

PILUMNUS ACER, *sp. nov.*

(Plate xxix.)

*Type-locality.*—Sixty to eighty miles west from Eucla, Great Australian Bight, 80-120 fathoms; E.3178; one male holotype, one ovigerous female.

*Additional localities.*—South-west of Eucla, about long. 127° E., Great Australian Bight, 80-120 fathoms; E.3663; one male.

Sixty to eighty miles west of Eucla, 80-120 fathoms; P.3564; one male, one ovigerous female.

*Measurements.*—Male holotype, total length of carapace 15.4, width without spines, measured behind the last pair, 20.4; width with spines 22.3 mm.

The gastric region and its three subdivisions are faintly outlined; a little deeper groove runs from the mesogastric region to the median sinus of the front. The dorsal surface of the carapace and appendages is covered with numerous hairs which are distinctly yellow in the specimens preserved in alcohol, and of different lengths, but on the whole rather long, and placed singly with few exceptions. The width of the front is less than half the length of the carapace; its large lobes are so deflexed that they do not show in a dorsal view, they are subtriangular, ends broadly rounded, outer slope longer than inner, edge obscurely granulate, as is also the upper margin of the orbit. This shows two small, subequal, rounded sinuses, and at the outer angle a slender spine. At the inner suborbital angle there is a slender spine springing from a conical base; on the lower margin there are also six or seven small spines or spinules, the outer of which is the largest and is separated by a V-shaped sinus from the exorbital spine. Suborbital region with one larger spine and one or two smaller spines and some spinules. Further back on the lateral border there are three slender horny spines set in larger, cylindrical sockets, from each of which spring behind the spine two or three hairs longer than the spine.

The two spines near the distal end of the arm are similar to those bordering the carapace, and are succeeded by a few spinules; lower margin with a few small tubercles,

inner margin with two unequal spines, surfaces punctate and nearly smooth. The ischium bears a few blunt spinules on inner margin. The carpus is armed with long spines (right 14, left 12) one of which is erect at the inner angle. In the male the outer surface of the large hand may be divided somewhat obliquely into two unequal parts, the upper and larger part spinous and hairy, the lower part smooth and naked; the spines are arranged in six rows and those of large size number about twenty, but toward the distal and lower borders the spines diminish in size, becoming conical tubercles. A patch of hair and blunt, spinous tubercles at base of dactylus above. The rows of spines and tubercles cover the outside of the small hand and are arranged in seven rows, of which two rows are continued slightly on the fixed finger.

In the female the larger hand is practically entirely covered outside with spines, which become smaller below.

The merus joints of the ambulatory legs have a row of several curved spines on the upper edge, the carpus has three long spines above, except in the last pair, only two.

*Relationships.*—This species is near *P. vestitus*, Haswell,<sup>15</sup> having the same shaped carapace and front, a border of spines, a spine at either end of orbit, a similar arrangement of spines on chelipeds and ambulatory legs. It differs from *vestitus* in having the hairs arranged singly instead of in bunches, in the fainter areolation, narrower and more deeply separated frontal lobes, in the character of the lateral spines whose bases are cylindrical, not conical, in the spines of the wrist few and long instead of numerous and short, in the longer ambulatory legs, with one or two more spines on each merus and much longer spines on the carpal segments.

The species also has a resemblance to *P. terra-regina*,<sup>16</sup> which has a granulate carapace, no spine outside the orbit, wrist rough with granules instead of spines, and unarmed legs.

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<sup>15</sup> Haswell—Proc. Linn. Soc. New South Wales, vi., 1881 (1882), p. 753.

<sup>16</sup> Haswell—*loc. cit.*, p. 752.

ACTUMNUS SETIFER (*de Haan*).

*Cancer (Pilumnus) setifer*, de Haan, Fauna Japon., Crust., 1835, p. 50.

*Cancer (Xantho) setifer*, de Haan, *op. cit.*, pl. iii., fig. 3.

*Actumnus setifer*, Alcock, Journ. Asiat. Soc. Bengal, lxvii., 1898, p. 202 [437], and partial synonymy.

Fifteen miles north-west of Cape Jervis, South Australia, 17 fathoms; E.4458; one female, 8.7 mm. long, 11.4 mm. wide.

Marsden Point, Kangaroo Island, South Australia, 17 fathoms; E.4465; one male, somewhat smaller than the female.

ACTUMNUS PUGILATOR, *A. Milne Edwards*.

(Plate xxvii., figs. 3-4.)

*Actumnus pugilator*, A. Milne Edwards, Nouv. Arch. Mus. Hist. Nat., Paris, ix., 1873, p. 195, pl. vii., figs. 1, 1a.

Eleven to fourteen miles north-west of Pine Peak, Queensland, 24-26 fathoms; E.3192; one female, with large Rhizocephalid parasite attached under the abdomen.

Platypus Bay, Queensland, 28/7/'10; P.3526; one female, carapace 16.3 mm. long, including lobes, 22.2 mm. wide.

Platypus Bay, Queensland, 5-9 fathoms; E.6489; one male, without chelipeds.

ACTUMNUS KINGSTONI, *sp. nov.*

(Plate xxx.)

*Type-locality*.—Forty miles west of Kingston, South Australia, 30 fathoms; E.4435; one female, thin shell, holotype.

*Measurements*.—Female holotype, length of carapace 14.2, width of same 19.2, fronto-orbital width 12.3, width of front, between antennæ, 6.3 mm.

*Description.*—Carapace moderately convex from side to side, and not strikingly so from front to back; covered with soft, uneven, and rather short hairs, which do not conceal the unevenness of the surface below; interregional grooves deep; gastric region divided into three; two areoles on the anterior branchial region. Middle lobes of front oblique, separated by a deep, narrow notch, edge sparsely and minutely spinulose; outer tooth triangular, tipped with a white spinule and separated by a right-angled sinus from the blunt, inner angle of the orbit. Upper margin of orbit hairy, feebly bi-emarginate, a small tooth tipped with a white spinule at outer angle; below this a broad V-sinus; lower margin sparsely spinulose; outer half transverse, inner half advancing gradually to the spine-pointed inner angle. A subhepatic spine a little longer than the outer orbital one. Behind it three conical, curved spines with sharp white tips.

Chelipeds of female unequal, the left palm two-thirds as high as the right; the exposed surface is hairy, except on the fingers; merus with two spines above, at, and near the distal end, upper and lower edges obscurely roughened, proximal end of inner margin as well as the inner margin of the ischium spinulose. The carpus and upper proximal half of the manus are armed with strong and rather sparse spines, which form the centres of clusters of hairs; on the carpus four or five of the spines run along the distal margin and the largest one is at the inner angle; on the lower, distal half of the manus the spines become smaller, more tuberculiform, and more numerous, reaching quite under the lower surface and part way on the immovable finger; this finger of the major chela is much broken, its lower line is continuous with the horizontal line of the palm until near the tip, which bends gradually upward; the dactylus has a deep groove a little below and parallel to the upper margin, the basal two-fifths of its upper surface is spinulose. The immovable finger of the minor chela is slightly deflexed before it turns upward at the tip; the spinulation and hairiness of the fingers are more extensive than in the larger chela.

Ambulatory legs covered with hairs like those on the carapace and also long hairs which are disposed chiefly along the margins.



*ACANTHODES ARMATUS, de Haan.*

(Plates xxxi.-xxxii., fig. 1 and Fig. 3.)

*Cancer (Acanthodes) armatus*, de Haan, Fauna Japon.  
Crust., 1835, p. 52, pl. B (part), pl. iv. Doflein,  
Abh. k. bayer. Akad. Wiss., Cl. ii., xxi., 1902,  
p. 661, pl. ii.

Fig. 3.—Abdomen of *Acanthodes armatus*, male.

South-west of Eucla, long  $126\frac{1}{2}^{\circ}$  E., Great Australian Bight, 130-190 fathoms; E.3674; one male; carapace, length 34.3 mm., width 38.1 mm.

South-west of Eucla, about long.  $127^{\circ}$  E., Great Australian Bight, 80-120 fathoms; E.3664; one young female; carapace, length 19.4 mm., width 21.5 mm.

Sixty to eighty miles west from Eucla, Great Australian Bight, 80-120 fathoms; E.3179; one young male; carapace, length 16.3 mm., width 18.8 mm.

The measurements do not include spines.

