

FORAMINIFERA FROM THE CRETACEOUS OF SOUTHERN LIMBURG, NETHERLANDS

by J. HOFKER.

VI.

GLOBOROTALIA (TRUNCOROTALIA) MOSAE NOV. SPEC.

Test relatively large, strongly built, dorsal side slightly elongate, oval. Dorsal side flat, ventral side strongly convex. Margin acute, with crenulated border which is poreless. At dorsal side only the chambers of the last formed whorl visible, 6 of them, with oblique sutures which are slightly limbate by fine chalk knobs. Central part of dorsal side covered by many small chalk knobs. Ventral side strongly convex, nearly conical, chambers reaching the central part and totally covering the umbilical region, where chalk knobs may be formed. Sutures at ventral side depressed, nearly radial. Aperture a crescent-like slit in the middle of the ventral suture. Larger diameter up to 1,20 mm, thickness up to 0,72 mm.

The species was found in the ENCI-quarry, in the outcrop section 4, in the layers 15,50 m (middle Mc) and at 24,00 and 24,25 m (lower Md).

Real *Globorotalia* with closed umbilicus and poreless margin without doubt has developed from the last forms of *Globotruncana* with a single keel (Maestrichtian); yet *Truncorotalia* is known only from the lowest Tertiary upward. This species strongly points to the Tertiary age of the Middle Mc and Lower Md.

The species seems to be closely allied to *Globorotalia velascoensis* (Cushman) var. *acuta* Toulmin, as found in the Paleocene of America; but the specimens of South-Limburg are larger than those of the paleocene of Trinidad and elsewhere (See Graham and Classen, Contr. Cushman Found., 6, 1955, p. 29, pl. 5, figs. 8, 9).

Types will be stored in the foraminiferal collections in the Geological Survey at Haarlem.

VII.

NONIONELLA CRETACEA (REUSS). (NON CUSHMAN):

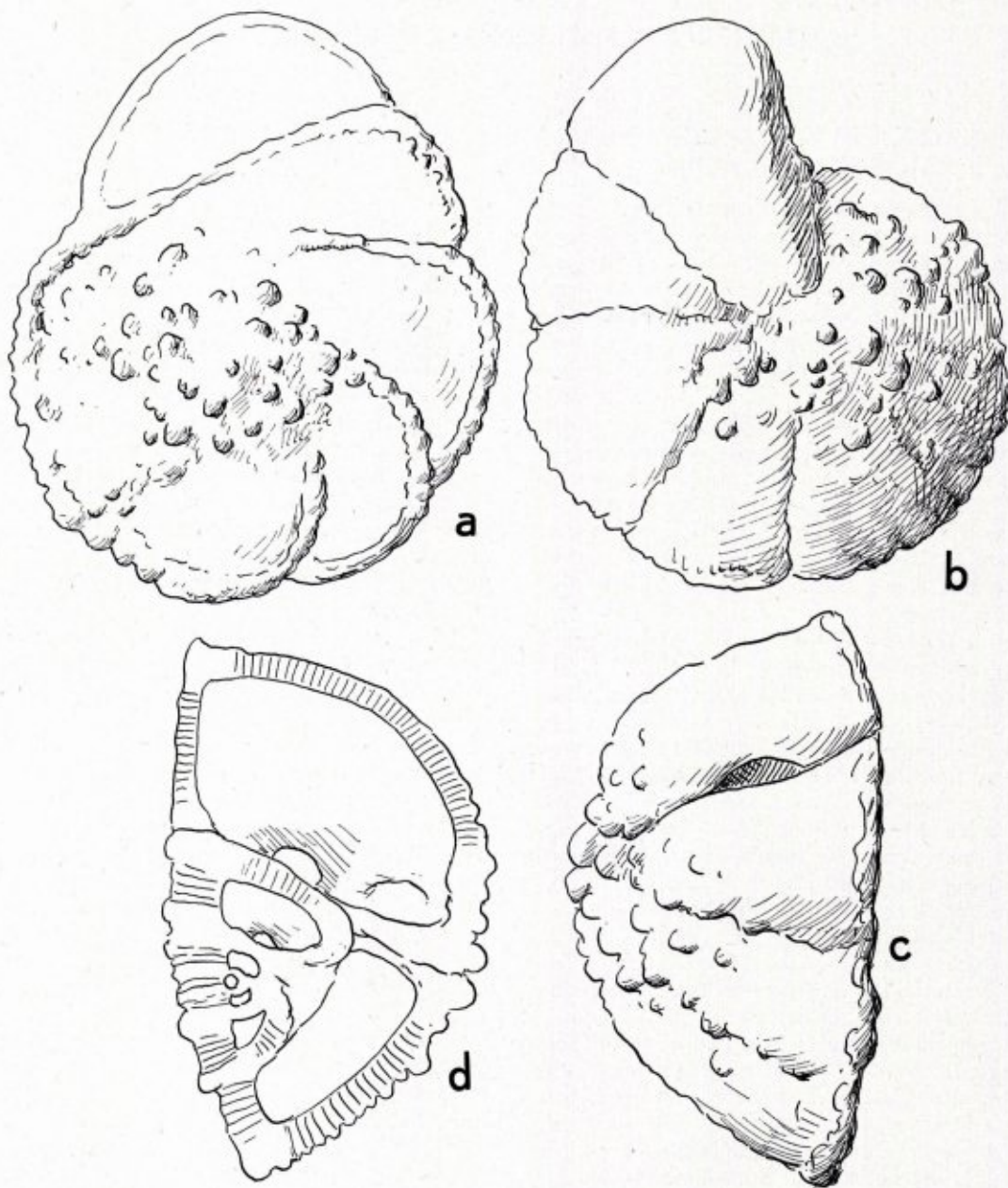
Operculina cretacea Reuss, 1862 (1861), Sitzber. Math. Naturw. Cl., k. Akad. Wiss. Wien, Vol. 44, p. 309, pl. 2, fig. 1.

