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6. Description of a new Variety of River-Crab, of the genus *Thelphusa*, from Kilima-njaro. By E. J. MIERS, F.L.S., F.Z.S.

[Received February 3, 1885.]

The species of *Thelphusa*, or River-Crabs, are extremely numerous, and their discrimination is often very difficult, on account of the changes which the species undergo as they increase in age and size.

In the collection brought by Mr. H. H. Johnston from Kilima-njaro are two specimens of this genus, which I assign, though not without some hesitation, to the *Thelphusa depressa*, Krauss, described from types taken near Pietermaritzburg, Natal. They agree with the description and figure in their depressed carapace, which is considerably dilated at the branchial regions, in the non-development of the lateral epibranchial tooth, and in other essential characters; but differ in the more strongly defined cervical suture of the carapace, and the more strongly denticulated merus, and much less strongly arcuated dactylus of the chelipedes. As regards this latter character, I may observe that in a series of *Thelphusæ* (perhaps *T. difformis*) in the Museum collection, the dactyli of the chelipes are in some males arcuated, and in others nearly straight.

I append a detailed description of the specimens from Kilima-njaro, which I propose to designate *T. depressa*, Krauss, var. *johnstoni*, but which may prove to belong to a distinct species.

THELPHUSA DEPRESSA, Krauss, var. JOHNSTONI.

Cf. *Thelphusa depressa*, Krauss, Südafrik. Crustaceen, p. 38, pl. 11. fig. 4 (1843).

Carapace transverse, widest in its post-frontal region, depressed, with the dorsal surface nearly smooth, and divided into two nearly equal portions by the zigzag cervical suture, which extends transversely across the carapace to the postero-lateral margins; behind this a second transverse depression (not a suture) crosses the carapace behind the cardiac region. The postfrontal crest extends to the antero-lateral margins of the carapace, and is interrupted only by the meso-gastric suture, which bifurcates posteriorly (as usual in the genus); this crest is granulated near to the antero-lateral margins, which are defined by a distinctly granulated line; the lateral epibranchial teeth are not developed. On the hepatic and branchial regions are several faintly indicated lines, which extend inward for a short distance over the dorsal surface of the carapace from the lateral margins. The front is about one third the width of the carapace, punctulated above, with its anterior margin sinuated, its antero-lateral angles obtuse and not prominent. The orbital margins are entire, and defined by a raised line, which is granulated except near to the front; the inferior orbital margin is regularly arcuate, not (as in *T. perlata*) angulated near to the interior suborbital lobe, which is not at all prominent; the tooth, also, at the exterior orbital angle is very little developed; the parts of the

carapace adjoining the antero-lateral angles of the buccal cavity are very distinctly granulated. The eye-peduncles are slender (for a species of this genus), and the eyes do not attain the exterior angle of the orbit. The exterior maxillipedes are formed as in *T. perlata*, having the ischium and merus of the endognath distally truncated, the merus rounded at its antero-external angle, and scarcely emarginate at its antero-internal angle. The chelipedes in the adult male are unequal, the right the larger; in both the merus is armed with a series of spinules on the anterior margin, and with a somewhat longer spine near the distal extremity; the carpus with a spine followed by a smaller spinule on the inner margin; the palm is somewhat compressed and nearly smooth, rounded above; the dactyl and pollex are denticulated on the inner margins, and have between them, when closed, a rather narrow interspace; the dactyl is slightly arcuated and as long as, or rather shorter than, the palm. The ambulatory legs are of moderate length, with the fourth to sixth joints compressed, and with the superior margins acute; the margins of the penultimate joints near to the distal extremity and the dactyli are armed with small spinuliform teeth, which on the dactyli are disposed in four longitudinal series.

