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***Granicorium* from Australian waters, with descriptions
of a new species (Mollusca: Bivalvia: Veneridae)**

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Abstract

Only two genera are represented in the venerid subfamily Samaranginae, *Samarangia* and *Granicorium*, these are similar in appearance, being totally covered externally by an extraperiostracal layer (J. Taylor pers.com.) of agglutinated sand, they can be readily separated by the lack of lateral teeth in *Granicorium* (present in *Samarangia*). *Samarangia* contains the single species, *Samarangia quadrangularis* (A. Adams & Reeve, 1850), which occurs throughout the Indo-Pacific. *Granicorium*, which is confined to Australian coastal waters has two species, *G. indutum* (Hedley, 1906), the type of the genus, and *G. citrinum* n.sp from northern Queensland. *G. attonitum* Iredale, 1936 is placed in the synonymy of *G. indutum*. The known range of *Granicorium indutum* is extended south from central Queensland to southern Western Australia.

Key words: Mollusca: Bivalvia: Veneridae, *Granicorium*, new species, Queensland

Introduction

Hedley (1906) described the genus *Granicorium* in an account of molluscs he had collected at Masthead Reef in the Capricorn Channel, southern Queensland, naming an unusual, sand covered species *Granicorium indutum*. In 1936, Iredale received deep water trawled specimens of *Granicorium* from off the Continental Shelf, north of Sydney, central New South Wales, which he named *Granicorium attonitum*. Examination of the syntypes of both species show the names to be synonymous, with *Granicorium indutum* the prior name. Mr Ian Loch, Collection Manager at the Australian Museum, has loaned *Granicorium indutum* material which extended the known range of the species from southern Queensland to southern Western Australia. This extension was confirmed by material in the Western Australian Museum. Additional *G. indutum* specimens have been obtained from shell dealers and trawlers which extend the range for the species to central Queensland. Examination of material recently trawled off Townsville, northern Queensland, revealed a previously unrecorded *Granicorium* species which differs from *Granicorium indutum*.

Material and Methods

All measurements were made using vernier dial calipers. Shell height given is from the umbones to the ventral margin on the left valve vertical to the hinge line. Shell length given is the greatest distance from anterior to posterior margin. Shell depth given is the greatest distance between the surfaces of the left and right valves. Shell size given is for the largest specimen examined by the author unless otherwise stated.

Abbreviations

AMS, Australian Museum, Sydney
 KL, Lamprell Collection
 QM, Queensland Museum, Brisbane
 NSW, New South Wales
 NT, Northern Territory
 Qld, Queensland
 lv, left valve
 pv, paired or conjoined valves
 rv, right valve
 v, valves

Systematics

The systematic arrangement used for the family herein follows that of Lamprell & Whitehead (1992).

Family **VENERIDAE** Rafinesque, 1815
 Subfamily **SAMARANGIINAE** Keen, 1968
 Genus **Granicorium** Hedley, 1906

Granicorium Hedley, 1906: 477

Type Species: *Granicorium indutum* Hedley, 1906.

Diagnosis: Similar to *Samarangia* in appearance, being totally covered externally by agglutinated sand but lacking lateral teeth.

Granicorium indutum Hedley, 1906.
 (Fig. 1a-d)

Granicorium indutum Hedley, 1906: 477, pl. 38, figs 26-27.

Granicorium attonitum Iredale, 1936: 278, pl. 20, fig. 17.