Test oval, very much compressed with nearly acute margin. On both sides the chambers of the last formed whorl are visible. Last formed chamber not oblique and symmetrical. Last formed chambers increasing rapidly in breadth, but not in height. Chambers 11—13, with slightly bent sutures; chambers themselves inflated, forming kind of ridges between the sutures. Wall smooth and shining in well-preserved specimens. Pores very fine and dense. Apertural face narrow, with fine slit at the margin. Length up to 0,90 mm, somewhat smaller, thickness up to 0,30 mm.

This species was found in several samples from the Kunrade Chalk (Kunderberg-quarry, Welterberg-quarry, etc.) and in the Upper Mc and Lower Md, in the ENCI-quarry, near Houthem, etc. In most samples it is rather rare, but there are samples where it is commoner.

Hofker (Publ. Natuurhist. Genootschap Limburg, Ser. IV, 1951, p. 34—35) described a different species from the Maestrichtian chalk as *Nonionella cretacea* Cushman, since that species very much resembles the american species from the Taylor Group. This species has to be renamed as well as *Nonionella cretacea* Cushman from America. Fortunately Visser (Thesis, Leiden, 1950, p. 250), gave already a name, viz. *Nonion troostae*. Since that species, always with smooth surface and not with the inflated chambers, also is a *Nonionella*, it has to be called *Nonionella troostae* (Visser). *Nonionella troostae* is found rarely in the Cr 3c, is common in the Cr 4, the Ma, and up to the upper layers of the Mc. It is different from *Nonionella cretacea* Cushman, which is smaller. That species also has to be renamed, and I propose *Nonionella taylorensis* nov. nom., since *Nonionella cretacea* (Reuss) has priority.

So, *Operculina cretacea* Reuss is not an *Operculina*, but a *Nonionella*.



GLOBOROTALIA (TRUNCOROTALIA) MOSAE.

Fig. 1. Specimen from St. Pietersberg, outcrop 4, 24,25 m, lower Md. a, dorsal view; b, ventral view; c, apertural face; d, transverse section. $\times 60$.

