

FURTHER NOTES ON AUSTRALIAN POLYPLACOPHORA WITH  
DESCRIPTIONS OF THREE NEW SPECIES.

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PLATE XXXI. (in part).

Family ISCHNOCHITONIDAE, Dall.

Subfamily ISCHNOCHITONINAE, Pilsbry.

Genus ISCHNOCHITON, Gray.

*Ischnochiton tindalei*, n. sp.

Pl. xxxi., figs. 4a, 4b, 4c.

I am indebted to Sir Joseph Verco, Hon. Curator of Mollusca of the South Australian Museum, for the opportunity of describing this new *Ischnochiton*, which was collected by Mr. N. B. Tindale, of the same Museum, after whom I have pleasure in naming it. It was obtained at Groote Eylandt, in the Gulf of Carpentaria.

*General Appearance*.—Shell broad, valves arched but showing a slight angle at jugum, side-slope curved. Colour, Vinaceous Brown (Ridgway, pl. xl.).

*Anterior Valve*.—Is evenly and closely covered with spaced, circular, convex grains, which are exceptionally even in size, although a little smaller near the apex and a little larger near the margin; the interspaces are a little darker than the granules themselves; four broad, shallow, concentric growth-ridges are present in the type.

*Median Valve*.—Is arched, slight angle at jugum, dorsal area ill-defined, the arrangement of the granules and grain markings is longitudinal near the jugum, the granules are raised and circular, commencing small near the jugum and increasing to double the size and elevation in the pleural area; the lateral area is much raised, clearly defined, and equalling in size the pleural area; the granules are still circular but rapidly increase in size, both posteriorly and laterally; they are arranged in even, bowed rows both longitudinally and diagonally, forming a decussated pattern; the granules on the posterior margin are large and give a toothed appearance.

*Posterior Valve*.—This valve is large, mucro median, well defined, slope behind, for one-third, steep; other two-thirds, flatter. A strongly raised diagonal fold separates the posterior portion of the valve from the anterior; the posterior portion is similarly decussated, although a little less coarsely, to the lateral areas in the median valves, the anterior portion is similar in sculpture to the dorsal and pleural areas of those valves.

*Articulamentum*.—Is white, inside glassy white, anterior valve slits 9, fairly evenly spaced, teeth sharp; tail valve 8 slits, sutural laminae small, sinus between very wide. Median valves, slits 1/1, eaves well defined, insertion protruding slightly beyond the tegmentum, teeth sharp, sutural laminae small, sinus between very wide, tegmentum bowed outwardly in centre.

*Measurements*.—The shell was too crushed to allow of any accurate total measurement being given, but the two end valves and valve 2 are unbroken. The total of crushed shell is 8×5 mm. Anterior valve is longitudinally 1.5 mm., laterally 3 mm. Posterior valve is longitudinally 2.5 mm., laterally 3.5 mm. Median valve is longitudinally 1.5 mm., laterally 3.5 mm.

*Girdle*.—Densely clothed with minute, flat, imbricating scales.

*Habitat*.—Groote Eylandt, Gulf of Carpentaria, Northern Territory, living on a block of dead coral. Museum, No. D4656, one example.

*Comparisons*.—It differs from *I. luticolens*, Hull, in the very raised character of the lateral area, the slope from the pleural area to the lateral not being gradual, as in that species, but most abrupt. The shell is more elevated and the side-slope more curved, sculpture everywhere coarser, mucro central not anterior and posterior slope fairly steep, not concave, also *luticolens* has 50 per cent. more slits in the insertion of the end valves. It was at first my intention to describe this shell as a subspecies of *luticolens*, but the differences noted above, of form, sculpture, and slitting, seem to warrant its being given full specific rank, but it may be considered near to that shell.

Family CRYPTOCONCHIDAE, Iredale.

Subfamily CRYPTOCONCHINAE, Ashby.

Genus ACANTHOCHITON, Gray, em.

*Acanthochiton macrocystialis*, n. sp.

Pl. xxxi., figs. 3, 3a, 3b, 3c.

*Introduction*.—I am much indebted to Mr. W. L. May, of Tasmania, for placing in my hands for definition several examples of a new *Acanthochiton*. They are especially interesting from the fact that they have, as their host, the long ribbon-like alga, *Macrocystis pyrifera*, var. *dubeni*; my thanks are also due to Mr. L. Rodway for kindly identifying the plant. The specimens were sent to Mr. May by Mr. E. W. Mawle with the following note:—"These *Acanthochitons* I collected at the outside of Port Puer; their host is the long ribbon-like kelp, that grows near the bull kelp. The *Acanthos* live near the roots. I had to cut the roots open to find them; it is like basket-work where they live."

