

ON THE PAGURID CRABS (CRUSTACEA-DECAPODA)
FROM ANDAMAN AND NICOBAR ISLANDS

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I—INTRODUCTION

The present paper is based on studies on collections of pagurid crabs made by various survey parties of the Zoological Survey of India, Calcutta, viz., Andaman Survey, 1952 by Dr. H. C. Ray ; Andaman and Nicobar Survey, 1959 by Dr. K. K. Tiwari, and Little Andaman Survey, 1961 by Dr. A. Daniel. The collections were made along the coastal regions of Andaman, Little Andaman and Car Nicobar Islands. The collections include 784 specimens in all representing 20 species belonging to two families viz., Paguridae and Coenobitidae. Eight species are of special interest from zoogeographical point of view, since they have been recorded for the first time from these islands.

Until the Zoological Survey of India took up intensive survey of Andaman and Nicobar group of islands, the intertidal pagurid fauna of these islands was not known completely except for the accounts of Heller (1865) and Alcock (1905).

Heller (1865) in his report on the Crustacea of the voyage of the Austrian ship 'Novara'—around the world, recorded no less than 14 species of pagurids from Nicobar Islands only. However the exact localities from the Nicobars are not mentioned and the recorded species are the following :—

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|---|---------------------------------|
| 1. <i>Paguristes ciliatus</i> (Heller) | 10. <i>Pagurus punctulatus</i> |
| 2. <i>Clibanarius longitarsis</i> (de Haan) | Olivier |
| 3. <i>C. striolatus</i> Dana | (= <i>Dardanus megistos</i> |
| 4. <i>C. humilis</i> Dana | (Herbst)) |
| 5. <i>C. corallinus</i> | 11. <i>Coenobita clypeata</i> |
| (H. Milne-Edwards) | (Herbst) |
| 6. <i>Calcinus tibicen</i> (Herbst) | 12. <i>C. rugosa</i> |
| (= <i>Calcinus herbstii</i> de Man) | H. Milne-Edwards |
| 7. <i>C. gaimardii</i> (H. Milne-Edwards) | 13. <i>C. olivieri</i> Owen |
| 8. <i>Diogenes miles</i> Dana | (identification doubtful) |
| (= <i>Diogenes merguiensis</i> | 14. <i>C. violascens</i> Heller |
| de Man) | (= <i>Coenobita cavipes</i> |
| 9. <i>Diogenes avarus</i> Heller | Stimpson) |

Of the 14 species recorded, *Paguristes ciliatus* is a sublittoral form and the remaining 13 species are either intertidal or land forms. The identification of *Coenobita olivieri* is doubtful.

Alcock (1905) further recorded 14 more species and 5 new varieties or sub-species from this group of islands* and of these 'Investigator' only accounted for the collection of 13 species and the remaining 6 species were collected by either one or more of the following persons (A. Alcock, J. Anderson, J. Wood Mason, F. Stoliczka, R. D. Oldham, G. M. J. Giles, A. R. S. Anderson).

The species recorded are the following :—

- | | |
|---|--|
| 1. <i>Pylocheles miersii</i> Alcock and Anderson
185 fms. | 12. <i>Nematopagurus squamichelis</i> Alcock
185 fms. |
| 2. <i>Parapylocheles scorpio</i> Alcock
405 fms. | 13. <i>Spiropagurus spiriger</i> var. <i>profundorum</i>
Alcock 35 fms. |
| 3. <i>Paguristes balanophilus</i> Alcock
53—60 fms. | 14. <i>S. s.</i> var. <i>lophomeris</i>
Alcock 20 fms. |
| 4. <i>P. mundus</i> Alcock 112 fms. | 15. <i>S. s.</i> var. <i>spinosicarpis</i>
Alcock |
| 5. <i>P. puniceus</i> Henderson
370—419 fms. | 16. <i>Pagurus pergranulatus</i> (Henderson) 20 fms. |
| 6. <i>Diogenes custos</i> (Fabricius) | 17. <i>Pagurus zebra</i> var. (Alcock) 20 fms. |
| 7. <i>Dardanus wood-masoni</i> (Alcock) | 18. <i>Coenobita perlata</i>
H. Milne-Edwards |
| 8. <i>D. euopsis</i> (Dana) | 19. <i>Birgus latro</i> (Linnaeus) |
| 9. <i>D. deformis</i> (H. Milne-Edwards) | |
| 10. <i>Aniculus strigatus</i> (Herbst) | |
| 11. <i>Sympagurus bicristatus</i> var. <i>indicus</i> Alcock 405 fms. | |

Of the 19 species further recorded, only 7 species are either intertidal or land forms and the remaining 12 species are collected below the intertidal mark ranging from 20 fms. to 419 fms. Thus leaving the doubtful *Coenobita olivieri*, altogether 32 species are recorded from the Andamans and Nicobars. Among them only 19 species are intertidal and this number is further increased to 27 by the present study.

