

A PRELIMINARY REPORT ON SYSTEMATICS AND DISTRIBUTION OF THE
GENUS *ERVILIA* TURTON, 1822 (MESODESMATIDAE, BIVALVIA)

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INTRODUCTION

This is a preliminary report on the systematics and distribution of the genus *Ervilia*. A more extensive and documented revision of all the species of the Mesodesmatidae will be published later (De Rooij-Schuiling, 1974).

The species of the genus *Ervilia*, created by Turton in 1822, have typical mesodesmatid characters, viz., the possession of a feeble outside ligament, a strong resilium and the structure of the hinge. Their distribution is tropical and subtropical.

DIAGNOSIS OF THE MESODESMATIDAE

The Mesodesmatidae have equivalved shells from a small to moderately large size (max. length 3-140 mm) and of a subtriangular, ovate or subtrigonal-inequilateral shape. The umbones are mostly posterior. The external ligament is short and feeble, but there is a stout resilium fitted in a deep resilifer. The hinge is rather solid. In each valve a single cardinal is present. In the left valve there is 1 lateral on each side of the umbo fitting between the 2 opposite laterals of the right valve. The pallial sinus is variously developed, even absent in some genera.

TAXONOMY OF THE GENUS *ERVILIA* TURTON, 1822

Ervilia Turton, 1822: 55. Type species *Mya nitens* Montagu, 1808: 165.

Rochefortina Dall, 1924: 88. Type species *R. semele* Dall, 1924: 88.

Spondervilia Iredale, 1930: 402. Type species *Ervilia australis* Angas, 1877: 175, pl. 26, fig. 21.

Dall first described in 1924 a tiny shell from Oahu. He placed it in *Rochefortina*, a new subgenus of *Rochefortia*, and named it *R. semele*. In 1938 he synonymized this species with *Ervilia sandwichensis* Smith, 1885, thereby raising *Rochefortina* to a genus. *R. sandwichensis* is, however, a species which differs only on specific level from its nearest relative, *Ervilia biscalpta* Gould, 1861. So *Rochefortina* Dall, 1924 becomes a junior subjective synonym of *Ervilia* Turton, 1822 (De Rooij-Schuiling, 1972).

In 1930 Iredale created the new genus *Spondervilia* for the *Ervilia*'s from the Australian area. This genus was based on *Ervilia australis* Angas, 1877 as type species. However, contrary to Iredale's views, *Ervilia australis* and *E. biscalpta* are conspecific, and there is no difference between the specimens of the Australian and the Japanese populations. Because *E. biscalpta* differs only on the species level from other *Ervilia*'s, *Spondervilia* Iredale, 1930 is a junior subjective synonym of *Ervilia* Turton, 1822 (De Rooij-Schuiling, 1972).

DIAGNOSIS OF THE GENUS *ERVILIA*

Small mesodesmatids (max. size of recent species: length 15 mm; height 9 mm). Shell elongate-ovate to triangular, mostly inequilateral. Umbo on the anterior side.

The dorso-anterior side is straight to slightly convex, anterior, ventral and posterior sides are rounded. Some species have white, others coloured shells; the periostracum is nearly always completely worn off. The surface can be smooth and glossy with concentric growth lines only, or it can have distinct concentric ridges. But in all species radial sculpture is present, although in some species only on very few specimens. Although denied by some authors (Lamy, 1914: 12; Davis, 1967: 233), the *Ervilia*'s do have 2 lateral teeth in the right valve. The pallial sinus is deep and the pallial line is looped posteriorly on the ventral side of the sinus (see Fig. 5).

DISTRIBUTION OF THE GENUS

Ervilia seemed to appear suddenly in Europe during the Eocene. Their fossils are found in many of the sediments of the Thetys Sea: in Poland, Austria, France, North Italy and even in South Italy. The distribution of the fossils is mostly along the margin of the distributional area of the Recent species. It is strange to notice that they do not occur in the Mediterranean in recent times. I have as yet no explanation for this phenomenon. They have a really good adaptability, as is evident by their occurrence in both the Atlantic Ocean and the Red Sea.

