

Error of Newman's No. 94 to the Kew and Greenwich Standards.

Casella's barometer.		With Kew.	With Greenwich.
By	No.	Inch.	Inch.
	628	— .0155	— .0115
"	632	— .0123	— .0083
"	637	— .0146	— .0106
"	627	— .0130	— .0090
"	634	— .0139	— .0099
"	635	— .0182	— .0142
"	630	— .0140	— .0100
"	631	— .0142	— .0102

If we reject the results afforded by barometers No. 632 and No. 635 which depart somewhat widely from the remainder, the mean of the remaining six comparisons gives the error of Newman's No. 94 — .0142 to the Kew, and — .0102 to the Greenwich Standard. Deducting these from the error, above given, of the same barometer to the Calcutta Standard, and changing the sign, we have the error of the Calcutta Standard as follows :—

Error of Calcutta Standard, Newman, No. 84.

To Kew.

To Greenwich.

+ .0109.

+ .0149.

These amounts, or say .011 and .015 inch, must therefore be deducted from the readings of the Calcutta Standard and all registers corrected thereto, to render them comparable with registers corrected to the Kew and Greenwich Standards respectively.

ON INDIAN AND MALAYAN TELPHUSIDÆ, PART I,—

by JAMES WOOD-MASON, ESQ.

(Continued from page 207).

(With Plate XXVII).

TELPHUSA EDWARDSII, n. sp., pl. xxviii, figs. 11—15.

Carapace sparingly hirsute above, more thickly so on the pleural region, broadest along a line dividing the anterior from the

middle third of the mesogastric region, on each side of which the surface is raised into an oval areolet bounded in front by the protogastric, behind and laterally by the branchial lobe which in part bounds it in front; uro-gastric lobes distinct from the rest of the regions and from one another, post-frontal ridge sinuous, coarsely wrinkled, ending about 2 mm. short of the epibranchial teeth, slightly interrupted by the forward position of the epigastric lobes; these are rugose in front, deeply divided mesially and completely isolated from the conterminous regions of the carapace by well-defined grooves; meso-gastric area distinct, sending forwards a narrow tongue between the proto- and epi-gastric lobes; branchial areas divided into anterior and posterior portions by broad, smooth, deep, oblique depressions; the latter being scarcely distinct from the cardiac division; the epibranchial teeth are continued backwards, outwards and inwards as raised denticulated crests, along the inner side of which runs a smooth furrow continuous with the post-orbital furrow; postero-lateral margins rugose behind the termination of the lateral crests, the rugosities being continued downwards and forwards on to the inflected portion of the carapace; orbits and extra-orbital teeth finely crenulated. Front broad, short, very little deflexed, terminated by a smooth margin. The chelipedes are subequal; the two inferior edges of their meropodites are armed with tubercles, their inferior planes bear at their distal extremity and nearer the inner than the outer of the two edges a single spinule, which is also to be remarked in many other species; the third or upper angle is rugose; the succeeding joint is greatly thickened at its distal end and is superiorly coarsely wrinkled and concave; its inner margin is armed with a stout sharp spine, beneath which is a smaller one; the proximal half of the penultimate joint is convex and coarsely granulated externally, internally convex and smooth, except towards the inferior border where two or three rows of small, widely-separated tubercles are to be seen; its upper surface is ornamented by three rows of large tubercles; its distal prolongation is deeply canaliculate and its inner toothed edge is in contact throughout its length with the dactylopodite which is likewise canaliculate externally and compressed, so that its upper border presents a saw-like edge, being ornamented with

tubercles decreasing gradually in size and sharpness from the base towards the tip.

The ambulatory legs are hairy as in *Telphusa hispida*.

Breadth, $38\frac{1}{2}$ mm.

Length, 28 mm.

Hab. Hotha, Yunan; Kakhyen-hills, Ponsee, Upper Burma.
Collected by Dr. Anderson.

Plate xxvii, Fig. 11, *Telphusa Edwardsii*, nat. size. 12. Front view of the same. 13. External maxilliped. 14. Chela. 15. Abdomen of male.

