

ON DECAPODA BRACHYURA FROM THE ANDAMAN AND
NICOBAR ISLANDS : 2. FAMILY XANTHIDAE**

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THE present paper is the second in the series on *Decapoda Brachyura* from the Andaman and Nicobar Islands and reports 43 species and 2 varieties belonging to 22 genera of which genus *Jonesius* is new to science apart from 7 new records for the region.

Heller (1868) reported 12 species of xanthid crabs from Nicobars. Later Alcock (1898) recorded 85 species and 3 varieties belonging to 33 genera including 8 species already reported by Heller.

Since the first male pleopod is known to distinguish the closely related species, the same is illustrated wherever male specimens were available in the collection. Description of the first male pleopod is given for those which were not earlier described by Chopra (1935), Chopra and Das (1937), and Chhapghar (1957). Detailed descriptions of *Zozymodes pumilus* (Jacquinot) and *Pilumnus heterdon* Sakai are also given, both of them being additions to the faunistic list of India.

List of species reported in this paper. (an asterisk in front of the name indicates new record).

1. *Carpilodes tristis* (Dana).
2. *C. rugatus* (Dana).
3. *Atergatis dilatatus* De Haan.
4. *A. floridus* (Rumph).
5. **Atergatopsis signata* (Adams and White).
6. **Platypodia granulosa* (Ruppell).
7. *Zozymus aeneus* (Linnaeus).
8. **Zozymodes pumilus* (Jacquinot).
9. *Leptodius sanguineus* (Milne-Edwards).
10. *L. nudipes* (Dana).
11. *L. cavipes* (Dana).
12. *L. exaratus* (Milne-Edwards).
13. *Etismus dentatus* (Herbst).
14. *E. laevimanus* Randall.
15. *Actaea tomentosa* (Milne-Edwards).

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16. *A. hirsutissima* (Ruppell).
17. *A. cavipes* (Dana).
18. *A. speciosa* (Dana).
19. *Xanthias lamarckii* (Milne-Edwards).
20. *X. notatus* (Dana).
21. *Chlorodiella niger* (Forskål).
22. *C. laevissima* (Dana).
23. *Phymodius unguatus* (Milne-Edwards).
24. *P. sculptus* (Milne-Edwards).
25. *Chlorodopsis areolata* (H. Milne-Edwards).
26. *C. pilumnoides* (White).
27. *C. melanochira* Milne-Edwards.
28. *C. spinipes* (Heller).
29. *Cymo andreossi* (Andouin).
30. *Jonesius minuta* Gen. et. sp.nov.
31. *Epixanthus frontalis* (Milne-Edwards).
32. *E. dentatus* (White).
33. *Pilumnus vespertilio* (Fabricius).
34. *P. hirsutus* Stimpson.
35. **P. heterodon* Sakai.
36. **Eurycarcinus maculatus* (Milne-Edwards).
37. *E. grandieri* Milne-Edwards.
38. *Eriphia laevimanus* Guerin.
39. **E. smithii* Mcleay.
40. *Trapezia cymodoce* (Herbst).
41. *T. ferruginea* Latreille.
- 41A. **T. ferruginea* var. *intermedia* Miers.
- 41B. *T. ferruginea* var. *areolata* Dana.
42. *Tetralia glaberrima* (Herbst).
43. *Domecia hispida* Eydoux and Souleyet.

Family XANTHIDAE

Carpilodes tristis Dana (Figs. 1 & 2)

Carpilodes tristis, Henderson, 1893, p. 353.

Alcock, 1898, p. 82.

Laurie, 1906, p. 394.

Liomera tristis, Barnard, 1950, p. 237.

Material: 2 females, of which one is ovigerous, 10.5 mm. long and 17 mm. broad and a male.

Locality: Aberdeen Bay.

Remarks: There is a definite difference in the colouration between the male and the female (male pale white whereas female is brownish in colour) as in the specimens collected from the Laccadive Islands.

Distribution: Andamans and Nicobars (Alcock); Galle—Ceylon (Laurie); Muttuwartu Paar (Henderson).

Carpilodes rugatus (Latreille)

Carpilodes rugatus, Alcock, 1898, p. 84.

Liomera rugatus, Barnard, 1950, p. 237.

Material: An immature male 3.5 mm. long and 6 mm. broad.

Locality: Ross Island.

Remarks: The first hepatic lobe (2L) has a middle papilla.

Distribution: Cocos Islands—Andamans (Alcock).

Atergatis dilatatus De Haan

Atergatis dilatatus, Henderson, 1893, p. 353.

Alcock, 1898, p. 96.

Material: An immature male 10 mm. long and 18 mm. broad.

Locality: Aberdeen Bay.

Remarks: The specimen disagrees from Alcock's description only in the smooth nature of carapace (not pitted).

Distribution: Ceylon (Henderson); Ceylon and from widely different parts of the Andaman group (Alcock).

Atergatis floridus (Rumph)

Atergatis floridus, Henderson, 1893, p. 352.

Alcock, 1898, p. 98.

Borradaile, 1903, p. 258.

Barnard, 1950, p. 207.

Chhapghar, 1957, p. 425.

Material : One female 27.5 mm. long and 41 mm. broad.

Locality : Port Blair.

Distribution : Rameswaram, Tuticorin and Ceylon (Henderson) ; Andamans, Ceylon and Laccadives (Alcock) ; Bombay (Chhapghar) ; Maldives (Borradaile). The species is also known from South Africa, Red Sea to Japan, Philippines and Australia.

Atergatopsis signata (Adams & White) (Figs. 3 & 4)

Atergatopsis signata, Barnard, 1950, p. 206.

Material : A male 25 mm. long and 37 mm. broad.

Locality : Kalapahad.

Remarks : The first male pleopod has subterminally, along the inner border, 4 long simple setae preceded by minute spinules. The part of the appendage beyond the insertion of the long setae, is flattened and has a blunt rounded tip. On the ventral side of the appendage are a number of minute spinules irregularly arranged.

Distribution : This is the first record of the species from the Andaman and Nicobar Islands. The species is also known from South Africa, Mauritius, Zanzibar, Seychelles and Chagos (Barnard).

Platypodia granulosa (Ruppell)

Lophactaea granulosa, Henderson, 1893, p. 354.

Alcock, 1898, p. 101.

Platypodia granulosa, Barnard, 1950, p. 208.

Material : 3 females, the largest of which is 19 mm. long and 28 mm. broad.

Locality : Neill Island, Ross Island.

Remarks : In the smaller females, the outer surface of hand of cheliped does not show longitudinal arrangement of granules, whereas in the larger female it is more or less clear.

Distribution. The species is recorded for the first time from this region. Rameswaram and Tuticorin (Henderson) ; Maldives (Borradaile). The species is also known from Red Sea, East coast of Africa, Indo-Pacific (Barnard).

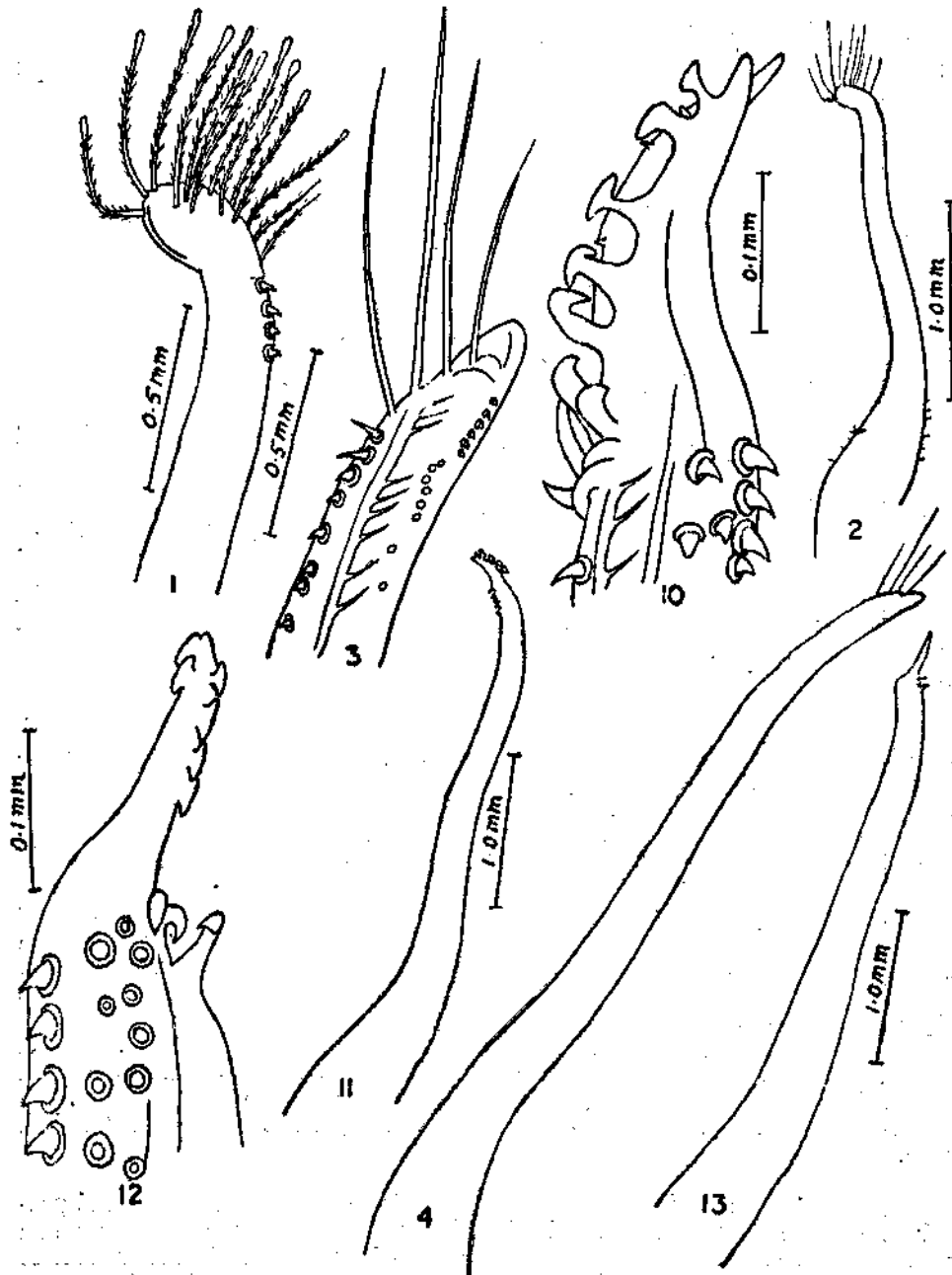
Zozymus aeneus (Linnaeus)

