

CRUSTACEA DREDGED OFF PORT JACKSON IN
DEEP WATER.

BY F. E. GRANT, F.L.S.

(Plates x.-xi.)

The small collection of Crustacea forming the subject of this paper was dredged in 250-300 fathoms about 28 miles east from Port Jackson Heads, on an excursion in March of this year, organised by Mr. W. F. Petterd. The object of the excursion was mainly to obtain marine shells on the margin of the continental shelf, and the dredges used were designed rather for this end than for obtaining such objects as crabs. Six species only of Malacostraca were taken, of which four are *Brachyura* and two *Macrura*. But as four of the species are new, and of the remaining two only one has been recognised as belonging to our fauna, the importance of the collection was greater than would appear from its numbers.

I desire to here express my thanks to Mr. Petterd for his kindness in placing the specimens in my hands for study, and to Messrs. C. Hedley, F.L.S., and T. Whitelegge, of the Australian Museum, for much assistance rendered me in the task.

The types of the species described will be lodged in the Australian Museum.

Suborder BRACHYURA.

Tribe OXYRHYNCHA.

Legion MAINEA.

Family MAIDÆ.

Subfamily PISINÆ.

Alliance Pisoida.

HYASTENUS White.

HYASTENUS FULTONI, sp.nov. Pl. xi. fig.1.

Carapace elongate-triangular, rounded behind, covered everywhere both dorsally and ventrally with a short and scant pubescence, beneath which the surface is smooth and polished. The legs carry a similar but shorter pubescence with the exception of the tips of the dactyli, which are naked.

The regions are ill defined.

The gastric region is swollen, and on the median line of the carapace there are (1) a low tubercle on the posterior margin of the gastric swelling; (2) a more prominent tubercle about half way between it and the posterior margin; and (3) a prominent horizontally directed spinule on the rounded posterior margin.

The rostrum consists of two slender, somewhat widely divergent spines, which are slightly less than one-third the total length of the carapace.

The supraocular eaves are scarcely so prominent as in most members of the genus, and are pointed anteriorly. The post-ocular lobes are prominent, but do not reach beyond the eyes. Their anterior border is excavated, but the eyes are not so far retractile against it as to render the cornea invisible when viewed from above.

Behind the supraocular eaves, and separated from them by a short concave interval, there is on either side a somewhat more prominent outwardly directed and sharply pointed spinule.

There is a further strong horizontally directed spine on either branchial region on the same line as the median spine on the dorsum of the carapace.

The basal antennal joint is broad, with its antero-external angle produced. The flagella are visible from above outside the rostral cornua.

The chelipedes are only slightly more stout than the ambulatory legs, and are of the same length as the carapace. The palms and fingers are slender, the latter being finely toothed and with a slight space between them at their bases when closed.

The second pair of legs are considerably longer than the chelipedes or than any of the three last pairs. The joints of all the ambulatory legs are subcylindrical, and the dactyli are curved, but without serrations on their inner margins. The basal joints of the last pair are visible beyond the posterior margin of the carapace on a dorsal view.

The merus of the external maxillipedes is shorter but considerably broader than the ischium, and is expanded at its antero-external angle. The short palp is carried at its antero-internal angle.

Dimensions of type (σ)—

From tip of rostrum to posterior margin.....	11.0 mm.
Breadth across branchial region.....	7.5 ,,
Length of chelipedes.....	11.0 ,,
Length of second pair of legs.....	15.0 ,,

Six specimens were taken, of which two are males and four females. All except two were much distorted through the presence of a parasite of the family *Bobyridæ* in the branchial cavity. My knowledge of this group is, however, insufficient to enable me to determine its generic position.

All the specimens taken are of approximately the same size, and there is little difference between the male and female specimens.

In the figure submitted the specimen is shown as denuded of its pubescence—the medium of line work adopted not being suitable for the adequate representation of such a surface.

Colour orange-brown.

I have had much pleasure in dedicating this species to my old friend and co-worker in the group, Mr. S. W. Fulton, of Melbourne.

Tribe OXYSTOMA.

Family LEUCOSIIDÆ.

Subfamily LEUCOSIINÆ.

EBALIA Leach.

EBALIA TUBERCULOSA A. Milne Edwards.

Persephona tuberculosa, 1873, A. M. Edw., Journ. Mus. Godeffroy i. 4, p.86.

Ebalia tuberculosa, 1886, Miers, "Challenger" Zool. xvii. p.306, pl.xxv. fig.1; 1900, Whitelegge, Mem. Austr. Mus. No. iv. Pt.2, p.161.

Eight specimens of this species, which appears to be common at moderate depths off our coast, were taken. One hundred and sixty specimens are recorded as being taken by the "Thetis" at depths ranging from 22 to 75 fathoms. The present record extends its range to 300 fathoms.

