

DEFINITIONS OF SEVEN NEW SPECIES OF SOUTH AUSTRALIAN POLYPLACOPHORÆ.

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Plates VI. and VII.

In the Proceedings of the Malacological Society of London, vol. II., part 4, April, 1897, appeared a very excellent paper by Mr. W. T. Bednall on the Polyplacophora of South Australia.

This painstaking article has paved the way for all future workers in this field, and the South Australian rocks are furnishing excellent opportunities for original research.

New species are constantly being discovered. Unfortunately, in several instances only one specimen of a species has been found.

The deep dredging operations of Dr. J. C. Verco has helped us very considerably, and has introduced several species not found near the coast.

To Mr. E. H. Matthews, of Yorke's Peninsula, we are deeply indebted for helping us to classify our specimens.

To Mr. M. M. Maughan and Dr. J. C. Verco our thanks are due for specimens supplied, and to Professor Ralph Tate for his kind advice and encouragement in preparing our work for the printer and engraver.

1. *Chiton Verconis*, n. sp. Pl. 6, fig. 1.

General Appearance.—Shell oblong, much elevated, carinated, side slopes slightly curved and steep. Colour.—Flesh-coloured, variegated with creamy-white flecks. Third valve with more white than others; a broad blackish band running all medial areas.

Anterior Valve.—Ten riblets ornamented with strong elongated longitudinal tubercles. Teeth, eight slits.

Posterior Valve.—Mucro median, prominent. Ornamented with nine or ten riblets, composed of tubercles similar to anterior valve. Sinus moderately broad.

Median Valve.—Lateral areas ornamented with 12 to 14 pairs of strong elongated longitudinal tubercles, divided into two rows by a deep sulcus. The tubercles vary from opposite to alternate, the anterior being shorter than the posterior. Pleural areas covered with 14 to 16 longitudinal riblets, sometimes continued

into the dorsal area. Dorsal area smooth. The median valves each have one slit. The teeth under the microscope are pectenated; sinus broad and shallow. Inside colour creamy-white with bluish patches.

Girdle.—Clothed with imbricating scales, apices sub-erect, giving the girdle a rasp-like appearance. Scales pyramidal, apices smooth, base ornamented with eight to ten vertical riblets.

Measurement.—Length, 24 mm. ; breadth, 12 mm.

Habitat.—Dredged in St. Vincent's Gulf, South Australia, by Dr. Verco and W. D. Reed. Aldinga, by W. Kimber.

Remarks.—It can easily be distinguished from allied species by the strongly raised longitudinal tubercles in the lateral areas.

2. *Acanthochites crocodilus*, *n. sp.* Pl. 6., fig. 2.

General Appearance.—Shell elongated, rounded, very broad in proportion to the girdle. Side slope curved. Colour pale-olive-green.

Anterior Valve.—Strongly radially ribbed with five ribs. Interspaces covered with more or less straight transverse rows of squamose pustules. Two slits only discoverable in broken specimen.

Posterior Valve.—Mucro median distinctly beaked; valve divided into dorsal and pleural areas; dorsal smooth and raised—pinnatifid—and pleural similar to corresponding area in median valves. Four slits. Sinus broad.

Median Valves.—Lateral areas distinctly raised. Anterior margin forming a strongly elevated diagonal rib, clothed with irregular raised squamose pustules, having a confluent tendency. Pleural area has a somewhat concave appearance, owing to the raised character of lateral and dorsal areas. The whole covered with triangular-shaped scales, which become very flat and large as they approach the anterior margin. Pustules and triangular scales are placed in longitudinal rows, continued through lateral and pleural areas. *Dorsal Areas*.—Triangular, smooth, each margin deeply notched with three to eight notches, prominently beaked. Teeth, 1-1.

Girdle.—Brown leathery, spongy, having on each side seven and on anterior valve four tufts of short brownish spicules. Microscopically mottled with white, and densely clothed with minute, irregular, opaque scales, which give it a rough appearance.

Measurements.—Length, 17 mm.; breadth, 8 mm.—in dried specimen.

Habitat.—Marino, South Australia; discovered by Dr. Torr.

