

Contributions to the knowledge of Leucosiidae IV. *Seulocia* gen. nov. (Crustacea: Brachyura)

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Key words: Decapoda; Leucosiidae; *Leucosia*; *Seulocia*; new genus; new species; Indo-Pacific.

A new genus, *Seulocia*, is established for *Leucosia* species with segments 3-6 of the male abdomen fused, and the first male pleopod with straight shaft, twisted once on its axis: *L. laevimana* Miers, 1884, *L. latirostrata* Shen & Chen, 1978, *L. pubescens* Miers, 1877, *L. pulchra* Shen & Chen, 1978, *L. rhomboidalis* de Haan, 1841, *L. truncata* Alcock, 1896, and *L. vittata* Stimpson, 1858, and three new species: *S. anahita*, *S. crepuscula*, *S. cristata*. The species are described or redescribed and illustrated, extended synonymies are given, and a key for their identification is provided. The choice of the lectotype of *L. rhomboidalis* is discussed.

Introduction

"The species of this genus which have recently become known are very numerous, and although the distinctive marks are generally so slight as to be determined with difficulty from descriptions or figures, they are nevertheless perfectly plain and satisfactory when seen in the specimens themselves." (Stimpson 1907:149).

In his "Key to the Indian species of *Leucosia*" Alcock (1896: 212) noted that *L. craniolaris* (Herbst, 1783), *L. pubescens* Miers, 1877, *L. rhomboidalis* de Haan, 1841, *L. truncata* Alcock, 1896, and *L. vittata* Stimpson, 1858, share many characters: "Carapace... sharply hexagonal, devoid of definite pubescence outside of the thoracic sinus, the thickened epimeral edge visible, dorsally, in all its extent... a definite patch of encrusting spongy pubescence at the basal end of the upper surface of the arm, meropodites of legs compressed, abdomen of the male consisting of 3 pieces". As a consequence of a study of the extensive collections of the the Nationaal Natuurhistorisch Museum, Leiden (formerly Rijksmuseum van Natuurlijke Historie), together with other major collections (listed below), that has enabled re-examination of many type specimens and much of the published material, Alcock's grouping is validated. A new genus is established for *Leucosia* species having the male abdomen with segments 3-6 fused, and the first male pleopod with straight shaft twisted once on its axis: *L. laevimana* Miers, 1884, *L. latirostrata* Shen & Chen, 1978, *L. pubescens* Miers, 1877, *L. pulchra* Shen & Chen, 1978, *L. rhomboidalis* de Haan, 1841, *L. truncata* Alcock, 1896, and *L. vittata* Stimpson, 1858, and three new species: *S. anahita*, *S. crepuscula*, *S. cristata*, are described.

Abbreviations.— cl. – carapace length, measured along the vertical median line of the carapace; coll. – collector; Exp. – Expedition; id. – identified by; I. – Island; Is. – Islands; stn – station.

The material examined was lent by the following institutions: the Berlin Zoological Museum (BZM), the Museum of Comparative Zoology, Harvard University (MCZ), Museum national d'Histoire naturelle, Paris (MNHN), the Natural History Museum,

London (NHM), the National Science Museum, Tokyo (NSMT), National Taiwan Ocean University, Keelung (NTOU), the Queensland Museum, Brisbane (QM), the Nationaal Natuurhistorisch Museum, Leiden (formerly Rijksmuseum van Natuurlijke History) (RMNH), the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM), Western Australian Museum, Perth (WAM), the Zoological Museum, Amsterdam (ZMA), the Zoologisk Museum, København (ZMK), and the Zoological Reference Collection, Raffles Museum of Biodiversity Research, Singapore (ZRC).

Seulocia gen. nov.

Type species.— *Leucosia rhomboidalis* de Haan, 1841; gender: feminine.

Diagnosis.— Carapace subpentagonal, globose; regions of carapace indistinct. Dorsal surface of carapace glabrous, smooth or punctate. Frontal region upcurved, laterally concave. Antennular fossa continuous with orbit, sealed by basal antennular segment; antennules fold obliquely within fossa. Antennae short, inserted between antennular fossa and orbit. Orbits small, rounded, outer orbital margin unsutured, anterior margin of efferent branchial channel forms part of lower orbital margin. Eyes retractable. External maxillipeds concealing trapezoid buccal opening; endopod merus triangulate, as long as ischium; in female, endopod with setose fringe lengthwise, ischium medially keeled, ram-shaped. Anterolateral margin of carapace oblique. Lateral angle of carapace prominent, beaded, overhanging tumefactive thoracic sinus. Ventral margin of sinus, above base of cheliped, bearing row of granules continuous with epimeral ridge. Posterolateral margins of carapace devoid of granulation. Epimeral margin closely beaded, visible in dorsal view, continuous with posterior margin. Posterior margin granulate, deflexed surface smooth or granulate. Chelipeds subequal, robust, longer in adult male than in female specimens. Cheliped merus trigonal in crosssection, bearing tubercles on anterior, posterior margins; patch of spongy pubescence proximally on dorsal surface, bordered basally by coalesced cluster of granules and pair of perliform granules anteriorly; ventral surface pitted proximally, nearly smooth. Carpus, propodus inflated, upper surface of propodus rounded, smooth, lower surface granulate. Fingers as long as upper margin of palm. Pereiopods slender, short; propodi dorsally and ventrally carinate; dactyli longer than propodi, dorsoventrally flattened, lanceolate. Last pereiopodal merus in female constricted proximally. Male abdominal sulcus deep, elongate, nearly reaching buccal cavity. Male abdomen with 2nd segment minute; segments 3-6 fused, tapering distally, with a nonarticulating suture and a constriction at the commissure of the fifth and sixth segments, opposite ridge on lateral wall of abdominal sulcus; telson triangular. Female abdomen with segments 3-6 fused, greatly enlarged, shield-like, telson triangular. First male pleopod elongate, shaft straight, twisted once on its axis, distally club-like, bilobed. Second male pleopod short, curved, apex scoop-like.

Remarks.— *Seulocia* gen. nov. differs from *Leucosia* Weber, 1795, emendato (Galil, 2003a), *Euclosia* (Galil, 2003b), and *Urnalana* (Galil, 2005) in having the male abdomen with segments 3-6 fused, and the first male pleopod with straight shaft, twisted once on its axis.

Etymology.— *Seulocia* is an anagram of *Leucosia* Weber, 1795.

Key to species of *Seulocia* gen. nov.

1. Deflexed surface of posterior margin smooth 2
- Deflexed surface of posterior margin granulate 8
2. Front truncate; anterior margin of efferent branchial channel visible in dorsal view; anterior margin mucronate *S. truncata*
- Front produced; anterior margin of efferent branchial channel invisible in dorsal view; anterior margin tridentate 3
3. Epimeral margin anteriorly inflated; posterior margin of pterygostomian region bulbous *S. pubescens*
- Epimeral margin not inflated; posterior margin of pterygostomian region otherwise 4
4. Posterior margin of pterygostomian region overhanging thoracic sinus; last pereopodal merus with rounded, alate carine on lower margin *S. latirostrata*
- Posterior margin of pterygostomian region not overhanging thoracic sinus; last pereopodal merus with sinuous lower margin, bearing crest of 4-6 prominent granules, followed by several smaller ones 5
5. Anterior and posterior margins of cheliped merus bearing prominent perliform granules; fused abdominal segment in male lacking median denticle *S. laevimana*
- Anterior and posterior margins of cheliped merus bearing rounded granules; fused abdominal segment in male bearing minute median granule 6
6. Anterolateral margin of carapace straight; thoracic sinus deep 7
- Anterolateral margin of carapace bearing granulate protuberance anteriorly to epibranchial angle; thoracic sinus shallow *S. crepuscula* spec. nov.
7. Cheliped merus distally inflated; palm lenticular, as wide as long *S. pulchra*
- Cheliped merus not inflated; palm slightly longer than wide *S. anahita* spec. nov.
8. Front strongly deflexed anteriorly, medially cristate, margin unidentate *S. cristata* spec. nov.
- Front not deflexed, not cristate, margin tridentate 9
9. Thoracic sinus anteriorly defined by granulate, overhanging, margin of pterygostomian region; upper margin of palm smooth *S. vittata*
- Thoracic sinus anteriorly defined by smooth, non-overhanging, margin of pterygostomian region; upper margin of palm obscurely beaded *S. rhomboidalis*

Seulocia anahita spec. nov.

(fig. 1A)

Leucosia pubescens; Alcock, 1896: 233; Stephensen, 1945: 95, fig. 17 a, b; Tirmizi & Kazmi, 1988: 94.

Material.— **Persian Gulf**: holotype, 1 ♂ (20.1 mm cl), ZMK 866, Strait of Hormuz, 18 m depth, 22.iv.1937, coll. G. Thorson, id. Stephensen as *L. pubescens*. Paratypes: 1 ♂ (17.0 mm cl), ZMK, near Quais I, 27 m depth, 8.iv.1937, coll. G. Thorson, id. Stephensen as *L. pubescens*; 1 ♂ (18.3 mm cl), 1 ♀ (12.0 mm cl), ZMK 867, near Kharg I, 16-17 m depth, 5.iii.1937, coll. G. Thorson, id. Stephensen as *L. pubescens*.— **Kuwait**: 2 ♂♂ (19.2, 19.1 mm cl), NSMT Cr4470, 20.iii-17.v.1972, coll. H. Motoh.— **Saudi Arabia**: 1 ♂ (18.0 mm cl), RMNH D 16428, Ras Tanura, 27.ix.1956, coll. E. Dawson.

