

Preliminary note on the occurrence of *Globorotalia* cf. *reissi* Loeblich and Tappan in the Danian deposits of Denmark

by

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Abstract

A description is given for a *Globorotalia* new for the Danian deposits of Denmark. It has relation to Paleocene and lower Eocene forms described from North Caucasus and the U.S.A.

Introduction

In recent years an increasing amount of literature about stratigraphic correlation by means of planktonic foraminifera has been published, and in connection with the debate about the Cretaceous—Tertiary boundary attention has been called to the Globigerinaceae of the Danian in the type area. It may here be of interest to know that besides the Globigerinae treated by TROELSEN (1957) a *Globorotalia* occurs in the Danian deposits of Denmark, which is closely related to some species described by LOEBLICH and TAPPAN from the Paleocene of the Gulf and Atlantic Coastal Plains of the U.S.A.

Material:

The material used for the present note has been derived from 2 samples from the Well Record Department of the DGU (the Geological Survey of Denmark) originating from two borings made in the south-eastern part of the country. According to ØDUM (1928) the Danian deposits are here represented only by their uppermost part (the zone of *Tylocidaris vexilifera*).

Rudkøbing Waterworks, boring number 2 at Lejbole, Langeland, file no. 165. 58:

- 0 -34.2 m: Pleistocene deposits.
- 34.2-65.5 m: Danian coccolithic limestone with bryozoans.
- Ditch samples from 34.9 m, 36 m, 38 m, 41 m, 43.5 m, 48 m, 54 m and 60.40 m.

Sandby Waterworks, Lolland, file no. 229. 132:

- 0.5-26 m: Pleistocene deposits.
- 26-c. 40 m: Danian bryozoan limestone.

c. 40–48 m: Senonian White Chalk.

Ditch samples from 29 m and 32 m: bryozoan limestone.

– – – 40 m: contamination of bryozoan limestone and White Chalk.

– – – 45 m, 48 m: Senonian White Chalk with bryozoans.

Sample no. 1: file no. 229. 132, depth 32 m, 122 specimens of *Globorotalia cf. reissi*.

Sample no. 2: file no. 165. 58, depth 43.5 m, 230 specimens.

The other Globigerinaceae in these samples, of which a more comprehensive report will appear in the future, were: *Globigerina? daubjergensis* BRONNIMANN, *Globigerina pseudobulloides* PLUMMER, *Globigerina triloculinoidea* PLUMMER, *Globorotalia compressa* (PLUMMER).

Description:

Test trochospiral, biconvex to planoconvex (umbilico-convex), peripheral margin rounded, equatorial periphery lobulate. It is composed of about 13 chambers arranged in $2\frac{1}{2}$ whorl, increasing regularly and slowly in size as added, with $4\frac{1}{2}$ –5 chambers making up the last whorl. The initial chambers are inflated, the later ones becoming ovate to rounded conical, slightly compressed on the dorsal side and ventrally forming a faint umbilical shoulder. Umbilicus small and shallow. The sutures are depressed and more or less distinct, strongly curved on the dorsal side, meeting the periphery almost tangentially. The ventral sutures are nearly radial. The aperture is interiomarginal, umbilical–extraumbilical, forming a low arch, extending from the umbilicus for about half to two thirds of the length of the apertural face, bordered by a narrow lip. The apertural face is slightly concave in the distal part.

The wall is calcareous, finely hispid and pitted, with fine pores placed in the pits, the sculpture generally decreasing during ontogeny. In rare cases the whole test is nearly smooth. There is no visible difference between the sculpture of the umbilical region and the rest of the surface.

Coiling ratio: Both samples: c. 52 per cent. dextral.

Dimensions: Specimens range in greatest diameter of test from 0.15 mm to 0.26 mm; the mean for sample 1: 0.22 mm
the mean for sample 2: 0.19 mm.

Remarks:

Globorotalia compressa (PLUMMER) can bear a superficial resemblance to this species, but is distinguished by the smooth test, the distinct sutures, the larger and more distinct umbilicus, the wide lip, and the more compressed chambers. *Globorotalia cf. reissi* differs from *Globigerina pseudobulloides* PLUMMER in the shape of the chambers.

The species described is closely related to *Globorotalia perclara* LOEBLICH AND TAPPAN (1957, p. 191) and *Globorotalia reissi* *ibid.* (p. 194), but characterized by the small umbilicus, the smaller number of chambers per whorl, and by not being spinose.

A biometrical study has been made of the populations of *Globorotalia cf. reissi* from the two samples and shows a normal dispersion with no relation between the relative height of the spira and the sculpture in the Danian form.

Globorotalia perclara is described from the Brightseat formation and together with *Globorotalia reissi* from the Aquia formation, the Hornerstown formation, and several other Gulf and Atlantic Coastal Plain formations in the USA.

Another form with great resemblance to *Globorotalia cf. reissi* is *Globorotalia imitata* SUBBOTINA (1953) described from the Elburgan formation of North Caucasus. It is distinguished from *Globorotalia cf. reissi* by its small number of chambers, increasing quickly in size, the last whorl making up $\frac{2}{3}$ of the diameter of the test.