Zozymus aeneus, Henderson, 1893, p. 359.

Alcock, 1898, p. 104.

Zosimus aeneus, Borradaile, 1903, p. 258.

Zosimus aeneus, Barnard, 1950, p. 210.



First male pleopods of FIGS. 1 & 2 *Carpilodes tristis*. 3 & 4 *Atergatopsis signata*. 10 & 11 *Leptodius sanguineus*. 12 & 13 *L. nudipes*.

Material : A female 44 mm. long and 66 mm. broad.

Locality : Kalapahad.

Distribution : Ceylon (Henderson) ; Andamans, Laccadives (Alcock) ; Male and Minikoi (Borradaile). The species is also known from Mauritius, east coast of Africa, Indo-Pacific (Barnard).

Zozymodes pumilus (Jacquinot) (Figs. 5-9)

Zozymodes pumilus, Miyake, 1939, p. 177.

Forest, J. & D. Guinot, 1961, p. 52.

Material : A male.

Locality : Car Nicobar.

Description : The front, which is separated from the inner end of an undivided supraorbital border by narrow cleft is deflexed ventrally, and has a straight border with a median emargination. The anterolateral border of carapace is upturned and divided into four lobes including the outer orbital lobe ; first two lobes have more or less convex borders whereas the last two have a pointed anterior ends.

The surface of carapace is distinctly divided into regions by deep grooves, the posterior one-third of carapace alone is undivided, 2M is not divided longitudinally. The surface of carapace is more or less completely covered with tubercles of uniform size.

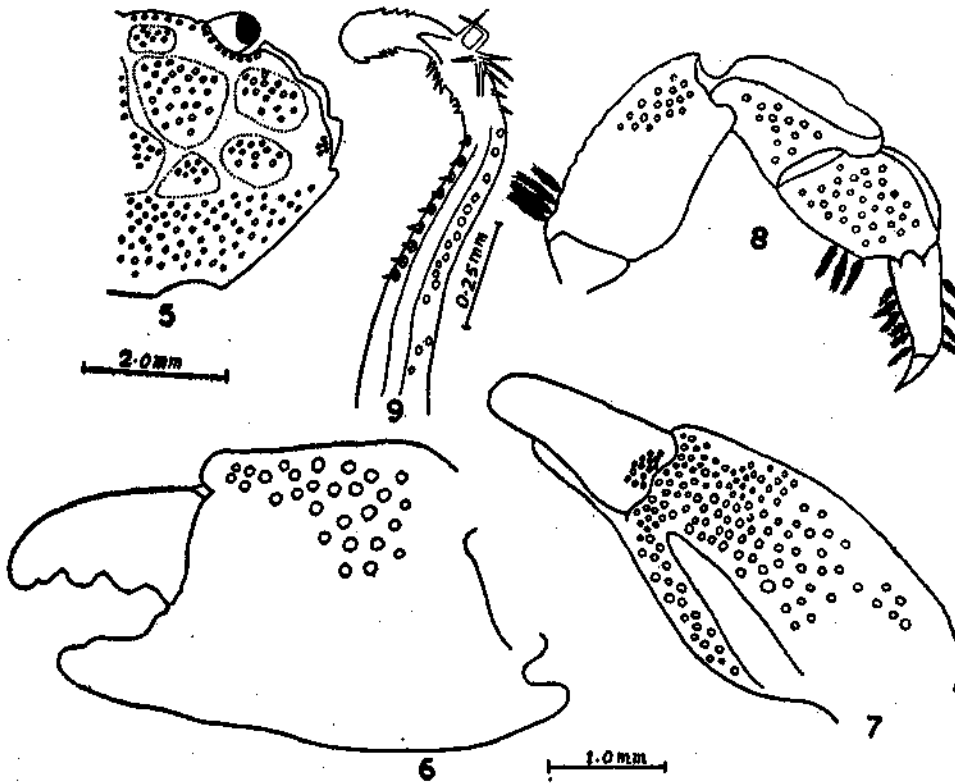
The antennules fold transversely. The basal antennal joint is short and broad, touching the ventral extension of the outer end of front and inner end of infraorbital border ; the flagellum being entirely within the orbit. The infraorbital border like supraorbital border is tuberculated along its margin. The pterygostomial subhepatic and sub-branchial regions are covered with tubercles. A thick fringe of plumose hairs is very evident above the base of thoracic appendages.

The chelipeds are very unequal in size. In the large cheliped, only the outer border of arm has a thin fringe of plumose hairs, whereas in the smaller chela both inner and outer borders of arm are provided with thick fringes of hairs. The outer surface of arm, upper end and outer surfaces of wrist and almost the entire surface of palm are covered with tubercles similar to those found on carapace. The upper surface of palm has a longitudinal trench-like furrow which has smooth and polished surface. The fingers are short and blunt tipped (only partly spooned in the small chela) ; the length of dactylus is less than the length of upper border of palm. In the larger chela, dactylus has two teeth and fixed finger has a single subterminal tooth.

The upper surface of merus of walking legs is sharp, that of carpus and propodus are bicarinate with a longitudinal cavity, the cavity on carpus is larger than that on propodus. The segments of the legs are partly tuberculated. A few plumose hairs are seen on the upper border of merus, propodus and on all sides of dactylus ; dactylus ends in a single claw.

Of the seven abdominal segments in the male, third, fourth and fifth are completely fused.

The first male pleopod is nearly S-shaped, with a distal end transparent and pointing outwards with serrated borders. The tip of the appendage is rounded. Subterminally along the inner border are about 8 or 9 long spinules, the outer border has a few sharp spinules. Preceding these spinules, both along the outer as well as inner border are a number of minute spinules.



FIGS. 5-9. *Zozymodes pumilus*. 5. Dorsal view of carapace. 6. Chela. 7. Chela-dorsal view. 8. Walking leg. 9. First male pleopod.

Measurements (in mm.)

Length of carapace	..	..	..	4.00
Breadth of carapace	..	..	..	6.22
Breadth of front	..	..	..	2.35
Length of palm of larger chela along the ventral border including fixed finger	..	..	..	4.14
Length of upper border of palm of larger chela	..	..	..	2.22
Length of dactylus of larger chela	..	..	..	1.57
Maximum height of palm of chela	..	..	..	2.50

Distribution: The species is recorded for the first time from the Andaman and Nicobar Islands. The species is also known from Guam (Jacquinot); Kikueru (Forest and Guinot); Polynesia (Nobili); Kusaie, Malem—Micronesia (Miyake).

Leptodius sanguineus (Milne-Edwards) (Figs. 10 & 11)

Chlorodius sanguineus, Heller, 1868, p. 18.

Xantho (*Leptodius*) *sanguineus*, Alcock, 1898, p. 119.

Leptodius sanguineus, Borradaile, 1903, p. 258.

Material: 2 males, 1 nonovigerous and 2 ovigerous females; the smaller ovigerous female 6 mm. long and 9 mm. broad.

Locality: Car Nicobar.

Remarks: The distal end of the first male pleopod which is plough-shaped, carries a row of hammer-shaped setae, the inner border of which is thin and entire. At the base of the curved distal end of the appendage on the inner border are a few curved spinules. Along the outer border are a few minute spinules.

Distribution: Nicobar (Heller); Andamans and Nicobars (Alcock); Maldive (Borradaile).

Leptodius nudipes (Dana) (Figs. 12 & 13)

Xantho (*Leptodius*) *nudipes*, Alcock, 1898, p. 121.

Leptodius nudipes, Borradaile, 1903, p. 252.

Material: A male, one ovigerous and one nonovigerous female.

Locality: Car Nicobar.

