

The Foraminiferid *Osangularia schloenbachi* (Reuss, 1863); the erection of a neotype.

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ABSTRACT - The benthonic foraminiferid *Osangularia schloenbachi* (Reuss, 1863) is an established index taxon for Albian to Aptian age sediments worldwide. It is a very useful marker species commonly encountered in cuttings sampled from offshore boreholes on the north-west European continental shelf. However, despite its biostratigraphical utility there is no known holotype for this species. This short article rectifies this taxonomic point of order by erecting a neotype for the species.

INTRODUCTION

The foraminiferid described by Reuss (1863) as *Rotalia schloenbachi* from the "mittleren Minimustohn von Rohrenstollen aus einem Rohrengabben im nordwestlichen Theile des Sommerholzes bei Kniestedt" is not represented by a designated holotype in any known repository. Reuss in his publication did not designate a holotype or indicate the whereabouts of his collected and described material (1863). In addition Reuss neglected to provide accurate details of the stratigraphical horizon, section studied and the exact geographical location of the original sample. This imprecision is a result of a sampling technique popular among 19th century micropalaeontologists; often they did not collect their own samples but relied upon collectors/friends/acquaintances to supply them with samples for study. The mud samples studied by Reuss for his 1863 paper were provided by his good friend, Mr A. Schloenbach, a saltworks inspector from Liebenhalle near Saltzgitter. No doubt during the course of his employment Mr Schloenbach had ample opportunity to obtain samples from boreholes and quarries in the Saltzgitter Bad area where Kniestedt is located.

The situation is remedied herein by erecting a neotype for the stratigraphically important foraminiferid *Osangularia schloenbachi* (Reuss, 1863).

QUALIFICATION

The foraminiferid described as *Rotalia schloenbachi* by Reuss (1863) has been discussed both by Price (1976) and Crittenden (1983). The latter author regards it as the type species for *Osangularia schloenbachi* (Reuss). The revisory work of Crittenden (1983) comprises a critical study of the species taxonomy and a discussion of its stratigraphical importance in strata of Albian and Aptian age. As a consequence of the stratigraphical importance of *Osangularia schloenbachi* it is desirable that a neotype is erected.

The neotype is not therefore designated as an end in itself, nor even as a matter of curatorial routine but because it is needed as a result of the biostratigraphical utility of the species in strata of Early Cretaceous age.

In addition, the neotype for *O. schloenbachi* is erected as an adjunct to the revisory taxonomic work of Crittenden (1983). The erection of a neotype is an essential procedure vital for solving taxonomical problems associated with confused and doubtful identities of closely similar species of foraminifera (e.g. Edwards, 1981).

In the erection of a neotype a number of qualifying conditions, in addition to those discussed in the previous paragraphs, have to be satisfied (ICZN, 1985). These conditions are discussed and satisfied in turn as follows;

1. The species for which the neotype is erected/designated can be differentiated from other taxa by a number of characters. A full description of *Osangularia schloenbachi* is given by Crittenden (1983) where the character variation of the species is discussed.
2. The neotype designated is identified by the British Museum (Natural History) catalogue number P52254 and has the following dimensions: maximum diameter, 0.405mm; 10-11 chambers in the final whorl. Reuss's (1863) illustrated specimen has a maximum diameter of 0.42mm and has 10-11 chambers in the final whorl.
3. No previous valid holotype or neotype for the species has been designated.
4. The neotype designated in this article is consistent with what is known of the species described by Reuss (1863) despite the relatively poor illustration of Reuss (1863) which is reproduced here as Plate 1, Figs 8-10.
5. The original type locality of Reuss's material is not designated and it is therefore impossible to collect the neotype from the exact same geological horizon (topotype). How-

ever, the neotype collected in this study comes from the same geographical area and the same geological formation - "Gault Clay/Minimustohn" as the specimens of Reuss (1863). The neotype locality therefore becomes the type locality.

