanzibar, the Seychelle and Andaman Islands, Fiji and Hawaii.

4. *Periclimenes amymone* De Man

Restricted synonymy:

Periclimenes amymone DE MAN, 1902: 829, pl. 25, fig. 53. BRUCE, 1968: 1148, 1166.

Periclimenes (*Harpilius*) *amymone* HOLTHUIS, 1952: 82-83, fig. 32. PATTON, 1966: 273.

Material examined. — 10 spms., Pulau Hantu, Singapore, 1°13.6'N, 103°44.0'E, 1 fm, 11 February 1966.

Remarks. — Previously recorded from Singapore by JOHNSON (1961), who reported its presence there with a number of coral associated species.

Hosts. — *Acropora syringodes* (Brook), 5 spms. ; *Acropora tenuis* (Dana), 5 spms, both previously recorded in BRUCE (1972).

Distribution. — Nicobar Islands, the Molucca Islands, New Caledonia, the Great Barrier Reef and Samoa.

5. *Periclimenes brevicarpalis* (Schenkel)

Restricted synonymy:

Ancylocaris brevicarpalis SCHENKEL, 1902: 563, pl. 13, fig. 21.

Periclimenes (*Harpilius*) *brevicarpalis* HOLTHUIS, 1952: 10, 69-73, fig. 27 (full synonymy).

Material examined. — 2 spms., (1 ovig. ♀), South West Cay, North Danger Reef, 11°25.6'N, 114°19.6'E, R.V. *Cape St. Mary*, Cr. 7/64, 6 November 1964.

Remarks. — The specimens were found in association with some *P. inornatus* Kemp.

Host. — A giant anemone, probably *Radianthus* sp., at 1 m depth.

Distribution. — Common throughout most of the Indo-West Pacific region as far east as the Santa Cruz Islands. Previously recorded in the South China Sea from Pulau Condore by KEMP (1922), from Hai-Kui-sche, Hainan, by YU (1936) and from Singapore by JOHNSON, 1961.

6. *Periclimenes affinis* (Zehnter)

Palaemonella affinis ZEHNTER, 1894: 208. BEDOT, 1909: 166. BORRADAILE, 1917: 357 (key), 358. HOLTHUIS, 1952: 20.

Periclimenes affinis HOLTHUIS, 1958: 6-8, fig. 2. BRUCE, 1965: 492 (table), 1968: 1148, 1165-1166.

Material examined. — 1 ovig. ♀, South Vereker Bank, 20°57.5'N, 115°55.0'E, R.V. *Cape St. Mary*, Cr. 2/63, Stn. 31, 35-36 fm, trawl, 2 August 1963.

Remarks. — The single example agrees closely with the figures given by HOLTHUIS (1958) and the rostrum has a dentition of 7/1 with the first tooth situated on the carapace posterior to the orbital margin. When caught it was a uniform very pale grey colour.

Host. — Large pale grey crinoids,? *Cenolia* sp.

Distribution. — Previously recorded only from the type locality Amboina, Indonesia and from New Caledonia.

7. *Periclimenes commensalis* Borradaile

Restricted synonymy:

Periclimenes (*Cristiger*) *commensalis* BORRADAILE, 1915: 211.

Periclimenes (*Periclimenes*) *commensalis* HOLTHUIS, 1952: 8, 53-56, figs. 18-19. BRUCE, 1971, 7-11, fig. 2, (full synonymy).

Material examined. — 1 sp., North Rock, Hong-Kong Island, no data, coll. J. D. Bromhall. 9 spms. (4 ovig. ♀), off Fuk Kun Tau, Hong-Kong, 12 April 1959, coll. J.D. Bromhall.

Remarks. — The supra-orbital spines are less conspicuously developed than in Holthuis' figure 18 *b* and do not form part of the superior margin of the orbit.

Host. — *Tropiometra afra* (Hartlaub) (Echinodermata, Crinoidea), six samples, 12-4-59, a new host record.

Distribution. — Originally reported from Mabuaig, Torres Straits, this species has since been reported from Mocambique, Zanzibar, Lesser Sunda Islands, Palau Is., and Queensland, Australia.

8. *Periclimenes cristimanus* Bruce

Periclimenes cristimanus BRUCE, 1965: 487-493, figs. 1-2; 1974: 303 (key), 305 (table).

Material examined. — 1 spm. (holotype), Pulau Sudong, Singapore, 1°12.7'N, 103°43.65'E, 8 July 1965; 8 spms. (4 ovig. ♀), Pulau Jong, Singapore, 21 April 1969, coll. R.U. Gooding; 19 spms., Pulau Perhentian Besar, Malaya, 5°53.6'N, 102°44.6'E, 1 m, 26 July 1965; 19 spms., Pulau Perhentian Besar, 2 m, 30 July 1965, coll. R.U. Gooding; 6 spms. (3 ovig. ♀) Kat O Chau, Mirs Bay, Hong-Kong, 1 m, 3 August 1965.

Host. — Specimens from Hong-Kong, Pulau Jong, and Pulau Perhentian Besar were found in association with *Diadema setosum* (Leske) (Echinodermata, Echinoidea).

Distribution. — Previously known only from the Singapore holotype specimens.

9. *Periclimenes indicus* (Kemp)

Restricted synonymy:

Urocaris indicus KEMP, 1915: 275, fig. 26, pl. 13, fig. 9.

Periclimenes (Periclimenes) indicus KEMP, 1922: 140 (key), 144, fig. 13. HOLTHUIS, 1952: 9, 39-40, fig. 8.

Periclimenes (Periclimenes) aesopius JOHNSON, 1961: 58, 61, 75, tab. 1.

Material examined. — 8 spms., Siglap, Singapore, beach collection, coll. D.S. Johnson, Brit. Mus. (Nat. Hist.) 1954.11.5.11-15.

Remarks. — Some of the specimens referred by Johnson to *P. aesopius* (Bate) have been deposited in the collections of the British Museum (Natural History). *P. aesopius* (Bate) is known only from South Australia, and other records of this species have been found referrable to *P. holthuisi*, which has a wide Indo-West Pacific distribution (*see* below). Re-examination of Johnson's material has shown that the specimens should be referred to *P. indicus* (Kemp). The shrimps are unusual in having a short broad flattened triangular median plate on the fourth thoracic sternite, projecting between the coxae of the second pereiopods. This plate is not present in *P. aesopius* or in *P. holthuisi* but is present in specimens of *P. indicus* from Chilka Lake.

Habitat. — Johnson states that this species is abundant in littoral weed beds around Singapore and is apparently therefore free-living.