It is recorded by Haswell under the synonym *P. granulosa* Hasw., from Port Jackson Heads, and was taken by the "Challenger" in the same locality.

Family DORIPPIDÆ.

Subfamily TYMOLINÆ.

CYMONOMOPS Alcock.

CYMONOMOPS SIMILIS n.sp. Pl. x., fig.1.

The whole animal, including the ventral surface, post-abdomen and limbs, is covered with a short pubescence, beneath which the surface is granular.

Carapace, with that portion of the abdomen seen from above, subcircular, the cephalothorax having its greatest breadth at its extreme posterior limit; about half the abdominal terga are exposed to dorsal view.

Front about one-third the greatest breadth of the carapace, and consisting of a main central lobe which is cleft in front, and two lateral lobes which form the anterior angles of the orbits. Between the cleft in the central lobe, and also between this lobe and the anterior orbital angles, the characteristic extension of the buccal cavern can be seen from above. The external orbital angle also forms a conspicuous spine.

The regions of the carapace are well delimited. The gastric region is much swollen, but beyond the spines forming the front none are present on either the carapace or limbs.

The abdomen in the female is large and consists of 6 segments, the terminal segment having the form of the broad semicircular plate characteristic of the genus.

The orbits are of moderate size. The eye-stalks are slender, readily movable and slightly pigmented.

Neither antennules nor antennæ are capable of flexion beneath the front; the former are much larger than the latter.

The buccal cavern is long and deep, and the external maxillipedes are correspondingly produced. Viewed laterally, these are exceedingly convex in form.

The chelipedes are equal, and shorter but more massive than the second and third pairs of legs. The palm is swollen. The fingers are of about the same length as the palm and are finely serrate along their cutting edge. They leave a narrow gap between their proximal third when closed.

The second and third legs, which are approximately equal, are more than twice the length of the chelæ, and terminate in a long slender curved dactylus. The bases of both pairs are visible from a dorsal view.

The fourth and fifth pairs are carried over the carapace, which they slightly exceed in length. They are of hair-like tenuity and both end in a hook-like dactylus.

Two specimens were taken, both of which are unfortunately females. One carries ova which for so small a crab are of large size.

The species closely resembles the type-species of the genus, *C. glaucomma* Alcock,* but, besides minor differences, it varies so remarkably in the proportions of the carapace and limbs that I have little hesitation in describing it as new.

I append measurements of the two species for purposes of comparison.

	<i>C. similis.</i>	<i>C. glaucomma.</i>
Length of carapace.....	7.0 mm. ...	6.5 mm.
Breadth of carapace.....	7.0 ,, ...	6.5 ,,
Length of chelipede.....	8.5 ,, ...	9.0 ,,
Length of second leg.....	21.0 ,, ...	28.5 ,,
Length of fourth leg.....	8.0 ,, ...	4.5 ,,

(Note.—In the figure submitted the length of the carapace is shown as slightly shorter than it should be.)

Tribe DROMIACEA.

Subtribe HOMOLIDEA.

Family LATREILLIDÆ.

LATREILLOPSIS Henderson.

LATREILLOPSIS PETTERDI, n.sp. Pl. x. figs.2, 2a, 2b.

Carapace subquadrilateral, longer than broad, with deep vertical sides, not concealing the basal joints of the ambulatory legs.

Linea anomurica only faintly discernible.

Front ending in a rostral spine which is somewhat concave above and is slightly deflexed. This is flanked on either side by a supraocular spine about twice the length of the rostrum. These supraocular spines point sharply upwards and bear a small tubercle near the distal end of their inner margin and two sharp spines on their outer margin.

The regions of the carapace are well defined. There is on either side a row of six sharp spiniform tubercles of which the

* Ann. Mag. Nat. Hist. May, 1894, p.406; Journ. Asiatic Soc. Bengal, Vol.lxv. Pt. ii. p.287, 1896; and Ill. Zool. "Investigator," Crust. pl. xiv. fig.9, taken at depths of 265 and 405 fathoms in the Andaman Sea.

two centre ones are the largest; below this the hepatic regions are much swollen and are armed with three rounded tubercles terminating in sharp horizontally directed spinules.

The gastric region carries three well marked tubercles in the form of a triangle, of which the apex is directed backwards.

The carapace also bears a number of irregularly disposed short tubercles clothed with minute hairs.

The eye-stalks are little more than half the length of the supra-ocular spines, which completely conceal them from dorsal view. The eyes are subspherical and well pigmented.

Chelipedes about half the length of the three following legs, cylindrical, very slender and entirely smooth. Fingers about half as long as the palm. Only the joints from the merus to the dactylus are visible when viewed from above.