Ervilia nitens (Montagu, 1808) (Figs. 1 and 5)

Mya nitens Montagu, 1808: 165.

Ervilia nitens (Montagu); Turton, 1822: 56, pl. 19, fig. 4.

Ervilia concentrica Gould,* 1862: 281.

Ervilia subcancellata Smith, 1885: 80, pl. 6, fig. 2-2b.

Ervilia maculosa Dall, 1896: 26.

Ervilia californica Dall, 1917: 414.

Ervilia rostratula Rehder, 1944: 189, pl. 19, fig. 1-2.

*Holmes described in 1860 a fossil *Ervilia* and named it *Mesodesma concentrica*.

According to Davis (1967) it is conspecific with *Ervilia concentrica* Gould. I do not want to express an opinion now because I have not yet made a thorough study of the fossils.

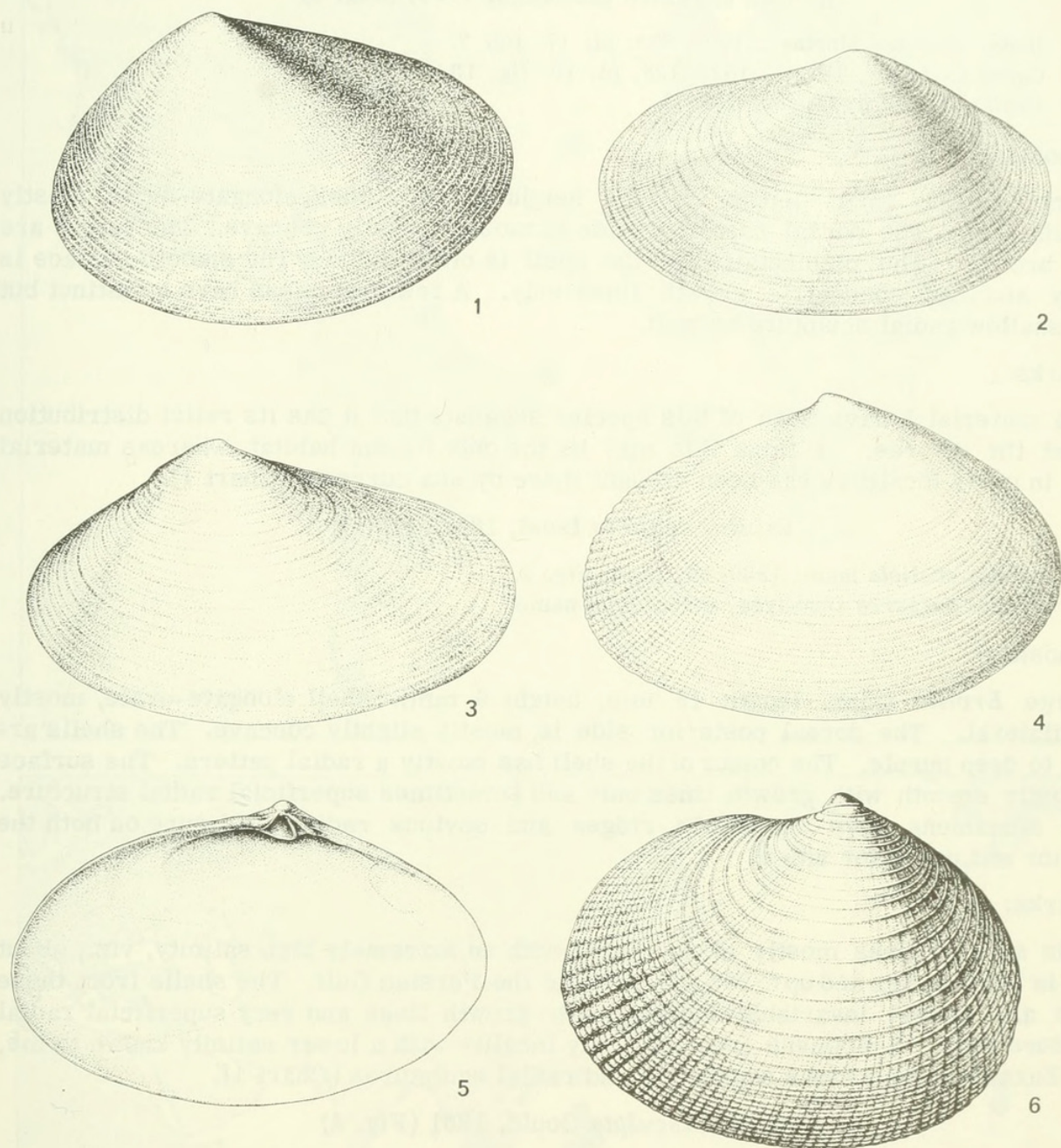
Diagnosis:

