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The fur-bearing species of the genus *Leucosia* from Northern Papua New Guinea, with a description of two new species (Crustacea, Brachyura)*

by A.A. OVAERE

Abstract

Species of the genus *Leucosia* from Northern Papua New Guinea and characterized by the presence of a pubescence along the postero-lateral margin are studied. Seven species, two being new to science, are fully described and figured: *Leucosia haematosticta* ADAMS & WHITE, 1848, *L. alcocki* sp. nov., *L. margaritata* A. MILNE EDWARDS, 1874, *L. pararensis* sp. nov., *L. sagamiensis* SAKAI, 1961, *L. angulata* (RATHBUN, 1911) and *L. chevertii* HASWELL, 1880. The relationships between the species are discussed.
Key-words: Brachyura, *Leucosia,* taxonomy, new species, Papua New Guinea.

Résumé

Les espèces du genre *Leucosia,* caractérisées par une pubescence, de provenance de Papouasie Nouvelle-Guinée, sont étudiées. Sept espèces, dont deux nouvelles, sont décrites en détail et figurées: *Leucosia haematosticta* ADAMS & WHITE, 1848, *L. alcocki* sp. nov., *L. margaritata* A. MILNE EDWARDS, 1874, *L. pararensis* sp. nov., *L. sagamiensis* SAKAI, 1961, *L. angulata* (RATHBUN, 1911) and *L. chevertii* HASWELL, 1880. Les rapports entre les espèces sont discutés.
Mots-clefs: Brachyoures, *Leucosia,* taxonomie, nouvelles espèces, Papouasie Nouvelle-Guinée.

Introduction

Leucosia whitei BELL, *L. margaritata* A. MILNE EDWARDS, *L. haematosticta* ADAMS & WHITE and *L. elata* A. MILNE EDWARDS are brought together in ALCOCK's (1896) key to the genus *Leucosia* because of the presence of an edging of thick fur on the lateral epibranchial angle (posterior part) and on the true postero-lateral margin of the carapace (group A, III, 1). Since ALCOCK's paper, six other species have been described that match the same criteria: *Leucosia angulata* (RATHBUN), *L. elatoides* BOUVIER, *L. sagamiensis* SAKAI, *L. insularis* TAKEDA & KURATA, *L. thysanota* GEORGE & CLARK and *L. bikiniensis* SAKAI. Two new species can be added to this rather heterogenous group: *Leucosia alcocki* sp. nov. and *Leucosia pararensis* sp. nov. *Leucosia chevertii* HASWELL, 1880 has recently (ARNOLD & GEORGE, 1987) been re-established. The present paper deals with the seven species (out of the thirteen mentioned) that were found along the coast of the Madang Province in northern Papua New Guinea. The material is deposited in the collections of the Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels.

* Leopold III Biological Station, Laing Island, Contribution n° 155.

Systematic account

Order **Decapoda** LATREILLE, 1803
Suborder **Brachyura** LATREILLE, 1803
Section **Oxystomata** H. MILNE EDWARDS, 1834
Family **Leucosiidae** SAMOUELLE, 1819
Subfamily LEUCOSIINAE MIERS, 1886
Genus *Leucosia* WEBER, 1795
Leucosia haematosticta ADAMS & WHITE, 1848
(Figs. 1a & 5a)

SYNONYMY

Leucosia haematosticta ADAMS & WHITE, 1848: p. 54, pl. 12, fig. 2. – ALCOCK, 1896: p. 229 (description, previous references). – NOBILI, 1903: p. 24. – STIMPSON, 1907: p. 152. – YOKOYA, 1933: p. 128. – SAKAI, 1934: p. 285; 1935: p. 61, pl. 12, fig. 1; 1937: p. 147, pl. 15, fig. 5; 1965: p. 47, pl. 19, fig. 2; 1976: p. 121, text-fig. 65e, pl. 36, fig. 2. – TYNDALE-BISCOE & GEORGE, 1962: p. 80, pl. 1, fig. 7, pl. 2, fig. 7.

Leucosides haematosticta MCNEILL & WARD, 1930: p. 367, pl. 40, figs. 7-8. – BUITENDIJK, 1939: p. 230.

TYPE-LOCALITY

Eastern Seas (ADAMS & WHITE, 1848).

MATERIAL EXAMINED

Hansa Bay (Madang Province), off Sakula River mouth, dredged at –10 m, leg.: Mr. J. PIERRET and Mr. SAMSON, several dates from August to October

1977: 5 males, 4 females and 1 juvenile, I.G. 25.848/ stat. 48.
Hansa Bay, off Nubia, dredged at –6 m, leg.: Mr. J. PIERRET, 25 July 1977: 1 ovig. female, I.G. 25.930; idem, 18 August 1977: 2 ovig. females, I.G. 25.930.
Hansa Bay, between Nubia and Sakula River mouth, handdredged at –10 m, leg.: Dr. J. VAN GOETHEM, June 2nd 1976: 1 juvenile, I.G. 26.080/206.
Hansa Bay, off Barol Beach, dredged at –10 m on muddy sand, leg.: Mr. J. PIERRET, 26 July 1980: 1 ad. female, I.G. 26.253/8.
Hansa Bay, off Sakula River mouth, dredged at –10 m on muddy sand, leg.: Mr. J. PIERRET, 26 July 1980: 1 ad. male, I.G. 26.253/11.

DIAGNOSIS

Elegantly urn-shaped; yellowish brown fur on the true postero-lateral margin; fur of the same nature but of a darker tinge on the basis of the chelipeds; crimson red spots on dorsal and ventral parts of carapace and chelipeds.

DESCRIPTION

Measurements of adult (female B.C. 1050):
Carapace length 12.6 mm, carapace width 12.0 mm, cheliped length 16.6 mm.

Carapace:
Hexagonal, urn-shaped and smooth; convex and high in the middle, evenly sloping antero-laterally; width almost equal to the length; antero-lateral margin obscurely milled and slightly convex; epibranchial angle sharp, granulated; true postero-lateral margin with a patch of dense yellowish brown (tawny) fur, narrowing posteriorly; epimeral edge milled, beginning at the base of the first pair of walking legs, visible over its entire length and continuous with the posterior margin; posterior margin slightly sinuous, almost straight with marked outer angles.

Mouthframe:
As figured; third sternite with a blunt tooth on its antero-lateral sides.

Thoracic sinus:
Deep, filled with feathered hairs, anteriorly defined by the rounded posterior margin of the pterygostomian region, ventrally defined by a row of small granules, continuous with the onset of the epimeral edge.

Chelipeds:
Robust, less than 1.5 times the carapace length; merus triangular, with a single row of tubercles on the anterior margin; 2 or 3 rows of tubercles (partly hidden by fur) fusing distally into a single row on the posterior margin; lower margin with a cluster of tubercles (partly hidden by fur) fusing distally to a single row of small tubercles; upper surface with 3 to 4 tubercles defining the anterior edge of a patch of fur of the same nature as on the inner ventral surface, surfaces otherwise smooth; carpus with a row of three tubercles on its inner side, a few small tubercles on the proximal upper surface and a row of 3 to 4 small tubercles on the outer distal margin; palm of the hand longer than wide, with a row of 4 large and 2 to 4 small tubercles on the inner proximal margin; fixed finger with two rows of granules at its base, outer margin of the hand sharp but not keeled, cutting edges with a row of hairs, meeting over more than 3/4 of their length.

Walking legs:
Compressed; merus of the first leg quadrangular with a double row of granules bordering the upper and lower surfaces, lower surface concave; merus of second leg similar, but with the posterior row of granules on the upper surface ending halfway; merus of third and fourth leg triangular with a single dorsal row of granules and a double ventral row, their ventral surfaces concave; carpus of the walking legs rounded ventrally and keeled dorsally; propodus of walking legs keeled dorsally and ventrally; dactyli lanceolate.

Female abdomen:
Three pieces visible; second segment free; third to sixth segment fused and strongly vaulted; telson longer than broad, with a row of stiff hairs along its lateral margins.

