

ON DECAPODA BRACHYURA FROM THE ANDAMAN AND
NICOBAR ISLANDS

3. FAMILIES : CALAPPIDAE, LEUCOSIIDAE, PARTHENOPIDAE,
MAIIDAE, AND GECARCINIDAE¹

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THE present paper is the third in the series on Decapoda Brachyura from the Andaman and Nicobar Islands.

Heller (1868) recorded six species of crabs belonging to families Maiidae, Calappidae and Gecarcinidae. Later, Alcock (1895, 1896 & 1900) reported nine species belonging to Leucosiidae, fifteen species belonging to Parthenopidae, thirty-eight species belonging to Maiidae and five species belonging to Gecarcinidae. The present paper deals with nineteen species representing the above mentioned families. Of the above nineteen species, two are hitherto unknown from this region, namely *Tlos latus* Borradaile and *Pseudomicippa tenuipes* A. M. Edwards.

Descriptions of *Tlos latus* and *Pseudomicippa tenuipes* are given with necessary illustrations. The first male pleopod of *Calappa hepatica* (Linnaeus), *Matuta lunaris* (Forskål), *M. banksii* Leach, *Menaethius monoceros* Latreille, *Tylocarcinus styx* (Herbst), *Tairinia cornigera* (Latreille), *Schizophrys aspera* (H. Milne Edwards), *Nursilia dentata* Bell and *Aulacolambrus hoplonotus* Adams and White are also figured.

The following is the list of crabs included in the present paper. An asterisk in front of the name indicates new record.

Family : CALAPPIDAE

1. *Calappa hepatica* (Linnaeus).
2. *C. philargius* (Linnaeus).
3. *Matuta lunaris* (Forskål).
4. *M. banksii* Leach.

Family : LEUCOSIIDAE

5. *Myra fugax* (Fabricius).
6. *M. pentacantha* Alcock.
7. *Leucosia pallida* Bell.
8. *Arcania tuberculata* Bell.

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9. *A. undecimspinoso* de Haan.
 *10. *Tlos latus* Borradaile.
 11. *Nursilla dentata* Bell.

Family : PARTHENOPIDAE

12. *Aulacolambrus hoplonotus* Adams & White.

Family : MAIIDAE

13. *Paratymolus hastatus* Alcock.
 14. *Menaethius monoceros* Latreille.
 15. *Tylocarcinus styx* (Herbst)
 16. *Tairinia cornigera* (Latreille).
 17. *Schizophrys aspera* (H. Milne Edwards).
 *18. *Pseudomicippa tenuipes* A. Milne Edwards.

Family : GECARCINIDAE

19. *Cardisoma carnifex* (Herbst).

Family : CALAPPIDAE

Calappa hepatica (Linnaeus)

Calappa tuberculata, Heller, 1868, p. 69 : Tahiti, Nicobar, Auckland.

Calappa hepatica, Henderson, 1893, p. 395 : Rameswaram, Tuticorin, Ceylon and Gulf of Martaban.

Alcock, 1896, p. 142 : Andamans, Nicobars, Maldives, Laccadives and Persian Gulf.

Borradaile, 1903, p. 436 : Hulule, Male Atoll and Minicoy.

Gravely, 1927, p. 142 : Krusadai Island and Kutikal point in Gulf of Mannar.

Chopra and Das, 1937, p. 382 : Mergui.

Barnard, 1950, p. 348 : Durban Bay, Mozambique and Deloga Bay.

Forest, J. and D. Guinot, 1961, p. 11 : Hikueru.

Material: A male, a female and three juveniles ; largest specimen which is a male measures 15 mm. in length and 21 mm. in breadth.

Locality: Aberdeen Bay.

Remarks. As has already been mentioned by Alcock, these specimens have narrower carapace due to the less development of clypeiform expansions in juvenile and smaller specimens and in the largest specimens the breadth of carapace is only 1.4 times its length.

The first male pleopod (Fig. 1) compares well with the figure given by Forest, J. and D. Guinot (Fig. 1 a & b).

Calappa philargius (Linnaeus)

- Calappa philargius*, Henderson, 1893, p. 396 : Ceylon and Gulf of Martaban.
Alcock, 1896, p. 145 : Mergui, Andamans, Ceylon, Persian Gulf.
Laurie, 1906, p. 353 : Gulf of Mannar, Off Negombo, Galle.

Material: A female, 55 mm. broad and 39 mm. long.