II—SYSTEMATIC ACCOUNT

List of the species reported :

Family PAGURIDAE

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|---|--------------------------------|
| 1. <i>Clibanarius longitarsus</i> (de Haan) | † 2. <i>C. striolatus</i> Dana |
| *3. <i>C. olivaceus</i> Henderson | *4. <i>C. arethusa</i> de Man |
| † *5. <i>C. merguiensis</i> de Man | † 6. <i>C. humilis</i> Dana |

* Species reported for the first time from the Andaman and Nicobar group of Islands.

† Species not reported so far from the mainland of India.

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|---|---|
| † 7. <i>C. corallinus</i> (H. M. Edwards) | 8. <i>Calcinus herbstii</i> de Man |
| † *9. <i>C. latens</i> (Randall) | 10. <i>C. gaimardii</i> (H. M. Edwards) |
| 11. <i>Dardanus megistos</i> (Herbst) | *12. <i>D. vulnerans</i> (Thallwitz) |
| *13. <i>D. guttatus</i> (Olivier) | 14. <i>D. deformis</i> (H. M. Edwards) |
| *15. <i>D. varipes</i> (Heller) | *16. <i>Aniculus aniculus</i> (Herbst) |
| Family COENOBITIDAE | |
| † 17. <i>Coenobita clypeata</i> Latreille | 18. <i>C. rugosa</i> H. M. Edwards |
| † 19. <i>C. perlata</i> (H. M. Edwards) | 20. <i>C. cavipes</i> Stimpson |

Class CRUSTACEA
Order DECAPODA
Family PAGURIDAE

1. *Clibanarius longitarsus* (de Haan)

1849. *Pagurus longitarsus* de Haan, *Fauna Japon. Crust.* : 211.
1852. *Clibanarius longitarsis* : Dana, *U. S. Expl. Exped. Crust.*, pt. 1 : 464.
1950. *Clibanarius longitarsis* : Barnard, *Annals S. African Mus.*, 38 : 434.

Material.—22 exs., collected from the following localities : *North Andaman* : 1 ex., (12 mm.), Interview Island, 7.ii.59 (K. K. Tiwari) ; *Middle Andaman* : 2 exs., (9 mm. & 10.5 mm.), Long Island, 22.i.59 (K. K. Tiwari) ; *South Andaman* : 1 ex., (7 mm.), Bamboo flat, 13.ii.59 (K. K. Tiwari) ; *Port Blair* : 2 exs., (both 4.2 mm.), Aberdeen Jetty, 10.i.59 (K. K. Tiwari) ; 5 exs., (from 5 mm. to 13.2 mm.), Chatham Jetty, 10.ii.61 (A. Daniel) ; 4 exs., (4.5 mm. to 7 mm.), South Point Shore, 9.ii.61 (A. Daniel) ; *Little Andaman* : 2 exs., (8.5 mm. & 12.5 mm.), Tokoibuea, 12.ii.61 (A. Daniel) ; 1 ex., (14 mm.), Gaje, near Onge Bera, 25.ii.61 (A. Daniel) ; 1 ex., (7 mm.), Bumila Creek Shore, 28.ii.61 (A. Daniel) ; *Nicobar Island* : 1 ex., (23 mm.), Nan Cowry, 2.iv.59 (K. K. Tiwari).

Distribution.—Zanzibar and Madagascar to Liu Kiu Islands.

Remarks.—This species is reported from Chilka Lake, Madras, Porto Novo, Krusadai Island and Pamban on the east coast of India. Occurrence of this species from Nicobar Islands is made known by Heller (1865). Its record now from Andaman and Nicobar Islands after a lapse of 100 years is of considerable interest.

* Great Coco islands (Burma) are not taken into consideration under the Andaman and Nicobar group of islands.

2. *Clibanarius striolatus* Dana

1852. *Clibanarius striolatus* Dana, *U. S. Expl. Exp. Crust.*, pt. 1 : 463.
 1905. *C. striolatus* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II(1) : 46.
 1950. *C. striolatus* : Barnard, *Annals S. African Mus.*, 38 : 434.