I was able to show in my paper on the genus *Stenochiton* (Trans. Roy. Soc. S. Austr., vol. xlii., 1918, pp. 65-78) that members of that genus of Chitons do not live on rocks but on "sea grasses." In another paper (*l.c.*, vol. xlv., 1921, pp. 136-142) on the "Re-discovery of *Chorioplax*" one was able to adduce data which suggests that members of that most remarkable genus live on the stems of *Laminaria*. The present discovery is of exceptional interest, because it seems to establish the fact that there are other races of Chitons that occupy a very similar ecological niche.

*General Appearance*.—In the dried specimen the girdle occupies two-fifths of the total width, shell elliptical, colour Hellebore Green to Elm Green (Ridgway, pl. xvii.), mottled with white, outer border dirty white, dorsal area of valves 2 and 8 dark. Shell is arched, thickly decorated with small granules, hair tufts conspicuous, girdle thickly beset with spicules.

*Anterior Valve*.—The central portion of this valve consists of a V-shaped elevation, corresponding with the three central ray ribs; the actual ribs can only be distinguished in the juvenile portion of shell near the apex. The two lateral ribs are modified into mere waves; the whole valve is decorated with irregularly arranged, small, elongate, flat granules, which are anteriorly rounded or subacute, laterally straight-sided, the granules are raised anteriorly and shallow posteriorly. Articulamentum white, slits 4, well defined and suture or sinus carried to the tegmentum, the three central slits correspond with the three central ribs and the fourth slit with the fold on the right, but the lefthand slit is obsolete.

In another juvenile specimen the anterior valve also has only 4 slits, the lefthand one being absent.

*Posterior Valve*.—Tegmentum small, mucro postmedian, slope steep immediately behind the mucro; the dorsal area broadly wedge-shape, rugulose transversely and subgranulose near mucro, longitudinal grooving absent, sculpture of rest of valve similar to that of the anterior valve. Articulamentum white, much produced laterally, slits 3 well defined and sinus deep, sutural laminae shallow, sinus between broad. A second juvenile specimen has three slits in the tail valve similarly spaced.

*Median Valve*.—The following is a description of valve 2. The dorsal area is raised, arched and beaked, without longitudinal grooving but showing a little subcutaneous lining, numerous, transversely ridged, pitted near beak. The lateral and pleural areas are similar in sculpture, there is a slight diagonal fold, the granules are similar in shape to those of the anterior valve, except that they are longer and more definitely subacute, the sides of some of the granules not being parallel but converging. The granules adjoining the dorsal area are very elongated and coalesce. The general arrangement of the rows of granules is longitudinal, parallel with the outer margin of the tegmentum. Articulamentum white, sutural laminae well produced forward, sinus between wide, insertion plate in this particular valve unslit, but in a juvenile specimen that has been disarticulated some of the median valves have slits 1/1, notches very short and inconspicuous but sinus carried to the tegmentum.

*Girdle*.—Hair tufts are large and composed of massed, slender spines; girdle is closely beset with coarser spicules.

*Habitat*.—Living on the roots of the alga *Macrocystis pyrifera*, off Point Puer, near Port Arthur, Tasmania.

*Measurements*.—Total of type 15.5×8 mm., largest specimen 20×9 mm., second largest 17×8 mm. Anterior valve longitudinally 2.75 mm., laterally 3.5 mm. Posterior valve longitudinally 2 mm., laterally 3.5 mm. Median valve longitudinally 3.5 mm., laterally 4 mm.

*Comparisons*.—*A. granostriatus* has narrower dorsal area, granules much more elongate and very shallow, the granules connected with one another radially by a slight raising of the floor, giving a streaky appearance under lateral lighting.

*A. bednalli* has also a narrower dorsal area, which is deeply, longitudinally grooved; in *bednalli* the granules are shorter and bluntly obovate, with flat to concave surfaces, the granules in *macrocystialis* are equally raised, but are longer, differently shaped, and often pointed. In the type of *gatliffi*, the dorsal area is more granulose and is longitudinally rugose, very distinct from the species under discussion, the sculpture of the other areas of *gatliffi* is more widely spaced and regular, the granules are attached at their bases, the anterior portion standing away from the shell, the granules themselves are shorter and broader, and the girdle in *gatliffi* is spongy, whereas in this species it is very spiculose.

