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SYSTEMATIC REVIEWS ON THE MESODESMATIDAE (MOLLUSCA, BIVALVIA) I. THE GENUS *MONTEROSATUS* BEU, 1971

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(With 3 text-figures)

In trying to identify a small *Mesodesma* from West Irian, New Guinea, much material in the collections of several museums was studied. As a guide for the identification I at first used the revision of the Mesodesmatidae by Lamy (1914), which is based exclusively on the collections of the Parisian museums. This publication, however, soon proved to be inadequate in view of the vast amounts of material in other collections. New ideas about the classification of the Mesodesmatidae prompted me to revise the systematics of this family, and preliminary publications (De Rooij-Schuiling, 1972, 1973) have already dealt with some aspects of this revision. The present paper is the first of a series of revisions in which all species of Mesodesmatidae will be described and discussed in detail.

These studies were made possible by the gracious co-operation of the staff and direction of many museums. For material concerning the genus *Monterosatus* my thanks are due to: Istituto di Geologia Paleontologia e Geografia Fisica, Torino, Italy (IGPGF); Institut Royal des Sciences naturelles de Belgique, Brussels, Belgium (Dautzenberg Collection) (IRSNB-D); Laboratoire de Biologie des Invertébrés marins et Malacologie, Muséum National d'Histoire Naturelle, Paris, France (LMP) and its Locard Collection (LMP-L).

I am grateful to Dr. C. O. van Regteren Altena for calling my attention to this interesting group of molluscs and for his encouraging help, to Drs. H. Boschma, P. H. van Doesburg, L. B. Holthuis and W. F. Ponder for their advice, and to Dr. A. C. van Bruggen for stimulating discussions.

The order Mactracea contains the two families Mesodesmatidae and Mactridae. The Mesodesmatidae comprise the genera *Monterosatus*, *Ervilia*, *Donacilla*, *Mesodesma*, *Coecella* and *Anapella*. This sequence is chosen here because *Monterosatus* and *Ervilia* more or less resemble the Tellinidae in habitus, while *Anapella* in the shape of the hinge and habitus resembles the Mactridae.

Diagnosis of the Mesodesmatidae. — Shell equivalve, small to moderately large (maximum length of the various species ranging from 3 to 140 mm) and ovate to triangular, mostly inequilateral in shape. The umbones are generally on the posterior side. The external ligament is short and weak, but there is a stout resilium situated in a deep resilifer. The hinge is rather solid. Each valve has one cardinal tooth. On the left valve there is one lateral tooth on each side of the umbo fitting between the two opposite laterals of the right valve. The pallial sinus is variously developed, or even absent in some genera.

Monterosatus Beu, 1971

Nesis Di Monterosato, 1875: 4 (nomen nudum).

Nesis Locard, 1899: 135. Type species by monotypy: *Nesis prima*. Not *Nesis* Mulsant, 1850 (Coleoptera).

Monterosatus Beu, 1971: 125. Replacement name for *Nesis* Locard, 1899, non Mulsant, 1850.

