

AUSTRALIAN RECENT AND TERTIARY MOLLUSCA

FAMILY CERITHIOPSIDAE

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Plate xxviii.

INTRODUCTION.

THE shells of the family Cerithiopsidae resemble those of the Cerithiidae in general features but they are small, narrow, cylindrical and tuberculate. They are distinguished from the true Cerithiidae in that the outer lip is not expanded, the nucleus of the operculum is sublateral, near the inner side of the aperture, there are no varices and the proboscis is retractile. The family may be regarded as intermediate between the Cerithiidae and the sinistral family Triphoridae. One new genus and six new species are introduced here, while some new records for Western Australia are added.

Specimens described are from the Verco Collection in the South Australian Museum. The following genera, subgenera or sections have been used, most of the typical species being originally or subsequently placed under the generic name *Cerithiopsis*.

- Cerithiopsis* Forbes and Hanley 1849. *Murex tubercularis* Montagu. Europe.
Cerithiospina Bartsch 1911. *C. necropolitana* Bartsch.
Disoniopsis Sacco 1895. *C. bilineata* Hörnes.
Cerithiopsida Bartsch 1911. *C. diegensis* Bartsch.
Cerithiopsidella Bartsch 1911. *C. cosmia* Bartsch.
Metaxia Monterosato 1884. *C. metaxae* Monterosato. Mediterranean.
Cerithiopsilla Thiele 1912. *C. cincta* Thiele. Antarctic.
Specula Finlay 1926. *C. styliiformis* Suter. New Zealand.
Alipta Finlay 1926. *C. crenistria* Suter. New Zealand.
Mendax Finlay 1926. *C. trizonalis* Odhner. New Zealand.
Paramendax Powell 1937. *P. apicina* Powell.
Socienna Finlay 1926. *C. apicostata* May. New Zealand.
Zaclys Finlay 1926. *C. sarissa* Murdoch. New Zealand.
Joculator Hedley 1909. *C. ridicula* Watson. Wednesday Island, Cape York, N.E. Australia, 8 fathoms.
Cerithiella Verrill 1882. *Cerithium metula* Loven. Europe.

- = *Lovenella* Sars 1878. *Cerithium metula* Loven. Non Hicks 1869.
 = *Newtonia* Cossmann 1891. Non Schlegel 1866.
 = *Newtoniella* Cossmann 1893. *Cerithium clavus* Lamarek.
 = *Cerithiolinum* Locard 1903. *Cerithium metula* Loven.
Chasteria Iredale 1915. *C. danielsseni* Friele. England.
Onchodia Dall 1924. *C. benthica* Dall.
Stilus Jeffreys 1884. *C. insignis* Jeffreys. Atlantic.
Eumetula Thiele 1912. *E. dilecta* Thiele.
Laskeya Iredale 1918. *Turritella costulata* Möller. Northern Europe.
 = *Eumeta* Mörch 1868. Non Walker 1855. *C. arctica* Mörch.
Seila Adams 1861. *S. trilineata* Philippi. West Indies.
 = *Cinctella* Monterosato 1884. *C. trilineata* Philippi.
Viriola Jousseaume 1884. Non Tyron 1887.
Notoseila Finlay 1926. *Cerithium terebelloides* Martens. New Zealand.
Hebeseila Finlay 1926. *Seila bulbosa* Sowerby. New Zealand.
Proseila Thiele 1929. *Seila capitata* Thiele.
Seilarex Iredale 1924. *Seila attenuata* Hedley. Australia.
Euseila gen. nov. *E. pileata*, sp. nov., described in this paper.
Contumax Hedley 1899. *Contumax decollatus* Hedley. Funafuti.
Laeocochlis Dunker and Metzger 1874. *Laeocochlis granosa* Wood. Arctic Europe.
Callisteuma Tomlin 1929. *Callisteuma thelcterium* Tomlin. Japan.
Altispecula Powell 1930. *C. geniculosa* Hedley. South Australia.
Lyroseila Finlay 1928. *Seila chatamensis* Suter. New Zealand.
Seilopsis Tomlin 1931. *C. peilei* Smith. South Africa.
Sundaya Oliver 1915. *S. exquisita* Oliver. New Zealand.

AUSTRALIAN GENERA.

Australian species belong to eight genera.

