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*Rathbun,
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Biological Results of the Fishing Experiments
carried on by the F.I.S. "Endeavour," 1909-14.

H. C. Dannevig,
Commonwealth Director of Fisheries

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Report on the Spider Crabs obtained by the F.I.S. "Endea-
vour" on the Coasts of Queensland, New South Wales,
Victoria, South Australia and Tasmania.

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Plates I.-XV.; Figures 1-3.

REPORT ON THE SPIDER CRABS.

THE Spider Crabs form a small but interesting part of the Decapod Crustaceans collected by the "Endeavour." They number twenty-seven species, nine of them new, and one representing a new genus. The most notable are the new species of the deep-water genus *Cyrtomaia*, with its formidable armature of sharp spines; the long-necked *Ephippias*, having an exaggerated first ambulatory leg, and combining the characters of two subdivisions of the family Inachidæ; and five species of *Leptomithrax*, including one distinguished by a smooth round boss on the merus of the outer maxilliped.

Mr. Allan R. McCulloch had begun a report on the crustaceans, and later kindly sent me the drawings which he had prepared. The originals of Pl. xv. and Fig. 2 were drawn by Mr. J. R. Kinghorn, of the Australian Museum, and of Pl. xiv. by Mr. McCulloch. The remaining drawings were made by Mrs. R. E. Gamble, and the photographs by Mr. J. H. Paine.

Order DECAPODA.

Suborder REPTANTIA.

Tribe BRACHYURA.

Subtribe OXYRHYNCHA.

Family HYMENOSOMIDÆ.

Genus HALICARCINUS, *White*.HALICARCINUS OVATUS, *Stimpson*.

Halicarcinus ovatus, Stimpson, Proc. Acad. Nat. Sci. Philadelphia, x., 1858, p. 109 [55]; Smithsonian Misc. Coll., xlix., 1907, p. 146. Stebbing, Proc. Zool. Soc. London, 1900, p. 523, pl. xxxvi. A.

One male was taken at Oyster Bay, Tasmania, and four were without a definite locality label.

These specimens agree with Stebbing's description and figures of the species as compared with *H. planatus* (Fabricius).

Family INACHIDÆ.

Subfamily INACHINÆ.

Genus ACHÆUS, *Leach*.ACHÆUS TENUICOLLIS, *Miers*.

Achæus tenuicollis, Miers, Challenger Rept., Zool., xvii., 1886, p. 9, pl. i., figs. 3-3c. Whitelegge, Mem. Austral. Mus., iv., 1900, p. 140.

An ovigerous female was taken on the eastern slope of Bass Strait in 70-80 fathoms.

This specimen has been compared with a male from Port Jackson, in the United States National Museum, and received from the Australian Museum. The female has a shorter neck than the male but agrees in other respects. The eggs are numerous and of large size, about 7 mm. in diameter, the carapace of the mother measuring 8.7 mm. long and 6.7 mm. wide.

Genus ACHÆOPSIS, *Stimpson*.ACHÆOPSIS THOMSONI, *Norman*.

Dorynchus thomsoni, Norman, in Wyville-Thomson's Depths of the Sea, 1873, p. 175, text-fig. 34.

Lispognathus (Dorynchus) Thomsoni, A. Milne Edwards, Comptes Rendus Acad. Sci. Paris, xciii., 1881, p. 878 (translation in Ann. Mag. Nat. Hist. (5), ix., 1882, p. 38).

Three males were taken in the Great Australian Bight, sixty to eighty miles west of Eucla, in 80-120 fathoms.

This widely distributed species was also obtained by the "Challenger" in Australian waters, near Sydney, in 410 fathoms.¹

Genus CYRTOMAIA, *Miers*.CYRTOMAIA MACCULLOCHI,² *sp. nov.*

(Plates i. and ii. and Figs. 1 and 2.)

Type-locality.—Great Australian Bight, south of Eucla, Long. 129° 28' E., 250-450 fathoms; male (E6263). This specimen is taken as type, because, although not the largest in the collection, it has the pair of gastric spines, and the rostral spines perfect, and the chelipeds well developed.

1. Miers—Challenger Rept., Zool., xvii., 1886, p. 29.

2. Named for Mr. Allan R. McCulloch, Zoologist of the Australian Museum.

Measurements.—Male holotype, length of carapace to tip of horns 48, length to base of rostral sinus 40.5, width of carapace exclusive of spines, 44, length of lateral gastric spines 18.3 mm.

Diagnosis.—No spine on upper margin of orbit. No spine between largest gastric spine and largest branchial spine. Palm of male three times as wide at distal as at proximal end.

Description.—Carapace very finely roughened with sharp granules. Three gastric spines, the lateral spines being very long, slender, sub-parallel, and in a plane almost at right angles to that of the cardiac spines; median gastric spine further back than the lateral pair and very much smaller. Two cardiac spines side by side, shorter than the median gastric spine. Two dorsal branchial spines (paired) the posterior and smaller almost in line with the cardiac spines, the anterior spine lower down and almost in line with the median gastric spine. Besides there is a marginal line of small spines which is continued on the pterygostomian region, and a short, parallel, submarginal row of similar spines at the widest part of the carapace. Two marginal hepatic spines (paired), the anterior of good length, the posterior small. Rostral horns slender, moderately divergent, about twice as long as the interantennular spine.

A large tubercle on the upper surface of the eyestalk at its extremity.

Basal antennal segment armed with four spines; the stoutest is at the antero-external angle, points forward and has a spinule near its posterior base; the others point downward and outward, the second spine on the ventral surface near the inner margin, the other two on the outer margin.



Fig. 1.—*Cyrtomais maccullochi*, Rathbun, basal segment of left antenna of male (E 3683), outer view, five and one-third times natural size.

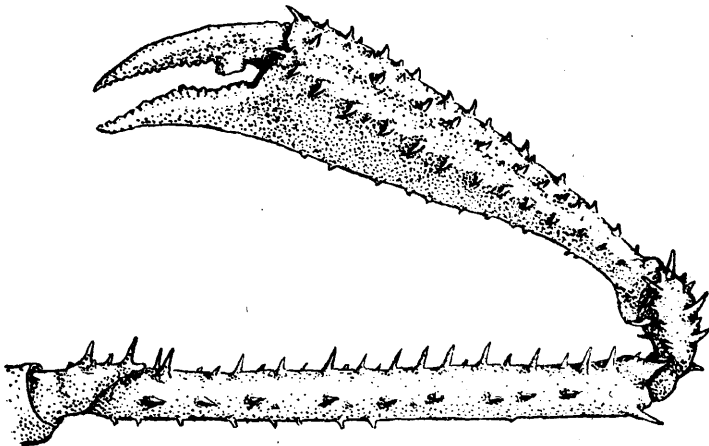


Fig. 2.—*Cyrtomaia maccullochi*, Rathbun, right cheliped of male (E 6263), natural size.

The chelipeds, besides rows of spines customary in the genus, are sparingly covered with granules and spinules. The palm of the adult male is not only very thick but is three times as wide at its distal as at its proximal end.

A fine series of nine specimens was taken in the Great Australian Bight, as follows :—

South-east of Eucla, Long. $130^{\circ} 50' E.$, 250-300 fathoms ; one immature female.

South of Eucla, Long. $129^{\circ} 6.5' E.$, 200-300 fathoms ; one small male.

South of Eucla, Long. $129^{\circ} 28' E.$, 250-450 fathoms ; three males (one holotype) with *Lepas* attached, three ovigerous females, two of which bear specimens of *Lepas*.

South by west of Eucla, Long. $126^{\circ} 45.25' E.$, 190-320 fathoms ; one male, with *Lepas* attached.

Relationships.—This species resembles *C. suhmii*,³ *C. platyceros*⁴ and *C. goodridgei*⁵ in lacking a supraorbital spine, and in having the two movable segments of the antennal peduncle cylindrical, not lamellate. It differs from the first two mentioned in not having a branchial spine half way

3. Miers—Challenger Rept., Zool., xvii., 1886, p. 16, pl. iii., fig. 2.

4. *C. suhmi platyceros*, Doflein—Brachyura Valdivia, vi., 1904, p. 55, pl. xix., fig. 3 ; pl. xl., figs 1-7 ; pl. xliii., fig. 4 ; pl. xlv., figs. 1-5.

5. McArdle—Ann. Mag. Nat. Hist. (7), vi., 1900, p. 472 ; Alcock and McArdle—Illus. Zool. Investigator, Crust., pt. x., 1902, pl. lix., figs. 1, 1a, 1b, 1c ; pt. xii., 1907, pl. lxxviii., figs. 2, 2a.

between, and in line with, the lateral gastric spine and the anterior of the dorsal, branchial spines. It differs from *C. goodridgei* in the longer spines of rostrum and gastric region (anterior pair), and in the direction of the latter, which point forward instead of outward.

Genus *PLATYMAIA*, *Miers*.

PLATYMAIA WYVILLETHOMSONI, *Miers*.

(Plates iii., iv. and xiv.)

Platymaia wyville-thomsoni, *Miers*, *Challenger Rept.*, Zool., xvii., 1886, p. 13, pl. ii.

(Not *P. wyville-thomsoni*, *Doflein*, *Brachyura Valdivia*, 1904, p. 59, text-figs. 2-5, pls. ii., xx., xxi., xxii., xxiii., xxxix., xliii., figs. 5 and 6, pl. l., figs. 2, 5 and 6 or synonymical references to *Wood-Mason*, *Alcock*, *Chun* or *Stebbing*.)

The "Endeavour" specimens were all taken in the Great Australian Bight, off Eucla, as follows:—

South by east of Eucla, Long. 131° E., 200-250 fathoms; one male, two females.

About one hundred miles south of Eucla, 120-160 fathoms; two ovigerous females.

South by west of Eucla, Long. 126½° E., 130-190 fathoms; one male.

Sixty to eighty miles west of Eucla, 80-120 fathoms; one ovigerous female.

Remarks on the type-specimen.—In order to comprehend this species I examined the unique type female at the British Museum in August, 1914. Several discrepancies between the specimen and the figure in the "Challenger" volume above cited were noted. The length of the carapace on the median line is 37.3 mm., the width 35.2 mm., that is the carapace of the figure is somewhat too long. The narrowest part of the rostrum at the constriction, just behind the lateral spine, is 4.3 mm., while below that point the width between the downward-pointing teeth is 5.8 mm. The figure does not represent the inferior width. The propodus of the second ambulatory leg shows in reality an inner margin slightly concave and more spinous than in the figure, while the outer margin measures 41 mm. and is densely and finely spinulous. The merus joints of all the legs are slightly concave on the inner margin. The merus of the third leg is rough to the touch.

A special feature of this species is the presence of an outward-pointing, transversely-placed spine on the inner margin of the upper sinus of the orbit, or at the posterior end of the preorbital lobe. This spine is not present in the species figured as *P. wyville-thomsoni* by Alcock⁶ or by Doflein.⁷

In the type-specimen, the carapace is covered by numerous granules, a few of which are enlarged into tubercles; the only spines are around the anterior border or on the anterior part of the branchial regions. The two branchial regions are well separated from each other.

Notes on the Australian specimens.—The chief difference between the specimens taken by the " Endeavour " and the type-specimen is the enlargement of the more elevated tubercles into small spines, as follows: 4 on the gastric region, of which 2 are median and 2 in a transverse line a little in advance of the anterior of the median spines; 2 cardiac, arranged transversely; 1 branchial (paired) in line with the gastro-cardiac suture; besides there are a few smaller spines or spinules, e.g., 1 branchial (paired) in front of the above-mentioned, 1 or 2 gastric (paired) not far behind the orbit.