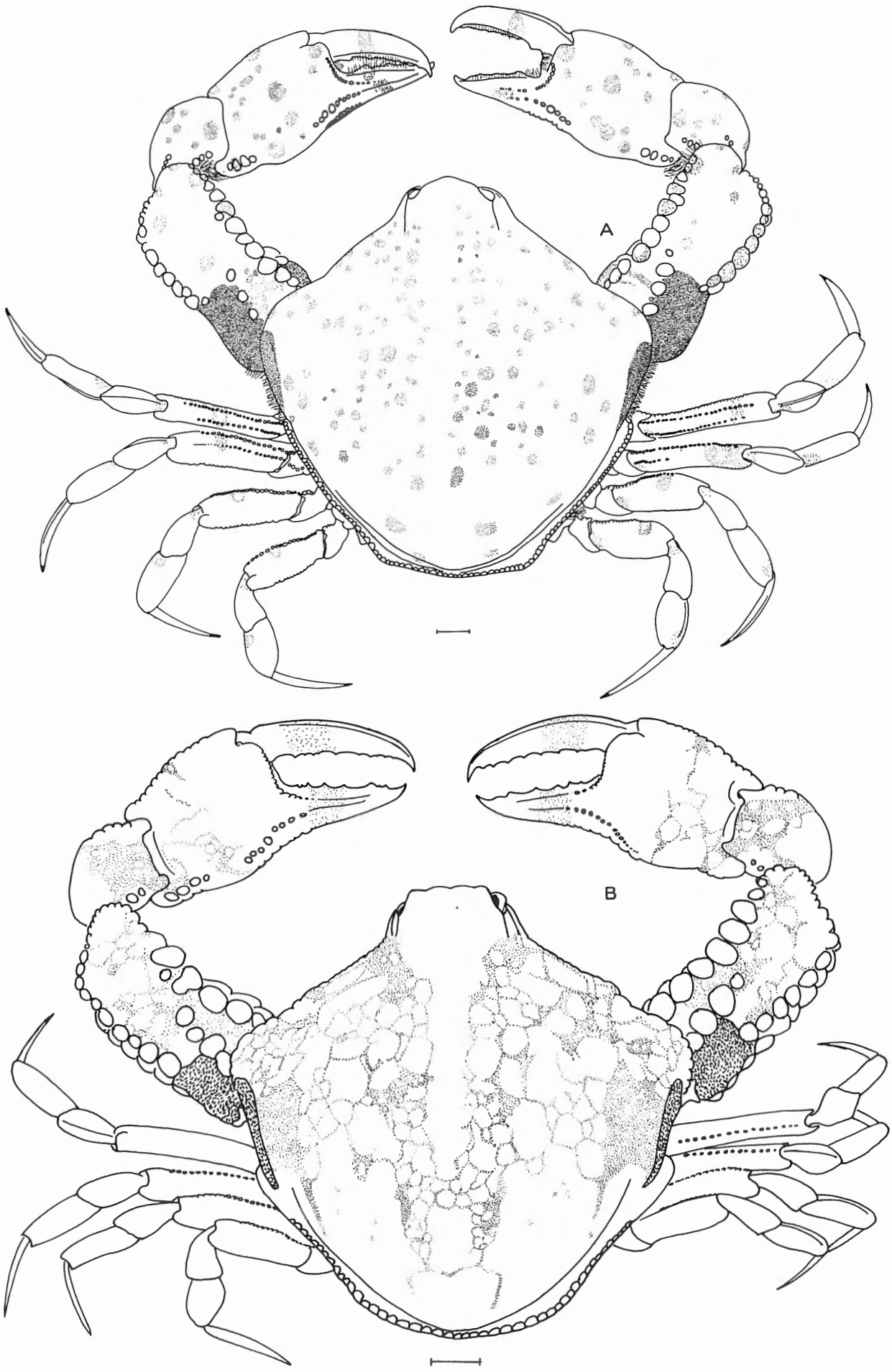
Male abdomen:
Four pieces visible; second segment free; third to fifth segment fused, but distinguishable; sixth segment longer than broad; telson longer than broad with a row of hairs on its lateral margins.

Colour of specimens preserved in alcohol:
Ground-colour of anterior half of upper side of carapace and upper surface of chelipeds greyish brown to dark grey, ground-colour of posterior part of upper surface of carapace and of lower parts ivory white; crimson red spots on the upper surface of carapace and chelipeds except for a longitudinal line in the middle of the carapace; same spots on the ventral surfaces in a lower density; mouthframe greyish brown.

DISTRIBUTION

India, Malaysia, Thailand, Japan, Timor, Australia, Papua New Guinea.

Fig. 1. *A.* Leucosia haematosticta *ADAMS & WHITE, female (12.6 × 12.0 mm) B.C. 1.050, dorsal view. Scale = 1 mm.*
B. Leucosia alcocki *sp. nov., female, holotype (9.35 × 9.30 mm) B.C. 1051, dorsal view. Scale = 1 mm.*


A
B

Leucosia alcocki sp. nov.
(Figs. 1b & 5b)

SYNONYMY

Leucosia margaritata. – ALCOCK, 1896: p. 230-231. – NOBILI, 1907: p. 99. (Non A. MILNE EDWARDS, 1874).

MATERIAL EXAMINED

Holotype:
A totally intact adult female, n° B.C. 1051, Hansa Bay, Duangit Reef, leg.: Mr. J. PIERRET, 6 December 1980, I.G. 26.227/84.

Paratypes:
An immature male B.C. 1052, Hansa Bay, Duangit Reef, –45 m, leg.: team of Prof. J. BOUILLON, September-October 1976, I.G. 25.715; an immature male B.C. 1053, Hansa Bay, Duangit Reef, dredged on coral sand at –45 m, leg.: Dr. J. VAN GOETHEM and Mr. J. PIERRET, 28 May 1977, I.G. 25.681/227.

TYPE-LOCALITY

Papua New Guinea, Hansa Bay (Madang Province), Duangit Reef (4°09'40"S-144°52'29"E), on muddy sand at –50 m.

ETYMOLOGY

Named after A. ALCOCK who determined this species as *Leucosia margaritata.*

DIAGNOSIS

Elegantly urn-shaped; carapace smooth except for a strip of dark brown fur along its postero-lateral margin; coal-black fur of the same nature on the proximal upper and lower parts of the merus of the chelipeds; elegant reticulation pattern on the upper surface of carapace and chelipeds.

DESCRIPTION
(based on the female holotype unless otherwise stated)

Measurements:
Female holotype, carapace length 9.35 mm, carapace width 9.30 mm, cheliped length 12.8 mm; male paratype 25.715, carapace length 6.75 mm, carapace width 6.70 mm, cheliped length 8.45 mm; male paratype 25.681/227, carapace length 6.35 mm, carapace width 6.25 mm, cheliped length 7.95 mm.

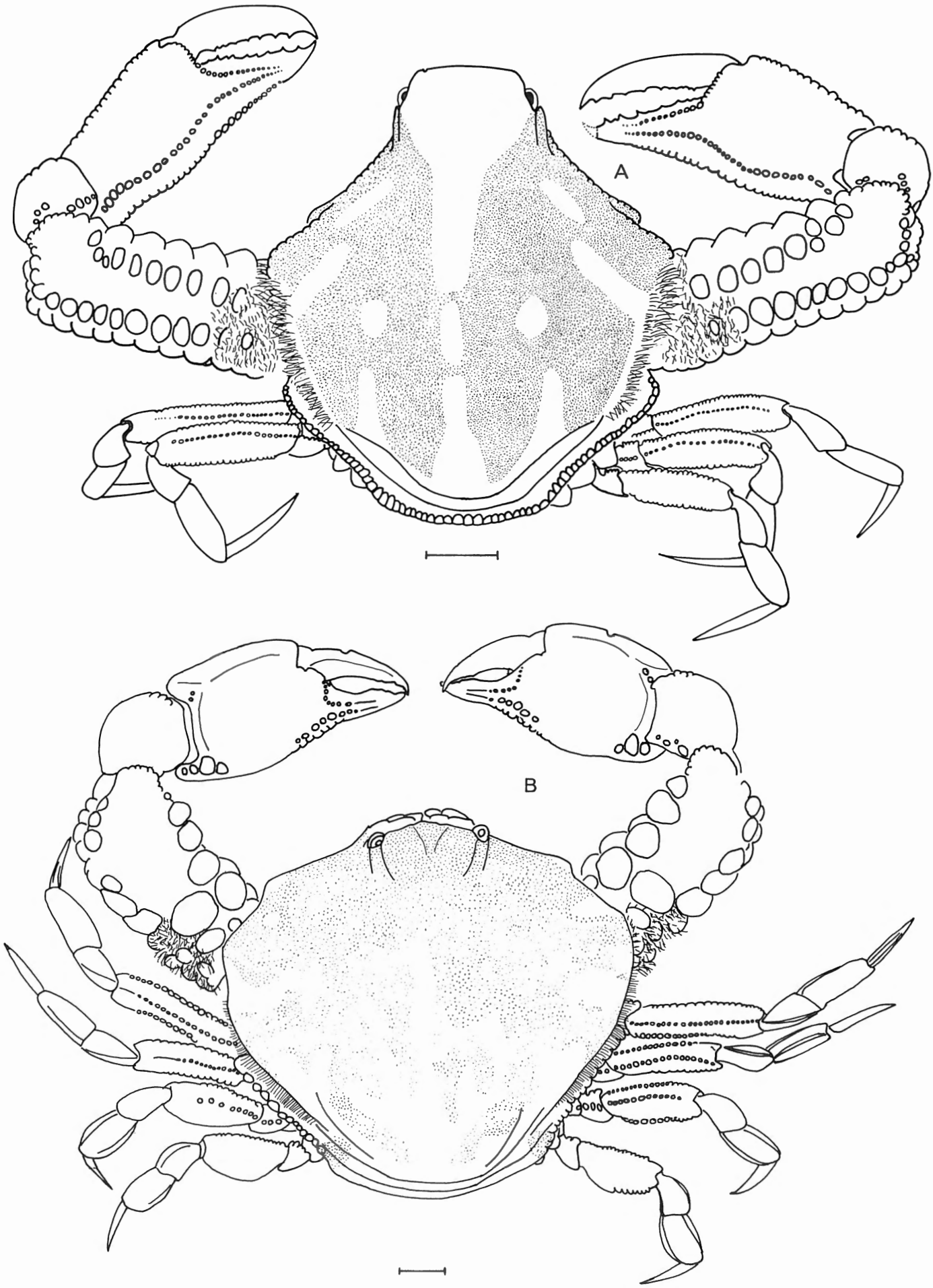
Carapace:
Smooth; hexagonal, elegantly urn-shaped; convex, high in the middle; as long as broad; front deflexed, four-lobed; antero-lateral margins straigth, beaded, forming a re-entering angle with the epibranchial angle; lateral epibranchial angle granulated, rather sharp, continuous with the true postero-lateral margin, posterior part of the lateral epibranchial angle with the onset of the patch of fur along the true postero-lateral margin; true postero-lateral margin finely granulated with a posteriorly narrowing patch of fur built up as a mat of tightly packed thick transparent short hairs; colour of fur brown; epimeral edge milled, beginning at the base of the first pair of walking legs, clearly visible over its entire length, continuous with the true posterior margin; true posterior margin of the carapace convex, angles not marked.