Description.— Dorsal surface of carapace shiny, scattered punctae anteriorly. Front somewhat constricted, produced, with anterior margin tridenticulate, median denticle

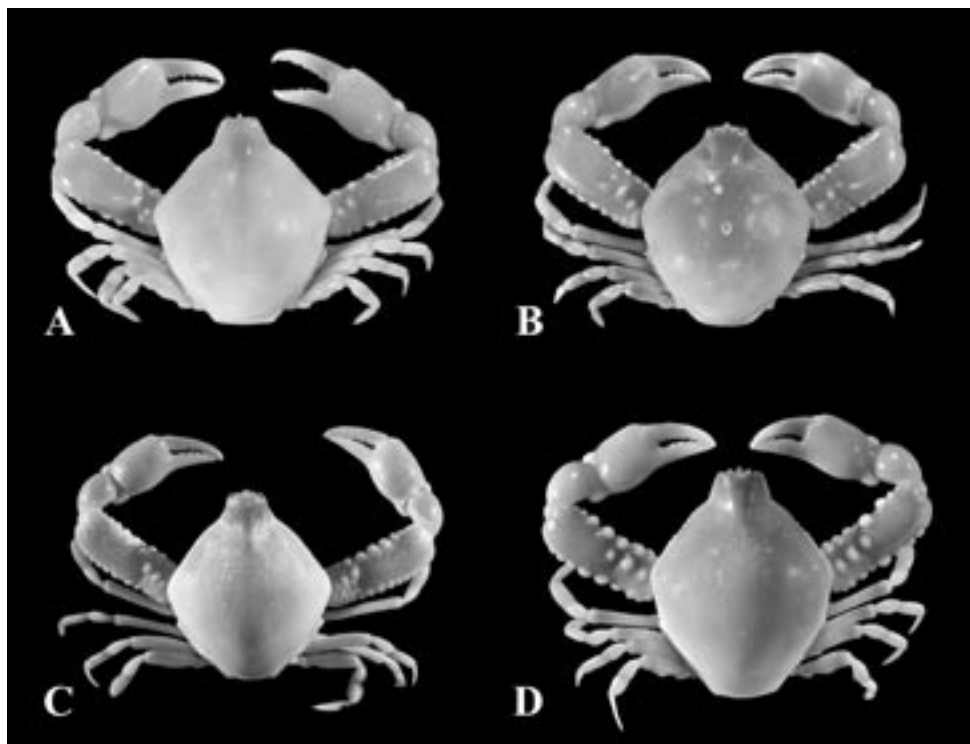


Fig. 1. A, *Seulocia anahita* spec. nov., paratype, 19.2 mm cl, NSMT Cr4470; B, *S. crepuscula* spec. nov., holotype, 18.8 mm cl, NHM 1882.24; C, *S. cristata* spec. nov., 12.1 mm cl, NHM 1900.10.22.337/38; D, *S. laevimana*, 18.1 mm cl, WAM C.26134.

largest. Anterolateral margin bearing beaded line from outer angle of orbit to epibranchial angle. Margin of epibranchial angle of carapace closely beaded. Epimeral margin gutter-like anteriorly, narrowing posteriorly, marginal granules decreasing in size posteriorly, meeting posterior margin at an angle. Posterior margin straight, minutely granulate; deflexed posterior surface smooth. Thoracic sinus deep, minutely granulate; anteriorly defined by smooth, convex margin of pterygostomian region. Fused abdominal segment in male bearing minute median granule. Dorsal surface of cheliped merus distally smooth; anterior and posterior margins lined with well-spaced perliform granules, granules missing distally on posterior margin. Carpus with obsolescent granules on inner margin. Upper and lower margins of palm distinctly constricted proximally; upper margin of palm rounded, smooth; lower surface with granulate row on inner margin. First pereopodal merus bearing few granules proximally on upper margin, single beaded line on ventrally; two successive pereopodal meri bearing two minutely beaded lines on dorsal margin, posterior line short, single beaded line ventrally. Dorsal beaded line on last pereopodal merus distally obsolescent, ventral margin bearing crest of 4-5 large tubercles, followed by several smaller ones. Two anterior pereopodal carpi rounded, smooth; two posterior carpi dorsally carinate. Pereiopodal propodi carinate dorsally and ventrally.

Colour.— “In fresh spirit specimens the carapace is light slate blue, traversed longitudinally by four broken longitudinal stripes of greenish brown which are so far continuous as to form a treble loop something like an incomplete pair of spectacles or a rather fantastic U: the chelipeds and legs with bands of yellowish brown, and the base of the fingers yellowish brown.” (Alcock, 1896: 233).

Remarks.— *Seulocia anahita* differs from the closely resembling *S. pulchra* in its slightly longer palm, the smaller, wider-spaced granules on the posterior margin of the cheliped merus, and the distinctly horizontal posterior margin of carapace.

Distribution.— Persian Gulf, Arabian Sea, Indian Ocean.

Etymology.— In the myths of ancient Persia, *anahita* is the goddess of undefiled waters, the source of the cosmic ocean.

Seulocia crepuscula spec. nov.
(fig. 1B)

Leucosia craniolaris; Tan, 1996: 1035, figs 3m-q, 4c.

Leucosia vittata; Tan, 1996: 1039, figs 5l-p, 6a-d.

Material.— **Singapore**: holotype, 1 ♂ (18.8 mm cl), NHM 1882.24, ‘Alert’, coll. Dr. Coppinger.— **Paratypes: Gulf of Thailand**: 6 ♂♂ (16.1–17.1 mm cl), 3 ♀♀ (15.7–16.5 mm cl), 3 ♀♀ ovigerous (15.2–16.2 mm cl), USNM 132376, Sriracha, 1.v.1934.— **Philippines**: 1 ♂ (15.1 mm cl), 1 ♀ ovigerous (15.0 mm cl), USNM 234264, Nasasa Bay, Zambales Prov., 9–33 m depth, 30.i–8.ii.1960; 1 ♀ ovigerous (15.4 mm cl), USNM 207834, Puerto, Galera, Mindoro Is., v.1939, coll. F. Gutierrez; 3 ♂♂ (16.3–17.7 mm cl), USNM, Nasugbu, xii.1921, coll. D. Villadolid; 6 juveniles, USNM, ‘Albatross’, Manila Bay, 12.xii.1907, id. C.G.S. Tan as *L. vittata*.

Description.— Dorsal surface of carapace shiny, scattered punctae anteriorly. Front slightly constricted, short, with anterior margin tridenticulate, median denticle largest. Anterolateral margin bearing beaded line; granules larger, more prominent distally, forming distinct protuberance anteriorly to epibranchial angle. Margin of epibranchial angle of carapace bearing perliform granules. Epimeral margin gutter-like, narrowing posteriorly, marginal granules smaller posteriorly. Posterior margin nearly straight in male, slightly convex in female, granulate; deflexed posterior surface smooth. Thoracic sinus shallow, minutely granulate; anteriorly defined by convex margin of pterygostomian region sloping into sinus. Fused abdominal segment in male bearing minute median granule. Anterior and posterior margins of cheliped merus lined with large perliform granules, granules larger, spaced closer on posterior margin. Carpus with obsolescent granules on inner margin. Upper and lower margins of palm very slightly constricted proximally; upper margin of palm rounded, smooth; lower surface with granulate row on inner margin. Three anterior pereopodal meri bearing two minutely beaded lines on dorsal margin, posterior line shorter in successive legs; two beaded lines ventrally on first pereopodal merus, single beaded line on the others. Minutely beaded line on dorsal margin of last pereopodal merus distally obsolescent, ventral margin sinuous, bearing crest of 4–6 large tubercles, followed by several smaller ones. Posterior two pereopodal carpi dorsally carinate. Pereopodal propodi carinate dorsally and ventrally.

Remarks.— *Seulocia crepuscula* spec. nov. is distinguished from its congeners in its shallow thoracic sinus, the posterior margin of the pterygostomian region grading obliquely

into the sinus; and the granulate protuberance on the margin of the carapace anteriorly to the epibranchial angle.

Distribution.— Thailand, Singapore, Philippines.

Etyymology.— *crepusculum*, *L.*, twilight; for the darkly patterned carapace.

Seulocia cristata spec. nov.

(fig. 1C)

Leucosides craniolaris; Rathbun, 1910: 310 (part); 1924: 26; Suvatti, 1950: 143.

Leucosia rhomboidalis; Chen, 1989: 240, fig. 30 b, c; 1990: 181, figs 2a-d, pl. 4b-c; Tan, 1996: 1038, figs 5 f-k.