The ambulatory legs of the male are considerably longer than those of the female.

MEASUREMENTS.	♂	♀
	E3675	E6260
Length of carapace on median line.....	30.2	31.5
Width of carapace, excluding spines.....	31	32
Length of merus of first ambulatory leg.....	59	37.7
" " " " second " ".....	61.3	46
" " " " third " ".....	55	44
" " " " fourth " ".....	50.8	41.2
" " propodus of fourth " ".....	39	31

Allied species.—*P. wyvillethomsoni* of Wood-Mason and Alcock, Chun,⁸ and Doflein may be known as *P. alcocki*, nom. nov. A small specimen received from the Indian Museum is in the United States National Museum and another in the British Museum. In all its stages this species

6. Alcock—*Illus. Zool. Investigator, Crust.*, part iv., pl. xvi.

7. Doflein—*Brachyura Valdivia*, vi., 1904, pls. ii., xx.-xxiii.

8. Chun—*Aus den Tiefen des Weltmeeres*, ii., Jena, 1903, text-fig. on p. 400.

differs from the true *P. wyvillethomsoni* in having the two branchial regions approximating the median line, and in being devoid of a spine at the hinder end of the inner orbital lobe.

The name *P. turbynei* Stebbing⁹ cannot be applied to the above form because it is differentiated by the characters set forth by Stebbing; e.g., the propodus of the penultimate leg of *turbynei* is about twice as long as the same article in the young male of similar (larger) size of *P. alcocki*. Compare Stebbing's pl. v. with Doflein's pl. xxii., fig. 1.

Genus EPHIPPIAS,¹⁰ *gen. nov.*

Carapace elongate-pyriform, with a long neck; inflated behind; a large, posterior, median, saddle-like prolongation. Rostrum of two long horns. Eyes not retractile in the orbits. No preocular or supraocular spines. A postorbital spine remote from orbit. Basal antennal joint rather narrow; free joints visible in dorsal view. Epistome elongate. The external maxillipeds close the buccal cavity, the merus is as wide as the ischium. Chelipeds not much enlarged. First ambulatory leg extremely long and stout. Abdomen seven segmented in both sexes.

Related by its maxillipeds to the Alliance Inachoida of Alcock, but in the elongate form of the anterior part of the carapace, it suggests many of the members of the Alliance Macropodioida or Leptopodioida of Alcock, such as *Macropodia*¹¹ and *Stenorynchus*¹².

Type and only species, *Ephippias endeavouri*.

EPHIPPIAS ENDEAVOURI, *sp. nov.*

(Plate xv.)

Type-locality.—South of Kangaroo Island, Investigator Strait, S. Australia; male holotype (E3129). At the same place was taken an ovigerous female (E3128), much smaller than the male.

Measurements.—Male holotype, length of carapace on median line, including posterior hump 82.7, length to end of rostrum and posterior hump 111.7, width of carapace, exclusive of spines, 55 mm.

9. Stebbing—South Afric. Crust., pt. ii., 1902, p. 3, pl. v.

10. 'εφίππιον, a saddle, in allusion to the saddle-like posterior projection of the carapace.

11. Leach—Edin. Encyc., vii., 1814, pp. 385, 395.

12. Lamarck—Hist. Anim. sans Vert., v., 1818, p. 236.

Female, length of carapace on median line, including posterior hump 47.3, width of carapace, exclusive of spines, 32.1 mm.

Male holotype.—Carapace with the regions well delimited, the branchial regions approaching each other, the cardiac region small, the hepatic regions prominent, the intestinal region prolonged backward in a stout, blunt process. The more elevated portions are tuberculate: The principal tubercles are, a pair in a transverse line on the anterior gastric region; two, median, mesogastric; a number on the cardiac region chiefly grouped on two conical elevations side by side; a band of tubercles on the branchial region extending from the inner angle obliquely backward to the lateral margin; those on the surface of the intestinal region which include five or six of the largest tubercles of all. These are deeply pitted, as is also the broad, blunt end of the intestinal prominence. Hepatic region trispinose; the upper, marginal spine projects directly outward, the submarginal, anterior spine projects forward, while a subhepatic spine points obliquely forward and is visible in dorsal view between the other two spines. The anterolateral margin of the branchial region is armed with short blunt spines and tubercles arranged mostly in a double row. The postorbital spine is triangular, acute, and is a little nearer the eye than it is to the hepatic region.

Rostrum cut nearly to its base into two long flat, gradually tapering, acute, and slightly divergent spines; the upper surface is longitudinally concave in the middle, the outer edges of the two horns are subparallel or slightly convergent, inner edges fringed with long straight hair, lines of curled hair above which are continued backward on the carapace.

Eyes rather long, stout, enlarged at both ends, curved, much as in *Camposcia retusa* Latreille.¹³ Eye sockets circular, margin smooth except for a small tubercle below, on the basal antennal joint. This joint is longer than wide, longitudinally furrowed in the middle except at the distal end, where it is armed with a strong spine pointing downward, forward and slightly outward, and partially visible from above.

The anterior angles of the buccal cavity are produced in a blunt tooth; above and in front of these angles there is a short spine. Merus of outer maxilliped at its widest point as wide as the ischium; palpus coarse, articulated at the inner angle of the merus.

13. See Milne Edwards—Hist. Nat. Crust., Atlas, pl. 15, figs. 15 and 16.

Chelipeds as long as carapace ; ischium subspherical, viewed from below ; merus armed with three spines above, the terminal spine not in line with the other two ; carpus elongate ; smooth ; manus longer than merus, compressed, distally tapering, fingers slender, gaping, distal half of prehensile edges crenulate, a lowtooth on proximal half of dactylus.

First ambulatory leg of enormous size, over twice as long as carapace and correspondingly stout ; a short, blunt spine at lower, distal end of ischium ; next three articles rough with low tubercles or nodules ; dactylus longer than propodus, compressed.

The legs diminish in length and stoutness from the first to the fourth ; the last three pairs are nearly smooth ; the dactylus is distinctly shorter than the propodus ; the second leg is much stouter than the third and fourth.

Female.—The carapace is wider anteriorly in proportion to the length than in the male, the "neck" being shorter and less conspicuous ; the antennal spine is slenderer and more outstanding, the postorbital spine is slenderer and is directed obliquely forward a little, the anterior of the hepatic spines is longer, slenderer and hooked inward a little at tip. The rostral horns are broken off near the base and are missing, but the stumps appear narrower and less flat than in the male. The posterior hump is slightly developed and overhangs the posterior margin of the carapace but little. Chelipeds slender, especially the chelae ; arm with various tubercles above in addition to the three spines of the male ; chelae almost filiform, the horizontal fingers less than half as long as palm, and narrowly gaping in basal third only. The first ambulatory leg is estimated at no more than twice as long as the carapace ; dactylus a trifle longer than propodus, both measured along the dorsal line. The second ambulatory leg is not so much stouter than the third as in the male ; in the second, third and fourth legs there is more difference in the length of dactylus and propodus than in the corresponding articles of the male.

Genus NAXIA, *Leach*.

NAXIA ARIES, *Guérin*.

Halimus aries, Latreille, in Guérin, *Icon. Règne Anim.*, ii., Crust., pl. ix., figs. 2, 2a-c. Milne Edwards, *Hist. Nat. Crust.*, i., 1834, p. 341 ; Cuvier's *Règne Anim.*, Crust., Atlas, 1849 (*vide* McCulloch), pl. xxviii., figs. 2, 2a-c.

Halimus gracilis, Baker, *Trans. Roy. Soc. S. Austrália*, xxix., 1905, p. 124, pl. xxiii., figs., 4, 4a.

Naxia aries, McCulloch, Rec. Austral. Mus., ix., 1913, p. 327.

A single male was taken on the east coast of Flinder's Island, Bass Strait. It is a larger specimen than that measured by Baker.

Measurements.—Length of carapace measured on median line to posterior margin 37, greatest width of carapace, without spines 26, length of rostral horn 9.2 mm.

Subgenus MICROHALIMUS, *Haswell*.

NAXIA (MICROHALIMUS) DEFLEXIFRONS, *Haswell*.

Microhalimus deflexifrons, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1880, p. 435, pl. xxv., fig. 2.

Naxia (Microhalimus) deflexifrons, McCulloch, Rec. Austral. Mus., ix., No. 3, 1913, p. 330; pl. x., figs. 1-4, and synonymy.

One ovigerous female from south by east of Flinders Island, Bass Strait, 37 fathoms.

Subfamily ACANTHONYCHINÆ.

Genus ANTILIBINIA, *MacLeay*.

ANTILIBINIA LAPPACEA,¹⁴ *sp. nov.*

(Plate vii., fig. 3 and Fig. 3.)

Type-locality.—Great Australian Bight, south of Eucla, Long. 129° 6½' E., 200-300 fathoms. One ovigerous female, holotype.

Measurements.—Length of carapace on median line 12.8, length to tip of horns 16.5, width of carapace, 9 mm.

Description.—Carapace pyriform, high in the middle, curving rapidly down to the front and sides. Surface smooth and sparingly clothed with long, fine, soft hairs. Cardiac region faintly limited; otherwise the dorsal aspect is without inequalities. Rostrum about half as long as postrostral portion of carapace, bifurcate about three-fourths of its length, the horns slender, divergent, and probably acute, although the tips are broken off. The preorbital spines are about half as long as, but more divergent than, the rostral spines. Postorbital lobes externally flattened in an oval face, curved a little inward, tip blunt. Hepatic spines (one on each side) directed forward, upward and a little outward, laterally compressed, curved, acute, and reaching forward to the level of the corneae. No branchial spine, but on the sub-branchial region two single tubercles followed anteriorly

14. *Lappa*, a burr, in allusion to the appearance of the carapace.

by a cluster of three tubercles, forming a line which is continued on the pterygostomial region by three or four tubercles. The antero-lateral angle of the buccal cavity is produced downward in a rounded lobe.

The narrow basal joint of the antenna has a shallow furrow through the middle, and a small forward-pointing tooth at the outer angle; the first movable joint is very short, the next two are long, the remainder of the flagellum does not reach the tip of the rostral horn.



Fig. 3.—*Antilibinia lappacea*, Rathbun, right chela of female holotype, six and two-thirds times natural size.

The cheliped of the female is shorter and stouter than the first ambulatory leg; the arm has a stout terminal spine above and a few tubercles near the proximal end. The wrist has an upper crest which is produced in a squarish lobe near the proximal end. Legs rather slender, diminishing in size from the first to the fourth pair, the merus joints each terminating in a superior tooth.

Fifth and sixth segments of female abdomen fused, although a suture line is faintly visible.

Relationships.—The genus *Antilibinia* already contains two species, viz., the type, *A. smithii* MacLeay¹⁵ from Natal, and *A. gilloloensis* Rathbun¹⁶ from the Molucca Islands. *A. smithii* has an uneven, somewhat lumpy surface, two lateral teeth or spines, one hepatic, one branchial, a rostrum cut only half way to its base, a moderate preocular and postocular spine and rounded joints of chelipeds and legs. *A. gilloloensis* has also an uneven surface, but less lumpy than *smithii*, no tooth or spine on the margin of the branchial region, but a small one on the hepatic region, a rostrum and preocular and postocular spines similar to those of *A. smithii*, but a carinated wrist and arm. *A. lappacea*, while having the antennal and orbital characters possessed by the other species, has a more smoothly rounded carapace, the cardiac region alone appearing as a separate area; the branchial spine or tooth is missing, as in *A. gilloloensis*, but the hepatic spine is elongated and conspicuous; the rostral horns are

15. In Smith—*Illus. Zool. S. Africa, Annulosa*, 1838, p. 57, pl. ii.

16. Rathbun—*Proc. U.S. Nat. Mus.*, l., 1916, p. 537.

also long, much exceeding the base of the rostrum; the preocular spine is longer than in the other two species; the wrist and arm are more strikingly carinate than in the intermediate species, and the merus of the legs ends in a flat spine.