Thoracic sinus:
Shallow, not defined anteriorly, almost devoid of hair, devoid of granules.

Mouthframe:
Rectangular, anterior outer angle of the third sternite developed into a tooth; a tooth on the anterior margin of the ischium of the third maxillipeds in the female; tip of merus with small sharp teeth.

Chelipeds:
Robust and 1.25-1.35 times as long as the carapace; merus triangular; double row of tubercles on the posterior margin, single row of tubercles on the anterior margin and a row of 4 or 5 tubercles running obliquely over the upper surface and fusing distally with the single row of tubercles on the anterior margin; a patch of coal-black fur (of the same nature as on the carapace but still more dense) between the oblique row and the posterior margin at the base of the merus; lower margin proximally with a triangular cluster of tubercles, partly hidden by less dense dur than on the upper surface and distally with a single row of tubercles; surfaces of the merus smooth except for the tubercles; carpus of the chelipeds subglobular, with a row of 4 to 5 large granules on its outer margin, 3 to 4 granules on its inner margin and a few low granules on the proximal upper surface; palm only a little longer than wide, with granulated outer and distal inner margin and with a row of 4 to 5 large granules starting below the carpal joint; a row of granules just above the inner margin continuous with a crest on the fixed finger, a second crest on the fixed finger continuous with a row of small granules along the anterior margin of the palm; movable finger with a dorsal crest; cutting edges of the fingers denticulate, meeting over 4/5 of their extent; fingers as long as the hand.

Fig. 2. *A.* Leucosia margaritata *A. MILNE EDWARDS, male (6.2 × 5.6 mm) B.C. 1.058, dorsal view. Scale = 1 mm.*
B. Leucosia pararensis *sp. nov., female, holotype (8.4 × 8.7 mm) B.C. 1059, dorsal view. Scale = 1 mm.*


A
B

Ambulatory legs:
Meri compressed, ventrally concave with a double row of small granules; merus of the first leg with a dorsal double row of granules; merus of the second leg with a dorsal row of granules on the anterior margin, a second row on the posterior margin only running to the middle of merus; meri of third and fourth legs triangular, with a single dorsal row of granules and a double ventral row; carpi of walking legs keeled dorsally, rounded ventrally; propodi keeled dorsally and ventrally; dactyli lanceolate and their length approximately equal to the combined length of carpus and propodus.

Female abdomen:
Three pieces visible; second segment free; 3rd to 6th segments fused into a longitudinally strongly vaulted piece; telson longer than broad, rounded anteriorly, with a row of stiff hairs along its lateral margins.

Colours of specimen preserved in alcohol:
Ground-colour ivory white with an orange reticulation on the dorsal surface of the carapace and the chelipeds; lower parts ivory white; colour of the mouth-frame orange; some orange reticulations on the lateral margins of the female abdomen and on the sternites.

Juvenile male paratypes:
B.C. 1052: front even more clearly quadrilobate; same reticulation pattern as the female holotype; fur on the postero-lateral margin more dense than in the adult female holotype and greyish brown; fur on the upper surface of the chelipeds less dense and brown; tooth at the antero-lateral angles of the third sternites less marked; tooth on the anterior margin of the ischium of the third maxillipeds absent; immature male abdomen with four pieces visible, the second segment free, 3rd to 5th segment fused, 6th segment free; telson longer than broad, thoracic sinus as in female holotype.
B.C. 1053: fur equally brown on proximal parts of the merus of the chelipeds and on postero-lateral margin; otherwise similar to the other male paratype.

DISTRIBUTION

Andaman Islands, Indian coasts (ALCOCK, 1896); Red Sea (NOBILI, 1907); Papua New Guinea (present paper).

DISCUSSION

ALCOCK's (1896) description of *Leucosia margaritata* corresponds exactly to *L. alcocki* sp. nov. He describes his *L. margaritata* in comparision with *L. haematosticta* and mentions seven differences with *L. haematosticta:*

1. "..., the carapace in the adult of either sex measuring only 8.5 millim. in length and 8.5 millim. in breadth". This corresponds very well with our observations on *L. alcocki.* In *L. margaritata* A. MILNE EDWARDS, 1874 the carapace is distinctly longer than wide.
2. "The spongy pubescence on the base of the chelipeds, and the fur along the postero-lateral edge of the carapace are coal-black". This also corresponds to *L. alcocki* sp. nov. having a fur of the same nature but of a darker colour than in *L. haematosticta.* The fur colour of *L. alcocki* varies somewhat in the different specimens: the denser the accumulation of hairs the darker the colour. It has to be stressed that due to the transparency of individual hairs and the use of strong illumination, fur appearing coal-black to the naked eye may appear brownish under the microscope.
The fur observed in our specimen of *L. margaritata* A. MILNE EDWARDS, 1874 is of a different nature compared with the one of *L. haematosticta.* The hairs of the former are distinctly longer, giving the pubescence a shaggier and less dark appearance. In our opinion ALCOCK would certainly have noticed such a difference.
3. "Hepatic regions are indicated by faint bulgings above the antero-lateral margin". We could observe this rather obscure characteristic neither in our *L. alcocki* nor in *L. margaritata.*
4. "The thoracic sinus is much shallower, being, in fact, almost obsolete". This corresponds to our observations on *L. alcocki.* In our specimen of *L. margaritata* the thoracic sinus is defined ventrally by a row of granules.
5. "The upper surface of the arm is bounded both in front and behind by two rows of pearly tubercles". In *L. alcocki* the outer margin of the merus is defined by a double row of tubercles, while the oblique row of tubercles on the upper surface can be interpreted as a second row on the anterior margin. If we compare the description and figure by A. MILNE EDWARDS (1874: p. 42, pl. 2, fig. 3 & 3a-3d) and the observations on our specimen of *L. margaritata* with figures and specimens of *L. haematosticta,* one of the most striking differences between the two species is the presence of slender chelipeds in *L. margaritata* A. MILNE EDWARDS, 1874. Once again it is unlikely ALCOCK would not have noticed this difference.
6. "On the ventral surface of the basal joint of the external maxillipeds there is a sharp stout tooth, and another on the ventral surface of the ischium joint of the female". This character is discussed by IHLE (1918). He states that in his female of *L. margaritata* there is no thooth on the anterior margin of the ischium in the female. The teeth described by ALCOCK can be seen in the holotype of *Leucosia alcocki.*
7. "Colours in spirit: old ivory white, the carapace and chelipeds elegantly reticulated with bright reddish brown". This colouration corresponds to our observa-

tions in *L. alcocki.* MILNE EDWARDS (1874: p. 42) mentions stains of red for his *L. margaritata* and stains of orange are observed in our specimen of the same species.
It can be concluded that *Leucosia margaritata* as determined by ALCOCK (1896) belongs to *Leucosia alcocki* sp. nov.
L. margaritata sensu NOBILI (1907) also belongs to the new species. He compares his specimen with *L. haematosticta* and agrees with the differences already given by ALCOCK but adds two more differences which are equally applicable to *L. alcocki* sp. nov.: the front is quadrilobate and the epibranchial angle is granulated. He also gives details on the colouration and on the fur corresponding to our observations on *L. alcocki.*

Leucosia margaritata A. MILNE EDWARDS, 1874 (Figs. 2a & 5c)

SYNONYMY

Leucosia margaritata A. MILNE EDWARDS, 1874: p. 42, pl. 2, fig. 3 & 3a-3d. – IHLE, 1918: p. 284.

Leucosides margaritata (A. MILNE EDWARDS, 1874). – RATHBUN, 1910: p. 310.

non *Leucosia margaritata.* – ALCOCK, 1896: p. 230-231 (= *Leucosia alcocki* sp. nov.).

non *Leucosia margaritata.* – NOBILI, 1907: p. 99 (= *Leucosia alcocki* sp. nov.).

TYPE-LOCALITY

New Caledonia (A. MILNE EDWARDS, 1874).

MATERIAL EXAMINED

Hansa Bay, dredged in mud at –35 m, leg.: team of Prof. J. BOUILLON, October 1976, I.G. 25.715: 1 male, B.C. 1058.

DIAGNOSIS

Carapace hexagonal, longer than broad, smooth except for the rather shaggy pubescence on the postero-lateral margin; chelipeds slender, with a row of tubercles on the upper surface running parallel to the anterior margin, a patch of fur on proximal parts of the merus; orange coloured markings on the upper parts.

DESCRIPTION

Measurements:
Carapace length 6.20 mm, carapace breadth 5.60 mm, cheliped length 9.20 mm.

Carapace:
Smooth, hexagonal, convex and high in the middle, longer than braod; front broad, convex, slightly sinuous; hepatic region slightly elevated; antero-lateral margin sinuous, forming a re-entering angle with the rounded lateral epibranchial angle; antero-lateral margin, epibranchial angle and true postero-lateral margin milled; true postero-lateral margin covered with fur, built up of thick transparent hairs as in *L. haematosticta* and *L. alcocki,* but longer, resulting in a more shaggy pubescence than in the latter two species; epimeral edge very broad, milled, completely visible, beginning at the basis of the first walking legs, continuous with the true posterior margin; true posterior margin convex with rounded angles.

Thoracic sinus:
Shallow and almost devoid of hairs; defined ventrally by a row of granules continuous with the onset of the epimeral edge.

Mouthframe (male):
Rounded anteriorly with a marked tooth on the antero-lateral angle of the third sternite.