Specula, *Altispecula*, *Euseila*, *Socienna*, *Joculator*, *Notoseila*, *Zaclys*, *Seilarex*.

KEY TO GENERA OF CERITHIOPSIDAE.

- a. Protoconch of three whorls or less.
 - b. Protoconch whorls smooth.
 - c. Protoconch of one and a half rounded whorls .. *Specula*
 - cc. Protoconch of two mamillate whorls.
 - d. Adult sculpture of strong axial ribs .. *Altispecula*
 - dd. Adult sculpture of fine spirals *Euseila*
 - bb. Protoconch whorls axially sculptured *Socienna*

- aa. Protoconch of four or more whorls.
- e. Protoconch whorls smooth.
 - f. Protoconch many whorls, subulate .. *Joculator*
 - ff. Protoconch of four convex whorls .. *Notoseila*
 - ee. Protoconch whorls reticulate.
 - g. Adult whorls with spirals and weaker axials *Zaclys*
 - gg. Adult whorls with fine spirals .. *Seilarex*

SPECULA Finlay 1926.

Specula Finlay 1926, *Trans. N.Z. Inst.*, 57, p. 382.

Genotype. *Cerithiopsis styliiformis* Suter 1908. New Zealand.

Protoconch of few whorls, typically one and a half, smooth and rounded whorls. Shell small, narrow, sculpture of beaded cinguli; whorls eight or nine, slightly convex; aperture subquadrangular produced below into a very short, open and emarginate canal.

Distribution. New Zealand and Australia.

Remarks. There are three Australian species, *S. mammilla* May, *S. turbonilloides* Tenison Woods and *S. regina* sp. nov.

KEY TO SPECIES OF *SPECULA*.

- a. With golden coloured thread above suture *regina*
 aa. Without golden thread.
 b. Pyramidal *mammilla*
 bb. Turreted *turbonilloides*

SPECULA REGINA sp. nov.

Plate 28, fig. 7.

Shell small, white turriculate, adult whorls eight, protoconch of two whorls, incomplete in all specimens, but paucispiral, rounded and smooth; sculpture on the body whorl of three spiral granule rows, granules developed at the intersection of axial and spiral lirae, twenty granules on the median spiral row of the body whorl; beneath the lower granule row is a fine smooth golden coloured spiral thread situated immediately above the sunken channelled suture so as to appear to be marking the suture with a golden band; the spiral thread conspicuous on the base where it runs to the top of the aperture; aperture subquadrate, produced into an open and short canal; outer lip sharp, but little convex; basal lip concave; colour shining-white except for the golden thread. Height 3.25 mm., diameter 1 mm.

Loc. Holotype: reg. No. D. 14,420, S.A. Museum. W.A., King George

Sound Beach. S.A., Gulf St. Vincent, dredged in shallow water. Cape Borda, 55 fathoms; Beachport, 150 fathoms.

This little species is readily distinguished from *S. turbonilloides* by the golden thread at the base of the whorls and by its shining surface and well defined granules.

SPECULA MAMMILLA (May).

Cerithiopsis mammilla May 1919, *Proc. Roy. Soc., Tas.*, p. 65, pl. 16, fig. 22.

Loc. The holotype came from Thouin Bay, 40 fathoms, East Coast of Tasmania. Two or three specimens from South Australia agree fairly well with the description of this species. They are pure white, not pale brown as in the Tasmanian species. There is a considerable variation in sculpture, some being almost destitute of nodules or there may be three strongly noded keels on the adult whorls.

SPECULA TURBONILLOIDES (Tenison Woods).

Bittium turbonilloides Tenison Woods 1879, *Proc. Roy. Soc., Tas.*, p. 39.

The holotype came from Circular Head, Tasmania. It is reported from South Western Australia where the species appears to be fairly variable in sculpture.

Loc. S.A., Gulf St. Vincent, Robe, Port MacDonnell, Investigator Straits, 20 fathoms; Cape Borda, 55 fathoms; Cape Jaffa, 90 fathoms; Beachport, 150 fathoms and 40 fathoms; Venus Bay, St. Francis Island; W.A., King George Sound.

ALTISPECULA Powell 1930.

Allispecula Powell 1930, *Trans. N.Z. Inst.*, 60, p. 539.