The smallest crab is very hairy and *Pilumnus*-like; hairs long and numerous, without concealing the surface. The hairs lessen with the growth of the animal, and in the larger male are rather scanty on the carapace. On the antero-lateral margin there are four long primary spines, the first of which is at the orbital angle; in the interspaces are three shorter spines, the first one a little below the marginal line. Above and subparallel to this row there is an irregular row of seven spines of which the first is near the orbit, the second is below the line, the fourth is largest, the seventh is opposite the post-lateral margin. In

addition there are three spines in a triangle on the epibranchial region and two on the hepatic region. There are in all nine gastric spines, in transverse series; two on each epigastric lobe, and on each protogastric lobe, and in line with the latter, a small mesogastric spine. Frontal marginal spines six, the middle pair largest, the outer pair situated at the angle of the orbit; behind them there is a row of four spines. There are two supraorbital spines besides the three already mentioned; suborbital spines five, the inner one much the longest, the others diminishing in size. Post-lateral regions rough with short spinules. A row of tubercles above the posterior margin.

Chelipeds unequal in all the specimens, but not much so; the armature is strong and similar. The spines of the legs are slenderer.

In the three small specimens handled the spines retain about the same proportion to the size of the crab. In the type figured (about natural size) by de Haan, *loc. cit.*, which is a female, not a male, as labelled, the spines of the appendages and of the margin of the carapace maintain about the same relative size as in the young, but the dorsal spines are reduced in size and the hairs of the carapace seem to have disappeared. Both chelæ are spinous as in the young.

In Doflein's figure (*loc. cit.*) which is of a much larger specimen, a male 15 cm. wide, all the spines are much reduced, some of them to spinules; the major cheliped has increased enormously while the minor one has remained stationary; the major chela is nearly smooth.

This species had not before been taken outside of Japanese waters.

Subfamily ERIPHIINÆ.

TRAPEZIA CYMODOCE (*Herbst*).

*Cancer cymodoce*, *Herbst*, *Naturl. Krabben u. Krebse*, iii., part 2, 1801, p. 22, pl. li., fig. 5.

*Trapezia cymodoce*, *Alcock*, *Journ. Asiat. Soc. Bengal*, lxxvii., 1898, p. 219 (454), and synonymy.

North-west Island, off Rockhampton, Queensland; E.4517; one male, one ovigerous female.

## Family PORTUNIDÆ.

## Subfamily CARCINIDINÆ.

NECTOCARCINUS INTEGRIFRONS (*Latreille*).

*Nectocarcinus integrifrons*, Haswell, Cat. Austral. Crust., 1882, p. 81, and synonymy.

Without locality; E.6493; one young male, 11.6 mm. wide.

The front of this species has a slight median emargination, which in the small specimen in hand is relatively larger than in well-grown specimens.

NECTOCARCINUS TUBERCULOSUS, *A. Milne Edwards*.

Ann. Sci. Nat. Zool. (4), xiv., 1860, p. 220; Arch. Mus. Hist. Nat., Paris, x., 1861, p. 405, pl. xxxvii.

Bay of Fires, Tasmania; E.6082; one male, with carapace 63 mm. long and 81.7 mm. wide.

Originally described from Tasmania.

## Subfamily PORTUNINÆ.

PORTUNUS (PORTUNUS) SANGUINOLENTUS (*Herbst*).

*Neptunus sanguinolentus*, Alcock, Journ. Asiat. Soc. Bengal, lxxviii., 1899, p. 32 [500], and synonymy.

Thirteen miles north by west of Double Island Point, Queensland, 25-26 fathoms; E.2051; one female. E.2052; one large male. P.2397; one very large male, 65.6 mm. long by 151.7 mm. wide.

The two males are uncommonly large specimens.

PORTUNUS (PORTUNUS) PELAGICUS (*Linnaeus*).

*Neptunus pelagicus*, Alcock, Journ. Asiat. Soc. Bengal, lxxviii., 1899, p. 34 [502], and synonymy, except *Neptunus trituberculatus*.

Thirteen miles north by west of Double Island Point, Queensland, 25-26 fathoms; E.2041; one large female, not mature, 59.6 mm. long, 129 wide (allowing for tip of left spine, which is broken off); granules high and numerous, set in dense pubescence.

Platypus Bay, Queensland, 5-9 fathoms; E.3108; one young male, half grown, carapace very pubescent, largely obscuring the granules.

Southern Queensland; E.3138; one very large male, 84.7 mm. long, 165.8 wide; granules of carapace distant, pubescence scanty, one small specimen of *Balanida* encrusting. P.3539; one large male, 72 mm. long, 149 wide; granules higher and a little more numerous than in E.3138, partly obscured by pubescence.

CHARYBDIS (CHARYBDIS) NATATOR (*Herbst*).

*Charybdis (Goniosoma) natator*, Alcock, Journ. Asiat. Soc. Bengal, lxxviii., 1899, p. 61 [529], and synonymy.

Seven miles south-south-east of Double Island Point, Queensland, 32-33 fathoms; E.2036; one male. Front deformed, second of the eight frontal teeth (counting from the left) somewhat reduced, sixth tooth showing only a very short stump; distal tooth of outer row on top of major manus wanting.

Platypus Bay, Queensland, 5-9 fathoms; E.3110; one female.

CHARYBDIS (CHARYBDIS) INCISA<sup>17</sup>, *sp. nov.*

(Plate xxxiii.)

*Type-locality*.—Off Point Inskip, Great Sandy Strait, Queensland, 10 fathoms; E.3151; one ovigerous female, holotype.

*Measurements*.—Female holotype, total length of carapace 17.3, extreme width 26, width at base of spine at lateral angle 23, fronto-orbital width 18, width between orbits 10.2 mm.

*Description*.—Belongs to the subgenus *Charybdis*, in which the antennal flagellum is excluded from the orbit, the ridge that bounds the dorsum posteriorly forms a curve with the postero-lateral borders, the posterior border of the arm lacks a spine, and to that division of the subgenus in which there are no distinct ridges on the carapace behind the level of the last spine of the antero-lateral borders.

<sup>17</sup> *Incisus*, cut into, referring to the cut into the first lateral tooth to form the second.

Three ridges present on carapace, one between the spines of the last pair, which is thrice interrupted, two gastric ridges, the posterior of which is interrupted at the middle, while the anterior one is broadly interrupted. Front cut into six rounded teeth, not including the inner supra-orbital angles; the middle two are slightly more prominent than the next pair, which are wider and somewhat oblique on their inner slope; outer pair least advanced, narrow and deeply separated from the second pair. Antero-lateral borders cut into six teeth, five of which are spiniform and similar, the sixth one a little longer. The second tooth is very small, dentiform, and is not salient beyond the outer slope of the first tooth, of which it seems to form an integral part. Orbit with a slight dorsal inclination; the major diameter is about two-fifths as wide as the inter-orbital distance; inner end of lower margin in the form of a broad, blunt tooth. A granular ridge on lobule at outer angle of basal segment of antenna.

Chelipeds of female stoutish, hairy on the depressed portions of the exposed surfaces. Three enlarged spines on anterior border of arm. Wrist with granular costæ on upper and outer surfaces, the inner angle strongly spiniform, three spinules near outer angle. Hand with five granular costæ, and on the upper surface five spines. Merus of last leg over twice as long as wide; posterior border of propodus spinous.

*Relationships.*—The species looks much like *C. spinifera* (Miers)<sup>18</sup>, but the latter has a wider carapace, the median pair of frontal lobes are not narrower than the submedian pair, the second tooth of the antero-lateral margin is of greater size and prominence, and the carpus of the last pair of feet has a strong spine on its posterior margin<sup>19</sup>, and the propodus is unarmed.

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<sup>18</sup> Miers—Rept. Zool. Coll. "Alert," 1881-2, London, 1884, Crust., p. 233, pl. xxiii., figs. C and c.

<sup>19</sup> Dr. Calman kindly examined the type of *spinifera* and sent sketches of the frontal teeth and the natatory leg for comparison.

CHARYBDIS (GONIOHELLENUS) TRUNCATA (*Fabricius*).

*Charybdis truncata*, Rathbun, Proc. U.S. Nat. Mus., xxvi., 1902, p. 27, and synonymy. Not *Charybdis* (*Gonioneptunus*) *truncata*, Alcock, Journ. Asiat. Soc. Bengal, lxxviii., 1899, p. 67 [535].

Seven miles north-north-east of Bowen, Queensland, 16 fathoms; P.3522; one ovigerous female. E.3103; two ovigerous females.