Material.— **Indonesia**: holotype, 1 ♂ (12.4 mm cl), ZMA, 'Siboga' stn 50, Badjo Bay, Flores I., 40 m depth, 16-18.iv.1899, id. J.E.W. Ihle as *L. rhomboidalis*.— Paratypes: **India**: 1 ♀ ovigerous (14.8 mm cl), 1 ♀ (15.0 mm cl), ZMK, 'Galathea' stn 305, 20°51'N 87°58'E, 43-52 m depth, 26.iv.1951.— **Thailand**: 1 ♂ (14.1 mm cl), ZMK, Nha Trang, 1960; 1 ♂ (12.8 mm cl), 1 ♀ (13.2 mm cl), ZMK, Thai-Danish Exp., 7°29'N 99°07'E, 16-22 m depth, 12.ii.1966; 3 ♂ (11.6-13.4 mm cl), ZMK, Tung Kaben, 11 m depth, 22.ii.1900, id. M. J. Rathbun as *Leucosides craniolaris*; 2 ♂ (12.6 mm cl), 1 ♀ ovigerous (13.3 mm cl), ZMK, Koh Kahdat, 9-15 m depth, 16.ii.1900, coll. Th. Mortensen, id. M.J. Rathbun as *Leucosides craniolaris*; 1 ♂ (12.2 mm cl), 1 ♀ ovigerous (13.2 mm cl), USNM 39650, 36 m depth, W Koh Chang, 29.i.1900, id. M. J. Rathbun as *Leucosides craniolaris*; 1 ♀ ovigerous (13.5 mm cl), USNM 39651, 27 m depth, N Koh Kut, 4.iii.1900, id. M. J. Rathbun as *Leucosides craniolaris*; 1 ♂ (12.9 mm cl), USNM 39649, 27 m depth, between Koh Chuen and Koh Chang, 3.iii.1900, id. M. J. Rathbun as *Leucosides craniolaris*; 1 ♂ (12.8 mm cl), ZRC 2000.0893, Chonburi province, 20 m depth, 20.ii.2000, coll. P.K.L. Ng.— **Singapore**: 1 ♂ (12.1 mm cl), 1 ♀ (13.9 mm cl), NHM 1900.10.22.337/38; 1 ♀ ovigerous (12.7 mm cl), ZMK, 3.6-5.5 m depth, 4.xii.1899, id. M. J. Rathbun as *Leucosides craniolaris*; 3 ♀ (12.5-13.9 mm cl), ZMK, 4.vi.1903; 1 ♂ (12.8 mm cl), ZMK, 1.ix.1908; 1 ♀ ovigerous (12.2 mm cl), ZMK, 'Galathea' stn 346, off Tanjong Rhu, 1°18'N 103°52'E, 14 m depth, 23.v.1951; 1 ♂ (13.3 mm cl), 1 ♀ ovigerous (12.4 mm cl), ZRC 1985.43-44, beach, 1950's; 1 ♂ (14.3 mm cl), BZM 6033.— **Philippines**: 1 ♂ (13.5 mm cl), USNM, 14°45.48'N 120°12.20'E, 60 m depth, 'Albatross' stn 5104, Olongapo beach, Luzon I., 8.i.1908; 1 ♂ (13.5 mm cl), USNM, 14°24.30'N 120°33.40'E, 51 m depth, 'Albatross' stn 5107, Luneta beach, Manila Bay, Luzon I., 9.i.1908, id. C.G.S. Tan as *L. rhomboidalis*; 1 ♀ (13.4 mm cl), USNM 134201, 10°56.55'N 119°17.24'E, 25-46 m depth, 'Albatross' stn 5342, Palawan I., Malampaya Sound, 23.xii.1908; 1 ♂ (13.2 mm cl), 1 ♀ ovigerous (13.8 mm cl), USNM 158983, Manila Bay, Luzon I., coll. P. de Mesa; 1 ♂ (12.8 mm cl), USNM 337563, 11°27.45'N 123°23.45'E, 37 m depth, 4.vi.1978; 1 ♀ ovigerous (13.2 mm cl), USNM 337563, 11°28.45'N 123°47.24'E, 53 m depth, 7.vi.1978; 1 ♂ (12.3 mm cl), ZMA, 'Siboga' stn 50, Badjo Bay, Flores I., 40 m depth, 16-18.iv.1899, id. Ihle as *L. rhomboidalis*; 1 ♂ (12.6 mm cl), 2 ♀ (12.9, 13.0 mm cl), MNHN B18029, MUSORSTOM 3, Stn 141, 11°44.6'N 122°45.35'E, 44-40 m depth, 6.vi.1985, id. Chen as *L. rhomboidalis*.— **Indonesia**: 1 ♀ ovigerous (12.1 mm cl), ZMK, Kei Is. Exp., Makassar, Celebes [=Sulawesi], 35 m depth, 27.vi.1922; 2 ♂ (8.6, 11.3 mm cl), 3 ♀ ovigerous (11.9-12.5 mm cl), ZMK, Kei Is. Exp., stn 77, Sunda strait, 6°22'S, 105°44'E, 30 m depth, 29.vii.1922, coll. Th. Mortensen; 1 ♂ (12.1 mm cl), ZMK, Kei Is. Exp. stn 88, 31 m depth, 31.vii.1922; 1 ♂ (13.6 mm cl), 2 ♀ (13.6, 13.5 mm cl), ZMK, Kei Is. Exp. stn 97, Sumatra, Kampong Bay, 25 m depth, 1.viii.1922; 1 ♂ (13.2 mm cl), ZMK, Kei Is. Exp. stn 98, Lampong Bay, 27 m depth, 2.viii.1922; 1 ♀ ovigerous (11.4 mm cl), ZMK, Kei Is. Exp. stn 105, Bantam Bay, 13 m depth, 5.viii.1922; 1 ♂ (12.3 mm cl), 1 ♀ (12.2 mm cl), ZMK, Java Sea, Kei Is. Exp., stn 110, 5°55'S 105°53'E, 12 m depth, 5.viii.1922, coll. Th. Mortensen; 2 ♀ ovigerous (12.0, 12.1 mm cl), ZMK, Kei Is. Exp. stn 118, Java, 27 m depth, 7.viii.1922; 1 ♀ ovigerous (12.4 mm cl), NHM, 'Challenger', stn 190, Arafura Sea, 8°41'S, 136°5'E, 90 m depth, 12.ix.1874; 1 ♀ (12.9 mm cl), MNHN B17159, CORINDON, stn. CH203, 01°08.6'S 117°07.5'E, 25 m depth, 30.x.1980; 1 ♂ (11.3 mm cl), 4 ♀ ♀ (12.4-12.7 mm cl), MNHN B17160, CORINDON, stn. CH204, 01°09'S 117°18'E, 49 m depth, 30.x.1980.

Description.— Dorsal surface of carapace sparsely, finely punctate. Front constricted, produced; strongly deflexed anteriorly, medially cristate, margin unidentate. Antero-

lateral margin bearing obsolescent beaded line. Margin of epibranchial angle of carapace milled. Epimeral margin gutter-like anteriorly, narrowing posteriorly, marginal granules smaller posteriorly, meeting posterior margin at an angle. Posterior margin nearly straight, deflexed surface of posterior margin granulate. Thoracic sinus deep; anteriorly defined by nearly straight, smooth margin of pterygostomial region. Fused abdominal segment in male dimpled anteriorly to minute median denticle. Tubercles on cheliped merus closely spaced, medial tubercles larger than lateral tubercles. Upper and lower margins of palm constricted proximally; upper margin of palm obscurely beaded, lower surface with granulate rows on inner, outer margins, continuing onto pollex. Three anterior pereopodal meri bearing two minutely beaded lines on dorsal margin, posterior line shorter in successive legs, two parallel beaded lines on ventral margin; last pereopodal merus with single beaded line dorsally, two beaded lines ventrally, posterior line prominently crested, parallel to upper margin. Pereiopodal carpi dorsally carinate.

Colour.— (in alcohol), carapace anteriorly stone-grey, posteriorly cream-coloured; chelipeds grey, fingers yellow; pereopods cream-coloured but for yellow band distally on meri.

Remarks.— *Seulocia cristata* spec. nov. is distinguished from all its congeners by its strongly deflexed, medially cristate front.

Distribution.— Thailand, Singapore, Japan, Philippines, Indonesia.

Etymology.— *crista*, L., crest; for the ridge on the median denticle of the frontal margin.

Seulocia laevimana (Miers, 1884) comb. nov.
(fig. 1D)

Leucosia craniolaris var. *laevimana* Miers, 1884: 250, pl. 26, fig. A.

? *Leucosia pubescens*; Campbell & Stephenson, 1970: 254, fig. 16

Material.— **Australia**: holotype. 1 ♀ (18.6 mm cl), NHM 1882.7, Torres Str., Friday I., 18 m depth, 1882, 'Alert', coll. Coppinger, id. E.J. Miers as *L. craniolaris* var. *laevimana*; 1 ♂ (17.2 mm cl), WAM C.26105, Sloping Point, Burrup Peninsula, 20°34.30'S, 116°52.20'E, 16.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♂ (17.4 mm cl), 1 ♀ (17.2 mm cl), WAM C.26104, Sloping Point, Burrup Peninsula, 20°32.99'S, 116°54.71'E, 16.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♀ (17.2 mm cl), WAM C.26121, 20°32.65'S, 116°39.14'E, 19.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♀ (16.9 mm cl), WAM C.26124, 20°33.58'S, 116°36.87'E, 19.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♂ (18.1 mm cl), WAM C.26134, SW tip of Goodwyn I., 20°32.71'S, 116°27.57'E, 20.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♂ (19.1 mm cl), WAM C.26141, NW point of Goodwyn I., 20°30.90'S, 116°26.05'E, 21.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♂ (18.1 mm cl), WAM C.26158, Phillip point, Burrup Peninsula, 20°35.33'S, 116°42.78'E, 22.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♂ (17.9 mm cl), 1 ♀ (17.9 mm cl), WAM C.26152, Courtenay headlight, Malus I., 20°32.23'S, 116°41.63'E, 22.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♂ (17.1 mm cl), 1 ♀ (17.3 mm cl), WAM C.26155, Courtenay headlight, Malus I., 20°31.38'S, 116°44.24'E, 22.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 juvenile (12.4 mm cl), WAM C.26160, Light on East Intercourse I., 20°38.31'S, 116°38.46'E, 23.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♂ (16.7 mm cl), WAM C.26165, SE point of Goodwyn I., 20°34.34'S, 116°34.67'E, 24.vii.1999, colls S. Slack-Smith & M. Hewitt; 1 ♂ (18.8 mm cl), Raby Bay, 19.iii.1982, coll. E. Grant, QM w10914; 1 ♂ ovigerous (21.6 mm cl), 1 ♀ (21.6 mm cl), Broadwater, Southport, coll. Dr. Brunnich, id. B. Campbell as *L. pubescens*, QM w485.

