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Onycocaris furculata sp. nov.,
a new pontoniine shrimp from La Réunion

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RÉSUMÉ

Une nouvelle espèce de crevette pontoniine du genre *Onycocaris* NOBILI, est décrite et illustrée. La nouvelle espèce s'apparente de près à *O. seychellensis* BRUCE, dont elle peut être aisément différenciée par la morphologie des dactyles des péréiopodes ambulatoires. La nouvelle espèce ressemble à *O. seychellensis* et *O. zanzibarica* BRUCE par la présence d'un rostrum dorsalement multi-denté, et contraste avec la plupart des espèces du genre, qui possèdent un rostrum court et non armé.

Les deux spécimens ont été récoltés à une profondeur de 10 m à La Saline, Ile de La Réunion. L'hôte non identifié est sans doute une éponge.

INTRODUCTION

At present twelve species of the genus *Onycocaris* NOBILI, 1904, have been described. Of these only one, *O. trullata* BRUCE, is known from the southern Indian Ocean, from Madagascar. Through the kindness of Mrs. Sonia RIBES, I have been able to examine a pair of specimens collected from La Réunion in 1976, which have proven distinct from all previously described species and are now described as new. Unfortunately, both specimens have all pereopods detached, although one of the first pereopods, three of the second pereopods and two of the ambulatory pereopods have been preserved. These enable a reasonably complete description to be provided, although it is uncertain to which individual these appendages belong.

I am most grateful to Mrs. RIBES for the opportunity to report upon these specimens.

1. *Onyccaris furculata* sp. nov. (Figs. 1-4)

1° Material examined. — 1 ♂, 1 ovig. ♀, La Saline, La Réunion, approximately 21° 20' S., 55° 00' E., outer reef slope, 20 m, from under dead base of *Acropora valida* (DANA). Coll. S. RIBES.

2° Description. — A very small, squat, stoutly built pontoniine shrimp, with a subcylindrical, slightly compressed body from.

The carapace is smooth and slightly compressed. The rostrum is short and distinct, reaching slightly beyond the anterior margin of the eyes. The rostrum is slightly damaged in the female but is provided with an acute upturned tip in the male. The dorsal margin is carinate and bears two small acute teeth, the distal larger than the proximal in the male, and both damaged in the female. The lateral carina is well developed and continuous with the orbital margin. The ventral border is feebly convex and unarmed. The orbital notch is well developed, but no orbit is present. The inferior orbital angle is not produced, but is bluntly obtuse and obscures the lateral aspect of the cornea, more so in the male than in the female. The antero-lateral angle of the carapace is very broadly rounded. Supra-orbital, hepatic and antennal spines are completely absent.

The abdominal segments are smooth. The pleura are broadly rounded, the first three greatly expanded in the female. The fourth and fifth segments are depressed with small rounded pleura. The sixth segment is strongly depressed about 1.8 times wider than long, with a small acute postero-lateral angle and a larger, blunter postero-ventral angle.

The telson is about four times the length of the sixth abdominal segment and about twice as long as the maximum width. The lateral margins are subparallel for about the anterior third and straight, and convergent posteriorly to the posterior margin, which is about 0.4 of the maximum width, rounded with a small acute median process. The two pairs of dorsal spines are well developed and situated marginally at about 0.4 and 0.65 of the telson length. The lateral posterior telson spines are subequal to the dorsal spines, the intermediate are stout, three times as long as the lateral spine, and the submedian slightly shorter than the intermediate, slender and finely plumose.

The antennules are short and stout. The proximal segment of the peduncle is a little more than twice as long as wide, with an acute disto-

lateral tooth. The median border is without a ventral tooth. The stylocerite is short, feebly acute and not reaching the middle of the segment length. The statocyst is distinct and contains a circular statolith. The intermediate and distal segments are shorter and broader, together equal