Subfamily PISINÆ.

Genus SCYRAMATHIA, A. Milne Edwards.

SCYRAMATHIA FULTONI, Grant.

(Plate v.)

Hyastenus fultoni, Grant, Proc. Linn. Soc. N. S. Wales, xxx., 1905, p. 313, pl. xi., fig. 1.

The shape of the orbit indicates the genus *Scyramathia* rather than *Hyastenus*.

Numerous specimens were taken at various stations in Bass Strait and vicinity.

Off Gabo Island, Victoria, 80-100 fathoms; one female.

East of Flinders Island, 200-300 fathoms; one male.

From Babel Islands to Flinders Island, 60 fathoms; two ovigerous females.

Off Babel Islands, eastern slopes of Bass Strait, 50-80 fathoms: three males.

East of Babel Islands, eastern slopes, 65-70 fathoms; nine males, ten females (six ovigerous). One male of this lot is the original of the photographs on Plate v.

East of Babel Islands, eastern slopes, about 70 fathoms; thirty-one males, sixty-six females. Twenty-two of the females are ovigerous and one female bears a rhizocephalid parasite under the abdomen.

Twenty miles east of Babel Islands, eastern slopes, 65-70 fathoms; seven males, four females, one of which is ovigerous, and one very young specimen.

Fifteen miles east-north-east of Cape Barren, Cape Barren Island, 53 fathoms; one male.

Eastern slope of Bass Strait, 70-80 fathoms; three young females.

Off Tasman Head, Bruni Island, 80-100 fathoms; one ovigerous female.

Genus *HYASTENUS*, *White*.*HYASTENUS DIACANTHUS*, *de Haan*.

Pisa (Naxia) diacantha, de Haan, Fauna Japon., Crust., 1838, pl. xxiv., fig. 1; 1839, pl. xcvi., and pl. G.

Hyastenus diacanthus, Grant and McCulloch, Proc. Linn. Soc. N. S. Wales, xxxi., 1906, p. 32.

Twenty-five miles south by east of Double Island Point, Queensland, 33 fathoms; one male, small and immature.

HYASTENUS CONVEXUS, *Miers*.

Hyastenus (Chorilia) convexus, Miers, Crust. Alert, 1884, p. 196, pl. xviii., figs. B. & b.

Hyastenus convexus, Grant and McCulloch, Proc. Linn. Soc. N. S. Wales, xxxi., 1906, p. 32.

Twenty miles north-north-east of Double Island Point, Queensland, 30 fathoms; one ovigerous female.

Genus *PHALANGIPUS*, *Latreille*.*PHALANGIPUS AUSTRALIENSIS*, *sp. nov.*

(Plate vi.)

Type-locality.—Platypus Bay, Queensland, 7-9 fathoms. One male holotype.

Additional material.—A female also was taken in Platypus Bay, 7-9 fathoms, on July 28, 1910 (No. 1, haul 2).

Measurements.—Male holotype, length of carapace on median line 16.7, length of horns 1.5, width of carapace 13.6, length of cheliped 29, length of first ambulatory leg about 87 mm.

Diagnosis.—Rostral horns without accessory spinule. Sinus of infraorbital margin U-shaped. A broad, arcuate lobe on first abdominal segment in both sexes.

Description.—The spines and tubercles of the carapace are arranged as in *P. herbstii* (Milne Edwards)¹⁷ and *P. arachnoides* (Latreille),¹⁸ the carapace is about the same shape as in *herbstii* and the rostrum and its horns of similar length. The principal differences are set forth in the table below. For a statement in regard to the older species of this genus, see my forthcoming report on Philippine Oxyrhyncha in the Bulletin of the U.S. National Museum.

17. *Egeria herbstii*, Milne Edwards—Hist. Nat. Crust., i., 1834, p. 292. *Leptopus longipes*, Guérin, Icon. Règne Anim., pl. x., fig. 3.

18. *Egeria arachnoides*, Latreille—Tabl. Encyc. Méth., pt. xxiv., 1818, pl. cclxxxii., fig. 1.

	<i>P. australiensis.</i>	<i>P. herbstii.</i>
Tips of rostral horns . . .	Obtuse.	Acute.
Preorbital lobe	Without a lobe at posterior end of outer margin.	With a little lobe at posterior end of outer margin.
Median supraorbital tooth	Bounded on each side by a broad U-sinus.	Bounded by a V-sinus outside and by a narrow slit inside.
Median suborbital tooth	Much deflexed and bounded by a broad U-sinus on each side.	Bounded by a V-sinus on each side.
Palm of adult male . . .	Slender, a little enlarged at distal end.	Stout, inflated.
Merus of last leg	Without a small terminal spine on the anterior side.	With a small terminal spine on the anterior side.
Lobe on first abdominal segment	Arcuate and occupying nearly whole width of segment.	Smaller, more pointed, not occupying nearly whole width of segment.
Appendages of first segment of male abdomen	Pointing forward.	Curving outward toward tips.
Tubercle on sternum at base of cheliped . . .	Very wide, occupying almost whole width of segment on each side of abdomen.	Narrow, occupying less than half of segment on each side of abdomen.

Genus *DOCLEA*, *Leach.**DOCLEA PROFUNDA*, *sp. nov.*

(Plate vii., figs. 1 and 2.)

Type-locality.—Great Australian Bight, south of Eucla, Long. 129° 28' E., 250-450 fathoms. An egg-bearing female, holotype.

Measurements.—Length of carapace on median line exclusive of spines 9.3, length from tip of rostrum to tip of posterior spine 11.2, width without spines 11.7, width with spines 8.3 mm.

Diagnosis.—Two lateral spines. Spines of rostrum longer than basal portion of same. Six spines on postfrontal portion of carapace.

Description.—Surface covered with a close pubescence. Of the spines on the carapace the longest is one pointing obliquely upward at the widest part of the carapace, on each side. Nearly as long is the suberect cardiac spine in the same line; while the median spine directed slightly backward just above the posterior margin is shorter and slenderer; the marginal hepatic spine is similar and points outward. Tubercles are few: Three in a triangle on the after half of the gastric region, the median one slightly behind the lateral pair; three in a group at the inner angle of each branchial region; one further back, on each side, in a line just behind the line of long spines. Besides there are a few small granules, especially toward the lateral margins.

Rostrum longer than wide, divided more than half its length; horns flat, directed forward, spine-tipped. Pre-orbital spines slender, directed upward, outward, and forward; postorbital lobes, viewed laterally, oval, flattened.

Basal antennal joint longitudinally grooved through the middle, a small tooth at distal outer angle. Angle of buccal cavity produced in a thin lamina.

Cheliped of female weak; merus with a sharp upper margin; wrist with an outer ridge; fingers about as long as palm. Legs of moderate length, both pubescent and long-hairy.

The mature abdomen is longer than wide and covers the sternum. Eggs few (twenty are visible when the abdomen is laid back) and large (about .7 in diameter).

Relationship.—The species is related to *D. expansa* (A. Milne Edwards). = *D. orientalis*, Miers.¹⁹ Both are little ornamented and have only two lateral spines on each side, one hepatic, one branchial; but *D. expansa* has no median spines, but numerous scattered tubercles, and its rostral horns are short.

Remark.—This is the first *Doclea* noted in Australian waters or at any great depth, the latter fact one to which the specific name calls attention.

Subfamily MAJINÆ.

Genus PARAMITHRAX, *Milne Edwards*.

Hist. Nat. Crust., i., 1834, p. 324. Type, *P. peronii*, Milne Edwards, 1834, specified by Miers, Journ. Linn. Soc. London, xiv., 1879, p. 656.

19. See Miers—Proc. Zool. Soc. London, 1879, p. 28, pl. II, figs. 1, 1a.

Orbit incomplete below, the postorbital spine conical, not cupped, and usually remote from orbit.

Milne Edwards in making this genus divided it into two sections according to the character of the orbit. Later (1876) Miers divided *Paramithrax* into two subgenera according to the shape and ornamentation of the chelipeds, calling one division *Leptomithrax*, type *P. (L.) longimanus* Miers, 1876. Milne Edwards's basis of division seems more reasonable than that of Miers. The only species, *P. gaimardii*, which Milne Edwards put in his second section, is congeneric with *longimanus*, therefore the name *Leptomithrax* is available for that section.

PARAMITHRAX MINOR, *Filhol.*

(Plate viii.)

Paramithrax minor, Filhol, Bull. Soc. Philom. (7), ix., 1885, p. 27 (Cook Straits, especially Massacre Bay, 15-20 meters); Mission de l'Île Campbell (Passage de Vénus, 1874), iii., part 2, p. 356, atlas, pl. xl., figs. 4, 5 and 7 (hardly fig. 6, which is apparently *Acanthophrys filholi*).

Between Port Stephens and Newcastle, New South Wales, 22-60 fathoms. Three males, two of them large, and one female.

Oyster Bay, Tasmania, 26 fathoms. One ovigerous female.

Oyster Bay (depth not given). Fifteen males, ten females (nine ovigerous). Dorsal aspect concealed by a dense coating of algae, hydroids, etc., attached by the hairs of the carapace; chelae, wrists and under part of arms bare.

Entrance to Storm Bay, Tasmania. Two males, three females.

There is a short spine on the preorbital lobe; the postorbital spine may reach farther forward than the tip of the preorbital spine, or not so far forward. Of the two hepatic spines, the anterior is much the larger. There is a curve of seven spines on the branchial region, the last two of which are above the margin. The rostral spines are broad and flat, their outer margins are nearly parallel to each other. The tubercles of the dorsal surface are not crowded, a few of them are spiniform; all have a tuft of curled hairs. There are longer hooked hairs on the inner margin of the rostral horns, also on the dorsal surface whence they are continued backward on the gastric region.

The basal segment of the antenna has a short, forward-pointing spine at each of the anterior angles, the outer spine more advanced than the inner. Flagellum fringed with long straight hairs.

The upper margin of the arm is unarmed, the only elevation being a tubercle at the articulation with the wrist. The latter has a strong outer crest, which is entire, and a superior crest which is broken into tubercles; the two crests converge but do not meet proximally. The movable finger bears a very shallow tooth at its basal third in the gape. The ambulatory legs are covered with hooked hairs and besides there is on each side a fringe of longer, plumose hairs.

Measurements.—Male (P 2134), length of carapace 40.8, width 34 mm.

Genus *LEPTOMITHRAX*, *Miers*.

Ann. Mag. Nat. Hist. (4), xvii., 1876, p. 20 (type, *P. (L.) longimanus*, Miers, 1876, specified by Miers, 1879).

Orbit fairly complete, the postorbital spine hollowed out to receive the extremity of the eye.

Key to species in the collection.