Adult male.

	lines.	millims.
Length of carapace.....	$17\frac{1}{2}$	37
Breadth of carapace about	$25\frac{1}{2}$	54·5
Length of a chelipede.....	44	93·5

This form may be distinguished from other African species in which the postfrontal crest is distinctly developed, by the following characters:—From *T. perlata*, M. Edw., which is found at the Cape and Port Natal, by the wider transverse carapace, which is more dilated at the branchial regions, and not dorsally granulated near the antero-lateral margins, and by the form of the orbit, whose inferior margin is regularly concave (not as in specimens referred to *T. perlata* in the Museum Collection), abruptly angulated near the interior subocular lobe. From *T. inflata*, M. Edw., by the less convex carapace, straight postfrontal crest, and the granulated line which borders the antero-lateral margins of the carapace. *T. aubryi*, M. E., *T. africana*, A. M. E., and *T. emarginata*, Kingsley, from the Gaboon, West Africa, and Port Natal, have an additional tooth between the exterior angle of the orbit and the postfrontal crest. In *T. goudoti*, M. E., from Madagascar, the postfrontal crest is less developed, and the immobile finger of the chelipedes forms more or less of an angle with the inferior margin of the palm. Another species from Madagascar, *T. madagascariensis*, A. M. E., which has not, I believe, been figured, is distinguished by the lesser development of the postfrontal crest and the straighter fingers of the chelipedes, which meet along their inner margins. In the West-African *T. bayoniana*, *T. anchietæ*, and *T. dubia*, Brito Capello, the lateral epibranchial tooth is more developed. In

T. limula, Hilgendorf, from Senegambia, the postfrontal crest is less distinctly developed near the lateral epibranchial teeth, behind which, in the males, are indications of two other teeth.

7. On the Heart described by Professor Owen in 1841 as that of *Apteryx*. By E. Ray Lankester, M.A., LL.D., F.R.S., Jodrell Professor of Zoology in University College, London, Fellow of Exeter College, Oxford.

[Received February 19, 1885.]

When busy some three years ago with the examination of the right cardiac valve of *Ornithorhynchus* and *Echidna*, I was naturally anxious to examine the similar valve of *Apteryx*, which had been stated by Sir Richard Owen to present a divergence from the character which it usually presents in Birds, and instead of being purely muscular as in all other Birds, to possess membranous areæ and chordæ tendineæ. Sir Richard Owen gives the following account of this valve in his paper published in 1841, in the 'Transactions' of this Society (vol. ii. p. 272):—

"The principal deviation from the ornithic type of the structure of the heart is presented in the valve at the entry into the right ventricle (pl. lii. *g*. fig. 3). This is characterized in birds by its muscularity and its free semilunar margin. In the *Apteryx* it is relatively thinner, and in some parts semitransparent and nearly membranous; a process moreover extends from the middle of its free margin, which process is attached by two or three short *chordæ tendineæ* to the angle between the free and fixed *parietes* of the ventricle. We perceive in this mode of connection an approach in the present bird to the mammalian type of structure analogous to that which the *Ornithorhynchus*, among *Mammalia*, offers, in the structure of the same part, to the class of birds; for the right auricular ventricular valve in the *Ornithorhynchus* is partly fleshy and partly membranous. The dilatable or free *parietes* of the right ventricle were about $\frac{1}{20}$th of an inch in thickness, those of the left were $\frac{1}{6}$ th of an inch thick."

I was fortunately able to gratify my curiosity with regard to the heart of *Apteryx* by the dissection of a specimen preserved in spirit, which I owe to the courtesy of Mr. Cheeseman.

I was not a little astonished to find that the right cardiac valve of my *Apteryx* was totally different from that described by Owen, and so far from presenting any membrane or chordæ tendineæ, exhibited the normal structure of the right cardiac valve in birds; in fact was a purely muscular lobe. I put the matter by at that time, and was reminded of it a few weeks since by Mr. Beddard, who told me that he had obtained a precisely similar result to my own from the examination of a specimen of *Apteryx* which had recently come into his possession.

Mr. Beddard further told me that he had taken an opportunity