Remarks. The first male pleopod is almost straight with the distal end narrowing abruptly, which carries on it about 4 spindle-shaped projections along the outer border and 2 along the inner border. At the base of this distal narrow portion, on the outer side are 3 curved spinules. Along the inner border is a row of curved spinules, on the ventral side of the appendage are minute spinules indiscriminately arranged. Along the outer border also a row of spinules are seen, but the 2 distal ones are larger than the rest.

Distribution: Andamans (Alcock); Laccadives and Maldives (Borradaile).

Leptodius cavipes (Dana) (Figs. 14-15)

Xantho (*Leptodius*) *cavipes*, Alcock, 1898, p. 122.

Leptodius cavipes, Chopra and Das, 1937, p. 398.

Material : A male and a female, the former 6.5 mm. long and 10 mm. broad.

Locality : Car Nicobar and Maya Bandar.

Remarks : The first male pleopod is fairly stout and distinctly curved outwards, the tip is flattened and subspatulate, with the inner border crenulated. Along the middle of this part of the appendage is a ridge carrying 2 curved teeth and 2 distal conical projections. Subterminally along the inner border are about a dozen long, stout, and bipinnate setae. Preceding these setae along the inner border are spinules, reducing in size proximally. Subterminally along the outer border are a number of spinules of varying size irregularly arranged.

Distribution : Andamans, Ceylon (Alcock). 'The species has a wide range of distribution, having been recorded from Bonin Island in the North Pacific in the east to the Red Sea and the East African coast on the west.' (Chopra and Das)

Leptodius exaratus (Milne-Edwards)

Leptodius exaratus, Henderson, 1893, p. 362.

Chopra and Das, 1937, p. 398.

Chhapghar, 1957, p. 427.

Xantho (Leptodius) exaratus, Alcock, 1898, p. 118.

Laurie, 1906, p. 402.

Gravely, 1927, p. 146.

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

Locality : Maya Bandar.

Distribution : Andamans, Bombay, Karachi and Ceylon (Alcock) ; Bombay (Chhapghar) ; Krusadai Island in the Gulf of Mannar (Gravely) ; Tuticorin, Silavaturai Paar, Ceylon, Sind and Rameswaram (Henderson). The species is also known from Persian Gulf, Seychelles, Red Sea, to Polynesia, Australia and Hawaii.

Etisus dentatus (Herbst) (Figs. 16-17)

Etisus dentatus, Alcock, 1898, p. 129.

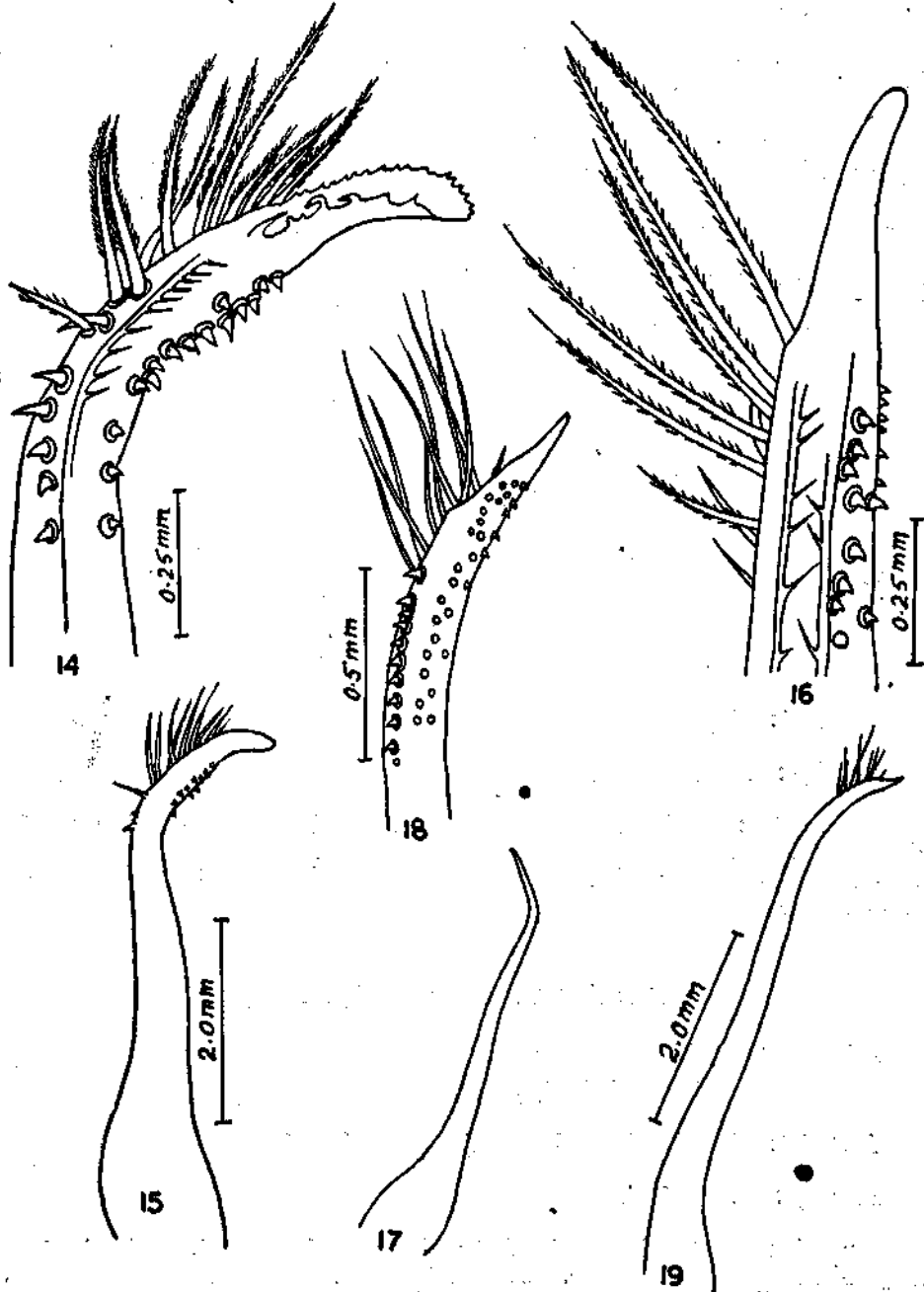
Barnard, 1950, p. 244.

Material : A male 65 mm. long and 100 mm. broad.

Locality : Kalapahad.

Remarks : Subterminally, the first male pleopod on the inner border has 6 long and 3 small bipinnate setae. Beyond the insertion of the last seta, the appendage narrows distally like the beak of a bird, but ends bluntly. Along the outer border are a number of minute spinules sparsely arranged.

The number of teeth on the anterolateral border of carapace was found to vary on either side. The second anterolateral tooth of the left side is followed by 3



First male pleopods of Figs. 14 & 15 *Leptodus cavipez*, 16 & 17 *Etilus dentatus*, 18 & 19 *Actea tomentosa*.

granules decreasing in size posteriorly and third tooth followed by 3 distinct teeth. On the right side the second anterolateral tooth is followed by 2 teeth and third, followed by 1 tooth.

Distribution : Port Blair, Great Coco Island and East Island—Andamans (Alcock).

Etisus laevimanus Randall

Etisus laevimanus, Henderson, 1893, p. 362.

Alcock, 1898, p. 131.

Borradaile, 1903, p. 263.

Gravely, 1927, p. 146.

Barnard, 1950, p. 244.

Chhapghar, 1957, p. 430.

Material : A male 16 mm. long and 38 mm. broad.

Locality : Aberdeen Bay.

Distribution : Rameswaram, Tuticorin and Ceylon (Henderson); Bombay, Laccadives and Andamans (Alcock); Krusadai Island in the Gulf of Mannar (Gravely); Bombay (Chhapghar). The species is also known from Mauritius, Reunion, east coast of Africa, Red Sea, Indo-Pacific (Barnard).

Actaea tomentosa (Milne-Edwards) (Figs. 18-19)

Actaeodes tomentosus, Heller, 1868, p. 17.

Actaea tomentosa, Alcock, 1898, p. 140.

Borradaile, 1903, p. 254.

Barnard, 1950, p. 233.

Material : 3 females and 9 males.

Locality : Car Nicobar.

Distribution. Nicobar (Heller); Nicobars, Andamans, Palk Strait and Laccadives (Alcock); Laccadives and Maldives (Borradaile). The species is also known from Mauritius, east coast of Africa, Red Sea, Indo-Pacific (Barnard).

Actaea hirsutissima (Ruppell) (Figs. 20-21)

Actaea hirsutissima, Alcock, 1898, p. 141.

Barnard, 1950, p. 234.

Material : 2 males and 2 females, the larger male 14 mm. long and 23 mm. broad.

Locality : Neill Island.

Remarks : The first male pleopod has a sinuous shape with the distal end conical in shape and pointing outwards. Subterminally along the inner border are more than a dozen simple and long setae. Along the outer border, as well as ventrally are a number of minute spinules.

Distribution : Andamans, Nicobars (Alcock). The species is also known from Mauritius, east coast of Africa, Red Sea, Indo-Pacific (Barnard).

Actaea cavipes (Dana) (Figs. 22-23)

Actaea cavipes, Alcock, 1898, p. 147.

Borradaile, 1903, p. 258.