Description.— Dorsal surface of carapace sparsely, finely punctate anteriorly. Frontal region distinctly constricted, produced; front with anterior margin tridenticulate,

median denticle largest. Anterolateral margin granulate, granules smaller, closer together anteriorly. Margin of epibranchial angle of carapace milled. Epimeral margin wide, gutter-like anteriorly, narrowing posteriorly, marginal granules smaller posteriorly, meeting posterior margin at an angle. Posterior margin straight, deflexed surface of posterior margin smooth. Thoracic sinus deep; anteriorly defined by slightly rounded, smooth margin of pterygostomian region. Fused abdominal segment in male lacking median denticle. Tubercles on cheliped merus perliform, bulbous, prominent; upper and lower margins of palm constricted proximally; interior lower surface of palm proximally granulate in smaller individuals, smooth in full grown specimens. Three anterior pereopodal meri bearing two minutely beaded lines on dorsal margin, posterior line shorter in successive legs, two beaded lines on ventral margin, anterior line shorter in successive legs; last pereopodal merus with single beaded line dorsally and ventrally, ventral margin sinuous, bearing crest of 4-6 large tubercles, followed by several smaller ones. Pereopodal carpi bearing dorsal carinae.

Colour.— The carapace bears “two white spots on either side of the gastric region” (Miers, 1884: 250). The carapace (in alcohol) is sandy-grey, paler posteriorly, with the four pale spots mentioned above; the granules on the greyish cheliped merus are white, as are the tips of the fingers; the pale pereopodal segments are distally annulated with orange.

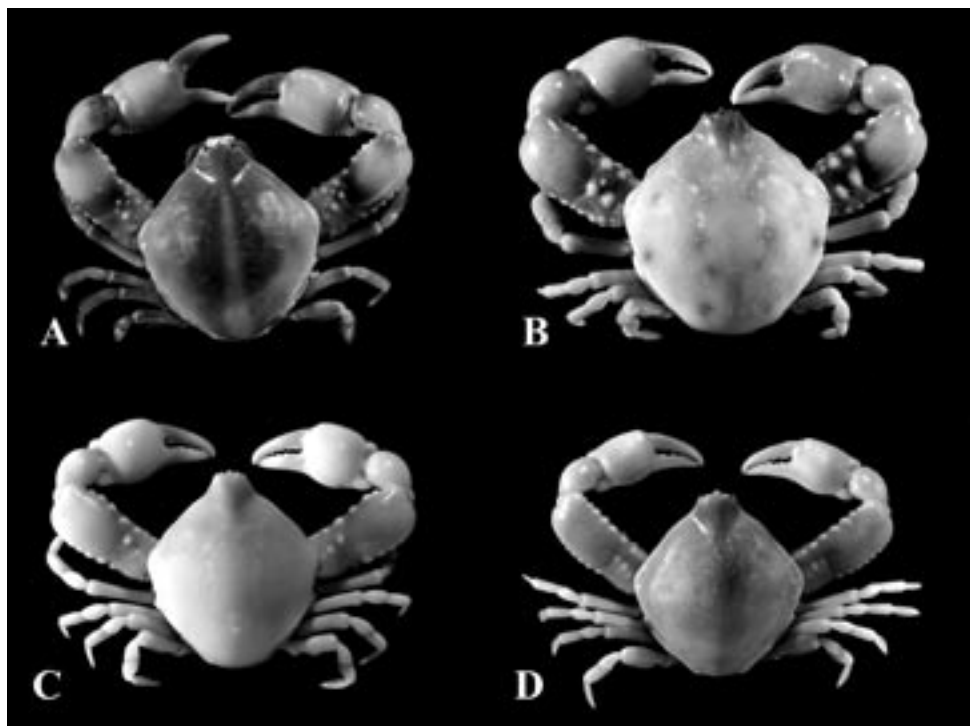


Fig. 2. A, *Seuloia latirostrata* (Shen & Chen, 1978), 21.1 mm cl, NTOU; B, *S. pubescens* (Miers, 1877), 23.9 mm cl, WAM 7815; C, *S. pulchra* (Shen & Chen, 1978), 18.7 mm cl, BZM 7884; D, *S. rhomboidalis* (De Haan, 1841), 14.6 mm cl, NHM 92.12.15.31-43.

Remarks.— Miers (1884: 250) designated, “at least provisionally”, a specimen “distinguished... by the absence of a series of granules on the inner margin of the palms of the chelipedes” as *Leucosia craniolaris* var. *laevimana*. Miers’ drawing of the cheliped (there, pl. 26, fig. A) clearly depicts the perliform tubercles on the anterior and the posterior margins of the merus. *Seulocia laevimana* is distinguished from *S. rhomboidalis* in its larger, perliform tubercles on the cheliped merus; the proximally constricted cheliped palm with smooth lower margin; the form of the anterior margin of the thoracic sinus; and the different colour pattern.

Distribution.— Australia.

Seulocia latirostrata (Shen & Chen, 1978) comb. nov
(fig. 2A)

Leucosia craniolaris; Sakai, 1937: 148; 1965: 46; 1976: 122, pl. 35, fig. 3; Miyake, 1961a: 14; 1961b: 171; 1983: 67, pl. 23, fig. 2; Miyake et al., 1962: 127; Yamaguchi et al., 1976: 35; Takeda, 1978: 34; 1982: 103, fig. 303; 1987: 11, pl. 3 fig. 3; Dai & Yang, 1991: 98, pl. 11 (2), fig. 46(3-4); Huang, 1994: 580; Chen & Sun, 2002: 434, fig. 196.

Leucosia vittata; Sakai, 1976: 123, pl. 35, fig. 4; Ng et al., 2001: 9, fig. 1g.

Leucosia latirostrata Shen & Chen, 1978: 77, pl. 2, figs 7-9, text-fig. 3; Huang, 1994: 580.

Leucosia cf. *obtusifrons*; Hill, 1982: 203, pl. 5a.

Leucosia rhomboidalis; Yamaguchi & Baba, 1993: 329, fig. 107 (lectotype only); Fransen et al., 1997: 88 (lectotype only).

Material.— **Japan**: 1 ♂ (20.7 mm cl), RMNH D 807, 1823-1834, coll. P. F. von Siebold & H. Bürger, designated by Yamaguchi & Baba as lectotype of *L. rhomboidalis*; 1 ♂ (22.7 mm cl), USNM 45840, Wakanoura, Kyushu I.— **China**: 1 ♂ (20.7 mm cl), ZMK, Namoa, xii.1903, coll. Capt. Suenson.— **Taiwan**: 2 ♂♂ (21.1, 19.8 mm cl), NTOU, Mi-Tuo fishing port, 12 m depth, 28.viii.1991, coll. J.F. Huang; 1 ♂ (17.5 mm cl), 3 ♀♀ ovigerous (19.5-21.6 mm cl), NTOU, Bu-Dai fishing port, 14.ix.1997, coll. S.H. Wu.

Description.— Dorsal surface of carapace sparsely, finely punctate. Front unconstricted, barely produced, frontal margin tridenticulate, median denticle largest. Anterolateral margin punctate, bearing obscurely beaded line. Epibranchial angle of carapace with margin obsoletely milled. Epimeral margin gutter-like, narrowing posteriorly, minutely notched medially, margin evenly milled throughout. Posterior margin rounded; deflexed posterior surface smooth. Thoracic sinus deep, minutely granulate; anteriorly defined by convex, overhanging margin of pterygostomian region. Fused abdominal segment in male lacking median denticle. Cheliped merus with well spaced granules on anterior and posterior margins. Palm slightly constricted proximally, its upper margin obsoletely beaded or smooth, lower surface with granulate rows on inner and outer margins, outer row continuing on lower margin of pollex, dactyl carinate. First three pereopodal meri bearing two minutely beaded lines on dorsal margin, posterior line obsolescent, single beaded line on ventral margin, granules more prominent distally; last pereopodal merus with obsoletely scalloped carina on dorsal margin, rounded, alate carina on ventral margin. Pereopodal carpi dorsally carinate. Pereopodal propodi prominently carinate on dorsal and ventral margins.

Colour.— Carapace with “median band of milky white, becoming broader posteriorly and three oblique and one straight bands of orange yellow on each side (Shen & Chen, 1978: 84). The carapace (in alcohol) is olive-brown, with the paler bands

mentioned above; the cheliped merus, palm and fingers bear a yellowish band proximally; the pale pereopodal meri and carpi are distally annulated with orange.

Remarks.— *Seulocia latirostrata* differs from *S. rhomboidalis* in having the deflexed posterior surface of the carapace smooth rather than granulate; the frontal margin tridentate rather than unidentate; the pterygostomian margin of the thoracic sinus convex rather than straight, the fused abdominal segment in the male lacking the median denticle; the striped colour pattern of the carapace, and its larger size.

The specimen (CL 14 mm) illustrated by Sakai (1976: 123, pl. 35, fig. 4) has the prominently granulate upper margin of the palm, the straight posterior margin of the carapace, and the colour pattern characteristic for juvenile *S. latirostrata*.

Distribution.— Japan, China, Taiwan.

Seulocia pubescens (Miers, 1877) comb. nov.
(fig. 2B)

Leucosia pubescens Miers, 1877: 238, pl. 38, figs 22-24; Haswell, 1880: 46; 1882: 119; Glauert, 1924: 61; Tyndale-Biscoe & George, 1962: 84; Serène, 1968: 47; Edgar, 1997: 205, pl.; Davie, 2002: 265 (part). Not *Leucosia pubescens*; Alcock, 1896: 233; Stephensen, 1945: 95, fig. 17 a, b [= *S. anahita* spec. nov.]