Chelipeds:
Slender; 1.5 times the carapace length; merus of the chelipeds triangular, proximally with a patch of shaggy brown fur of the same nature as on the postero-lateral margin; a double row of tubercles on the posterior margin; a double row of tubercles (partly fused proximally) on the anterior margin; the upper surface with a row of about ten tubercles, gradually becoming smaller and fusing distally with the tubercles of the anterior margin; lower margin of the merus with a triangular proximal cluster of tubercles (partly hidden by fur), fusing into a single row distally; anterior lower surface of the merus smooth except for the tubercles on its margins; posterior lower surface of the merus entirely granulated, the granules becoming larger towards the tuberculated margins.
Carpus of chelipeds subglobular, granulated on the proximal and distal portion of the outer surface; a row of 3 to 4 granules on the inner margin; a short row of granules on the upper surface; hand longer than broad, triangular in cross-section; the surfaces defined by rows of sharp granules continuing on the fixed finger; the row on the lower margin (when held in natural position) of the inner surface continuous with the inner beaded crest on the fixed finger; the row on the upper margin being continuous with the crest in the middle of the inner surface of the fixed finger; a

similar crest on the fixed finger, just below the cutting edge, continuous with a row of granules on the anterior margin of the upper surface of the hand; lower surface of the fixed finger with the same ornamentation, although the line in the middle of the fixed finger is not a continuation of a row of granules on the lower surface of the hand.
Fingers shorter than the hand, fixed finger proportionally high; cutting edges with a fine dentition; a row of (tactile) hairs along the cutting edges; cutting edges meeting over almost the entire length; movable finger keeled.

Ambulatory legs:
Meri compressed, with concave ventral surfaces defined by a double row of granules; meri of first and second walking legs with a double dorsal row of granules; meri of last two pairs triangular in cross-section with only a single dorsal row of granules; carpopodites rounded ventrally, keeled dorsally; propodi keeled dorsally and ventrally; walking legs rather slender, due to the long carpopodites and propodi; fingers lanceolate, shorter than the combined length of carpopodites and propodi.

Male abdomen:
Four pieces visible; second segment free; third to fifth segment fused; sixth segment free, with a tooth at 2/3 of the length; telson longer than broad.

Colour of specimen preserved in alcohol:
Upper and lower parts ivory white, with orange markings on the upper surface of the carapace (see fig. 2a).

DISTRIBUTION

New Caledonia (A. MILNE EDWARDS, 1874), Indonesia (IHLE, 1918), Papua New Guinea (new record).

DISCUSSION

IHLE (1918) noticed a good resemblance of his specimens with the figures of A. MILNE EDWARDS (1874) and also some differences with the description by ALCOCK (1896) of *Leucosia margaritata* (Non *Leucosia margaritata* A. MILNE EDWARDS, 1874; = *L. alcocki* sp. nov.). He mentioned, among other things, the presence of a row of granules on the lower margin of the thoracic sinus. He also pointed out that the tooth on the coxa of the maxillipeds, mentioned by ALCOCK (1896) is probably a tooth on the antero-lateral margin of the third sternite. The attribution of ALCOCK's an NOBILI's (1907) specimens to *Leucosia alcocki* is discussed above. The status of the specimens from Siam (Thailand) mentioned by RATHBUN, 1910 has not been studied.

Leucosia pararensis sp. nov.
(Figs. 2b & 6a)

ETYMOLOGY

Named after the type-locality.

TYPE-LOCALITY

Papua New Guinea, Hansa Bay (Madang Province), Purar Reef, 4°11'47"S-144°55'05"E.

HOLOTYPE

A female specimen, preserved in alcohol, B.C. 1059, Purar Reef, –10 m, leg.: Mr. J. PIERRET, 29 October 1980, I.G. 26.253.

DIAGNOSIS

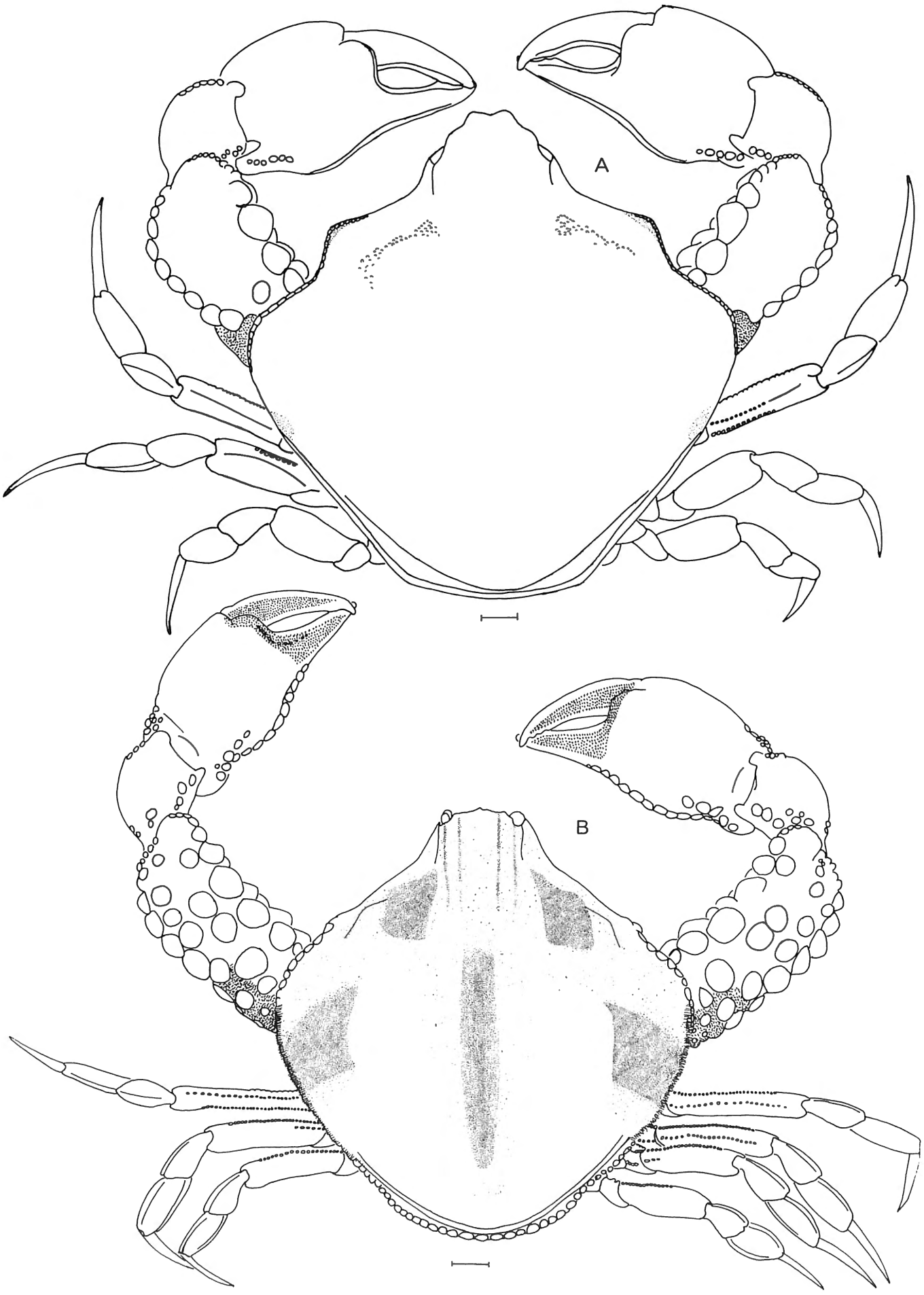
Carapace wider than long; pronounced hepatic angle; pubescence on postero-lateral margin; merus of the chelipeds with a very large tubercle on the proximal upper surface.

DESCRIPTION

Measurements:
Carapace length 8.40 mm, carapace breadth 8.70 mm, cheliped length 11.55. mm.

Carapace:
Hexagonal, urn-shaped, broader than long; the greatest width at one fourth of the carapace length; smooth except for the pubescence along the true postero-lateral margin; front upturned, dorsally concave; the anterior margin sinuated and two-lobed (? damaged), lateral edge forming a very obtuse angle with the antero-lateral margin; antero-lateral margin smooth, convex with two bulges: one formed by the hepatic margin and a second one, situated in a lower plane, formed by the postero-lateral margin of the pterygostomian region (suture between hepatic en pterygostomian regions distinct); posterior part of the pterygostomian region strongly vaulted, forming the overhanging anterior edge of the thoracic sinus; lateral epibranchial margin granular (concealed by the pubescence) and rounded; a rim of pubescence, consisting of rather long hairs, along the posterior part of the epibranchial

Fig. 3. *A.* Leucosia angulata *(RATHBUN), female (14.1 × 13.7 mm) B.C. 1.054, dorsal view. Scale = 1 mm.*
B. Leucosia chevertii *HASWELL, female (12.6 × 11.5 mm) B.C. 1057, dorsal view. Scale = 1 mm.*


A
B

angle and on the true postero-lateral margin; epimeral edge very broad, visible over its entire length, starting at the basis of the first pair of walking legs, distinctly granulated, continuous with the posterior margin; posterior margin very faintly milled, almost smooth, convex with rounded angles.

Thoracic sinus:
Deep; defined dorsally by the overhanging margin of the epibranchial angle; anteriorly ill-defined by the obliquely overhanging posterior margin of the pterygostomian region; a dorsal row of rather large pearly granules under the roof of the epibranchial angle; a second row ventrally, continuous with the onset of the epimeral edge; anterior part of the cavity with a cluster of small granules as well as an oblique crest with hairs of the same nature as on the carapace and chelipeds (as in *L. sagamiensis*).