- a. Postorbital lobe or cup truncate and bifid at tip, the two terminal teeth or spines being equally prominent.
 - b. Two spines at tip of postorbital lobe. Carapace with many long spines. Four long marginal or submarginal spines in a semicircle on the branchial region. Outer maxillipeds swollen at union of merus and ischium. Outer spine of basal segment of antenna less than twice as long as inner spine. Sternal segments not deeply excavate:— *waiteri*.
 - bb. Two teeth at tip of postorbital lobe. Carapace covered mostly with tubercles. Three long marginal or submarginal spines in a semicircle on the branchial region. Outer maxillipeds not swollen at union of merus and ischium. Outer spine of basal segment of antenna more than twice as long as inner spine. Sternal segments deeply excavate:— *sternocostulatus*.
- aa. Postorbital lobe or cup acute, not truncate. There may be a spinule on the outer margin not far behind the tip.

- b. A spinule on outer margin of postorbital lobe not far behind the tip. Sternum not deeply excavate. A spine at posterior end of preorbital lobe.
- c. Carapace suboblong. A smooth, hemispherical swelling on merus of outer maxilliped. Rostral horns slender. Legs long and slender, the first leg about twice as long as carapace :— *globifer*.
- cc. Carapace subovate. Outer maxillipeds swollen at union of merus and ischium, but not conspicuously so. Rostral horns short and stout. Legs of moderate size, first leg about one and a half times as long as carapace :— *spinulosus*.
- bb. No spinule on outer margin of postorbital lobe. Sternum deeply excavate. Chelipeds stout, legs slender. A triangular tooth at posterior end of preorbital lobe :— *tuberculatus*.

LEPTOMITHRAX SPINULOSUS, *Haswell*.

(Plate ix.)

Leptomithrax spinulosus, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879 (1880), p. 441, pl. xxv., fig. 3; Cat. Austral. Crust., 1882, p. 16.

Taken at numerous stations from New South Wales to Eucla, including Tasmania.

Shoalhaven Bight, New South Wales, 15-45 fathoms; one ovigerous female.

Off Tathra Head, near Moruya, New South Wales, 100-250 fathoms; one ovigerous female, concealed under a coating of compound ascidian, while a slender finger sponge as long as the carapace projects from between the rostral horns.

Off Gabo Island, Victoria, 80 fathoms; one ovigerous female encrusted with sponge.

Bass Strait; two ovigerous females, one of which bears encrusting serpulid tubes and bryozoans.

Fifteen miles east-north-east of Cape Barren, Cape Barren Island, 53 fathoms; one young female.

Oyster Bay, Tasmania, 26 fathoms; two young.

Forty miles east of Kingston, South Australia, 30 fathoms; one male, with encrusting serpulid tubes and bryozoans.

Forty miles west of Kingston, South Australia, 30 fathoms; three males, soft shell, and covered with hydroids, branching bryozoans, etc.

Cape Marsden, Kangaroo Island, South Australia, 17 fathoms; one immature female.

Off Marsden Point, Kangaroo Island, 17 fathoms; one male and one ovigerous female, the latter very old and encrusted with mollusks (*Anomia*?) serpulid tubes, and one stalked barnacle.

Great Australian Bight, south of Eucla, Long. 129° 28' E., 250-450 fathoms; one young, very small.

The specimens agree very well with Haswell's description and figure. The spinules of the dorsal surface are numerous, unequal, but none of them much enlarged. As to the border spines, the spine projecting from the preorbital lobe is transverse and its tip turns slightly upward; middle spine of orbit spinulous; outer spine directed forward, acute, and armed on the outer edge with two smaller spines; two hepatic spines, nearly transverse and subequal, the anterior usually a little the larger; a semicircle of four spines on the branchial region, the last one standing well in on the carapace; in the intervals between these spines there is a smaller spine or spinule, any of which may be suppressed; two small submedian spines on the intestinal region. The marginal spines are proportionally larger in the young than in the adult.

The ventral surface is especially setose in the females and young, but a transverse band at the articulation of ischium and merus of outer maxilliped is always naked and smoothly rounded. The externo-distal angle of the ischium projects laterally in a small spine. While the different segments of the male sternum bear concavities, they are not deeply guttered.

A small orange-red spot on the outside of the chela at articulation of propodus and dactylus persists in the preserved specimens.

Measurements.—The largest specimen, an egg-bearing ♀ (E 809) is almost entirely concealed by a mass of shells and worm tubes. It measures, roughly, 136 mm. long and 118 wide.

This species may be the *L. gaimardii* of Milne Edwards²⁰ of which a full description and figure are lacking. Filhol²¹ says that the posterior of the marginal hepatic spines of *L. gaimardii* is bifurcate, and the series of large branchial spines numbers five.

20. Milne Edwards—Hist. Nat. Crust., i., 1834, p. 325, New Zealand.

21. Filhol—Mission de l'Île Campbell (Passage de Venus, 1874), iii., part 2, 1885, p. 356.

LEPTOMITHRAX STERNOCOSTULATUS, *Milne Edwards*.

Paramithrax gaimardii, Miers, Cat. Crust. New Zealand, 1876, p. 6 (not *P. gaimardii*, Milne Edwards, 1834).

Paramithrax sternocostulatus, Milne Edwards, Ann. Sci. Nat. (3), xvi., 1851, p. 291 [71], pl. x., figs. 3, 3a, 3m, 4. Miers, Ann. Mag. Nat. Hist. (5), iv., 1879, p. 9. Grant and McCulloch, Proc. Linn. Soc. N.S. Wales, xxxi., 1906, p. 28, pl. iii., figs 2 and 2a.

Four miles west of Kingston, South Australia, 30 fathoms ; one ovigerous female.

Cape Marsden, Kangaroo Island, South Australia, 17 fathoms ; one female.

North of Cape Borda, Kangaroo Island, 40 fathoms ; one male, three females, all small.

South Australia ; one female. A large specimen 41.3 by 30.8 mm., including spines, decorated with numbers of a flabellate bryozoan and one elongated sponge. The preorbital and postorbital lobes overlap in this specimen.

The male of this species is easily recognised by the peculiar cavities in the sternum, which are more numerous on the anterior part than in *L. tuberculatus*, but both sexes are distinguished by the postorbital lobe in the form of a flat, truncate spine with bidentate extremity, two spines arranged transversely on the posterior margin, two shorter ones on the cardiac region, and three long, submarginal spines on the branchial region.

LEPTOMITHRAX TUBERCULATUS (*Whitelegge*).

Paramithrax tuberculatus, Whitelegge, Mem. Austral. Mus., iv., 1900, p. 146, pl. xxxiv., figs. 1 and 2.

Only two specimens were taken by the " Endeavour."

Twenty-five miles south by east of Double Island Point, Queensland, 33 fathoms ; one male. Carapace overgrown with sponge.

Shoalhaven Bight, New South Wales, 15-45 fathoms ; one male, partly overgrown with compound ascidian.

The only previous record is New South Wales, from Broken Head to Wata Mooli, 20-78 fathoms (Whitelegge).

LEPTOMITHRAX WAITEI (*Whitelegge*).

Chlorinoides waitei, Whitelegge, Mem. Austral. Mus., iv., 1900, p. 143, pl. xxxiii.

Between Port Stephens and Newcastle, New South Wales, 22-60 fathoms; one female.

Off Babel Islands, eastern slopes, 70 fathoms; one female. Total length of carapace 130, total width 109.2 mm.; length of first ambulatory leg 162, of last leg 126 mm.

The carapace of these large females is longer in proportion to its width than in the large male measured by Whitelegge. The submedian series of spines includes two pairs on the protogastric regions, those of the hinder pair being the smaller and further apart.

LEPTOMITHRAX GLOBIFER,²² *sp. nov.*

(Plates x. and xi.)

Type-locality.—Southern Australia²³; one male, holotype.

Measurements.—Male holotype, length of carapace, including spines, 86.6, length on the median line 71, width without spines 56 mm.

Diagnosis.—A round excrescence on merus of outer maxilliped. Four marginal spines on branchial region.

Description.—Carapace ovate-oblong; covered, but not crowded, with acute tubercles and a few spines; four large spines forming a semicircle on the margin of the branchial region, the posterior of these spines being subdorsal; hepatic region outwardly produced, margin armed with two spines, of which the anterior is the larger; four small median spines, two mesogastric, one urogastric and one intestinal; ten pairs of submedian spines and tubercles (three frontal, or between the orbits, two protogastric, two mesogastric, one cardiac and two intestinal), the last pair being stout spines which project horizontally backward.

Rostral spines gradually tapering, slightly divergent and one-fifth as long as the remainder of the carapace. Surface of preorbital lobe covered with sharp granules, spine long and projecting transversely, separated by a narrow gap from the middle supraorbital spine. This last is narrow-triangular, bears one or two erect spines or spinules at its base, and is in contact at its middle with the postorbital cup; between the

22. In allusion to the rounded excrescence on the mouth.

23. The details of the locality and date associated with this specimen are incongruous. It was almost certainly secured in southern Australian waters.

bases of the two there is a narrow buttonhole slit. The postorbital cup has an acuminate tip, and not far behind the tip a spinule on the outer margin.

Interantennular spine of good size. Basal segment of antenna bearing two spinulose ridges, the inner terminating in a downward and forward-pointing spine at the inner angle, and the outer ridge terminating in a upward and forward-pointing spine at the outer angle. Ventral surface of carapace furnished sparingly with acute tubercles and granules, while a single pterygostomial spine points obliquely outward. The maxillipeds are distinguished by a smooth, round, whitish excrescence on the merus, at its posterior end, but nearer the outer than the inner angle.

Sternum moderately excavate, and showing a few granules near the abdomen. Abdomen pubescent.

The chelipeds are a little longer than the carapace, and when extended reach to the middle of the propodus of the first ambulatory leg; the arm and wrist are dorsally tuberculate, and the former has a short, subterminal spine above. The legs are slender and diminish rapidly in length, but the last one is still longer than the cheliped. The distal half or two-thirds of each dactylus above the horny tip is covered with a short pile.

The species inhabits the Great Australian Bight, and was taken at the following localities :—

Southern Australia. Two males, one being the holotype.

Great Australian Bight, south-west of Eucla, about Long. 127° E., 80-120 fathoms; two males, one of them young.

Great Australian Bight, sixty to eighty miles west of Eucla, 80-120 fathoms; four males, two females, all young.

GENUS CHLORINOIDES, *Haswell*.

CHLORINOIDES SPATULIFER, *Haswell*.

Paramithrax spatulifer, Haswell, Proc. Linn. Soc. N. S. Wales, vi., 1882, p. 540; Cat. Austral. Crust., 1882, p. 14.

Chlorinoides coppingeri, Miers, Challenger Rept., Zool., xvii., 1886, p. 53, pl. vii., figs. 3, 3a, 3b (not *C. coppingeri*, Haswell, 1881).

Shoalhaven Bight, New South Wales, 15-45 fathoms; two ovigerous females.

Forty miles south of Cape Wilson, South Australia, 100 fathoms ; one female.

East coast of Flinders Island, Bass Strait ; one male.

Twenty miles east of Babel Islands, eastern slopes, 65-70 fathoms ; one male.

Great Australian Bight, south of Eucla, Long. 129° 28' E., 250-450 fathoms ; one young female.

Great Australian Bight, sixty to eighty miles west of Eucla, 80-120 fathoms ; two males, one ovigerous female.

The spatula on the intestinal region, though usually entire except for some fine spinules, is in one specimen a male from east of Babel Islands, bifid at the top, forming two flat, truncate spines or teeth.

Genus SCHIZOPHRYS, *White*.

SCHIZOPHRYS ASPERA, *Milne Edwards*.

Mithrax asper, Milne Edwards, Hist. Nat. Crust., i., 1834, p. 320.