Genotype. *Cerithiopsis geniculosus* Hedley 1911, forty miles south of Cape Wiles, 100 fathoms, South Australia.

Shell tall, narrow, gently tapering, strongly axially ribbed but with obsolete spiral sculpture; protoconch of two smooth convex whorls. Distinguished from the usual clathrate or strongly spirally ribbed *Cerithiopsis* by the sculpture, which is more like that of *Turbonilla*. In *Specula* Finlay 1926, the protoconch is few whorled, smooth and rounded but the sculpture of the succeeding whorls consists of strong spirals crossed by regular axials.

Distribution. Represented in New Zealand by *Altispecula elegantula* Powell 1930, from off Poor Knights Island in 60 fathoms. That species differs from the genotype in the presence of the central spiral thread, passing round the middle of the whorls.

ALTISPECULA GENICULOSA (Hedley).

Cerithiopsis geniculus Hedley 1911. Forty miles south Cape Wiles, 100 fathoms, South Australia.

Shell rather large and solid, regularly tapering, much constricted between the whorls, glossy; colour uniform snow-white; whorls thirteen, including the protoconch; sculpture of strong radial ribs on all the whorls except the first two; ribs prominent medially, diminishing above towards the suture, suddenly truncate below at the basal angle, about fourteen to a whorl; intercostal spaces terminating squarely below, not continuous from whorl to whorl, a few faint spiral scratches appear in the interstices; base smooth; aperture pyriform, outer lip simple, canal short and broad. Length 9 mm., width 2 mm.

Loc. So far recorded only from the type locality.

EUSEILA gen. nov.

Genotype. *Euseila pileata* sp. nov.

Shell elongate, narrow, slowly tapering; columella twisted canal pointing sharply to the left; sculpture of three wide, flat, smooth spiral ribs; protoconch remarkably large, smooth mammilate, of two whorls, the last larger in diameter than the first adult whorl, the top a blunt spike.

Distribution. South Australia, dredged down to 300 fathoms. The aperture and canal recall that of *Mendax* Finlay 1926, but the protoconch is entirely different, resembling rather that of *Hebeseila* Finlay 1926. The adult shell is different in most respects from *Hebeseila*.

EUSEILA PILEATA sp. nov.

Plate 28, fig. 2, 3.

Shell elongate, narrow, slowly tapering to an acute apical angle; sides straight; adult whorls twelve; sculpture of three, flat wide spiral ribs, much wider than the interspaces which are very minutely longitudinally striated; decorated with obscure longitudinal reddish flames; aperture subquadrate, columella with fine spiral threads and canal deflected sharply to the left. Height 10 mm., diameter 2.25 mm.; a large specimen 13 mm. \times 3 mm.

Loc. Holotype: reg. No. D. 14,421, S.A. Museum, S.A., Backstairs Passage, 20 fathoms. Also Beachport, 40, 49, 110, 150, 200, 300 fathoms; Cape Jaffa, 90, 130 fathoms; Cape Borda, 55, 62 fathoms; Newland Head, 20, 24 fathoms; St. Francis Island, 35 fathoms; Gulf St. Vincent, 14 fathoms; Grange Shell Sand, East of Neptunes, 45 fathoms; W.A., 80 miles west of Eucla, 80 fathoms.

The peculiar protoconch and sculpture are distinctive. There are a number of varietal forms.

- (a) Narrower, two deeply engraved spiral lines nearer to the sutures than to each other.
- (b) Whorls slightly convex, three engraved lines, reddish axial flames.
- (c) Four spiral furrows, nearly equidistant, four spiral furrows on the rounded base, no spiral threads on the columella.
- (d) Whorls seven, scarcely convex, an engraved line a little below the suture; whorl flat from suture to engraved line; a second engraved line around the base of the body whorl from the suture.
- (e) Specimens from Beachport, 200 fathoms, have the infrasutural band yellowish; some show axial flames; some are nearly straight sided; some with widely impressed suture; some with slightly convex whorls.

There is a possibility that more than one species is represented in this assemblage. The protoconch is somewhat like that of *Hebeseila bulbosa* Suter but the shell is differently shaped.

SOCIENNA Finlay 1926.

Socienna Finlay 1926, *Trans. N.Z. Inst.*, 57, p. 382.

Genotype. *Cerithiopsis apicostata* May 1919. Tasmania.