Mouthframe (of the female):
Broad, antero-lateral angle of the third sternite modified into an acute upturned tooth, a marked tooth on the anterior margin of the ischium.

Chelipeds:
Robust, 1.35 times the carapace length; merus triangular; anterior margin formed by two or three smaller proximal tubercles, followed by four large tubercles; rounded distal edge with a row of large granules; posterior margin with a proximal cluster of 2 to 3 rows of small tubercles, partly hidden by the pubescence and followed by two large, broad rounded tubercles; a double distal row of small tubercles; lower margin of the merus with a proximal cluster of tubercles, fusing gradually into a single row of large distal tubercles; upper surface of merus with two tubercles, the outer one being very large; upper surface otherwise smooth; posterior lower surface covered with granules; anterior lower surface smooth between the tubercles, forming anterior and lower margin of the merus; carpus subglobular, with a row of 5 to 6 low granules on the distal outer surface, with a few large granules on the proximal upper surface and with 2 to 3 large granules on the inner proximal surface; palm longer than broad, outer margin strongly keeled, inner and outer lower basal lobe with 4 to 5 tubercles (one large); distal part of the lower margin of hand with a milled keel, continuing on the fixed finger; a second row of granules above also continuing on the fixed finger; a row of granules on the anterior margin of the palm continuing in a partly granular crest on the fixed finger just below the cutting edge; movable finger keeled; cutting adges meeting over only half of the length; outer surface of the hand smooth except for 2 to 3 tubercles on the lower basal lobe.

Ambulatory legs:
Meri compressed; strongly concave ventrally, especially of the fourth leg; merus of first to third leg quadrangular with a double row of dorsal and ventral granules; merus of the fourth leg triangular in cross-section with only a single dorsal row of granules and a double ventral row; carpopodites rounded ventrally, keeled dorsally; propodi keeled both dorsally and ventrally; dactyli lanceolate, short, hardly as long as the propodi.

Female abdomen:
Three pieces visible; second segment free; third to sixth segment fused; telson longer than broad.

Colour of specimen preserved in alcohol:
Upper parts ivory white with orange markings (see figure 2b); underside ivory white except for the margins of the abdomen and some markings on the third sternite, the pterygostomian region and the mouthframe; some orange bands on walking legs.

DISCUSSION

Leucosia pararensis sp. nov. is closely related to *L. elata* A. MILNE EDWARDS, 1874, *Leucosia elatoides* BOUVIER, 1915, *Leucosia insularis* TAKEDA & KURATA, 1976 and *Leucosia bikiniensis* SAKAI, 1983.
Leucosia pararensis sp. nov. is distinguished from *L. elata* by the broader carapace, the shorter antero-lateral margins, the disposition of tubercles on the merus of the chelipeds, the double dorsal row of granules on the meri of the first three pairs of walking legs (a fully developed double row only on the meri of the first pair in *L. elata, fide* BOUVIER, 1915, p. 214), the thoracic sinus (a single row of small granules, besides a row of 2 to 3 larger pearly granules above the base of the chelipeds in *L. elata, fide* ALCOCK, 1896, p. 288) and the absence of a crest on the outer surface of the carpus of the chelipeds.
Leucosia pararensis sp. nov. is distinguished from *Leucosia elatoides* by the shape of the meri of the chelipeds and the absence of granulations on their distal upper surface, by the presence (as in *L. elata*) of a small longitudinal hairy crest on the anterior part of the thoracic sinus (crest absent in *L. elatoides*) and by the granulations on the meri of the walking legs (a double dorsal row on the four pairs in *L. elatoides*).
L. pararensis sp. nov. is distinguished from *L. insularis* by the presence of a row of pearly granules in the thoracic sinus instead of the large, suboval truncate tubercle in front of the coxa of the cheliped (as mentioned by TAKEDA& KURATA, 1976, p. 21 for *L. insularis*), by a different disposition of the tubercles on the upper surface of the merus of the chelipeds and by the granulations on the meri of the walking legs (only the first pair has a double dorsal row in *L. insularis*).
L. pararensis sp. nov. is distinguished from *L. bikinensis* by the more numerous tubercles on the anterior margin of the merus of the chelipeds (only 2 or 3 large tubercles in *L. bikinensis*), by the absence of a carina

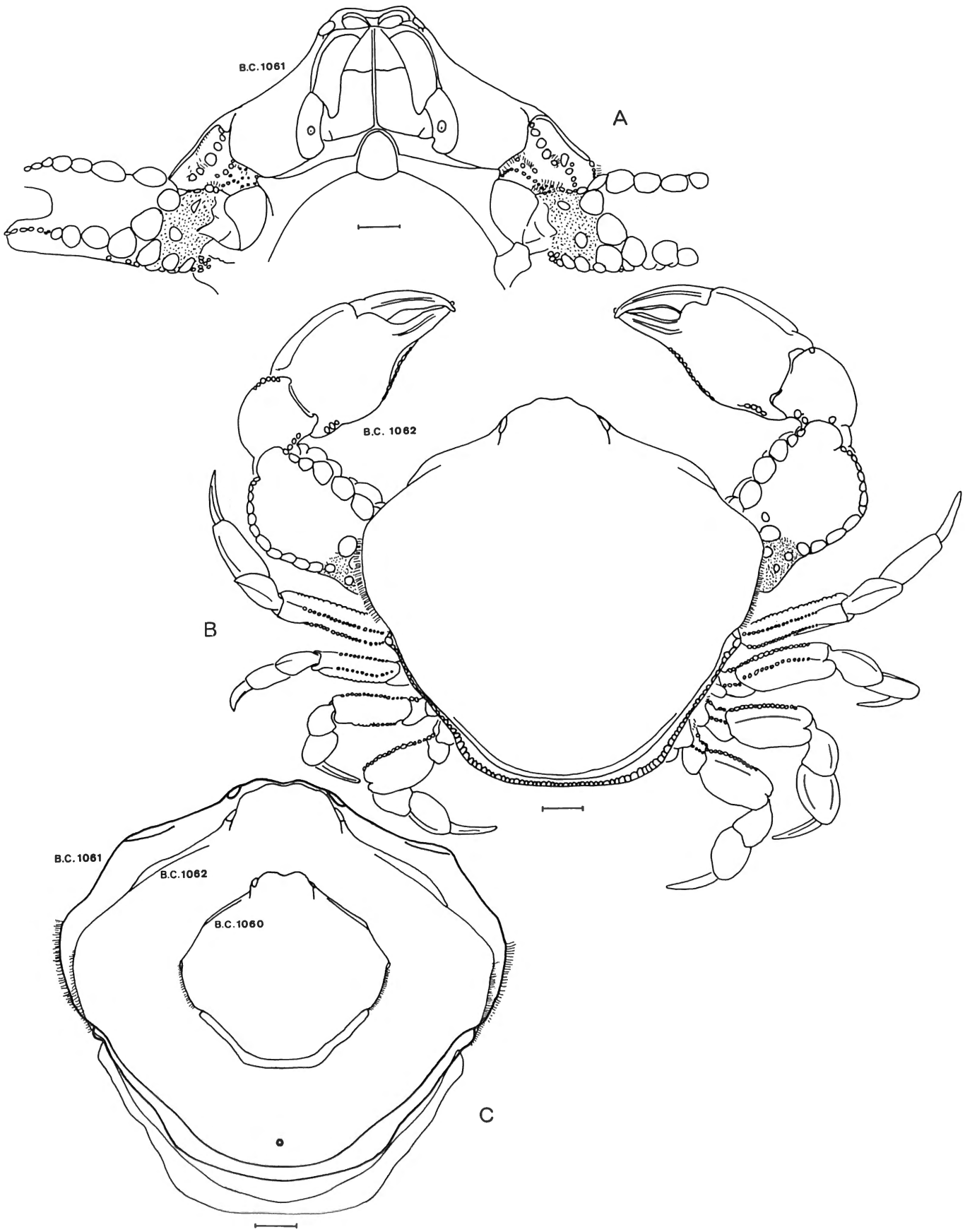


Fig. 4. Leucosia sagamiensis *SAKAI.*
A. Female (9.2 × 10.2 mm) B.C. 1061, ventral view of the mouthparts.
B. Female (10.1 × 10.0 mm) B.C. 1062, dorsal view. Scale = 1 mm.
C. Outlines of carapace of the Papua New Guinean specimens B.C. 1061, B.C. 1062 and of the juvenile (4.5 × 4.9 mm) B.C. 1060.

along the outer border of the carpus of the chelipeds and by the thoracic sinus (two ridges of small tubercles and a few larger between in *L. bikinensis*).

Leucosia sagamiensis SAKAI, 1961 (Fig. 4a-4c)

SYNONYMY

Leucosia sagamiensis SAKAI, 1961: p. 132, pl. 3, fig. 1, text-figs. 1a & 1b. – SAKAI, 1965: p. 47, pl. 19, fig. 1, text-fig. 7; 1976: p. 121, pl. 35, fig. 1, text-fig. 69. – TAKEDA, 1979: p. 153 (in table).

MATERIAL EXAMINED

Hansa Bay (Madang Province), in mud at –35, leg.: Mr. J. PIERRET, June 1977, I.G. 25.930: 1 juvenile, B.C. 1060.
Mililat (Madang Province), dredging, leg.: Mr. J. PIERRET, 7 September 1978, I.G. 25.930: 1 ad. female (walking legs missing), B.C. 1061.
Hansa Bay, near Laing Island, leg.: Mr. J. PIERRET, 9 July 1979, I.G. 26.086: 1 ad. female (figd. specimen), B.C. 1062.