Description: Shell length to 50 mm; suborbicular, equivalve, solid, inflated; umbones prosogyrate; lunule broadly heart-shaped, moderately impressed; escutcheon wide, impressed; ligament internal, visible externally. Antero-dorsal margin very short, sloping, narrowly rounded at anterior margin; postero-dorsal margin widely convex, steeply sloping, narrowly rounded at posterior margin; ventral margin evenly and widely convex. Sculpture of numerous, strong, widely spaced, concentric growth ridges present in the extraperiostracal layer (J. Taylor pers.com.) of agglutinated sand. These ridges are fine and numerous under the extraperiostracal layer (J. Taylor pers.com.). Hinge plate broad. Hinge of lv lacking anterior lateral tooth; anterior cardinal tooth strongly curved anteriorly, thin and joined to median cardinal tooth at top, thickened at base, raised, peg-like, pit between anterior and median cardinal teeth wide, median cardinal tooth bifid at top, raised centrally, thicker at base; posterior cardinal tooth long, thin, curved, separated from median cardinal tooth at top; posterior lateral tooth thin, short. Muscle attachment scars well defined, anterior adductor scar pear-shaped, posterior adductor scar ovate. Pallial line entire.

Colour of shell under extraperiostracal layer (J.Taylor pers.com.) white; internally chalk-white medially, glossy marginally between muscle scars.

Material examined:

Type material: Lectotype (herein designated): 1 rv, 11 mm, AMS C 18868; figured by Hedley 1906; Masthead Reef, Capricorn Group, Great Barrier Reef, central Queensland, 31-37 m. Paralectotypes: 15 v, AMS C 203645, same data as lectotype.

New South Wales: AMS C 60638, 1 v, off Wattamolla, S of Sydney, 91-146 m (syntypes of *Granitorium attonitum*); AMS C 306370, 1 v, Shoalhaven Bight, NSW, 82 m. *Western Australia:* WAM S 1254, 15 lv, 11 rv, 48 km W. of Dongara, 29°11'S, 114°26'E, 49.9 m; WAM S 1255, 3 pv, 1 lv, 7.5 mls W of City Beach, Perth, 37 m; WAM S 1256, 2 pv, 1 lv, SW of Coventry Rf, 18.2 m; WAM S 1257, 2 pv, Abrolhos Is. Zeewyk Channel, 38.2 m; WAM S 1258, 1 pv, Geographic Bay, 9.1 m; WAM S 1259, 1 rv, 10 mls W of Bernier Is. 73 m; AMS C 82812, 4 lv, 1 rv, E of Cheyne Bay, 34°55'S, 119°0'E, 76 m. *South Australia:* AMS C 90541, 3 rv, 50 ml SW of Cape Adieu, Great Australian Bight, 32°42'S, 131°27'E, 144 m. *Queensland:* NTM (unregistered), 8 v, off Tugum Beach, 19-28 m; KL coll, 1 pv, off Cape Moreton, 131 m; KL Coll, 2 pv, 1 rv, off Southport, 55 m; KL Coll. 1 pv, Capricorn Channel, 131 m; KL Coll, 3 pv, off Breaksea Spit, Fraser Isl. 60 m; AMS C 58369, 4 lv, 4 rv, North West Island, 23°18'S, 151°42'E, 36 m; AMS C 338107, 1 rv, 1 lv, 3 kms NE of W. side Gillett Cay, Swains Reef, 21°42'S, 152°26'E, 73 m; AMS C 116519, 2 rv, 2 lv, 4 ml E of North Reef, 23°S, 151°58'E, 64 m.

Habitat: In sand to 72 metres.

Distribution: Off southern Western Australia, across the south, to central Queensland.

Measurements

	length (mm)	height (mm)	width of single valve (mm)
Lectotype <i>G.indutum</i>	11.0	10.0	3.0
Syntype <i>G.attonitum</i>	43.0	41.0	19.0
KL Coll.	25.3	23.0	8.0
	35.4	33.0	14.5
	45.0	42.0	16.0
	47.0	45.7	17.0
	49.2	46.0	19.0
	52.0	45.9	16.2
AMS C 58369	27.2	24.6	8.0
AMS C 82812	40.0	37.8	13.5
AMS C 9054	28.1	26.0	19.2
WAM S 1258	20.5	18.0	5.5
WAM A 1254	32.7	30.3	13.5
WAM S 1255	27.0	25.1	19.0

Remarks: Hedley described *Granicorium indutum* from small specimens obtained by trawling to 37 metres in sand off Masthead Reef, central Queensland. Comparison of *G. indutum* with *G. attonitum* obtained by Iredale from off Wattamolla, south of Sydney in 146 metres, showed that apart from the larger size and inflation of *Granicorium attonitum* the two species appear to be synonymous.