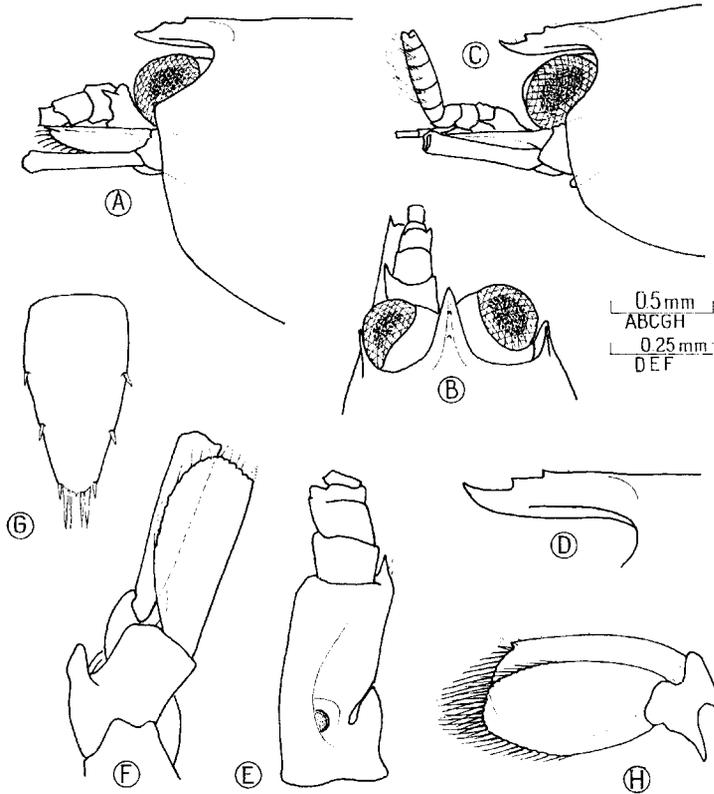


Fig. 1. — *Onycocaris furculata* sp. nov. A, anterior carapace and antennal peduncles, lateral view, female; B, idem, dorsal view; C, anterior carapace and antennal peduncles, lateral view, male; D, rostrum; E, antennule; F, antenna; G, telson; H, uropod; AB, E-H, female allotype; CD, male holotype.

to about half the length of the proximal segment. The flagella are largely missing. The upper flagellum in the male is biramous with four segments fused. Eight groups of asthetascs are present. The lower flagella are incomplete.

The antennae are reduced, and the flagella are lacking. The carpo-cerite, in the female, is about five times longer than broad, compressed,

and slightly exceeds the scaphocerite anteriorly. The basicerite is robust, unarmed laterally, but with a conspicuous ventro-lateral process. The scaphocerite is small and is exceeded by the antennular peduncle, the lamina is about 2.5 times longer than broad, with a rounded anterior margin, which is slightly exceeded by a small disto-lateral tooth. The lateral border is straight.

The eyes are very short and stout. The cornea is globular and obliquely set on the podophthalmite. The anterior median region is not angulate. The stalk is distinctly wider than the cornea in dorsal view.

The mouthparts are generally typical of the genus. The mandible is slender and without a palp. The molar process is slender, obliquely truncated distally. The ventral extremity is armed with 4-5 slender acute teeth and the ventral border distally with 6 stout spines. The distal dorsal margin bears a dense brush of setae, and a few more setae are present on the anterior margin. The incisor process is slender, distally acute, with seven small acute teeth on the distal medial edge. The maxillula has a feebly bilobed palp, the lower lobe bearing a single short simple seta. The upper lacinia is about twice as long as broad, with about nine spines and setae distally, provided with long setules. The lower lacinia is short, slender and tapering, with about ten slender setulose setae distally and ventrally. The maxilla has a slender tapering non-setose palp. The distal endite is simple, broad, distally rounded, with seven slender simple setae. The proximal endite is absent, but a feeble convexity of the medial margin is present. The scaphognathite is well developed, three times longer than wide, with a broader anterior part and a narrow posterior part. The first maxilliped has a moderately stout non-setose palp. The basal endite is broadly rounded distally with a straight medial margin, with numerous slender setulose setae. The coxal endite is fused to the basal and has a feebly convex medial border with few setae. The flagellum of the exopod is well developed, with four plumose setae distally. The caridean lobe is well developed but narrow. A small bilobed epipod is present. The second maxilliped presents no special features. The dactylar segment is broad and the medial border densely covered by many short, strongly denticulate spines. The flagellum of the exopod has four plumose setae distally. The coxal segment bears a small median prominence with a single seta, but there is no epipod laterally. The third maxilliped has the ischio-merus almost completely fused to the basis, a feeble tubercle marking the junction on the medial margin. The combined antepenul-