DIAGNOSIS

No pubescence on the true postero-lateral margin; pubescence restricted to the lateral epibranchial angle; epibranchial angle protruding, forming a distinct lobe.

DESCRIPTION OF THE ADULT FEMALE B.C. 1061

Measurements:
Carapace length 9.2 mm, carapace breadth 10.2 mm, CL/CB = 0.90, cheliped length 12.3 mm.

Carapace:
Distinctly broader than long; frontal margin bilobed in dorsal view, due to the concavity of the median dorsal surface; hepatic region with an elongate low bulge; antero-lateral margin smooth, formed by the recurved lateral margin of the pterygostomian region (suture between the pterygostomian and hepatic regions visible in dorsal view); strongly re-entering cavity at the transition of the pterygostomian lobe with the lateral epibranchial angle; this concavity forming a wide dorsal entrance to the thoracic sinus; lateral epibranchial angle forming a strongly projecting vaulted lobe; edge of lateral epibranchial angle granulated, the granules hidden by the pubescence formed by thick long hairs; true postero-lateral margin not marked by granules of pubescence; epimeral edge milled with a very broad angular onset at the basis of the first pair of walking legs; epimeral edge visible over its entire length, sinuous and continuous with the posterior margin; posterior margin of the carapace convex with rounded angles; a low rounded tooth on the intestinal region.

Thoracic sinus:
Deep; defined dorsally by the overhanging lateral epibranchial angle; more or less open in the anterior dorsal part due to the concavity between the antero-lateral margin and the lateral epibranchial angle; anteriorly defined by the angular posterior margin of the pterygostomian region; a dorsal row of large pearly granules under the roof of the cavity; a second row of smaller ventral granules over the basis of the cheliped, continuous with the onset of the epimeral edge; anterior half of the cavity granular, with a marked granular crest separating the anterior part of the cavity in a dorsal and a ventral portion; hairs of a special nature [hollow(?) tubes, widened distally] on the anterior part of the roof of the thoracic sinus, the crest in the middle and the lower anterior margin of the thoracic sinus.

Mouthframe:
Broad, antero-lateral angles of the third sternite toothlike; coxa of the third maxillipeds with a distinct central spine; anterior margin of the ischium granular, one granule being large and toothlike; tip of the merus with very small sharp teeth. Fig. 4a.

Chelipeds:
Robust, 12.3 mm long, 1.34 times the carapace length and 1.21 times the carapace width.
Anterior marging of the merus with proximally 2 to 3 small tubercles (partly hidden by the lateral epibranchial angle), followed by 2 large broad tubercles and 3 to 4 partly fused distal tubercles; rounded distal lobe granulated; posterior margin with a triangular cluster of tubercles, partly hidden by fur, followed by 4 large tubercles; distal re-entering margin with 5 to 6 small, partly fused tubercles; lower margin of merus with a triangular cluster of proximal tubercles, fusing into a single row of larger dentiform tubercles; upper surface with an oblique row of four tubercles along the anterior edge of the patch of fur; surface between the mentioned row of four tubercles and the anterior margin finely granulated, distal part of the upper surface smooth; anterior lower surface smooth, strongly concave between the dentiform tubercles of the margins; posterior lower surface with small tubercles or large granules in the proximal and anterior parts, otherwise smooth; carpus subglobular with a granulated crest on the outer distal margin; the upper and lower surfaces proximally with 2 to 3 granules; inner proximal margin of the carpus with 2 to 3 granules; palm of the hand longer than wide; outer margin sharply keeled, inner portion swollen, distal half of inner margin with a granulated crest continuing into the fixed finger; upper and lower inner basal lobe of the hand with 3 to 4 small tubercles; fingers short; fixed finger with a groove between a crest continuous

with the beaded line along the anterior margin of the palm and a partly granular ventral crest; movable finger keeled; cutting edges meeting only in their distal half.

Female abdomen:
First segment free; second to sixth segment fused, but distinguishable through broad, shallow furrows, broadly interrupted in the middle; telson longer than broad, anteriorly rounded.

DESCRIPTION OF THE ADULT FEMALE B.C. 1062
(Fig. 4b)

(A description of walking legs and colouration, both absent in the above described female is given, followed by some remarkable differences between the two studied females).

Walking legs:
Meri compressed; merus of first and second walking leg rectangular, with a double dorsal row of granules; merus of third walking leg triangular, the second dorsal row of granules only reaching the middle of the merus; merus of the fourth walking leg triangular with a single dorsal granular crest; meri with a ventral double row of granules, surface between the rows strongly concave, especially in the fourth walking leg; carpopodites keeled dorsally, rounded ventrally; propodi keeled dorsally and ventrally; dactyli lanceolate, shorter than their respective propodi.

Colours of specimen preserved in alcohol:
Upper parts of the carapace and the chelipeds ivory white mottled with brown; walking legs ivory white; lower surface of carapace and chelipeds white, except for the orange markings on the margins of the (female) abdomen, on the third and fourth sternite and on the mouthparts.

Aberrant characteristics of the female B.C. 1062 in comparision with the above described female B.C. 1061:
1. Carapace a little longer than broad: carapace length 10.1 mm, carapace breadth 10.0 mm, CL/CB = 1.01 (compared with 0.90). 2. Chelipeds shorter, especially due to a stouter merus: cheliped length 12.1 mm, being 1.20 times the carapace length and 1.21 the carapace width (compared with 1.34 and 1.21). 3. Central portion of the anterior margin of the merus with three instead of two large free tubercles. 4. Front obscurley four-lobed. 5. Concavity between the antero-lateral margin and the lateral epibranchial angle less developed. 6. Low rounded tooth on the intestinal region absent. 7. No trace of a spine or tooth on the coxa of the third maxillipeds.

DESCRIPTION OF THE JUVENILE B.C. 1060

Carapace broader than long, carapace length 4.5 mm, carapace breadth 4.9 mm, CL/CB = 0.92; front distinctly tow-lobed; low rounded tooth on the intestinal region.

DISTRIBUTION

Previously only known from Japan. Now recorded from Papua Guinea.

DISCUSSION

In spite of the mentioned differences between the two females they are thought belonging to *L. sagamiensis* because of an identical ornamentation of the thoracic sinus, the lateral epibranchial angle forming a distinct lobe and the absence of pubescence on the postero-lateral margin. If this assumption turns out to be right, the taxonomic value of a number of characteristics (e.g. the presence of a spine on the coxa of the third maxillipeds and the presence of a tooth on the intestinal region) becomes doubtful.

Leucosia angulata (RATHBUN, 1911)
(Figs. 3a & 6b)

SYNONYMY

Leucosides angulata RATHBUN, 1911: p. 202, pl. 15, fig. 8.

Non *Leucosia angulata*. – TYNDALE - BISCOE & GEORGE, 1962: p. 77, pl. 1, fig. 3, pl. 2, fig. 3.

TYPE-LOCALITY

Seychelles (RATHBUN, 1911).

MATERIAL EXAMINED

Papua New Guinea, Hansa Bay (Madang Province), Wanginem Reef, at –40 m on coarse sand, leg.: Mr. J. PIERRET, 11 October 1980, I.G. 26.253/station 52: an adult female, B.C. 1054 (figured specimen).
Papua New Guinea, Mililat (Madang Province), small reef north of Kerry Ann, handdredging on sandy mud at –25 m, leg.: Mr. J. PIERRET, 14 March 1979, I.G. 26.080/45a: a juvenile with a well preserved colour pattern, B.C. 1055.

Papua New Guinea, Mililat, dredging in bay, leg.: Mr. J. PIERRET, 7 September 1978, I.G. 25.930: 1 small juvenile, B.C. 1056.

DIAGNOSIS

Carapace slightly longer than wide; front projecting and four-lobed; antero-lateral margin sharply angulate due to the projection of the hepatic region; anterior margin of merus of cheliped with large dorsoventrally flattened tooth-like tubercles.

DESCRIPTION

Measurements:
Adult female B.C. 1054, carapace length 14.1 mm, carapace breadth 13.7 mm, cheliped length 15.3 mm.
Juvenile B.C. 1055, carapace length 10.1 mm, carapace breadth 9.7 mm, cheliped length 10.7 mm.
Juvenile B.C. 1056, carapace length 9.4 mm, carapace breadth 9.1 mm, cheliped length 10.0 mm.

Carapace:
A little longer than wide and high in the middle; smooth except for the fur on the postero-lateral margins; front prominent, flat quadrilobate and with lateral margin forming an obtuse re-entering angle with the antero-lateral margin; antero-lateral margin milled and angular due to the pronounced hepatic angle; hepatic region with "fenestrations"; antero-lateral margin forming a re-entering angle with the rounded lateral epibranchial angle; lateral epibranchial angle granulated; true postero-lateral margin with a rim of pubescence; epimeral edge narrow, milled, beginning at the base of the first pair of walking legs, continuous with the posterior margin; posterior margin milled, convex with rounded angles.

Thoracic sinus:
Deep in its anterior part; defined anteriorly by the rounded, strongly overhanging posterior margin of the pterygostomian region; with a single elongate elevation (showing orange spots).

Mouthframe:
Elongate; antero-lateral angle of the third sternite with a prominent tooth.