TELPHUSA ANDERSONIANA, n. sp., pl. xxvii, figs. 16—20.

Carapace considerably broader than long, very sparingly hirsute, areolation similar to that of the preceding species; anterior branchial region covered with irregular tubercles which gradually pass backwards into the rugations that thickly mark the postero-lateral margin, the inflected portion of the carapace and a portion of the posterior pleural lobe; epigastric lobes separated from one another and from the protogastrics, post-frontal crest curved forwards in the middle; epibranchial teeth well marked and pass backwards on each side as regularly denticulated crests, the denticulations gradually decreasing in size backwards; anterior pleural lobes covered with inosculating *foveæ*, separated from the peristomial portions of the posterior by a tuberculated line which loses its beaded character as it passes upwards to the epibranchial tooth; front broad, especially at the base, tuberculated; its free margin is sinuous, well rounded laterally and coarsely crenated; orbital borders also crenated and rising externally into a salient, forwardly-directed tooth. The median triangular process of posterior border of the epistoma is extremely salient, coarsely crenate, and notched on each side; externally to the notches this posterior border is similarly crenate up to the point at which it begins to form the anterior boundaries of the exhalant orifices of the branchial chambers. Chelipedes subequal; meropodites with their three angles sharply tubercular, their posterior faces rugose and their ventral surface bearing a sharp spinule; carpopodites extremely rugose above, with their inner margins raised into a line of sharp, irregular tubercles above the level of the spine, beneath which an acute smaller one is to be seen, and with their distal articular ends greatly

thickened and rounded as in *Telphusa Edwardsii* to which this species is closely allied; propodites with their upper edge armed with a row of five forwardly-directed spiniform tubercles, externally to which are some small rounded tubercles; the rest of the surface, both externally and internally, is excavated into shallow, inosculating *foveæ*. Above, the dactylopodites are rounded and armed at the proximal end with a small spiniform tubercle, are externally longitudinally canaliculate and can be brought into complete contact with the immoveable arm of the pincers, which is also grooved.

The penultimate joints of the ambulatory legs are longer in proportion to their breadth than those of *T. Edwardsii*.

Breadth, 43 mm.

Length, 34 mm.

Hab. Momien, W. Yunan, at elevations of from 3500—5000 ft.; Kakhyen-hills, Ponsee, Upper Burma. Collected by Dr. Anderson.

Plate xxvii, Fig. 16. *Telphusa Andersoniana*, nat. size. 17. Front view of the same. 18. External maxilliped. 19. Chela. 20. Abdomen of male.

TELPHUSA HISPIDA, n. sp., pl. xxviii, figs. 1—5.

Carapace much broader than long, flattened above, hirsute, especially on the postero-lateral margins and the posterior pleural lobes; the surface is subpunctate and has an areolation very similar to that of *Telphusa Edwardsii*, but the postero-lateral boundary of the oval areolet is not so deep impressed; the epigastric lobes, as in *Telphusa Andersoniana*, are not distinct from the protogastrics behind; the cervical suture forms a very indistinct divisional line between the hepatic portion of the protogastric and the anterior moiety of the branchial lobe, which is obsoletely tubercular; the epibranchial teeth are by no means salient; the more obscurely denticulated crest of the antero-lateral margin is very little elevated, and the smooth furrow along the inner side of it, which is so noticeable in the former species, is absent; a bundle of short hairs springs from between each denticulation. The anterior is separated from the posterior cardiac lobe by a broad, shallow, transverse channel which extends right across the carapace, and these again are similarly marked off from the posterior halves of the branchial lobes. The post-frontal ridge is well marked, bent forwards in the middle, but is neither continuous to the