Material.—13 exs., (4 mm. to 9 mm.), Aberdeen Bay, Port Blair, 10 & 16.i.59, 2 & 8.iii.59 (K. K. Tiwari) ; 2 exs., (13 mm. both), Benyabai (near Ingoie), Little Andamans, 23.ii.61 (A. Daniel).

Distribution.—Gulf of Aden and Seychelles eastwards to Tahiti.

Remarks.—Availability of this species from Nicobar islands is made known by Heller (1865). However this species is not reported from the mainland of India.

3. *Clibanarius olivaceus* Henderson

1915. *Clibanarius olivaceus* Henderson, *Rec. Indian Mus.*, 11 : 26.
 1941. *C. olivaceus* : Gravely, *Bull. Madras Govt. Mus.*, (n.s.) *nat. hist.*, 5 (1) : 77.

Material.—3 exs., (5 mm. to 7.5 mm.), Aberdeen Bay, Port Blair, 16.i.59 & 18.iii.59 (K. K. Tiwari).

Distribution.—East coast of India.

Remarks.—This species is reported from Chilka Lake, Madras and Porto Novo on the east coast of India and it is now recorded for the first time from the Andaman Islands.

4. *Clibanarius arethusa* de Man

1888. *Clibanarius arethusa* de Man, *J. Linn. Soc. Zool.*, 22 : 252.
 1905. *C. arethusa* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II (1) : 48.
 1935. *C. arethusa* : Reddi, *Curr. Sci.*, 3 : 562.

Material.—3 exs. (4.5 mm. to 7 mm.), South Point Shore, 9.iii.61 (A. Daniel) ; 4 exs., (5.5 mm. to 7 mm.), Chatham Jetty, Port Blair, 10.ii.61 (A. Daniel).

Distribution.—Bay of Bengal.

Remarks.—This species has been reported from Mergui (de Man 1888) Muttuwartu Par, Rameswaram and Madras (Henderson, 1893), Arakan coast and Mergui (Alcock, 1905), Pamban (Sundara Raj, 1927), Porto Novo (Reddi, 1935). Now, its record from the Andaman Islands for the first time, bridging the gap between Burmese coast and the Indian mainland, is of considerable interest from the zoogeographical point of view.

5. *Clibanarius merguensis* de Man

1888. *Clibanarius aequabilis* var. *merguensis* de Man, *J. Linn. Soc. Zool.* 22 : 247.

N.B. The measurements given in brackets are the carapace lengths measured dorsally length-wise in the middle line, from the tip of the rostrum to the cleft point.

1937. *C. aequabilis* var. *merguiensis* : Buitendijk, *Temminckia*, 2 : 265.
 1955. *C. merguiensis* : Fize & Serene, *Notes Inst. Oceanogr. Nhatrang*, 45 : 145.

Material.—86 specimens, from localities as listed under categories I, II & III, cited below.

Distribution.—Red Sea, Mauritius, Ceylonese coast, Burmese Coast, Malay Peninsula, South Vietnam and East Indies. Now they are recorded from the Andaman and Nicobars.

Remarks.—The specimens agree with the following distinctive characteristic features : viz. (1) the dactylus of the 3rd pair of thoracic legs is decidedly shorter than the propodus, and (2) the eye stalks are as long as the antennular peduncles. But all the specimens do not agree in their colour character and as such they have been divided into 3 categories as follows :

Category-I.—14 exs., are collected from the following localities. 1 ex., (4 mm.), Long Island (Middle Andaman), 22.i.59 (K. K. Tiwari); 9 exs., (4 mm. to 4.5 mm.), Aberdeen Bay (Port Blair), 10.i.59 and 2.iii.59 (K. K. Tiwari); 4 exs., (4 mm. to 5.8 mm.), Bumila Creek Shore (Little Andaman), 28.ii.61 (A. Daniel).

These 14 specimens have the dactylopodites of thoracic legs white in colour with a red streak on the upper margin. Out of four specimens collected from Bumila Creek Shore (Little Andaman), the white colour of the dactylopodites extends more or less upon the outer, inner and upper surfaces of the distal portions of propodites of both pairs of legs, in two specimens. In the other two specimens collected from the same locality, it extends as a white band along the length on the outer surface of propodi of 3rd pair of legs, but on the 2nd pair of legs as a white patch at the tip only. But in the remaining ten specimens collected from Long Island (Middle Andaman) and Aberdeen Bay (Port Blair), clear white bands can be seen lengthwise on the outer surfaces of propodi of both 2nd and 3rd pairs of legs.