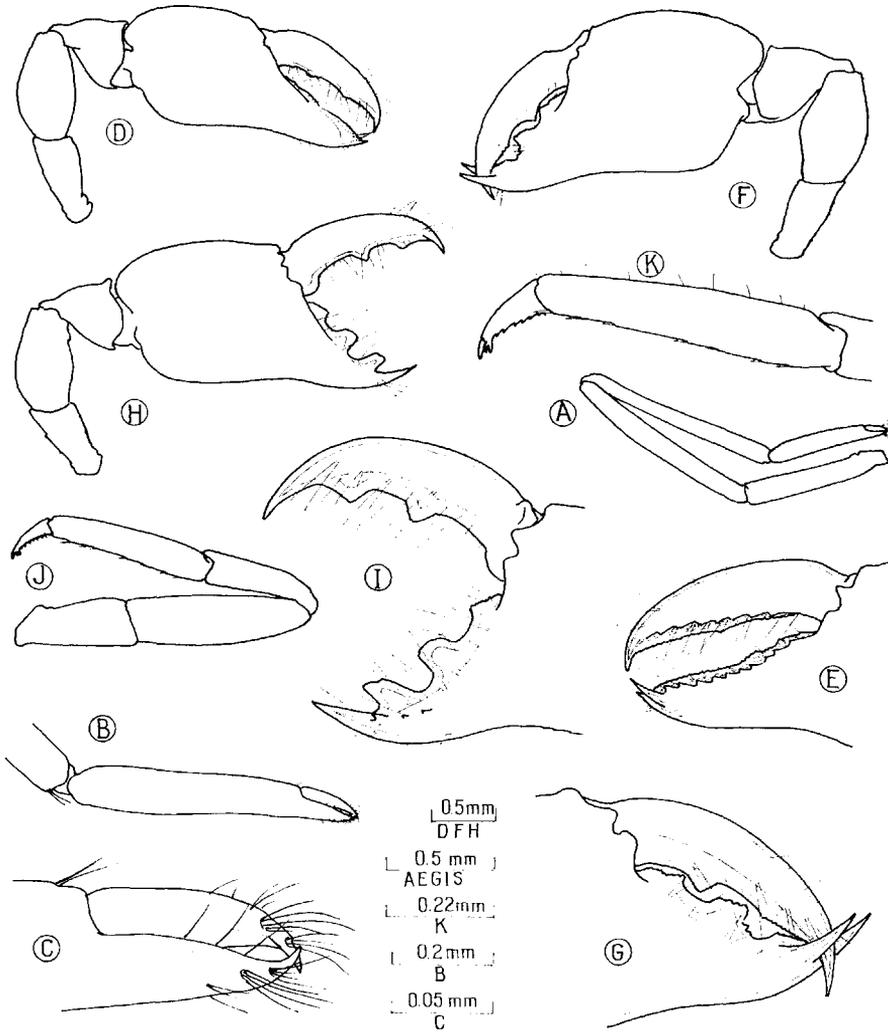


Fig. 2. — *Onycozaris furculata* sp. nov. A, first pereiopod; B, idem, chela; C, idem, fingers; D, second pereiopod P 2 a, lateral aspect; E, idem, medial aspect of fingers; F, second pereiopod P 2 b; G, idem, medial aspect of fingers; H, second pereiopod P 2 c; I, idem, medial aspect of fingers; J, (?) third pereiopod; K, idem, propod and dactyl.

timate segment tapers strongly distally and is about 2.5 times longer than the proximal width, which is double the distal width. The ischio-meral border is sparsely provided with slender simple setae and the dorso-medial border of the basal region has a series of short erect plumose setae. The

penultimate segment is stout, twice as wide as long, and wider distally than proximally, with few slender setae on the medial margin. The terminal segment is a little shorter than the penultimate, more slender and tapering distally, about 2.5 times longer than wide proximally, with long slender spines distally and shorter spines along the medial border. The exopod is similar to that of the second maxilliped. The coxa is broadly rounded medially and bears a large rounded epipod laterally. There is no arthrobranch present.