epibranchial teeth, nor interrupted by the projection beyond it of the epigastric lobes. The orbital rims and extraorbital teeth, crenulated. Front sinuous, short, not greatly deflexed, truncate on each side, irregularly punctate, minute hairs springing in bundles of 2 or 3 from the puncta. The structure of the epistoma is very much the same as in *T. Edwardsii*, but its surface is advanced so as to be more nearly in the same plane with the free margin of the front and the triangular process of its posterior border is more acute; mesially it is devoid of hairs, but laterally it is extremely hirsute. The anterior pleural lobe is distinct but the interpleural portion of the line that marks it off from the rest of the carapace is not tuberculated as in *T. Edwardsii*; neither is the inflected portion of the carapace so distinctly rugose nor so thickly covered with hairs. Of the chelipedes the right exceeds the left in size in the only adult specimen in my possession; the outer, or more strictly speaking the posterior, face of the meropodites is smooth, devoid of hairs, except towards the dorsal edge which is densely covered with bundles of hairs and but slightly rugose. The carpopodite is armed in the usual way with a spine, beneath which is a short bilobed spinule; its upper surface roughly punctate; an impression is to be observed at its distal articular end which is not more than ordinarily thickened. The propodite is coarsely punctate, its lower border is longitudinally concave, its prolongation is externally grooved, and so is the dactylopodite with which it is in contact throughout its whole length. The ambulatory legs are robust; the ridges of all their joints are thickly covered with bundles of hairs; the penultimate joints are similar to those of *Telphusa Andersoniana*.

Length, 31 mm.

Breadth, 43 mm.

Hab. Kakhyen-hills, Ponsee, Upper Burma. Collected by Dr. J. Anderson.

Plate xxvii, Fig. 1. *Telphusa hispida*, nat. size. 2. Front view of the same. 3. External maxilliped. 4. Chela. 5. Abdomen of male.

TELPHUSA TUMIDA, n. sp., pl. xxvii, figs. 6—10.

Carapace slightly broader than long, tumid, punctate, extremely convex in every direction, with an areolation similar to that of the three last described species, but the mesogastric lobe is almost confluent anteriorly with the protogastric and this latter is marked

by a short branch running off from the cervical suture at right angles to it; the cardiac is separated from the posterior half of the branchial area; the epigastric lobes are prominent, anteriorly wrinkled and extend beyond the line of the rest of post-frontal ridge; anterior branchial lobe and post-frontal crest rugose; the latter is slightly indented by the cervical suture, and continuous from the epigastric lobes to the minute epibranchial teeth; antero-lateral margins greatly inclined with minutely denticulated crests; postero-lateral margin marked with oblique wrinkles which assume a tubercular character as they pass forwards on to the inflected portion of the carapace and the posterior pleural lobes which, where they form the peristoma, are completely covered with round, polished tubercles, disposed in pairs; the anterior pleural lobe presents a few scattered tubercles, and is cut off from the posterior pleural and from the inflected region of the carapace by a beaded line. Front broad, deflexed, coarsely granulated, marked by the prolongation forwards of the mesogastric furrow. The epistoma presents the same characters as that of *Telphusa Andersoniana*, except that its anterior margin is distinctly crenulated. The orbits and their external angles are crenated.

Chelipedes subequal; meropodites with their posterior faces and angles very rugose; carpopodites, above rugose, armed internally with a short blunt tooth, above and below which are some smooth tubercles; propodite externally convex and rugose; internally, especially near the lower margin, above, and below tuberculated; the upper margin of the dactylopodite is rounded and presents a short row of tubercles at its proximal end; the pincers are marked on every face with longitudinal rows of puncta and their arms can be almost completely apposed.

Breadth, 29 mm. of a male.