Platypus Bay, Queensland, 5-9 fathoms; E.3109; one ovigerous female.

Platypus Bay, Queensland; July 28, 1910; P.3524; one male.

The females are sensibly narrower than the male.

## Subtribe OXYSTOMATA.

## Family LEUCOSIIDÆ.

## MEROCRYPTUS LAMBRIFORMIS, A. Milne Edwards.

(Plate xxxii., figs. 2-3.)

*Merocryptus lambriformis*, A. Milne Edwards, Journ. Mus. Godeffroy, iv., Hamburg, 1873, p. 85, pl. xiii., figs. 1-1c. Whitelegge, Mem. Austral. Mus., iv., 1900, p. 162, and synonymy.

East of Bass Strait, 70-80 fathoms; E.4822; two males, four females (one ovigerous).

Twenty miles east of Babel Islands, Bass Strait, 65-70 fathoms; E.5162; one male, one female.

East of Babel Islands, Bass Strait, about 70 fathoms; E.5193; eleven males, thirteen females (four ovigerous).

Sixty to eighty miles west from Eucla, Great Australian Bight, 80-120 fathoms; E.3169; one male.

Carapace of largest male (E.5193) 10.8 mm. in total length, 14.3 mm. in total breadth. The same measurements for the female are 14.8 and 19.3 mm.

The protuberances of the carapace are more striking in the male than in the female. The cardiac prominence is conical in the male, dome-shaped in the old female; the gastric projections are of similar shape in the sexes, but longer and nearer to each other in the male. In the male the teeth of the posterior margin are larger and occupy the whole of the margin, in the female they are separated by a wide interspace. Frontal sinus deeper cut in male than in female.

In both sexes there are visible in dorsal view three small, acute teeth below the lateral border of the carapace, one on the subhepatic region and two just in front of the branchial wing.

*EBALIA TUBERCULOSA* (*A. Milne Edwards*).

(Plate xxxv., figs. 1-2.)

*Persephona tuberculosa*, A. Milne Edwards, Journ. Mus. Godeffroy, iv., Hamburg, 1873, p. 86.

*Phlyxia granulosa*, Haswell, Proc. Linn. Soc. New South Wales, iv., 1880, p. 54, pl. vi., fig. 3.

*Ebalia tuberculosa*, Miers, Challenger Rept., Zool., xvii., 1886, p. 306, pl. xxv., figs. 1, 1a. Whitelegge, Mem. Austral. Mus., iv., 1900, p. 161. Grant, Proc. Linn. Soc. New South Wales, xxx., 1905, p. 315.

Off Gabo Island, Victoria, about 200 fathoms; E.5197; three males, one female.

South-east of Cape Everard to south of Gabo Island, Victoria, 70-80 fathoms; E.6092; one ovigerous female. E.6093; one male.

South-east from Cape Everard, Victoria, 70-80 fathoms; E.6173; two females.

South of Cape Everard, Victoria, 80 fathoms; E.6165; one male, two females.

South and south-west of Mt. Cann, Victoria, 70-100 fathoms; E.6113; seven males, eight females (one ovigerous).

Forty miles south-south-west of Mt. Cann, Victoria, 70 fathoms; E.6484; three males, three females (one ovigerous).

East of Bass Strait, 70-80 fathoms; E.4821; fourteen males, eight females (two ovigerous).

Twenty miles east of Babel Islands, Bass Strait, 65-70 fathoms; E.5160; seven males, twenty females (eight ovigerous).

East of Babel Islands, Bass Strait, about 70 fathoms; E.5192; two males, six females (two ovigerous).

Sixty to eighty miles west of Eucla, Great Australian Bight, 80-120 fathoms; E.3170; two females. P.3556; one male.

Total length of male carapace (E.6484) 9.3, width 9 mm. Length of female (E.5160) 7.8, width 7.7 mm. Length of smallest ovigerous female (E.6484) 5.5 mm.

*Variation.*—Whitelegge (*loc. cit.*) mentions the variability in the granulation. Besides the varieties which he observed we have some specimens, part of E.4821, in which, regardless of sex, all the granules of the carapace are flat and disc-like, but many of them are as if crowded up to a higher level, making a very uneven surface. As a rule the carapaces with this surface have higher and rougher protuberances, while the smooth, evenly paved carapaces have low, smoothly rounded protuberances which more often in the female than in the male, may be almost obsolete on the branchial regions. Milne Edwards (*loc. cit.*) may have described such a specimen, as he does not mention branchial tubercles.

Regardless of the above characters, the posterior lobes are shallow in the female, protuberant in the male.

#### PHLYXIA INTERMEDIA, Miers.

*Ebalia (Phlyxia) intermedia*, Miers, Challenger Rept., Zool., xvii., 1886, p. 308, pl. xxv., figs. 2-2c.

Off Marsden Point, Kangaroo Island, South Australia; E.4518; one ovigerous female; length of carapace, between tips of spines, 7.8 mm.

Oyster Bay, Tasmania, 26 fathoms; E.5186; one immature female, length of carapace 10.2 mm.



In the larger specimen the posterior margin is straight; in the smaller one it is slightly convex; the two broad teeth thus formed are very obtuse angled. As Miers says, the largest of the lateral marginal tubercles is on the postero-lateral margin; of the smaller tubercles one is at the widest part of the carapace, forming a lateral angle, and another nearly half way to the hepatic protuberance. There is a suggestion of another tubercle in a slight marginal swelling a little behind the lateral angle. The only dorsal tubercle is that on the intestinal region in front of the posterior spine.

MYRA FUGAX (*Fabricius*).

*Myra fugax*, Alcock, Journ. Asiat. Soc. Bengal, lxx., 1896, p. 202, and synonymy. Ihle, Siboga-Exped., Monog. xxxixb<sup>2</sup>, 1918, p. 256, and synonymy.

Twenty miles north-east of Cape Gloucester, Queensland, 35 fathoms; E.3119; one female.

PHILYRA MURRAYENSIS, *sp. nov.*

(Plate xxxiv.)

*Type-locality*.—Off Murray River mouth, South Australia, 20 fathoms; E.4467; one adult female, holotype.

*Measurements*.—Female, total length of carapace 26, length of median line from margin to margin 25, width 25.7 mm., posterior margin between tips of teeth 10.5, anterior width between tips of subhepatic teeth 4.8 mm.

*Description*.—The edge of the buccal cavity shows very slightly beyond the front, but the anterior end of the subhepatic facet projects well beyond the outer angle of the orbit in a thick, blunt, suberect tooth. The posterior margin of the carapace is nearly straight and at either end has a small acute tooth pointing backward.

Carapace subcircular, nearly smooth; a furrow on either side of the cardiac region, depressions behind the front and each orbit; surface obscurely granulate, granules depressed, unequal, mixed with punctæ. Sinus above cheliped broad, obtuse angled. Four small lateral marginal tubercles, one at posterior end of sinus, one over base of first ambulatory

leg and at widest part of carapace, one over second leg and a short distance behind second tubercle, fourth and largest over base of last leg. A large, pointed, median tubercle on intestinal region just over posterior margin; this margin is rough with granulation.

The subhepatic facet is almost entirely visible from above; it has a strong tooth at its postero-external angle, and the anterior half has a granulate outer margin.

Front four-toothed, teeth thick, middle pair small, separated by a rectangular sinus, outer pair broad and shallow. Upper sinus of orbit deep.

Anterior portion of outer maxillipeds granulate and hairy. Chelipeds stout, smooth to the touch, finely granulate, the granules largest on the cylindrical merus; palms of female moderately swollen, greatest width two-thirds of upper or outer length; fingers longer than palm, deflexed, tapering regularly to tips and leaving a very slight opening at base when closed.

Of the ambulatory legs the merus joints are cylindrical, the propodus sharply carinate above, dactylus carinate on either side.

The unique holotype has a very large Rhizocephalid parasite enclosed within the abdomen.

*Relationships.*—The species differs from all others with straight posterior margin in having an acute backward-pointing tooth at the ends of that margin. Compare remarks by Miers<sup>20</sup> on the species related to *P. rectangularis*.

### Family CALAPPIDÆ.

#### CALAPPA LOPHOS (*Herbst*).

*Calappa lophos*, Alcock, Journ. Asiat. Soc. Bengal, lxx., 1896, p. 144.

Seven miles north-north-east of Bowen, Queensland, 16 fathoms; E.3095; one female.