Locality: Port Blair.

Matuta lunaris (Forskål)

- Matuta victrix*, Henderson, 1893, p. 396 : Tuticorin, Ceylon, Sind, Ganjam, Akyab, very common at Madras.

- Matuta victor*, Heller, 1868, p. 69 : Madras, Java, Tahiti.
Alcock, 1896, p. 160 : Indian Coast, Penang, Tavoy, Arakan, Andamans, Ganges Delta, Mahanadi Delta, Madras, Ceylon, Malabar Coast, Karachi.
Kemp, 1915, p. 209 : Chilka Lake,
Gravelly, 1927, p. 142 : Krusadai Island, Kutikal point.

- Matuta lunaris*, Laurie, 1906, p. 356 ; Galle.
Chopra, 1935, p. 49.
Chopra and Das, 1937, p. 383 : Mergui, Maungmagon.
Barnard, 1950, p. 358 : Durban Bay, Umlass River mouth Ibo, Mozambique, Chinde, Deloga Bay.
Pillai, 1951, p. 9 : Travancore Coast.
Chhapghar, 1957, p. 404 : Bombay, Karwar, Okha, Umarsadi.

Material: Two males and an immature specimen, larger of the male specimen 41 mm. long and 67 mm. broad (including lateral spines).

Locality: Nancauri.

Remarks: The first male pleopod (Fig. 2) agrees with the illustration given by Chhapghar (Plate 2, b & c).

Matuta banksii Leach

- Matuta banksii*, Alcock, 1896, p. 158 : Andamans, Nicobars.

- Matuta banksi*, Borradaile, 1903, p. 436 : Hulule, Male Atoll.
Barnard, 1950, p. 359 : Durban, Deloga Bay, Mozambique.

Material: Three juveniles, two females and two males ; larger male 37 mm. long and 51 mm. broad (including lateral spines).

Locality: Car Nicobar.

Remarks: The first male pleopod (Fig. 3) differs from the previous species in the shape of the distal end of the appendage.

Family : LEUCOSIIDAE

Myra fugax (Fabricius)

Myra fugax, Henderson, 1893, p. 402 : Rameswaram, Ceylon, Gulf of Martaban.
Alcock, 1896, p. 203 : Both coasts of Peninsula, Andamans, Persian Gulf.

Laurie, 1906, p. 360 : Aripu Coral reef, Gulf of Mannar, Trincomalee, Galle, Off Mannar Island.

Barnard, 1950, p. 37 : Deloga Bay.

Material: An immature male specimen 14 mm. long (including median posterior spine) and 11 mm. broad.

Locality: Aberdeen Bay.

Remarks: The terminal granule on the penultimate segment of male abdomen is not distinct.

Myra pentacantha Alcock

Myra pentacantha, Alcock, 1896, p. 204 : Both coasts of Peninsula.

Material: An immature specimen.

Locality: Aberdeen Bay.

Leucosia pallida Bell

Leucosia pallida, Alcock, 1896, p. 222 : Andamans, Persian Gulf, Borradaile 1903 ; p. 439 : Hulule.

Material: A female 9.5 mm. broad and 11 mm. long.

Locality: Aberdeen Bay.

Arcania tuberculata Bell

Arcania tuberculata, Alcock, 1896, p. 268 : Andamans, Maldives.

Borradaile, 1903, p. 369 : South Nilandu Atoll.

Laurie, 1906, p. 366 : Pearl Beds, Gulf of Mannar.

Material: An immature female 6 mm. long and 6 mm. broad.