Shell small, elongate, narrowly pyramidal; whorls eleven, including the protoconch; protoconch of three whorls, strongly axially ribbed, paucispiral, flattened on top, rather swollen.

Distribution. Australia.

KEY TO SPECIES OF *SOCIENNA*.

- a. Height over three times diameter, sculpture moderately developed *apicostata*
- aa. Height under three times the diameter, sculpture strongly developed *trisculpta*

SOCIENNA APICOSTATA (May).

Cerithiopsis apicostata May, 1919, *Proc. Roy. Soc., Tas.*, p. 64, pl. 16, fig. 21-21a.

There is some variation in South Australian specimens.

Loc. Tas., Cape Pillar, 100 fathoms (type), 40 fathoms, S.A., Cape Borda, 55 fathoms; Cape Jaffa, 90-130 fathoms; Beachport, 40-150 fathoms; Backstairs Passage, 22 fathoms; thirty-five miles S.W. of Neptune Islands, 104 fathoms. W.A., eighty miles west of Eucla, 80 fathoms.

SOCIENNA TRISCUPTA (May).

Cerithiopsis trisculpta May, 1912, *Proc. Roy. Soc., Tas.*, p. 46, pl. 2, fig. 4.

South Australian specimens are usually atypical, some being more slender and more finely sculptured than Tasmanian specimens. A few like those from Beachport, 40 fathoms, are typical.

Loc. Tas., Derwent Estuary (type), S.A., Beachport, 40 fathoms; Cape Jaffa, 90 and 30 fathoms; Cape Borda, 55 fathoms.

JOCULATOR Hedley 1909.

Joculator Hedley 1909, *Proc. Linn. Soc., N.S.W.*, 34, pl. 3, p. 442.

Genotype. *Cerithiopsis ridicula* Watson 1886—Wednesday Island, Cape York, 8 fathoms.

Shell small, dextral, ovate or bulbous contour, with a smooth subulate, many-whorled protoconch.

Distribution. Australia. Flindersian and Peronian, Fiji, New Zealand.

Australian species of the genus are: *J. cesticus* Hedley 1906; *J. ridicula* Watson 1886, four species from Hope Island, Queensland, namely *J. tribulationis* Hedley 1909, *J. westianum* Hedley 1909, *J. telegraphica* Hedley 1909, *J. pinea* Hedley 1909. Also two new species *J. introspecta* and *J. flindersi* described here.

JOCULATOR CESSICUS (Hedley).

Cerithiopsis cesticus Hedley 1906, *Proc. Linn. Soc., N.S.W.*, 30, p. 529.

This name was introduced to replace *Bittium minimum* Tenison Woods 1878 from Blackman's Bay, Tasmania, that name being previously used by Brusina 1864 for a Mediterranean species. This shell is something like a very minute *Cacozeliana granarium* Kiener; the upper whorls appear to be margined with a very dark brown line.

Loc. S.A., Grange, shell sand; Investigator Straits, 20 fathoms; 35 miles south-west of Neptune Island, 104 fathoms; Beachport, 150 fathoms; north of Cape Borda, 55 fathoms; W.A., King George Sound, beach; eighty miles west of Eucla, 80 fathoms.

JOCULATOR INTROSPECTA sp. nov.

Plate 28, fig. 5.

Shell small, pupoid, colour ochraceous, protoconch white, of five and a half smooth subulate whorls; adult sculpture of three rows of strong tubercles on each of the three later whorls; axial plicae correspond with the vertical rows of

the granules but are not very well developed; suture deeply furrowed, base spirally lirata. Height 2.5 mm., diameter 0.75 mm.

This species resembles *Joculator ridicula* Watson, from Cape York, the genotype, but may be distinguished by the less convex whorls, less developed axial pliae and the finer sculpture; it is also somewhat like *Joculator tribulationis* Hedley, Hope Island, Queensland; it may also be mistaken for a micro-morph of *Joculator cesticus* Hedley.

Loc. Holotype: reg. No. D. 14,422, S.A. Museum. S.A., North-West of Cape Borda, 55 fathoms, also one specimen in 60 fathoms.

JOCULATOR FLINDERSI sp. nov.

Plate 28, fig. 6.