Granicorium citrinum n.sp

(Fig. 1e-h)

Etymology: For the colour of the external shell surface.

Description: Shell length to 27.3 mm; suborbicular, equivalve, solid; umbones prosogyrate; lunule broadly heart-shaped, strongly impressed; escutcheon wide, impressed; ligament internal, visible externally. Antero-dorsal margin very short, sloping, angulate at the anterior margin; postero-dorsal margin widely convex, steeply sloping, narrowly rounded at posterior margin; ventral margin evenly and widely convex. Sculpture of numerous, strong, widely spaced, concentric growth ridges present in the agglutinated sand extraperiostracal layer (J.Taylor pers.com.), fine and numerous under the extraperiostracal layer (J.Taylor pers.com.). Hinge plate broad. Hinge of lv without anterior lateral tooth; anterior cardinal strongly curved anteriorly, short, thin and joined to median cardinal at top, pit between anterior and median cardinal wide; median cardinal raised centrally, thick at the base; posterior cardinal long curved, separated from median cardinal at top; posterior lateral short. Muscle attachment scars well-defined, anterior adductor scar pear-shaped; posterior adductor scar ovate. Pallial line entire. Colour externally citreous; internally chalk-white medially, glossy marginally between muscle scars; extraperiostracal layer (J.Taylor pers.com.) grey.

Material examined:

Holotype: AMS C 203643, 1 pv, northern Queensland, 18°59.1S, 148°01.4E, 39 m, CSIRO Cruise "Lady Basten", stn 054, 5.9.97.

Paratypes: QM MO 62769, 2 pv, 19°11S, 148°02E, 59 m, CSIRO Cruise "Lady Basten", stn. 067, 6.9.97; AMS C 203644, 3 pv, 19°21S, 148°01E, 54 m, stn. 087, 8.9.97; KL coll 4 pv, 18°49S, 147°35E, 53 m, CSIRO Cruise "Lady Basten", stn 031, 3.9.97; WAM S 1366, 2 pv, 18°49S, 147°35E, 53 m, CSIRO Cruise "Lady Basten", stn 031, 3.9.97.

Measurements

	length (mm)	height (mm)	width of single valve (mm)
Holotype <i>G. citrinum</i>	25.0	23.7	8.5
QM MO 62769	23.3	21.2	6.7
AMS C 203644	26.6	24.9	8.2
WAM S 1366	24.3	21.7	7.8
KL Coll	26.9	24.6	8.0