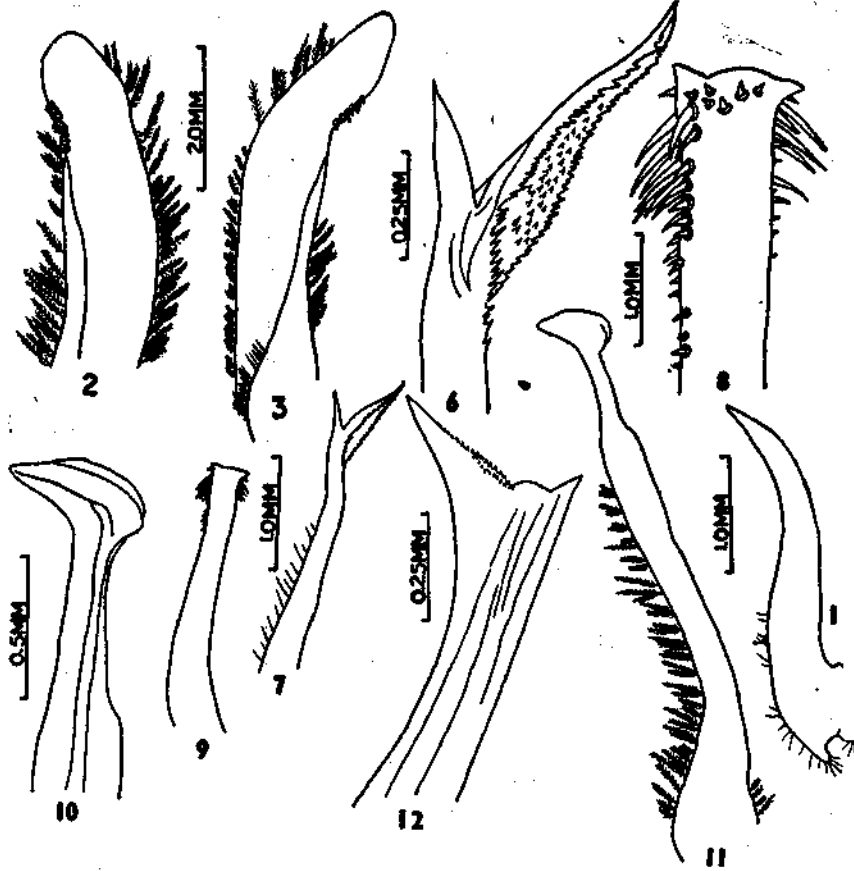
Locality: Aberdeen Bay.

Arcania undecimspinos de Haan

Arcania undecimspinos, Alcock, 1896, p. 266 ; Andamans, Maldives, Madras side of Palk Strait.

Material. An immature specimen 6 mm. broad (including the spines) and 6 mm. long.

Locality. Aberdeen Bay.



FIGS. 1-3 & 6-12. First male pleopods of ; *Calappa hepatica* (1), *Matuta lunaris* (2), *M. banksii* (3), *Nursilia dentata* (6 & 7), *Aulacolambrus koplonosus* (8 & 9), *Menaethius monoceros* (10 & 11) and *Tylocarcinus styx* (12).

Tlos latus Borradaile

Tlos latus, Borradaile, 1903, p. 437 : Hulule, Male Atoll, North Male Atoll.

Material. A female 6 mm. long and 9 mm. broad.

Locality. Aberdeen Bay.

Description: Carapace (Fig. 4) is pentagonal, surface pitted or eroded and covered with circular, flat-topped granules which on closer examination shows the shape of the wheel of a watch. Branchiohepatic region of carapace is concave or cupped and postcardiac region is low and irregular in shape.

Front is well upturned and has a flat oval top with a longitudinal median groove, which gives the appearance of an emarginate front. Front is connected with the cardiac region by a low but distinct ridge. Lateral cardiac humps are very prominent and isolated from each other, being not connected by a transverse cardiac ridge (a faint transverse ridge can be seen on cardiac region which becomes indistinguishable at either ends). Lateral cardiac humps are connected with posterolateral corner of carapace by an oblique ridge which becomes low and less obvious towards lateral cardiac hump.

Eyes are visible in the dorsal view of the carapace. Borders of carapace are without sutures. Anterolateral border of carapace is upturned and rounded where carapace has maximum breadth. Posterolateral corner of carapace is squarish, carapace narrows from anterolateral corner to posterolateral corner. Posterior border of carapace is divided into three lobes, of which median lobe projects beyond the lateral lobes. Subhepatic and subbranchial regions of carapace have a few enlarged granules.

Cheliped (Fig. 5) is a little longer than the length of carapace. Merus of cheliped is triangular in cross section; all the borders of merus are granulated, but granules on the upper border are larger than others. Surface of carpus is also provided with similar granules. Under surface of propodus has two granulated ridges, the inner one originating from the proximal end slightly curving down and reaching up to the tip of fixed finger; the outer ridge is short and does not reach even up to the base of fixed finger. Length of fixed finger is more than the upper border of propodus and its height. Inner side of fixed finger is concave and shovel-shaped. Dactylus is fluted with three denticles near the distal end on the cutting edge like the fixed finger. Tip of the dactylus is placed inside that of fixed finger in flexion.