Chelipeds:
Rather compressed, very short (less than 1.1 times the carapace length) and robust; merus triangular; anterior margin with a single row of three large, sharp, dorsoventrally flattened tooth-like tubercles in the median portion and some proximal and distal rounded tubercles on the anterior margin; posterior margin with a row of about ten smaller rounded tubercles; lower margin with a triangular cluster of tubercles becoming larger and fusing to a single row distally; upper surface of the merus of the chelipeds smooth except for a patch of fur on the posterior proximal portion; lower surfaces of the merus proximally with fur; carpus with a granular keeled outer margin, 3 to 4 granules on the inner margin; palm slightly longer than wide; 3 to 4 small tubercles on the inner basal lobe; outer margin keeled, inner part swollen proximally, distally with a keel continuing on the fixed finger.
Fingers as long as the palm, both keeled; cutting edges meeting only in their distal third leaving a proximal concavity.

Walking legs:
Compressed; merus of the first leg with two rows of granules dorsally and ventrally; merus of the second leg with a single dorsal row of granules on its anterior margin; a second posterior row ends before the middle of the merus; two rows of ventral granules; merus of the third and fourth legs strongly concave ventrally, without rows of granules; the single dorsal row of granules strongly worned off; carpopodites rounded ventrally, keeled dorsally; propodi keeled dorsally and ventrally.

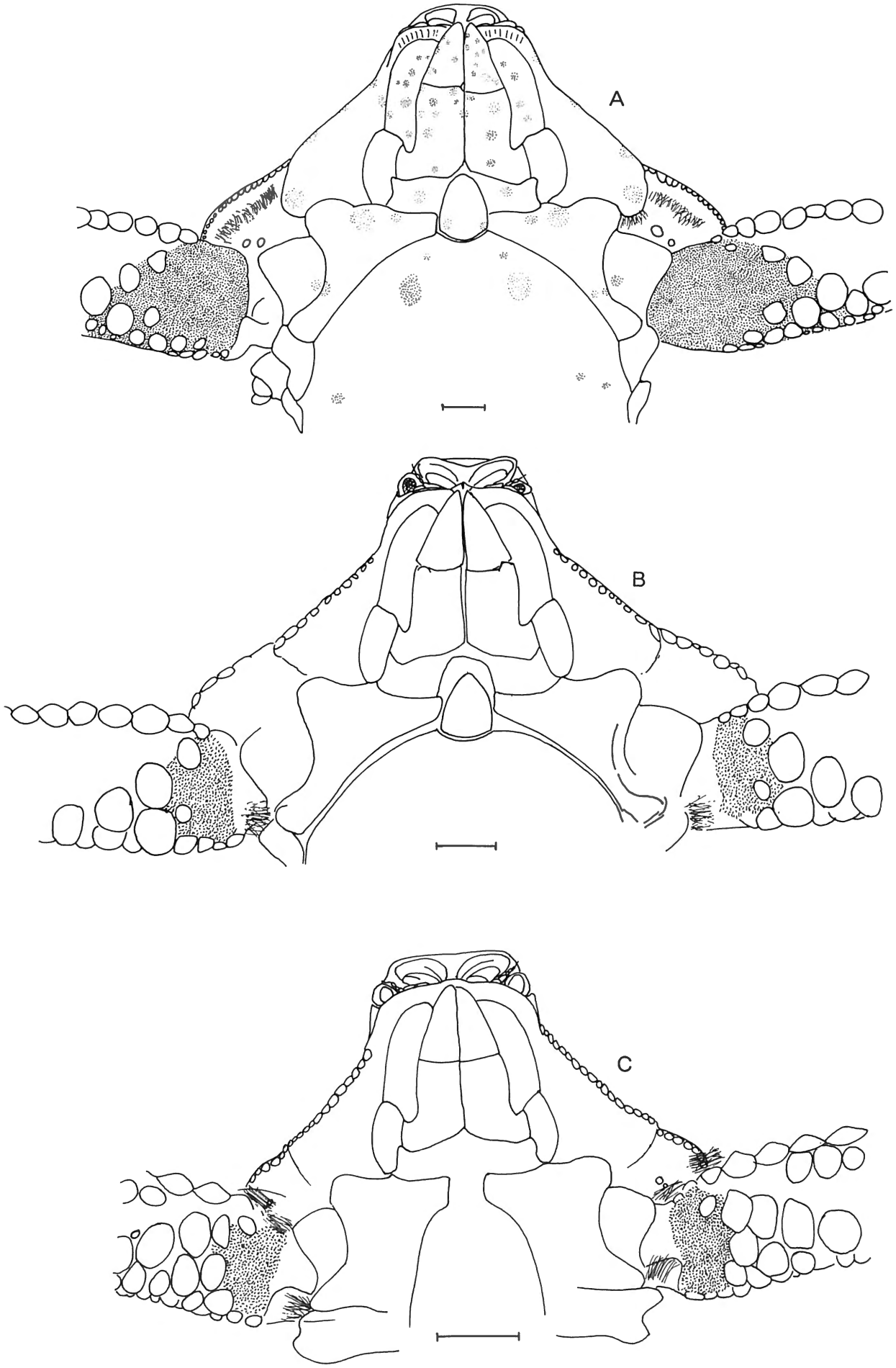
Female abdomen:
Three pieces visible; second segment free; third to sixth segment fused into a strongly vaulted plate; telson longer than wide, rounded anteriorly, a row of stiff hairs on the lateral margins.

Colours of specimens preserved in alcohol.
B.C. 1055: ground-colour pearly white; orange markings on the anterior half of the carapace, longitudinal orange bands centrally, oblique bands laterally; tubercles on the proximal upper surface of the merus of the chelipeds orange red; ambulatory legs with orange markings; lower surfaces pearly white with dark orange sports, resembling *L. haematosticta.*
B.C. 1054 and B.C. 1056: almost entirely pearly white with small orange markings, as described by RATHBUN, 1911.

DISTRIBUTION

Previously only known from the type-locality (Seychelles). Now recorded from Papua New Guinea.

Fig. 5. *Ventral view of the mouthparts.*
A. Leucosia haematosticta *ADAMS & WHITE, female (12.6 × 12.0 mm) B.C. 1050.*
B. Leucosia alcocki *sp. nov., female, holotype (9.35 × 9.30 mm) B.C. 1051.*
C. Leucosia margaritata *A. MILNE EDWARDS, male (6.2 × 5.6 mm) B.C. 1058.*


A
B
C

DISCUSSION

Our specimens from Papua New Guinea resemble the type specimen well. The protruding hepatic angles and the dorsoventrally flattened tooth-like tubercles on the anterior border of the merus of the chelipeds are highly characteristic for the species.
A female specimen from Western Australia has been referred to *L. angulata* by TYNDALE-BISCOE & GEORGE, 1962. The authors mentioned a number of differences between their specimen and the male holotype from the Seychelles. Further comparision of their description and photographs with our material from Papua New Guinea leads to the conclusion that this Australian specimen is not conspecific with *L. angulata* (RATHBUN, 1911).

Leucosia chevertii HASWELL, 1880
Figs. 3b & 6c)

SYNONYMY

Leucosia chevertii HASWELL, 1880: p. 47, pl. 5, fig. 2.

Leucosia cheverti. – ARNOLD & GEORGE, 1987: p. 209-214, fig. 1a-b, 3d-f.

Leucosia whitei. – IHLE, 1918 (in part): p. 283. – TYNDALE-BISCOE & GEORGE, 1962 (in part): p. 77, pl. 1, fig. 9, pl. 2, fig. 6. – McNEILL, 1968: p. 41-42. – CAMPBELL & STEPHENSON, 1970: p. 254-255, fig. 17. (non *Leucosia whitei* BELL, 1855).

TYPE LOCALITY

Australia, Cape Grenville and Darnley Island (not specified).

TYPE-SPECIMENS

Original type material presumed to be lost (ARNOLD & GEORGE, 1987, p. 210). A male from off Townsville (about 800 km south of Cape Grenville) has been selected as neotype and is deposited in the Australian Museum, Sydney by ARNOLD & GEORGE (1987, p. 210-211).

MATERIAL EXAMINED

Hansa bay, various places (mostly Duangit Reef) at –40 to –50 m, collected by the team of Prof. J. BOUILLON, various dates in 1976 and 1977, I.G. 25.715: 6 adult males, 3 adult females, 1 ovig. female (January 1977), 4 juveniles.
Various places in Hansa Bay and Mililat harbour (north of Madang) at –35 to –45 m, collected by Mr. J. PIERRET, various dates in 1977 and 1978, I.G. 25.930: 1 adult male, 4 adult females, 1 juvenile.
Nagada (north of Madang), Wongat reef, dredged on coral sand and algae at –25 to –30 m, collected by Mr. J. PIERRET, 4 September 1979, I.G. 26.086/15: 1 juvenile.
Nagada, Gosem reef, dredged on mud an coral debris at –20 m, collected by Mr. J. PIERRET, 18 September 1979, I.G. 26.086/31: 1 adult male.
Nagada, Wongat reef, dredged on coral sand at –25 m, collected by Mr. J. PIERRET, 10 November 1979, I.G. 26.086/63: 1 subadult male.