Schizophrys aspera, Alcock, Journ. Asiat. Soc. Bengal, lxiv., 1895, p. 243.

Southern Queensland ; one male.

Spencer's Gulf, South Australia, 26 fathoms ; one male, one female.

Spencer's Gulf, South Australia, 20 fathoms ; one male.

The specimens are all large, and represent a form with short rostrum, short marginal spines, and a rather even carapace, few of the granules being enlarged and elevated. The bend on the lower margin of the propodus of the cheliped is almost rectangular.

Family PARTHENOPIDÆ.

Subfamily PARTHENOPINÆ.

Genus PARTHENOPE, *Weber*.

Subgenus RHINOLAMBRUS, A. *Milne Edwards*.

Cancer contrarius, Herbst, Naturg. d. Krabben u. Krebse, iii., part 4, p. 8, pl. lx., fig. 3.

Lambrus (Rhinolambrus) contrarius, Alcock, Journ. Asiat. Soc. Bengal, lxiv., 1895, p. 266, and synonymy.

Thirteen miles north by west of Double Island Point, Queensland, 25-26 fathoms; one ovigerous female. Reg. No. E2030.

Length 63.8, width 62 mm. Chelipeds partly, and carapace almost entirely (up to the postorbital constriction), covered with *Balanus*. Not only are the merus joints of the ambulatory legs tuberculate, but the carpus and propodus of the last pair.

Genus CRYPTOPODIA, *Milne Edwards*.

CRYPTOPODIA QUEENSLANDI, *sp. nov.*

(Plate xii.)

Type-locality.—20 miles north-east of Cape Gloucester, Queensland, 35 fathoms; adult male, holotype.

Measurements.—Length of carapace 27.4, width of carapace 49.3, width between orbits 5.6, length of front measured from the line of the anterior orbital angles 3 mm.

Description.—Carapace extremely broad; lateral angle strongly marked; antero-lateral margin cut into shallow irregular lobes, the re-entering angle at the beginning of the lateral wings well defined; posterior margin slightly concave in its middle two-fifths. Triangular depression deep, a large granulated tubercle at its lateral angles. Surface smooth except on the boundary of the triangular depression, from which a line of low granulated tubercles stretches part way across the branchial regions. Rostrum short, broad, sides arcuate, tip blunt; edge finely crenulate, granulate and pitted.

Chelipeds twice as long as carapace, massive, with smooth surfaces; and thin, cristiform edges. The upper edge of the manus has five more prominent, flat, triangular teeth, the outer edge has three enlarged teeth.

Edges of merus, carpus and propodus of ambulatory legs laminate, those of the merus finely serrulate.

Relationships.—The shape of the carapace approaches that of *C. dorsalis*, Adams and White²⁴ and *C. spatulifrons*, Miers,²⁵ both of which have the posterior margin concave in the middle, but our species is intermediate, the slope from the lateral angle backward being less longitudinal than in *C. spatulifrons*, and yet more gradual than in *C. dorsalis*. The character of the

24. Adams and White—Zool. Samarang, Crust., 1848, p. 30, pl. vi., figs. 5, 5a.

25. Miers—Ann. Mag. Nat. Hist. (5), iv., 1879, p. 26, pl. v., fig. 10.

edges is more as in *C. spatulifrons*, but without the tendency to form spinous processes. Our species is much wider than any other.

Subfamily EUMEDONINÆ.

Genus EUMEDONUS, *Milne Edwards*.

EUMEDONUS VILLOSUS, *sp. nov.*

(Plate xiii., fig. 1.)

Type-locality.—Twenty-five miles south by east of Double Island Point, Queensland, 33 fathoms; one male, holotype.

Additional locality.—Twenty miles north-north-east of Double Island Point, Queensland, 30 fathoms; one male.

Measurements.—Male holotype, length of carapace to end of rostrum 10.7, length on median line 10, width 10.8 mm.

Description.—Carapace covered for the most part with crowded, forward-pointing granules; they are absent in the anterior middle portion, which is clothed with long hair. Hind part of carapace depressed, especially in the line of the gastrocardiac suture. Longitudinal impressions limiting the mesogastric and anterior cardiac region deep. Rostrum short and broad, ending in two broad, arcuate lobes separated by a narrow emargination.

Chelipeds rough like the carapace, the right one the larger; they are lobed and spined as follows: a broad lobe on the inner margin of the ischium and another on the inner margin of the merus in its proximal half; merus proximally carinate above, carina high and faintly bilobed; a short, stumpy, erect spine at distal end of merus; a large, curved spine at inner angle of wrist; two large serrations occupy the upper margin of the manus. A reddish-brown colour covers the immovable finger and the distal half of the dactylus, except the tips.

Legs cristate along upper margin of merus, and feebly so on upper margin of carpus and propodus of last two pairs. The crests have an uneven edge, ending in the merus of the first three pairs, in a short distal tooth above, and having a tendency to form a shallow tooth at the middle of the same crest. Legs sparingly long-hairy.

Ventral surface of body granulate; abdomen nearly smooth.

Relationships.—Resembles *E. granulatus* McGilchrist,²⁶ but differs as follows: the carapace is shorter; granules present in

26. McGilchrist—Ann. Mag. Nat. Hist. (7), xv., 1905, p. 253; Illus. Investigator, Crust., part xii., 1907, pl. 57, figs. 2, 2a.

the depressions as well as on the elevations, except that the anterior median region is smooth and long-hairy; lateral spines directed outward and not at all forward; rostrum more deeply cut; hands provided with strong teeth above; merus joints of legs carinate.

It is singular that the same locality should produce two closely-allied species. The one described below presents the same configuration of carapace as *E. villosus* but many differences in other details.

EUMEDONUS VICINUS, *sp. nov.*

(Plate xiii., fig. 2.)

Type-locality.—Twenty-five miles south by east of Double Island Point, Queensland, 33 fathoms; one male holotype.

Measurements.—Male holotype, length of carapace to end of rostrum 13.5, length on median line 12.4, width 14.5 mm.

Description.—Carapace shaped as in *E. villosus*, except that the rostrum is longer and is divided at tip into two narrow horns directed forward; the granules are flatter and squamiform and have a tendency to disappear from the more elevated parts of the posterior half. Carina on upper margin of merus of cheliped bilobed; lobe on inner margin longer, narrower, and more triangular than in *E. villosus*; spine at inner angle of carpus longer, stronger and flatter; the two spines on the upper margin of the palm are larger and more upstanding. No colour on fingers. There is a thin crest on the upper margin of the carpus and propodus, as well as on the merus, of the ambulatory legs. Surface of abdomen and most of the sternum coarsely punctate; anterior sternum granulate and eroded. Abdomen wider than in *E. villosus* and fringed with hair, having somewhat the appearance of the abdomen of an immature female; the male appendages are well developed.

Relationship.—The rostrum of this species suggests that of *E. zebra*,²⁷ but the branches are not at all divergent, as they are in that species; the carapace is longer and rougher; the chelipeds are covered with granules and the spines or teeth surmounting the palm are more important; the legs are similarly carinated, but the terminal and the middle tooth above the merus joints are weaker in our species.

27. Alcock—Journ. Asiat. Soc. Bengal, lxiv., 1895, p. 288 Illus. Investigator, Crust., part iv. pl. xxiii., fig. 5.

Genus CERATOCARCINUS, *Adams and White*.

CERATOCARCINUS DILATATUS, *A. Milne Edwards*.

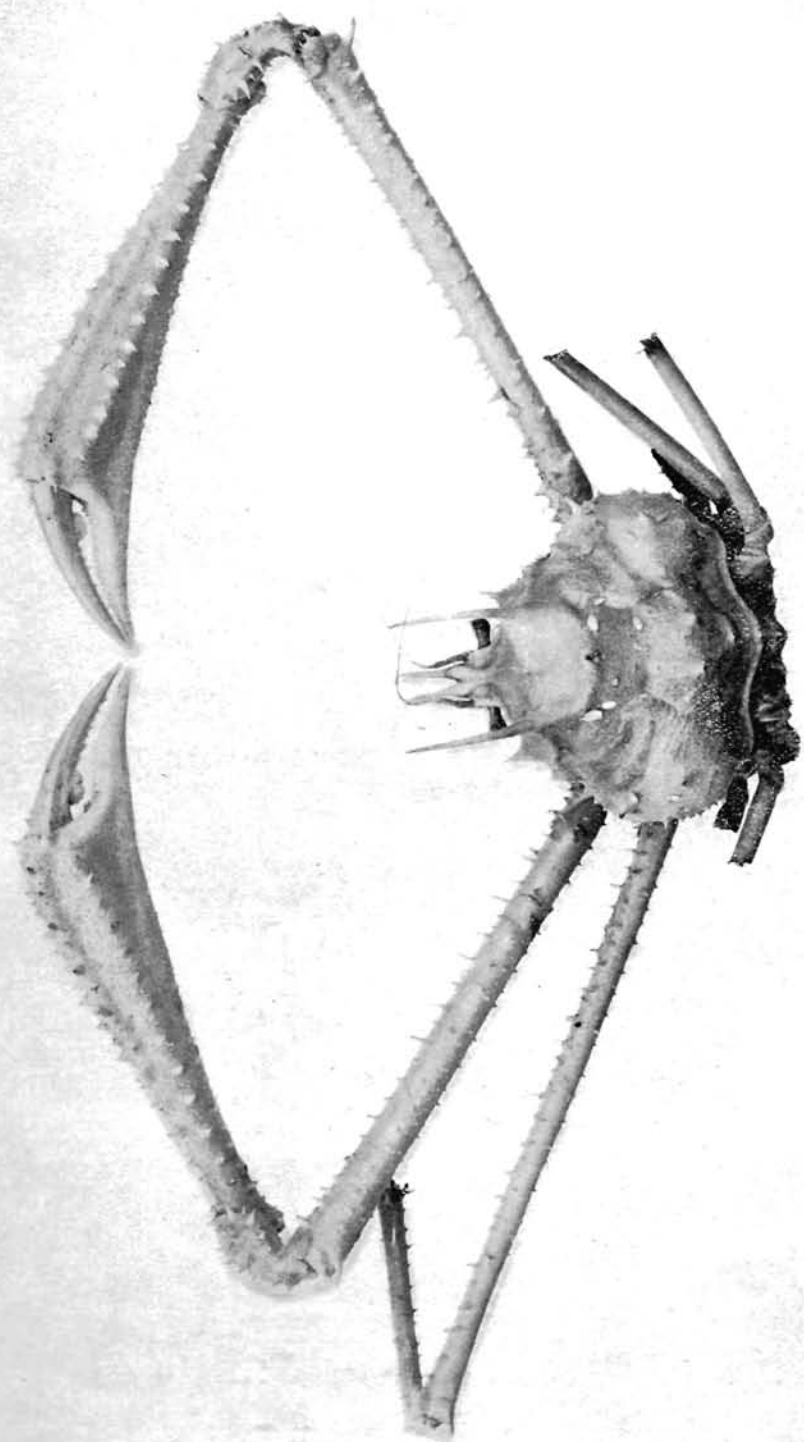
Ceratocarcinus dilatatus, *A. Milne Edwards*, *Nouv. Arch. Mus. Paris*, viii., 1872, p. 256, pl. xiv., figs. 2-2c.
McCulloch, *Rec. Austral. Mus.*, ix., 1913, p. 338.

Twenty miles north-north-east of Double Island Point, Queensland; 29-30 fathoms; one female.