Barnard, 1950, p. 229.

Material : A male 8 mm. long and 12 mm. broad, and a female.

Locality : Neill Island.

Remarks : The first male pleopod in this species is curved in the middle with the tip pointing outwards. A subterminal group of long simple setae exceeding a dozen in number are found along the inner border. The part of the appendage beyond the region of setae, has uniform width and is flattish, with a cleft tip. Along the outer border are a number of minute spinules.

Distribution : Andamans (Alcock); Minikoi (Borradaile). The species is also known from Mauritius, east coast of Africa, Red Sea, Indo-Pacific (Barnard).

Actaea speciosa (Dana) (Figs. 26-27)

Actaeodes nodipes, Heller, 1868, p. 17.

Actaea speciosa, Alcock, 1898, p. 143.

Borradaile, 1903, p. 254.

Laurie, 1906, p. 402.

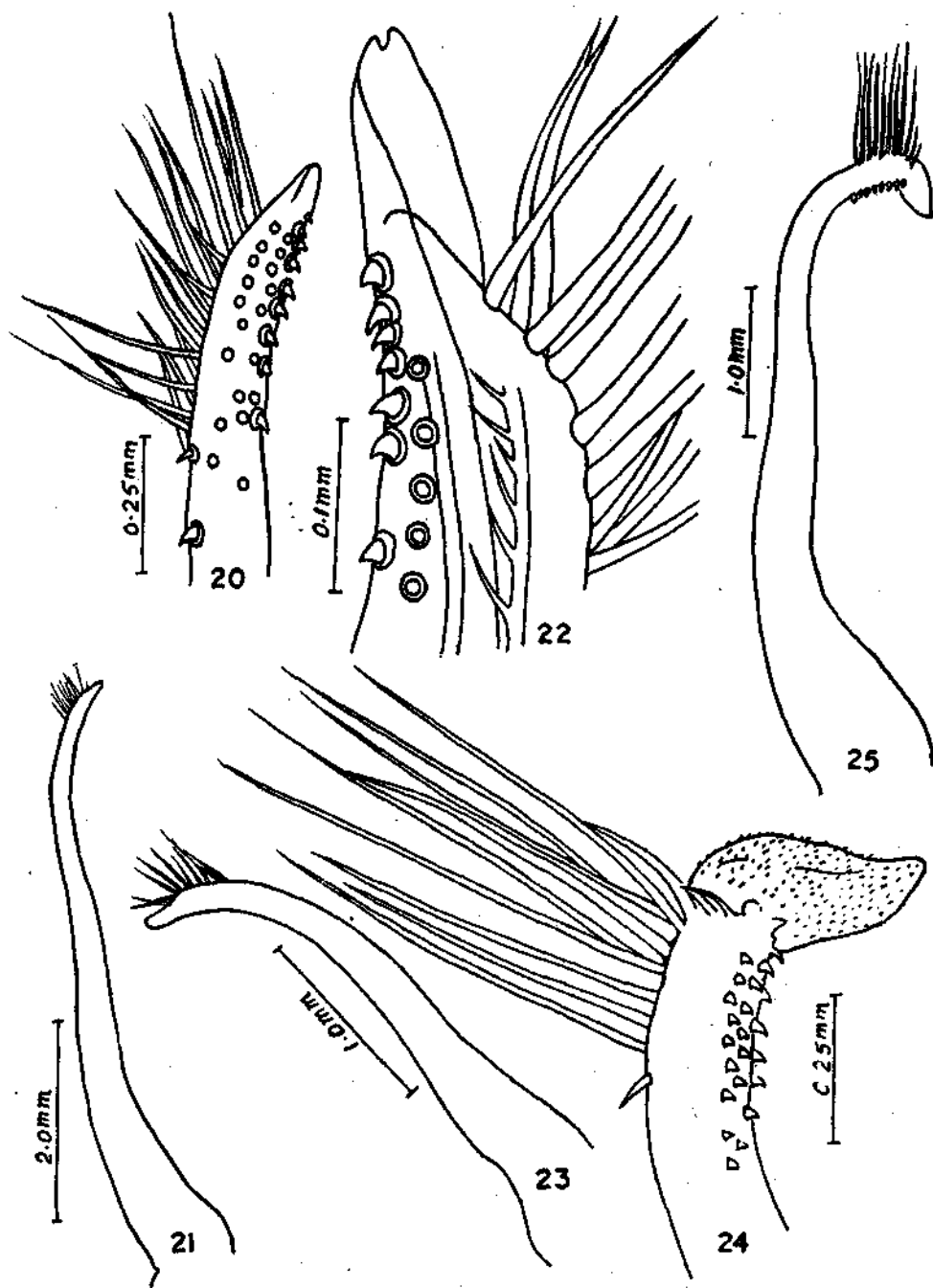
Barnard, 1950, p. 232.

Material : A male 5.5 mm. long and 7 mm. broad.

Locality : South point.

Remarks : Minute spinules are scattered along the outer border of the tip of the first pleopod of male and on the inner border about a dozen short setae, which are decreasing in size proximally. A few of the longer distal setae are bipinnate. The tip of the appendage tapers gradually and is double-edged.

The claw of the first walking leg is covered by a brush of hairs (as given by Barnard). The abdominal segments 1-3 are nongranulate (contrary to what has been mentioned by Barnard).



First male pleopods of Figs. 20 & 21 *Actaea hirsutissima*. 22 & 23 *Actaea cavipes*, 24 & 25 *Chlorodopsis areolata*.

Distribution : Ceylon, Andamans (Alcock) ; Gulf of Mannar (Laurie) ; Maldives (Borradaile). The species has also been known from east coast of Africa, Red Sea, Indo-Pacific, to China, Japan and Australia (Barnard).

Xanthias lamarckii (Milne-Edwards) (Figs. 28-29)

Xantho lamarckii, Heller, 1868, p. 10.

Xanthodes lamarckii, Alcock, 1898, p. 157.

Xanthias lamarckii, Borradaile, 1903, p. 251.

Laurie, 1906, p. 405.

Barnard, 1950, p. 242.

Material : A female 8 mm. long and 13 mm. broad, and a male.

Locality : Aberdeen Bay.

Remarks : Subterminally, the first male pleopod has on the inner side about 10 long, stout and bipinnate setae. Beyond the region of setae, the appendage has a conical shape. Along the outer border a number of fairly large spinules are present.

Distribution : Nicobar (Heller), Andamans, Madras coast and Ceylon (Alcock) ; off Negombo, Gulf of Mannar (Laurie) ; Laccadives and Maldives (Borradaile). The species is also known from Mauritius, Amirante Island, Seychelles, Indo-Pacific (Barnard).

Xanthias notatus (Dana)

Xantho notatus, Heller, 1868, p. 10.

Xanthodes notatus, Alcock, 1898, p. 158.

Xanthias notatus, Borradaile, 1903, p. 252.

Laurie, 1906, p. 405.

Material : A female 9.5 mm. long and 14.5 mm. broad.

Locality : Car Nicobar.

Distribution : Nicobar (Heller) ; Andamans, Palk Strait, and Ceylon (Alcock) ; Chilaw Paar (Laurie) ; Minikoi (Borradaile).

Chlorodiella niger (Forskål) (Figs. 30-31)

Chlorodius niger, Heller, 1868, p. 18.

Alcock, 1898, p. 160.

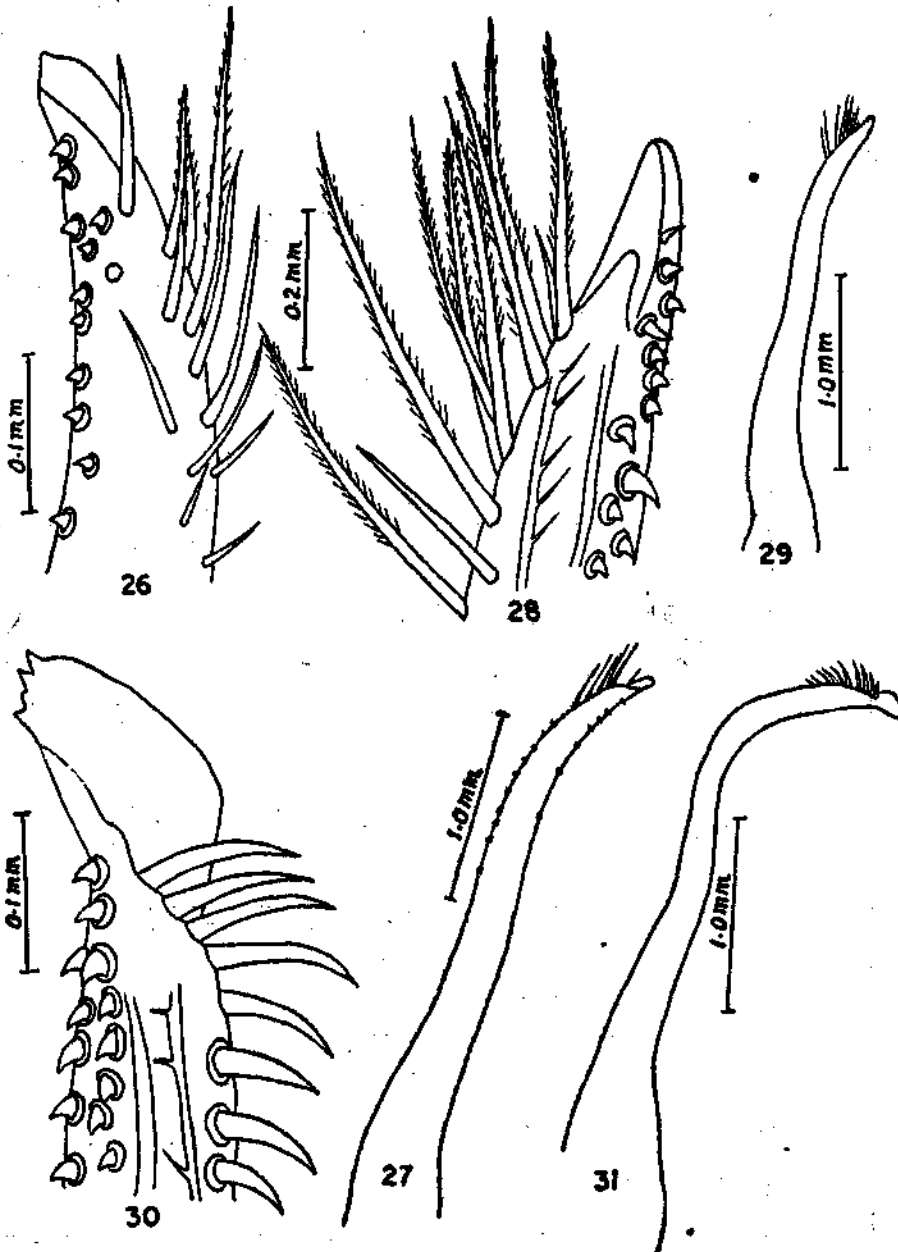
Borradaile, 1903, p. 259.