Medium sized *Ervilia* (max. length 9 mm, height 6 mm). Shell ovate to triangular. The appearance of the apex is variable. Sometimes, especially in pink specimens, the outline is rounded, hardly disturbed by the umbo. Sometimes the umbo projects conspicuously. All intermediate forms do occur. Shell white to pink. Concentric ridges all over the shell. If radial sculpture is present it is distinct but not as deep as the concentric ridges. Radial sculpture is mostly only present on the posterior side; however, sometimes it is found on the anterior side as well.

Remarks:

Ervilia nitens was first described from specimens found in Durban, Scotland. These few valves are so often mentioned in the literature that the species is considered British by many authors, even recently. I think, however, that Forbes & Hanley (1853: 345) were probably right in supposing that sailing ships brought them from the West Indies in their ballast sand which they put down in the Scotch harbour, thereby bringing these Caribbean molluscs to places far from their habitat.

The species is so very pluriform that it was described as 6 species. The synonymy of *Ervilia maculosa* with *E. concentrica*, and of *E. rostratula* with *E. subcancellata*,



FIGS. 1-6. *Ervilia* species. FIG. 1. *Ervilia nitens*. Left valve of type specimen of *E. californica*. San Pedro, California. Nat. size: 6.5 mm long, 4.5 mm high. FIG. 2. *Ervilia castanea*. Right valve. Portinho, Portugal. Nat. size: 12 mm long, 7 mm high. FIG. 3. *Ervilia scaliola*. Left valve. Ras Matarma, Red Sea. Nat. size: 6 mm long, 3.5 mm high. FIG. 4. *Ervilia bisculpta*. Right valve. Shionomisaki, Japan. Nat. size: 4.6 mm long, 3.2 mm high. FIG. 5. *Ervilia nitens*. Innerside left valve of type specimen of *E. maculosa*. Cape Lookout, North Carolina. Nat. size: 4.7 mm long, 3.0 mm high. FIG. 6. *Ervilia sandwichensis*. Right valve. Oahu, Sandwich Islands. Nat. size: 3.0 mm long, 2.3 mm high.

had also occurred to J. D. Davis (pers. comm., 1969). The study of the type specimens and of great amounts of material of this species from localities all over the western part of the Atlantic Ocean has convinced me that there is only 1 species in that region (Chart 1).

Ervilia castanea (Montagu, 1803) (Fig. 2)

Donax castanea Montagu, 1803: 573, pl. 17, fig. 2.

Capsa castanea, Turton, 1822: 128, pl. 10, fig. 13.

Ervilia castanea, Chenu, 1843: 3.

Diagnosis:

Large *Ervilia* (max. length 12 mm, height 6 mm). Shell elongate-ovate, mostly inequilateral. The dorsal posterior side is mostly slightly concave. The valves are light brown. The pigmentation of the shell is often radial. The smooth surface is glossy and has concentric growth lines only. A few specimens have a distinct but very shallow radial sculpture as well.