DIAGNOSIS

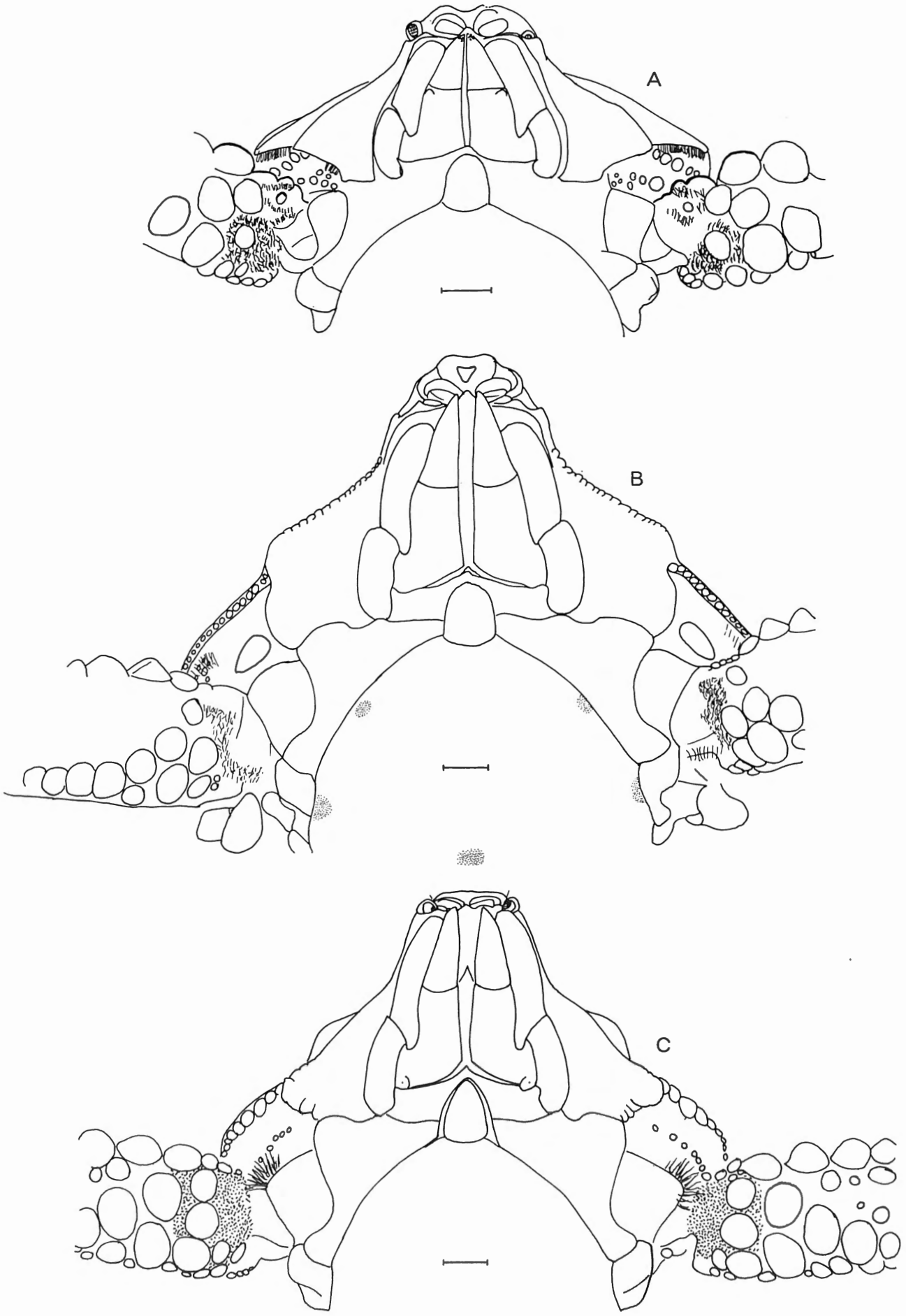
Pubescence on posterior part of lateral epibranchial angle and true postero-lateral margin; front prominent, trilobate; a bulge on the central part of the hepatic regions; merus of chelipeds nodular, outer margin of palm of cheliped smooth; epibranchial region devoid of granules.

DESCRIPTION

Measurements:
Adult female: carapace length 12.6 mm, carapace breadth 11.5 mm, cheliped length 15.5 mm (I.G. 25.715/7.9.76, B.C. 1057).

Carapace:
Longer than wide; front prominent, trilobate, strongly convex dorsally, lateral margins forming an obtuse angle with the antero-lateral margin; hepatic region with a highly elevated bulge with some granules on top; antero-lateral margin smooth, forming a weakly re-entering angle with the strongly granulated rounded lateral epibranchial angle, leaving a dorsal entrance to the thoracic sinus; lateral epibranchial angle continuous with the granulated postero-lateral margin; posterior part of the lateral epibranchial angle and postero-lateral margin with a rim of rather short fur; epimeral edge granular and low (the onset at the base of the first pair of walking legs not visible in a perfectly dorsal monocular view); posterior margin granulated and convex with rounded angles; posterior wall (= surface below the posterior margin) distinctly granular.

Fig. 6. *Ventral view of the mouthparts.*
A. Leucosia purarensis *sp. nov., female, holotype (8.4 × 8.7 mm) B.C. 1059.*
B. Leucosia angulata *(RATHBUN, female (14.1 × 13.7 mm) B.C. 1054.*
C. Leucosia chevertii *HASWELL, female (12.6 × 11.5 mm) B.C. 1057.*


A
B
C

Thoracic sinus:
Deep and defined anteriorly by the posterior margin of the pterygostomian region, a lobe of this pterygostomian margin defining the two unequal legs of the letter "Y"; a single row of granules, situated ventrally, above the base of the chelipeds; the row of granules continuous with the onset of the epimeral edge.

Mouthframe:
Elongate; mouthparts transversally strongly convex; antero-lateral angle of the third sternite tooth-like.

Chelipeds:
Robust, 1.25 times the carapace length.
Merus subcylindrical and entirely nodular except for the granular posterior lower surface; a patch of dull white fur on the upper proximal surface; wrist subglobular with 3 to 4 granules on the inner margin, 2 to 3 granules on the proximal and distal outer margin, 2 to 3 granules on the upper and lower surfaces.
Palm of hand longer than wide; outer margin sharp but not keeled; inner basal lobe of hand with large granules; row of granules on the lower margin of this basal lobe continuous with the strongly granulated crest on the hand inner margin and with the crest on the fixed finger; fingers short, cutting edges only meeting at the tip.

Walking legs:
Compressed; meri with a double row of ventral granules, with a double dorsal row of granules on the first and second walking leg, with a single dorsal row and the onset of a second row on the third walking leg and with a single dorsal row of granules on the fourth leg; carpopodites keeled dorsally, rounded ventrally, propodi keeled dorsally and ventrally; dactyli lanceolate, longer than their propodi but shorter than the combined length of carpus and propodus of the walking leg.

Female abdomen:
Four pieces visible; second and third segment free (it is doubted if the third segment is freely moveable); fourth to sixth segments fused, segments remaining recognizable through broad shallow furrows, broadly interrupted in the middle; telson longer than wide with a sharp tip.

Male abdomen:
Second segment free; segments three to five fused to a single piece with lobulated lateral margins indicating the segments; sixth segment free, longer than wide; telson longer than wide with a sharp tip.

DISTRIBUTION

Indo-Pacific: Australia, Indonesia, Philippines, and Papua New Guinea (new record).

DISCUSSION

Recently ARNOLD & GEORGE (1987) re-established *Leucosia chervetii* HASWELL, 1880 as a species related to but distinct from *L. whitei* BELL, 1855. They record the separation between the species on the basis of (1) the colour of the carapace and cheliped, (2) distribution of tubercles on the wrist and palm of the cheliped, and on the epibranchial region of the carapace and (3) the male pleopod. A re-examination of our specimens (preliminary labeled as *Leucosia whitei*) showed them belonging to *L. chevertii.* The pleopod of our males is identical with fig. 1a-b of ARNOLD & GEORGE (1987); the outer margin of the palm of the chelipeds is smooth and the epibranchial regions lack granulations in all our specimens; they all have the submarginal row of granules confined to the proximal half of the palm; the dark markings on the carapace may vary between specimens.

Discussion

The presence of fur along the lateral epibranchial angle and/or the postero-lateral margin was used by ALCOCK (1896) as a discriminating character in his key to the genus *Leucosia.* The thirteen species known today, showing that character, form a rather heterogeneous group, proving the poor systematic value of the character on its own.
Leucosia haematosticta ADAMS & WHITE, 1848 and *Leucosia alcocki* sp. nov. are closely related. The nature and the disposition of the fur on the posterior part of the lateral epibranchial angle and on the merus of the chelipeds are similar; both have a double dorsal row of granules on the meri of the first pair of walking legs and an onset of a second row of granules on the meri of the second pair; they agree well in general shape. They are, however, easily distinguished by the colouration of the carapace and the fur.
Leucosia margaritata A. MILNE EDWARDS, 1874 is not as closely related to the preceding two species as can be concluded from the synonymy of *L. alcocki,* nor is it very close to any other species studied here. The slender chelipeds and the shape of the carapace with the subparallel postero-lateral margins are characteristic for the species.
Leucosia pararensis sp. nov. is closely related to *L. elata* A. MILNE EDWARDS, 1974, and *L. elatoides* BOUVIER, 1915. It might also be related to *L. insularis* TAKEDA & KURATA, 1976 and *L. bikinensis* SAKAI, 1983.
Leucosia sagamiensis SAKAI, 1961 is treated separately because of the shape of the carapace with the distinct lobe formed by the lateral epibranchial angle and the absence of fur on the postero-lateral border. In this we follow SAKAI (1983) who considers his

L. insularis related to *L. bikinensis* but mentions no relationship with *L. sagamiensis*. The differences observed between the two female specimens from Papua New Guinea, believed to belong to the latter species, give some indications about the variability of certain characters.

Leucosia angulata (RATHBUN, 1911) has only poor relationships with the other species studied. The sharp flattened margins of the carapace, the elongate mouthframe, the strongly protruding quadrilobate front and the broad dorso-ventrally flattened tubercles of the chelipeds are specific.

Leucosia chevertii HASWELL, 1880 is closely related to *L. thysanota* GEORGE & CLARK, 1976 and to *Leucosia whitei* BELL, 1855. They are only distantly related to the other species studied.

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