The specimen is about half as big as the male figured by *A. Milne Edwards* and differs from his illustrations in some minor particulars. The carapace is narrower (length 6.6, width 7.6 mm., horns included) and is densely pilose, save on the rostral and lateral spines, the protogastric and branchial bosses and the antero-lateral margin; the rostral horns are more oblique, the outer margins of the two horns being obviously divergent; they and the lateral horns are truncate at tip; the pair of mesogastric and of cardiac tubercles are inconspicuous, hidden as they are under the heavy pile. *Milne Edwards* describes and figures the basal joint of the antenna as wide (see his fig. 2*a*), but it is no more than half as wide as represented in the figure cited, the outer half there shown being the thickened portion of the lower wall of the orbit.

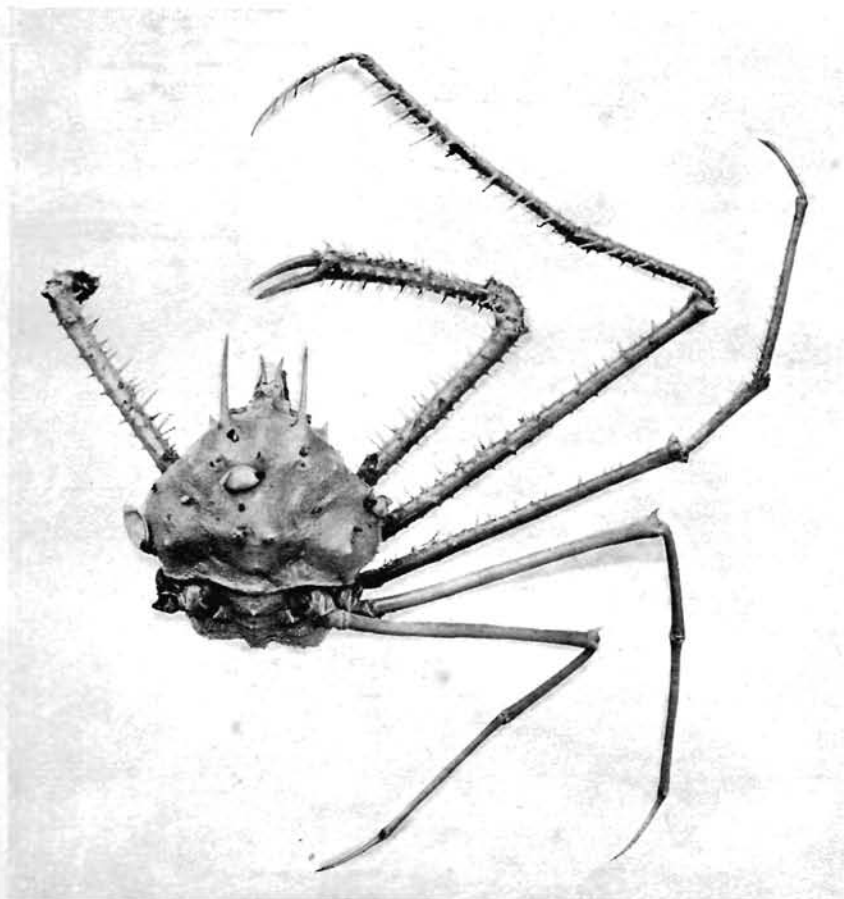
EXPLANATION OF PLATE I.

Cyrtomaia maccullochi, sp. nov. Male holotype, dorsal view.
Nine-tenths natural size.



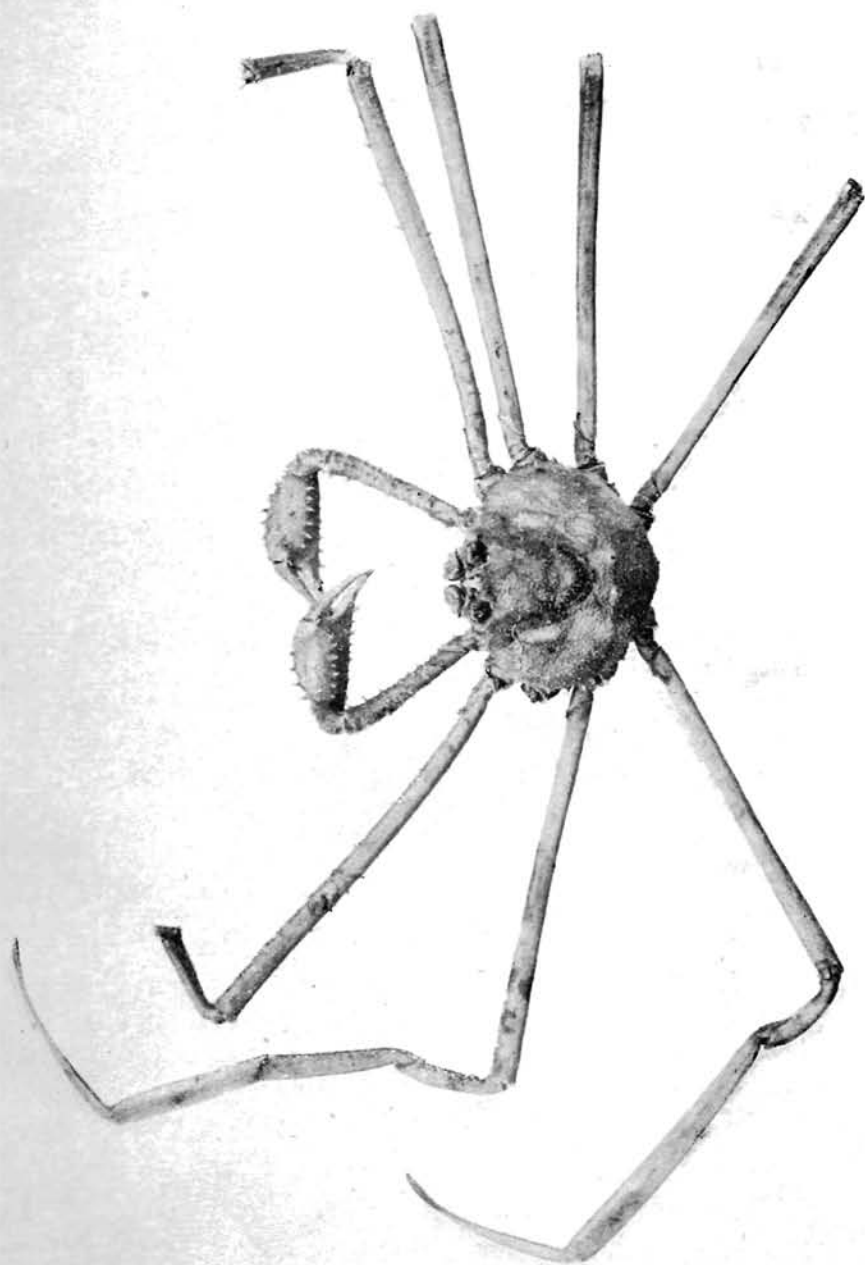
EXPLANATION OF PLATE II.

Cyrtomaia maccullochi, sp. nov. Female (E6262), dorsal view.
Two-thirds natural size.



EXPLANATION OF PLATE III.

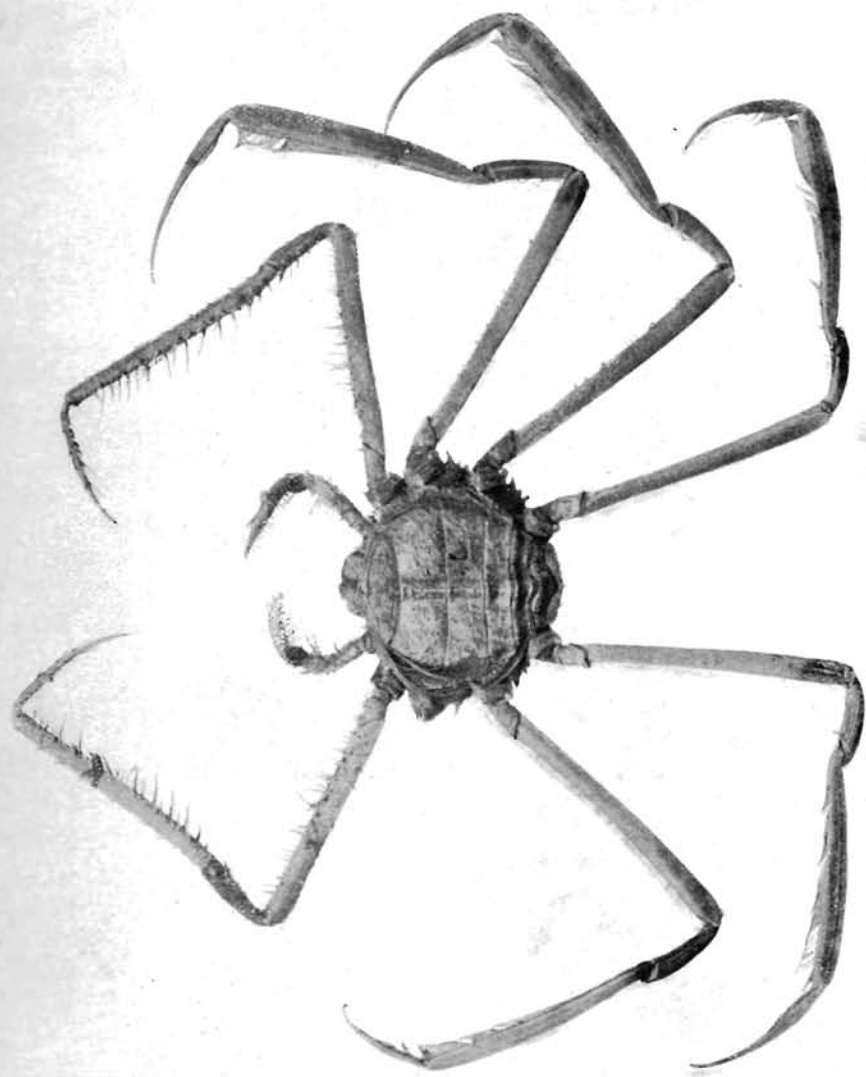
Platymaia wyvillethomsoni, Miers. Male (E3675), dorsal view.
Nine-tenths natural size.



J. H. PAINE, photo.

EXPLANATION OF PLATE IV.

Platymaia wyvillethomsoni, Miers. Female (E6260), ventral view. Nine-tenths natural size.



EXPLANATION OF PLATE V.

Scyramathia fultoni, Grant. Male (E5157). Once and one-half natural size.

Fig. 1.—Dorsal view.

Fig 2—Ventral view.



1



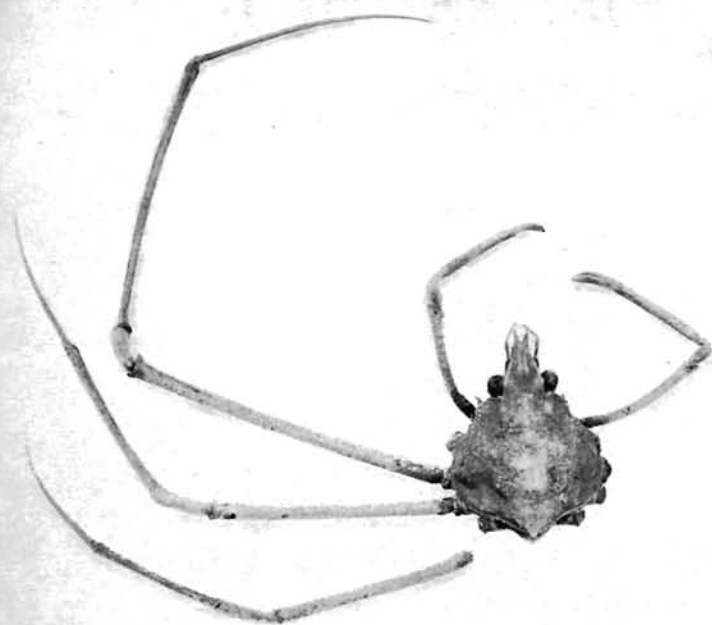
2

EXPLANATION OF PLATE VI.

