

THE VALIDITY OF THE GENERA *LISSARCA*, *AUSTROSAREPTA*, *CRATIS* AND *DENTICOSA*, WITH NOTES ON SOME AUSTRALIAN SPECIES (BIVALVIA, PHILOBRYIDAE)

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SUMMARY

The genera *Austrosarepta* Hedley, 1899, and *Denticosa* Iredale, 1930, are considered to be synonyms of *Lissarca* E. A. Smith, 1877, and *Cratis* Hedley, 1915, respectively. A colour variety of *Lissarca elliptica* (Laseron, 1953) and a new species, *Cratis delicata*, are described and figured.

DESCRIPTIONS

Lissarca and *Austrosarepta*

Hedley (1899) proposed the genus *Austrosarepta*, type species *A. picta* Hedley (1899), and placed his new genus in the subfamily Sareptinae Dall (Nuculaceae). Later, in 1908, he stated that *Austrosarepta* was a synonym of *Lissarca* E. A. Smith, 1877, (type species *L. rubrofusca* E. A. Smith, 1877.), and transferred this genus to the family Limopsidae. Cotton and Godfrey (1938), apparently having overlooked Hedley's withdrawal of *Austrosarepta*, independantly concluded its synonymity with *Lissarca* Smith and also placed the genus in the family Limopsidae.

Iredale (1930), in his fashion, revived *Austrosarepta* with the comment "as more material and study of Antarctic material shows this genus to differ materially from, though superficially resembling, the Antarctic and Subantarctic *Lissarca*." Following this revival, Laseron (1953) and Crozier (1966) maintained *Austrosarepta* as a good genus, but neither discussed its taxonomy. Iredale and McMichael (1962) listed it as a member of the family Limopsidae, without comment.

Iredale did not mention by what characters *Austrosarepta* could be separated from *Lissarca*. Powell (1933) suggested that the main differences were to be found in the form of the resilium (narrow and oblique in *Lissarca*, broadly triangular in *Austrosarepta*) and the structure of the ligamental area (smooth in *Lissarca*, vertically striated in *Austrosarepta*). From the comparison of *A. picta* Hedley (1899) and *A. elliptica* Laseron (1953) from New South Wales with *L. rubricata* Tate (1886) and *L. rhomboidalis* Verco (1907) from South Australia and Victoria, it appears that these four species are indisputably congeneric. The form of the ligamental pit is, however, different in each species, due to the direction of the anterior pit margin. In *A. elliptica* it points forwards, in *L. rubricata* downwards, and it is always more vertical than the posterior pit margin which runs rearwards. That the pit is more or less oblique is most evident in *A. picta*; moreover, it can be narrow (*L. rubricata*) or rather broad (*A. elliptica*). At any rate its form is not constant and therefore should not be considered a useful generic character.

With regard to the rows of vertical striae at each side of the resilium, I found these to be present in specimens of *L. rubrofusca* E. A. Smith (1877) from Heard Island, narrow but distinct in juvenile and difficult to

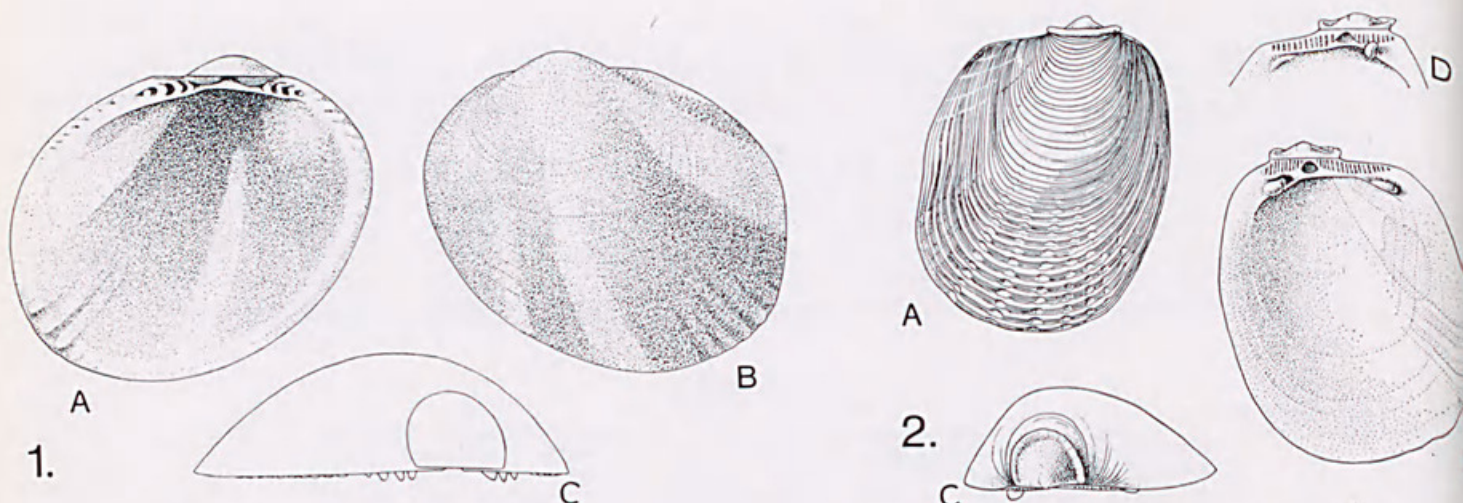


Figure 1 a - c, *Lissarca elliptica* (Laseron), colour variety;

Figure 2 a - d, *Cratis delicata* sp. nov.; a - c, holotype; d, paratype. (Drawings by the author).

trace in adult shells. As each of the four Australian species has the hinge features, sculpture and adductor scars corresponding with the original description and figures of *L. rubrofusca*, and with the specimens from Heard Island, it follows that they are correctly placed in *Lissarca* and that *Austrosarepta* is a synonym.