Shell small, pupoid, colour ochraceous, whorls five and a half; sculpture of two rows of large granules on each whorl, each row of granules being about the same size, the lower very slightly smaller; immediately beneath the lower row on the body-whorl is a strong spiral of small nodules; smooth ribs succeeded by less pronounced ones on the base; between the two rows of granules is a narrow, deep furrow; aperture subquadrate, canal short; protoconch broken in our type specimen, but smooth subulate white, many-whorled. Height 2.1 mm., diameter 0.75 mm.

Loc. Holotype: reg. No. D. 14,423, S.A. Museum. S.A., north-west of Cape Borda, 55 fathoms.

This species is somewhat like *Joculator westianum* Hedley, from Hope Island, Queensland. It can be readily distinguished by the relative size of the two granule rows which are almost equal, whereas in *J. westianum* the lower row, as seen particularly on the body whorl, is decidedly smaller. *Joculator balteata* Watson from Fiji is even less like the present species in the comparatively greater difference in size between the two granule rows.

NOTOSEILA Finlay 1926.

Notoseila Finlay 1926, *Trans. N.Z. Inst.*, 57, p. 382.

Genotype. *Cerithiopsis terebelloides* Hutton 1873, New Zealand.

Shell small, subcylindrical, thin and fragile; sculpture of three spiral keels of equal strength on the upper whorls, four keels on the body whorl with a fifth below the periphery of the base; protoconch long cylindrical, of four convex and smooth whorls, the nucleus mammilate.

Distribution. Australia and New Zealand, Recent and Tertiary.

KEY TO SPECIES OF *NOTOSEILA*.

- a.* Colour orange throughout, height less than four times the diameter *crocea*
- aa.* Colour marbled, yellow or white banded, height four times or more than four times the diameter.
 - b.* Colour purplish brown sutures white banded, height more than four times the diameter *albosutura*
 - bb.* Colour marbled or yellow, suture not white banded, height four times the diameter.
 - c.* Colour marbled *marmorata*
 - cc.* Colour pale yellow *halligani*

NOTOSEILA CROCEA (Angas).

Cerithiopsis crocea Angas 1871, *Proc. Zool. Soc., Lond.*, p. 61, pl. 1, fig. 13.

Cerithiopsis atkinsoni Tenison Woods 1876, *Proc. Roy. Soc., Tas.*, p. 139.

Generally distributed through the Peronian and Flindersian Regions. Specimens from Aldinga range up to 25 mm. in length.

Loc. N.S.W., (type) Tas. (type *C. atkinsoni*) Vict., general S.A., Kangaroo Island, Outer Harbour, Middleton, Edithburgh, Aldinga, Corny Point, St. Francis Island; dredged Beachport, 110 fathoms; Normanville, 19–20 fathoms; Backstairs Passage, 17 and 22 fathoms; W.A., Albany, Ellenbrook, Yallingup.

NOTOSEILA ALBOSUTURA (Tenison Woods).

Cerithiopsis albosutura Tenison Woods 1876, *Proc. Roy. Soc., Tas.*, p. 140.

Cerithiopsis purpurea Angas 1877, *Proc. Zool. Soc., Lond.*, p. 36, pl. 5, fig. 7.

Differs from *N. crocea* in being smaller, more cylindrical, having a narrower base and white suture.

Loc. Victoria, Bass Straits (type), N.S.W. (type of *N. purpurea*), S.A., Venus Bay, MacDonnell Bay, Gulf St. Vincent and Spencer Gulf beach and dredged in 14 fathoms, numerous, also Cape Borda, 55 fathoms.

NOTOSEILA MARMORATA (Tate).

Cerithiopsis marmorata Tate 1893, *Trans. Roy. Soc., S. Aust.*, p. 190.

Shell elongately acuminate, marbled with white and brown, encircled by rounded cinguli and axially striated in the intervals; posterior whorls with four cinguli; five on the penultimate; five on the body-whorl posterior to the

periphery, with or without a slender one interposed between the first and second from the suture; the base with one cingulus in front of the periphery. Height 16 mm., diameter 4 mm.

Loc. Holotype: reg. No. D. 13,438, S.A. Museum. S.A., Port MacDonnell, both gulfs, dredged in shallow water down to 22 fathoms. This species is more slender than *Notoseila crocea* and stouter than *Notoseila albosutura*. In sculpture it approximates to *Notoseila crocea* but appears to have more cinguli on the body whorl. The colour is distinctive.