Gravely, 1927, p. 145.

Chlorodiella niger, Laurie, 1906, p. 405.

Chopra and Das, 1937, p. 402.

Barnard, 1950, p. 213.



First male pleopods of Figs. 26 & 27 *Actaea speciosa*, 28 & 29 *Xanthias lamarekii*,
30 & 31 *Chlorodiella niger*.

Material : A male 8 mm. long and 11 mm. broad, and a female.

Locality : Aberdeen Bay.

Remarks : The following features are clear at the distal end of the first male pleopod. The tip of the appendage is spooned with its distal end bearing 3 or 4 conical projections. Subterminally, along the inner border are about 9 large curved setae, whose size increases distally. Along the outer border are a number of minute spinules.

The last two anterolateral lobes of the carapace do not end in procurved spines.

Distribution : Nicobar (Heller); Andamans and Nicobars (Alcock); Krusadai Island in the Gulf of Mannar (Gravely); Trincomalee and Palk Bay (Laurie); Laccadives and Maldives (Borradaile). The species is also known from Seychelles, Red Sea, Australia, Indo-Pacific (Barnard).

Chlorodiella laevissima (Dana) (Figs. 32-33)

Chlorodius laevissimus, Alcock, 1898, p. 161.

Borradaile, 1903, p. 259.

Material : 4 males, 2 ovigerous females; smaller of the 2 ovigerous females 3 mm. long and 5 mm. broad.

Locality : Neill Island and Car Nicobar.

Remarks. The first male pleopod in this species resembles that of *C. niger* in possessing about 9 curved stout setae subterminally along the inner border. But the tip of the appendage instead of being spooned in shape is conical in this species. Along the outer border as well as on the ventral side are a number of long slender bristles.

Distribution : Andamans, Ceylon (Alcock); Maldives (Borradaile).

Phymodius ungulatus (Milne-Edwards) (Figs. 34-35)

Phymodius ungulatus, Henderson, 1893, p. 362.

Alcock, 1898, p. 162.

Borradaile, 1903, p. 259.

Barnard, 1950, p. 216.

Material : 2 males, one of which 12.5 mm. long and 17 mm. broad.

Locality : Car Nicobar and Phoenix Bay.

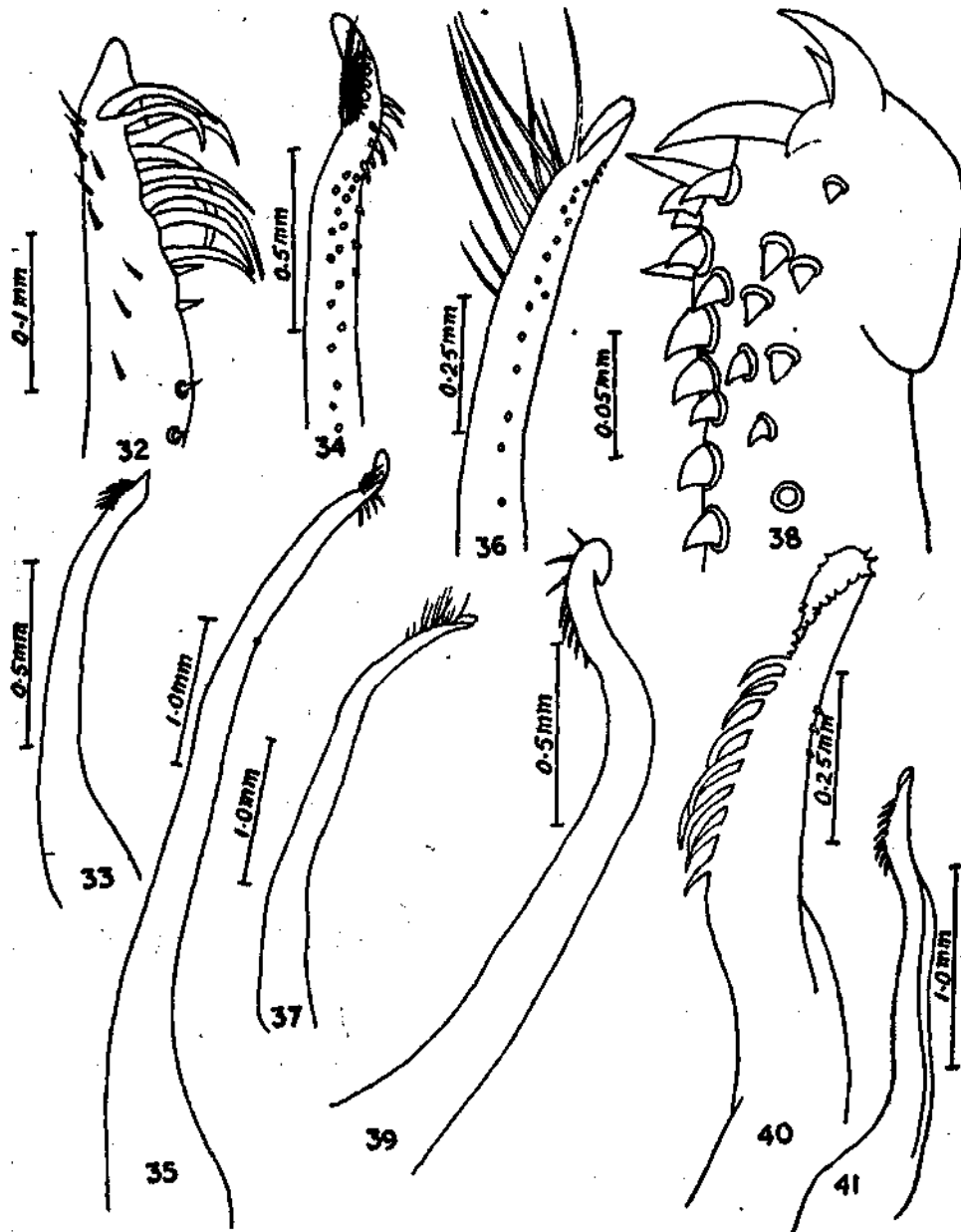
Distribution. Ceylon (Henderson); Andamans and Ceylon (Alcock); Laccadives and Maldives (Borradaile). The species is also known from Mauritius, east coast of Africa, Red Sea, Indo-Pacific (Barnard).

Phymodius sculptus (Milne-Edwards) (Figs. 36-37)

Phymodius sculptus, Alcock, 1898, p. 164.

Borradaile, 1903, p. 259.

Laurie, 1906, p. 405.



First male pleopods of FIGS. 32 & 33 *Chlorodiella laevisstima*. 34 & 35 *Phymodius unguatus*. 36 & 37 *P. sculptus*. 38 & 39 *Chlorodopsis pilumnoides*. 40 & 41 *C. spinipes*.

Material : A male 7 mm. long and 10.5 mm. broad, and a female.

Locality : Car Nicobar.

Remarks : The distal end of the first male pleopod carries 2 short setae along the inner border, followed by about a dozen very long simple setae. Along the outer border are a number of minute spinules. The distal end of the appendage is thin and has a serrated outer border and tip.

Distribution : Andamans and Ceylon (Alcock); Coral reef. Galle (Laurie); Maldives (Borradaile).

Chlorodopsis areolata (H.Milne-Edwards) (Figs. 24 & 25)

Chlorodopsis areolata, Alcock, 1898, p. 166.

Laurie, 1906, p. 405.