Material.— **Australia**: holotype, 1 ♂ (23.4 mm cl), NHM 63.61, Shark's Bay, 1 ♂ (24.6 mm cl), NHM 66.75, purch. Bowerbank; 1 ♂ (23.0 mm cl), 1 ♀ (23.5 mm cl), RMNH D 17578, Swan River, near Perth, ii.1951, coll. A.E. Johnson (ex. WAM); 1 ♂ (23.9 mm cl), WAM 7815, Swan River, near Freemantle, 1953, coll. A. Zech; 1 ♀ (25.0 mm cl), WAM C.2577, South Perth, 26.vi.1928, coll. Aldrich.

Description.— Dorsal surface of carapace minutely, sparsely punctate anteriorly. Front somewhat constricted, squat, with anterior margin tridenticulate, median denticle largest. Anterolateral margin sinuous, bearing minutely granulate line, obsolescent in larger specimens; posterior margin of pterygostome visible in dorsal view anterior to epibranchial angle. Margin of epibranchial angle of carapace indistinctly milled. Thoracic sinus minutely granulate, anteriorly defined by swollen, convex margin of pterygostomian region. Epimeral margin medially notched, anteriorly gutter-like, with indistinctly milled, swollen margin. Posterior margin rounded, deflexed posterior surface smooth. Fused abdominal segment in male bearing minute granule medially. Tubercles on cheliped merus perliform, prominent, upper surface distally swollen; upper and lower margins of palm somewhat constricted proximally, upper margin rounded, smooth; interior lower surface of palm smooth. First pereopodal merus bearing two granulate rows proximally on dorsal surface, single row on ventral surface; pereopodal meri 2-4 bearing single granulate line on dorsal and ventral margins; ventral margin of last pereopodal merus with proximal crest of 4-6 large tubercles, followed by several smaller ones. Dorsal surface of pereopodal carpi 1-3 rounded, only 4th pereopodal carpus carinate.

Colour.— "Greenish grey, with a series of eight marginal spots of darker green, two spots of the same colour on the gastric region, and four on the cardiac region. There are also two white spots on each side of the gastric region." (Miers, 1877: 239). "[C]arapace light blue fairly uniformly covered with spots or marks of greenish brown; chelipeds and legs banded yellowish brown." (Tyndale-Biscoe & George, 1962: 84). The carapace and chelipeds are brownish-grey; the perliform granules on the cheliped merus yellow, the fingers white tipped; the pereopodal meri are yellow distally (Edgar, 1997: 205, colour photograph).

Remarks.— *Seulocia pubescens* is distinguished from its cogeners in its anteriorly inflated epimeral margin, the swollen posterior margin of the pterygostome, the distally bulbous cheliped meri, and its colour pattern.

The specimens described by Alcock (1896) from Madras and the Persian Gulf as *Leucosia pubescens* differ from *S. pubescens* in their colour pattern, smaller size, and shape of pereopods.

Distribution.— Western Australia.

Seulocia pulchra (Shen & Chen, 1978) comb. nov.
(fig. 2C)

Leucosia pulchra Shen & Chen, 1978: 79, pl. 1, figs 3–6, text-fig. 4; Huang, 1994: 580; Chen & Sun, 2002: 438, fig. 198.

Material.— **Sri Lanka**: 2 ♂♂ (18.7, 16.6 mm cl), 1 ♀ ovigerous (17.4 mm cl), BZM 7884.

Description.— Dorsal surface of carapace shiny, scattered punctae anteriorly. Front somewhat constricted, produced, with anterior margin tridenticulate, median denticle largest. Anterolateral margin slightly indented anteriorly to epibranchial angle, bearing closely granulate line. Margin of epibranchial angle of carapace granulate. Epimeral margin gutter-like anteriorly, narrowing posteriorly, marginal granules decreasing in size posteriorly. Posterior margin slightly convex in male, rounded in female, minutely granulate; deflexed posterior surface smooth. Thoracic sinus deep, minutely granulate; anteriorly defined by smooth, convex margin of pterygostomial region. Fused abdominal segment in male bearing minute median granule. Dorsal surface of cheliped merus distally inflated, smooth; anterior margin lined with large perliform granules; posterior margin with closely-spaced granules proximally, lacking smooth distally. Carpus with obsolescent granules on inner margin in smaller specimens. Palm lenticular, as wide as long, its upper and lower margins distinctly constricted proximally; upper margin of palm rounded, smooth; lower surface with obsolescent granulate row on inner margin. First pereopodal merus bearing few granules proximally on upper margin, single beaded line on ventrally; two successive pereopodal meri bearing two minutely beaded lines on dorsal margin, posterior line short, single beaded line on ventrally. Dorsal beaded line on last pereopodal merus distally obsolescent, ventral margin bearing crest of 4–5 large tubercles, followed by several smaller ones; dorsal margin on last pereopodal merus smooth in female. Two anterior pereopodal carpi rounded, smooth; two posterior carpi dorsally carinate. Pereopodal propodi carinate dorsally and ventrally.

Remarks.— *Seulocia pulchra* is distinguished from the closely resembling *S. anahita*, *S. crepuscula*, and *S. cristata*, by its lenticular palm, and distally inflated cheliped merus.

Distribution.— China, Sri Lanka.

Seulocia rhomboidalis (De Haan, 1841) comb. nov.
(fig. 2D)

Leucosia rhomboidalis De Haan, 1841: 134, pl. 33, fig. 5; White, 1847: 48; Bell, 1855a: 362; 1855b: 284, 1855c: 6; Herklots, 1861: 27; Ortmann, 1892: 586 (part); de Man, 1907: 397, pl. 31, fig. 7; Balss, 1922: 127 (part); Yokoya, 1933: 126; Sakai, 1935: 62, fig. 23; 1937: 149, text fig. 29; 1976: 123, pl. 35, fig. 5, text

fig. 65f; Uchida, 1949: 719, fig. 2079; Utinomi, 1956: 72, pl. 36, fig. 6; Miyake, 1961a: 15; 1961b: 171; 1983: 67, pl. 23, fig. 4; Miyake et al., 1962: 127; Shen & Dai, 1964: 27, fig.; Serène, 1968: 47 (part); Yamaguchi et al., 1976: 35; Takeda, 1982: 104, fig. 304; 1987: 11, pl. 3 fig. 5; Yamaguchi & Baba, 1993: 329, fig. 107 (paralectotypes only); Fransen et al., 1997: 88 (paralectotypes only); Chen & Sun, 2002: 448, fig. 203, pl. 16.1.

Leucosia maculata Stimpson, 1858: 159; 1907: 150, pl. 18, fig. 2.

Leucosia vitata; Sakai, 1937: 150, text fig. 30.

Not *Leucosia rhomboidalis*; Chen, 1989: 240, fig. 30b, c; Tan, 1996: 1038, figs 5k-f [= *S. cristata*]

Material.— **China:** 1 ♂ (15.1 mm cl), MCZ 1367, Hong Kong, 36.6 m depth, coll. W. Stimpson, holotype of *L. maculata*; 1 ♂ (14.6 mm cl), NHM 92.12.15.31-43, Chu-San, 18-26 m depth, Coll. Basset-Smith; 1 ♂ (15.8 mm cl), 1 ♀ ovigerous (15.3 mm cl), 3 ♀ (14.4-15.5 mm cl), NHM 1930.12.2.48-50, Hong Kong, Coll. Barney.— **Japan:** lectotype: 1 ♂ (14.3 mm cl), RMNH D 51161, Japan, 1823-1834, coll. P.F. von Siebold & H. Bürger, preserved dry; 2 ♂ (13.2-14.1 mm cl), 2 ♀ (15.7, 14.3 mm cl), RMNH D42216, Japan, 1823-1834, coll. P.F. von Siebold & H. Bürger, preserved dry, designated by Yamaguchi & Baba as paralectotypes; 1 ♂ (15.6 mm cl), NHM 1884.31, 'Challenger', Kobe, 15-91 m depth; 1 ♂ (14.5 mm cl), ZMK, 'Challenger', Kobe, 15-91 m depth, ex. British Museum; 1 ♀ (13.3 mm cl), 2 ♀ ovigerous (15.2, 14.1 mm cl), 1 juvenile (10.0 mm cl), USNM 45841, Nagasaki; 1 ♂ (15.0 mm cl), USNM 17863, coll. R. Hitchcock; 2 ♂ (15.8, 15.9 mm cl), 1 ♀ (15.5 mm cl), NHM 1903.6.7.2-4, Inland Sea, coll. R. Gordon; 3 ♂ (15.3-16.5 mm cl), 5 ♀ ovigerous (15.5-16.7 mm cl), NSMT cr9486, off Kurabashi, Hiroshima Bay, 50 m, 24.viii.1986, coll. I. Soyama, id. M. Takeda as *L. rhomboidalis*; 1 ♂ (15.7 mm cl), NSMT cr10047, off Irino, Tosa Bay, 50-100 m, 29.i.1988; 2 ♂ (15.3, 15.9 mm cl), 1 ♀ ovigerous (15.9 mm cl), NSMT cr8271, ix.1958, id. M. Takeda; 1 ♀ (14.8 mm cl), NSMT cr8278, xi.1958, id. M. Takeda; 1 ♂ (16.4 mm cl), NSMT cr3822, id. M. Takeda.

