

XIII.—*Natural History Notes from H. M.'s Indian Marine Survey Steamer 'Investigator,' Commander ALFRED CARPENTER, R. N., Commanding. No. 4. Description of a new Species of Crustacea belonging to the Brachyurous Family Raninidæ.—By J. WOOD-MASON, Esq., Superintendent of the Indian Museum, and Professor of Comparative Anatomy and Zoology in the Medical College of Bengal, Calcutta.*

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(With Plate I.)

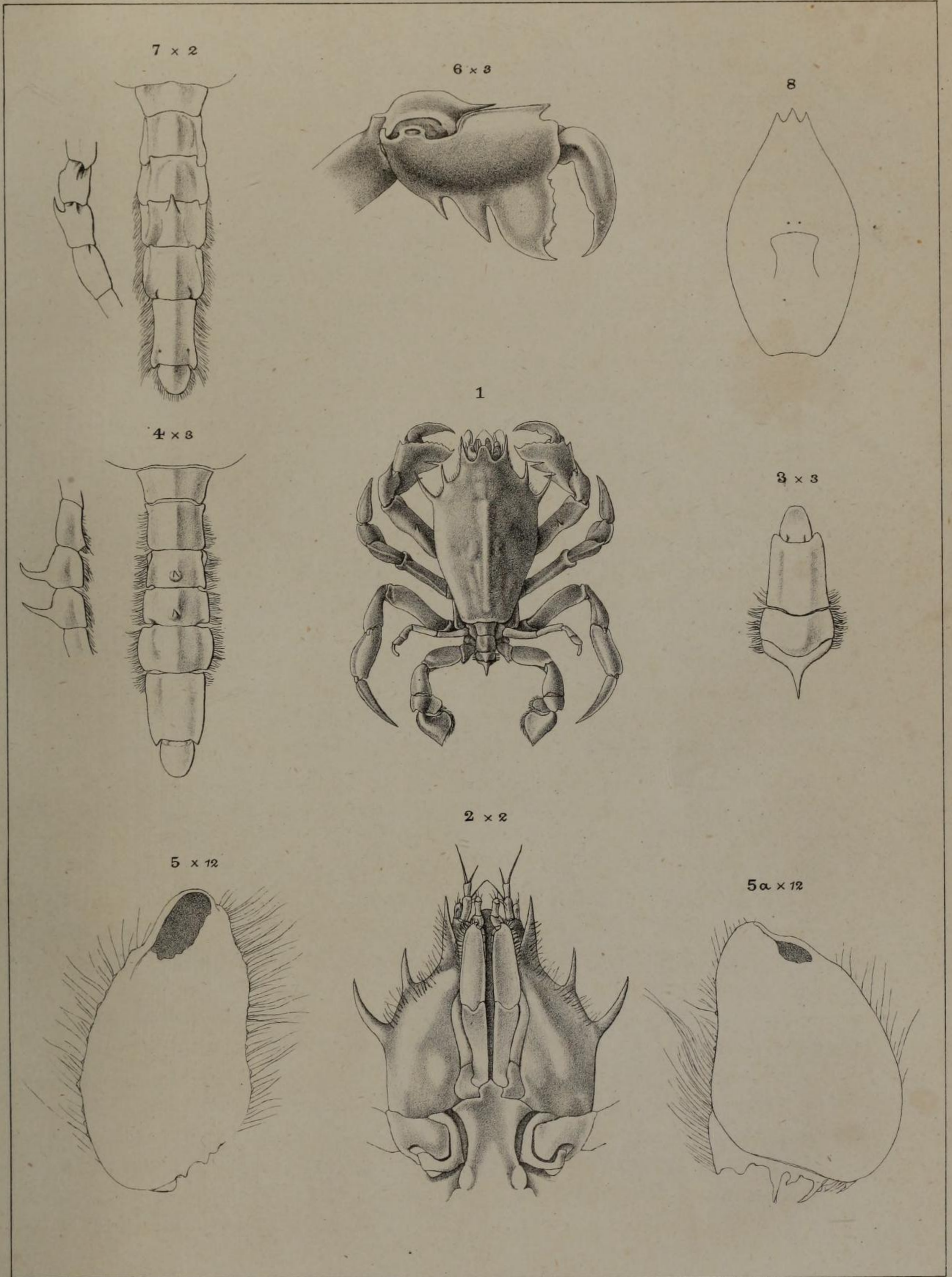
LYREIDUS CHANNERI, n. sp.