Category-II.—18 exs., collected from the following localities. *Port Blair* : 1 ex., (6.5 mm.), South Point Shore, 9.iii.61 (A. Daniel); 4 exs., (4 mm. to 6.3 mm.), Chatham Jetty, 10.ii.61 (A. Daniel); 2 exs., (3.5 mm. & 4.5 mm.), Aberdeen Bay, 2.iii.59 (K. K. Tiwari). *Little Andaman* : 1 ex., (5 mm.), Ingoie Shore, 21.ii.61 (A. Daniel); 1 ex., (5.8 mm.), Nacbuge, 27.ii.61 (A. Daniel); 3 exs., (3.5 mm. to 5 mm.), Bumila Creek Shore, 28.ii.61 (A. Daniel); 4 exs., (4.5 to 7.5 mm.), Tular, 11 km, (7 miles) north of Gaja, 26.ii.61 (A. Daniel). *Nicobar* : 1 ex., (4.8 mm.), Nan Cowry Island, Nicobar, 2.iv.59 (K. K. Tiwari).

In these 18 specimens the anterior part of the body has light pink or white colour. Dactylus and propodus of both pairs of walking legs show uniform white colour having no band or patch on propodi.

Category-III.—54 exs., collected from the following localities : 1 ex., (5 mm.), from Interview Island (North Andaman), 7.ii.59

(K. K. Tiwari) ; 10 exs., (5 mm. to 7.3 mm.), Long Island (Middle Andaman), 20 & 22.i.59 (K. K. Tiwari) ; 26 exs., (3.5 mm. to 5.8 mm.), Aberdeen Bay, Port Blair, 16.i.59 & 2.iii.59 (K. K. Tiwari) ; 17 juveniles (below 3 mm.), Aberdeen Bay, Port Blair, 2.iii.59 (K. K. Tiwari).

The 35 specimens and 17 juveniles collected from Long Island (Middle Andaman) and Aberdeen Bay (Port Blair) have the anterior part of the body orange in colour. Ambulatory legs show grey colour except the dactyli which are white in colour. Red line is seen on the dorsal side of the dactylus. The grey colour of the ambulatory legs on the joints of merus, carpus and propodi is intense. The specimens have complete white band length-wise on the propodi of 3rd pair of legs and white patch at the tip of the propodi of 2nd pair of legs. However, a single specimen collected from Interview Island (North Andaman) has the propodi of ambulatory legs coloured deep brownish-black. A white streak is seen on the dorsal side of the propodus of 3rd left leg. Fingers of chelipeds and the anterior region of the palm show the same colour as that of the propodi. Remaining anterior part of the body and eye stalks have orange colour.

Even though the specimens are showing various types of colour patterns, they are not separated from *Clibanarius merguensis* de Man, merely upon their colour differences.

Hitherto, this species was confined to Red Sea, Mauritius, Ceylonese, Burmese, Malayan, Indo-Chinese and East Indies waters. Now it is recorded, for the first time, from the Andaman, and Nicobar Islands. Its occurrence from these islands is, therefore, of special zoogeographical significance.

6. *Clibanarius humilis* Dana

1852. *Clibanarius humilis* Dana, *U. S. Expl. Exp. Crust.*, pt. 1 : 469.
 1905. *Clibanarius humilis* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II (1) : 47.
 1953. *C. humilis* : Holthuis, *Atoll Res. Bull.*, 24 : 46.

Material :—6 exs., (4 mm. to 5 mm.), South Point Shore (Port Blair), 9.iii.61 (A. Daniel).

Distribution.—Laccadives, Maldives, Nicobars, East Indies, Fiji Islands, Tonga Islands, Cook Is., Tahiti, Tuamotu and Pacific Coral Islands.

Remarks.—This species though reported from Laccadives, Maldives and Nicobars by Alcock (1905) and now from Andamans has not so far been reported from the mainland of India.

7. *Clibanarius corallinus* (H. M. Edwards)

1848. *Pagurus corallinus* H. M. Edwards, *Ann. Sci. nat. Zool.*, (3) : 10 : 63.
 1905. *Clibanarius corallinus* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II (1) : 48.
 1953. *C. corallinus* : Holthuis, *Atoll Res. Bull.*, 24 : 46.

Material.—2 exs., (15 mm. & 17 mm.), collected from Malacca village, Car Nicobar, 30.iii.59 (K. K. Tiwari).

Distribution.—From Andamans and Nicobars to Tahiti.

Remarks.—Alcock (1905) reported this species from Andamans and Nicobars but so far it has not been recorded from the mainland of India.

