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## DONATIONS.

Archives Neerlandaises des Sciences Naturelles Vol. 16, part 2.

Journal of Conchology for Dec. 1879 and Jan. 1881.

On Fossil Chilostomatous Bryozoa from South West Victoria,  
by A. W. Waters, F.G.S.

## PAPERS READ.

## DESCRIPTION OF SOME NEW SPECIES OF AUSTRALIAN DECAPODA.

By WILLIAM A. HASWELL, M.A., B.Sc.

1. *Paramithrax Coppingeri*, *sp. nov.*

Carapace armed in the middle line with four spines, the first two large and placed near one another on the middle of the gastric region; the remaining two small, and situated near the posterior border; between the two pairs, on the cardiac region a transversely-placed pair of divergent spines, the bases of which nearly meet in the middle line. Two prominent spines directed upwards, backwards, and outwards on each branchial region. Rostral cornua very long, slender, and slightly knobbed and incurved at the extremity. Upper orbital border with three straight, acute, spinous teeth, behind which are two post-orbital spines separated by deep fissures from one another and from the upper orbital border; the posterior spine the larger, broad, compressed, and obliquely truncate. A prominent, sometimes sub-bifid tooth behind this on the border of the hepatic region. Basal joint of the external antennæ with a short tooth at the proximal end of its outer border, with a very prominent compressed tooth directed outwards at the distal end of the same border, and a third, somewhat smaller, directed downwards and forwards at the inner and distal angle; flagellum longer than the cornua of the rostrum. Merus of chelipedes armed above with four compressed teeth of which that situated at the distal end is very prominent; carpus with two denticulated crests. First pair of ambulatory legs a little longer than the chelipedes; all the

ambulatory legs armed at the extremity of the merus with a long, slender, cylindrical spine which (like the spines of the carapace) is slightly knobbed at the apex. Length one inch.

Port Molle, Whitsunday Passage. (W.A.H., H.M.S. "Alert.")

This species belongs to the same section of the genus as *P. aculeatus*, *P. longispinus*, *P. spatulifer*, *P. acanthotus*, *P. verrucosipes*, and *P. halimoides*; its nearest ally being *P. longispinus*, De Haan, from which it is distinguished by having none of the supra-orbital spines recurved. In the structure of the antennary region it approaches *Chlorinoides*, mihi, but like the rest of the species mentioned has the ambulatory legs much shorter than in that genus.

### 2. *Euxanthus maculatus*, sp. n.

Surface strongly embossed, the bosses prominent, rugose or punctate. Front deflexed, bilobed. Supra-ciliary border very thick. Anterior half of antero-lateral border entire, posterior with three indistinct teeth. Chelipedes very rugose externally, hand with longitudinal rows of pits on its outer surface. Ambulatory legs granular. Colour light red with darker blotches.

Darnley Island, Torres Straits (Macleay Museum).

### 3. *Carpilodes granulosus*, sp. n.

Carapace very broad, convex, strongly embossed anteriorly, covered with extremely minute granulations, and with a few scattered punctations, more numerous near the anterior and antero-lateral borders; inter-lobular grooves well-marked; proto-gastric lobes divided by a longitudinal groove; epi-gastric lobes prominent, distinctly marked off from the proto-gastric; meso-gastric prolonged to a point between the latter, the grooves defining it prolonged backwards to join the branchio-gastric groove; gastric region well separated from the cardiac. Front four-lobed, the outer lobes very small. Antero-lateral borders divided into four teeth. Chelipedes sub-equal, ornamented with

a few scattered punctations. Carapace light brown with darker blotches; fingers of the chelipedes of a dark brown, which is prolonged a little on the inner and outer surfaces of the propodos.

Torres Straits (Macleay Museum).

4. *Cycloxanthus punctatus*, *sp. n.*

Carapace with the regions well defined, ornamented with scattered punctations; front very prominent, entire, deflexed; antero-lateral borders forming a re-entering angle with the front, strongly arched, with four faintly-marked lobes. Chelipedes closely pitted externally, so as to appear reticulated. Ambulatory legs compressed, ornamented with scattered punctations; terminal joint with four longitudinal ribs or carinæ.

Parramatta River (Macleay Museum).

5. *Liomera maculata*, *sp. n.*

Carapace very wide, convex, smooth and shining, punctate close to the anterior border, the regions but faintly indicated. Front rather deeply incised, the lobes rounded. Antero-lateral margins with three obscure lobes, the last marked off behind by a short groove, and separated from the second by a longer and deeper groove. Internal angle of lower orbital border tooth-like. Hand with a few longitudinal rows of minute punctations on its outer surface; fingers pointed. Ambulatory legs smooth and shining, the upper and lower borders of the terminal joint tomentose. Carapace and legs light cream colour, the former ornamented with numerous round red spots, and with three large more diffuse blotches on the anterior portion; fingers light brown except at the base, which partakes of the general ground colour; ambulatory legs each marked with two transverse bands of red.