Remarks.—Remarkable for strongly raised diagonal rib, and for its very coarse shagreening; some of the scales being fully half mm. across, and are microscopically striated.

3. *Acanthochites cornutus*, *n. sp.* Pl. 6, fig. 3.

General Appearance.—Shell elongated, narrow, decidedly carinated, side slopes very slightly curved. Colour light-yellowish-brown, mottled with white. Dorsal area whitish-brown.

Anterior Valve.—Radially ribbed with five ribs, the whole area being closely packed with bead-like granules.

Posterior Valve.—Very diminutive. Mucro post-median. Valve divided into dorsal and pleural area. Dorsal similar to same area in median valves. Pleural area covered with concentric rows of bead-like granules. The deep sulcations of the dorsal area are present on anterior margin to the outer edge of valve.

Median Valves.—Lateral area much raised, and thickly studded with imbricating granules. Pleural areas decorated with eight to ten longitudinal rows of distinctly raised pustules, considerably larger than the granules of the lateral area.

Dorsal Area.—Triangular, microscopically pinnatifid, which appearance is caused by three or more deep sulcations, continued into the pleural areas.

Girdle.—Narrow, having on each side seven sutural horny protuberances, covered with microscopic glossy granules. Whole girdle clothed with closely-packed microscopic imbricating semi-transparent scales. General colour yellowish, with splashes of brown.

Measurement.—Dried specimen: Width, 3 mm.; length, 8 mm.

Habitat.—Marino, South Australia; low tide. Discovered by E. Ashby. Only one specimen (not dissected).

Remarks.—The horny protuberances, absence of spicules, and transparent, closely-packed scales make this a very distinct species.

4. *Acanthochites Verconis*, *n. sp.* Pl. 7, fig. 4.

General Appearance.—Shell distinctly elongated carinated. Exposed portion of valves one-third total width in live specimen. Valves elevated. Posterior margin concave, prominently beaked. Colour of valves, pearly white, distinctly mottled with pink deepening to rose-pink at posterior margin.

Anterior Valve.—Clothed with somewhat flattened pustules, separated, oval, very distinct, smaller towards the apex, and arranged alternately. Teeth, five slits, with rays leading to apex.

Posterior Valve.—Mucro central, covered with flattened pustules rather longer and flatter than anterior valve. Dorsal area distinct and smooth. Sinus wide. Eight slits at irregular distances.

Median Valve.—Pleural area covered with ten to eleven diagonal rows of squamose pustules. Dorsal area raised, striated

showing distinct hastate to pinnatifid outline (pustulose under high magnifying power); one slit. Inside colour creamy-white to deep-pink.

Girdle.—Cream to deep-rose-pink, leathery, and encroaching on the sutures, destitute of tufts, covered with minute hairs.

Measurements.—Length, 10 mm. ; breadth, 4 mm.

Habitat.—Dredged by Dr. Verco in St. Vincent's Gulf, South Australia, and taken at Aldinga Rocks by Dr. Torr.

Remarks.—This species is allied to *A. scutiger* of Reeve; his description is very incomplete. The girdle in *A. Verconis* is smooth and not densely bristled as in *scutiger*.

5. *Acanthochites Maughani*, *n. sp.* Pl. 7, fig. 5.

General Appearance.—Shell elongated oblong, carinated, side slope curved. Colour light-brown, with patches of yellowish-brown.

Anterior Valves.—Covered with concentric rows of pustules, large at base, and growing smaller towards apex.

Posterior Valve.—Mucro slightly post-median. Five concentric rows of pustules.

Median Valves.—Lateral and pleural areas, except that the former is yellower; both areas ornamented with six slightly radiating longitudinal rows of exceptionally elongated tubercles, inclined diagonally acutely backwards, touching the tegmentum almost the whole length, giving the appearance of riblets serrated on one side. Some tubercles are much bent over at the tip. Tubercles rough with microscopical granules.

Dorsal Area.—Linear raised granulose, intermittently covered with blackish specks. Longitudinally and transversely striate under the microscope. Apex of sixth valve black.

Girdle.—Light-brown, little darker than valves; leathery, loosely clothed with minute scales. Sutural tufts of short brownish spicules, and four tufts on anterior valve.