NOTOSEILA HALLIGANI (Hedley).

Cerithiopsis halligani Hedley 1905, *Rec. Aust. Mus.*, 6, p. 51, fig. 16.

The holotype comes from Cape Byron, N.S.W., 111 fathoms.

A few South Australian dredged specimens approach this species in general appearance and protoconch features.

Loc. S.A., Cape Borda, 55 fathoms; Beachport, 40 fathoms.

ZACLYS Finlay 1926.

Zaclys Finlay 1926, *Trans. N.Z. Inst.*, 57, p. 382.

Genotype. *Cerithiopsis sarissa* Murdoch 1905. Whangaroa Harbour, New Zealand.

Shell small, narrow tapering to a slender point with spiral and slightly weaker axial riblets; protoconch many-whorled, reticulate ending in a carina and not smooth as implied in the original description of the genotype species. Australian species are *Z. dannevigii* Hedley 1911, *Z. angasi* Semper 1874, = *clathrata* Angas 1871, *Z. semilaevis* Tenison Woods 1877, *Z. styliferus* sp. nov. *Z. cacuminatus* Hedley and Petterd 1906.

Distribution. Australia and New Zealand.

ZACLYS STYLIFERUS sp. nov.

Plate 28, fig. 1.

Shell elongately acuminate, dark brown in life, whorls about twelve including the protoconch; protoconch of four whorls, the third roundly angulated and the fourth more distinctly carinate and granulated at the angle; first spire whorl with two spiral costae, the posterior less valid, second whorl with two equal and a smaller one posteriorly; in each successive whorl the posterior costa becomes more valid; axial lirae numerous and close-set rather less than half as thick as the spiral costae, which they cross, dipping down into the interstices, the points of intersection having distinct round tubercles; sutures dis-

tinect; interval between spirals at suture wider than the interval between the middle and posterior costae, equal to that between the middle and anterior from which it is distinguished by its greater depth; body whorl with narrow peripheral costa in which the actual lirae end, granulating its posterior margin; base concave, barely microscopically axially striate; aperture squarely rotund, outer lip rather corrugate curving posteriorly, canal short, bent slightly to the left and open; inner lip thin, columella nearly straight. Height 5 mm., diameter 1 mm.

This species is related to the Peronian *Zaclys angasi* Semper 1874, Port Jackson, New South Wales = *C. clathrata* Adams 1871 Sow and Pigs, Port Jackson, but differs in being smaller, comparatively narrower, whorls slightly more convex. Some specimens are very narrow.

Loc. Holotype: reg. No. D. 14,424, S.A. Museum. S.A., Cape Borda, 55 fathoms; also shell sand, Gulf St. Vincent, Port MacDonnell to Sceales Bay and down to 150 fathoms; W.A., King George Sound, Ellenbrook, Hopetoun, Vict.

ZACLYS DANNEVIGI (Hedley).

Cerithiopsis dannevigii Hedley 1911, *Zool. Res.* "Endeavour," pt. 1, p. 109, pl. 19, fig. 26, 27.

Loc. S.A., Cape Wiles, 100 fathoms (type); Cape Borda, 55 fathoms; 62 fathoms; Beachport, 40 fathoms; Cape Jaffa, 90 fathoms; Neptune Island, 104 fathoms; W.A., eighty miles west of Eucla, 80 fathoms.

ZACLYS CACUMINATUS (Hedley and Petterd).

Cerithiopsis cacuminatus Hedley and Petterd 1906, *Rec. Aust. Mus.*, 6, p. 218, pl. 37, fig. 4.

The few S.A. and W.A. specimens are atypical and doubtful identifications.

Loc. N.S.W., Sydney, 300 fathoms (type); S.A., Beachport, 150 fathoms; W.A., King George Sound, Yallingup, Rottnest.

ZACLYS SEMILAEVIS (Tenison Woods).

Bittium semilaevis Tenison Woods 1877, *Proc. Roy. Soc., Vict.*, p. 58.

South Australian specimens are a little more coarsely sculptured though probably the same species.

Loc. N.S.W., Tas. (type), Vict., Western Port; S.A., Cape Borda, 55 fathoms; Beachport, 40 fathoms; Cape Jaffa, 90 fathoms; W.A., King George Sound.