In the dorsal view of animal only a part of carpus of legs is visible. Merus has large granules along all its borders. Carpus is squarish in cross section. Ventral border of propodus has large granules. Dactylus is long, pointed and granulated at the base.

Female abdomen consists of four separate pieces, first two and last segments being separate, rest of the segments are all fused together leaving only transverse grooves indicating the lines of fusion. A longitudinal groove on either side of the median line of abdomen runs along the entire length (except the last segment).

The female specimen in the present collection is ovigerous and carries 125 eggs.

Nursilia dentata Bell

Nursilia dentata, Alcock, 1896, p. 260 : Andamans, Off Ceylon, Madras coast in the neighbourhood of Palk Strait, Off Malabar Coast, Off Maldives.

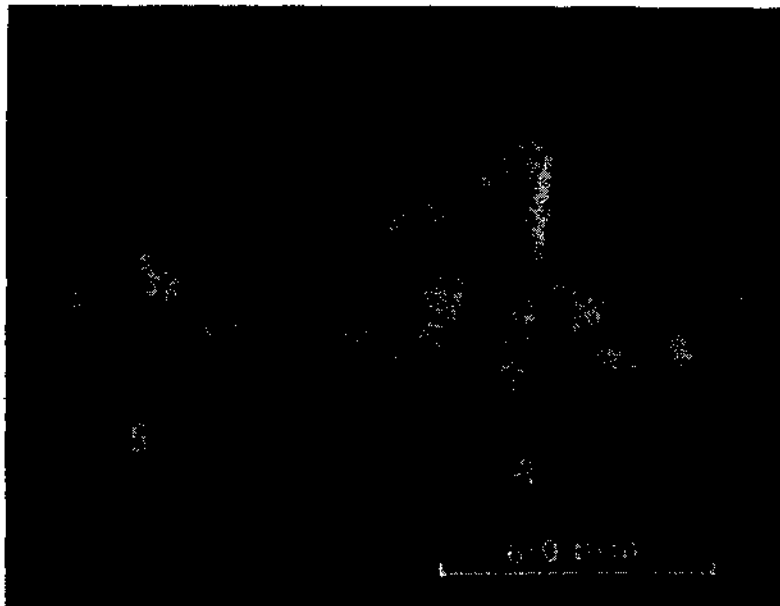
Borradaile, 1903, p. 439 : South Nilandu, Kolumadulu, Suvadiva and Mulaku Atolls.

Material: 4 females and a male, the largest specimen which is a female, 10 mm. long and 10 mm. broad.

Locality: Aberdeen Bay.

Remarks: Median spines on the posterior part of carapace is more prominent in the male. Longitudinal, hepato-gastric and oblique ridges on the branchial regions are more prominent in the male than in the female.

First male pleopod (Figs. 6 & 7) is an almost straight appendage with a bifid tip, each of them tapering to a point. The smaller of the two lobes has simple unarmed edge, whereas in the larger lobe the outer borders are completely serrated.



FIGS. 4 & 5. *Tlos latus* : Carapace (4) and Cheliped (5).

Family : PARTHENOPIDAE

Aulacolambrus hoplonotus Adams and White

Lambrus (Aulacolambrus) hoplonotus, Alcock, 1895, p. 275 : Andamans.

Aulacolambrus hoplonotus, Forest and Guinot, 1961, p. 26 : Tahiti.

Material: 2 males, one of which 14 mm. long and 11 mm. broad (including the two spines).

Locality: Aberdeen Bay.

Remarks: The first male pleopod (Figs. 8 & 9) agrees with the illustration given by Forest, J. and D. Guinot (Fig. 12 a & b).

Family : MAIIDAE

Paratymolus hastatus Alcock*Paratymolus hastatus*, Alcock, 1895, p. 174 : Andamans.

Laurie, 1906, p. 370 : Gulf of Mannar.

Material: An ovigerous female measuring (in mm.)

Length of carapace	..	..	4.7
Breadth of carapace	..	..	4.0
Length of rostrum	..	..	0.6
Breadth of rostrum	..	..	1.0

Locality: Aberdeen Bay.*Remarks*: On either sides of gastric region is a horse-shoe shaped brown marking (concavity pointing posteriorly), which is retained even after long preservation.

Number of eggs carried by the female is small and an egg measures 0.3 mm. in diameter.

Menaethius monoceros Latreille*Menaethius monoceros*, Henderson, 1893, p. 345 : Rameswaram, Tuticorin, Muttuvaratu Paar, Gulf of Martaban; Very common on the reef at Rameswaram and usually overgrown with sponges and hydroids.

