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ON A NEW BRACHYURA CRAB FROM THE  
TATUNOKUTI BED OF SENDAI,  
MIYAGI PREFECTURE

By

Takumi NAGAO

*With 1 Plate*

(Contribution from the Department of Geology and Mineralogy,  
Hokkaidô Imperial University, No. 250)

Three specimens of *Cancer* were kindly sent for examination to the present writer by Dr. S. HANZAWA of the Institute of Geology and Palaeontology, Tôhoku Imperial University in Sendai. The specimens had been collected from the Pliocene Tatunokuti (Tatsunokuchi) bed<sup>1)</sup> exposed along the Hirose-gawa flowing through the western part of that city. A number of other specimens stored in the said Institute and the Museum of the Saitô Gratitude Foundation (Saitô Hô-on Kai Museum) in the same city were also lent to the writer through the kindness of Prof. H. YABE. All of these specimens had been derived from the complex above mentioned.

In the material are contained specimens of both sexes; some have been more or less subjected to crushing, but some others show the carapace in good state of preservation. The dorsal and sometimes the ventral aspect are observable and the colouration is well retained in most of the specimens.

*Cancer minutoserratus* nov.

Pl. XXIII.

Carapace fan-shaped, broader than long, the longest diameter being fairly posterior to the median transverse. Both antero-lateral margins forming a continuous curvature in a broad ovate shape

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1) H. YABÉ: Recent Stratigraphical and Paleontological Studies of the Japanese Tertiary. Special Publ. Bernice P. Bishop Museum, No. 7, 1921, p. 782.

over the front which does not project much; postero-lateral margins rather long, nearly straight or very faintly concave, forming an angle of about  $45^\circ$  with the median longitudinal line; posterior margin also straight, relatively long, being about one third as long as the maximum breadth of the carapace.

Surface of carapace bare, smooth, weakly convex from front to rear and from right to left, somewhat flattened along the anterior margins, not very uneven, rather indistinctly areolated with shallow and broad depressions, and covered all over with closely set, very fine and subequal granules. About 20 larger granules arranged in a series of crescent shape occur in each branchial region. Postero-lateral and posterior margins decorated by a series of regular, small and crowded granules.

Antero-lateral teeth number 9 including the tooth at the lateral angle, flat, broad triangular with the anterior margin short and the posterior margin very long and inclined rather slowly, not much produced, and hence mostly rectangular in outline, except the 9th which is narrowly triangular and laterally much produced. They increase in size from the 2nd to the 7th, the 7th being nearly twice as large as the 2nd, the first or that at the outer angle of the orbit a little larger than the 2nd, the 8th slightly smaller than the 7th.

All teeth separated from one another by narrow V-shaped notches and moderately long closed fissures, each very irregularly serrated, serrations variable in height and breadth, usually crowded and small. In the larger specimens the teeth sometimes split into two or three parts, each decorated with finer serrations, the posterior parts being always smaller than the anterior main one.

Frontal teeth or lobes subtriangular, rather low, blunt, the median one a little narrower and slightly more produced than that on either side, but the apex situated almost in the line connecting the apices of the teeth on the outer angles of the orbits; the tooth on the inner one, separated from that on the outer angle by a rather broad quadrate lobe.

Ventral surface. Pterygostomian region broad; sternum rather narrow. External maxillipeds and abdomen including the telson also well represented in some specimens; the chelipeds and ambulatory legs sometimes preserved, usually lacking the three distal segments.

Cheliped. Merus with cylindrical ovate cross-section, being flattened anteriorly, widening very slightly distally, finely granulated.

Carpus short, its upper surface subtrapezoid in outline, bounded by a band of close-set granules, slightly excavated distally; the edge which separates the upper surface and smooth inner surface, distinct and divided by a granulated longitudinal ridge into two parts, the upper one narrow and the lower or outer one broad; the distal end of the last ridge slightly produced beyond the articulation with the manus. Another indistinct granulated ridge distinct proximally, fading distally. Lower surface convex, very densely granulated, especially in the lower part. Inner tooth acute, prominent.

Manus. Palm longer than high, nearly as long as the carpus; outer surface with four longitudinal ridges, the uppermost one bounding the upper surface, the lower two narrower than the upper two, all granulated; upper surface divided into two concave parts by a subtuberculated and distinct longitudinal ridge, the inner margin acute and coarsely tuberculated. Fingers shorter than the palm, bent downward, coarsely dentate; propodal finger two-ridged externally, with a longitudinal series of punctae along the upper margin of the lower ridge; dactylus finger with a subtuberculated upper surface.