Description.— Dorsal surface of carapace sparsely, finely punctate anteriorly. Frontal region constricted, produced; frontal margin mucronate. Anterolateral margin bearing obsolescent beaded line. Margin of epibranchial angle of carapace milled. Epimeral margin obscurely notched medially, shallow gutter-like anteriorly, narrowing posteriorly, marginal granules smaller posteriorly. Posterior margin rounded; deflexed posterior surface granulate. Thoracic sinus deep; anteriorly defined by straight, smooth margin of pterygostomian region. Fused abdominal segment in male bearing denticle medially. Tubercles on cheliped merus perliiform, prominent, more closely spaced on posterior margin, medial tubercles larger than lateral tubercles. Upper and lower margins of palm not constricted proximally; upper margin of palm obscurely beaded, lower surface with prominently granulate rows on inner and outer margins, continuing onto pollex. Anterior pair of pereopodal meri bearing two minutely beaded lines on dorsal margin, posterior line short; two beaded lines on ventral margin. Posterior pair of meri with single beaded line dorsally; two beaded lines ventrally, posterior line on last pereopodal merus prominently crested, parallel to upper margin. Upper margin of pereopodal carpi prominently carinate.

Colour.— "Carapax bluish-brown, becoming paler posteriorly, and spotted with red, there being five small spots on each side of the median line, placed in arcuated series, which diverge anteriorly. Chelipeds bluish-brown; walking feet white, barred with red" (Stimpson, 1907: 151). Colour photographs in Utinomi (1956).

Remarks.— De Haan's (1841: 134, pl. 33, fig. 5) illustration of *L. rhomboidalis* clearly depicts the unidentate frontal margin and the denticle on the male abdomen, and he mentions its colour "*olivacea*", and small size "*Parva, non ultra 6''' emetiens*" [Small, not measuring more than 6 lines; a line being 1/12 of an inch, it is about 12.6 mm]. Therefore, the specimen selected by Yamaguchi & Baba (1993: 329) as a lectotype for *L.*

rhomboidalis, which is 20.7 mm long, cannot have belonged to the original type series of *L. rhomboidalis*, and their lectotype selection is invalid. I select here a male (RMNH D 52261) from the original type series, designated as “paralectotypes” by Yamaguchi & Baba, as the lectotype.

Seulocia rhomboidalis shares with *S. cristata* and *S. vittata* a granulate posterior surface of the carapace; it is distinguished from the former by its nearly horizontal, non-cristate frontal median denticle; and from the latter in its smaller size, colour pattern, and the posterior margin of the pterygostomian region not overhanging the thoracic sinus.

Distribution.— China, Japan.

Seulocia truncata (Alcock, 1896) comb. nov.
(fig. 3A)

Leucosia truncata Alcock, 1896: 234, pl. 6, fig. 6; Alcock & Anderson, 1897, pl. 30, fig. 3; Ihle, 1918: 316; Serène, 1968: 47.

Material.— **India:** 1 ♂ (16.1 mm cl), NHM 90.1.31.1-4, Bay of Bengal, coll. Carpenter.— **Sri Lanka:** 1 ♂ (15.4 mm cl), NHM 75.14, coll. E.W. Holdsworth.— **Nicobar Is.:** 1 ♀ ovigerous (15.3 mm cl), ZMK, ‘Galathea’ stn 320, Great Nicobar I., Galathea Bay, 8 m depth, 7.v.1951.

Description.— Dorsal surface of carapace finely, sparsely punctate anteriorly. Front not constricted; truncate, anterior margin of efferent branchial channel visible in dorsal view, anterior margin mucronate. Anterolateral margin granulate. Margin of epi-branchial angle of carapace prominently milled. Thoracic sinus shallow, minutely granulate, anteriorly defined by grading pterygostomian margin. Epimeral margin gutter-like, prominently beaded, lacking median notch, meeting posterior margin at an angle. Posterior margin nearly straight; deflexed surface of posterior margin smooth. Fused abdominal segment in male bearing minute median denticle. Tubercles on cheliped merus perliform, prominent; upper and lower margins of palm not constricted proximally, upper margin rounded, smooth; inner lower surface of palm bearing a single line of granules, successively smaller distally. First pereopodal merus bearing two minutely granulate rows proximally on dorsal surface, two rows on ventral surface;

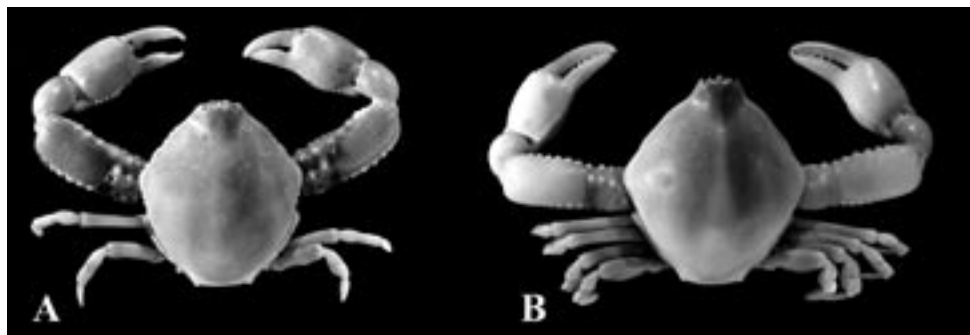


Fig. 3. A, *Seulocia truncata* (Alcock, 1896), 16.1 mm cl, NHM 90.1.31.1-4; B, *S. vittata* (Stimpson, 1858), 23.9 mm cl, NHM.

pereiopodal meri 2-4 bearing single granulate line on dorsal margin, and ventral margin; last pereiopodal merus with ventral margin sinuous, bearing crest of 4-6 large tubercles, followed by several smaller ones. Dorsal surface of pereiopodal carpi 1-3 rounded, last pereiopodal carpus distally carinate.

Remarks.—Alcock (1896: 234) initially regarded *Leucosia truncata* “as either a malformation of *L. pubescens*, or of a specimen of *L. pubescens* that had had its front broken and imperfectly repaired”. But on closer examination he distinguished it from *L. pubescens* as having a “front... so extremely short that its free edge... barely projects as far as, the epistome. The thoracic sinus ... extremely shallow... with a row of minute granules above the base of the chelipeds.... A distinct line of sharp cut beads [on] the inner edge of the wrist and of the hand”. *Seulocia truncata* is distinguished from its cogeners in having a truncate front, exposing the anterior margin of the efferent branchial channel.

Distribution.—Bay of Bengal, Sri Lanka, Nicobar Is.

Seulocia vittata (Stimpson, 1858) comb. nov.
(fig. 3B)

Cancer craniolaris; Herbst, 1783: 90, pl. 2, fig. 17.

Leucosia craniolaris; Fabricius, 1798: 350 (part); K. Sakai, 1999: 19, pl. 7E.

Leucosia vittata Stimpson, 1858: 159; 1907: 149, pl. 18, figs 3, 3a; Alcock, 1896: 232; Ihle, 1918: 316; Lin, 1949: 15; Shen & Dai, 1964: 28, fig.; Chhapgar, 1968: 609; Serène, 1968: 47; Huang, 1994: 580; Chen & Sun, 2002: 436, fig. 197, pl. 16.8.

Leucosides craniolaris; Rathbun, 1910: 310 (part).

Leucosia sinica Shen & Chen, 1978: 80, pl. 2, figs 12, 13, text-fig. 5; Huang, 1994: 580; Chen & Sun, 2002: 440, fig. 199.

Not *Leucosia vitata*; Sakai, 1937: 150, text fig. 30 [= *S. rhomboidalis* (De Haan, 1841) juv.].

Not *Leucosia vittata*; Sakai, 1976: 123, pl. 35, fig. 4; Ng et al., 2001: 9, fig. 1g [= *S. latirostrata*].

Material.—**Mauritius**: 1 ♂ (22.4 mm cl), MNHN 186, preserved dry.—**India**: 1 ♀ (22.4 mm cl), ZMK ex. Kiel, Malabar coast, id. J. Fabricius as *Leucosia craniolaris*; 2 ♂ (23.0, 23.1 mm cl), ZMK, Trankebar, 9.iv.1850, id. Krøyer as *L. craniolaris*; 1 ♂ (22.9 mm cl), 1 ♀ (23.7 mm cl), ZMK, Trankebar, 27.v.1850, id. Krøyer as *L. craniolaris*; 1 ♂ (21.6 mm cl), 1 ♀ (21.6 mm cl), ZMK, Trankebar, id. Krøyer as *L. craniolaris*; 1 ♂ (21.7 mm cl), ZMK, id. Krøyer as *L. craniolaris*; 1 ♂ (14.2 mm cl), 1 ♀ (13.9 mm cl), NHM 90.1.31.1-4, Bay of Bengal, coll. Carpenter. — **Thailand**: 1 ♀ (23.7 mm cl), ZMK, Koh Kahdat, 9-14.5 m depth, 16.ii.1900, coll. Th. Mortensen, id. M.J. Rathbun as *Leucosides craniolaris*; 1 ♂ (22.3 mm cl), 1 ♀ ovigerous (21.4 mm cl), MNHN B27636, Pattani, 25.x.1998, coll D.C.J. Yeo.—**Malaysia**: 1 ♀ ovigerous (21.6 mm cl), USNM 273773, 5°12'N 110°11'E, S of Pu Kendi I., off SW coast of Penang I., 6.v.1969.—**Singapore**: 1 ♀ (22.2 mm cl), NHM 1900.10.22.335, 9 m depth, 19.xii.1898, colls. Bedford & Lanchester; 1 ♂ (20.9 mm cl), ZRC 1998.1211, coll. C. G. S. Tan; 1 ♂ (21.4 mm cl), 1 ♀ (19.5 mm cl), ZRC 1998.1214, Pulau Tekong, 26.i.1994, coll. C.G.S. Tan; 1 ♀ (19.4 mm cl), ZRC 1981.9.2.61, east coast, vi.1981, coll. P. K. L. Ng; 1 ♂ (14.5 mm cl), ZRC 1995.537, east coast, v.1992.—**China**: lectotype, 1 juvenile (10.5 mm cl), MCZ 1351, Hong Kong, coll. Wm. Stimpson; 1 ♂ (23.9 mm cl), 1 ♀ (24.5 mm cl), 1 juvenile (15.8 mm cl), NHM, Hong Kong, 5-20 m depth, coll. J. D. Taylor; 1 juvenile (16.5 mm cl), NHM 1984.443, Hong Kong; 1 ♀ (21.4 mm cl), NHM 1884.31, Hong Kong, H.M.S. ‘Challenger’, x.1874, parasitized.—**Indonesia**: 1 ♂ (21.3 mm cl), 1 ♀ (20.4 mm cl), 1 juvenile (14.7 mm cl), RMNH D 1387, Java, Surabaya, xii.1927.—**Philippines**: 3 juveniles (14.5-15.6 mm cl), WAM 24981, Sulu Sea, Berhala Channel, off SandarKan, 5.5-36.5 m depth, 3.iii.1964, coll. B.R. Wilson.