Distribution. — Originally described from Chilka Lake, this species has subsequently only been reported from other parts of India and Indonesia, and more recently from eastern Australia (BRUCE, 1974).

10. *Periclimenes diversipes* Kemp

Restricted synonymy:

Periclimenes (Ancylocaris) diversipes KEMP, 1922: 169 (key), 179-184, figs. 36-39.

Periclimenes (Periclimenes) diversipes HOLTHUIS, 1952: 11.

Material examined. — 4 spms., Pulau Hantu, Singapore, 1°13.6'N, 103°44.0'E, 2 m, 11 February 1966.

Remarks. — The association of these specimens have been previously referred to in BRUCE (1974).

Hosts. — *Acropora tenuis* (Dana), 1 ♂; *Porites nigrescens* Dana, 1 ovig. ♀; *Montipora prolifera* Brueggemann, 2 ovig. ♀, (Scleractinia).

Distribution. — From Red Sea and Madagascar to the Great Barrier Reef. This species was not recorded by Johnson from Singapore.

11. *Periclimenes elegans* (Paulson)

Restricted synonymy:

Anchistia elegans PAULSON, 1875: 113, pl. 17, fig. 1.

Periclimenes (Harpilius) elegans HOLTHUIS, 1952: 11, 81-82, fig. 31.

Material examined. — 5 ♂, 7 ovig. ♀, Port Shelter, Sharp Island, Hong-Kong, 0.7 m, 27 July 1965; 1 ♂, Deep Water Bay, Hong-Kong, LWS, coll. B. Bruce, 28 July 1965. 11 spms., (4 ovig. ♀)? Cape d'Aguilar, Hong-Kong, LWS, coll. N. Bruce, 29 July 1965.

Remarks. — JOHNSON (1961) recorded a single example of this species from Changi, Singapore.

Habitat. — Stony pools on rocky foreshores, and shallow pools with weed and corals.

Distribution. — Widespread, from Red Sea and Mocambique to the Marshall Islands and Capricorn Islands, Australia.

12. *Periclimenes exederens* Bruce

Periclimenes exederens BRUCE, 1969: 255-256.

Material examined. — 1 spm, holotype, 20°36.0'N, 113°54.2'E to 20°38.8'N, 113°57.8'E, R.V. *Cape St. Mary*, Cr. 3/65, Stn. 102, 45-47 fm, 21 February 1965, coll. D. Eggleston.

Remarks. — No further material of this species has been obtained. The single example was obtained from the stomach contents of *Nemipterus bathybius.*

Habitat. — Substrate of muddy sand.

Distribution. — Known only from the northern South China Sea holotype specimen.

13. *Periclimenes gorgonicola* Bruce

Periclimenes gorgonicola BRUCE, 1969: 257-258; 1970: 543.

Material examined. — 9 spms., including ovigerous female holotype, 21°47.7'N, 116°28.5'E to 21°43.3'N, 116°28.0'E, R.V. *Cape St. Mary*, Cr. 1/64, Stn. 49, 64-72 fm, trawl, 10 January 1964. 1 ovig. ♀, 21°01.5'N, 115°32.0'E, R.V. *Cape St. Mary*, Cr. 9/66, Stn. 20, 76 fm, Agassiz trawl, 20 June 1966, coll. D. Eggleston.

Remarks. — Only a single further example of this species was obtained after the original sample.

Host. — The type specimen was associated with the gorgonian *Melithea ? albitincta* (Ridley) and the additional specimen with *Acabaria gracillima* (Ridley).

Distribution. — Known only from the northern South China Sea.

14. *Periclimenes holthuisi* Bruce

Restricted synonymy:

Periclimenes (Periclimenes) aesopius HOLTHUIS, 1952: 8, 34-37, figs. 5-6.

Periclimenes holthuisi BRUCE, 1969: 250-259.

Material examined. — 1 ♂, Kat O Chau, Hong-Kong, 22°32.1'N, 114°17.95'E, 3 fm, 6 March 1963, coll. J.D. Bromhall. 1 ♂, 21°07.0'N, 116°00.0'E to 21°05.8'N, 116°01.0'E, R.V. *Cape St. Mary*, Cr. 4/64, stn. 158, 41-42 fm, trawl, 25 August 1964. 1 ♂ (holotype), 1 juv. Lung Ha Wan, Hong-Kong, 3 fm, Scuba, 25 July 1965, coll. J.D. Bromhall.

Remarks. — Apparently moderately common according to diver's reports, usually on anemones. Elsewhere this species has since been found in association with fungiid corals (Queensland) and scyphozoan jelly fish (Zanzibar).

Hosts. — Unidentified actinarians.

Distribution. — Zanzibar to New Caledonia and the Great Barrier Reef.

15. *Periclimenes hongkongensis* Bruce

Periclimenes hongkongensis BRUCE, 1969: 259-260, 277 (key).

Material examined. — 1 ♀ (damaged), Po Toi Island, Hong-Kong, R.L. *Yuen Ling*, 13.5 fm, trawl, 2 January 1963. 2 spms, including

ovig. ♀ holotype, Rocky Harbour, Hong-Kong, R.V. *Cape St. Mary*, Cr. 2/65, trawl, 14 fm, 16 January 1965, coll. D. Eggleston.

Remarks. — There have been no subsequent records of this species.

Host. — The type specimens were apparently associated with the holothurian *Aphelodactyla andamanensis* (Bell).

Distribution. — Known only from Hong-Kong.

16. *Periclimenes inornatus* Kemp

Restricted synonymy:

Periclimenes (*Ancylocaris*) *inornatus* KEMP 1922: 170 (key), 191-194, figs. 43-46.

Periclimenes (*Harpilius*) *inornatus* HOLTHUIS, 1952: 11.

Material examined. — 1 ovig. ♀, South West Cay, North Danger Reef, 11°25.6'N, 114°19.6'E, R.V. *Cape St. Mary*, Cr. 7/64, 1 November 1964.

Remarks. — The single specimen agrees closely with the original description and the remarks of BRUCE (1976). Usually associated with giant anemones, Miyake and Fujino (1968) have also reported specimens from scleractinian corals.

Host. — *Radianthus* sp. (Zoantharia: Actiniaria).

Distibution. — Zanzibar, Kenya, Seychelle and Comoro Islands, Maldive and Andaman Islands, and the Palau Islands.

17. *Periclimenes kempi* Bruce

Restricted synonymy:

Periclimenes kempi BRUCE, 1969: 260-262.

Material examined. — 4 spms. (2 damaged) Pulau Sudong, Singapore, 1°12.7'N, 103°44.1'E, 2 m, 5 September 1965, coll. R.U. Gooding. 3 ♂, 6 ovig. ♀, 1 juv., Pulau Hantu, Singapore, 1°13.6'N, 103°44.9'E, 3 m, 8 September 1965, coll. R.U. Gooding.