The three following legs are about three times the length of the carapace and have all their joints visible when viewed from above. The basal joint of each is armed above with a spinule. The merus of each has a series of about six spinules almost equidistantly placed both above and below, in addition to which the distal end is armed with a sharp upwardly directed spine. The carpus and propodus are entirely smooth and cylindrical. The dactyli are long, flat and curved, and are armed on their inner margin with six sharp spiniform teeth.

The last pair of legs are somewhat shorter than the preceding pairs. The basal joint is armed with a spinule and the merus has a series of five equidistant spines below and one above at its extreme distal end. The carpus is unarmed. The flattened dactylus carries a series of sharp spines on its inner border and folds down like a knife-blade between a double row of spines on the posterior border of the propodus.

The abdomen (fig. 2*a*) has seven distinct segments; the 1st, 2nd, and 3rd terga carry an acute spinule in the middle line, which in the next two segments is replaced by a blunt tubercle. The penultimate carries two acute spinules; there is also a prominent spine with serrate edges in the middle of its anterior margin.

The last tergum has the characteristic shape of a spear-head.

The only specimen taken (a male) has the following measurements—

Length of carapace from tip of rostrum to first abdominal segment...	9 mm.
Length of chelipede.....	13 „
Length of first ambulatory leg.....	25 „
Length of fourth ambulatory leg.....	17 „

This species is readily distinguished from the type-species, *L. bispinosa* Henderson, by the spinules of the carapace and on the merus of the ambulatory legs. *L. bispinosa* was taken by the "Challenger" in 95 fathoms off Zebu, Philippine Islands. It is also recorded by Alcock* from 53 fathoms in the Andaman Sea.

Suborder MACRURA.

Tribe ANOMALA.

Legion PAGURINEA.

Family PAGURIDÆ.

PAGURISTES Dana.

PAGURISTES ACICULUS, sp.nov. Pl. xi. fig.3, 3a.

Anterior region of the carapace rugose with a well defined margin, the rostrum reaching very slightly beyond the marginal teeth. The lateral margin is armed with three or four obscure spinulations and with scattered hairs. The posterior and little calcified wings of the carapace also carry scattered setæ.

The ocular scales carry an acute tooth on their inner margin and are separated by a considerable interval.

The ocular peduncles are slender, slightly thicker at the base than at the summit and somewhat constricted in the middle. Their upper surfaces carry scattered hairs in their proximal half.

The first exposed joint of the outer antennæ is without any spine. The succeeding joint carries two spines on its outer margin near the distal end and one on its inner distal extremity.

* Journ. Asiatic Soc. Bengal, Vol. lxxviii. Pt. ii. No.3, p.167, 1900.

The final joint is sharply pointed and bears six spinules on its inner margin and three on its outer distal half.

The major flagellum of the inner antennæ consists of 25 articuli and is clothed with hairs below. The inner flagellum is naked and consists of 13 articuli.

All the pereopoda are clothed with scattered long stiff hairs.

Chelipedes subequal. The merus-joint is trigonous, the inferior angles carrying minute spinulæ. There are no spines or tubercles on its superior angle, but the line of junction with the next joint bears a row of minute spines, below which and parallel to it there is a well marked linear depression.

The carpus is subtrigonous, and carries on its superior angle three prominent forwardly directed teeth and a further small tubercle at its proximal end. On the lower outer margin there is a well marked row of small forwardly directed spinules, and between this and the upper margin a further series of spinules scarcely forming a line.

The propodus, which has the palm somewhat swollen, has three strong forwardly directed teeth on its upper margin, with a small tubercle at its proximal end, as in the case of the carpus. Its lower margin is denticulate. The outer surface of the palm on the right hand (which is slightly the larger of the two) and of the fingers carries a number of spinulous tubercles without any definite linear arrangement. In the case of the left hand, however, they are on the palm arranged in four well defined rows.

Fingers somewhat corneous at the tips and spoon-excavate, with a slight gap in their distal halves when closed.

Of the ambulatory legs, the first pair are scarcely so long as the second, which they closely resemble in their armature. The merus, in common with the other joints, is somewhat flattened, and is thicker at its proximal than at its distal extremity. It is fringed above with stiff setæ, and bears a few scattered hairs on its lower margin, but is without spinules or tubercles.

The carpus carries a strong row of spines on its upper margin, and two inconspicuous rows on its outer surface. The propodus is also conspicuously spinose above, and there is a well defined

median row of about 7 granular spinules on its outer surface. The dactylus is of about the same length as the carpus and propodus combined, and is without spinules on its surface. The last three joints are all clothed with scattered stiff hairs.

The remaining legs have the characters usual with the genus, the fourth pair being monodactyle and the fifth with minute chelæ. The upper margins of both are stiffly fringed with hairs, whilst the posterior margins are more sparingly setose. The last pair are normally carried folded back and not extended laterally as shown in the figure.