6. As original material from Reuss's samples or slides is not available and as the original sample collection location is not known no paratypes or topotypes are available from which a neotype can be selected.
7. The neotype designated in this article is deposited in the British Museum (Natural History) which is an accepted repository for scientific material.

NEOTYPE DESIGNATION

Kniestadt is in the Salzgitter Bad area of the Lower Saxony Basin. Samples collected by Price (1975) in the area yielded a foraminiferal species since identified as *O. schloenbachi* (Reuss, 1863); see Crittenden, 1983. The samples are from the Gault Clay of a disused quarry between Finkenkuhle and Salzgitter Bad and is of *Euhoplites laetus* Biozonal age (*nitidus* - *davesi* Subzones) of the Middle Albian. The location is illustrated by Price (1977, fig. 1).

Specimens of *O. schloenbachi* are from sample number 5340, from bed 12 (Price, 1975) from the disused quarry between Salzgitter Bad and Finkenkuhle (12 kilometres south west of Salzgitter: map ref. T.K. Salzgitter 3928; re 3592900, h5769700, Deutsche Topographische Karte 1:250000 Messtisch Blatt). From this sample a neotype for *O. schloenbachi* is designated (Plate 1, Fig.6) and is deposited in the British Museum (Natural History) with the catalogue number P.52254. Paratypes are illustrated in Plate 1, Figs 1-2 (OSC 8101), Plate 1, Fig.3 (OSC 8104) and Plate 1, Figs 4 & 5 (OSC 8102) and are deposited in the collection of Stephen Crittenden.

For comparative purposes one other specimen of *O. schloenbachi* is illustrated (Plate 1, Fig.7; P51213, from Crittenden, 1983, pl.5, fig.14) together with a copy of the original drawing of Reuss (1863). For further illustrations and for a comprehensive taxonomic discussion reference should be made to our previous works (Price, 1975, 1976; Crittenden, 1983).

The designated neotype is well preserved apart from debris in the apertural face area which partially conceals the osangularid aperture. All other specimens in the sample have debris in the apertural area.

ASSOCIATED FORAMINIFERAL FAUNA

The quarry section, and its associated foraminiferal fauna, at Finkenkuhle has been described and illustrated by Price (1975, pp. 114-115, figs. 76 & 92). The macrofaunal correlation of the section has been based largely on the occurrence of belemnites, particularly *Neohibolites minimus*.

The basal part of the section is of *E. loricatus* Biozonal age (Spaeth, 1971) and possibly of *intermedius* sub-zonal age

(Kemper, *pers. comm.*). The complete absence of foraminifera in the washed sample residues, comprising abundant quartz, glauconite and iron oxide, of the basal part of the section does not permit biostratigraphical age dating.

The upper part of the section, dated by Spaeth as *E. laetus* Biozone age, contains an abundant foraminiferal fauna which substantiates the age assignment (foraminiferal fauna Biozone 4 of Price, 1977, see figs 3 & 4 and table 1).