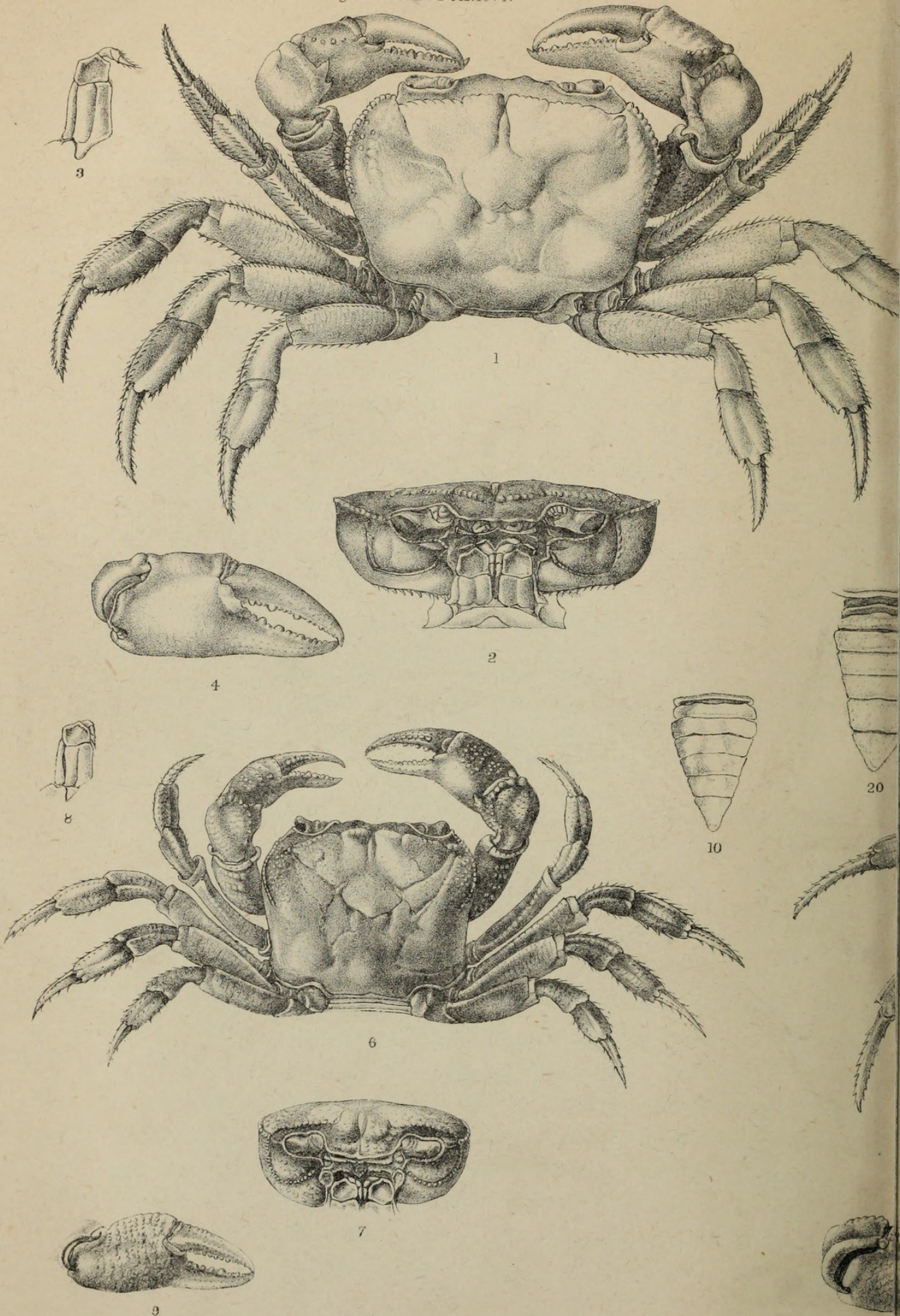
Length, 24 mm. ,,

Breadth, 27 mm. of a female.