Eight miles east of Sandon Bluffs, New South Wales, 35-40 fathoms; E.2031; one male.

<sup>20</sup> Miers—Zool. "Alert," Crust., 1884, pp. 546-547.

Male, extreme length of carapace 74.3, extreme width 115 mm.; female, extreme length of carapace 39, extreme width 53.7 mm. The specimens show a range in length from not quite two-thirds the extreme width in the old to nearly three-fourths the extreme width in the half grown.

The marginal teeth in the old male resemble those figured by de Haan<sup>21</sup>.

In the small female, the lateral teeth of the wings of the carapace are shallow and obtuse angled; the posterior margin of the last of these teeth is shorter than the corresponding margin of the adjoining tooth of the posterior border of the carapace. The reverse is true in the old male. These characters are varietal and not sexual.

#### MATUTA PLANIPES (*Fabricius*).

*Matuta planipes*, Fabricius, Ent. Syst., Suppl., 1798, p. 369; Rathbun, Proc. U.S. Nat. Mus., xxvi., 1902, p. 30.

*Matuta lunaris*, Alcock, Journ. Asiat. Soc. Bengal, lxx., 1896, p. 161, not *Cancer lunaris*, Herbst, 1783.

Off Point Inskip, Great Sandy Strait, Queensland, 10 fathoms; E.3152; one large male.

#### Family DORIPPIDÆ.

##### DORIPPE DORSIPES (*Linnaeus*).

*Dorippe dorsipes*, Alcock, Journ. Asiat. Soc. Bengal, lxx., 1896, p. 277, and synonymy.

Platypus Bay, Queensland, 5-9 fathoms; E.3114; one female.

Twenty-five miles south-east of Double Island Point, Queensland, 33 fathoms; E.4466; one male.

Extreme length of male carapace 29, width 27.2 mm. Extreme length of female carapace 31, width 32 mm.

<sup>21</sup> de Haan—Fauna Japon., Crust., pl. xx., fig. 1.

CYMONOMOPS SIMILIS, *Grant*.

(Plate xxxv., figs. 3-5.)

*Cymonomops similis*, Grant, Proc. Linn. Soc. New South Wales, xxx., 1905, p. 315, pl. x., fig. 1.

Off Babel Islands, Bass Strait, 50-80 fathoms; E.4818; one male, two ovigerous females.

Twenty miles east of Babel Islands, Bass Strait, 65-70 fathoms; E.5161; one male, one ovigerous female.

Largest male (E.4818), total length of carapace 6.2, width 5.8 mm. Largest female (E.4818), total length of carapace 6.6, width 7 mm.

The chelipeds of the male are similar to those of the female, but more unequal (E.4818), both chelipeds of the measured female being the size of the left or larger cheliped of the measured male. In this male the first left ambulatory leg is reduced in length considerably below that on the right side, especially noticeable in the merus. The male abdomen is very small, extremity semicircular and apparently fused with the fifth segment. Eggs large, about .6 mm. in diameter.

## Subtribe DROMIACEA.

## Family LATREILLIIDÆ.

LATREILLIA AUSTRALIENSIS, *Henderson*.

*Latreillia australiensis*, Henderson, Challenger Rept., Zool., xxvii., 1888, p. 24, pl. ii., figs. 4-4b. Whitelegge, Mem. Austral. Mus., iv., 1900, p. 165.

East of Bass Strait; E.4799; two males. E.6143; one male, and two ovigerous females.

Off Babel Islands, Bass Strait, 60 fathoms; E.6150; four males, one ovigerous female.

Twenty miles east of Babel Islands, Bass Strait, 65-70 fathoms; E.5166; one male.

South-eastern Australia; E.4401; one female.

These specimens show a variation in the length of the supraorbital spines from two-thirds as long to just as long as the ocular peduncles. They are inclined obliquely upward with a slight curve (convex dorsally), except the tip, which is straight and a little upturned.

Antennæ not so long as antennules, although they over-reach the peduncle of the latter.

Chelæ of male as long as those of female, but stouter, palm widening considerably to distal end; the fingers when closed leave an oval gape at base.

Propodus of last pair of legs half as long as carpus; dactylus, when flexed, opposed by a single spine and some spinules on the propodus.

The male has a spine on the second segment only of the abdomen.

LATREILLOPSIS PETTERDI, *Grant*.

(Plate xxxvi.)

*Latreillopsis petterdi*, Grant, Proc. Linn. Soc. New South Wales, xxx., 1905, p. 317, pl. x., figs. 2, 2a, 2b. McCulloch, Rec. Austr. Mus., vi.-5, 1907, p. 353, pl. lxxv.

South of Gabo Island, Victoria, 120-275 fathoms; E.4396; one large male with well-developed chelæ.

Off Gabo Island, Victoria, 80-100 fathoms; E.4776; one male, medium size. E.4777; one male. E.4778; one young male.

South of Gabo Island, Victoria, 200 fathoms; E.6210; one male with well-developed chelæ.

East of Babel Islands, Bass Strait, 65-70 fathoms; E.5139; one female. E.5140; one immature female.

Off Babel Islands, Bass Strait, 50-300 fathoms; E.4786; one female. E.4787; one male, medium size. E.4788; one male, medium size. E.4789; one ovigerous female, encrusted with serpulids. E.4790; one male, medium size. E.4791; one female, immature.

East-north-east of Maria Island, Tasmania, 127-180 fathoms; E.5171; one young female. E.5172; one young female. E.5173; one young male. E.5174; one young, the smallest specimen taken.

Thirty-five miles south-east of Bruni Island, Tasmania, 150-230 fathoms; E.5128; one male, largest specimen taken. E.5129; one male. E.5130; one male. E.5131; one male with well-developed chelæ. E.5132; one male with rostrum abnormal, reduced to a minute spine. E.5133; one male. E.5134; one male. E.5135; one male. E.5136; one male, medium size. E.5137; one male, medium size. E.5138; one ovigerous female. E.5156; one young female.

South-east of Eucla, long.  $130^{\circ} 50'$  E., Great Australian Bight, 250-300 fathoms; E.3685; one male, medium size.

South of Eucla, long.  $129^{\circ} 6\frac{1}{2}'$  E., Great Australian Bight, 200-300 fathoms; E.3658; two large ovigerous females.

South-west of Eucla, long.  $126^{\circ} 45\frac{1}{4}'$  E., Great Australian Bight, 190-320 fathoms; E.3691; one young male.

Seventeen and one-half miles south-east of Rame Head, Victoria, 76 fathoms; E.2234; one ovigerous female, encrusted with serpulids, sponge and polyps.

Seventeen miles south-east of Rame Head, Victoria, 76 fathoms; P.2941; one ovigerous female, with encrusting serpulids.

Largest male (E.5128): Length of carapace to tip of rostrum 82, greatest width of carapace 65, width between anterior subhepatic spines 46.3, length of eye and stalk 18.5, greatest diameter of eye 7.3, greatest length of propodus of cheliped 69.2, superior length of same 42.6, height of same 24.3, thickness of same 22.1, length of dactylus of same 32.3, approximate length of first ambulatory leg 270, approximate length of second ambulatory leg 295, approximate length of third ambulatory leg 320; approximate length of last leg 190 mm.

Largest female (E.3658): Length of carapace to tip of rostrum 56.8, greatest width of carapace 42, greatest length of propodus of cheliped 35.6, superior length of same 22.2, height of same 3.8, thickness of same 3.2, length of dactylus of same 13.6 mm.

This species was described by its author from a single small specimen only 9 mm. long. In the "Endeavour" collection there is a fine series of thirty-four specimens ranging from 18.6 to 82.4 mm. in length of carapace. Some modifications of the original description therefore need to be made to fit the adult.

The *linea anomurica* is well marked in its posterior half, except near the posterior margin; the anterior half is less distinct.

The supraocular horns possess, besides an inner sub-terminal tubercle or spinule and two large outer spines, an outer spinule further from the tip than the inner one, and may have also a dorsal spinule further back and a fourth spinule on the outer margin of the anterior of the spines. The horns are relatively longer in the young than in the old.

In the following table all the measures are of males and are taken to the bottom of the sinus between horn and rostrum:—

Reg. No.	Sex.		Carapace Length.	Rostrum Length.	Horn Length.
E.5173	Male	....	20.2	5.6	12.6
E.3691	Male	....	23.6	6.4	15.6
E.4776	Male	....	31.6	7.3	15.8
E.5135	Male	....	43	10	23
E.5131	Male	....	51.3	12	23
E.5128	Male	....	69.6	14	28

The surface of the carapace is covered with a short pubescence which is formed of single, acorn-shaped vesicles and embraces the granules and tubercles with which the carapace is roughened as well as the intervening spaces.