The sternites of the fourth and fifth thoracic segment are very narrow and unarmed, so that the coxae of the limbs are contiguous medially. The sixth to eighth sternites increase progressively in width posteriorly.

One first pereopod, probably from the female specimen, is preserved. The palm of the chela is subcylindrical, tapering slightly distally, about four times the length of the fingers and five times longer than the greatest width. The fingers are slender, tapering, with acute, feebly hooked tips. The dactylus is about 3.2 times longer than wide proximally. Distinct cutting edges are not discernable. The carpus is slender, about 1.7 times the length of the chela or twice the length of the palm, slightly wider distally than proximally and about 10.5 times longer than the distal width. The merus is subequal to the carpal length, slightly bowed and more robust. The ischium is still more robust and equal to about 0.6 of the meral length.

Of the second pereopods, two right sided and one left sided have been preserved, and each shows a different morphology from the others. In all the palm is strongly compressed. *Pereopod 2, a*: the palm is about 0.8 as deep as long, with convex dorsal and ventral margins. The dactylus is narrow, about four times longer than wide, subequal to the palm length, tapering and curved, terminating in a small, strong acute tip. The cutting edge is situated laterally. A small acute tooth is present at 0.6 of its length and an irregular tooth at 0.3, with the distal third being finely denticulate. The medial margin of the occlusal surface of the dactylus bears a series of seven small acute teeth extending along its whole length. The fixed finger is much more broadly based and strongly tapering, about 1.5 times longer than wide. The lateral cutting edge is irregularly crenulate over the proximal half and finely denticulate over the distal half, terminating in a small acute tooth and a larger distal spine. The medial border bears a series of ten small acute teeth throughout its length with a single much larger and more acute terminal tooth distally, separated by a deep notch from the smaller distal tooth of the lateral series. The distal lateral series of teeth

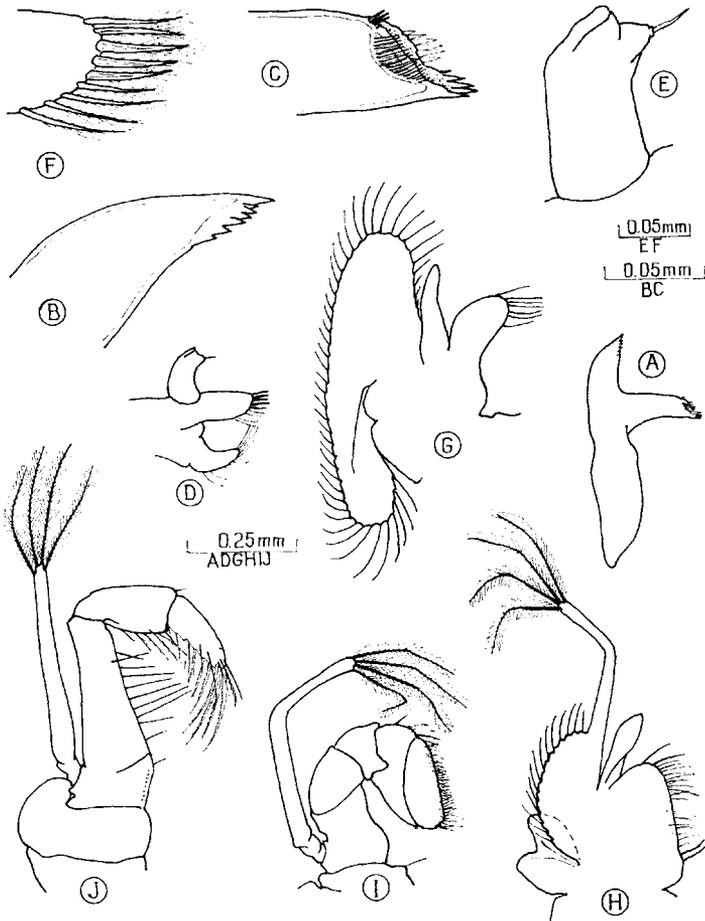


Fig. 3. — *Onycocaris furculata* sp. nov., female allotype. A, mandible; B, incisor process; C, molar process; D, maxillula; E, idem, palp; F, idem, upper lacinia; G, maxilla; H, first maxilliped; I, second maxilliped; J, third maxilliped.

are all situated along the uppermargin of a thin laminar flange that lies outside the tip of the dactylus when fingers are closed.