Alcock, 1895, p. 197 : Andamans and Nicobars.

Borradaile, 1906, p. 686 : Male, Fadifolu, Minikoi, and Goifurfehendu Atoll.

Laurie, 1906, p. 375 : Cheval Paar, Gulf of Mannar, Aripu coral reefs, Off Muttuwal Island, Jakkenpiddi Paar, Navakadu Paar.

Gravely, 1927, p. 151 : Krusadai Island and Kutikal.

Chopra, 1931, p. 324 : Off Cinque Island in Andamans.

Barnard, 1950, p. 43 : Mozambique, Zululand coast, Deloga Bay.

Pillai, 1951, p. 5 : Travancore coast.

Chhapghar, 1957, p. 410 : Okha.

Material: 4 juveniles, 7 males and 8 females of which one alone is non-ovigerous, largest specimen is a male 24 mm. long (including rostrum) and 15 mm. broad.*Locality*: Car Nicobar and Aberdeen Bay.*Remarks*: The first male pleopod (Figs. 10 & 11) has been figured by Barnard (Fig. 9 g), Chhapghar (Plate 3, j & k) and Forest, J. and D. Guinot (Fig. 9 a & b).

Tylocarcinus styx (Herbst)

- Tylocarcinus styx*, Henderson, 1893, p. 349 : Rameswaram, Tuticorin and Muttuwartu Paar : common on the reef at Rameswaram.
Alcock, 1895, p. 235 : Ceylon, Andamans, Mergui and Samoa.
Borradaile, 1906, p. 382 : Male, Fadifolu and Goifurfeh-endu Atoll.
Laurie, 1906, p. 382 : Cheval Paar.
Gravely, 1927, p. 151 : Krusadai Island.

Material: A male 11 mm. long (including rostrum) and 6 mm. broad.

Locality: Aberdeen Bay.

Remarks: The first male pleopod (Fig. 12) is more or less a straight appendage with a triangular lateral projection at the distal end.

Tairinia cornigera (Latreille)

Tairinia cornigera, Alcock, 1895, p. 256 : Andamans.

Material: A male and a female ; male which is larger 28 mm. long (including rostrum) and 23 mm. broad.

Locality: Car Nicobar.

Remarks: The first male pleopod (Figs. 13 & 14) is a little sinuous in shape, long with the tip a little expanded, blunt and almost triangular in shape. The flat distal end has a depression towards the inner side.

Schizophrys aspera (Milne-Edwards)

- Schizophrys aspera*, Henderson, 1893, p. 346 : Tuticorin, Ceylon, Rameswaram and Madras.
Alcock, 1895, p. 243 : All parts of Indian coast, Mergui and Tavoy on the east to Karachi on west.
Borradaile, 1906, p. 686 : Male, Fadifolu, Atoll, Felidu and Suvadiva Atoll.
Laurie, 1906, p. 383 : Off Muttuwal Island, Jokkenpidi Paar, Gulf of Mannar.
Gravely, 1927, p. 151 : Kutikal and Krusadai Island.
Barnard, 1950, p. 60 : Durban, Deloga Bay.
Chhapghar, 1957, p. 413 : Bombay.

Schizophrys asper, Chopra and Das, 1937, p. 390 : Mergui, Doung Island.

Material: 2 males, one of which 13 mm. long (including rostrum) and 10 mm. broad (including spines).

Locality: Car Nicobar.

Remarks: The first male pleopod (Figs. 15 & 16) has already been figured by Chhapghar (Plate 4, e & f).

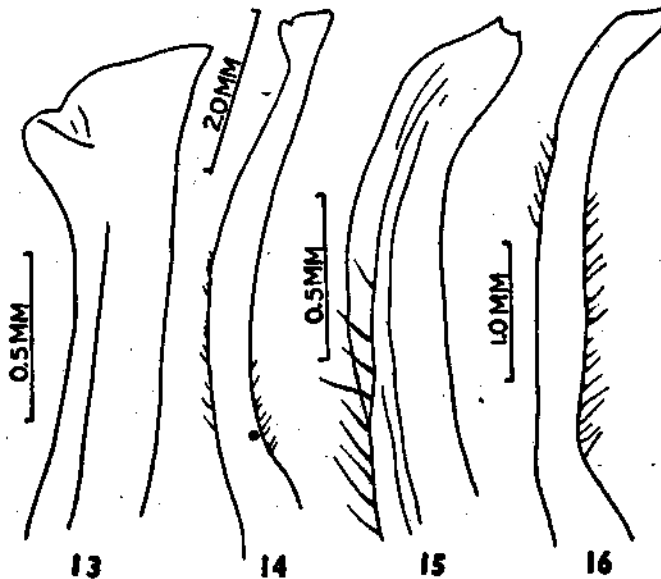
Pseudomicippa tenuipes A. Milne Edwards

Pseudomicippa tenuipes, Milne Edwards, A. 1865, p. 133 : Indian Ocean.