8. *Calcinus herbstii* de Man

1887. *Calcinus herbstii* de Man, *Archiv fur Naturges.*, 53 : 437.

1905. *C. herbstii* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II (1) : 53.

1953(c). *C. herbstii* : Forest, *Bull. Mus. nat. Hist. Nat.*, (2), 25. no. 6 : 555.

Material.—23 exs., collected from the following localities.—

Middle Andaman.—1 ex., (12 mm.), Long Island, 20.i.59 (K. K. Tiwari); *Port Blair.*—2 exs., (8.5 mm. both), Huddo, 6.iii.61 (A. Daniel); 8 exs., (5.5 mm. to 13 mm.), Chatham Jetty, 10.ii.61 (A. Daniel); *Little Andaman.*—4 exs., (7 mm. to 11 mm.), Tular, 26.ii.61 (A. Daniel), 2 exs., (16.5 mm. both), Ingoie Shore, 21.ii.61 (A. Daniel), 1 ex., (15.5 mm.), Laitora (near Tokoibuea), 14.ii.61 (A. Daniel), 1 ex., (15 mm.), Gaja (near Onge Bera), 25.ii.61 (A. Daniel); *Car Nicobar.*—2 exs., (8 mm. both), Malacca village, 30.iii.59 (K. K. Tiwari), 1 ex., (9.5 mm.), Sawai village, 31.iii.59 (K. K. Tiwari), 1 ex., (8.5 mm.), Mus village, 28.iii.59 (K. K. Tiwari).

Distribution.—Indo-Pacific region from East Africa to the Hawaii, Tahiti and Tuamotu Islands.

Remarks.—Alcock (1905) recorded this species earlier from Laccadives, Palk Strait and Andamans.

9. *Calcinus latens* (Randall)

1839. *Pagurus latens* Randall, *J. Acad. nat. Sci. Philad.* : 135.

1852. *Calcinus latens* : Dana, *U. S. Expl. Exp. Crust.*, pt. I : 459.

1953. *C. latens* : Holthuis, *Atoll Res. Bull.*, 24 : 44.

Material.—2 exs., (6 mm. & 8 mm.), collected from Aberdeen (Port Blair), 18.iii.59 (K. K. Tiwari), 1 ex., (6 mm.), Tular (near Gaja), Little Andaman, 26.ii.61 (A. Daniel).

Distribution.—From the Red Sea and east coast of Africa to the Hawaiian Islands and Tuamotu Archipelago.

Remarks.—This species has not so far been reported either from the mainland of India or from the Andaman Islands. Hence, its first occurrence from Andaman Islands, (Indian region) is of considerable interest specially with reference to the zoogeographical point of view.

10. *Calcinus gaimardii* (H. M. Edwards)

1848. *Pagurus gaimardii* H. M. Edwards, *Ann. Sci. nat. Zool.*, (3) 10 : 63.

1852. *Calcinus gaimardii* : Dana, *U. S. Expl. Exp. Crust.*, pt. 1 : 457.

1953. *C. gaimardii* : Holthuis, *Atoll Res. Bull.*, 24 : 42.

Material.—2 exs., (12 mm. & 17 mm.), Laitora 15, km. (9 miles) north of Tokoibuea, Little Andamans, 14.ii.61 (A. Daniel).

Distribution.—Islands of the Indo-Pacific region from Minicoy and Maldives to Tahiti,

Remarks.—This species was reported earlier from Nicobars by Heller (1865) and from Gulf of Manaar by Southwell (1906). It is recorded now for the first time from Little Andaman Islands.

11. *Dardanus megistos* (Herbst)

1804. *Cancer megistos* Herbst, *Krabben*, III, 4 : 23.
 1817. *Pagurus megistos* : Olivier, *Encycl. Meth.*, 8 : 639.
 1905. *P. punctulatus* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II (1) : 81.
 1903. *Dardanus punctulatus* : Rathbun, *Proc. U. S. nat. Mus.*, 26 : 34.
 1953. *D. megistos* : Holthuis, *Atoll Res. Bull.*, 24 : 49.

Material.—8 exs., collected from the following localities. *Port Blair* : 1 ex., (19 mm.), Chatham Jetty, 10.ii.61 (A. Daniel), 1 ex., (24 mm.), below Cellular Jail, 10.iii.59 (K. K. Tiwari); *Little Andamans* : 2 exs., (12 mm. & 16.5 mm.), Nacbuga, 27.ii.61 (A. Daniel), 2 exs., (15.5 mm. & 19.5 mm.), Benyabai (near Ingoie), 23.ii.61 (A. Daniel), 1 ex., (14 mm.), Laitora (near Tokoibuea), 14.ii.61 (A. Daniel), 1 ex., (25 mm.), Tokoibuea 12.ii.61 (A. Daniel).