Remarks:

The material I have seen of this species suggests that it has its relict distribution around the Azores. I think this may be the only Recent habitat, whereas material found in other localities has been brought there by sea currents (Chart 1).

Ervilia scaliola Issel, 1869 (Fig. 3)

Ervilia scaliola Issel, 1869: 53, pl. 1, fig. 2.

Ervilia purpurea Deshayes, manuscript name.

Diagnosis:

Large *Ervilia* (max. length 15 mm, height 9 mm). Shell elongate-ovate, mostly inequilateral. The dorsal posterior side is mostly slightly concave. The shells are white to deep purple. The colour of the shell has mostly a radial pattern. The surface is mostly smooth with growth lines only and sometimes superficial radial structure. Some specimens have concentric ridges and obvious radial sculpture on both the anterior and posterior sides.

Remarks:

This species lives mostly in sea water with an extremely high salinity, viz., about 45‰ in the Red Sea and up to 55‰ in parts of the Persian Gulf. The shells from these areas are almost invariably smooth with growth lines and very superficial radial sculpture only. Specimens from the only locality with a lower salinity known to me, viz., Karachi have obvious concentric and radial sculptures (Chart 1).

Ervilia biscalpta Gould, 1861 (Fig. 4)

Ervilia biscalpta Gould, 1861: 28.

Ervilia livida Gould, 1861: 28.

Ervilia japonica Adams, 1862: 224.

Ervilia australis Angas, 1877: 175, pl. 26, fig. 21.

Ervilia ambla Dall, Bartsch & Rehder, 1938: 171, pl. 44, fig. 5-8.

Diagnosis:

Small *Ervilia* (max. length 7 mm, height 4 mm). Shell elongate-ovate to triangular, often equilateral. Anterior and posterior dorsal margins straight to slightly convex. The shells are white, often with an ivory shade. Concentric ridges all over the surface and very deep radial sculpture on both the anterior and posterior sides.

Remarks:

The study of type specimens and of material from many localities has convinced me that the species *Ervilia livida*, *E. japonica*, *E. australis* and *E. ambla* are conspecific