SEILAREX Iredale 1924.

Genotype. *Seila attenuata* Hedley 1900. Middle Harbour, Sydney, New South Wales.

Shell dextral, very tall and slender, gently tapering, varies a little in proportion; whorls thirteen, gradually increasing rounded, contracted at the sutures; protoconch whorls obliquely longitudinally ribbed, a keel appears, the ribbing diminishes, and by gradual transition the adult sculpture is attained.

Distribution. Eastern and Southern Australia and Tasmania. *Seilarex turritelliformis* Angas 1877 is also included in this genus.

KEY TO SPECIES OF *SEILAREX*.

- | | |
|---|------------------|
| <i>a.</i> Intercalating spiral sculpture | <i>attenuata</i> |
| <i>aa.</i> Non-intercalating spiral sculpture | <i>verconis</i> |

SEILAREX ATTENUATA (Hedley).

Seila attenuata Hedley 1900. *Proc. Linn. Soc., N.S.W.*, 25, p. 91, pl. 3, fig. 9.

Some specimens from Tasmania are coarser than the New South Wales examples from the type locality, Middle Harbour, a characteristic which is easily recognized in May's figure. Illustrated Index of Tasmanian Shells, pl. 27, No. 12. Specimens off Schouten Island, 40 fathoms, however, approximate to New South Wales species and are quite different from the South Australian shells.

SEILAREX VERCONIS sp. nov.

Plate 28, fig. 4.

Shell tall, slender, thin, translucent unicoloured throughout, cream to pale yellow; whorls fourteen, gradually increasing very convex, constricted at the sutures; sculpture of eight equal, fine spiral sharp cords, constant throughout, interspaces crossed by arcuate growth striae; base flattened faintly spirally ribbed; columella arched, canal short, deflected to the left; protoconch as in genotype description, same colour as the rest of the shell. Height 15 mm., diameter 3 mm. This species is distinguished from the genotype *S. attenuata* by its great size, more delicate translucent shell, fine regular not intercalating sculpture and uniform and cream colour. It has been taken dredged alive but not found on the beaches in South Australia.

Loc. Holotype: reg. No. D. 14,425, S.A. Museum, S.A., Cape Borda, 55 fathoms; Backstairs Passage, 20 fathoms; Newland Head, 20 fathoms; south-west of Neptune Island, 104 fathoms; St. Francis, 35 fathoms.

TERTIARY SPECIES.

The following Tertiary species are tentatively placed in revised genera as follows:

Specula Finlay 1926.

praelongatus Ludbrook 1941. Adelaidean, Pliocene.

Manulona Ludbrook 1941.

lirasuturalis Ludbrook 1941. Adelaidean.

Notoseila Finlay 1926.

crocea Angas 1871. A species resembling this recent one occurs in the Adelaidean.

Cerithiella Verrill 1882.

salteriana Tenison Woods 1879. Miocene.

cribaroides Tenison Woods 1879. Balcombian and Janjukian.

reticosa Chapman and Crespin 1928. Miocene.

trigemmata Chapman and Crespin 1928. Miocene.

Zaclys Finlay 1926.

mitchellensis Chapman and Crespin 1928. Mitchell River, Miocene.

Seilarex Iredale 1924.

turritelliformis Angas 1877. Recent (Type). Balcombian?

Joculator Hedley 1909.

mulderi Tate 1897. Fyansford, Miocene.

Zaclys Finlay 1926.

woolnoughi Chapman and Crespin 1933. East Gippsland, Kalimnan, Pliocene.

EXPLANATION OF PLATE.

Plate xxviii.

- Fig. 1. *Zaclys styliferus* sp. nov. Holotype. $\times 16$.
Fig. 2. *Euseila pileata* sp. nov. Holotype. $\times 8$.
Fig. 3. *Euseila pileata* sp. nov., protoconch. $\times 40$.
Fig. 4. *Seilarex verconis* sp. nov. Holotype. $\times 5.5$.
Fig. 5. *Joculator introspecta* sp. nov. Holotype. $\times 27$.
Fig. 6. *Joculator flindersi* sp. nov. Holotype. $\times 36$.
Fig. 7. *Specula regina* sp. nov. Holotype. $\times 23$.



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