Length, 22 mm. ,,

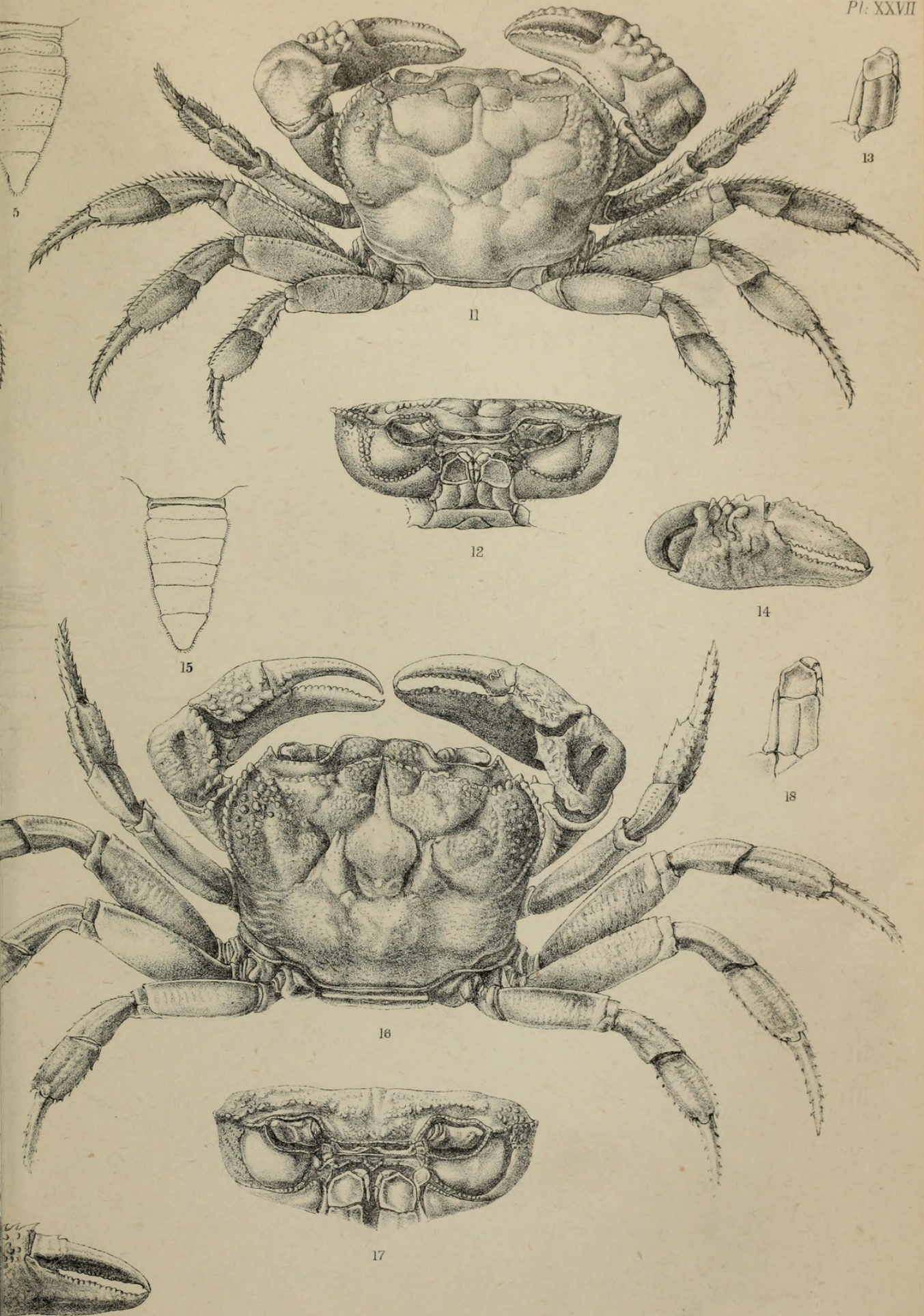
Hab. Hotha, Yunan; Kakhyen-hills, Ponsee, Upper Burma. Collected by Dr. Anderson.—Darjiling (?).

Plate xxvii, Fig. 6. *Telphusa tumida*, nat. size. 7. Front view of the same. 8. External maxilliped. 9. Chela. 10. Abdomen of male.



S. Sedgfield. Lith.

1-5. *Telphusa hispida*.
11-15. *Telphusa Edwardsii*.



10. *Telphusa tumida*.
 20. *Telphusa Andersoniana*.



Wood-Mason, James. 1871. "On Indian and Malayan Telphusidae, Part I," *The journal of the Asiatic Society of Bengal* 40(IV), 449–454.

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