Material: A male and a female.

Locality: Car Nicobar.

Description: Carapace is markedly convex transversely as well as longitudinally. Regions of carapace are not quite distinguishable excepting cardiac region which is faintly marked. Carapace has three longitudinal rows of isolated groups of strong sickle-shaped setae from the level of anterior end of supra-ocular eave to the cardiac region. Each group of such setae arise from a little elevated area.



FIGS. 13-16. First male pleopods of: *Tairnia cornigera* (13 & 14) and *Schizophrys aspera* (15 & 16).

Rostrum (Fig. 17) is bifid, deflexed and the spines diverging towards the tip, but the tips are a little incurved; in both male as well as female, rostrum is deflexed at more or less same angle (about 45 degrees). Length of rostral spines is more or less equal to the basal breadth of rostrum. Orbit is formed by the arched supra-ocular eave which projects outwards and has a concave border. There is no pre-ocular spine and postocular spine is represented by a blunt projection, projecting anterolaterally and separated from the supraocular eave by a U-shaped gap. When eye-stalk is flexed, it lies below the postocular spine pointing posteriorly. The floor of orbit is incomplete and there is a distinct gap between the supraocular eave

and basal antennal joint. Median posterior border of carapace projects as a conical projection.

Basal antennal joint is flattened forming the ventral border of orbit and has a conical spiny projection towards its anterior end on the outer side. Flagellum of antenna is visible in the dorsal view of the animal.

Buccal frame is broader at the anterior end. Ischium of third maxilliped (Fig. 18) is broader distally, has a serrated inner border and with a large expansion distally on the inner side. Palp is attached to the inner side of merus.

In female, cheliped is a little thinner than the walking legs whereas in the male cheliped (Fig. 19) is a little stouter and with few short bristle-like setae. Fingers in both sexes are simple, long and have serrated cutting edges.

Length of the walking legs (Fig. 20) reduces from first to last. Dorsal surface of merus, carpus and propodus has strong sickle-shaped setae, arising singly or in groups of two or three at regular interval. Apart from these setae segments of legs have long, bristle-like setae irregularly arranged. Dactylus is long, curved and its ventral border serrated.

Abdomen in male (Fig. 21) and female consists of seven separate segments. In male first segment narrows distally. Terminal segment is broader than long. Ventral surface of segments 3 to 7 have a few long bristles along the median line, along their borders except last there is a stout sickle-shaped setae in the middle of each segment. In addition, third segment has another pair on either side of median line near the anterior border.

First male pleopod (Figs. 22 & 23) is 'S' shaped with the tip pointing inwards. Subterminally, on the inner side are 2 strong spines of unequal length, proximal one being much longer than distal and pointing proximally. Along the outer border where the appendage bends inwards is a short, stout spine preceded by a semicircular transparent projection.

The crab in natural condition was completely clothed in *Chondrococcus hornemanni* (Mert.) Schmitz and cannot be located and only while making a collection of algae, the crab was also pulled out from the rock. The strong sickle-shaped setae are particularly useful for this purpose.

Family : GECARCINIDAE

Cardisoma carnifex (Herbst)