Pereiopod 2 b: the chela is distinctly larger than *P 2 a*, the palm being about 1.3 times as long. The palm is strongly compressed, about 1.1 times longer than deep, with a strongly convex dorsal border and mainly straight ventral margin. The dactylus is slender, tapering, about 5.0 times longer than wide and curved, terminating distally in a strong, acute, feebly

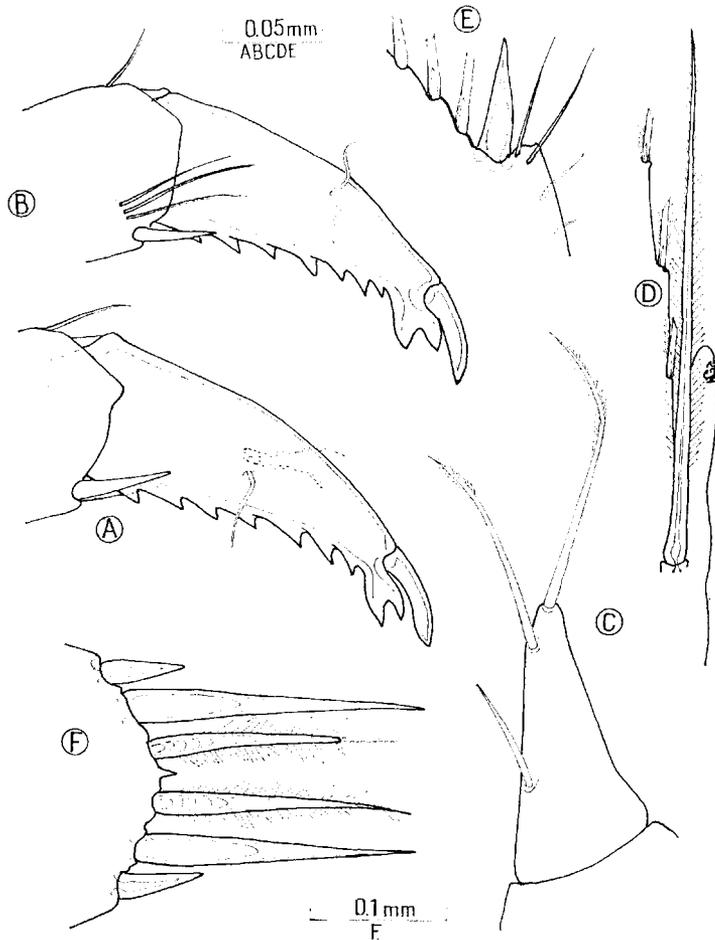


Fig. 4. — *Onycocaris furculata* sp. nov. A, dactylus of (?) third pereiopod. B, dactylus of (?) fifth pereiopod; C, endopod of male first pleopod; D, appendix masculina and appendix interna of male second pleopod; E, disto-lateral angle of exopod of uropod; F, posterior telson spines; EF, female allotype.

hooked tip. The cutting edge is slightly laterally situated and bears a large simple acute tooth at one third of its length, with a small tooth at two thirds of its length and with a row of minute teeth between the latter and the base of the terminal tooth. The fixed finger is broadly based and tapers strongly distally, about 1.4 times longer than wide, moderately curved with two strong acute distal teeth, between which lies the tip of the dactylus when closed. The lateral distal tooth is slightly larger than the