Remarks. — The specimens are distinctly larger than the type material, the ovigerous females having a total length of about 13 mm and a post-orbital length of 2.5 mm.

Host. — Unidentified alcyonarian, probably *Sarcophyton* sp.

Distribution. — Known only from Hughada, Red Sea; Watamu, and Ras Iwatine, Kenya.

18. *Periclimenes laccadivensis* (Alcock and Anderson)

Restricted synonymy:

Palaemonella laccadivensis ALCOCK and ANDERSON, 1894: 157; 1896: pl. 26, fig. 4.

Periclimenes (Periclimenes) laccadivensis KEMP, 1922: 141 (key), 152-154, figs. 19-20.

Material examined. — 2 ♀ (1 ovig.), 19°02.0'N, 112°37.0'E to 19°02.0'N, 112°39.0'E, R.V. *Cape St. Mary*, Cr 4/63, Stn. 82, 150-158 fm, Agassiz trawl, 12 March 1965.

Remarks. — Colour of fresh specimens noted as generally pale pink, darker along the ventral aspect of the abdomen. Rostrum and antennae colourless. Dorsal eyestripe and ophthalmic somite and the base of caudal fan white, with a whitish line tapering anteriorly, extending along dorsal abdomen in one specimen. Pereiopods speckled with pale yellow dots, most marked on chelae of second pereiopods.

Host. — Unknown, possibly gorgonian. Substrate: muddy sand.

Distribution. — Known only from the Laccadive Sea and off the Hawaiian Islands. Bathymetric range previously recorded: 700-1265 m.

19. *Periclimenes lanipes* Kemp

Restricted synonymy:

Periclimenes (Periclimenes) lanipes KEMP, 1922: 141 (key), 156-158, pl. 4, fig. 4.

Periclimenes lanipes BRUCE, 1971: 2, 9; 1971: 11-15, figs. 3-4, 5 *c-d.*

Material examined. — 13 spms. (5 ovig. ♀) 16°04.6'N, 114°39.0'E to 16°03.6'N, 114°42.2'E, R.V. *Cape St. Mary*, Cr. 3/64, Stn. 63, 44-46 fm, Granton trawl, 21 June 1964. 1 ovig. ♀, 2°23.5'N, 110°29.5'E to 2°29.5'N, 110°29.5'E, R.V. *Cape St. Mary*, Cr. 7/64, Stn. 60, 23-24 fm, Granton

trawl, 6 November 1964. 5 spms., 7°50.0'N, 107°36.0'E, R.V. *Cape St. Mary*, Cr. 7/64, Stn. 108, 30-34 fm, Granton trawl, 19 November 1964, coll. R.G. Lester.

Remarks. — Fresh specimens were transversely barred with purple bands.

Hosts. — *Euryale purpurea* Mortensen and *Astropglymna sculptum* (Döderlein) (Echinodermata, Ophiuroidea).

Distribution. — Somalia, Zanzibar, Kenya, Mocambique Channel, Madagascar, Mergui Islands and Queensland, Australia.

20. *Periclimenes nilandensis* Borradaile

Restricted synonymy:

Periclimenes (*Falciger*) *nilandensis* BORRADAILE, 1915: 211; 1917: 324, 372, pl. 54, fig. 13.

Periclimenes (*Harpilius*) *nilandensis* HOLTHUIS, 1952: 12, 58-60, fig. 22.

Material examined. — 1 ♀, 21°47.7'N, 116°28.5'E to 21°43.3'N, 116°28.0'E, R.V. *Cape St. Mary*, Cr. 1/64, Stn. 49, 64-73 fm, Granton trawl, 10 January 1964. 1 ovig. ♀, 15°58.8'N, 114°33.8'E to 15°49.4'N, 114°31.8'E, R.V. *Cape St. Mary*, Cr. 3/64, Stn. 35, 45-46 fm, Granton trawl, 15 June 1964.

Remarks. — The first specimen was found in association with *Mesopontonia gorgoniophila* (see below).

Host. — The non-ovigerous female was associated with the gorgonian *Melithea albitincta* Ridley.

Distribution. — Kenya, Zanzibar, Madagascar, Maldive Islands and Indonesia.

21. *Periclimenes ornatus* Bruce

Restricted synonymy:

Periclimenes ornatus BRUCE, 1969: 266-267.

Material examined. — 1 ovig. ♀, holotype, Lung Ha Wan, Hong-Kong, 22°18.5'N, 114°18.2'E, 3 fm, 25 August 1965, coll. J.D. Bromhall.

Remarks. — No further material of this species was obtained from Hong-Kong waters. The host was unfortunately lost when sent for identification.

Host. — Unidentified small anemone.

Distribution. — Known at present only from Hong-Kong, Ras Iwatine, Kenya, and the Maldive Islands.

22. *Periclimenes paraparvus* Bruce

Periclimenes paraparvus BRUCE, 1969: 267-268.

Material examined. — 1 ♀, holotype, 20°28.2'N, 112°46.5'E to 20°23.2'N, 112°52.5'E, R.V. *Cape St. Mary*, Cr. 3/65, Stn. 15, 46-48 fm, trawl, 13 February 1965, coll. R.G. Lester.

Remarks. — The single example was obtained from the stomach contents of a specimen of *Nemipterus virgatus*. No further specimens have been found.

Host. — Unknown.

Distribution. — Known only from the above locality.

23. *Periclimenes perlucidus* Bruce

Periclimenes perlucidus BRUCE, 1969: 268-270; 1978.

Material examined. — 1 ovig. ♀, holotype, Macclesfield Bank, 16°06.5'N, 114°38.3'E to 16°05.8'N, 114°38.2'E, R.V. *Cape St. Mary*, Cr. 3/64, Stn. 20, 43-44 fm, trawl, 14 June 1964.

Remarks. — No further specimens of this species have been reported from the South China Sea.

Host. — *Verrucella sanguinolenta* (Grey) (Coelenterata: Gorgonacea).

Distribution. — Known only from Macclesfield Bank and north eastern Madagascar.

24. *Periclimenes psamathe* (De Man)

Restricted synonymy:

Urocaris psamathe DE MAN, 1902: 816-822, pl. 25, fig. 51.

Periclimenes (*Harpilius*) *psamathe* HOLTHUIS, 1952: 12, 61, fig. 23.

Material examined. — 1 ovig. ♀, 15°58.8′N, 114°33.88′E to 15°49.4′N, 114°31.8′E, R.V. *Cape St. Mary*, Cr. 3/64, Stn. 65, 45-46 fm, Granton trawl, 15 June 1964.