Legs slender, apparently almost naked.

Colour of the shell usually well preserved, the carapace dark bluish, covered with white granules; ventral surface decorated with small pavements of bluish white colour.

Locality: Hyôzyôgawara, Sendai.

Horizon: Tatunokuti bed (Pliocene).

Measurements: (in mm.)

	No. 3303		Saito Hô-on		No. 51939	
	(Hokkaidô I.U.)	(H.I.U.)	(H.I.U.)	Kai Mus.	(S.H-K.M.)	(Tôhoku I.U.)
						a. b.
Carapacee.						
length ...	51+	31	24	ca. 50	ca. 22	ca. 34 ?
breadth...	ca. 72	ca. 44	35	ca. 65	ca. 33	ca. 48 ca. 36
Cheliped.		(Tôhoku I.U.)	(Saito H-K.M.)	(Saito H-K.M.)	(Tôhoku I.U.)	
length of	merus carpus manus (palm) dactylus finger prop. dite finger					9+
				8	10	
		13	9	12		
		7	9	6		

1) 仙臺市評定河原

This species is somewhat similar in rectangular outline of the lateral teeth to *C. fissus* RATHBUN<sup>1)</sup> from the Pliocene of California, but differs in having the carapace relatively a little longer with the line of maximum breadth not very near to the posterior end, and the antero-dorsal teeth more regular in size and, moreover, finely serrated. A left palm referred to that American species by RATHBUN is very different from that of the present form.

Of the recent Japanese species, *C. amphioetus* RATHBUN (*C. pygmaeus* ORTMAN) is much smaller with shorter legs and a more distinctly regioned and slightly narrower carapace than the species under consideration, although a juvenile specimen of the latter at hand has a relatively narrow carapace with distinctly defined regions. The margins of the lateral teeth are entire in that living form. The carapace of the new species is similar in shape to that of *C. gibbosulus* (DE HAAN), but the antero-lateral teeth are quite different in outline.

In respect to the serrated teeth and the surface ornamentation of the carapace, the present fossil is akin to *C. plebejus* POEPPIG of the West Coast of South America, but is longer, with the maximum diameter situated more anteriorly, and sharply truncated by a longer posterior margin.

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1) M. J. RATHBUN: Smiths. Inst. U.S. Nat. Museum, Bull. 138, 1926, p. 60, pl. VI, fig. 1; pl. XVI, figs. 5 and 6.

2) A. ORTMAN: Zool. Jahrb. Syst., vol. 7, 1893, p. 426, pl. XVII, fig. 4. M. J. RATHBUN: The Cancroid Crabs of America of the Families Euryalidae, Portunidae, Atelecyclidae, Cancridae, and Xanthidae, Smiths. Inst. U.S. Nat. Mus., Bull. 152, 1930, p. 205, pl. XCI, figs. 1-5. T. SAKAI: Studies on the Crabs of Japan. IV. Brachygnatha, Brachyrhyncha, 1939, p. 436, pl. LXXXVI, fig. 2.