Barnard, 1950, p. 214.

Material : 2 males, one of which 12 mm. long and 17 mm. broad.

Locality : Neill Island.

Remarks : Subterminally, the first male pleopod has along the inner border 7 spinules, except for the first rest are closed together. Beyond these spinules, are about a dozen long simple setae, distal 2 again being short. Along the outer border, subterminally there are a large number of minute spinules. The distal end of the appendage is enlarged and pear-shaped and attached almost at right angles to the axis of the appendage.

Distribution : Andamans, Nicobars, Ceylon, South Seas and Mauritius (Alcock); Galle, Galle-lagoon (Laurie); east coast of Africa, Mauritius, Indo-Pacific (Barnard).

Chlorodopsis pilumnoides (White) (Figs. 38 & 39)

Chlorodopsis pilumnoides, Alcock, 1898, p. 167.

Laurie, 1906, p. 406.

Material : 2 ovigerous females, smaller of the two 6 mm. long and 9 mm. broad, 6 nonovigerous females and 2 males.

Locality : Car Nicobar.

Remarks : The first male pleopod is stout, curved in the middle, the tip being blunt and curved ventrally, and under magnification shows the following features. At the distal end are 4 stout and short setae pointing inwards. Preceding these setae along the inner border are a number of short spinules irregularly arranged. Subterminally the outer border is devoid of any spinule.

Distribution : Andamans (Alcock); Coral reef, Gulf of Mannar, Navakaddu Paar, Jokkenpidi Paar and Muthuvaratu Paar (Laurie).

Chlorodopsis melanochira (Milne-Edwards)

Chlorodopsis melanochira, Alcock, 1898, p. 168.

Material : A female 9 mm. long and 13 mm. broad.

Locality : Corbins Cove.

Remarks : The dark felt-like setae on the carapace are branched and are similar to those found in the case of *Actaea rufopunctata* and *A. tomentosa*.

Distribution : Andamans (Alcock).

Chlorodopsis spinipes (Heller) (Figs. 40 & 41)

Chlorodopsis spinipes, Henderson, 1893, p. 361.

Alcock, 1898, p. 169.

Material : 3 males, the largest 9 mm. broad and 5.5 mm. long.

Locality : Phoenix Bay.

Remarks : The first male pleopod near the distal end has a twist, with the inner border carrying about 10 curved setae, and has a serrated edge near the distal end.

The outer frontal angle of the carapace is not spiny.

Distribution : Andamans (Alcock); Ceylon (Anderson).

Jonesius minuta Gen. et sp. nov.

Material : An ovigerous female.

Locality : Aberdeen Bay.

Diagnosis of *Jonesius** Gen. nov.

Endostomial ridge absent; Fronto-orbital border only a little less than the greatest breadth of carapace; frontal border not separated from inner supra-orbital border; basal antennal joint short and does not touch the front or extend into the orbital hiatus; fingers of cheliped pointed.

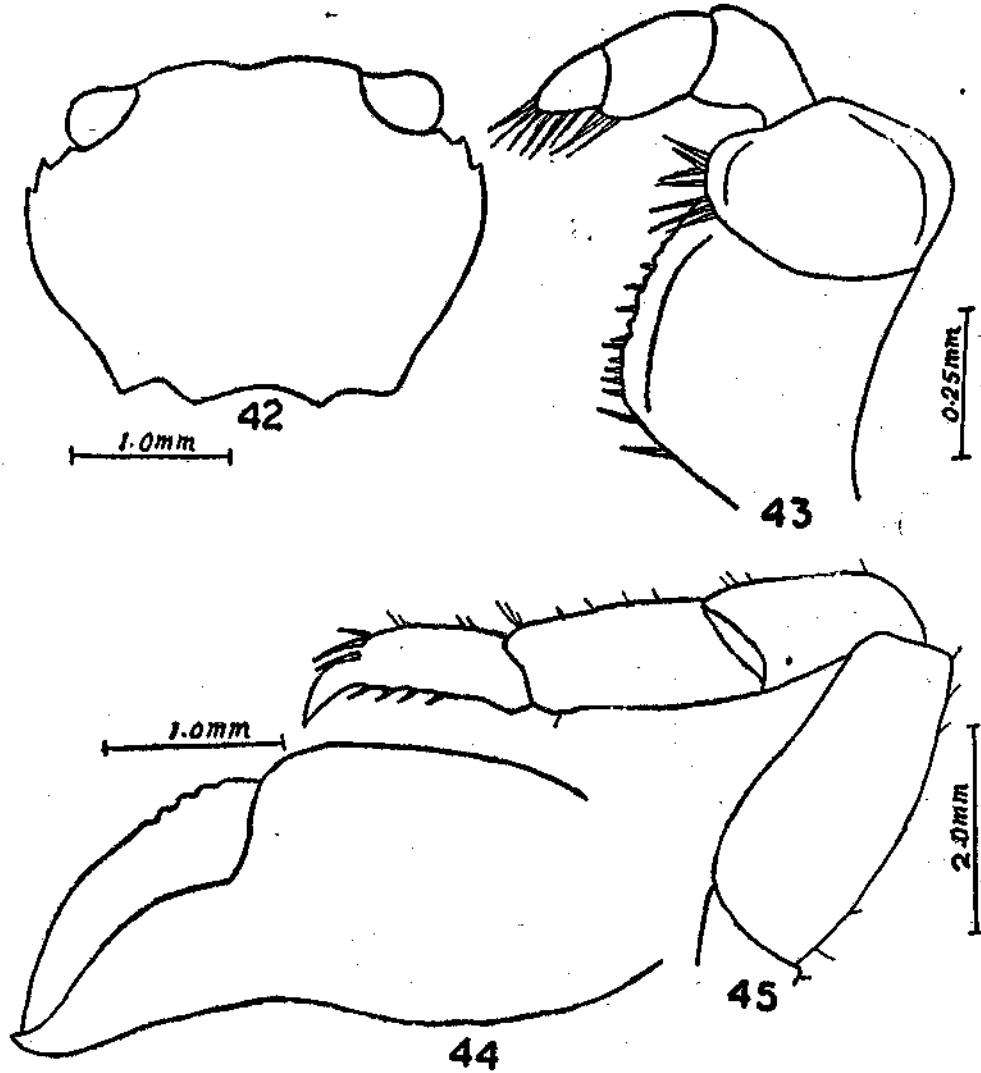
Genotype : *Jonesius minuta* deposited in the type collection of the Central Marine Fisheries Research Institute.

Affinities : The present specimen comes under the section *Hyperolissa* due to the absence of the endostomial ridges in the buccal cavern. Though the present

* Named after Dr. S. Jones, who was the leader of the collection trip to Andaman and Nicobar Islands.

genus is close to the genus *Cymo* De Haan, but differs in the following features: (1) The frontal border is not separated from the inner end of supra-orbital border. (2) The antennules fold laterally. (3) The basal antennal joint is short and does not touch the front or extend into the orbital hiatus. (4) Fingers of the cheliped are pointed, not spooned.

The present specimen is specially interesting due to the very minute size and simplified features.



FIGS. 42-45. *Jonesius minutus*. 42. Carapace-dorsal view. 43. Third maxilliped. 44. Chela. 45. Walking leg.

Jonesius minuta sp.nov. (Figs. 42-45)

Description: The carapace is flattish, subpentagonal, without any demarcation into regions and uniformly covered with minute transverse short ridges which are indistinct towards the median posterior part of the carapace.

The front is straight, not separated from the inner end of the supraorbital border, slightly emarginate in the middle and smoothly rounded at the outer angles. The supra-orbital border is oblique and undivided. The outer orbital corner is not prominent as a lobe or tooth. The antero-lateral border of the carapace, which is much shorter than the posterolateral border carries two teeth, the first being slightly larger than the second. Behind the second tooth, the anterolateral border of the carapace diverges, again converging behind, after a smooth rounded curve. The median posterior border of the carapace is distinctly concave.

The antennules fold transversely. The basal antennal joint is short, does not touch the front and does not extend into the orbital hiatus; the antennal flagellum is as long as the diameter of the orbit and is located within the orbital hiatus. The infraorbital border is smooth and even. The pterygostomial, subhepatic and sub-branchial regions have transverse striae similar to those found on the dorsal surface of carapace.

The dorsal and outer surfaces of the wrist and palm of cheliped are covered with granules, which towards the outer ventral side become flatter and indistinguishable. The ventral border of the palm is keeled. The fingers are pointed and not spooned, curved inwards towards the distal end. The inner side of the palm is also feebly granulated. The upper surface of dactylus has two rows of granules, the outer row being formed of larger granules.

The walking legs are long, slender and almost all the segments are uniformly granulated. The dactylus is nearly as long as the merus. The merus, propodus and dactylus have few hairs.

The abdomen in the female consists of seven separate segments.

The animal on preservation darkens in colour.

Measurements (in mm.)

Breadth of carapace	..	..	..	2.80
Length of carapace	..	..	..	2.14
Breadth of fronto-orbital border	..	..	..	2.21
Breadth of front	..	..	..	1.28
Length of cheliped	..	..	..	3.50
Length of dactylus of cheliped	..	..	..	1.07
Length of one of the legs	..	..	..	5.85
Diameter of the eggs	..	..	..	0.28

Cymo andreossi (Audouin)

Cymo andreossi, Henderson, 1893, p. 363.