Host. — Not recorded. Previously found in association with gorgonians.

Distribution. — Kenya, Zanzibar, Madagascar, Maldive and Chagos Islands, Indonesia and New Caledonia.

25. *Periclimenes seychellensis* Borradaile

Restricted synonymy:

Periclimenes (*Falciger*) *seychellensis* BORRADAILE, 1915: 212, 1917: 324, pls. 54-55, figs. 14 *a-i*.

Periclimenes (*Ancylocaris*) *seychellensis* KEMP, 1922: 169 (key), 176-178, figs. 34-35, pl. 6, fig. 7.

Periclimenes (*Harpilius*) *seychellensis* HOLTHUIS, 1952: 12, 66-67, fig. 25.

Material examined. — 1 ovig. ♀, Pulau Hantu, Singapore, 1°13.6′N, 103°44.0′E, LWS, 11 February 1966.

Remarks. — The specimen is unusually large for this species, CL. 3.5 mm.

Habitat. — Among *Sargassum* sp.

Distribution. — Red Sea, Kenya, Zanzibar, Madagascar, Seychelle Islands, Ceylon, Andaman Islands and Indonesia. Previously recorded from Singapore by Johnson (1961).

26. *Periclimenes sinensis* Bruce

Periclimenes sinensis BRUCE, 1969: 270-272, 277 (key).

Material examined. — 2 spms. (damaged), including female holotype. No data. Collected from Hong-Kong Colony prior to 1962.

Remarks. — No further material of this species has since been reported.

Host. — *Morchellana planoregularis* (Burchardt) (Coelenterata, Alcyonacea).

Distribution. — Known only from the above type locality.

27. *Periclimenes soror* Nobili

Periclimenes soror NOBILI, 1904: 232; 1906: 50, pl. 2, fig. 6. GORDON, 1939: 395-400, figs. 1-3. BRUCE, (in press *a*).

Material examined. — 1 ♂, 1 ovig. ♀, Pulau Perhentian Besar, Malaya, 5°53.2'N, 102°44.6'E, 2-3 fm, 26 July 1965, coll. R.U. Gooding.

Remarks. — The specimens have been previously noted by BRUCE (in press *b*).

Host. — *Acanthaster planci* (Linnaeus), (Echinodermta, Asteroidea).

Distribution. — Throughout the Indo-West Pacific region, Red Sea and Mocambique to Hawaii, extending also to Panama.

28. *Periclimenes spiniferus* De Man

Restricted synonymy:

Periclimenes petitthouarsi var. *spiniferus* DE MAN, 1902: 824.

Periclimenes (*Harpilius*) *spiniferus* HOLTHUIS, 1952: 12, 71-77, fig. 30.

Material examined. — 2 juv., South West Cay, North Danger Reef, 11°25.6'N, 114°19.6'E, R.V. *Cape St. Mary*, Cr. 7/64, 1 November 1964, 7 spms. Pulau Hantu, Singapore, 1°13.6'N, 103°44.0'E, 0.1 fm, 11 February 1966.

Remarks. — Previously recorded from Singapore by JOHNSON (1961).

Habitat. — Amongst *Acropora*, *Montipora* and *Porites* colonies.

Distribution. — Common and widespread throughout most of the Indo-West Pacific region except the north west Indian Ocean, from Madagascar to Wake Island and Tahiti.

29. *Periclimenes toloensis* Bruce

Periclimenes toloensis BRUCE, 1969: 273-275, 277 (key).

Material examined. — 1 ♂, holotype, off Ap Chau, Tolo Channel, Hong-Kong, R.L. *Yuen Ling*, 5-15 fm, trawl, 16 February 1965, coll. D. Eggleston.

Remarks. — The specimen was collected from a muddy substrate with many gorgonians, one of which may have been the host animal.

Host. — Unknown.

Distribution. — Reported only from Hong-Kong and possibly from Kenya and Zanzibar.

30. *Periclimenes tosaensis* Kubo

Periclimenes (*Ancylocaris*) *tosaensis* KUBO, 1951: 268-271, figs. 7-8, tab. 2.

Periclimenes (*Harpilius*) *tosaensis* BRUCE, 1966: 15-22, figs. 1-3 *a*, 4 *a*, *b*.

Material examined. — 1 ♂, 3 ovig. ♀, 21°47.0'N, 115°00.5'E to 21°44.0'N, 115°00.0'E, R.V. *Cape St. Mary*, Cr. 4/64 Stn. 63, 44-47 fm, Granton trawl, 14 August 1964, coll. Chan On Tang. 1 ♂, 20°53.0'N, 112°31.0'E to 20°19.0'N, 112°31.0'E, R.V. *Cape St. Mary*, Cr. 3/65, Stn. 6, 32-32 fm, Granton trawl, 12 February 1965, coll. R.G. Lester.

Remarks. — Details of seven specimens collected earlier from the northern South China Sea have been provided by BRUCE (1966).

Host. — Unknown.

Distribution. — Known from Japan, northern South China Sea and the Seychelle Islands only.

31. *Periclimenes identiculatus* Nobili

Restricted synonymy:

Periclimenes petitthouarsi var. *denticulata* NOBILI, 1906: 257.

Periclimenes (*Harpilius*) *denticulatus* HOLTHUIS, 1952: 11.

Material examined. — 2 spms. (damaged), Macclesfield Bank, 15°37.9'N, 114°22.4'E to 15°38.8'N, 114°25.0'E, R.V. *Cape St. Mary*, Cr. 3/64, Stn. 41, 37-38 fm, 16 June 1964.

Remarks. — The specimens clearly belong to the *P. petitthouarsi*, *P. spiniferus*, *P. sibogae*, *P. denticulatus* group, with long slender first pereiopods with subspatulate pectinate fingers on the rather large chelae, and elongated slender scaphocerites with the disto-lateral spine extending well beyond the narrow tip of the lamella. Unfortunately the second

pereiopods are lacking. The specimens are far outside the known range of *P. petitthouarsi*, which only occurs in the north western Indian Ocean, *P. spiniferus* occuring elsewhere. The present specimens are without a supra-orbital spine which distinguishes them from *P. spiniferus*. The rostral armament is 8/4 in both specimens and lacks the particulary slender distal portion found in *P. sibogae* and the specimens are therefore provisionally identified as *P. denticulatus*.

Habitat. — The substrate consisted of coral and lithothamnion rubble.

Distribution. — Known only from Gatavake and the Marshall and Tuamoto Islands.