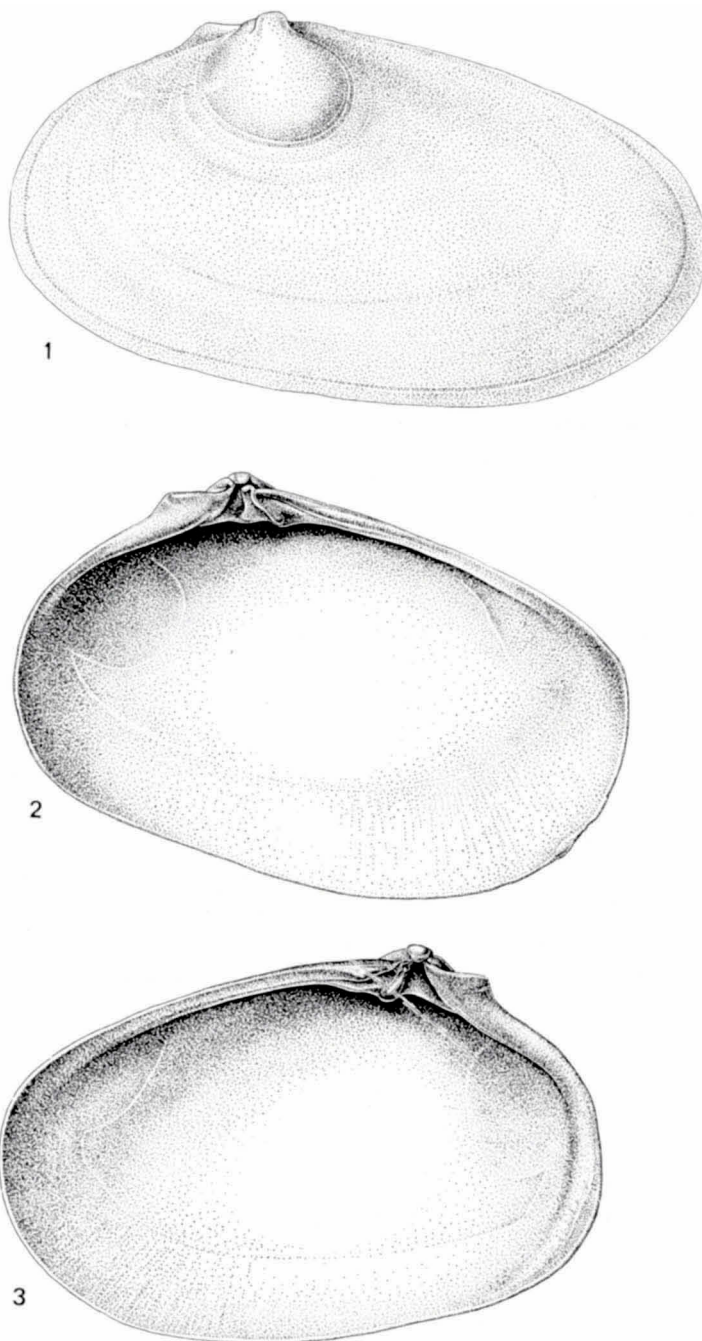
History. — Di Monterosato (1875) mentioned a new genus of molluscs *Nesis* with a single species *Nesis prima*, but gave no description or definition for either, so that both names are nomina nuda. Locard (1899) was the first to make these two names available by providing a description. *Nesis* Locard, 1899, however, is stillborn as the name *Nesis* before 1899 had already been used for 4 other zoological genera: by Mulsant (1850) for a genus of Coleoptera, by Stål (1860) for a genus of Hemiptera, by Conrad (1871) for a genus of Gastropoda and by Cambridge (1883) for a genus of Arachnida. Surprisingly, *Nesis* Locard was used by malacologists (usually with Di Monterosato cited as the author) until in 1971 Beu proposed the replacement name *Monterosatus* for it.

Monterosatus primus (Locard, 1899) (figs. 1-3)

Nesis prima Di Monterosato, 1875: 17 (Palermo & Capbreton); Di Monterosato, 1878: 73; Di Monterosato, 1884: 27; Locard, 1886: 405 (catalogue). Nomina nuda.

Nesis prima Locard, 1899: 136 (description, Capbreton, Golfe de Gascogne); Pallary, 1900: 407, pl. 8 fig. 20 (Ain el Turk); Sacco, 1901a: 119; Sacco: 1901b: 22, pl. 29 fig. 50 a, b (systematics); Lamy, 1914: 12, 73, text-fig. p. 13 (description, revision); Thiele, 1935: 896 (systematics); Franc, 1960: 2117; Pasteur-Humbert, 1962: 119 (Melilla); Nordsieck, 1969: 139 (distribution, catalogue).

Monterosatus primus — Beu, 1971: 126 (systematics).



Figs. 1-3. *Monterosatus primus* (Locard). 1, right valve from Oran (seen under 45° with the umbo lifted), coral zone, natural size 5.0 × 3.2 mm (IRSNB-D); 2, left valve, and 3, right valve, both from Melilla, natural size 6.0 × 3.8 mm (LMP). J. Wessendorp del.

Diagnosis. — Shell small, smooth, white; ligamental nymph on dorso-posterior margin; pallial line without sinus.

Description. — Maximum dimensions: 7.2×4.8 mm, diam. 2.8 mm.

Shell small, convex, elongate-ovate, inequilateral, anterior side much produced, anterior : posterior = ca. 2 : 1. The umbo shows a distinct short notch from the apex in a ventral direction (figs. 2, 3). The white valves are often transparent, the yellowish to light brown periostracum is often worn off. The prodissoconch is very distinct. The posterior part of the umbo is cleft by a deep, short sulcus in the direction of the ventral margin (fig. 1). The smooth surface of the valves is slightly glossy and shows concentric growth lines only.

Interior. — The pallial line is hardly visible, a pallial sinus is absent. The two muscle scars are proportionally large, the anterior is pear-shaped, the posterior rounded. The inner surface of the shell is glossy, sometimes with traces of a radial sculpture extending from the mantle line to the ventral margin.

