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DESCRIPTION OF A NEW HERMIT CRAB (*CALCINUS IMPERIALIS*), FROM LORD HOWE ISLAND.

BY THOMAS WHITELEGGE, Zoologist.

(Plate ix.)

THIS fine handsome species is fairly common at Lord Howe Island. It is generally found at or about low tide line, inhabiting the shells of *Turbo imperialis*, Gmelin. Numerous examples were obtained during the visit of Mr. R. Etheridge, Junr., Mr. J. A. Thorpe, and the writer, in 1887. These specimens appeared in the report on "Lord Howe Island: Its Zoology and Physical Characters,"¹ under the name of *Calcinus elegans*, Milne-Edwards, the error arising from a comparison with a wrongly named example in the collection. Since 1887 many specimens have been received from the same region, and about three years ago I obtained a living specimen at Maroubra Bay, near Sydney. During the visit of the "Thetis" to Lord Howe Island in March, 1898, Messrs. Etheridge and Waite secured six examples, two of which are selected for illustration and description.

Owing to the difficulty of adequately representing Crustacea by means of drawings, it was determined to reproduce the *Calcinus* by the colotype process. I took the photographs, and avoided shadows by mounting the crabs on a sheet of clear glass, placing a piece of opal glass some distance behind it. A little adjustment of the two sheets to the source of light threw the reflected shadows quite out of the field.

The reproduction and printing by Messrs. Morgan and Kidd, of London, leave nothing to be desired.

CALCINUS IMPERIALIS, *sp. nov.*(Pl. ix., figs. 1 - 2*d.*)

Anterior region of carapace strongly calcified, convex, smooth and closely punctate, with a few scattered setæ arising from shallow pits. There is a well marked Y shaped impression, the base of which reaches to the cervical groove, and the apices are bounded on each side by a short oblong depression. The front has a slightly thickened border, which extends on each side of the well-defined rostral process to a point between the insertion

¹ Austr. Mus. Mem., ii., 1889, p. 36.

of the eyestalks and the outer antennæ. Externally the front slopes away to subacute angles, and the sides have an angular ridge which extends about half way towards the cervical groove.

Posterior region of carapace membranous, with six longitudinal depressed lines; the central pair is rather wide apart, and gradually converges, becoming deeper and wider posteriorly; the other two pairs are closer together, and are situated midway between the median line and the margin, posteriorly they diverge and terminate at the densely hairy hinder border. At the sides anteriorly there are several faint transverse linear depressions.

Ocular peduncles stoutish at the base and slightly thicker at their apices than in the middle. In length they are equal to the anterior region of the carapace. Eyes black, with a slight descending lobe on the external aspect. Ocular scales thrice as long as broad at the base, terminating in a small distinct spine, and with one or two minute ones on the external apical border.

Peduncles of the internal antennæ a little shorter than the eyestalks; the latter are about one-third longer than the peduncles of the outer antennæ.

The external antennæ bear a few stiff setæ near the base; the first joint almost reaches to the external angle of the front; the second joint is short, stout, and bears two spines on the superior distal angles, the outer of which is large and bispinose at the tip; the penultimate joint is about equal to the second; there is a small spinule on its superior distal end. The ultimate joint is nearly equal to the three preceding combined. The antennal acicle reaches to, or slightly exceeds the extremity of the third joint; it is armed on its inner border with four or five spines, and is bi- or trispinose at the apex.

Flagellum twice as long as the peduncle.

The ischium joint of the left chelipede of the male is laterally compressed, and bears a bead-like lobe on its lower edge, near the distal end, in half grown examples this lobe is scarcely indicated. Merus joint trigonous as broad as long; the external and internal surfaces are convex, smooth, glossy, and very distinctly punctate; the lower distal margin is deeply excavated, and adapted to the shape of the carpus, upper border acute, smooth to within a short distance of the distal end, which bears a few spiniform granules. A well defined transverse, subdistal groove extends from a point posterior to the articulation with the carpus on the external surface, and is continued on the inner surface to the junction with the ischium. Lower border short acute, with one or two spinules about the middle.

Carpal joint broader distally than the length of the upper border; lower distal margin transversely produced into a thin plate, so that the base of the hand, when the chelipede is bent down, is almost in contact with the merus.

Superior surface and the upper border exhibits three or four irregularly disposed spinose tubercles, internal surface and inner distal margin smooth; outer distal margin with eight or ten spines.

Hand compressed, about one third longer than deep, upper border crested and bearing four or five spines, lower border thin, curved, and denticulated throughout its length, the proximal denticles being larger than the distal. Inner surface of palm convex, centrally smooth, slightly punctate and scaly above; with a large drop-like tubercle near the lower border posteriorly, and a series of small tubercles extending towards the lower finger. Outer superior aspect of palm longitudinally concave, rugose and slightly setose, with three or four tubercles; central region, lower surface and both fingers covered with closely arranged circular granules. There is a deep broadish pit at the base of each finger, and another immediately behind the interdigital space; the lower proximal portion of the palm also exhibits a depression in which the granules are arranged in transverse ridges.

Inner edge of lower finger excavated, armed with five or six unequal denticles, and a broad white cusp at the extremity.

Upper finger with a granulose crest superiorly, and a strong longitudinal ridge on the external surface; inner edge with a broad, acute apical cusp, and three denticles of which the proximal is the largest.

The right chelipede differs from the left in its smaller size, higher crest on the hand; and in the pits, on the palm and fingers being less marked.

Merus joint of first ambulatory leg strongly compressed about twice as long as deep, with thin almost acute upper and lower borders; a small white spinule is present near the external distal angle. Carpus two-thirds the length of the merus, outer surface angular, inner convex, lower and upper borders somewhat rounded; the superior surface carries two spinules, one projects from the distal margin, and the other is situated on the inner aspect, about its own length from the median line and also from the margin.

Propodus subcylindrical, a little shorter than the merus; there is a small spinule on the inner distal margin. Dactylus tapering, slightly compressed, about equal to the carpus in length, with three or four horny spinules on the lower border, and a stout black spine at the extremity. Second ambulatory leg with all joints more or less compressed, and shorter than those of the first. The carpus lacks the prominent angle, and is proportionately much deeper than that of the first leg. The dactyli have each five horny spinules on the lower border; on the left they are reduced to mere rudiments. Lower borders of ambulatory legs with numerous tufted setæ; on the sixth and seventh joints of the second pair

the setæ are closely arranged in two rows. The penultimate segment of the abdomen bears a T shaped impression; the telson is symmetrical, about one third wider than long, with a broad emargination, and a superior distal linear groove about 0.5 mm. in length.

The colour is as follows, taken from the living specimen obtained at Maroubra Bay, and supplemented from the figured examples :—

Anterior region of carapace olive, spotted and margined anteriorly with azure blue. Ocular peduncles and external maxillipedes olive green. Inner antennæ greenish-yellow. External antennæ chrome yellow. Granulation on chelipedes French gray, the spines purplish-blue. Hand brownish-olive, upper finger with two deep red spots, one on each side near the base. The ambulatory legs have the carpal joints dark brown; the propodal joints have an olive-green band at the base, a dark brown central band, and the distal extremity is yellowish-white. Dactylus white with a central dark-brown band.

Total length of body of larger example 65 mm.

EXPLANATION OF PLATE IX.

Calcinus imperialis, sp. nov.

- Fig. 1. Adult male. About natural size.
,, 2. Half-grown male. About natural size.
,, 2a. Right chelipede. ,, ,, ,,
,, 2b. Second leg. ,, ,, ,,
,, 2c. Third ,, ,, ,, ,,
,, 2d. Fourth ,, ,, ,,