32. *Periclimenes* ? *digitalis* Kemp

Material examined. — 1 spm. (damaged), Harbour Island, Tolo Channel, Hong-Kong, 4 fm, dredge, 20 November 1965, coll. A.J. Bruce.

Remarks. — The single specimen is tentatively referred to Kemp's species but it may represent an undescribed species. It is not necessarily the same as *P.* sp. nr. *digitalis* recorded by JOHNSON (1961) from Burun Dat, Singapore, which has not been re-examined.

33. *Anchistus custos* (Forsskål)

Restricted synonymy:

Cancer custos FORSSKÅL, 1775: 94.

Anchistus custos HOLTHUIS, 1952: 13, 105-109, figs. 33-34. JOHNSON and LIANG, 1966: 433-455, figs. 1-10.

Material examined. — 1 ♂, 1 ovig. ♀, Mirs Bay, Hong-Kong, intertidal, 10 May 1965, coll. H.W. Sun. 2 ♂, 2 ovig. ♀, 1 juv., Sharp Island, Port Shelter, Hong-Kong, sublittoral, 0.5 m, 29 July 1965, coll. D. Eggleston. 1 ♂, Harbour Island, Hong-Kong, 4 fm, scuba, 25 November 1965, coll. D. Eggleston.

Remarks. — Most records of this species are derived from *Pinna* hosts exposed on beaches during low tides and the specimens from 4 fm seem to be the maximum depth from which this common species has been reported. The host unfortunately was not preserved, but apparently it was not *Pinna*

sp. Johnson and Liang (1964) have provided a detailed account of this species in Singapore waters and also indicate its occurence in Hong-Kong (p. 435, fig. 1).

Host. — *Pinna atropurpurea* (Sowerby) (Mollusca: Lamellibranchia).

Distribution. — Common and widespread in suitable habitats from the Red Sea to Mocambique to Fiji and the Santa Cruz Islands.

34. *Anchistus demani* Kemp

Restricted synonymy:

Anchistus demani KEMP, 1922: 344 (key), 256-259, figs. 36-38.

Material examined. — 3 spms., Pulau Susu Dara, Perhantian Islands, Malaya, 5°57.6'N, 102°39.7'E, 2-3 m, 27 July 1965, coll. R.U. Gooding.

Remarks. — This species was not recorded from Singapore reefs by JOHNSON (1961).

Host. — *Tridacna ? crocea* Lam. (Mollusca: Lamellibranchia).

Distribution. — Originally reported from the Andaman Islands, this species has been subsequently recorded from Kenya, Zanzibar, Madagascar, Thailand and the Marshall Islands.

35. *Anchistus miersi* (De Man)

Restricted synonymy:

Harpilius miersi DE MAN, 1888: 274-277, pl. 17, figs. 6-10.

Anchistus miersi KEMP, 1922: 249 (key), 255-256, fig. 85. HOLTHUIS,1952: 13, 110-111, fig. 45.

Material examined. — 3 ♂, 3 ovig. ♀, South West Cay, North Danger Reef, 11°25.6'N, 114°19.6'E, R.V. *Cape St. Mary*, Cr. 7/64, 2 November 1964. 1 ♂, 1 ovig. ♀, Pulau Susu Dara, Perhentian Islands, Malaya, 5°57.6'N, 102°39.7'E, 2-3 m, 27 July 1965, coll. R.U. Gooding. 1 ♂, 1 ovig. ♀, Pulau Perhentian Kl., Malaya, 3 m, 30 July 1965, coll. R. U. Gooding.

Remarks. — Johnson (1961) reports the occurence of a single example from Singapore. Also recorded from Pulau Condore by KEMP (1922).

Hosts. — All specimens were from *Tridacna* sp., the specimens from Pulau Perhentian Kl. from *T. squamosa* Lam.

Distribution. — Recorded from Red Sea to Madagascar to the Gambier Archipelago.

36. *Conchodytes meleagrinea* Peters

Restricted synonymy:

Conchodytes meleagrinae PETERS, 1852: 594. BRUCE, 1973: 139.

Conchodytes tridacnae (partim) HOLTHUIS, 1952: 17, 195-199, fig. 95.

Material examined. — 1 ♂, 1 ovig. ♀, Pulau Susu Dara, Perhentian Islands, Malaya, 5°57.6'N, 102°39.7'E, 2-3 m, 27 July 1965, coll. R.U. Gooding.

Remarks. — This species has not been previously recorded from the South China Sea, but is probably common.

Host. — *Pinctada margaritifera* (L.) (Mollusca: Lamellibranchia).

Distribution. — Probably common throughout the Indo-West Pacific region, from the Red Sea and Mocambique to Hawaii.

37. *Conchodytes monodactylus* Holthuis

Restricted synonymy:

Conchodytes monodactylus HOLTHUIS, 1952: 17, 200-204, figs. 96-98. JOHNSON, 1961: 60, 63, 65, 76 (tab. 1).

Material examined. — 3 ♂, 1 ovig. ♀, Mirs Bay, Hong-Kong, 10 May 1965, coll. H.W. Sun. 1 ♂, 1 ovig. ♀, Plover Cove, Hong-Kong, 0.5 m, 25 July 1965. 1 ♂, 1 ovig. ♀, Harbour Island, Hong-Kong, 4 fm, scuba, 25 November 1965, coll. D. Eggleston. 1 ovig. ♀, Kat O Chau, Hong-Kong, 0.5 m, 9 October 1965.

Remarks. — JOHNSON (1961) has noted the occurence of this species at Hong-Kong.

Host. — All specimens were from *Pinna atropurpurea* Sowerby (Mollusca, Lamellibranchia).

Distribution. — Known only from southern Formosa, the Lesser Sunda Islands and Singapore.

38. *Conchodytes tridacnae* Peters

Restricted synonymy:

Conchodytes tridacnae PETERS, 1852: 594. HOLTHUIS, 1952: 17, 195-199, fig. 95 (partim). BRUCE, 1973: 138-139.

Material examined. — 1 ♂, 1 ovig. ♀, South West Cay, North Danger Reef, R.V. *Cape St. Mary*, Cr. 7/64, 1 November 1964.

Remarks. — There appears to be no previous record of this common and widespread species from the South China Sea.

Host. — *Tridacna* sp. (Mollusca: Lamellibranchia).

Distribution. — Records frequently confused with *C. meleagrinae*. From Zanzibar, Kenya and Mocambique to Queensland, Australia and Marshall Islands.

39. *Pontonia okai* Kemp

Restricted synonymy:

Pontonia okai KEMP, 1922: 261 (key), 261-264, figs. 39-92. HOLTHUIS, 1952: 15, 164-165, fig. 78.