The basal joints of the chelæ are closely approximate at their anterior angle, but the sternum is visible between them posteriorly. The distance between the bases of the succeeding three pairs increases rapidly, giving to the sternum a much more widely trigonous appearance than is usual in the group. The bases of all the legs are clothed with a fringe of long hairs.

The bases of the external maxillipedes are closely approximate, but do not quite touch.

The abdomen is entirely uncalcified except in its terminal segments. The boundaries of the other segments are obscurely delimited.

The first pair of abdominal appendages in the male are short and stout, somewhat swollen at their apices, bilobed, and setose. The second pair are long, slender, and sharply geniculate. Their apices are enlarged and flattened, their superior margin being fringed with stiff hairs.

The appendages of the third, fourth and fifth segments are uniramous, laminar, and fringed with long setæ.

The calcified terminal segments of the pleon (fig. 3a) have the lateral appendages very unequal.

Colour of the chelipedes, anterior part of the carapace, and the second and third legs salmon-pink shading into cream in the less exposed parts.

Only one female was taken, and in it the abdomen is unfortunately damaged and cannot consequently be described.

Dimensions of type (♂)—

From rostrum to posterior end of carapace.....	11·5 mm.
Length of eye peduncles.....	5·0 ,,
Chelipede of right side.....	16·5 ,,
Length of second leg (first ambulatory).....	23·0 ,,

Thirteen specimens in all were taken, the shells occupied being of various genera and species. They vary considerably in size, that described being the largest; the characters described, however, appear to be uniform throughout.

The nearest ally of this species appears to be *P. tuberculatus* Whitelegge,* from which it differs in the armature of the legs and in various other well-marked minor particulars. *P. tuberculatus* was taken by the "Thetis" in large numbers nearer the coast in depths of 20-30 fathoms, and the present species would appear to replace it in the deeper water further out where our haul was taken.

In the figure submitted the limbs of the right side are shown as denuded of hairs. The hairs are also much more numerous on the left side than appears from the drawing—the line work rendering this course desirable for clearness.

Tribe SCYLLARIDEA.

Family SCYLLARIDÆ.

IBACUS Leach.

Pl.xi., fig.1.

IBACUS ALTICRENATUS Spence Bate, var. SEPTEMDENTATUS, var.nov.

1888, C. Spence Bate; Zool. H.M.S. "Challenger," Vol. xxiv. p.63, Pl.ix. fig.2

Two specimens to which I refer as above were taken. *I. alticrenatus* is recorded by the "Challenger" as having been dredged off New Zealand in 150 fathoms.

* Mem. Aust. Museum, No.iv. pl.2, p.167, 1900.

Spence Bate says of his specimens that the antennæ bear "five or six teeth of equal size distantly separated from each other on the distal margin of the anterior plate." In one of the specimens under consideration each distal margin carries seven teeth, while on the other specimen there are seven teeth on one plate and six on the other. In both cases the central teeth are the largest, and the series diminishes regularly both posteriorly and anteriorly; the teeth are also confluent at their bases and not "distantly separated."

The difference also between the first of the large teeth on the margin of the carapace posterior to the deep branchial incision and those immediately following it is not so marked as in the type figured in the "Challenger."

Under the circumstances our specimens have appeared to me deserving of varietal rank.

It will be noted that none of the species of Decapods, said to have been taken by the "Challenger" Expedition in their Station known as 164B at a depth of 410 fathoms east of Sydney, occurred in our hauls. Doubt has already been thrown by Mr. Hedley from conchological data on the correctness of ascribing these specimens of the "Challenger" to this Station.*

The following are the species said to have been taken—*Lispognathus Thomsoni* Norman, *Uroptychus australis* Henderson, *Uroptychus gracilimanus* Henderson, *Plesionika semilævis* Spence Bate.

Of these the first mentioned is an Atlantic species, former records being from the Straits of Gibraltar and the Cape of Good Hope. *Uroptychus australis* was, however, taken also at Stations 170 and 171 off the Kermadec Islands, and at Station 194A off Banda. The remaining species have not, so far as I can ascertain, again occurred in literature. From this evidence it would consequently rather appear that the product of two different hauls had become mixed.

* These Proceedings, 1901, p.22.

EXPLANATION OF PLATES.

Plate x.

Fig. 1.—*Cyonomops similis*, sp.nov.Fig. 2.—*Latreillopsis Petterdi*, sp.nov.

Fig. 2a.— “ “ abdominal segments.

Fig. 2b.— “ “ frontal region seen from below.

Plate xi.

Fig. 1.—*Hyastenus Fultoni*, sp.nov.Fig. 2.—*Ibacus alticrenatus* Spence Bate, var. *septemdentatus*, var.nov.Fig. 3.—*Paguristes aciculus*, sp.nov.

Fig. 3a.— “ “ terminal segments of pleon.