Distribution.—Indo-Pacific region from the Red Sea and east coast of Africa to Australia and Hawaiian Islands.

Remarks.—Alcock (1905) reported this species from Laccadives and Andamans, Henderson (1893) from Tuticorin, Sundara Raj (1927) from Rameswaram Reef and A. R. Reddi (1935) from Porto Novo on the mainland of India.

12. *Dardanus vulnerans* (Thallwitz)

1890. *Pagurus vulnerans* Thallwitz, *Abh. U. Ber. K. Zool. etc. Mus. Dresden*, No. 3 : 33.
 1905. *P. vulnerans* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II (1) : 83.
 1938. *P. vulnerans* : Yap-Chiongco, *Philippine J. Sci.*, 66 : 198.

Material.—1 ex., (21.5 mm), Cellular Jail (Port Blair) South Andaman, 10.iii.59 (K. K. Tiwari), 2 exs., (11 mm. & 12 mm.), Nacbuga, Little Andaman, 27.ii.61 (A. Daniel).

Distribution.—Persian Gulf, Coromandel Coast, New Guinea, Philippines and Japan.

Remarks.—Alcock (1905) recorded this species from the Coromandel coast of India. It is recorded now for the first time from Andaman Islands.

13. *Dardanus guttatus* (Olivier)

1811. *Pagurus guttatus* Olivier, *Encycl. Meth.*, 8 : 640.
 1953. *Dardanus guttatus* : Holthuis, *Atoll Res. Bull.*, 24 : 48.

Material.—2 exs., (17 mm. & 31 mm.), Aberdeen, Port Blair, 16.iii.52 (H. C. Ray).

Distribution.—East coast of Africa to Hawaiian Islands.

Remarks.—This species is reported for the first time from Andaman Islands. However its availability on the mainland of India is not known with certainty as Kamalaveni (1950) identified a single

specimen from an unknown locality in the collection of the Zoological Survey of India.

14. *Dardanus deformis* H. M. Edwards

1836. *Pagurus deformis* H. M. Edwards, *Ann. Sci. nat. Zool.*, (2) 6 : 272.
1953. *Dardanus deformis* : Holthuis, *Atoll. Res. Bull.*, 24 : 47.

Material.—1 ex., (15.5 mm.), Nacbuge, Little Andaman, 27.ii.61 (A. Daniel).

Distribution.—From East coast of Africa to Tahiti.

Remarks.—Alcock (1905) reported this species from Andamans, Henderson (1893) from Tuticorin and Rameswaram on the mainland of India.

15. *Dardanus varipes* (Heller)

1861. *Pagurus varipes* Heller, *Verh. Zool. bot. Ges. Wien*, 11 : 22.
1938. *P. varipes* : Boone, *Bull. Vanderbilt Marine Mus.*, 7 : 266.

Material.—1 ex., (31 mm.), Aberdeen, Port Blair, 16.iii.52 (H. C. Ray).

Distribution.—Red Sea, Mozambique, Persian Gulf, S. India, Ceylon and Malay Archipelago.

Remarks.—Henderson (1893) gave an account of the availability of this species from Tuticorin on the mainland of India. Its occurrence now, made known for the first time from Andaman Islands is of special interest.

16. *Aniculus aniculus* (Herbst)

1791. *Cancer aniculus* Herbst, *Krabbenicius*, 2 : 37.
1793. *Pagurus aniculus* : Fabr., *Ent. Syst.*, 2 : 468.
1852. *Aniculus typicus* : Dana, *U. S. Expl. Exped. Crust.*, pt. 1 : 461.
1953. *A. aniculus* : Holthuis, *Atoll Res. Bull.*, 24 : 41.

Material.—1 ex., (27 mm.), Malacca village, Car Nicobar, 27.iii.59 (K. K. Tiwari).

Distribution.—Indo-Pacific Region from East coast of Africa to Japan, Paumotu Archipelago and New Zealand.

Remarks.—Henderson (1893) reported this species from Tuticorin on the south-east coast of India, Southwell (1906) from Lake Tampa-lakam and Trincomalee on the Ceylonese coast and it is now recorded for the first time from Andaman Islands.