*Paratypes of A. macrocystialis*, Ashby.—(a) Is greenish-buff, sculpture similar but the dorsal area is subcutaneously lined with white wavy lines, measures 9×4 mm. (b) Is buffish-brown, the dorsal area is marked with dotted lines and the shallow pitting is a little more marked, both this and the preceding show less of the spiculose character of the girdle than the larger specimens, this may be due to the breaking of the spicules, hair tufts are similar. (c) Two examples measuring, respectively, 10×5 and 8×4 mm., taken "off kelp" at the same locality, are both buff and granules white, the white dotted lining in the dorsal area is very marked, the sculpture is similar to type, the spiculose character of the girdle is conspicuous in the larger of the two.

*Craspedochiton jaubertensis*, n. sp.

Pl. xxxi., figs. 5a, 5b, 5c.

I am indebted to M. Nils H. J. Odhner, of Stockholm, for the example described hereunder. It was sent to me under the name *Craspedochiton laqueatus*, Sowerby, from which it seems distinct. It had been dredged off Cape Jaubert by Dr. E. Mjöberg, leader of the Swedish Scientific Expeditions of 1910-1913.

*General Appearance.*—The specimen is much curled and preserved in spirit; the girdle is very wide, occupying two-thirds of the width of the shell, and is ochreous-brown and non-spiculose and without hair tufts; the dorsal area is much raised and the diagonal rib very prominent.

*Anterior Valve.*—The whole of the upper portion of shell eroded, 5 radial folds or ribs corresponding with the slits, decorated with small, closely packed (usually separated), raised, squarish granules; towards the anterior margin the arrangement appears to be more or less concentric.

*Posterior Valve.*—Mucro raised and anterior, dorsal area broadly wedge-shape, smooth with a deep groove on either side, a raised diagonal fold from mucro laterally, posterior slope flat, tegmentum decorated with similar granules to the anterior valve, except that they are rather more convex.

*Median Valve.*—Dorsal area beaked, wedge-shape, the narrow central portion being divided from the elevated margin by a deep groove on either side, the outer ridges of this area slope steeply to the pleural area, giving to the whole dorsal area a highly raised appearance. The pleural area is separated from the lateral area by a narrow, highly raised, diagonal rib, which corresponds with the slit. The pleural area is decorated with longitudinal rows (I count 10) of spaced, raised, square to elongate, small, evenly distributed granules. The lateral area is similarly decorated, but the arrangement here is confused and the granules are larger.

*Inside.*—White, anterior valve 5 slits opposite the 5 radial ribs, teeth coarsely and irregularly dentate, propped on both sides. Posterior valve, insertion plate short, very coarsely dentate and propped, the number of slits difficult to determine, probably 8, sutural laminae well produced, sinus broad, anterior margin fairly straight. Median valve. Particulars are of No. 2 valve, insertion plate broad, eaves ill-defined, slits 1/1, festooned on either side as in genus *Callistochiton*, sutural laminae well produced, anterior margin straight, sinus broad, tegmentum bowed outwardly in centre.

*Body.*—The foot is very small, in curled specimen 7 mm. long, between the foot and the inside of girdle proper is a protruding spongy mass, on the outer side of which are numerous scales.

*Measurements.*—Example preserved in spirit total length 36 mm. by 22 mm., the anterior portion of the girdle measures 5 mm., and the posterior portion behind the tail valve 2 mm., of the total width of 22 mm., the shell measures only 7.5 mm., the rest being girdle. Median valve laterally 9 mm., longitudinally 6 mm. Posterior valve laterally 6 mm., longitudinally 4 mm. Anterior valve is incomplete but must have been fully 8 mm., laterally.

*Girdle.*—Colour ochreous-brown, very broad, occupying two-thirds of the total width, is asymmetrical, being broader in front than behind, encroaches on the valves at the sutures, is non-spiculose but covered with very minute corneous bodies.

*Habitat.*—Dredged in 70 feet off Cape Jaubert, 42 miles W.S.W., north-western Australia, by Dr. E. Mjöberg, 26th May, 1911.

*In conclusion.*—While in the British Museum in June, 1922, I compared this specimen with the type of *Craspedochiton laqueatus*, Sowerby. This latter was



Carpenter, Ashby. 1924. "Further notes on Australian Polyplacophora with descriptions of three new species." *Transactions and proceedings of the Royal Society of South Australia (Incorporated)* 48, 323–327.

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