The chelipeds are stout in the adult male, slender in the female and young male; arms rough with tubercles and granules arranged mostly in longitudinal rows, and with a row of five spines above. Wrist furnished with larger tubercles and with granules. The palms of the female are slender and weak and remain so with age; they are almost cylindrical, very slightly flattened and of nearly uniform width, except at the articulations. The male, on the contrary, shows a slender palm, only until the carapace (including rostrum) measures about 3 cm. in length, in one case 4 cm. (E.3685). It then changes by widening gradually to the distal end (E.4788), but soon grows more swollen, at first rather uniformly so throughout its length (E.4776), at the same time being a little compressed. It then becomes more and more swollen in the middle until in the largest specimen (8 cm.) the palm is remarkably inflated, its height in the middle 24.3 mm., its thickness in the middle 22.1 mm.

In both sexes the palms are covered with unequal granules, the largest of which are arranged in irregular rows. Fingers longer in male than in female, colour black, not reaching quite to either end. In the old male the fingers gape narrowly in the basal half; in the gape the dactyl has a truncate tooth, and nearer the palm the immovable finger has a low, rounded lobe.

On the three following legs, besides the upper and lower rows of spines, there are other spines and sharp spinules or tubercles. The carpus and propodus are finely roughened with small, slender, horny spines, moving in sockets. The dactylus is armed with six rows of horny spines, two rows above reaching to the dark-coloured tip, a short row at the proximal end on the lower margin and on the inner and outer faces.

The merus of the last pair of legs has three rows of spines and some scattered spinules, the only superior spine is at the distal end. The carpus and propodus are roughened as in the preceding legs, and the propodus has besides two rows of spines between which fits the row of spines on the dactylus.

The abdomen of the male is about two-thirds as wide as that of the female. The first, second, third, fourth and sixth segments each bear a median spine or tubercle; the third, fourth and sixth segments bear also a spine on each side. In the female the terminal segment is invaginated in the penultimate, a small lobe on each side of the latter being produced, but not attached, alongside the proximal end of the terminal segment.

HOMOLA ORIENTALIS, *Henderson*.

(Plate xxxvii.)

*Homola orientalis*, Henderson, Challenger Rept., Zool., xxvii., 1888, p. 19, pl. ii., figs. 1, 1a. Whitelegge, Mem. Austral. Mus., iv., 1900, p. 163. Doflein, Abhand. k. bayer. Akad. Wiss., ii. Cl., xxi., iii. Abth., 1902, p. 651, pl. iv., figs. 5 and 6.

*Homola barbata orientalis*, Doflein, Brachyura Valdivia, vi., 1904, p. 14, pl. v., figs. 4 and 5.

Off Gabo Island, Victoria, 80 fathoms; E.4774; one young female.



Off Gabo Island, Victoria, 80-100 fathoms; E.4775; one male.

South from Cape Everard, Victoria, 80-120 fathoms; E.3135; one male. P.3538; one female.

Twenty-five miles south of Cape Everard, Victoria, 82 fathoms; E.6122; one male. E.6123; one male.

South of Mt. Cann, Victoria, 50-80 fathoms; E.4804; one ovigerous female.

South and south-west of Mt. Cann, Victoria, 70-100 fathoms; E.6101-6108; six males, two females.

Twenty miles east of Babel Islands, Bass Strait, 65-70 fathoms; E.5164; one ovigerous female.

East of Babel Islands, Bass Strait, 65-75 fathoms; E.5142; one male. E.5143; one male. E.5144; one male. E.5145; one male.

Off Babel Islands, Bass Strait, 50-300 fathoms; E.4792; one male.

Twenty miles off Babel Islands, Bass Strait, 50-70 fathoms; E.6137; one male. E.6138; one ovigerous female.

To the differences given by Doflein between typical *H. barbata* and *orientalis* may be added the shorter, broader ambulatory legs of the latter, especially noticeable in the width of the merus. No intergrading forms were noted.

#### Family DROMIIDÆ.

In attempting to fit the species of Dromiidæ into the genera of Borradaile's revision<sup>22</sup> of the family, emphasis has been placed on the presence or absence of an epipodite on the cheliped, and the approximation or separation of the ends of the sternal sulci of the female. Of the four genera represented in the collection, *Dromidiopsis* and *Petalomera* have an epipodite, *Dromidia* and *Cryptodromia* have none; in *Dromidiopsis* and *Dromidia* the sternal sulci end together; in *Petalomera* and *Cryptodromia* they end apart. Some of the other characters which have been given to these genera are not dependable, such as the knobbed or ridged legs and the thorn on the dactyl of the last leg.

<sup>22</sup> Borradaile—Ann. Mag. Nat. Hist. (7), xi., 1903, pp. 297-303.

DROMIDIOPSIS EDWARDSI, *Rathbun*.

*Dromia caput mortuum*, Milne Edwards, Hist. Nat. Crust., ii., 1837, p. 178. Not *Cancer caput mortuum*, Linnæus, 1766.

*Dromidia caput-mortuum*, de Man, Arch. f. Naturg., liii., i., 1887 (1888), p. 393, pl. xvii., figs. 5, 5a.

*Dromidiopsis caput-mortuum*, Borradaile, Ann. Mag. Nat. Hist., (7), xi., 1903, p. 299.

*Dromidiopsis caput-mortuum*, Ihle, Siboga-Exped., Monog. xxxixb., 1913, p. 28, and synonymy except reference to Linnæus.

*Dromidiopsis edwardsi*, Rathbun, Proc. Biol. Soc. Washington, xxxii., 1919, p. 197.

Seven miles north-north-east of Bowen, Queensland, 16 fathoms; E.3136; one male.

Twenty-five miles south-east of Double Island Point, Queensland, 33 fathoms; E.4473; one female.

Length of carapace of male on middle line 78.2, greatest width 82.2 mm. Length of female 24.6, width 26 mm.

The male specimen corresponds very well with de Man's description (*loc. cit.*) of a somewhat smaller male. The first antero-lateral tooth, however, is different on the two sides; on the right side it is united with the so-called second tooth in a broad, truncate lobe; on the left side it is conical, subacute, and the second tooth is obsolete.

The young female resembles the male in most respects; it has, however, a subacute tooth, instead of a lobe, on the supraorbital margin; the epistome is more prominent and the tooth at either end is acute instead of tuberculiform. The sternal sulci are as described by Ihle, *op. cit.*, pp. 28-29.

The species does not quite agree with Borradaile's definition of the genus (*op. cit.*, p. 298); the carapace is broader than long, the efferent branchial ridges though distinct are broken, the fifth leg though longer than the fourth is not nearly so long as the third, overlapping only slightly its propodal segment.

DROMIDIOPSIS EXCAVATA (*Stimpson*).

(Plate xxxviii.)

*Dromidia excavata*, Stimpson, Proc. Acad. Nat. Sci., Philadelphia, x., 1858, p. 239 [77]; Smithson. Misc. Coll., xlix., 1907, p. 172.

*Dromia excavata*, Haswell, Cat. Austral. Crust., 1882, p. 140.

*Dromia ciliata*, Henderson, Challenger Rept., Zool., xxvii., 1888, p. 3, pl. i., figs. 1-1c. Ihle, Siboga-Exped., Monog. xxxixb., 1913, p. 89.

Between Port Stephens and Newcastle, New South Wales, 22-60 fathoms; P.2133; one male.

Shoalhaven Bight, New South Wales, 15-45 fathoms; P.2132; one male under a compound ascidian.

Twofold Bay, New South Wales, 30 fathoms; E.6085; one male.

South of Mt. Cann, Victoria, 50-80 fathoms; E.4803; one male.

South and south-west of Mt. Cann, Victoria, 70-100 fathoms; E.6111; one female under a compound ascidian.

Bass Strait; E.1338; one ovigerous female. E.1339; one ovigerous female. E.5199; one male. E.6133; one female under a large, heavy sponge (? *Suberites*).

Twenty miles off Babel Islands, Bass Strait, 50-70 fathoms; E.6136; one male under a compound ascidian.

Off Marsden Point, Kangaroo Island, South Australia, 17 fathoms; E.802; one male, one female (male under a simple ascidian). E.4475; one male. P.2312; one female under a compound ascidian.