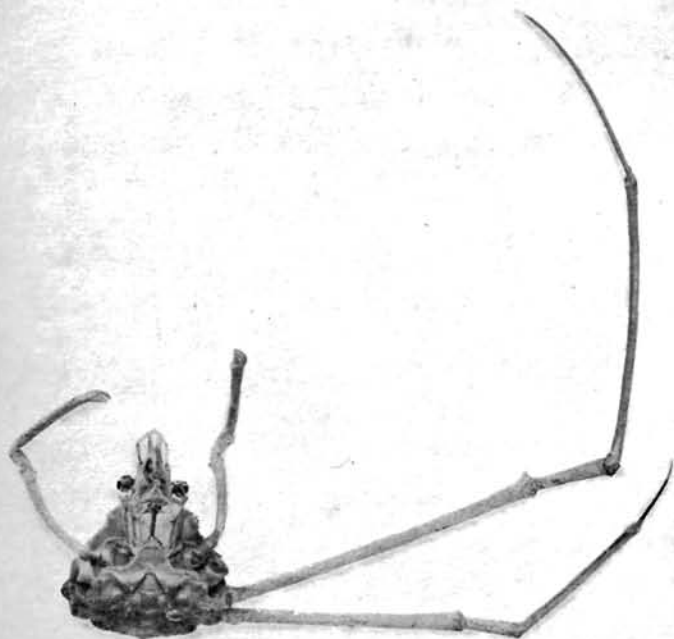
Phalangipus australiensis, sp. nov. Male holotype. Once
and one-half natural size.

Fig. 1.—Dorsal view.

Fig. 2.—Ventral view.



1



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EXPLANATION OF PLATE VII.

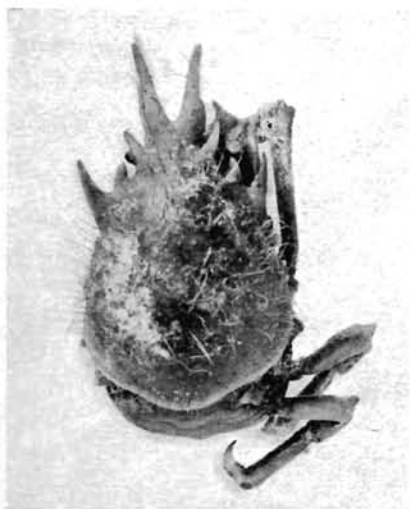
- Fig. 1.—*Doclea profunda*, sp. nov. Female holotype, dorsal view. Three times natural size.
- Fig. 2.—Same. Ventral view.
- Fig. 3.—*Antilibinia lappacea*, sp. nov. Female holotype, dorsal view. Three times natural size.



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EXPLANATION OF PLATE VIII.

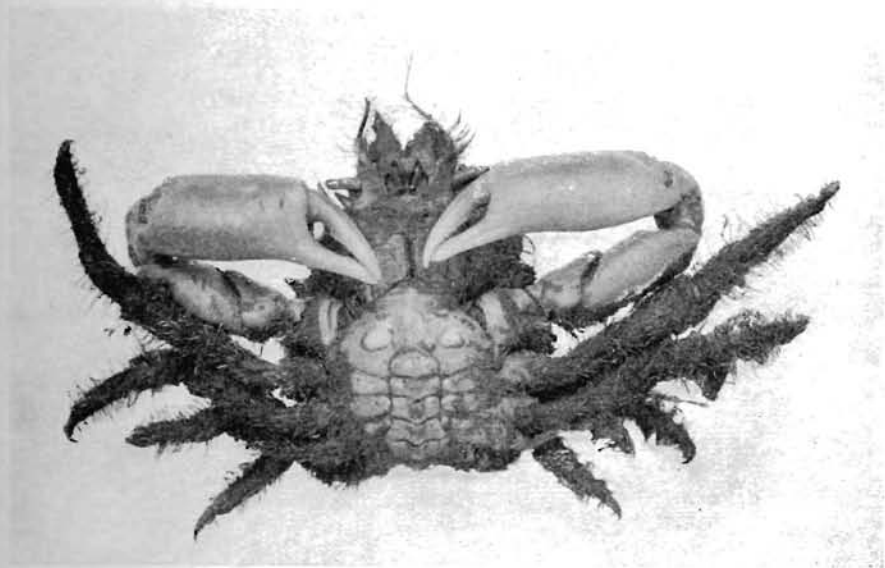
Paramithrax minor, Filhol. Male (E1351). About once and one-third natural size.

Fig. 1.—Dorsal view, right half of carapace denuded.

Fig. 2.—Ventral view.



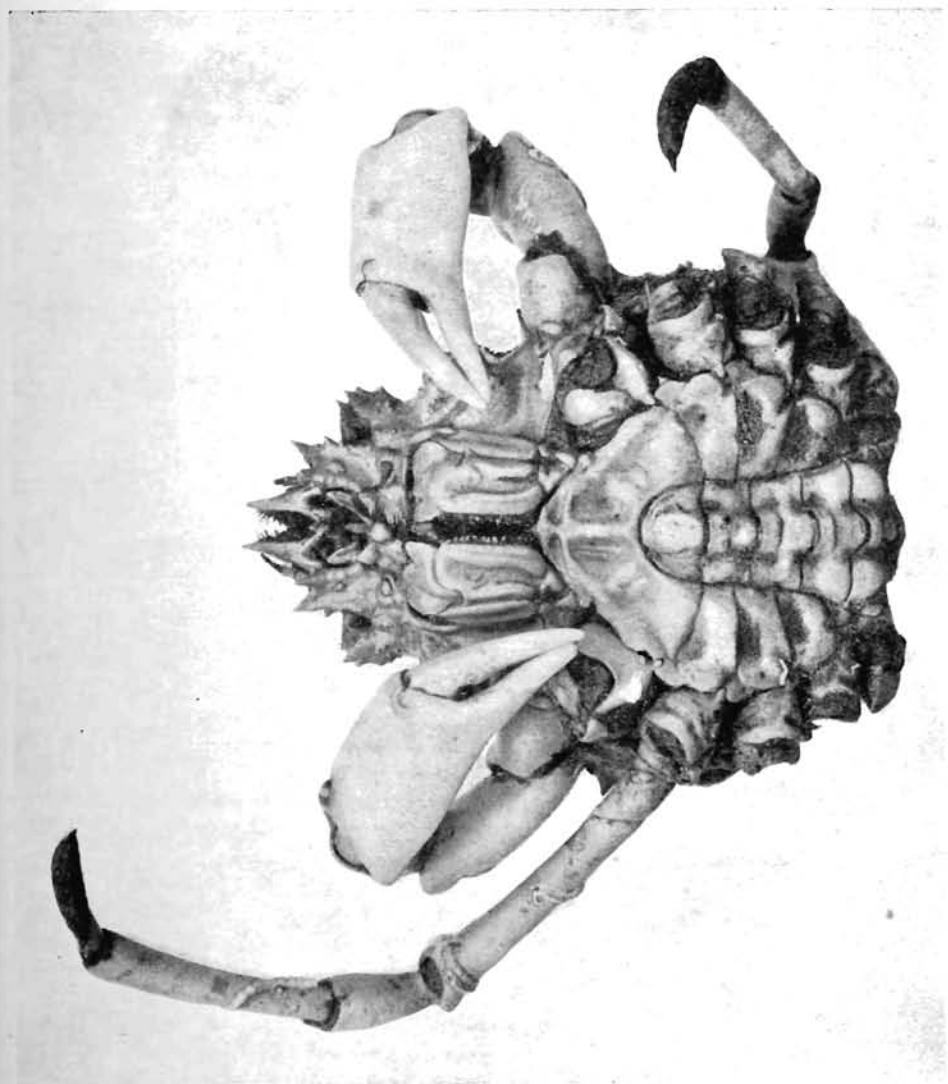
1



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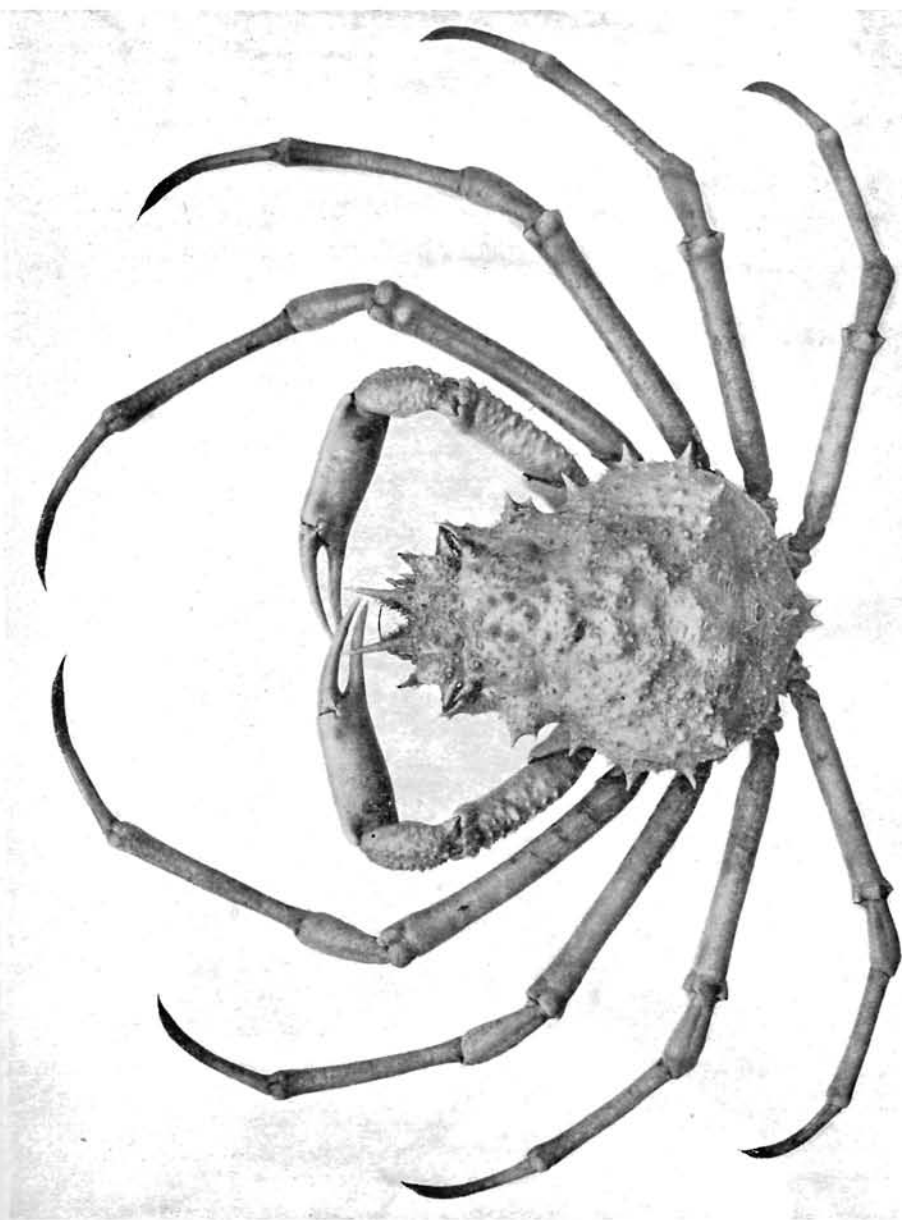
EXPLANATION OF PLATE IX.