Measurement.—Length, 8 mm.; breadth, 4 mm.—dried specimens.

Habitat.—Port Victor, S. Australia; discovered by M. M. Maughan, Esq. Aldinga, by Kimber.

Remarks.—Easily distinguished from its allies by its narrow raised and granulose dorsal area and its exceedingly elongated appressed tubercles.

6. *Acanthochites exilis*, *n. sp.* Pl. 7, fig. 6.

General Appearance.—Colour porcelain-white, slightly mottled with very pale-brown. Dorsal area on third valve bright-red, oblong, rather broad, strongly carinated, side slope straight, beaked,

Anterior Valve.—Radially ribbed with five ribs, the whole closely covered with glossy pustules on a brownish ground.

Posterior Valve.—Mucro anterior. Pustules as in anterior valve; very small.

Median Valves.—Lateral areas raised, closely covered with slightly diagonal rows of highly polished pustules. Continued through pleural areas, but considerably larger and more raised, in some cases so closely packed as to suggest longitudinal riblets. Some rows are confluent.

Dorsal Area.—Triangular, broad; uniformly covered with somewhat distant, evenly distributed, slightly raised pustules, arranged in some valves in longitudinal rows. Tegmentum longitudinally striated. Ground colour of third valve deep rose-red; pustules less highly coloured. In valves 2, 4, 5, 6, 7 the dorsal area is often mottled with pink.

Girdle.—Spotted with cream and pale-brown. Very much crumpled in dried specimen. Covered with irregular scales. At the sutures prominent rough tubercles, from the centre of which a bundle of white or brown spicules is produced. Size, dried specimen: Length, 3 mm.; breadth, 1 mm.

Habitat.—Dredged by Dr. Verco in Spencer's Gulf and Investigators' Strait, South Australia, in 10 to 15 fathoms of water.

7. *Acanthochites Tatei*, *n. sp.* Pl. 7, fig. 7.

General Appearance.—Greenish-brown, spotted with pale-grey. Dorsal areas buff colour, with tinge of salmon-pink, in third valve dark-green. Girdle, mossy-green. Shape, oblong carinated, side slopes straight.

Anterior Valve.—Three very indistinct radial ribs closely covered with slightly elliptical pale-brown scales gradually decreasing in size to the apex. Ground dark-horn colour. Apex smooth transversely striated.

Posterior Valve.—Mucro post-median. Dorsal area triangular. The buff or salmon-pink colour extending over two-thirds of valve. Median area dark-brown, closely covered with elliptical irregular whitish scales.

Median Valves.—No distinction between lateral and pleural areas. Ground colour, ornamented with six or seven irregular radiating diagonal rows of whitish spathulate scales, which increase in size as they near the posterior margin.

Dorsal Areas.—Triangular, raised, beaked, smooth, decorated with transverse wavy markings, microscopically longitudinally and transversely striated. Third valve moss-green, and remainder buff with tinge of salmon-pink.

Girdle.—Olive-green, one-third of area. Mossy, owing to its being covered with short yellowish-white spicules, larger at margin, forming a dense fringe. Tufts, seven each side at intersection on valves. Four on anterior valves. Sutural tufts coarse and spear-shaped, closely appressed towards the apex of the valves. Specimen in formalin. Length, 6 mm. ; breadth, $2\frac{1}{2}$ mm.

Habitat.—Middleton, Encounter Bay, South Australia ; one specimen only on rocks discovered by Dr. Torr.

EXPLANATION OF PLATES VI and VII.

- a. Dorsal view of entire shell.
- b. Anterior valve.
- c. Median valve.
- d. Posterior valve
- e. Lateral view of posterior valve.
- f. Portion of girdle magnified.
- g. Life size, lateral view.

Fig.

- 1. *Chiton Verconis*, n. sp.
- 2. *Acanthochites crocodilus*, n. sp.
- 3. " *cornutus*, n. sp.
- 4. " *Verconis*, n. sp.
- 5. " *Maughani*, n. sp.
- 6. " *exilis*, n. sp.
- 7. " *Tatei*, n. sp.



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