Alcock, 1898, p. 173.

Borradaile, 1903, p. 251.

Laurie, 1906, p. 406.

Gravely, 1927, p. 145.

Material : 2 females, larger of the two 8.5 mm. long and 9 mm. broad and a male.

Locality : Neill Island.

Distribution. Tuticorin and Rameswaram (Henderson) ; Ceylon, Andamans and Nicobars (Alcock) ; Minikoi and Maldives (Borradaile) ; Krusadai Island in the Gulf of Mannar (Gravely) ; Gulf of Mannar (Laurie).

Epixanthus frontalis (Milne-Edwards) (Figs. 46 & 47)

Epixanthus frontalis, Heller, 1868, p. 20.

Henderson, 1893, p. 364.

Alcock, 1898, p. 185.

Laurie, 1906, p. 408.

Chopra and Das, 1937, p. 405.

Barnard, 1950, p. 259.

Chhapghar, 1957, p. 433.

Material : 7 males, 1 female, the largest male 21 mm. long and 36 mm. broad.

Locality : North Bay.

Remarks : The gastric and hepatic regions have indistinct transverse ridges.

Distribution : Nicobar (Heller) ; Ceylon and Nicobars (Henderson) ; Andamans, Orissa coast and Ceylon (Alcock) ; Trincomalee (Laurie) ; Karwar (Chhapghar). Besides the species is also known from Mauritius, Indo-Pacific (Barnard).

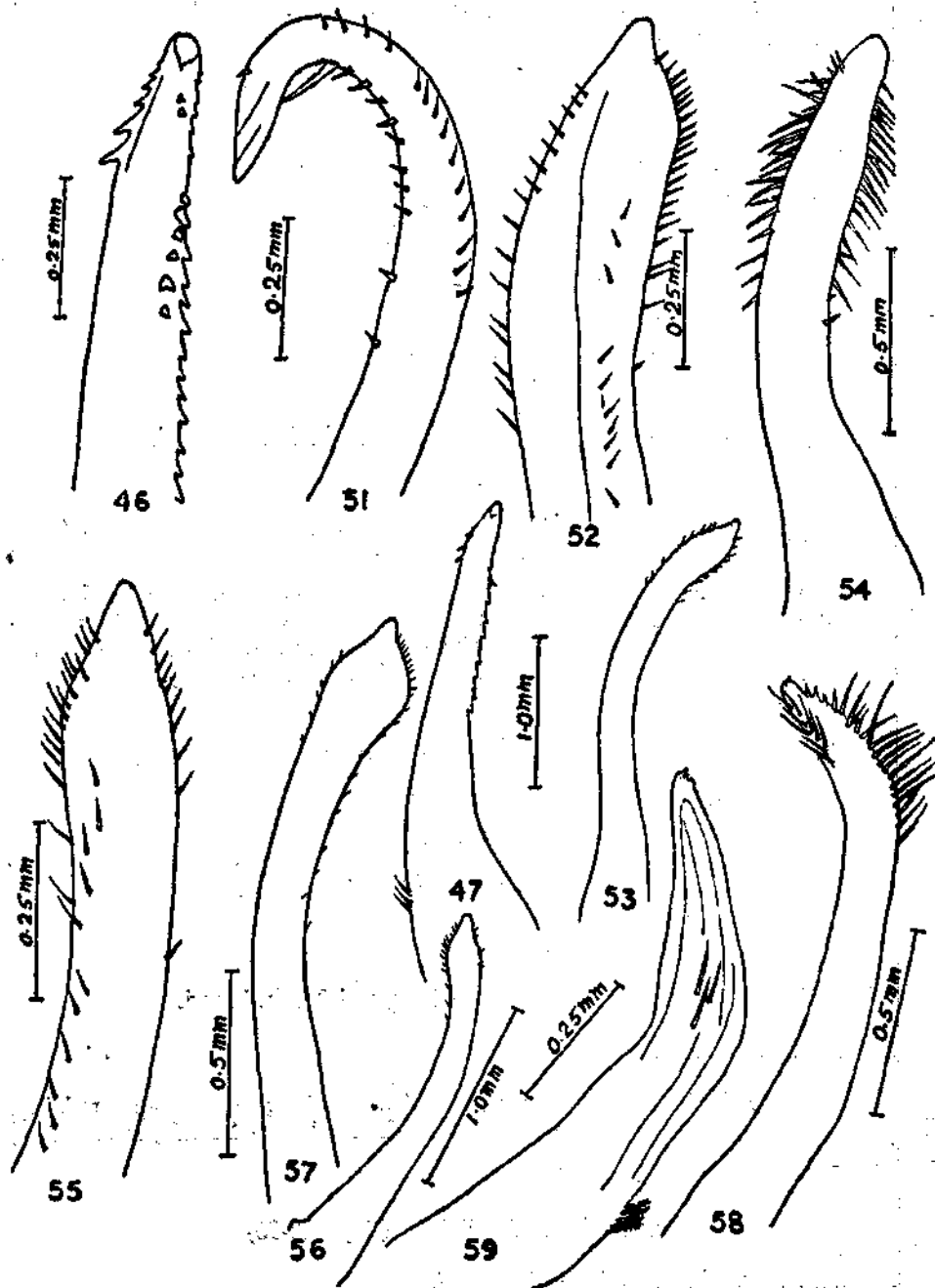
Epixanthus dentatus (White)

Epixanthus dentatus, Henderson, 1893, p. 364.

Alcock, 1898, p. 187.

Material : A male 13 mm. long and 22 mm. broad.

Locality : Bimbletan.



First male pleopods of Figs. 46 & 47. *Epixanthus frontalis*. 51. *Eurycarcinus maculatus*. 52 & 53. *Trapezia cymodoce*. 54. *T. ferruginea*. 55 & 56. *T. ferruginea* var. *intermedia*. 57. *T. ferruginea* var. *areolata*. 58. *Tetrallia glaberrima*. 59. *Domacia hispida*.

Distribution : Andamans (Alcock) ; Nicobars, Rameswaram and Tuticorin (Henderson). (Figs. 46-49)

Pilumnus vespertilio (Fabricius)

Pilumnus vespertilio, Henderson, 1893, p. 365.

Alcock, 1898, p. 162.

Borradaile, 1903, p. 245.

Laurie, 1906, p. 408.

Gravely, 1927, p. 145.

Barnard, 1950, p. 263.

Chhapghar, 1957, p. 434.

Material : An ovigerous female 18 mm. long and 26 mm. broad.

Locality : Neill Island.

Remarks : The supra-orbital border with 2 gaps, but the outer one less obvious.

Distribution. Rameswaram, Tuticorin and Ceylon (Henderson) ; Andamans and Palk Bay (Alcock) ; Krusadai Island in the Gulf of Mannar (Gravely) ; Trincomalee (Laurie) ; Bombay and Okha (Chhapghar). The species is also known from Mauritius, east coast of Africa, Red Sea, Indo-Pacific (Barnard).

Pilumnus hirsutus Stimpson

Pilumnus hirsutus, Alcock, 1898, p. 197.

Borradaile, 1903, p. 245.

Chopra and Das, 1937, p. 407.

Barnard, 1950, p. 263.

Pillai, 1951, p. 15.

Material : An ovigerous female 6 mm. long and 8 mm. broad.

Locality : Port Blair.

Distribution : Andamans (Alcock) ; Trivandrum (Pillai) ; Maldives (Borradaile). The species is also known from Amirante Islands, Andaman Islands, East Indies, China, Japan (Barnard).

Pilumnus heterodon Sakai (Figs. 48-50)

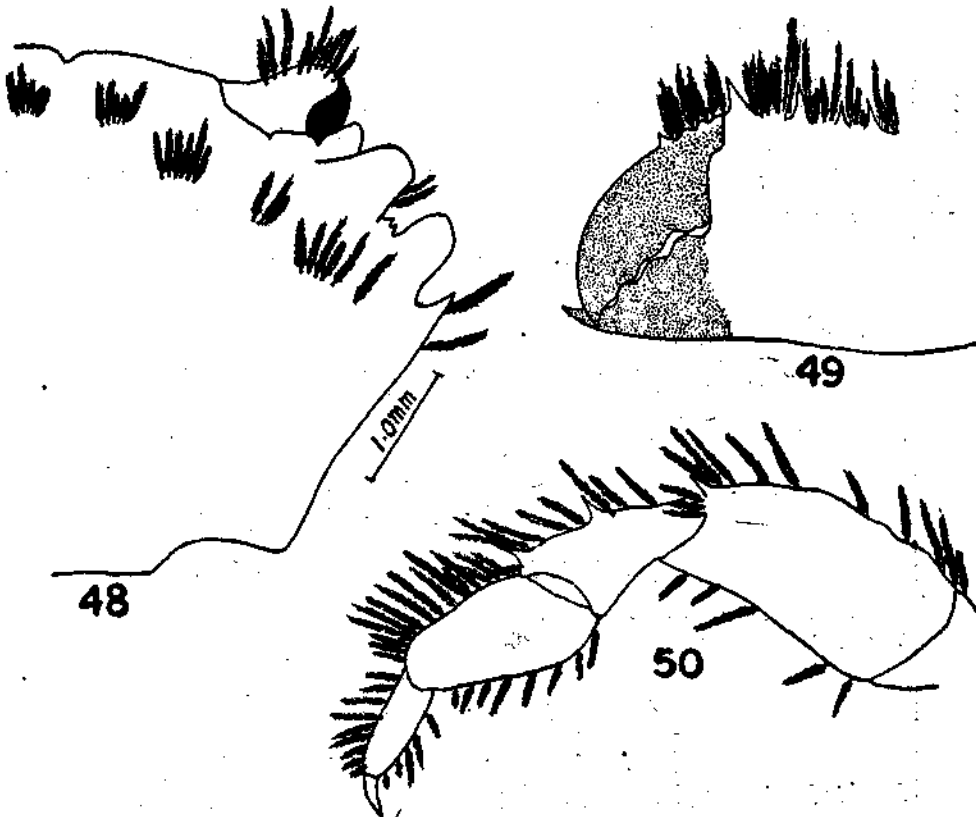
Pilumnus heterodon, Sakai, 1934, p. 307.