Fifteen miles south of St. Francis Isles, South Australia, 30 fathoms; E.4468; one female.

Bay of Fires, Tasmania, 53 fathoms; E.6162; one ovigerous female under a compound ascidian.

Largest male (P.2133): Length of carapace 31, width 33.5 mm. Largest female (E.6133): Length of carapace 29.5, width 31.6 mm. Diameter of eggs about 2 mm.

In dorsal view the transverse fringe of longish hairs across the carapace just above the hepatic regions almost conceals the front. In front view we see in a subvertical plane a little more than a quarter section of a disc, the circumference of which is the fringe of hair above mentioned, and the straight sides, also fringed, run along the outer margins of the subhepatic region to a point between the ischiurns of the outer maxillipeds; this section, therefore, encloses the frontal and subhepatic regions, the orbits, the antennæ and the merus and a small part of the ischium of the maxillipeds.

At the distal end of the propodus of the last pair of legs there is a small spine at the outer base of the dactylus; on the outer surface of the propodus of the penultimate pair there are two small spines at the base of the dactylus. One of these spines on the penultimate leg may be suppressed, while sometimes there may be a second, small, supplementary spine on the last leg.

The sternal sulci of the female are convergent, and terminate on a protuberance opposite the bases of the ambulatory legs of the first pair.

*DROMIDIA AUSTRALIS, sp. nov.*

(Plate xxxix.-xl., fig. 1.)

*Type-locality.*—Sixty to eighty miles west from Eucla, Great Australian Bight, 80-120 fathoms; E.3165; one ovigerous female, holotype. E.3164; one immature female.

*Additional localities.*—South of Mt. Cann, Victoria, 55-70 fathoms; E.6077; one male.

Bass Strait; E.6132; one male covered by a large porous sponge.

*Measurements.*—Length of carapace of female holotype, on median line, 27.3, width 29 mm., diameter of egg 2 mm. Length of immature female (E.3164) 15.5, width 15.8 mm.

Length of carapace of male (E.6132) on median line 29.3, width 33.7 mm. The other male is larger, but the carapace is broken; it is about 35.3 mm. long.

*Description of the female.*—Body and legs covered with a very short pubescence; a longer fringe of hair borders the carapace, chelipeds, legs and abdomen. Cervical suture

well marked, also the short curved groove either side of the cardiac region and the median groove on the frontal region. Three frontal teeth of similar shape, acute, median tooth much depressed and little visible in dorsal view. Three orbital, sub-spiniform teeth, one inner, suborbital, two supraorbital, the outer of which is separated by a fissure from a small suborbital lobe. Antero-lateral margin leading to the orbit and not to the buccal cavity, armed with four spiniform teeth, of which the first two are largest and subequal, and the last one smallest. A slightly projecting tooth behind the notch at the cervical suture.

The basal segment of the antenna bears a flat, inward-pointing spine at its antero-internal angle. At either end of the epistome there is a small, sharp spine, while the neighbouring angle of the buccal cavity is spiniform. On the same margin where the outer angle of the maxilliped fits, there is a tubercle. When the maxillipeds are in place a subtriangular opening remains, leading to the efferent branchial channel.

Merus of chelipeds unarmed; carpus with three distal prominences; a spine on proximal half of upper margin of right palm, two pointed tubercles on left palm, a tubercle at articulation with dactylus. Fingers gaping when closed. Carpus of first and second walking legs with a small tubercle at the distal end just below upper margin. These legs are shorter than the cheliped; last leg much longer than the preceding but shorter than the second ambulatory. On the propodus of the first prehensile leg there are two long spines opposing the dactylus (which flexes between them) and two small spines on the posterior surface near the base of the dactylus. On the propodus of the last leg are likewise two small spines, but only one large spine forming a chela with the dactyl; furthermore, on the outer edge of the dactyl itself there is a spine, which is contrary to Borradaile's definition of the genus. This spine is present on the left leg but has been broken off the right leg. In the immature specimen they are well developed on both sides.

The sternal sulci meet opposite the first pair of walking legs. In the immature female their extremities are further apart and do not reach beyond the line of the walking legs of the second pair.

*Description of the male.*—The males have such a different aspect from the females that on first examination they were thought to be a different species. The males are larger but are not more convex with the increase in size; the additional width forms a flattened, and in the widest part, even a slightly upcurved rim, which adds to the appearance of moderate convexity. The median tooth of the front is more deflexed than in the female, and in the smaller of the males is invisible in dorsal view. The spacing of the antero-lateral teeth is not just the same as in the type female, but neither does it correspond in the two males.

The details of the antennal and buccal areas and of the chelipeds and legs are the same in the two sexes, excepting that the upper border of the palm has always two, in one case three, tubercles. In the larger male the propodus of the right last leg shows three spinules in place of the customary two. In the smaller male the right penultimate leg and the left last leg are abnormally reduced and the latter is devoid of a spine on the dactylus.

The sixth segment of the abdomen has a shallow sinus in the lateral margins.

*Relationship.*—Allied to *D. cranioides*, de Man,<sup>23</sup> which is more rotund, with furrows very ill defined, lateral teeth of front smaller, no tooth or spine at outer angle of orbit, antero-lateral margin bent down so that it is directed towards the suborbital tooth, and there is no spine on dactyl of last leg.

*DROMIDIA INSIGNIS, sp. nov.*

(Plate xl., figs. 2-3.)

*Type-locality.*—South and south-west of Mt. Cann, Victoria, 70-100 fathoms; E.6112; one female, holotype.

*Measurements.*—Female, length of carapace on median line 16.6, width 17.5 mm.

*Description.*—Surface, except on portions of the fingers, covered with a coarse, spatuliform pubescence, which is short and close, except on the abdomen and maxillipeds and the margins and ridges of the carapace and legs. Carapace very

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<sup>23</sup> de Man—Journ. Linn. Soc. London, Zool., xxii., 1888, p. 208, pl. xiv., figs. 6-8.

high, its border having an antero-lateral angle on either side. Between these angles there is an irregular row of small pits or depressions in the pubescence which are to be seen only when viewed from before. A deep median depression on the frontal region; a short, deep furrow each side of the cardiac region, ending anteriorly in a pit, where it meets the well-marked cervical suture; another furrow passes behind the cardiac region and forward to the cervical notch; intestinal region depressed, from it a furrow runs laterally just in front of the posterior margin.

Median tooth of front narrow, acute, and so deflexed that only the tip is visible from above; lateral teeth widely separated, their outer margins continued by a rounded sinus to a tooth at the inner angle of the orbit; this frontal border is conspicuously fringed with long setæ. A fissure marks the outer angle of the orbit; while a triangular, pointed tooth occupies the greater part of the lower border. The anterior part of the antero-lateral margin is concave, the remainder is convex; the two parts meet at a blunt, obtuse angle. There is a slight tooth behind the cervical suture, otherwise the lateral margin is entire.

The edge of the epistome is nearly horizontal; the outer tooth is broadly triangular.

Chelipeds rather small, shorter than the first two pairs of walking legs. The carpus and manus are ornamented with about four longitudinal rows of elongated setæ which simulate ridges. The pubescence on the fingers forms a triangle on their outer faces, the margins bare and white. The propodal finger has four large prehensile teeth, two of which are terminal and fit tight against the tip of the dactylus. The dactylus is flat outside except its upper margin, which forms a raised rim.

The first two ambulatory legs are rather narrow; their carpal and propodal segments are ornamented similarly to those of the cheliped. The fourth leg is slender, much longer than the third but not so long as the second. The propodus of the third, very short, leg has at its distal end, besides the spine which forms a chela with the dactylus, three small, slender spines or spinules on the outer surface. The propodus of the last leg has a spine at each of its distal angles, that at the lower angle very little shorter than the other, which forms a subchelate arrangement with the dactylus.

The sternal sulci end not far apart on a line with the intervals between the cheliped and the next leg.

*Relationships.*—This species has much in common with *Dromidia spongiosa*, Stimpson<sup>24</sup>, which, according to the author's figure, has no antero-lateral angle, but a regularly rounded margin; otherwise the features of the anterior and lateral margins appear to be similar. In *spongiosa* the legs of the last pair are broader, and both prehensile legs are devoid of the supplementary spines characteristic of *insignis*.

CRYPTODROMIA OCTODENTATA (*Haswell*).

(Plate xli.)