Material examined. — 1 ♂, 1 ovig. ♀, 21°05.0′N, 114°45.5′E to 21°03.3′N, 114°45.6′E, R.V. *Cape St. Mary*, Cr. 2/63, Stn. 17, 50 fm, Agassiz trawl, 3 July 1963.

Remarks. — The present association represents a new record. Previously found in association with *Ascidia willeyi* and *Corella aequabilis* Sluiter.

Host. — *Phallusia julinea* Sluiter (Ascidicea).

Distribution. — Known only from Kenya, Madagascar, Burma and Indonesia.

40. *Periclimenaeus spinicauda* Bruce

Periclimenaeus spinicauda BRUCE, 1969: 164-165.

Material examined. — 1 spm. (holotype), 20°57.5′N, 115°55.0′E to 20°59.5′N, 115°58.6′E, R.V. *Cape St. Mary*, Cr. 2/63, 35-36 fm, trawl, 2 August 1963.

Remarks. — No further specimens of this species have been reported.

Host. — Unidentified sponge.

Distribution. — Known only from the above locality.

41. *Periclimenaeus spongicola* Holthuis

Periclimenaeus spongicola HOLTHUIS, 1952: 14, 137-140, figs. 60-62.

Material examined. — 9 spms. (3 ovig. ♀) Kat O Chau, Hong-Kong, 22°23.1'N, 114°17.95'E, 1 fm, 31 March 1965.

Remarks. — The specimens were all obtained from small sponges encrusting the wires used to suspend baskets of oysters beneath floating rafts. Water temperature 20°C.

Host. — *Mycale philippensis* (Dendy), (Porifera).

Distribution. — Previously known only from the original Java Sea record.

42. *Periclimenaeus stylirostris* Bruce

Periclimenaeus stylirostris BRUCE, 1969: 169-170; 1972: 68-75, figs. 2-6.

Material examined. — 1 ♂, 1 ovig. ♀ (holotype), 20°34.0'N, 114°40.5'E to 20°30.3'N, 113°29.0'E, R.V. *Cape St. Mary*, Cr. 7/63, Stn. 52, 49-50 fm, Granton trawl, 17 December 1963.

Remarks. — The rostra of the type specimens, particularly the female holotype are now considered to be probably abnormal.

Host. — Unidentified sponge.

Distribution. — In addition to the above locality, this species has since been reported only from Fiji.

43. *Periclimenaeus tridentatus* (Miers)

Restricted synonymy:

Coralliocaris ? tridentatus MIERS, 1884: 294, pl. 32, fig. *c*.

? Periclimenaeus tridentatus (partim) HOLTHUIS, 1952: 14, 140-146, figs. 63-65.

Material examined. — 1 ♂, Pulau Salu, Singapore, 1°12.9'N, 103°42.8'E, 24 June 1965, coll. R.H. Gooding.

Remarks. — The single specimen is referrable to *P. tridentatus* (Miers) s. str. as the ambulatory pereiopods have dactyls that bear an acute tooth on the proximal part of the ventral border, lying between the distal ventral spines of the propod. This tooth is present in the holotype specimen and is also present in the ovigerous female from Siboga Station 99. JOHNSON (1961). has also recorded *P. tridentatus* from Singapore but it is not clear if they belong to Mier's species s. str. or a related species and it has not been possible to locate his material. Balss' specimen from Cape Jaubert (BALSS, 1921) lacks this proximal dactylar tooth and is correctly referred to *P. hecate* (Nobili). Most records of this species need to be re-examined.

Host. — Unknown, presumably an ascidian.

Distribution. — Known with certainty only from the type locality, Thursday Island, the Sulu Islands, and the above locality.

44. *Onycocaris oligodentata* Fujino & Miyake

Onycocaris oligodentata FUJINO and MIYAKE, 1969: 405 (key), 415, 422, figs. 7, 8 *d-f*, 9 *d-f*.

Material examined. — 1 ♂, 1 ovig. ♀, Cape d'Aguilar, Hong-Kong, 12°12.38'N, 144°15.42'E, 0.5 fms., 5 August 1963.

Remarks. — The specimens agree closely with the description given by FUJINO and MIYAKE (1969) except that the unguis on the dactyls of the third to fifth pereiopods is completely unarmed. *O. oligodentata* is very closely related to *O. aualitica* (Nobili) and may be synonymous with that species.

Host. — *Haliclona implex* (Schmidt) [Porifera]. The host of this species has not been previously recorded.

45. *Hamopontonia corallicola* Bruce

Hamopontonia corallicola BRUCE, 1970: 41-48, figs. 1-4; in 1977 *b*.

Material examined. — 15 spms., 4 ovig. ♀ (including holotype), Kat O Chau, Hong-Kong, 22°32.1'N, 114°17.95'E, 18 August 1963.

2♂, Kat O Chau, Hong-Kong, 31 March 1965. 2♀, 2 ovig. ♀, Hui Thsui Chau, Port Shelter, Hong-Kong, 22°20'N, 114°18'E, 28 July 1965.

Remarks. — These specimens have been previously reported on in the original description of the species. No further material has since been obtained from the South China Sea, but Australian specimens have since been found in association with *Fungia actiniformis.*

Host. — *Goniopora* cf. *stokesi* Milne-Edwards and Haime (Scleractinia).

Distribution. — Known only from Hong-Kong and Queensland, Australia.

46. *Ischnopontonia lophos* (Barnard)

Restricted synonymy:

Philarius lophos BARNARD, 1962: 243-243, fig. 2.

Ischnopontonia lophos BRUCE, 1966: 484-598, figs. 1-5.

Material examined. — 7 ♂, 8 ovig. ♀, between Pulau Sudong and Pulau Pantai, 1°11.9'N, 103°44.0'E, 1-2 m, 23 May 1965. 15 spms. (several ovig. ♀, 1 juv.) Pulau Salu, Singapore, 1°12.9'N, 103°42.8'E, 24 June 1965. 1 ♂, 1 ovig. ♀, between Pulau Renget Br. and Kl., 1°13.65'N, 103°50.9'E, 15 July 1965. 7 spms. (including 2 ovig. ♀), Pulau Pawaii, 1°11.2'N, 103°43.0'E, 18 July 1965. 7 spms. (4 ovig. ♀), Pulau Salu, 2 m, 25 October 1965. All specimens collected by R.U. Gooding.

Remarks. — Most of the specimens have been previously mentioned in BRUCE (1966). Several specimens were infected by the bopyrid parasite *Hypophryxus pikei.*

Host. — All specimens were obtained from the coral *Galaxea fascicularis* (L.).