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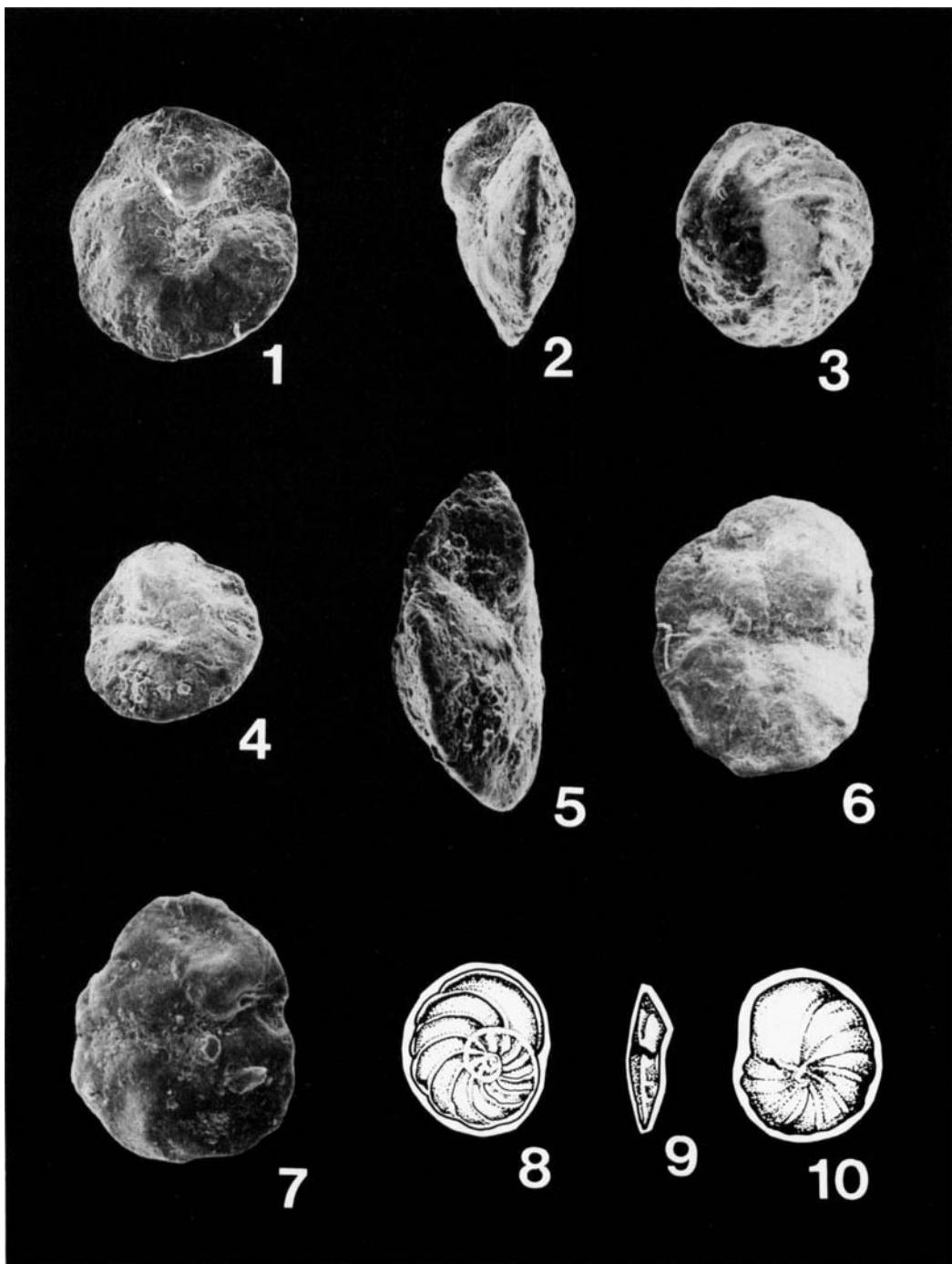
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Explanation of Plate 1

Osangularia schloenbachi

Figs 1 & 2. Ventral & Edge view. Sample No. 5340. Specimen No. OSC8101 x 95.

Fig. 3. Dorsal view. Sample No. 5340. Specimen No. OSC 8104 x 95.

Figs 4 & 5. Ventral and Edge view. Sample No. 5340. Specimen No. OSC 8102 x 95.

Fig. 6. Ventral view. NEOTYPE. Sample No. 5340. Specimen No. P52254 x 95.

Fig. 7. Ventral view. Borehole 49/24-4 (4880 ft). Specimen No. P51213. From Crittenden, 1983 (plate 5, fig.14) x 95.

Figs 8, 9, 10. *Rotalia schloenbachi* Reuss, 1863; from the original illustration of Reuss, pl.10, fig.5 x 60.