Proc. Asiat. Soc. Bengal, August 1885, p. 104.

♂. Carapace transversely moderately convex, longitudinally bluntly carinate and slightly arched from near the posterior margin almost to the level of the spines marking the commencement of the antero-lateral margins, from which level to the end of the rostrum it is slightly concave; its antero-lateral margins armed with two pairs of long slender and acute outwardly and forwardly directed spines, of which the posterior are nearly twice the length of the anterior pair (the left one of which has been broken off early in life and is now only represented by a tubercular scar): its sides parallel from the larger pair of spines backwards to the insertion of the chelipeds, whence they gradually and regularly converge to the rounded angles of the concave-truncate posterior margin; and rapidly convergent from the same pair of spines forwards to about the level of the middle of the 3rd joint of the external maxillipeds, whence they suddenly run parallel to, or slightly divergent from, one another to the ends of the extraorbital spines. The rostrum is semi-oval, or, in other words, has the form of a triangle with the apex rounded and the opposite sides slightly arched, and, like the eye-peduncles, is surpassed by the long and acuminate extra-orbital spines.

Immediately in front of the two small crescentic muscular impressions near the middle of its length, the carapace is crossed by a faint depression, interrupted by the median carina and continued on the sides, passing immediately in front of the junction of the finely beaded postero-lateral lines with the *linea anomurica* some distance to the rear of the hinder pair of antero lateral spines, and deepening as it goes, to the buccal frame; in front of this depression the puncture of the surface is much coarser and thicker than behind it. The antero-lateral margin is finely granulated and, with the contiguous subhepatic and anterior pleural regions, slightly hairy. Two faint depressions, marking out a cardiac region, pass off from the posterior ends of the crescentic im-











pressions, extending rather more than half way to the posterior margin, and slightly converging as they go; and two oblique elevations, situated about midway between the median carina and the postero-lateral margins, with which they are parallel, are present on the posterior third of the carapace.

The eye-peduncles have the same form as those of *L. tridentatus*, and reach nearly to the level of the end of the rostrum, but the eyes they carry are in process of reduction to the condition of those of so many Reptant and Brachyurous Crustacea that inhabit the muddy depths of the sea, and, moreover, are unequally reduced on the two sides of the body, the left being represented by an oval and convex obsolete faceted, thick, and opaque-yellow cornea, situated, as in the typical species of the genus, on the outer apex of the peduncles, with the subjacent pigment showing through the integument at its base as a dark lead-coloured circumferential band, while all that is to be seen in the corresponding part of the right eye is a smooth and very slightly convex area marked out by the transparence of the pigment of the subjacent ophthalmic tract.

The propodite of the chelipeds is armed below with two acute triangular spines, of which the distal is twice the size of the proximal; its low dorsal crest ends distally in a small tooth; the cutting process of its inner edge is divided into five irregular tooth-like lobules; and its tip is strongly hooked or incurved. The cutting edge of the dactylopodite is obsolete two-toothed. The only armature of the carpopodite is a single long and acute spine, answering to the distal of the two in *L. tridentatus*. The meropodite bears a sharp spinule in the place of the tubercle seen in the typical species. The dactyli of the 1st and 2nd pairs of legs are shorter and broader, particularly those of the former, and the crests of the two preceding joints in the former also are all more lamellar, the dorsal ones being in addition distally produced to sharp teeth. No direct comparison of the 3rd pair of legs in the two species is possible, as these limbs are wanting in the only specimen of the Japanese form available for comparison, but, judging from DeHaan's figure, the two last joints would appear to be much more expanded in the Indian one. All the legs are slenderer.

The third and fourth abdominal terga each bear a very sharp recurved spine in the middle line.

Dr. Giles notes that the animal was in life, "except a little brown tint in front, of a uniform salmon colour;" and in the spirit-specimen all the upper surface of the carapace in front of the transverse impression, with the exception of the lateral spines, is still darker coloured than the rest of the body.



