

Pleuromeris moerdijki n. sp., a new Eocene carditid bivalve from the southern North Sea Basin

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A small carditid species from the Eocene Aalter and Lede Formation of northern Belgium that is also found washed ashore on adjacent Dutch beaches is described as *Pleuromeris moerdijki* n. sp.

KEY WORDS: Ypresian, Belgium, *Pleuromeris*, Bivalvia, Carditidae, new species.

Introduction

While working on Eocene molluscs for a book on the fossil shells of the Dutch beaches and estuaries, we found a small, hitherto unknown carditid species in samples collected at the beach of Cadzand-Bad (Zeeland province, The Netherlands). The typical grey color indicated an Eocene origin for this specimen, as very similar grey-colored Eocene shells are not uncommon on the beach of Cadzand-Bad (van Nieulande, 1986). Study of small Eocene carditids from adjacent Belgium resulted in the discovery of the same species in Aalter Formation deposits. In the present paper the species is described.

Abbreviations – To denote the repositories of material referred to in the text, the following abbreviations are used:

FN F.A.D. van Nieulande, Nieuw & St. Joosland, The Netherlands
KZGW Collection Koninklijk Zeeuwsch Genootschap der Wetenschappen (collection housed in the Zeeuws Museum, Middelburg, The Netherlands)
MV M. Vervoenen, Aalst, Belgium
RGM Nationaal Natuurhistorisch Museum, Naturalis, dept. Fossil Mollusca, Leiden, The Netherlands.
RV right valve, LV left valve. The hinge terminology follows Moore (1969).

Systematic palaeontology

Family *Carditidae* Fleming, 1828

Genus *Pleuromeris* Conrad, 1867

Pleuromeris moerdijki sp. n.

Figures 1-2

Type material – Holotype - RGM 607.135 (Fig. 1): RV, Aalter, De Buize, West-Vlaanderen, Belgium, Aalter Formation, (Late Ypresian-Early Lutetian: Vandenberghe *et al.*, 2004), Leg. FN, 19-3-1975.

Paratypes – RGM 607.098, LV, Oedelem/Berg (coordinates X = 77.470; Y = 208.800), West-Vlaanderen, Belgium (flush borehole), 4-5 m. below surface, Aalter Formation, Oedelem Sands (Late Ypresian-Early Lutetian: Vandenberghe *et al.*, 2004), Leg. FN, 23-6-1979 (Fig. 2), RGM 607.099, RV from the same locality.

Other material – KZGW-NHG3390: 94 RV and 81 LV from Oedelem/Berg (coordinates X = 77.470; Y = 208.800), West-Vlaanderen, Belgium (flush borehole), 4-5 m. below surface; RGM 607.097, RV, same locality; RGM n.n., RV, Aalter, West-Vlaanderen, Belgium, temporary outcrop in railway cutting at the Weibroekdreef bridge, Aalter Formation, *Megacardita planicosta* horizon, Lower Lutetian, leg. FN, 19-3-1975; RGM n.n., RV, Aalter (West Vlaanderen province, Belgium), Railway cutting, temporary outcrop at the Weibroekdreef bridge, Aalter Formation, Aalter Sands, *Megacardita planicosta* horizon, Lower Lutetian, leg. FN, 19-3-1975. RGM n.n., RV, Balegem (Oost Vlaanderen province, Belgium), quarry Verlee, Lede Formation, Lutetian, Leg. FN, 3-4-1972.; RGM n.n.: LV, Cadzand-Bad, beach near Zwin, Zeeland, The Netherlands, leg. F.A.D. van Nieulande, 30-4-1984; KZGW-NHG3391: LV, Domburg, beach, Zeeland, The Netherlands, leg. C. Brakman, 27-2-1937.