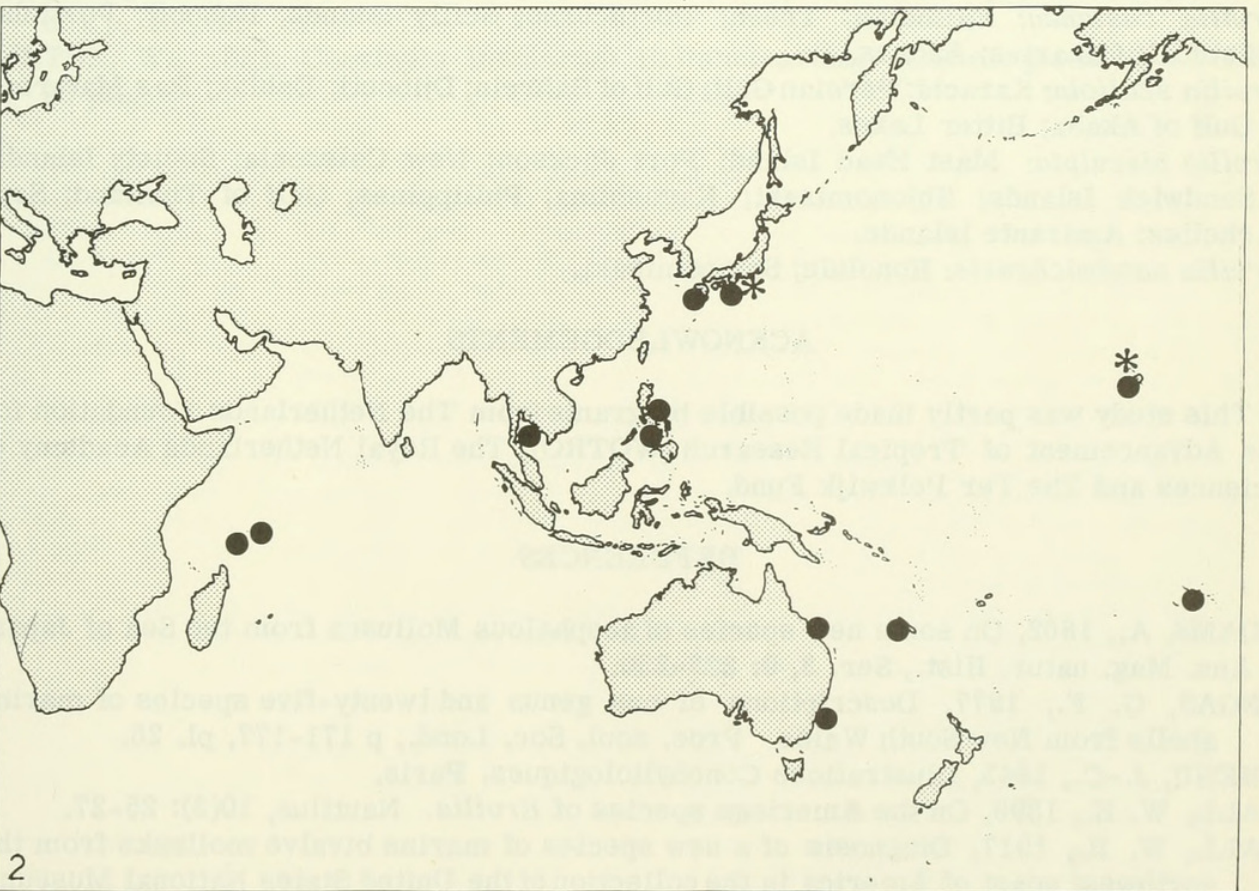
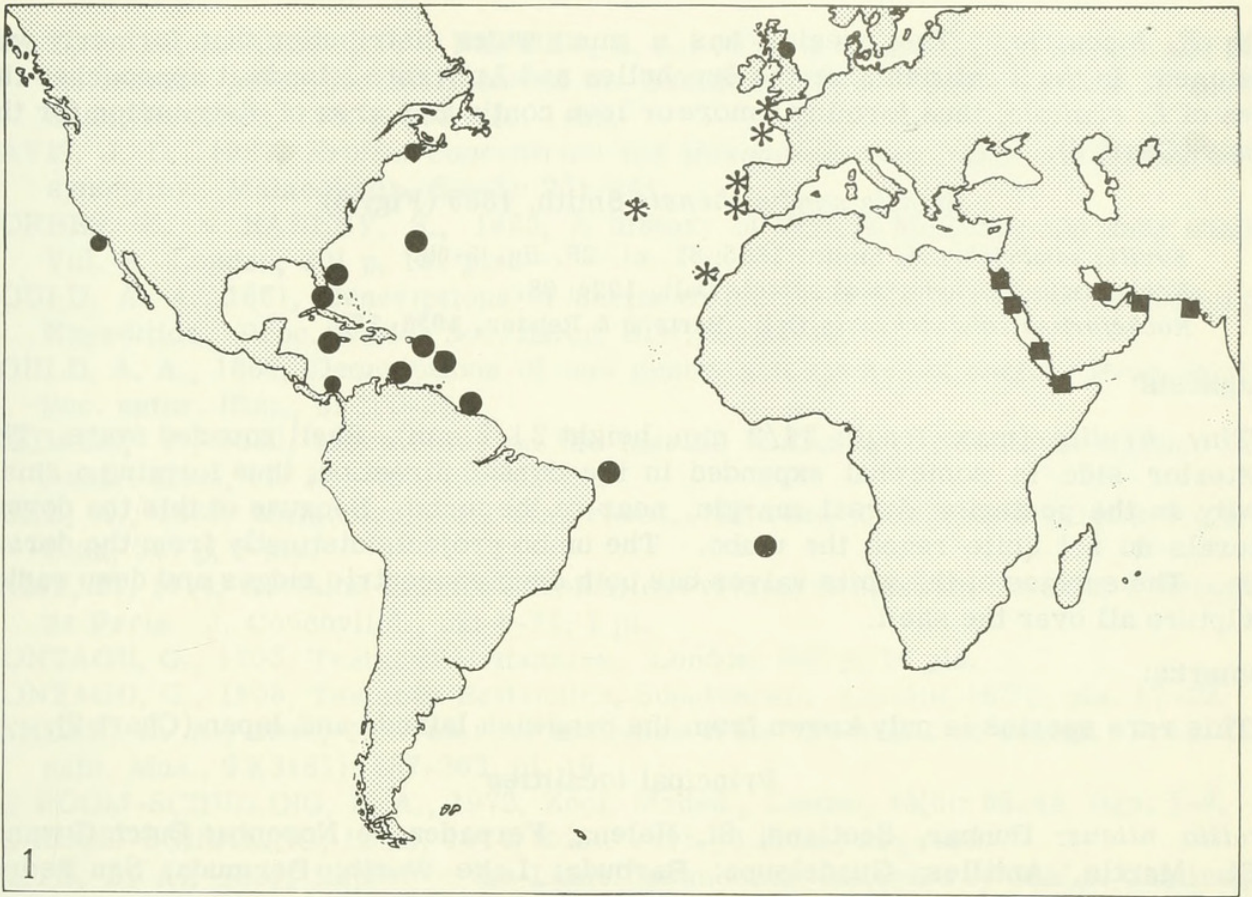