Endeavour River (Macleay Museum).

6. *Pilumnus Terræ-Reginæ*, *sp. n.*

Carapace convex, ornamented with scattered stiffish hairs, a patch of small granulations on the mesobranchial regions, and a

few others on the gastric region. Front rather deeply incised. Antero-lateral borders with three prominent, acute, spiniform teeth behind the orbital angle. Carpus of chelipedes with a few granules on the outer surface, more prominent on the smaller chelipede; hand ornamented with numerous rounded granules externally, more prominent and pointed on the smaller hand; a row of obscure granules on the lower border of the merus and hand of the smaller chelipede; two or three obsolescent granules in the same position in the larger chelipede. Ambulatory legs with scattered stiffish hairs. Length  $\frac{1}{4}$  inch; breadth  $\frac{1}{8}$ . Colour reddish purple on the carapace; light red on the legs; fingers brown.

Port Molloe.

The nearest ally of this species appears to be *P. purpureus*, A. Milne-Edwards, from which it is mainly distinguished by having the granulations on the carapace always numerous and small, instead of few and large.

#### 7. *Pilumnus vestitus*, *sp. n.*

Allied to the preceding, and resembling it exactly in the form of the front and the arrangement of the lateral spines or teeth; but distinguished from it by having the surface without distinct granules, and by having the tubercles of the chelipedes few in number and mostly spiniform. Carapace and legs covered with stiff yellow hairs. Surface of carapace mottled with red or purple. Fingers dark brown. Length  $\frac{1}{2}$  inch; breadth  $\frac{1}{2}$ .

Port Jackson; Port Stephens.

#### 8. *Caphyra octodentata*, *sp. n.*

Carapace colourless, thin, smooth, and shining. Front notched mesially, divided into four pairs of teeth, of which one occupies the internal orbital angles, and is separated from the inner three by wide angular fissures. Antero-lateral borders with four

acute teeth; a very obscure raised line crossing the carapace inwards and slightly backwards from the last tooth. Merus of chelipedes with three or four small acute teeth on its inner border; carpus with an acute prominent spine above; propodos carinated above, the carina divided into two teeth, of which the posterior is very acute; external surface of the propodos with an acute spine at its base.

Palm Island (East coast of Queensland), (Macleay Museum).

This species is allied to *C. lewis*, A. Milne-Edwards, but differs from it in having only four teeth on each lateral border; from *C. rotundifrons*, of the same author, it differs in having the front dentate, and from *C. polita*, Heller, in not having a ridge on the gastric region, besides other points.

9. *Hymenosoma australe*, *sp. n.*

Carapace sub-orbiculate, the length (exclusive of the rostrum) a little less than the greatest breadth. Rostrum prominent, deflexed, its upper surface concave from side to side, bordered laterally by a raised ridge, which terminates near the extremity in a slight enlargement; extremity in the form of an obtuse angle. Lateral borders of the carapace with two obscure teeth. Chelipedes of the male extremely large; propodos dilated, smooth, rather sharp-edged below; fingers gaping at the base. Chelipedes of female small; hand not dilated; fingers straight. Length  $\frac{1}{2}$  in.

Williamstown, Port Philip.

10. *Phlyxia Petleyi*, *sp. n.*

Carapace rhomboidal, in general outline similar to that of *P. lambriformis*. Front emarginate; antero-lateral borders with three conical teeth, the first rather larger than the others, a fourth smaller tooth at the junction of the antero-lateral and postero-lateral borders; postero-lateral border with three compressed conical teeth; three prominent, sub-equal, conical teeth behind,

the mesial tooth situated above the other two, the latter situated immediately above the insertion of the abdomen. Upper surface closely granulated, a broad smooth longitudinal ridge on the gastric region, followed by a row of three conical tubercles; on either side of the posterior portion of the mesial ridge, an ovoid tubercular eminence, with the long axis longitudinal; branchial region with a few small tubercles. Arm, carpus, and propodus closely granulated, the granules on the first coarser than those on the two last; dactyli finely toothed, incurved at their points. Abdomen (female) covered with flat granules, a small tooth in the middle of the distal border of the composite segment.

Port Mollo (Whitesunday Passage), fourteen fathoms.

A second, smaller, male specimen from the same locality, differs from this mainly in having the upper surface of the carapace free from granulations.