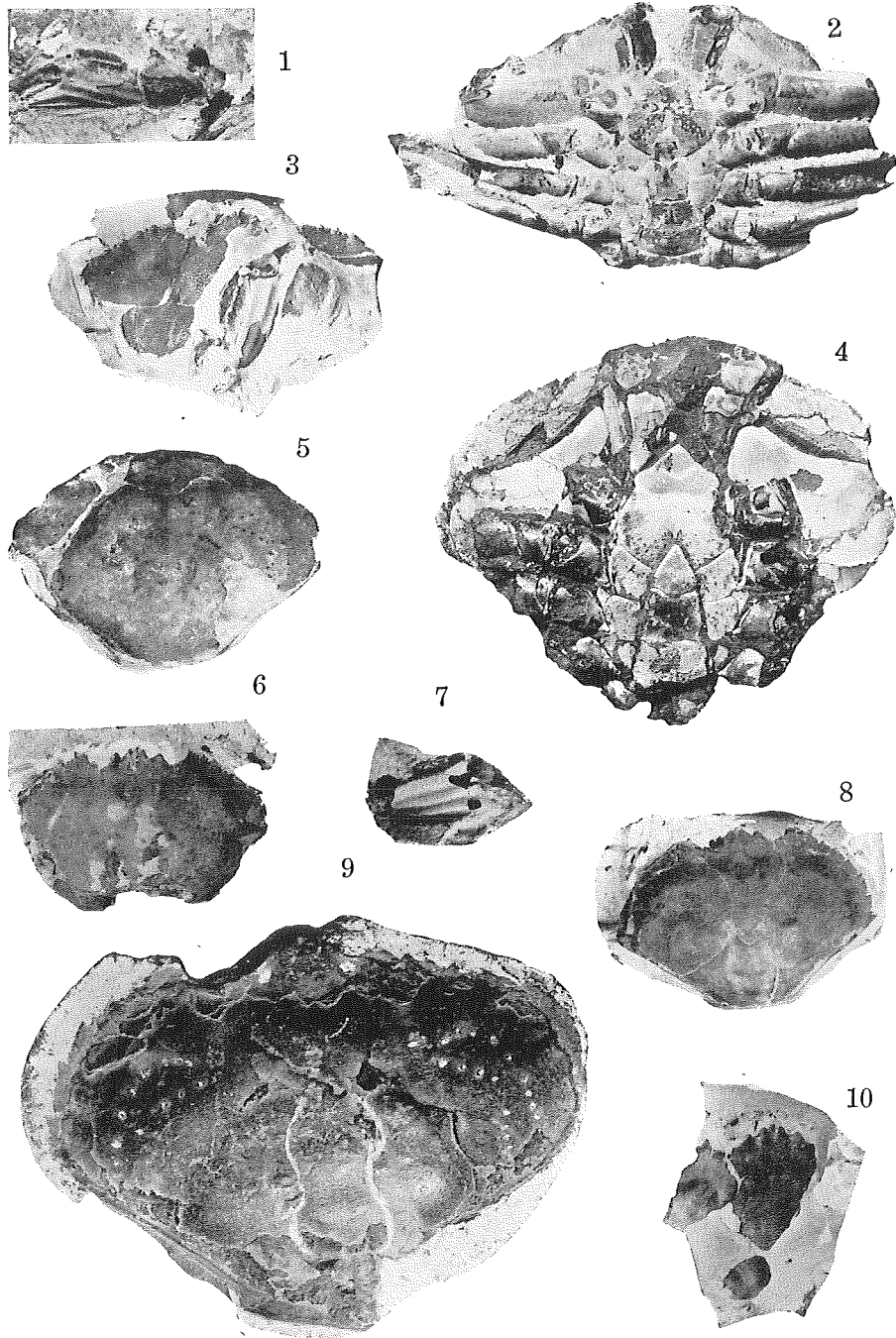
3) W. DE HAAN in SIEBOLD: Fauna Japonica, Crustacea, 1836-1850, p. 45, pl. II, fig. 4; pl. XIII, fig. 3. Y. YOKOYA: On the Distribution of Decapod Crustaceans inhabiting the Continental Shelf around Japan, etc. Jour. Coll. Agr. Tôkyô Imp. Univ., vol. XII, 1933, p. 167. T. SAKAI: Studies on the Crabs of Japan. Op. cit., p. 436, pl. LII, fig. 4; pl. LXXXVI, fig. 1.

4) M. J. RATHBUN: The Cancroid Crabs of America of the Families Euryalidae, Portunidae, Atelecyclidae, Cancridae, and Xanthidae. Op. cit., 1930, p. 198, pl. LXXXI, fig. 1; pl. LXXXV, fig. 3.

### EXPLANATION OF PLATE XXIII

All figures are of natural size.

- Fig. 1. A left cheliped (Saitô Hô-on Kai Museum).
  - Fig. 2. Ventral view of an adult specimen (Tôhoku Imperial University, no 51939).
  - Fig. 3. Dorsal view of a fragment of a carapace, showing the anterior portion, and a cheliped of another individual (S. H. M.).
  - Fig. 4. Ventral view of an adult specimen (Ibid.).
  - Fig. 5. A carapace of a juvenile specimen (Hokkaidô Imperial University).
  - Fig. 6. A carapece of a juvenile specimen (S. H. M.).
  - Fig. 7. A right manus (S. H. M.).
  - Fig. 8. A carapace of a juvenile specimen (H. I. U.).
  - Fig. 9. A carapace of an adult specimen (H. I. U. no. 3303).
  - Fig. 10. A fragment of a carapace showing the rostral portion (S. H. M.).
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(Kumano photo.)

*T. Nagao: A New Brachyura Crab.*