Hinge. — Resilifer not produced into the shell. There is a conspicuous ligamental nymph from the umbo to about one third of the dorso-posterior side.

Hinge left valve. — To the big cardinal tooth a minor accessory one is perpendicularly joined. The resilifer is joined to the socket of the right cardinal (fig. 2). The anterior lateral reaches from the umbo to the anterior muscle scar and in the middle is somewhat thicker than at the ends. The posterior lateral is hardly developed.

Hinge right valve. — The $\wedge$ -shaped cardinal tooth forms a wedge-shaped socket for the left cardinal (fig. 3). The anterior laterals both reach from the cardinal to the muscle scar. The posterior laterals are almost superseded by the ligamental nymph, the ventral lateral tooth is reduced in size and only vaguely discernible.

Types. — I did not succeed in finding the holotype of *Nesis prima* Locard in the Laboratoire de Malacologie in Paris, nor did I obtain the paratype specimens of Di Monterosato.

Distribution and habitat. — The species occurs in both the Mediterranean and the Atlantic. Most of the samples originate from the so-called coral zone (French: zone corallienne). *M. primus* proved to be very rare in the material of the many museums examined, and only seven samples were found. Beu (1971: 126) remarked: "Pallary (1900: 408) noted that *Nesis prima* is a reasonably common Mediterranean shell". This is probably based on a misinterpretation of Pallary's (1900: 408) frasing "Nous en avons recueillis

plusieurs exemplaires dans les sables . . ." which should be translated: "We have collected several specimens of it on the sandy beach" (Pallary's sample in question consists of four valves only).

It is strange that all known material dates from the turn of the century or thereabouts. An explanation of this phenomenon may be that more recently collected shells have been wrongly identified. With this in mind I have been searching for them in the collections of several museums, but I did not succeed in finding any. No material of soft parts is available.

The distribution is very peculiar, but the scarce material does not allow me to reach any conclusion yet. The material I have seen from Arcachon (France) could very well be fossil or subfossil.

Remarks. — Because of its characters, viz., (1) the presence of a deep resilifer accommodating a strong internal resilium, (2) the presence of one cardinal tooth in each valve, (3) that of one lateral tooth in the left valve and (4) that of two laterals in the right valve on both anterior and posterior sides, the genus *Monterosatus* is correctly placed in the Mesodesmatidae.

According to Locard (1899) and Lamy (1914) there are no lateral teeth in this species, probably they overlooked these laterals because their optical instruments were not sufficiently refined. Especially on the anterior side the laterals are clearly discernible, posteriorly they are greatly reduced because of the presence of the ligamental nymph.

The sulcus in the umbo as well as the ligamental nymph are the most remarkable characters of this genus not seen in any of the other genera belonging to the Mesodesmatidae. Some features of the hinge, viz. the reduced laterals, show a resemblance with those of *Ervilia* (De Rooij-Schuiling, 1972), but the presence of the ligamental nymph concomitant with the absence of the pallial sinus warrants the recognition of a separate genus for the single species *Monterosatus primus*.

The Pliocene species, *Nesis secunda*, of which valves have been found in Astigiana (Italy) and which, according to Di Monterosato (see Sacco, 1901b: 21) should be included in the genus *Nesis*, does not belong to the Mesodesmatidae at all. Sacco already had his doubts about the generic assignment of this species when he described it as *Nesis secunda*. The material from Astigiana (Italy) (loan from IGPGF) which I studied, is in perfect agreement with Sacco's description of *Nesis secunda*. Mr. A. W. Jansen, Rijksmuseum van Geologie en Mineralogie, Leiden, was so kind as to identify these valves as *Spaniorinus* spec., fam. Galeommatidae, and this fossil species thus definitely may be excluded from the genus *Monterosatus*.

Material. — Atlantic coast (France): Capbreton, Golfe de Gascogne,

coral zone (cf. Locard, 1899) (LMP?); Arcachon, in deep water — 6/2 (IRSNB-D).

Mediterranean: Melilla (Spanish Morocco), 1915, P. Pallary — 3/2 (LMP); Aïn et Turk (Algeria), coral zone, P. Pallary — 4/2 (IRSNB-D); Oran (Algeria), coral zone, 50 m, P. Pallary — 1/2 (IRSNB-D); Oran (Algeria) (cf. Lamy, 1914) — 2/2 (LMP-L?); Palermo (Italy), 110 m (cf. Di Monterosato, 1875) — 2/2 (?).

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