medial and is continuous with the cutting edge of the fingers. The edge is slightly laterally situated and bears an elongated, irregularly crenulated tooth proximally separated by a distinct notch from a subrectangular, crenulated tooth at about the midpoint, separated in turn by a deeper notch, with two small denticles, from the distal cutting edge which is finely denticulate. *Pereiopod 2 c*: the cela is distinctly larger than *P 2 a*, but slightly smaller than *P 2 b*, the palm being about 1.2 times the length of that *P 2 a*. The palm is strongly compressed, about 1.2 times longer than deep, with a moderately convex dorsal margin. The dactylus is slender, strongly curved, about four times longer than wide and with a strong acute distal tooth. The cutting edge is only feebly laterally situated and bears a large simple acute tooth at near its midpoint. A second large tooth, less acute, is situated halfway between the proximal tooth and the tip. The fixed finger is broadly based, strongly curved, about 1.1 times longer than deep, with a single large acute distal tooth. The cutting edge is only slightly towards the lateral margin and bears a low crenulate tooth proximally, a large rounded tooth centrally, and a larger, more slender, slightly bilobed tooth distally, each separated by a deep notch. A series of three small teeth, of which the distal is the largest, are situated on the distal medial aspect of the finger. The fingers of all teeth bear numerous long setae.

The carpus, merus and ischium of the three second pereiopods are all essentially similar. The carpus is smooth, short and stout, about 1.1-1.2 times longer than wide, markedly broadened and expanded distally. The merus is stout, broadest centrally, unarmed, about 0.8 times longer than wide. The ischium is more slender, tapering proximally, without a disto-medial tooth and feebly tuberculate laterally, about 2.4 times longer than broad.

Only two ambulatory pereiopods are extant. The dactylus is 3.2-3.4 times longer than wide and slightly curved. The unguis very distinctly demarkated and rather stout and blunt, equal to about 0.31 of the corpus length. The corpus is slightly compressed and is armed disto-ventrally, with a large bifurcate accessory spine, the two acute processes of which lie in the median plane of the dactylus. The ventral border is also armed with a series of seven acute teeth, of which the more distal are larger and more acute than the others. The propod in the larger pereiopod is about three times the length of the dactylus, tapers slightly distally, about 5.2 times longer than wide and armed with a pair of simple disto-ventral spines and six smaller isolated, adpressed ventral spines distributed

along its length. The carpus is about .075 of the propod length, four times longer than wide, and unarmed. The merus is also unarmed, 1.1 times the propod length, almost four times longer than broad. The ischium is subequal to the carpus length, proximally narrowed, about 2.5 times longer than wide. The propod of the remaining pereopod is distinctly more slender, about six times longer than broad, subequal to the length of the previously described propod, with a single disto-ventral spine, and a group of short setae disto-laterally, with three small ventral spines. The merus and ischium are also similar but more slender.

The male first pleopod bears a small, short tapering endopod, almost twice as long as broad, with a long simple terminal seta, a shorter subterminal lateral seta, and a short seta halfway along the lateral margin. The endopod of the second pleopod bears a greatly reduced appendix masculina, consisting merely of a socket for a long slender setulose seta, about 0.275 mm long, that is, more than twice as long as the appendix interna.

The uropods are normal. The protopodite is unarmed laterally. The exopod is almost twice as long as broad with an entire convex lateral margin ending distally in a feeble lateral tooth with a strong mobile spine medially. The endopod slightly exceeds the exopod and is about twice as long as broad.

The ova are relatively few, about thirty, and large.

3^o Type: The male specimen is selected as the holotype and the female as allotype. Both are deposited in the collections of the Museum National d'Histoire Naturelle, Paris, catalogue number NA 3470.

Measurements (mms):

	♂	♀
Postorbital carapace length.....	1.25	1.70
Carapace and rostrum.....	1.70	2.10
Total body length (approx.).....	5.0	6.5

Chela of second pereopods:

P 2 <i>a</i>	2.1
P 2 <i>b</i>	2.6
P 2 <i>c</i>	2.4

Colouration : Noted as transparent in life.

Host : No data.

4° Systematic position: *Onycochelis furculata* is most closely related to *O. seychellensis* BRUCE, and *O. zanzibarica* BRUCE, all species being provided with a dorsally dentate rostrum (BRUCE, 1971, 1971 a). All other species of the genus, except *O. monodoa* FUJINO & MIYAKE, have greatly reduced rostra, devoid of teeth. *O. monodoa* has only a single dorsal rostral tooth and differs strongly from *O. furculata* in the morphology of the chela of the first pereopods, second pereopods and the dactyls of the ambulatory pereopods. It is one of the least specialized species of the genus.