Description.—Dorsal surface of carapace sparsely punctate anteriorly. Front somewhat constricted, produced, with anterior margin tridentate, median denticle

largest. Anterolateral margin bearing minutely beaded line. Margin of epibranchial angle of carapace finely milled. Epimeral margin gutter-like anteriorly, evenly milled throughout, meeting milled posterior margin at an angle. Posterior margin nearly straight in adult male specimens, rounded in female specimens, lateral angles prominent in juveniles; deflexed posterior surface distinctly granulate. Thoracic sinus deep, anteriorly defined by scalloped, overhanging, oblique margin of pterygostomian region. Fused abdominal segment in male bearing granule medially. Tubercles on cheliped merus perliform, successively smaller distally; upper and lower margins of palm slightly constricted, upper margin of palm smooth, carinate in juvenile specimens; lower surface of palm bearing a line of granules on inner and outer margins; upper margin of dactyl carinate. First three pereopodal meri bearing two minutely beaded lines on dorsal margin, posterior line progressively shorter in successive pereopods; twin beaded lines on ventral margin; last pereopodal merus with single beaded line dorsally, two beaded lines ventrally, posterior line prominently carinate, slightly convex. All pereopodal carpi prominently carinate dorsally. Pereopodal propodi prominently carinate on dorsal and ventral margins.

Colour.— “The carapace is bluish-white, with median dorsal band of reddish becoming broader posteriorly, and two oblique bands of red on each side diverging from the front, and also widening posteriorly. Feet clouded transversely with reddish, almost annulated” (Stimpson, 1907: 150).

Remarks.— Stimpson based his description on an adult specimen (24.6 mm cl) that has been lost, but as he mentions in his description (Stimpson, 1907: 149) also “Posterior margin....rather projecting in the young”, we assume he described the juvenile specimen (MCZ 1351) as well. It is designated here as a lectotype. Dr. O. Coleman kindly photographed Herbst’ specimen (ZMB 2186) and the form of the thoracic sinus and the distinctly granulose deflexed posterior surface of carapace clearly identify it as *S. vittata*. Shen & Chen (1978: 80, 85, pl. 2, figs 12, 13, text-fig. 5) describe *L. sinica* with “Anterolateral border, including the lateral angle marked with three sections of orange coloured bands and another same coloured semicircular band, located on the sides of the intestinal region.” – the colour pattern of a juvenile *S. vittata*; their illustrations clearly depict the tridenticulate frontal margin, the evenly milled epimeral margin meeting the straight, milled posterior margin at an angle, the minute granule on the male abdomen, and the prominently granulate marginal carinae on the last pereopodal merus – all characteristic of *S. vittata*.

Distribution.— Mauritius, India, Thailand, Malaysia, Singapore, China, Indonesia, Philippines.

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References

- Alcock, A., 1896. Materials for Carcinological Fauna of India. N. 2. The Brachyura Oxystomata.— Journal of the Asiatic Society of Bengal 65 (2): 134-296, pls. 6-8.
- Alcock, A. & A.R.S., Anderson, 1897. Crustacea. Part. IV. Illustrations of the Zoology of the Royal Indian Marine Surveying Steamer Investigator: pl. 16-27.— Calcutta.
- Balss, H., 1922. Ostasiatische Decapoden. III. Die Dromiaceen, Oxystomen und Parthenopiden.— Archiv für Naturgeschichte, Abt. A. 1: 104-140.
- Bell, Th., 1855a. Horae carcinologicae, or notices of Crustacea. I. A monograph of the Leucosiadae, with observations on the relations, structure, habits and distribution of the family; a revision of the generic characters; and descriptions of new genera and species— Annals and Magazine of Natural History 16: 361-367.
- Bell, Th., 1855b. Horae carcinologicae, or notices of Crustacea. I. A monograph of the Leucosiadae, with observations on the relations, structure, habits and distribution of the family; a revision of the generic characters; and descriptions of new genera and species.— Transactions of the Linnean Society, London, 21: 277-314, pls. 30-34.
- Bell, Th., 1855c. Catalogue of Crustacea in the collections of the British Museum. Part I. Leucosiadae: 1-24.— London.
- Campbell, B.M. & W. Stephenson, 1970. The sublittoral Brachyura (Crustacea: Decapoda) of Moreton Bay.— Memoires of the Queensland Museum 15 (4): 235-301.
- Chen, H., 1989. Leucosiidae (Crustacea, Brachyura). In: J. forest (ed.), Résultats des Campagnes MUSORSTOM, Volume 5.— Mémoires du Muséum National d'Histoire Naturelle, Paris (A), 144: 181-263.
- Chen, H., 1990. Leucosiidae (Crustacea Decapoda: Brachyura) collected in Indonesia during the CORINDON II Expedition.— Indo-Malayan Zoology 6: 173-184.
- Chen, H. & H. Sun, 2002. Brachyura marine primitive crabs. In: Fauna Sinica Invertebrata Arthropoda Crustacea 30: i-xiii 1-597, figs 1-237, pls. 1-6.— Science Press, Beijing.
- Chhapgar, B. F., 1968. More additions to the crab fauna of Bombay State.— Journal of the Bombay Natural History Society 65 (3): 608-617.
- Dai, A. & S. Yang, 1991. Crabs of the China Seas: 1-682, figs 1-368, pls. 1-74.— China Ocean Press, Beijing, Springer Verlag, Berlin, Heidelberg, New York, Tokyo.
- Davie, P.J.F., 2002. Crustacea: Malacostraca: Eucarida (Part 2): Decapoda – Anomura, Brachyura. In: Wells, A. & W.W.K. Houston, (eds), Zoological Catalogue of Australia. Vol. 19.3B: i-xiv, 1-641.— CSIRO Publishing, Melbourne.
- Edgar, G. J., 1997. Australian marine life, the plants and animals of temperate waters: 1-544.— Reed Books, Kew, Victoria.
- Fabricius, J. C., 1798. Supplementum Entomologiae Systematicae: 1-572.— Hafniae.
- Fransen, C. H. J. M., L. B., Holthuis, & J. P. H. M., Adema, 1997. Type-catalogue of the Decapod Crustacea in the collections of the Nationaal Natuurhistorisch Museum, with appendices of pre-1900 collectors and material.— Zoologische Verhandelingen Leiden 311: 1-344.
- Galil, B. S., 2003a. Contributions to the knowledge of Leucosiidae I. The identity of *Leucosia craniolaris* (Linnaeus, 1758), and redefinition of the genus *Leucosia* Weber, 1795 (Crustacea: Brachyura).— Zoologische Mededelingen Leiden 77 (8): 181-191.
- Galil, B. S., 2003b. Contributions to the knowledge of Leucosiidae II. *Euclosia* gen. nov., (Crustacea: Brachyura). — Zoologische Mededelingen Leiden 77 (20): 331-347, figs 1-6.