The unique example from which the foregoing description has been drawn up measures :—

	millims.
Length of carapace from tip of rostrum to posterior margin .....	25.0
"    "    "    "    to the middle of a straight line joining the bases of the posterior spines .....	8.5
Length of carapace from the posterior margin to the same straight line .....	16.5
Breadth of carapace across the parallel-sided part.....	14.3
Breadth of head between tips of extra-orbital spines.....	6.0
Distance between tips of posterior antero-lateral spines .....	18.0
Length of posterior antero-lateral spines .....	5.0
"    "    anterior antero-lateral    "    .....	3.0
"    "    genital appendages .....	5.5
"    "    rostrum, measured from a straight line drawn tangen- tially to the bottom of the supra-orbital emarginations,	2.0
"    "    extra-orbital angles, measured from the same straight line, .....	3.4

This interesting brachyuran may at once be distinguished from either of the three previously described species of its genus (*L. tridentatus*, DeHaan, Faun. Jap. Crust. 1850, p. 138, tab. XXXV, fig. 6, ♂, *L. elongatus*, Miers, Proc. Zool. Soc. Lond. 1879, p. 45, both from the seas of Japan, and *L. bairdii*, S. I. Smith, Proc. U. S. Nat. Hist. Mus. 1881, III, p. 420, from 100 fathoms, off the South Coast of New England) by the conspicuous armature of its carapace, by its bispinose abdomen, and by its partially aborted eyes.

A single male only of it was dredged up in the trawl from a depth of 405 to 285 fathoms with a bottom temperature of 48° to 50' Fahr. in the 'swatch-of-no-ground,' a deep and narrow valley running northwards from the floor of the Bay of Bengal to within a short distance of the shoals lying off the conjoined mouths of the Ganges and Brahmaputra, in Lat. 21° 6' 30'' N., Long. 89° 20' E.

#### EXPLANATION OF PLATE I.

- Fig. 1. *Lyreidus channeri*, W.-M., ♂. Natural Size.  
 ,, 2. Orbital, antennary, and buccal view. × 2.  
 ,, 3. Four terminal somites of abdomen, seen from below as they lie closely applied against the underside of the cephalothorax. × 3.  
 ,, 4. Dorsal view (to the right) of the abdomen, with side view (to the left) of its spinigerous 3rd and 4th terga. × 3.  
 ,, 5, 5a. Outline views from above, or optic sections in the plane of the fringing setæ, of the left and right eye-peduncles respectively, to show (a.) the setæ that fringe their two margins up to the corneal membrane on each side; (b.) the thickness and the relative development of the cornea,



which, opaque in both eyes, exhibits an obscure and degenerate faceting in the left, but is devoid of all traces of facets in the right, the shorter and the broader of the two; and (c.) the relative amount of pigment, represented by the dark shading.  $\times 12$ . Zeiss' a\*. Oc. 2. Abbe camera.

- Fig. 6. The right chela.  $\times 3$ .  
 „ 7. *Lyreidus stenops*, n. sp., ♀. Dorsal view (to the right) of the abdomen, with side view (to the left) of its spinigerous 4th tergum.  $\times 2$ .  
 „ 8. The carapace of the same in outline. Natural Size.

This species may at once be distinguished from its congeners by its narrow metope, its unarmed carapace, and its decumbent abdominal spine. A single specimen of it, with a male and two females of another species identical with the specimen from Japan referred in the above description to *L. 3-dentatus*, has been received by me from Hongkong from Brigade-Surgeon Hungerford, since this paper was written.

XIV.—*Natural History Notes from H. M.'s Indian Marine Survey Steamer 'Investigator,' Commander ALFRED CARPENTER, R. N., Commanding. No. 5. On some Nodular Stones obtained by trawling off Colombo in 675 Fathoms of Water.—By E. J. JONES, A. R. S. M., Geological Survey of India.*

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(With Plate II.)

These nodules were forwarded to the Superintendent of the Indian Museum, and by him passed on to the Director of the Geological Survey, by whom they were subsequently entrusted to me for examination.

The results of this investigation, though owing to want of time incomplete, are, as will be seen, of considerable interest; and I hope at some future time to be able to go into the subject more fully.

The nodules were obtained during a trawling operation off Colombo in water of 675 fathoms, and are stated to have been found associated with sand and mud, which formed a hard calcareous crust at the bottom of the sea, and a small quantity of which was forwarded with the specimens.

The stones are irregularly rounded, and vary in shape from almost spherical to roughly cylindrical with rounded ends. The specimens received varied in size from 1—4 inches in length and  $1\frac{1}{4}$ — $\frac{3}{4}$  inch in thickness. Externally, they are rough and mostly have one or two small excrescences of the size of a pin's head, and a few small pittings of about the same size; the colour is dirty light grey.