Onycochelis furculata may be distinguished from *O. seychellensis* and *O. zanzibarica* (and all other species of the genus) by the dactyls of the ambulatory pereopods, which bear a very characteristic forked disto-ventral accessory spine on the corpus. Most species have a spine in this position, either a simple acute spine, or a subquadrate or trapezoidal tooth. The dactylus is also much longer and more slender than in other species. *O. furculata* also shows a close resemblance to *O. seychellensis* in the morphology of the chelae of the second pereopods, particularly with reference to the spiniform distal tooth on the fingers. However, *O. seychellensis* is completely without the rows of small teeth that occur on the inner side of the fingers of the minor second pereopods (P 2 a) in *O. furculata*. In the major second pereopod of *O. seychellensis*, the lateral aspect of the fixed finger is provided distally with a well marked flange, dorsally denticulate and with a small acute tooth distally. This is lacking in both P 2 b and P 2 c, which have a large acute simple tooth and a few small denticles only, respectively. The first pereopods, particularly the chelae, are also closely similar in the two species. The mouthparts of the two species are essentially similar, except that in *O. furculata* the second maxilliped is without an epipod. The mouthparts of *O. furculata* do not show any special resemblance to the unusual oral appendages found in *O. anomala* (BRUCE, in press).

2. DISCUSSION

The genus *Onycochelis* NOBILI now consists of thirteen species, although *O. aualitica* (BALSS) and *O. oligodentata* FUJINO & MIYAKE may prove to be synonymous (BRUCE, 1978.) These species are only known to occur in the Indo-West Pacific region, where they are found exclusively in association with sponges in those cases in which the hosts are known. They are

frequently found in association with other pontoniine shrimps such as *Periclimenaeus* spp. or with alpheids, such as *Synalpheus* spp. Although the hosts of all species have not yet been identified, it seems probable that all species of the genus, including *O. furculata*, are obligatory sponge associates. Where specimens are reported from corals, it is probable that they have been released from small encrusting sponges, which are often damaged in the collection of the coral specimens.

The attribution of the second pereopods can not be done with certainty. However, it is clear that the chelæ may be dissimilar in both sexes. It is probable that P 2 *a* belongs to the female, as the chelæ are usually distinctly larger in the male specimens of *Onycocharis* pairs, although the body size is smaller. Chela P 2 *a* could be paired with P 2 *b* or with the missing chela. Similar P 2 *b* and P 2 *c* may be derived from the male or P 2 *c* may be paired with the missing chela. The single first pereopod is attributed to the female specimen and the stouter ambulatory pereopod, probably the third, also. The more slender ambulatory, pereopod, is probably a fifth, and could belong to either the male or female specimen.

Incidentally, it may be noted here that the reference (BRUCE, 1978, p. 276) to the presence of an appendix masculina on all pleopods except the first in *O. trullata* is erroneous. This *lapsus* should have referred to an appendix interna.

LITERATURE CITED

- BRUCE (A. J.), 1971. -- Notes on some Indo-Pacific Pontoniinae, XVI. *Onycocharis seychellensis* sp. nov., a new species of shrimp from Mahé. *Crustaceana*, **20**, (2) 208-218.
- , 1971 a. — *Onycocharis zanzibarica* sp. nov., a new pontoniid shrimp from East Africa. *J. nat. Hist.*, **5**, 293-298.
- , 1978. -- A report on a collection of pontoniine shrimps from Madagascar and adjacent seas. *Zool. J. Linn. Soc.*, **62**, 204-290.
- , (in press). -- *Onycocharis anomala* sp. nov., a new pontoniine shrimp from the Northern Territory. *Rec. Aust. Mus.*
- FUJINO (T.) and MIYAKE (S.), 1969. -- Studies on the genus *Onycocharis* with descriptions of five new species (Crustacea, Decapoda, Palaemonidae). *J. Fac. Agric.*, Kyushu Univ., **15** (4), 403-448.