Sakai, 1935, p. 171.

Material : 1 female 4 mm. long and 6 mm. broad.

Locality : Car Nicobar.

Description : The carapace is fairly convex fore and aft and laterally, regions of the carapace not distinguishable except the posterior and posterolateral boundaries of gastric region which are indicated by faint depressions. Surface of carapace is smooth with sparsely distributed branched hairs. Front is bilobed, obliquely deflexed and with a distinct median emargination ; the outer angle of front is not separated from the inner end of supraorbital border ; inner end of frontal lobe is more prominent than the outer. Supraorbital border with two distinct grooves. Outer angle of the orbit forms a distinct blunt tipped tooth. Anterolateral border of the carapace is provided with three teeth, the first two teeth have almost square cut tip and the last tooth is spiny. Carapace is broadest between last anterolateral teeth ; first anterolateral tooth originates at a higher plane than the outer orbital tooth, partly concealing the latter. Anterolateral border of carapace is a little shorter than the posterolateral border. Antennules fold laterally, basal antennal joint is short, does not touch the front and does not extend into the orbital hiatus ; antennal flagellum is much longer than the diameter of orbit. Infraorbital border is beaded throughout its length and with a distinct cleft at the outer end. Pallial line with a fringe of plumose hairs which towards the anterior end is intercepted by a vertical fringe of such hairs arising from above the base of cheliped running upwards and reaching ventrally between first and second anterolateral teeth.



FIGS. 48-50. *Pilumnus heterodon*. 48. Dorsal view of carapace. 49. Inner view of Chela. 50. Walking leg.

Inner border of merus of cheliped has a spine at the proximal end, outer border has three spines, last two being procurved. Dorsal and outer surface of carpus and propods completely covered with long spines which are partly concealed by plumose, long hairs. The inner side of propodus as well as a part of outer surface near the ventral side is completely naked. Fingers are blunt and not hollowed. Dorsal surface of dactylus with a few spines at the proximal end.

Walking legs are provided with plumose hairs, which almost conceal the armature of the segments. A terminal spine is present on the dorsal surface of merus and carpus ; in addition, there is a spine in the middle of carpus.

Distribution : This is the first record of the species from the Indian waters. Nagasaki (Sakai).

Eurycarcinus maculatus (Milne-Edwards) (Fig. 51)

Eurycarcinus maculatus, Alcock, 1898, p. 212.

Material : A male, 8 mm. long and 12 mm. broad.

Locality : Bimbletan.

Remarks : The first male pleopod is 'S' shaped with the distal end pointing proximally. Along the inner border is a row of minute spinules ; a similar row is also seen on the outer border, but the distal one is very large.

Distribution : This is the first record of the species from the Andaman and Nicobar Islands.

Eurycarcinus grandieri Milne-Edwards

Eurycarcinus grandieri, Alcock, 1898, p. 211.

Material : A female, 7 mm. long and 10 mm. broad.

Locality : Bimbletan.

Distribution : Nicobar (Alcock).

Eriphia laevimanus Guerin

Eriphia laevimana, Henderson, 1893, p. 367.

Alcock, 1898, p. 214.

Borradaile, 1903, p. 263.

Gravely, 1927, p. 145.

Eriphia laevimanus, Barnard, 1950, p. 273.

Material : 2 females, larger of which 39 mm. long and 51.5 mm. broad.

Locality : South point.

Distribution : Rameswaram, Tuticorin and Ceylon (Henderson); Andamans, Arakan Coast, Ceylon and Laccadives (Alcock); Krusadai Island in the Gulf of Mannar (Gravely); Minikoi (Borradaile). The species is also known from Mauritius, east coast of Africa, Indo-Pacific, Australia (Barnard).

Eriphia smithii Macleay

Eriphia var. *smithii*, Alcock, 1898, p. 216.

Chhapghar, 1957, p. 437.

Eriphia smithii, Barnard, 1950, p. 274.

Material : An immature male 6 mm. long and 8.5 mm. broad.

Locality : Ross Island.

Distribution : Okha (Chhapghar); Karachi and Mekran coast (Alcock). This is the first record of the species from the Andaman and Nicobar Islands. Barnard (1950) mentions that this species also has same range of distribution as *E. laevimanus*.

Trapezia cymodoce (Herbst) (Figs. 52 & 53)

Trapezia cymodoce, Alcock, 1898, p. 219.

Borradaile, 1903, p. 265.

Laurie, 1906, p. 410.

Gravely, 1927, p. 144.

Chopra and Das, 1937, p. 410.

Barnard, 1950, p. 276.

Material : An ovigerous female 10 mm. long and 12 mm. broad and 2 males.

Locality : Neill Island.

Distribution : Andamans, Nicobars, Palk Strait and Mekran coast (Alcock); Krusadai Island in the Gulf of Mannar (Gravely); Laccadives and Maldives (Borradaile); Gulf of Mannar off Ceylon (Laurie). The species is also known from Ibo, Portuguese East Africa, Zanzibar, Red Sea, Indo-Pacific (Barnard).

Trapezia ferruginea Latreille (Fig. 54)

Trapezia ferruginea, Alcock, 1898, p. 220.

Borradaile, 1903, p. 264.

Material : 5 ovigerous females, smallest of which 6 mm. long and 7 mm. broad and 4 males.

Locality : Neill Island.

Distribution : Andamans, Nicobars and Ceylon (Alcock); Laccadives and Maldives (Borradaile).

Trapezia ferruginea var. *intermedia* Miers (Figs. 55 & 56)

Trapezia ferruginea var. *intermedia*, Alcock, 1898, p. 220.

Material : 2 males, 2 ovigerous females, one of which 8 mm. long and 11 mm. broad.

Locality : Neill Island.

Distribution : This is the first record of the variety from the Andaman and Nicobar Islands.

Trapezia ferruginea var. *areolata* Dana (Fig. 57)

Trapezia ferruginea var. *areolata*, Alcock, 1898, p. 221.

Laurie, 1906, p. 410.

Gravely, 1927, p. 144.

Chopra & Das, 1937, p. 410.

Material : 9 males, 10 females of which three are non-ovigerous, of the ovigerous females the smallest 5 mm. long and 6 mm. broad.

Locality : Neill Island.

Distribution : Andamans, Nicobars and Ceylon (Alcock); Krusadai Island in the Gulf of Mannar (Gravely); Ceylon (Laurie). The species is distributed from Polynesia to east coast of Africa.

Tetralia glaberrima (Herbst) (Fig. 58)

Tetralia glaberrima, Henderson, 1893, p. 366.

Alcock, 1898, p. 223.

Borradaile, 1903, p. 265.

Laurie, 1906, p. 411.

Chopra and Das, 1937, p. 411.

Barnard, 1950, p. 280.

Material : 2 males, 2 non-ovigerous females and 2 ovigerous females, larger ovigerous female 8 mm. long and 9 mm. broad.

Locality : Neill Island.

Remarks: The carapace of smaller ovigerous female has its left side enlarged. A small specimen has a spinule at the epibranchial angle of carapace.

Distribution: Tuticorin and Rameswaram (Henderson); Andamans, Ceylon and Maldives (Alcock); Ceylon (Laurie). The species is also known from Ibo, Portuguese east Africa (Barnard).

Domecia hispida Eydoux and Souleyet (Fig. 59)

Domecia hispida, Alcock, 1898, p. 230.

Borradaile, 1903, p. 263.

Material: A male and an ovigerous female 4 mm. long and 6 mm. broad.

Locality: Aberdeen Bay.

Remarks: The first male pleopod abruptly bends outwards in the middle, from where the appendage narrows distally ending in a blunt tip. In the middle of the appendage on the ventral side are three simple hairs. Near the base, on the inner border are four bipinnate hairs closely placed together.

Distribution: Little Andaman Island and Great Coco Island (Alcock); Laccadives and Maldives (Borradaile).

SUMMARY

Present paper is the second in a series on *Decapoda Brachyura* from the Andaman and Nicobar Islands and reports 43 species and 2 varieties, of which a genus is new to science and 7 new records for the region.

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