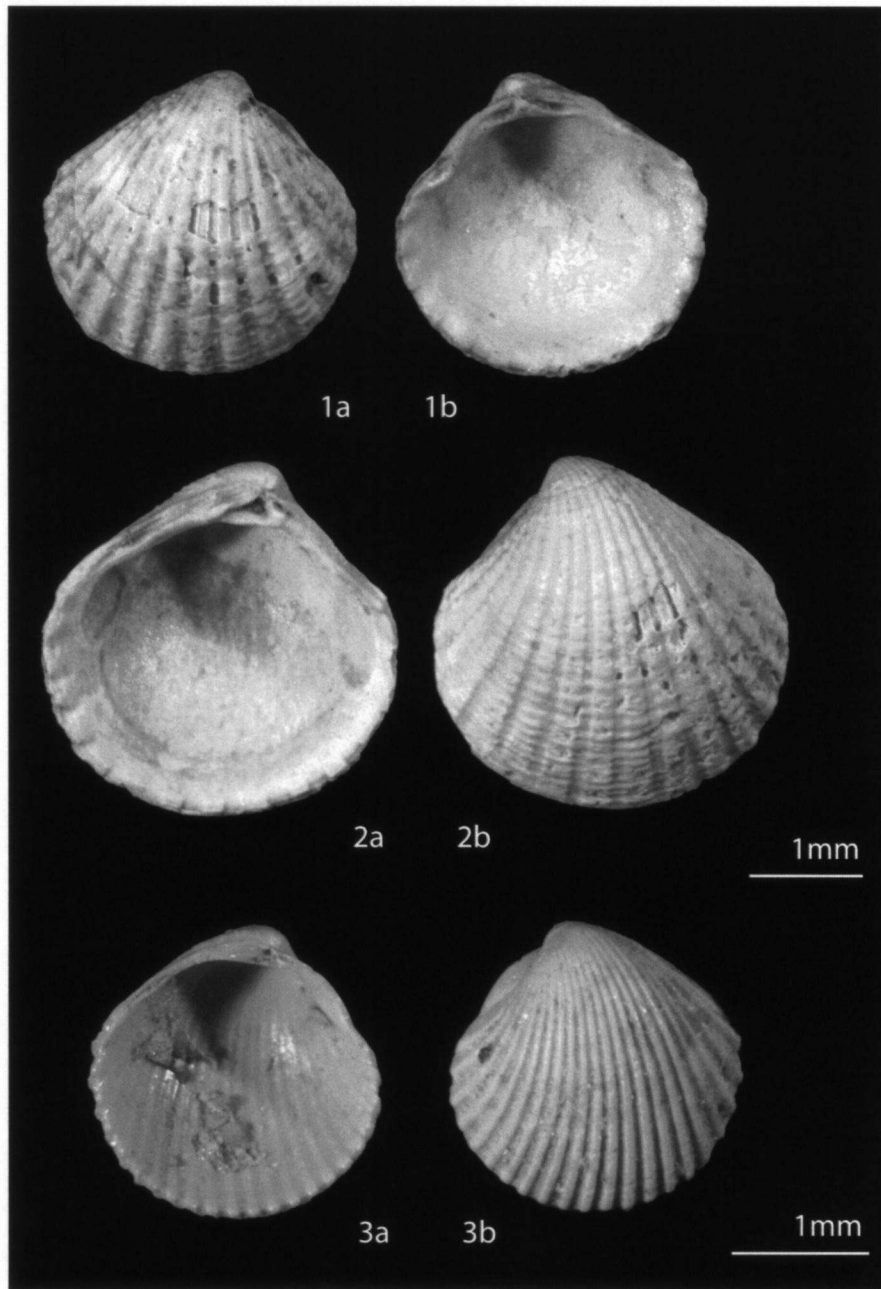


Figure 1. *Pleuromeris moerdijki* n. sp. RGM 607.135 (holotype, RV). Aalter, De Buize, West-Vlaanderen, Belgium. Aalter Formation (Late Ypresian-Early Lutetian), Leg. FN, 19-3-1975. (a) exterior view, (b) interior view.

Figure 2. *Pleuromeris moerdijki* n. sp. RGM 607.098 (paratype, LV), Oedelem/Berg, West-Vlaanderen, Belgium (flush borehole), 4-5 m. below surface, Aalter Formation, Oedelem Sands (Late Ypresian-Early Lutetian: Vandenberghe *et al.*, 2004), Leg. FN, 23-6-1979 (a) interior view, (b) exterior view.

Figure 3. *Pleuromeris cuneata* (Cossmann, 1882). RGM n.n. (LV), Aizy-Jouy, dept. Oise, France. Unnamed beds, Ypresian. (a) interior view, (b) exterior view.

Diagnosis – Small subrounded to subquadrangular carditid; apical angle circa 90°; lateral dorsal margins straight; ventral margin semicircular; radial ribs broad and low, with narrow interspaces and covered with low, commarginal secondary riblets; lateral teeth long, located distally.

Description – The umbo is marginally erect, the beak is slightly prosogyrous. In the LV, below the umbo, a very small depression separates the umbo from the marked

straight posterodorsal margin. The anterodorsal margin is nearly straight or only marginally curved. Both lateral sides grade into the semicircular ventral portion of the shell. The shell usually has seventeen broad, low (depressed) radial ribs, with interspaces about one third the width of the ribs. The ribs and interspaces are crossed by regularly spaced commarginal lines that develop as very thin and low but very distinct riblets on the radials. The ribs remain well visible on the shell's interior. The LV hinge has a rather

short, stout, trigonate orthocone cardinal 2. The cardinal 4b is slender and has a strong posterior orientation. The RV hinge has a broad, orthocone trigonal cardinal 3b and a thin, elongate cardinal 3a that is fused with the cardinal 3b. Both valves contain long but narrow, well developed lateral teeth. The base of the hinge plate is horizontal. The nymph is relatively large and contains a slender tooth-like ridge. The elongate lunule is not depressed. The line delimiting the lunula is somewhat convex, and on anterior end slightly depressed.

Dimensions – RGM 607.097 (holotype): H 3.1 mm, W 3.5 mm. RGM 607.098 (paratype): H 2.9 mm, W 3.5 mm.

Differentiation – *Pleuromeris moerdijki* is easily distinguishable from other small Eocene carditid species of the southern North Sea Basin (e.g., Glibert, 1985) by its marked straight anterodorsal margin. *Pleuromeris cuneata* (Cossmann, 1882) from the Early-Middle Eocene of the Paris Basin and the Middle Eocene of the French Atlantic region (Fig. 3) is more inflated and has more, about 25, and thinner radial ribs.

Derivatio nominis – named after Peter W. Moerdijk (Middelburg, The Netherlands), in honor of his work on the fossil bivalves of the Dutch beaches and estuaries.

Distribution – Aalter Formation, Aalter Sands and Oedelem Sands (Late Ypresian – Early Lutetian) and Lede Formation (Lutetian), Vlaanderen, Belgium; derived specimens were collected from beaches of adjacent Dutch coast.

Remarks – The supraspecific state of small Eocene carditids of northwestern Europe is in need of revision. An undescribed carditid reported by Glibert (1985: p. 284, pl. 2, fig. 9) as *Pleuromeris (Choniocardia) spec.* from Aalter should be attributed to the genus *Miodomeris* (Chavan, 1936).

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