#### 11. *Dromia australiensis*, *sp. n.*

Carapace longer than broad, evenly convex above, covered, together with the under-surface and limbs, with adpressed hairs. Front strongly deflexed, three-toothed, the mesial tooth small, rounded, directed downwards, not visible when the carapace is viewed from above, the lateral teeth more prominent, obtuse. Upper orbital margin very prominent, forming a rounded lobe; infra-orbital tooth prominent, conical. Antero-lateral border convex, with three teeth, the first of which is the largest, while the other two are sub-equal and rudimentary; a small tooth behind the cervical groove. Chelipedes slightly nodose. Length 1 inch; breadth  $\frac{1}{2}$  inch.

Port Denison; Port Jackson.

#### 12. *Dromia octodentata*, *sp. n.*

Carapace broader than long, evenly convex, shining, ornamented with numerous minute pores. Frontal teeth sub-equal, conical, the middle one directed downwards, a conical tooth about the

middle of the upper orbital margin; infra-orbital tooth rather prominent. Antero-lateral border with four small conical teeth, the first separated by a short interval from the external orbital angle, and by a nearly equal distance from the second; third small, separated from the second by about twice the distance which separates the first two; fourth larger than the third, separated from it by an interval similar to that between the first and second; a little in front of the third tooth is a low rounded tubercle. An acute tooth immediately behind the cervical suture. An acute tooth at the distal end of the upper border of the carpus; hand with a row of about half-a-dozen granules above. Length  $1\frac{1}{2}$  in. in.; breadth  $1\frac{1}{8}$  in.

Adelaide (Australian Museum).

13. *Dromia sculpta*, *sp. n.*

Carapace about as broad as long, ornamented, as well as the limbs, with numerous rounded granules, but free from conspicuous hairs; gastric and anterior branchial and hepatic regions very prominent, tuberculated, each of the tubercles capped with a group of granules. Front very prominent, with three teeth, of which the mesial is the smallest, is triangular and sub-acute, directed slightly downwards, but quite visible when the carapace is viewed from above; lateral teeth each with an accessory denticle on its outer border (representing the supra-orbital tooth). External orbital and infra-orbital teeth rudimentary. Carpus of chelipedes with two prominent conical spines near the distal end of its upper surface; three similar spines or teeth on the upper surface of the hand, two close above the insertion of the dactylus, the third at the proximal end. Merus, carpus, and propodus of ambulatory limbs ornamented with a few short blunt spines or tubercles, and with a few scattered, short, hooked hairs. Segments of the abdomen (except the last) each ornamented with four compressed tubercles. Length of carapace  $\frac{1}{2}$  in.

Port Jackson, in a few fathoms of water; Port Stephens.



14. *Dromia conchifera*, sp. n.

Carapace longer than broad, nearly flat above, very slightly convex. Lateral borders entire with the exception of a small tooth situated some distance in front of the transverse groove, and separating a convex antero-lateral portion from a longer postero-lateral portion, which is slightly concave in front and slightly convex posteriorly. Front tridentate, bordered with minute granules, the mesial tooth excessively minute, the lateral teeth dorso-ventrally compressed, triangular, acute; well developed supra-orbital and infra-orbital teeth. Under surface of the body and limbs rather closely covered with granules. Carpus of chelipedes with a prominent conical projection on its outer surface, and a smaller one internal to the first; hand ornamented with longitudinal rows of granules, two rounded tubercles above the insertion of the dactylus. Carpus of ambulatory limbs, except the last, each with a small conical tooth; fourth pair shorter than the third, but very stout, the carpus broad and flick with a deeply excavated "palm," bounded by a stout conical tooth set a right angles to the axis of the joint; dactylus very powerful, strongly curved, rather longer than the propodos. Whole surface covered with a short close green pubescence; dactyli and granules tinged with crimson. Length  $\frac{11}{16}$  in.; breadth  $\frac{3}{8}$  in.

Port Denison, five fathoms; Port Molloe, fifteen fathoms.

This species has the curious habit of protecting itself with the valve of a lamellibranch, which it holds tight over its back by means of its unusually powerful and specially adapted fourth pair of ambulatory legs.

15. *Petrolisthes inermis*, sp. n.

Carapace longer than broad, rather flat above, obscurely lineolate behind and at the sides. Front rather prominent, triangular, with a deep longitudinal mesial furrow. Anterior

legs rather depressed, the carpus as long as the carapace, its anterior border acute, with a low tooth near its proximal end, its posterior border with two teeth, the second at the distal end, the first near it. Ambulatory legs transversely lineolate, free from teeth or spines. Length  $\frac{3}{4}$  in.; breadth  $\frac{1}{2}$  in.