Leptomithrax spinulosus, Haswell. Male (E811), ventral view.
About natural size.



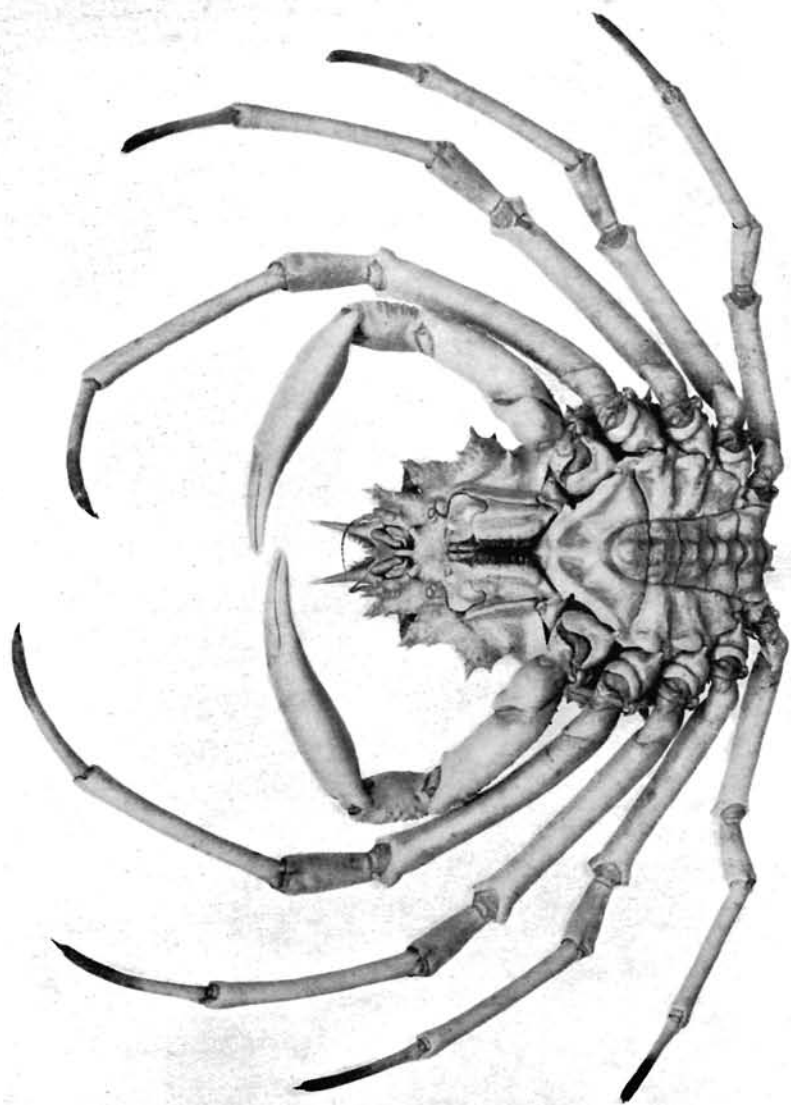
EXPLANATION OF PLATE X.

Leptomithrax globifer, sp. nov. Male holotype, dorsal view.
About two-thirds natural size.



EXPLANATION OF PLATE XI.

Leptomithrax globifer, sp. nov. Male holotype, ventral view.
About two-thirds natural size.

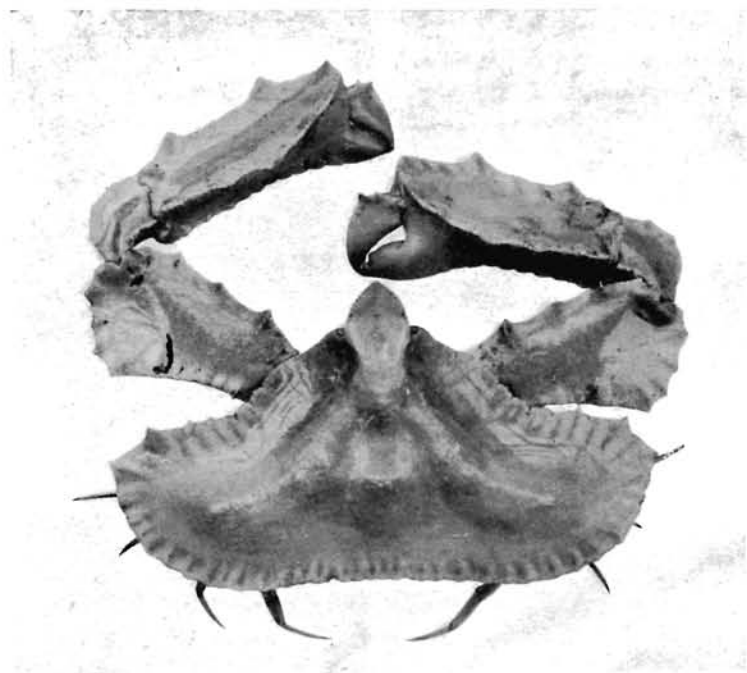


EXPLANATION OF PLATE XII.

Cryptopodia queenslandi, sp. nov. Male holotype. Once and one-half natural size.

Fig. 1.—Dorsal view.

Fig. 2.—Ventral view.



1



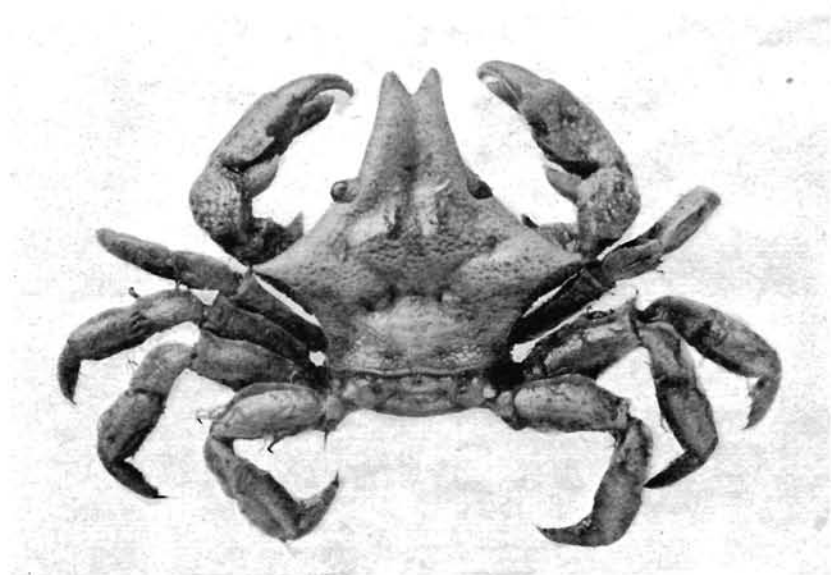
2

EXPLANATION OF PLATE XIII.

- Fig. 1.—*Eumedonus villosus*, sp. nov. Male holotype, dorsal view. Three times natural size. Hair removed to show rostral emargination.
- Fig. 2.—*Eumedonus vicinus*, sp. nov. Male holotype, dorsal view. Three times natural size.



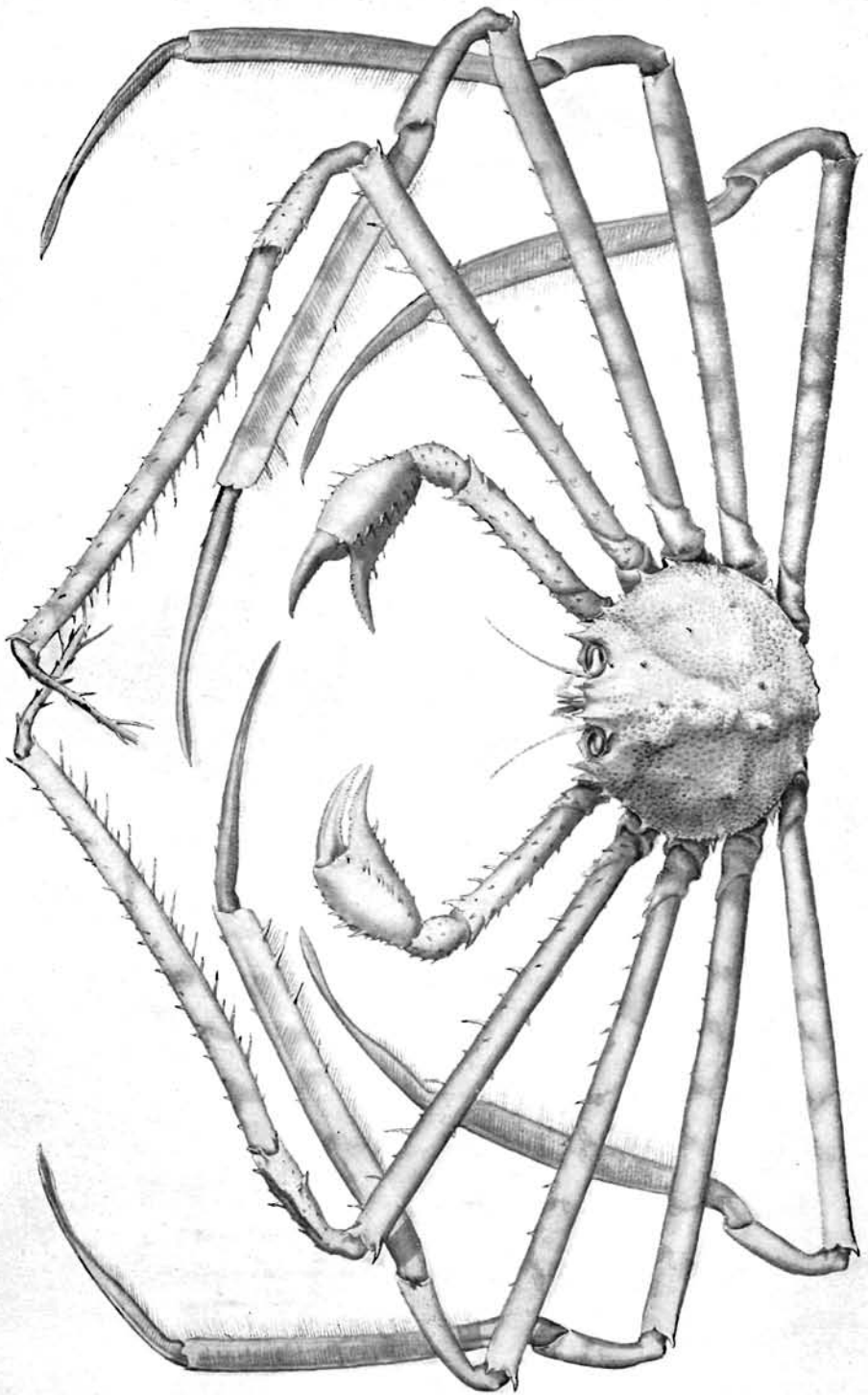
1



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EXPLANATION OF PLATE XIV.

Platymaia wyvillethomsoni, Miers. Male (E3694), dorsal view.
Once and one-third natural size.



EXPLANATION OF PLATE XV.

Ephippias endeavouri, Rathbun. Male holotype. One-half natural size.

Fig. 1.—Dorsal view.

Fig. 2.—Ventral view of body.