CHART 1. ● *Ervilia nitens*, ● *Ervilia nitens*, dubious loc., * *Ervilia castanea*, ■ *Ervilia scaliola*.

CHART 2. ● *Ervilia bisculpta*, * *Ervilia sandwichensis*.

with *E. bisculpta*. The species has a much wider distribution than formerly was assumed. In the localities near the Seychelles and Amirante Islands it approaches the area of *E. scaliola*, thus forming a more or less continuous area of distribution for the genus (Chart 2).

Ervilia sandwichensis Smith, 1885 (Fig. 6)

Ervilia sandwichensis Smith, 1885: 81, pl. 25, fig. 5-5b.

Rochefortia (*Rochefortina*) *semele* Dall, 1924: 88.

Rochefortina sandwichensis Dall, Bartsch & Rehder, 1938: 169.

Diagnosis:

Tiny *Ervilia* (max. length 3 1/2 mm, height 2 1/2 mm). Shell rounded ovate. The posterior side is somewhat expanded in the dorsal direction, thus forming a small cavity in the posterior dorsal margin, near to the umbo. Because of this the dorsal laterals do not quite reach the umbo. The umbo projects distinctly from the dorsal side. The surface of the white valves has both deep concentric ridges and deep radial sculpture all over the shell.

Remarks:

This rare species is only known from the Sandwich Islands and Japan (Chart 2).

Principal localities

Ervilia nitens: Dunbar, Scotland; St. Helena; Fernadez de Noronha; Dutch Guyana; St. Martin, Antilles; Guadeloupe; Barbuda; Lake Worth; Bermuda; San Pedro, California.

Ervilia castanea: Falmouth; Treen; Porthcurno; Scilly Islands; Roscoff; Portinho; Setubal; Canaries; Azores.

Ervilia scaliola: Karachi; Persian Gulf; Gulf of Bahrein; Djibouti; Dahlak; Ras Matarma; Gulf of Akaba; Bitter Lakes.

Ervilia bisculpta: Mast Head Island; Port Jackson; New Caledonia; Society Islands; Sandwich Islands; Shionomisaki; Kagoshima; Philippines; Gulf of Thailand; Seychelles; Amirante Islands.

Ervilia sandwichensis: Honolulu; Shionomisaki.

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