Distribution. — Numerous localities in the western Indian Ocean from Kenya to Mocambique to the Seychelle Islands, the above locality and Queensland, Australia.

47. *Anapontonia denticauda* Bruce

Restricted synonymy:

Anapontonia denticauda BRUCE, 1966: 595-597; 1967: 3-12, figs. 1-4; 1971: 20-22, fig. 7.

Material examined. — 5 spms. (2 ovig. ♀), Pulau Salu, Singapore, 1°12.9'N, 103°42.8'E, 0.1 m, 24 June 1965. 1 sp. Pulau Sudong, Singapore, 1°12.7'N, 103°43.65'E, 1 m, 8 July 1965. 1 ovig. ♀, Pulau Perhentian Besar, Malaya. 5°53.6'N, 102°44.6'E, 1 m, 26 July 1965. Coll. R.U. Gooding.

Remarks. — The specimens were found in association with *Ischnopontonia lophos* (*see* above).

Host. — *Galaxea fascicularis* (L.) (Scleractinia).

Distribution. — Known only from Zanzibar, the Comoro Islands and Queensland, Australia.

48. *Harpiliosis beaupresii* (Audouin)

Restricted synonymy:

Palaemon Beaupresii AUDOUIN, 1825: 91.

Harpilius Beaupresii KEMP, 1922: 228 (key, 229-231, figs. 67-68.

Harpiliopsis Beaupresii HOLTHUIS, 1952: 16, 181-182, fig. 89.

Material examined. — 2 ♀ (1 ovig.), Pigmy Shoal, Macclesfield Bank, 16°25'N, 114°45'E, R.V. *Cape St. Mary*, Cr. 3/64, Stn. 68, 12 fm, 23 June 1964.

Remarks. — The specimens were obtained from corals caught on hand lines. Previously recorded from Singapore by Johnson.

Hosts. — Unidentified corals.

Distribution. — Common and widespread thoughout the Indo-West Pacific region from the Red Sea to Mocambique across to Hawaii and also the Galapagos Islands.

49. *Harpiliopsis depressa* (Stimpson)

Restricted synonymy:

Harpilius depressus STIMPSON, 1860: 38. KEMP, 1922: 228 (key), 231-234, figs. 69-70.

Harpiliopsis depressus HOLTHUIS, 1951: 70-75, pl. 21-22; 1952: 16, 182-184, fig. 90.

Material examined. — 3 spms. (1 ovig. ♀), South West Cay, North Danger Reef, 11°25.6'N, 114°19.6'E, R.V. *Cape St. Mary*, Cr. 7/64, 0.5 m, 2 November 1964.

Remarks. — This common species was not recorded from Singapore by JOHNSON (1961).

Host. — *Stylophora pistillata* (Esper) (Scleractinia).

Distribution. — Widespread throughout the Indo-West Pacific region, from the Red Sea to Mocambique, east to Hawaii and the tropical west coast of America.

50. *Jocaste japonica* (Ortmann)

Restricted synonymy:

Coralliocaris superba var. *japonica* ORTMANN, 1890: 509.

Jocaste lucina HOLTHUIS, 1952: 17, 193-195, fig. 94 (partim). PATTON, 1966: 179-280, tab. 1-2, fig. 3 *b*. BRUCE, 1969: 299, 300, fig. 1; 1974: 198-199, fig. 7.

Material examined. — 3 spms. (1 ovig. ♀), South West Cay, North Danger Reef, 11°12.6'N, 114°19.6'E, R.V. *Cape St. Mary*, Cr. 7/64, 2 November 1964.

Remarks. — The specimens have been previously referred to in BRUCE (1969). This common species was not recorded from Singapore by JOHNSON (1961).

Host. — *Acropora* sp. (Scleractinia).

Distribution. — Western and central Indian Ocean to Japan, the Marshall Islands and New Caledonia.

51. *Jocaste lucina* (Nobili)

Restricted synonymy:

Coralliocaris lucina NOBILI, 1901: 5.

Jocaste lucina HOLTHUIS, 1952: 17, 193-195, fig. 94 (partim). PATTON, 1966: 278-279, 288 tab. 1, 290 tab. 2, 299 tab. 3, fig. 3 *a*. BRUCE, 1969: 301, fig. 2; 1974: 199, fig. 8.

Material examined. — 3 spms. (1 ovig. ♀), South West Cay, North Danger Reef, 11°25.6'N, 114°19.6'E, R.V. *Cape St. Mary*, Cr. 7/64, 0.5 fm, 1 November 1964.

Remarks. — These specimens have been previously referred to by BRUCE (1961). This common coral asscociate was also not recorded from Singapore by JOHNSON (1961).

Host. — *Acropora* cf. *conferta* (Quelch) (Scleractinia).

Distribution. — Throughout most of the Indo-West Pacific region from the Red Sea and western Indian Ocean to Tahiti.

52. *Coralliocaris venusta* Kemp

Restricted synonymy:

Coralliocaris venusta KEMP, 1922: 269 (key), 274-276, figs. 100-101. HOLTHUIS, 1952: 17, 191-192, fig. 93.

Material examined. — 1 ♂, 1 ovig. ♀; 1 ♂, 1 ovig. ♀; 1 ♂, 1 ovig. ♀, Macclesfield Bank, 16°04.5'N, 114°42.2'E, R.V. *Cape St. Mary*, Cr. 3/64, Stn. 31, 10 fm, 14 June 1964. 1 ♂, 1 ovig. ♀, Pygmy Shoal, 16°25.0'N, 114°45.0'E, R.V. *Cape St. Mary*, Cr. 3/64, Stn 68, 12 fm, 12 June 1964.

Remarks. — The specimens were obtained from four separate coral colonies brought up on hand lines. The rostral dentition was variable, in the males 0/0, 2/0, 1/0, 4/0 and in the corresponding females 0/0, 1/0, 0/0, 1/0. In the type material, both specimens were provided with a small ventral rostral tooth and one dorsal tooth in the male and two in the female. Holthuis' material was similar, but PATTON (1966) has indicated that both dorsal and ventral teeth may be absent, resulting in a toothless rostrum in some specimens, as occurs in the present material. The specimen with four dorsal rostral teeth is unusual, as no specimen have been previously reported with more than two dorsal teeth. The colour pattern of these specimen was not recorded.

Host. — All specimens were obtained from unidentified *Acropora* colonies.

Distribution. — Red Sea, Kenya, Zanzibar, Tanganyika, Amirante Islands, Mocambique Channel, Ceylon, Indonesia, NE Australia and Samoa.

53. *Mesopontonia gorgoniophila* Bruce

Mesopontonia gorgoniophila BRUCE, 1967: 13-23, figs. 5-9; 1970: 543.