*Dromia octodentata*, Haswell, Proc. Linn. Soc. New South Wales, vi., 1881 (1882), p. 755; Cat. Austral. Crust., 1882, p. 140. Fulton and Grant, Proc. Roy. Soc. Victoria, n.s., xix., 1906, p. 20. Baker, Trans. Roy. Soc. S. Australia, xxxi., 1907, p. 179, pl. xxiii., fig. 4.

Off Marsden Point, Kangaroo Island, South Australia, 17 fathoms; E.800; one female. E.801; one male. E.4474; one female. P.2309; one male. P.2311; one female.

Fifteen miles south of St. Francis Isles, South Australia, 30 fathoms; E.4469; one female.

Off Sanders Bank, Kangaroo Island, South Australia, 28 fathoms; E.6271; one male.

South Australia; E.4471; one female.

This species differs from Borradaile's description of *Cryptodromia* in that the walking legs are not knobbed or ridged and there is a thorn on the outer side of the dactylus of the last leg.

The following description is taken almost entirely from manuscript prepared by Mr. A. R. McCulloch:—

“A series of eight specimens, 20-64 mm. wide, shows the same variation as noted by Baker in the armature of the antero-lateral borders of the carapace and the upper margin of the hand.

<sup>24</sup> Stimpson—Smithson. Misc. Coll., xlix., 1907, p. 171, pl. xx., fig. 1.



"The carapace is broader than long, and strongly convex. It is covered with coarse, erect hairs, which have a brush of minute lateral setæ near their tip. The cervical groove is usually distinct, sometimes rather indefinite. A median longitudinal groove between the orbits, and a broad, shallow one on each side of the cardiac region. Front cut into three teeth, of which the middle one is on a much lower plane than the others; in the smallest specimens it is directed downward, and in the other projects somewhat forward. The outer teeth form the inner orbital angle.

"The orbits have a conical tooth in the centre of their upper border, which is sharper on the young. The outer angle is prominent, sometimes forming a tooth, and below it there is a V-shaped notch which may be broad, or very narrow. Inner angle of the suborbital lobe dentiform. The antero-lateral borders are armed with four or five teeth which are variable, the small specimens having four and the larger ones four or five; in some examples the fourth tooth is replaced by a blunt lobule, while others have a small denticle at the base of the fifth tooth. Posterolateral borders slightly convergent, and they have either a blunt tooth, or a lobule immediately behind the cervical groove.

"The subhepatic region is swollen into an obtuse pyramidal projection. The antero-external angle of the buccal cavern is spiniform, and there is a conical tubercle a little farther back. A broad spiniform tubercle projects obliquely inward and backward on the basal antennal joint, and both the inner and outer angles of the second joint are produced. The ischium of the external maxillipeds is longer than broad, and is divided anteriorly; its surface is slightly hollowed. The merus is pentagonal, and is much longer than broad, the outer surface is usually somewhat sinuous. The palp is attached below the anterior internal angle. The exopod is about three and one-half times as long as broad, and its greatest width near the base is about half that of the merus."

The inner and outer edges of the ischium and merus of the chelipeds bear rows of rounded tubercles. The inner angle of the wrist is armed with a large obtuse spine, and the antero-internal edge bears, in the larger specimens, rounded tubercles. The crests of the hands bear from one to seven similar tubercles. The last two pairs of legs

chelate. The penultimate legs always have two large spines facing the dactyli, and sometimes several other smaller spines. The last pair usually have only one large spine, that facing the dactylus; on the outer side of the dactylus a little way from the base there is a small spine, the tip of which may be broken off.

The abdomen of both sexes consists of seven free segments, and has a broad raised ridge along the middle line. The last segment in the male is triangular, and the penultimate one is deeply excavated on either side. Those of the female decrease regularly in breadth from the third to the seventh. The sternal sulci of the female end wide apart just behind and close to the articulation of the chelipeds. The eggs are very large and numerous, being 2 mm. in breadth.

PETALOMERA LATERALIS (*Gray*).

*Dromia lateralis*, Gray, Zool. Misc., 1831, p. 40.

*Cryptodromia lateralis*, Stimpson, Proc. Acad. Nat. Sci. Philadelphia x., 1858, p. 226 [64]; *Smithson. Misc. Coll.*, xlix., 1907, p. 174, pl. xx., fig. 3. Thomson, *Trans. New Zealand Inst.*, xxi., 1898, p. 170, pl. xx., figs. 1 and 2. Alcock, *Cat. Ind. Dec. Crust.*, *Brachyura*, 1901, p. 77, and synonymy.

*Petalomera lateralis*, Borradaile, *Ann. Mag. Nat. Hist.*, (7), xi., 1903, p. 301.

Sixty to eighty miles west from Eucla, Great Australian Bight, 80-120 fathoms; E.3163; one ovigerous female.

South and south-west of Mt. Cann, Victoria, 70-100 fathoms; E.6110; one male.

Twenty miles off Babel Islands, Bass Strait, 50-70 fathoms; E.6140; one female.

Length of carapace of female (E.6140) 17.2, width of same 19.7 mm.

The sternal segments of the female end far apart, opposite the first pair of ambulatory legs.

PETALOMERA LAMELLATA (*Ortmann*).

(Plate xlii., figs. 2-3.)

*Cryptodromia lamellata*, Ortmann, in Semon, Zool. Forschungsr. Austral. u. d. Malay. Arch., Jena. Denkschr., viii., 1894, p. 34, pl. ii., fig. 8.

East-north-east of Maria Island, Tasmania, 57-75 fathoms; E.5151; one male.

Length of carapace of male 10.3, width of same 13 mm.

The carapace is coarsely granulate near the anterior and antero-lateral margins. An epipod is present on the cheliped, and in other respects the species conforms to the definition of *Petalomera*.

PETALOMERA DEPRESSA (*Baker*).

*Cryptodromia depressa*, Baker, Trans. Roy. Soc. South Australia, xxxi., 1907, p. 180, pl. xxv., figs. 1-1b.

Fifteen miles south of St. Francis Isles, South Australia, 30 fathoms; E.4470; one male.

Length of carapace of male 25.6, width of same 27.3 mm.

The species has an epipod on the cheliped and is akin to *lateralis*, which Borradaile puts in *Petalomera*. *P. depressa* has certain characters contrary to his definition of the genus, viz., the walking legs are knobbed, not sharply ridged, and the sternal grooves of the female are, according to Baker, *op. cit.*, p. 181, situated between the coxæ of the chelipeds instead of between those of the ambulatory legs of the first pair.

PETALOMERA WILSONI (*Fulton and Grant*).

(Plate xlii., fig. 1.)

*Cryptodromia wilsoni*, Fulton and Grant, Proc. Roy. Soc. Victoria, n.s., xv., 1902, p. 61, pl. ix.

*Dromia pseudogibbosa*, Parisi, Atti. Soc. Ital. Sci. Nat., liv., 1915, p. 5, pl. ii., figs. 1 and 2.

Between Port Stephens and Newcastle, New South Wales, 22-60 fathoms; E.279; one male, one ovigerous female.

Shoalhaven Bight, New South Wales, 15-45 fathoms; P.2140; one female.

Thirty-three miles south-east from Green Cape, New South Wales, 470 fathoms; E.3149; one female.

Five to ten miles south-east of Rame Head, Victoria, 66-68 fathoms; E.2239; one male.

Off Cape Everard, Victoria, 80 fathoms; E.6071; one male.

South of Mt. Cann, Victoria, 55-70 fathoms; E.6078; two males.

South and south-west of Mt. Cann, Victoria, 70-100 fathoms; E.6109; one female.

From sixty miles south of Diana's Peak to about forty miles south of Mt. Cann, Victoria, 70-80 fathoms; E.6087; one male.

East of Flinders Island, Bass Strait; E.5671; two immature females.

Twenty-four miles south-south-east of Eagle Nest, Bass Strait, 45 fathoms; E.6072; one male.

Bay of Fires, Tasmania, 53 fathoms; E.6161; one young, 4.5 mm. long by 5.6 wide, under a thin, conical fragment of sponge.

Oyster Bay, Tasmania, 26 fathoms; E.5183; three males, one female.

Forty miles west of Kingston, South Australia, 30 fathoms; E.4477; one male, two females. E.4478; one female. E.4479; one male. E.4480; one male, five females.

South Australia, E.4476; three males, one female.

The following description was prepared by Mr. A. R. McCulloch:—

“All parts except the tips of the fingers and dactyli are thickly covered with tomentum.