Port Denison (Mr. Alex. Morton).

16. *Porcellana pulchella*, sp. n.

Carapace oval in outline; surface very obscurely lineolate; lateral margins entire. Front broad, nearly straight, but with a very obscure mesial lobe; inner orbital angles very slightly projecting. Chelipedes large, the right the larger; carpus strongly tuberculated above, armed with two conical teeth internally; propodos ornamented externally with four longitudinal ridges, strongly tuberculated in the smaller chelipede, nearly smooth in the larger, and separated by deep sulci. Ambulatory legs with a few obscure granules above. Length of carapace  $\frac{1}{2}$  in. Colour cream colour, with six rounded orange spots on the carapace, and others on the chelipedes and ambulatory limbs.

Holborn Island, twenty fathoms; Port Mollo.

This species is allied to *P. sculpta*, Milne-Edwards, but differs from it in having two teeth on the anterior border of the carpus; from *P. pisum* it is distinguished by the possession of the flat tubercles on the carpus, and the longitudinal sulci on the propodos.

17. *Porcellana nitida*, sp. n.

Carapace a little longer than broad, closely lineolate. Front prominent, trilobed, the central lobe much larger than the others, triangular, the lateral lobes very small; two acute teeth behind the orbit, and a rounded lobe on the lateral border a little further back. Carpus of chelipedes a little longer than broad, smooth, with a sharp entire internal crest; propodos smooth, narrow; fingers hooked and crossing one another at the tips. Length  $\frac{1}{2}$  in.

Port Denison, five fathoms.

18. *Porcellana viginispinosa*, sp. n.

Carapace faintly lineolate; front trilobed, the middle lobe sub-acute, more prominent than the lateral, which are obscure; four minute acute spiniform teeth on the lateral border just behind the eye, the last of the four the largest; further back and separated by an interval from these are six more acute teeth, the first three very small, the last three larger. Left chelipede larger than the right; merus strongly crested internally, the crest armed with one or two obscure denticles; carpus with a sharp crest, divided into three teeth in its proximal portion, entire in its distal portion; propodus rounded, smooth. Length  $\frac{1}{2}$  in.

Holborn Island, twenty fathoms (Mr. Alex. Morton).

19. *Porcellana corallicola*, sp. n.

Carapace slightly tuberculated at the sides; the regions well marked. Front not prominent, triangular, with a deep longitudinal mesial furrow, its anterior border ornamented with minute denticles which are sometimes acute, sometimes obtuse. Lateral borders with four or five minute spine-like denticles situated about the middle of the branchial region. Carpus and propodus of chelipedes fringed externally with hairs, flat above, curved below; internal and external borders of carpus armed with a row of acute denticles; upper surface with three longitudinal rows of granules separated by sulci; hand compressed, triangular, with rows of granules; fingers compressed, granular, their inner borders nearly straight, their apices scarcely hooked. Length  $\frac{3}{4}$  in.

Port Mollo, on coral reefs.

20. *Porcellana transversa*, sp. n.

Carapace much broader than long, nearly smooth, lineolate behind, the regions faintly defined; protogastric lobes prominent.

Front not prominent, nearly straight; lateral margins entire, scarcely crested. Merus of chelipedes transversely lineolate, hairy; carpus one and a half times as long as broad, fringed with hairs on its inner border, which projects in the form of a crest, nearly smooth above; propodos thickly clothed with hairs externally, a longitudinal granular line at its lower border, running to the end of the immobile finger, which has a conical tooth at the base of its cutting edge, and is strongly hooked at its apex; mobile finger with a granular hairy ridge above, a slight conical tooth at the base of its cutting edge, and with the apex strongly hooked and acute. Length  $\frac{1}{8}$  in.; breadth  $\frac{1}{4}$  in.

Bowen; found by Mr. Alex. Morton in the siphons of an *Aspergillum*.

21. *Calcinus terro-regino*, sp. n.

Surface of carapace and limbs ornamented with scattered punctations. Eyes slender, longer than the front of the carapace; basal scale slender. Left chelipede somewhat swollen, smooth; hand with a row of small granules below; fingers widely gaping, obscurely toothed internally. Right chelipede with the carpus and hand compressed, slightly granulate externally, and with a few scattered hairs; hand strongly cristate above, the crest divided into five strong teeth; mobile finger with three or four small teeth above. Carpus of the second and third legs with a minute acute spine at the distal end of its upper border. Ambulatory legs with a few scattered fasciculi of hairs. In specimens preserved in spirits the chelipedes (with the exception of the fingers and the carpus of the ambulatory legs) are green; the fingers are colourless; the propodos of the ambulatory legs is light dull red; the basal portion of the dactylus dark purple, the distal portion light yellow with a black tip. The rest of the surface is washed with light brown and olive. Length about one inch.