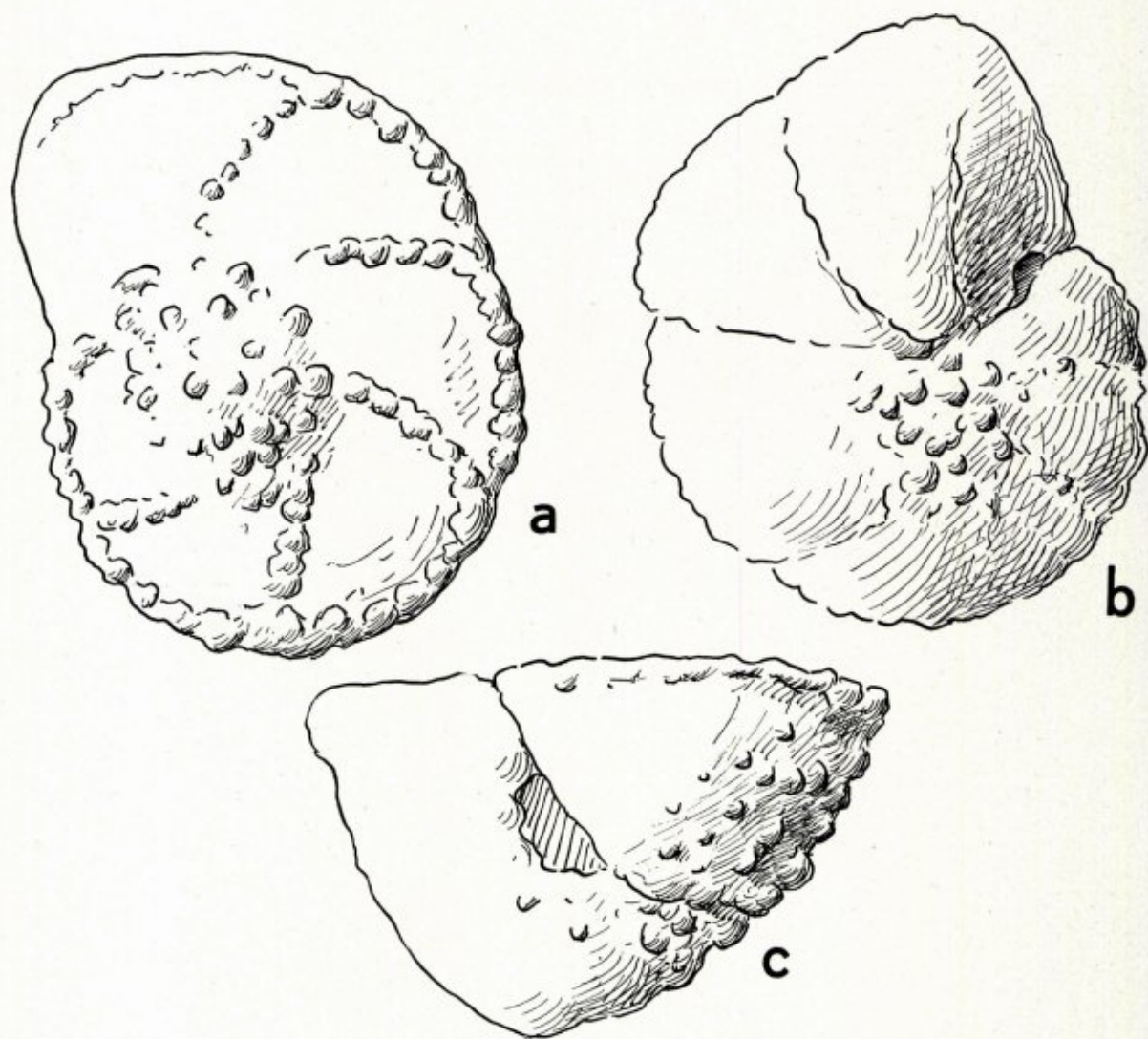
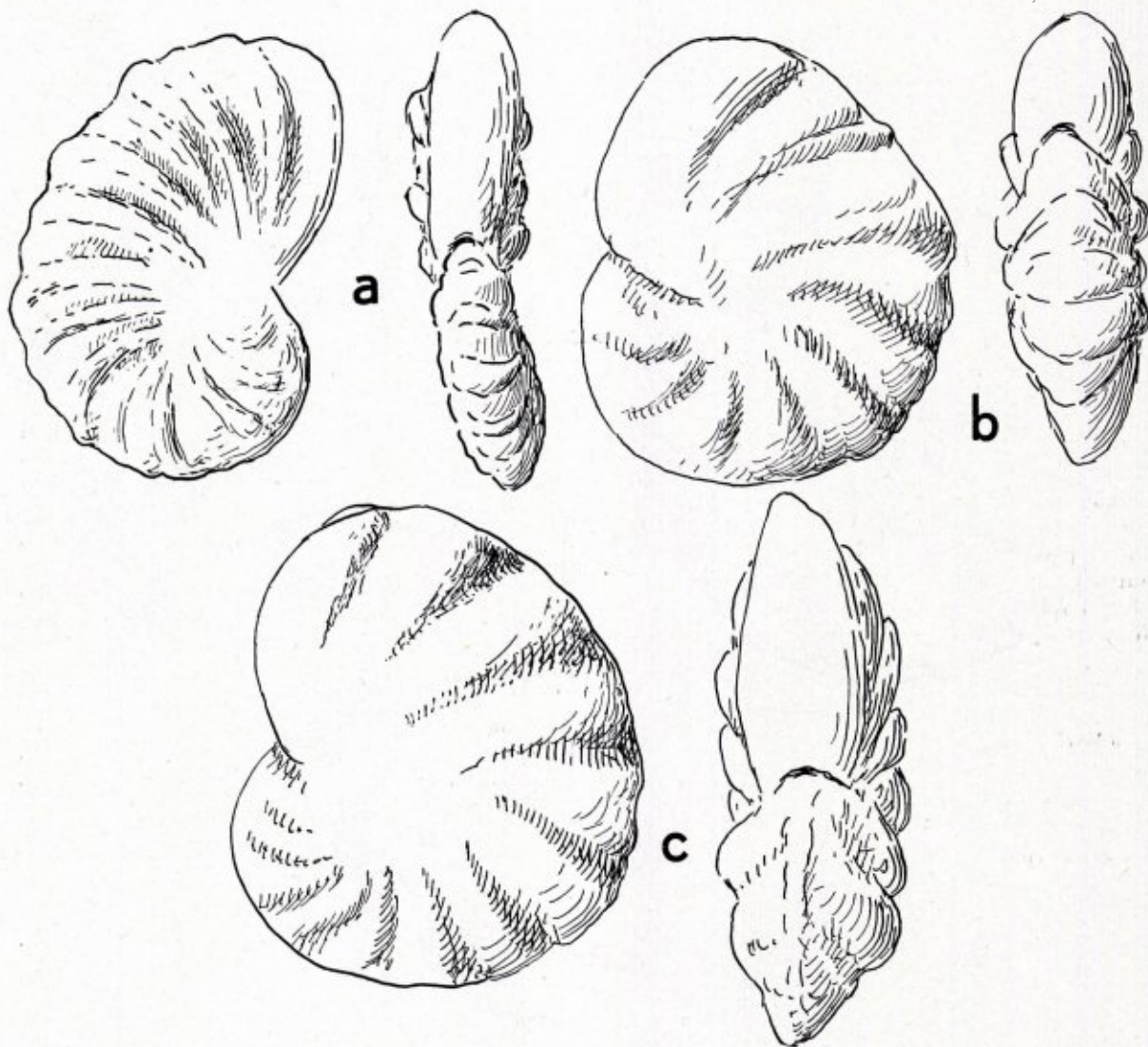
*GLOBOROTALIA (TRUNCOROTALIA) MOSAE.*

Fig. 2. Specimen from St. Pietersberg, 15.50 m, outcrop 4, middle Mc. a, dorsal side; b, ventral side; c, apertural face. $\times 60$.



NONIONELLA CRETACEA (REUSS)

- a, specimen from Welterberg, sample Coutinho 2, Kunrade Chalk.
b, specimen from Houthem, Lower Md.
c, specimen from same locality. All $\times 60$.