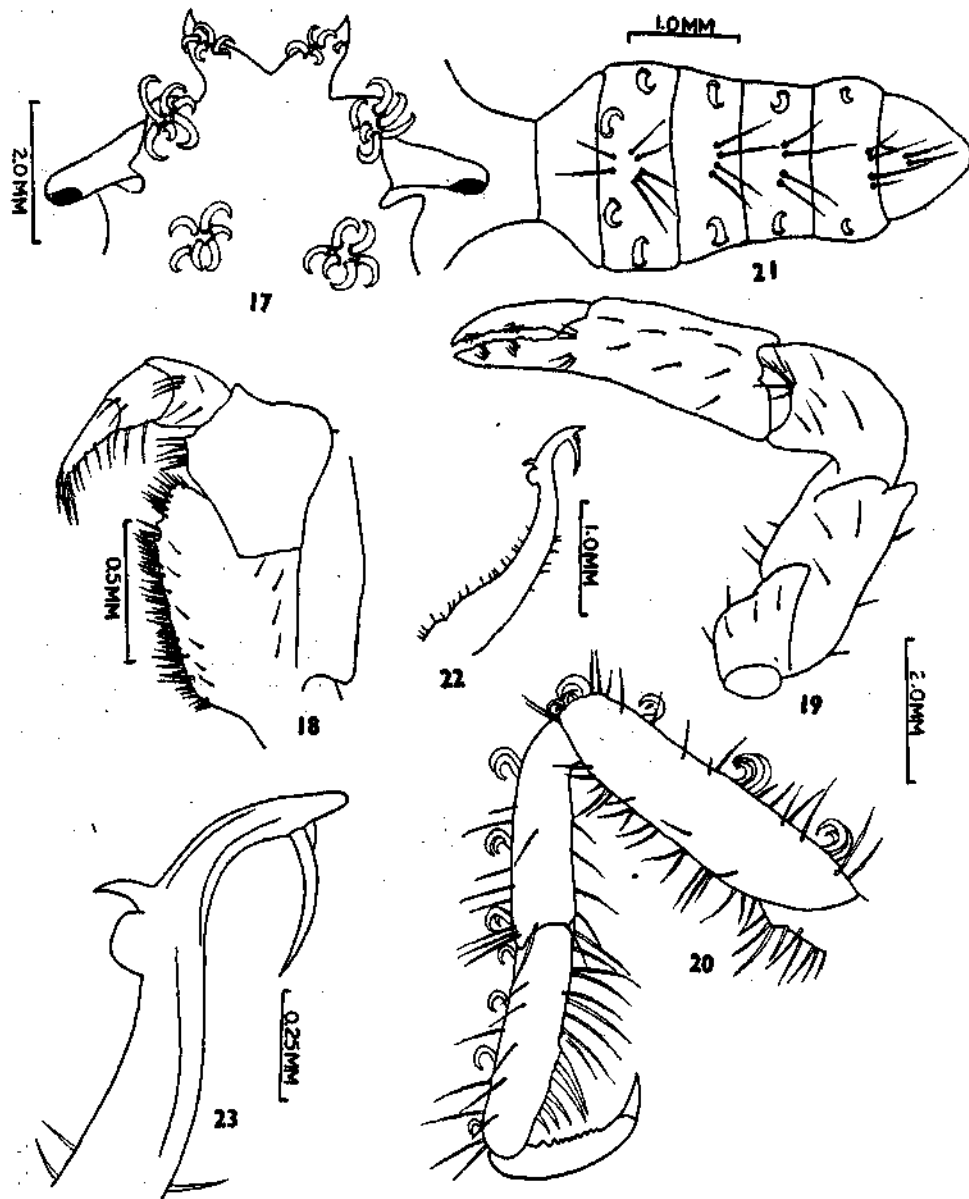
Cardisoma carnifex, Heller, 1868, p. 35 : Nicobar.

Henderson, 1893, p. 380 : Tuticorin, Ceylon ; found burrowing near the margin of the South Indian backwaters.

Tesch, 1918, p. 137 : Saleyer Island, South of Celebes Roma Island, north of Timor.

Silas, E. G. and C. Sankarankutty, 1960, p. 237-240 : Marine Drive, Port Blair.

Cardiosoma carnifex, Alcock, 1900, p. 455 : Andamans, Coromandel Coast, Tahiti, Madagascar.
Borradaile, 1903, p. 97 : Miladumadulu, Mahols.



FIGS. 17-23. *Pseudomicippa tenuipes*: Anterior end of carapace with rostrum (17). Third maxilliped (18), Cheliped (19), Walking leg (20), Male abdomen (21) and First pleopod of male (22 & 23).

Material: A female 52 mm. long and 64 mm. broad.

Locality: Marine Drive—Aberdeen Bay.

SUMMARY

The present paper is the third in the series on Decapoda Brachyura from the Andaman and Nicobar Islands and deals with 19 species belonging to families Calappidae, Leucosiidae, Parthenopidae, Mairidae and Geocarcinidae, of which two species are reported for the first time from the Andaman and Nicobar Islands.

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