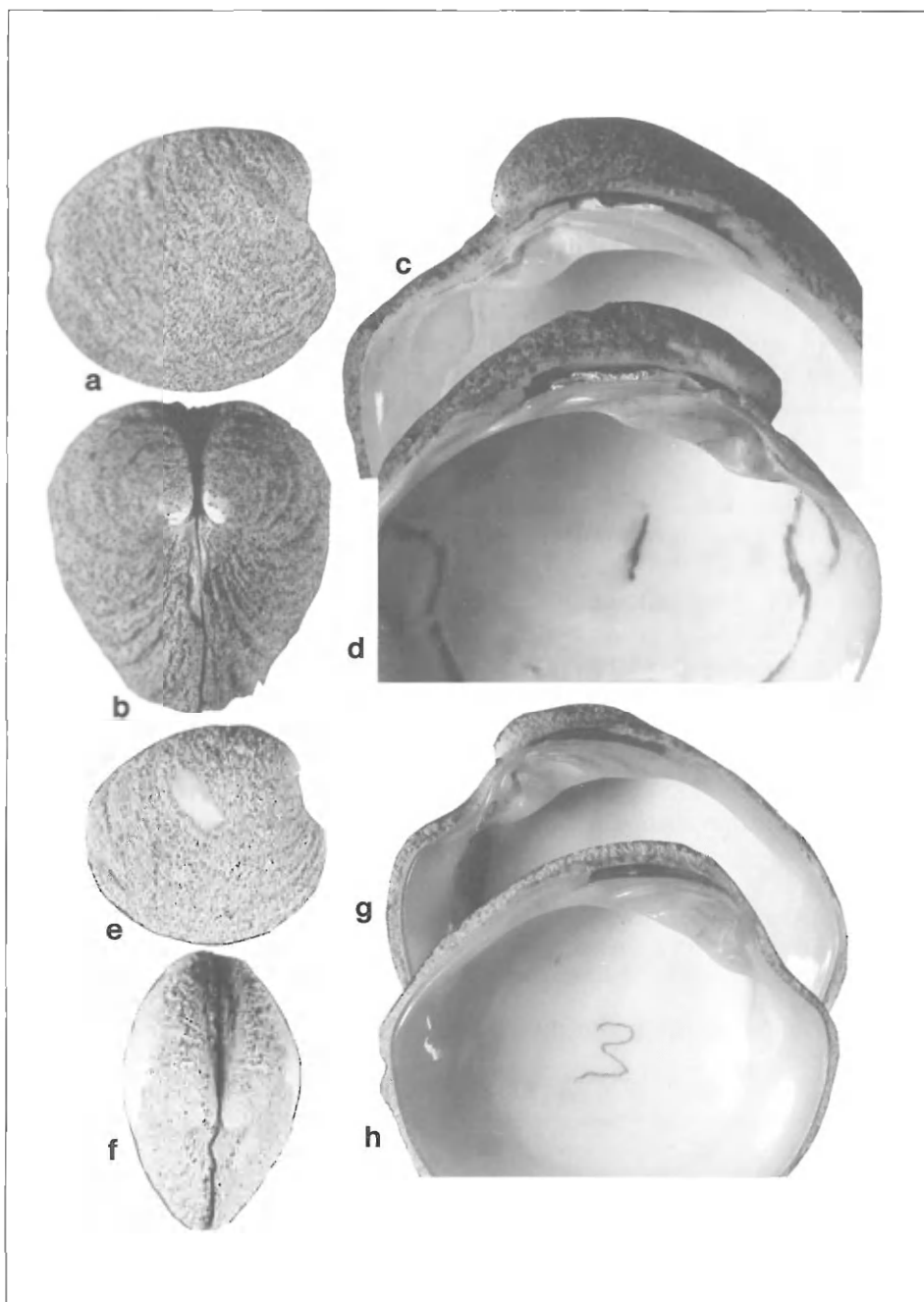


Figure 1.

1 (a-d). *Granitorium indutum* (Hedley) KL Coll; **a** - external rv, length 25.0 mm; **b** - internal rv (showing teeth); **c** - internal lv (showing teeth); **d** - anterior margin of shell showing lunule and inflation. **1 (e-h).** *Granitorium citrinum* KL Coll; **e** - external rv, length 25.0 mm; AMS C 203643, holotype, **f** - anterior margin of shell showing lunule and inflation, length 26.6 mm; **g-h** - AMS C 203644; **g** - internal rv (showing teeth), **h** - internal lv (showing teeth) length 26.9 mm.

Habitat: In sand to 59 metres.

Distribution: northern Queensland.

Comparative remarks

Numerous specimens of *Granicorium citrinum* were compared with small specimens of *G. indutum* of approximately equal size. *G. citrinum* could be separated from *G. indutum* by its consistently smaller adult size and less inflated shell, the posterior margin relatively longer and straighter and the umbones less prominent. In *G. citrinum* the lunule is better defined and more sunken than in *G. indutum*, and the posterior lateral tooth is shorter and thinner than in *G. indutum*. The external colour of *G. citrinum* is consistently yellow under the sand coloured extraperiostracal layer (J. Taylor pers.com.), while in *G. indutum* the external colour is white.

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