Family : COENOBITIDAE

17. *Coenobita clypeata* Latreille

1826. *Coenobita clypeata* Latreille, *Fam. Nat. Règne Anim.* : 277.
1905. *C. clypeatus* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II (1) : 142.
1943. *C. clypeata* : Thompson, *John Murray Exped.*, 1933-34, 7 : 425.

Material.—5 exs., collected from the following localities.—3 exs., (30 mm., 32 mm. & 39 mm.), Hut Bay; 1 ex., (27 mm.), Tailanda (near Kwate-tu-Kwage) Little Andaman, 18 & 19.ii.61 (A. Daniel), 1 ex., (23 mm.), Malaca, Car Nicobar, 23.iii.59 (K. K. Tiwari).

Distribution.—From Tropical West Africa, East Africa, Laccadives, Minicoy Islands and Burmese coast to Tahiti.

Remarks.—Occurrence of this species from Nicobar Islands is made known by Heller in 1865. This species however has not been reported from the mainland of India. Thus, its record now, from these islands after a lapse of 100 years is of special interest.

18. *Coenobita rugosa* H. M. Edwards

1837. *Coenobita rugosa* H. M. Edwards, *Hist. Nat. Crust.*, 2 : 241.

1905. *C. rugosus* : Alcock *Cat. Indian Decapod. Crust.*, pt. II (1) : 143,

1955. *C. rugosa* : Fize & Serene, *Notes Inst. Oceanogr. Nhatrang*, 45 : 12.

Material.—542 exs., collected from the following localities.—*North Andaman* : 3 exs., (9 mm. to 12.5 mm.), Port Cornwallis, 31.i.59 (K. K. Tiwari); *Middle Andaman* : 84 exs., (3 mm. to 15 mm.), Long Island, 20 & 22.i.59 (K. K. Tiwari); *South Andaman* : 1 ex., (15 mm.), Ross Island, 14.iii.59 (K. K. Tiwari); *Port Blair* : 4 exs., (10 mm. to 13 mm.), Aberdeen Jetty, 10.i.59 (K. K. Tiwari), 96 exs., (1.5 mm. to 17 mm.), Aberdeen Bay, 11 & 12.i.59 (K. K. Tiwari), 268 exs., (1.5 mm. to 19 mm.), Corbyn's Cove, 16.i.59 (K. K. Tiwari), 6 exs., (7.5 mm. to 13 mm.), Chatham Jetty, 10.ii.61 (A. Daniel), 1 ex., (9 mm.), Huddo, 6.iii.61 (A. Daniel), 1 ex., (7 mm.), South Point Shore, 9.iii.61 (A. Daniel); *Little Andaman* : 19 exs., (4.5 mm. to 29 mm.), Dugong Creek, 11.iii.59 (K. K. Tiwari), 1 ex., (13.5 mm.), Laitora, 14.ii.61 (A. Daniel), 9 exs., (7 mm. to 15 mm.), Bedeabdula, 16.ii.61 (A. Daniel), 1 ex., (18 mm.), Tokoibuea, 12.ii.61 (A. Daniel), 1 ex., (10.5 mm.), Hut Bay, 18.ii.61 (A. Daniel), 2 exs., (9 mm. & 13 mm.), Tailanda (near Kwate-tu-Kwage), 19.ii.61 (A. Daniel), 5 exs., (9 mm. to 17.5 mm.), Ingoie Shore, 21.ii.61 (A. Daniel), 10 exs., (8 mm. to 13.5 mm.), Tular, 26.ii.61 (A. Daniel), 5 exs., (11.5 mm. to 13 mm.), Gaje, 25.ii.61 (A. Daniel), 5 exs., (10 mm. to 14 mm.), Nacbuge, 27.ii.61 (A. Daniel); *Car Nicobar* : 6 exs., (8.5 mm. to 19 mm.), Malacca, 23.iii.59 (K. K. Tiwari), 2 exs., (7 mm. both), Passa bridge, 26.iii.59 (K. K. Tiwari), 8 exs., (4.5 mm. to 8 mm.), Mus village, 28.iii.59 (K. K. Tiwari), 3 exs., (7 mm. to 12 mm.), Sawaii village, 31.iii.59 & 5.iv.59 (K. K. Tiwari); *Nicobar* : 1 ex., (10 mm.), Nan Cowry Island, 2.iv.59 (K. K. Tiwari).

The biggest specimen measuring 29 mm. in the middle of carapace is collected from Dugong Creek (Little Andaman).

Distribution.—From the East coast of Africa, Red Sea and Indo-Pacific region to West Coast of America.