Dell (1964) located *Lissarca* in the family Philobryidae, and with some reservations (Nicol, 1966), I agree with this placement.

Lissarca elliptica

Lissarca elliptica (Laseron, 1953) has been described from uniformly brownish coloured shells. Two big samples, dredged in 64 m and 80 m off Cronulla (collections Rijksmuseum van Natuurlijke Historie, Leiden, and Zoölogisch Museum, Amsterdam, both in The Netherlands) and some small samples from other localities in New South Wales contain almost only valves with broad, more or less reddish brown, radiating bands. The alternating colour is whitish. One of these valves has been figured (Fig. 1a-c). One valve from Point Halliday (collection Van der Slik, Rotterdam, The Netherlands) measures 3.3 mm in length and 3.0 mm in height and has four anterior and five posterior teeth. The species is very closely related to *Lissarca rubricata*, but seems to be more elongate and to have relatively less heavy hinge components. The ventral margin in almost all the valves that I have seen lacks the coarse crenelation that is often, but not always, present in *rubricata*.

Cratis and *Denticosa*

When describing *Philobrya cuboides* from Backstairs Passage and Spencer Gulf, South Australia, Verco (1907) doubted this generic location as his species differed from other *Philobrya* species in possessing true teeth. Hedley (1915) erected the genus *Cratis* for species closely related to *Philobrya* which have massive divaricate cardinal teeth in the adult shell. Next to the type species, *C. progressa* Hedley (1915) from 100 fathoms, north-east of Port Macquarie, New South Wales, Hedley included

P. cuboides Verco (1907). Iredale (1930) proposed the new generic name *Denticosa* for *Philobrya cuboides*, "the strong teeth developed being sufficient to define the genus". A study of Hedley's descriptions of the genus *Cratis* and its type species, and comparison of *Philobrya cuboides* with *Cratis progressa* (two paralectotypes, Australian Museum, Sydney, Australia, no. C. 37760) and *C. delicata* described below indicate that *P. cuboides* answers well the conception of *Cratis*. This species should therefore be placed in *Cratis*, and *Denticosa* reduced to synonymy of the latter.

Cratis delicata sp.nov.

Fig. 2a-d

Description: Shell of medium thickness, transparent white, convex, high, in outline a parallelogram with weakly curved sides and strongly rounded angles, equivalve. Prodissoconch distinct, raised in the centre, with a projecting rim. Valves with a concentric sculpture of irregular rounded ribs with concentrically striated interstices. These ribs are hardly developed in the top half and well developed and more regular in the lower half. From the ventral margin about seven radial rows of pits run halfway the valve into the direction of the umbo. The ventral margin is very slightly waved according to these rows. The nontransparent white pits are situated in the interstices of the concentric ribs, that are narrowed by them. The rows towards the posterior end are best developed. The posterior valve end shows a weak radial depression, that may cause a weak incurvation of the margin. Between this depression and the posterodorsal margin some indistinct radial striæ can be observed.

The hinge consists of provincular crenulations and real teeth. The vertical crenulations are divided in two rows, one at either side of the small, triangular ligamental pit. In both valves there is one strong anterior and one weaker, almost horizontal posterior tooth. The anterior tooth in the right valve falls in front of that in the left valve.

There is only a rather distinct posterior muscle scar. The radial area between the umbo and this scar is nontransparent white. From two to four interior, radial ribs start from the lower posterior margin to become weaker and vanish on their way to the umbo, the most ventral one first. The remaining parts of the inner margin are smooth.

Type material: Holotype, a single right valve, Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands, collection no. 8450; paratypes, three right and two left valves, same collection, no. 8451. Holotype and paratypes were taken from shell sand, collected by Mr. J. Voorwinde at the beach of Narrabeen, New South Wales, Australia, in 1961.

Measurements: Holotype, length 1.0 mm, height 1.3 mm and section 0.4 mm. Paratypes not much different.

Discussion: Hedley did not give details of the outer sculpture of *Cratis progressa*. The following notes are based on two paralectotypes of the species. *C. progressa* has threadlike concentric ridges with depressed interstices. The ridges seem to represent growth stages. The depressions gradually decrease in depth towards the next ridge at their ventral side. This system of concentrics is crossed by radial ribs that are broader and

more pronounced, but interrupted by the concentric depressions. The interior margin shows about ten anteroventral and five posteroventral denticulations that are the distinct endings of less distinct, interior radial ribs. *C. delicata* differs from *progressa* in the much smaller prodissoconch (the dorsal margin of the prodissoconch measures less than 0.3 mm in *delicata* and more than 0.7 mm in *progressa*), in exterior sculpture features and in the absence of interior anteroventral marginal crenulations. In *progressa*, moreover, the posteroventral marginal crenulations are situated next to the muscle scar instead of under it as in *delicata*.

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