

Notes on the systematics, morphology and biostratigraphy of fossil holoplanktonic Mollusca, 2. *Edithinella curva* sp. nov. from the Bockup Sandstone (Miocene, Reinbekian) of Wanzeberg near Ludwigslust (Mecklenburg-Vorpommern, Germany)¹

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Edithinella curva sp. nov. (Mollusca: Gastropoda, Euthecosomata, Cavoliniidae) is described from the Middle Miocene (Reinbekian) 'Bockup Sandstone', occurring in fluvio-glacial deposits at Karenz (Mecklenburg-Vorpommern, Germany), as reworked boulders of local origin.

Key words: Mollusca, Gastropoda, Euthecosomata, Pteropoda, Cavoliniidae, Edithinella, Miocene, Reinbekian, Germany.

The Miocene molluscan fauna of the so-called Bockup (often also spelt 'Bokup') Sandstone was, in its entirety, first described by Oehmcke (1886), although previous authors (e.g. Beyrich, 1853-1857) had already mentioned specimens from this unit. The fauna has received only little attention since. The Bockup Sandstone is highly fossiliferous, yielding mainly molluscs, predominantly in internal and external mould preservation. The generally fairly fine-grained and well-sorted sandstone occurs as larger (up to more than 1 m in length) or smaller concretions in the 'Bockup Sand', the thickness of which in the Wanzeberg area is between 8 and 14 m (W. von Bülow, pers. comm.). From the same area, Gehl (1966) reported on several boreholes at Malliss, in the same area, in which Bockup Sand with molluscs in shell preservation but no concretions was encountered. The Bockup Sandstone concretions are known mainly from reworked occurrences in local fluvio-glacial deposits.

In September 1991 I participated in a field trip, organized by colleagues of the Niedersächsisches Landesamt für Bodenforschung (Hannover), to the Wanzeberg area, situated c. 20 km SSW. of Ludwigslust, and directed by Dr. Werner von Bülow and other colleagues of the now Geologisches Landesamt Mecklenburg-Vorpommern (Schwerin). One of the localities visited was the disused 'Mau gravel pit', near the village of Karenz on the Wanzeberg, exposing fluvio-glacial sands overlying Bockup Sand. The mica clay, which elsewhere in this area overlies the Bockup sand, is absent at this locality. Many Bockup Sandstone boulders were found littering the surface. A substantial quantity of fossil material was extracted from these boulders for the collections of the National Museum of Natural History at Leiden. This collection is currently under study by Professor F. Strauch (Geologisches und Paläontologisches Institut und Museum, Münster), along with additional material from the same area.

The Bockup Sandstone of the Wanzeberg area represents one of the easternmost

¹ For No. 1 in this series see Basteria 62:193-196, 1998

occurrences of Reinbekian sediment within the North Sea Basin (Anderson, 1964: 48; von Bülow, in litt.), the age of which has been determined (Cadée & Janssen, 1983; 1994) on the presence of the gastropod *Streptodictyon abruptus* (Beyrich, 1856).

Among the material collected at Karenz in 1991 three pteropod species were recognized. Two of these, viz. *Limacina valvatina* (Reuss, 1867) and *Vaginella austriaca* Kittl, 1886 (RGM 396.630-631, respectively) are represented by single specimens only. The third species, quite common but undescribed, is here introduced as

Edithinella curva sp. nov. fig. 1a-c

Origin of name. - From L. *curvus* (adj.) (= bent, curved).

Type material. - Holotype (both internal and external moulds) RGM 396.621 and 26 more or less incomplete paratypes (internal and/or external moulds) RGM 396.622-628 from the type locality; 1 paratype (internal and external mould) donated to the Senckenberg Museum, Frankfurt am Main (SMF 311877); 1 paratype (internal mould) RGM 396.629 from Reinbek (Germany, Schleswig-Holstein) (Miocene, Reinbekian, Reinbecker Schichten).

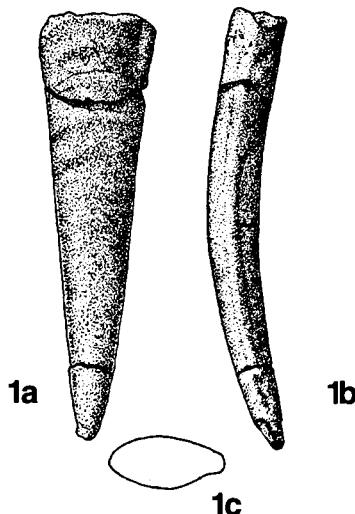


Fig. 1. *Edithinella curva* sp. nov., holotype, RGM 396.621. Karenz (Mecklenburg-Vorpommern, Germany), Miocene (Reinbekian), Bockup Sandstone; a, ventral; b, right lateral view; c, transverse section at aperture; x 6.

Type locality. - Karenz (Germany, Mecklenburg-Vorpommern), disused Mau gravel pit at Wanzeberg.

Stratum typicum. - So-called Bockup Sandstone, concretions from Miocene (Reinbekian) Bockup Sands reworked into fluvio-glacial deposits.

Diagnosis. - An *Edithinella* with flattened, strongly curved shell, very weakly developed lateral furrows and almost absent transverse undulations.

Description. - Shell vaginelliform, elongately triangular, with virtually straight side-lines in dorsal or ventral view. The protoconch is not preserved. In the oldest shell parts the dorso-ventral diameter is almost the same as the width, but in apertural direction the shell becomes rapidly flattened. At mid-height the diameter is c. 3/4 of the width, decreasing to c. 1/2 close to the aperture. The shell demonstrates a very distinct longitudinal curvature, with the dorsal side concave, and the ventral side convex. Judging from poorly preserved growth lines the dorsal apertural lip is somewhat more strongly curved than the ventral one. The transition between the dorsal and ventral sides is an obtuse carina, accompanied on both sides by a very superficial incision, that may be present all along the shell's length, only visible in parts of the shell, or entirely absent. Usually, when present, it is only visible in low angle light. Growth lines are especially well visible in the apertural half of the dorsal side. They describe a wide forward curve. A transverse undulation on this side of the shell may be suspected rather than made visible. In transverse section it is seen that dorsally the shell is slightly more convex than ventrally, with on both sides the strongest curvature in the centre. In some specimens the aperture demonstrates a very slight widening, but there are no traces of a thickened margin.

Discussion. - At first glance, *Edithinella curva* could easily be taken for a representative of the genus *Vaginella*, but the absence of a thread-like lateral carina, the strong curvature of the shell, and the presence of weak furrows accompanying the transition between dorsal and ventral sides favour assignment to *Edithinella* (Janssen, 1995: 124). Other species of that genus are *E. undulata* (Gabb, 1873) (type species; from unspecified Miocene deposits of Santa Domingo), *E. caribbeana* (Collins, 1934), described from the Middle Miocene Gatun Formation of Gatun, Panama Canal Zone, but also known from various Miocene localities in France, Italy and Malta (in part unpublished) and *E. varanica* (Sirna, 1968) from the Miocene of Gargano, Italy, and other Mediterranean localities.

From all these species, *E. curva* differs clearly by its stronger curvature, and by the very weakly developed or even absent lateral furrows and transverse undulation. Its shell also is more flattened than in all other species mentioned.

The single specimen from Reinbek, found in old (last century) and unidentified material housed in the Leiden collections, is also preserved as an internal mould on a small slab of fine-grained sandstone, containing also a specimen of the bivalve *Abra* sp., in shell preservation.

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