It seems difficult today to place *Globorotalia cf. reissi* taxonomically; further studies must be based on comparative and type material.

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PLATES

Plate I

Globorotalia cf. reissi LOEBLICH AND TAPPAN. All figures \times c. 200
Locality: Sandby Waterworks, file no. 229. 132; depth: 32 m

1a-1d: Specimen no. T 310

1a : Dorsal view

1b : Ventral view

1c : Lateral view

1d : Apertural view, oblique lateral.

2a-2d: Specimen no. T 302

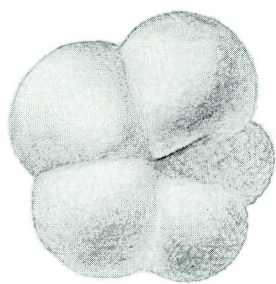
2a : Dorsal view

2b : Ventral view

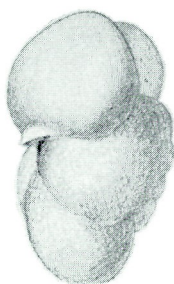
2c : Lateral view

2d : Apertural view, oblique lateral.

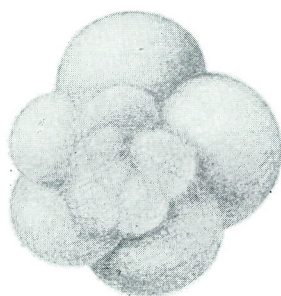
The collections of the Geological Survey of Denmark.



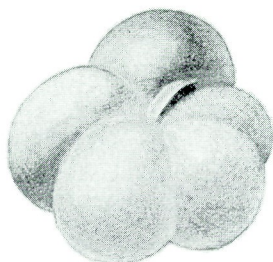
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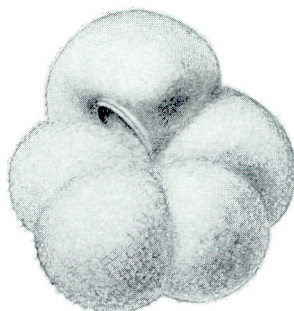
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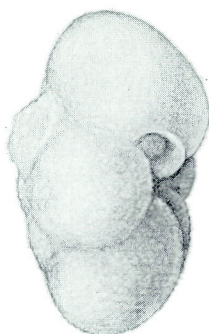
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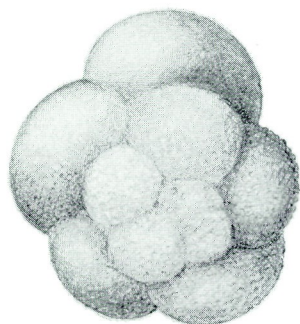
1d



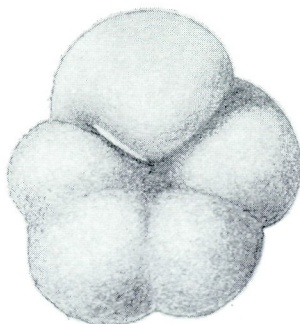
2d



2c



2a



2b

Plate II

Globorotalia cf. reissi LOEBLICH AND TAPPAN. All figures \times c. 200

Locality: Sandby Waterworks, file no. 229. 132; depth: 32 m

3a-3d: Specimen no. T 312

3a : Dorsal view

3b : Ventral view

3c : Lateral view

3d : Apertural view, oblique lateral

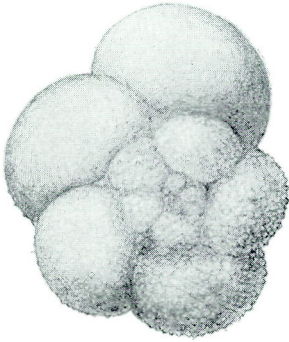
4a-4c: Specimen no. T 311

4a : Dorsal view

4b : Ventral view

4c : Lateral view.

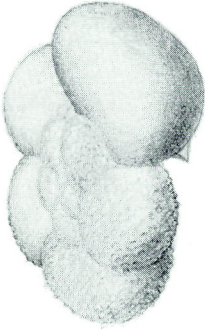
The collections of the Geological Survey of Denmark.



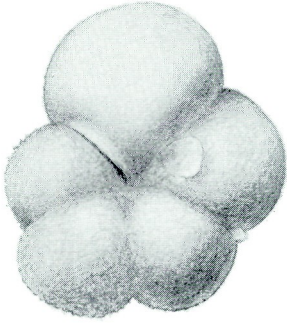
3a



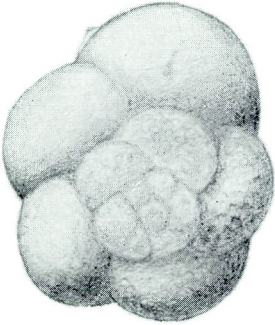
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3d



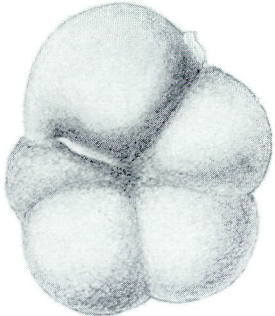
3b



4a



4c



4b