Material examined. — 4 ovig. ♀, 21°01.5'N, 115°32.0'E, R.V. *Cape* St. *Mary*, Cr. 9/66, Stn. 20, 76 fm, Agassiz trawl, 20 June 1966, coll. D. Eggleston.

Remarks. — Details of many specimens from the northern South China Sea, found in association with gorgonians *Melithea albitincta* (Ridley) and *Acabaria frondosa* (Brundin) from 64-73 fm and 76-100 fm have been previously published (BRUCE, 1967). Colour noted, "pale pinkish orange, as in host".

Host. — *Acabaria gracillima* (Ridley) (Gorgonacea), a new host record.

Distribution. — Known only from the northern South China Sea.

54. *Anchistioides compressus* Paulson

Restricted synonymy:

Anchistioides compressus PAULSON, 1875: 115, pl 19, fig. 5. KEMP, 1925: 339.

Material examined. — 4 spms., 15°58.8'N, 114°33.8'E to 15°48.4'N, 114°31.8'E, R.V. *Cape St. Mary*, Cr. 3/64, Stn. 35, 45-46 fm, Granton trawl, 15 June 1964.

Remarks. — Colour noted as transparent, with "conspicuous red spots along second pereiopod",

Host. — Unidentified sponge.

Distibution. — Known only from the Red Sea, Kenya, Zanzibar and the Andaman Islands.

55. *Anchistioides willeyi* (Borradaile)

Restricted synonymy:

Palaemonopsis willeyi BORRADAILE, 1899: 410, pls. 36, 37, fig. 7.

Anchistioides willeyi GORDON, 1935: 344, figs. 23 *a*, 24 *a*.

Material examined. — 1 ♀, 15°58.8'N, 114°33.8'E to 15°49.4'N, 31, R.V. *Cape St. Mary*, Cr. 3/64, Stn. 48, 40-46 fm, Granton trawl, 17 June 1964.

Remarks. — Colour noted as "transparent, yellowish over pleura". The specimens were found free, presumably dislodged from sponge hosts.

Host. — Unidentified.

Distribution. — Maldive Islands, Kenya, Zanzibar, Madagascar, Aru Islands, Sulu Archipelago, Borneo Bank, New Bristain and the Capricorn Islands, Australia.

DISCUSSION

In his synopsis of the Singapore fauna, JOHNSON (1961) recorded the occurence of 22 species of pontoniine shrimp and subsequently also added *Chernocaris placunae* to the list (JOHNSON, 1967). Of these species, ten were not represented in the present collection. Includig the records in the present report, the Singapore fauna has now increased to 28 species. Johnson considered the Singapore fauna to be impoverished on account of the poor development of coral reefs due to fresh water influence. The reefs around Hong-Kong are even more poorly developed, and pontoniine shrimps are represented by only 16 species. Due to the sparsity of coral colonies in Hong-Kong waters, the fauna of these was little studied and it is highly probable that further examination would reveal the presence of *Jocaste* spp., *Coralliocaris* spp., *Periclimenes lutescens* auct. and probably other species.

Combining the present list of species with the ten additional species recorded by Johnson (*see* below) ([1]) provides a total list of 65 species for the whole region of the South China Sea. This figure can be conveniently compared with the total of 67 species reported by Holthuis (1952) for the Indonesian archipelago. The two regions are contiguous and so similar faunal richness may be expected. However only 33 species occur in

([1]) Additional South China Sea species reported from Singapore (JOHNSON, 1961, 1967). 1. *Periclimenes parvus Borr.*; 2. *Periclimenes grandis* (*Stimpson*); 3. *Periclimenes* cf. *lutescens* (Dana); 4. *Periclimenes suvadivensis* Borr.; 5. *Periclimenes calmani* Tattersall; 6. *Periclimenes brocki* (De Man); 7. *Periclimenes* nr. *digitalis* Kemp; 8. *Philarius imperialis* Kubo; 9. *Coralliocaris graminea* (Dana); 10. *Chernocaris placunae* Johnson.

common betwen the two regions, so that 32 species have been found in the South China Sea and not in Indonesian waters and 34 have been found in Indonesian seas but are not yet recorded from the South China Sea. The combined fauna for the South China Sea and the Indonesian Archipelago is represented by 99 species, which is distinctly less rich than of

TABLE

	No.	%	%	%
Free-living	11			16.92
Porifera	6		9.23	
Coelenterata: Anthozoa: Alcyonacea	2	3.08		
Gorgonacea	6	9.23		
Actiniaria	4	6.15	40.00	
Scleractinea	14	21.54		
Mollusca: Lamellibranchia	7		10.77	
Echinodermata: Crinoidea	3	4.62		83.05
Holothuroidea	1	1.53		
Echinoidea	1	1.53	10.74	
Asteroidea	1	1.53		
Ophiuroidea	1	1.53		
Urochordata: Ascidiacea	2		3.08	
Uncertain hosts	6		9.23	

the central East African region (Kenya and Tanzania), with 134 species. Ekman (1966) has indicated that the shallow water marine faunae of the Indo-West Pacific region have evolved by dispersal from the Malaysian region. In the case of the shallow water penacid prawns this hypothesis appears to be supported by the available information, but with reference to the Pontoniinae, which are most abundant in the coral reef biotope rather than on smooth mud or sand substrates, there is as yet no indication of the greatest diversity of species occuring in the central Malaysian region. Undoubtedly many more species of pontoniine shrimp, of which about two hundred species are now known from the Indo-West Pacific region, still remain to be recorded from the South China Sea, as well as adjacent waters.

Of the 65 species of pontoniine shrimp now known to occur in the South China Sea region, only eleven are considered to be truly free-living species. These include the common and widespread *Palaemonelle rotumana* and ten species of the large genus *Periclimenes*, of which most species

are now known to be commensals of other marine invertebrates. These free-living species are the browsing type, *P. spiniferus* and *P. ? denticulatus* and the predatory types, *P. grandis* and *P. elegans*, and probably also *P. suvadivensis*, *P. ? digitalis* and *P.* cf *digttalis*. The trophic niche occupied by the remaining species is not known with certainty. *P. seychellensis* is probably a micropredator but the roles of *P. indicus* and *P. calmani* remain obscure. Fifty four species (83 %) are considered to be obligatory commensals, although the hosts of some remain to be identified (*P. exederens*, *P. paraparvus*, *P. toloensis* and *P. brocki*). *Periclimenes parvus* has been reported as an associate of corals (JOHNSON, 1960) but this is in need of confirmation. The associations of the free-living and commensal species of pontoniine shrimp at present known from the South China Sea are summarized in the following table (Table).

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