Remarks.—This is a common form found on the Andaman and Nicobar group of islands but not so on the mainland of India.

19. *Coenobita perlata* H. M. Edwards

1837. *Coenobita perlata* H. M. Edwards, *Hist. Nat. Crust.*, 2 : 242.

1905. *C. perlatus* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II (1) : 145.
 1955. *C. perlata* : Fize & Serene, *Notes Inst. Oceanogr. Nhatrang*, 45 : 24.

Material.—7 exs., collected from the following localities.—*South Andaman* : 1 ex., (31.5 mm.), Corbyn's Cove 16.i.59 (K. K. Tiwari), —Port Blair, *Little Andaman* : 1 ex., (9 mm.), Bedeabdula (South of Tokoibuea), 16.ii.61 (A. Daniel), 1 ex., (36 mm.), Laitora (North of Tokoibuea), 14.ii.61 (A. Daniel) ; *Car Nicobar* : 4 exs., (5.5 mm. to 12.5 mm.), Sawaii village, 31.iii.59 & 5.iv.59 (K. K. Tiwari).

The biggest specimen measuring 36 mm. length on—wise in the middle line of the carapace is collected from Laitora (Little Andaman).

Distribution.—Red Sea, Seychelles, Mauritius through the Indo-Pacific to Samoa.

Remarks.—Though Alcock (1905) gave an account of the occurrence of this species from Laccadives, Andamans and Nicobars, it is not reported so far from the mainland of India.

20. *Coenobita cavipes* Stimpson

1859. *Coenobita cavipes* Stimpson, *Proc. Acad. nat. Sci. Philad.* : 245.
 1905. *C. cavipes* : Alcock, *Cat. Indian Decapod. Crust.*, pt. II(1) : 146.
 1955. *C. cavipes* : Fize & Serene, *Notes Inst. Oceanogr. Nhatrang*, 45 : 30.

Material.—44 specimens collected from the following localities.—*North Andaman.*—7 exs., (12 mm. to 28 mm.), Port Cornwallis, 1.ii.59 (K. K. Tiwari), 1 ex., (6.5 mm.), South Camp (Interview Island), 7.ii.59 (K. K. Tiwari) ; *Middle Andaman* : 18 exs., (6.5 mm. to 26 mm.), Long Island, 20, 22 & 25.i.59 (K. K. Tiwari) ; *South Andaman.* 1 ex., (5 mm.), Bamboo flat, 13.i.59 (K. K. Tiwari) ; *Port Blair* : 1 ex., (4.5 mm.), Chatham Jetty, 1 ex., (33.5 mm.), Corbyn's cove, 16.i.59 (K. K. Tiwari), 6 exs., (10.5 mm. to 27 mm.), South Point, 5 & 13.iii.59 (K. K. Tiwari), 1 ex., (5.5 mm.), Aberdeen Bay, 27.ii.59 (K. K. Tiwari), 2 exs., (7.5 mm. to 20 mm.), Aberdeen Jetty, 10.i.59 (K. K. Tiwari) ; *Little Andaman* : 1 ex. (37 mm.), Gaje (near Onge Bera) 25.ii.61 (A. Daniel) ; *Car Nicobar* : 3 exs., (9 mm. to 13 mm.), Malacca village, 23 & 30.iii.59 (K. K. Tiwari), 2 exs., (6.5 mm. to 9.5 mm.), Sawaii village, 5.iv.59 (K. K. Tiwari).

The biggest specimen measuring 37 mm. in the middle line of the carapace is collected from Gaje—Little Andaman.

Distribution.—From East Coast of Africa, East Coast of India, Andamans and Nicobars, Malaya and East Indies to Liu Kiu Islands.

Remarks.—This species like *Coenobita rugosa* Edw. is a common form found in Andaman and Nicobar group of Islands but not so common on the mainland of India.

III—SUMMARY

The present paper is based on studies on collections of pagurid crabs made by various survey parties of the Zoological Survey of India, viz. Andaman Survey, 1952 by Dr. H. C. Ray ; Andaman and Nicobar Survey, 1959 by Dr. K. K. Tiwari, and Little Andaman

Survey, 1961 by Dr. A. Daniel. The collections were made along the coastal regions of Andaman, the Little Andaman and the Car Nicobar Islands. The collections include 784 specimens in all, representing 20 species belonging to two families *viz.*, Paguridae and Coenobitidae. Eight species are of special interest from the zoogeographical distribution of view, since they have been recorded for the first time from this group of Islands. History of the pagurid study of Andamans and Nicobars is discussed.

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