Claremont Islands, Queensland Coast, on coral reef.

22. *Galathea corallicola*, sp. n.

Nearly allied to *G. australiensis*; distinguished from it by the absence of the spines on the gastric region, by having the frontal region rather narrow, the eyes longer, and the hands both longer and broader and with very few spines. In some specimens the hands are broader than in others, and the fingers gape widely. Length about  $\frac{1}{2}$  in.

Port Mollo, Queensland, under blocks of dead coral between tide marks.

23. *Galathea magnifica*, sp. n.

Carapace and rostrum nearly as in *G. corallicola*, but the latter relatively shorter. Eyes more prominent than in *G. corallicola*, but not so thick. Chelipedes very small, about  $\frac{2}{3}$  rds of the length of the body, slender; fingers not gaping. Length  $\frac{1}{2}$  in. Colour bright red, with a brilliant purple stripe down the centre of the carapace; legs ornamented with transverse bands of darker red and purple; fingers dark reddish brown, yellow at the tips.

A number of specimens of this remarkable species were obtained with the dredge in a depth of about twenty-five fathoms, off Broughton Islands, near Port Stephens.

24. *Galathea aculeata*, sp. n.

Allied to *G. corallicola* in the form of the carapace and rostrum, but with the central spine of the latter very long, projecting far beyond the others. Chelipedes longer than the body, with few spines, the propodos short and narrow, the fingers not gaping. Length  $\frac{1}{2}$  in.

Holborn Island, twenty fathoms; Port Mollo, fourteen fathoms.

25. *Galathea deflexifrons*, sp. n.

Closely allied to *G. elegans*, distinguished from it only by having the rostrum distinctly deflexed, and the denticle on its borders almost obsolete. Colour dark purple.

Albany Passage, among *Comatulids*.

26. *Gebia spinifrons*, *sp. n.*

Front divided into three parts by two deep lateral longitudinal grooves, which extend on the upper surface of the carapace, becoming shallower posteriorly and bending slightly outwards; the mesial portion of the front much more prominent than the lateral portions, and forming a triangular rostrum with a narrow mesial longitudinal groove above; lateral portions each with two small acute teeth below near their extremity; cephalic region of the carapace marked with numerous transverse scabrous lines beset with hairs; anterior border, below the lateral frontal process, and behind the base of the antennæ, with three prominent acute spines; two others on the outer portion of the antennary sternum; three smaller close together in a longitudinal row on the hepatic region parallel with and close below the lateral border; and a row of 2-10 others bordering the lateral portions of the cervical groove behind. First three pairs of legs having the merus armed below with a variable number of acute spines; first pair also armed with a row of spines on the upper border of the propodos and carpus, and a single spine on the upper border of the merus near the distal extremity; second pair with a single spine on the upper border of the carpus, and two near the distal end of the upper border of the merus. Length 3 in.

Port Stephens, eight fathoms.

27. *Alpheus Comatularum*, *sp. n.*

Carapace broad, somewhat depressed. Rostrum very long, one-third of the length of the carapace, slender and acute, continued backwards over a third of the length of the carapace as an acute, prominent, arched crest. A prominent, acute supra-orbital spine more than one-third of the length of the rostrum. External antennæ with two acute spines at its base, the outer very large. Basal spine of internal antennæ long, acute. Propodos of large hand swollen, smooth; immobile finger nearly straight, with a hairy protuberance at the base of its inner border;

mobile finger compressed, slightly hooked at the end, with a large recurved tooth on its trenchant border at the base. Length  $1\frac{1}{2}$  in. Carapace with longitudinal stripes of brownish purple, with a narrow mesial white line, which is continued on the two first abdominal segments; at the sides three short white markings. Abdomen with broad brownish purple and narrow white lines; bases of antennæ purple; longitudinal stripes of purple on the ambulatory legs. Large hand marked with longitudinal lines of light brown, bordered by narrow darker bands.

Dredged in a few fathoms of water in Albany Passage, near Cape York, Queensland, during the cruise of H.M.S. "Alert," in those waters. They were invariably found clinging to the arms of a species of *Comatulid* to which their markings gave them a general resemblance. Other commensals of these *Comatulids* were *Galathea deflexifrons*, and an undescribed species of *Cymothoid* the latter usually esconcing itself in the stomach of its host, its head projecting out of the mouth.

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