- Galil, B.S., 2005. Contributions to the knowledge of Leucosiidae III. *Urnalana* gen. nov., (Crustacea: Brachyura).— Zoologische Mededelingen Leiden 79-2 (2): 9-40, figs 1-9.
- Glauert, L., 1924. Contributions to the Fauna of Western Australia, No. 5.— Journal and Proceedings of the Royal Society of Western Australia, 10: 49-64.
- Haan, W. de, 1833-1850. Crustacea. In: P.F. von Siebold, Fauna Japonica sive Descriptio Animalium, quae in Itinere per Japoniam, Jussu et Auspiciis Superiorum, qui Summum in India Batavia Imperium Tenent, Suscepto, Annis 1823-1830 Collegit, Notis, Observationibus et Adumbrationibus Illustravit: 1-8, i-xvii, i-xxxi, 1-224, pls. 1-55, A-Q, 1-2.— J. Müller & Sons, Leiden
- Haswell, W.A., 1880. Contributions towards a monograph of Australian Leucosiidae.— Proceedings of the Linnean Society of New South Wales 4 (1): 44-66, pls. 5, 6.
- Haswell, W.A., 1882. Catalogue of the Australian stalk- and sessile-eyed Crustacea: iii-xxiv, 1-324, pls. 1-4.— The Australian Museum, Sydney.
- Herbst, J.F.W., 1782-1804. Versuch einer Naturgeschichte der Krabben und Krebse nebst einer systematischen Beschreibung ihrer verschiedenen Arten: 3 vol., 274+226+(216) p., 72 pls. [1790, 1 (8): 239-274, pls. 18-21; 1794, 2 (5): 147-162, pls. 37-40; 1801, 3 (2): 1-46, pls. 51-54].— Berlin und Stralsund.
- Herklots, J.A., 1861. Symbolae carcinologicae. Etudes sur la classe des Crustacés. I. Catalogue des Crustacés qui ont servi de base au système carcinologique de M.W. de Haan, rédigé d'après la collection du Musée des Pays-Bas et les Crustacés de la faune du Japon.— Tijdschrift voor Entomologie 4: 116-156.
- Hill, D.S., 1982. The Leucosiidae (Crustacea: Decapoda) of Hong Kong. In: Morton, B. & C.K. Tseng (eds.), The marine flora and fauna of Hong Kong and southern China 1: 195-205.— Hong Kong University Press.
- Huang, L., 1989. Oxystomata. In: Wei, C. & Y. Chen (eds.), Fauna of Zhejiang. Crustacea: 294-324.— Zhejiang Science & Technology Publishing House Hangzhou, Zhejiang Province.
- Huang, Z., 1994. Marine species and their distributions in China's seas: 1-764, 1-134 index.— China Ocean Press, Beijing.
- Ihle, J.E.W., 1918. Die Decapoda Brachyura der Siboga-Expedition. III. Oxystomata: Calappidae, Leucosiidae, Raninidae.— Siboga Expeditie, Monograph 39b2: 159-322, figs 78-148.
- Lin, C.C., 1949. A catalogue of brachyurous Crustacea of Taiwan.— Quarterly Journal of Taiwan Museum 2: 10-33.
- Man, J.G. de, 1887. Bericht über die von Herrn Dr. J. Brock im indischen Archipel gesammelten Decapoden und Stomatopoden.— Archiv für Naturgeschichte 53 (1): 215-600, pls. 7-10.
- Man, J.G. de, 1907. On a collection of Crustacea Decapoda and Stomatopoda, chiefly from the Inland Sea of Japan, with descriptions of new species.— Transactions of the Linnean Society, London (2) 9 (11): 387-454, pls. 31-33.
- Miers, E. J., 1877. XII. Notes upon the Oxystomatous Crustacea.— Transactions of the Linnean Society, London 1: 235-249, pls. 38-40.
- Miers, E.J., 1884. Crustacea. Report on the zoological collections made in the Indo-Pacific Ocean during the voyage of H.M.S. 'Alert' 1881-2. Part I. The collections from Melanesia. Part. II. The collections from the Western Indian Ocean: 178-322, 513-575, pls. 18-32, 46-51.— British Museum, Natural History, London.
- Miyake, S., 1961a. Decapod Crustacea. Fauna and Flora of the sea around the Amakusa Marine Biological Laboratory, Kyushu University.— The Amakusa Marine Biological Laboratory, Kyushu University 2: i-iv, 1-30.
- Miyake, S., 1961b. A list of the decapod Crustacea of vthe sea of Ariaké, Kyushu.— Records of Oceanographic Works in Japan, special number 5: 165-178.
- Miyake, S., 1983. Japanese crustacean decapods and stomatopods in color. Vol. II. Brachyura: 1-277, 64 color plates.— Hoikusha, Osaka.
- Miyake, S., K. Sakai & S. Nishikawa, 1962. A fauna-list of the decapod Crustacea from the coasts washed by the Tsushima warm current.— Records of Oceanographic Works in Japan, special number 6: 121-131.
- Ng, P.K.L., C.-H. Wang, P.-H. Ho, & H.-T. Shih, 2001. An annotated checklist of brachyuran crabs from Taiwan (Crustacea: Decapoda).— National Taiwan Museum Special Publication Series 11: 1-86.

- Ortmann, A., 1892. Die Abtheilungen Hippidea, Dromiidea und Oxystomata. Die Decapoden-Krebse des Strassburger Museums, mit besonderer Berücksichtigung der von Herrn Dr. Döderlein bei Japan und bei den Liu-Kiu-Inseln gesammelten und z. Z. im Strassburger Museum aufbewahrten Formen. V. Theil.— Zoologische Jahrbücher, Abtheilung für Systematik, Geographie und Biologie der Thiere 6: 532-588, pl. 26.
- Rathbun, M.J., 1910. V. Brachyura. In: The Danish Expedition to Siam 1899-1900.— Det Kongelige Danske Videnskabernes Selskabs Skrifter. Naturvidenskabelig og Mathematisk afdeling (7) 5 (4): 303-367, pls. 1, 2.
- Sakai, K., 1999. J.F.W. Herbst collection of decapod Crustacea of the Berlin Zoological Museum with remarks on certain species.— Naturalists, Publications of Tokushima Biological Laboratory, Shikoku University 6: 1-45, pls. 1-21.
- Sakai, T., 1937. Studies on the crabs of Japan. II. Oxystomata.— Science Reports of the Tokyo Bunrika Daigaku 3: 67-192.
- Sakai, T., 1965. The crabs of Sagami Bay. Collected by His Majesty the Emperor of Japan. Edited by Biological Laboratory, Imperial Household, Tokyo: i-xvii, 1-206, 1-92, 1-32, pls. 1-100.
- Sakai, T., 1976. Crabs of Japan and the adjacent seas. [In three volumes: 1, English text: i-xxxix, 1-773, figs 1-379; 2, Plates volume: 1-16, 1-251; 3, Japanese text: 1-461, figs 1-2.].— Kodansha, Tokyo.
- Serène, R., 1968. Prodomus for a check list of the non-planctonic marine fauna of South East Asia.— Singapore National Academy of Science. Special Publication no. 1: 1-122.
- Shen, C.J. & H. Chen, 1978. Description of five new species of *Leucosia* (Crustacea, Decapoda: Leucosiidae) off Chinese waters.— Studia Marina Sinica 14: 75-86, pls. 1, 2.
- Shen, C.J. & A. Dai, 1964. Atlas of Chinese Zoology: Crustaceans. 1-142.— Science Press, Beijing. [in Chinese].
- Stephensen, K., 1945. The Brachyura of the Iranian Gulf. With an Appendix. The male pleopoda of the Brachyura. In: Danish scientific Investigations in Iran. Part IV: 57-257.— E. Munksgaard, Copenhagen.
- Stimpson, W., 1858. Prodomus descriptionis animalium evertebratum, quae in Expeditione ad Oceanum Pacificum Septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers Ducibus, observavit et descripsit W. Stimpson. Pars VI. Crustacea Oxystomata.— Proceedings of the Academy of Natural Sciences of Philadelphia 10: 158-163.
- Stimpson, W., 1907. Report on the Crustacea (Brachyura and Anomura) collected by the North Pacific Exploring Expedition 1858-59.— Smithsonian Miscellaneous Collections 49: 1-240, pls. 1-26.
- Suvatti, C., 1950. Fauna of Thailand; i-ii, 1-1100.— Department of fisheries, Bangkok.
- Takeda, M., 1978. Fauna and Flora of the sea around the Amakusa Marine Biological Laboratory. Part II. Decapod Crustacea.— Contributions from the Amakusa Marine Biological Laboratory, Kyushu University 245: 1-52.
- Takeda, M., 1982. Keys to the Japanese and foreign crustaceans fully illustrated in colors: 1-284.— Hokuryukan, Tokyo.
- Takeda, M., 1987. Crab fauna of the Amakusa Islands.— Calanus 10: 1-71.
- Tan, C.G.S., 1996. Leucosiidae of the *Albatross* expedition to the Philippines, 1907-1910 (Crustacea: Brachyura: Decapoda).— Journal of Natural History 30: 1021-1058.
- Tirmizi, N.M. & Q.B. Kazmi, 1988. Crustacea: Brachyura (Dromiacea, Archaeobrachyura, Oxystomata, Oxyrhyncha). Marine Fauna of Pakistan: 4.— BCCI Foundation Chair Publication 1: 1-244. Institute of Marine Sciences, University of Karachi.
- Tyndale-Biscoe, M. & R.W. George, 1962. The Oxystomata and Gymnopleura (Crustacea, Brachyura) of Western Australia with descriptions of two new species from Western Australia and one from India.— Journal of the Royal Society of Western Australia 45 (3): 65-96, pls. 1-3.
- Uchida, S., 1949. Illustrated Encyclopedia of the Fauna of Japan (Exclusive of Insects): 1-1898.— Hokuryukan, Tokyo.
- Utinomi, H., 1956. Coloured illustrations of sea shore animals of Japan: 1-167, colour pls. 1-64.— Hoikusha, Osaka.
- Weber, F., 1795. Nomenclator entomologicus secundum Entomologiam systematicam ill. Fabricii adjec-tis speciebus recens detectis et varietatibus: i-viii, 1-171.— Chilonii et Hamburgi.

- White, A., 1847. List of the specimens of Crustacea in the collection of the British Museum: i-viii, 1-143.— British Museum (Natural History), London.
- Yamaguchi, T. & K. Baba, 1993. Crustacean specimens collected in Japan by Ph.F. von Siebold and H. Bürger and held by the Nationaal Natuurhistorisch Museum in Leiden and other museums. In: T. Yamaguchi (ed.), Ph.F. von Siebold and Natural History of Japan. Crustacea: 145-570.— Shimoda, Kumamoto, Japan.
- Yamaguchi, T., Takeda, M. & K. Tokudome, 1976. A list of crabs collected in the vicinity of the Aitsu Marine Biological Station and a preliminary report on the cheliped asymmetry of the crabs.— Calanus 5: 31-46.
- Yokoya, Y., 1933. On the distribution of decapod crustaceans inhabiting the continental shelf around Japan, chiefly based upon materials collected by s.s. Soyo-Maru during the years 1923-1930.— Journal of the College of Agriculture, Tokyo Imperial University 12 (1): 1-226, figs 1-71.

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