“The carapace is much broader than long, and is convex. The tomentum forms pits and strong ridges, which define the regions very clearly, but when it is cleaned away they become less conspicuous. There is a row of small circular pits starting from between the second and third teeth of the anterolateral borders and stretching obliquely forwards, meeting between the orbits. These pits cannot be seen at all when the tomentum is taken off, but there is a distinct but flat ridge which they follow. The front is cut into three teeth, the centre one being very small, acute, and on a much lower plane than the two outer ones, which are large, obtuse and form the inner supra-orbital angle. There is a deep, or well-marked, median groove between these teeth.

"The orbits are large. There is a large tooth in the middle of the upper orbital border, which is joined by a very slight curve to the large obtuse tooth at the inner supraorbital angle; these two together form a considerable projection over the orbit. The suborbital border is denticiform, and is easily seen in a dorsal view, it being situated outside the large projection of the upper border. The outer angle seems to form a continuous line, but if the tomentum be scraped away it shows that the borders are separated by a groove. The antero-lateral borders are cut into four teeth, the first being the smallest and on a much lower plane than the other three, it being on a slightly lower level than the outer orbital angle. The second and third are large, the distance between them being distinctly less than that between the first and second or third and fourth. The latter is small, and is situated behind the cervical groove. There is a small tubercle, which may either be acute or very flat, on the ridge behind the cervical groove, and almost at the base of the fourth tooth. Postero-lateral borders are slightly convergent and are convex.

"There is a small acute tubercle on the subhepatic region situated midway between the first tooth of the antero-lateral border and the endostome, and another smaller one at the base of the suborbital lobe.

"The crest of the merus of the cheliped bears a few small granules under the tomentum. The carpus is nodular, and at the inner angle there is a sharp tubercle covered by a tuft of long silky hairs. The tomentum on the outer surface of the hand forms longitudinal ridges. Both the inner and outer surfaces of the movable and immovable fingers are strongly grooved, and along these grooves the tomentum grows. The inner surface of the hand and fingers, and the lower edge of the merus, bear the long silky hairs already mentioned. There is a space between the fingers at their base. In some specimens they meet only at the tips, while in others they meet the last half of their length. There are seven or eight teeth along their outer borders, which interlock perfectly when the fingers are closed.

"The first and second ambulatory legs bear strong spinular nodules on their carpi and propodi. Both the third and fourth pairs are flattened, and have no nodules; the fourth pair being dorsally situated."

The sternal sulci of the female end far apart in a line between the coxae of the first and second ambulatory legs.

EXPLANATION OF PLATE XVI.

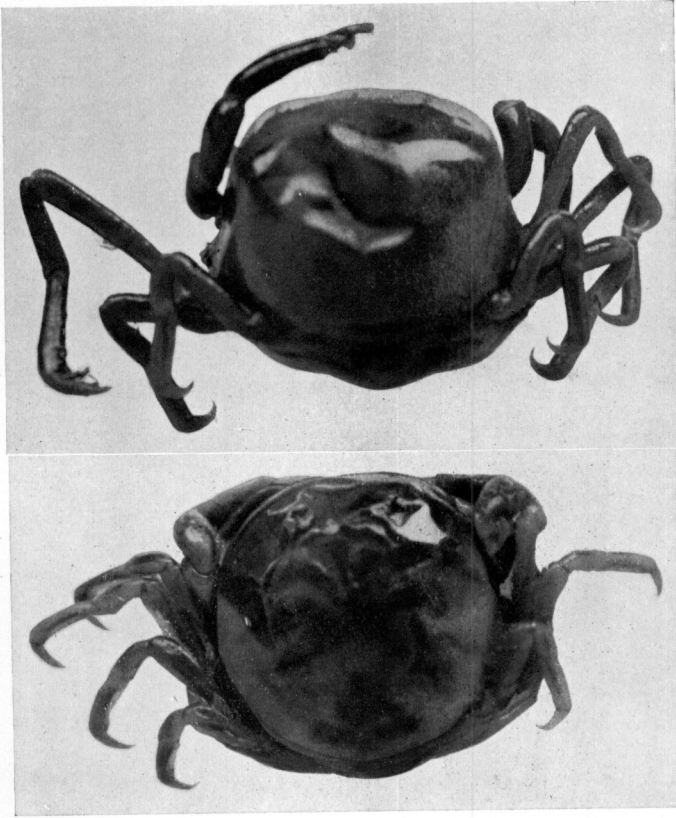
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*Pinnotheres subglobosa*, Baker. Female (E.4519). Carapace  
7.8 mm. wide.

Fig. 1.—Dorsal view.

*Pinnotheres novæzelandiæ*, Filhol. Female (E.5676).  
Carapace 8.5 mm. wide.

Fig. 2.—Dorsal view.



C. R. SHOEMAKER photo.

EXPLANATION OF PLATE XVII.

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*Pilumnoplax heterochir* (Studer). Male (E.6211). Carapace 11 mm. wide.

Fig. 1.—Dorsal view.

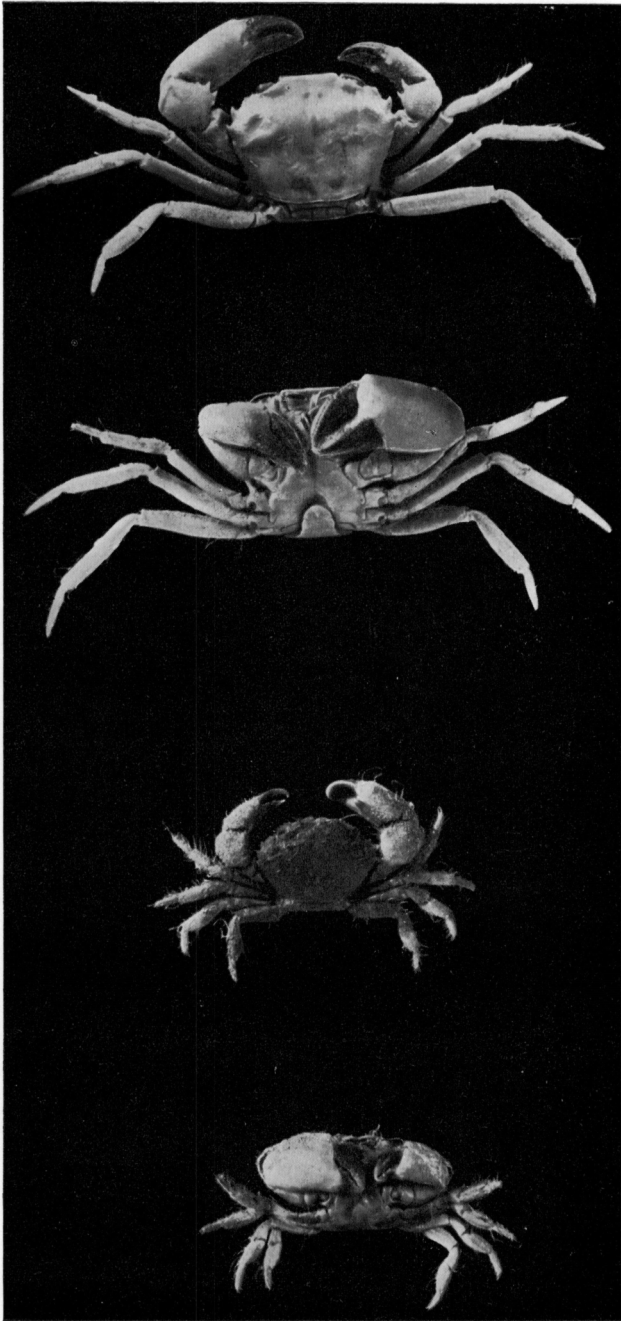
Fig. 2.—Ventral view.

*Pilumnus fissifrons*, Stimpson. Male (E.3184). Carapace 8 mm. wide.

Fig. 3.—Dorsal view.

Fig. 4.—Ventral view.





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G. C. CLUTTON, photo.

EXPLANATION OF PLATE XVIII.

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*Carcinoplax meridionalis*, sp. nov. Male holotype. Carapace 30.2 mm. wide.

Fig. 1.—Dorsal view.

Fig. 2.—Right chela.

Fig. 3.—Ventral view.

*Carcinoplax meridionalis*, sp. nov. Female (E.6117). Carapace 30.4 mm. wide.

Fig. 4.—Ventral view.