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*BICORNIFERA* N. GEN. LINDENBERG (1965) IN THE POLISH  
 FLYSCH CARPATHIANS

(Pl. I and 2 Figs.)

*Bicornifera* n. gen. Lindenberg (1965) we fliszu Karpat polskich

(Tabl. I i 2 fig.)

Abstract: Specimens belonging to *Bicornifera* gen. (incertae sedis) Lindenberg, 1965 are found in the Upper Eocene and Lower Oligocene sediments of the Polish Flysch Carpathians. It seems feasible that the form described by Grzybowski, 1894, as *Marginulina ostiata* from the Upper Eocene deposits also belongs to genus *Bicornifera*.

J. Grzybowski (1894) described a new species of „foraminifera” as *Marginulina ostiata*. The microfauna discussed in his work came from sandy limestones of the Menilite Beds from the neighbourhood of Dukla (Polish Middle Carpathians, see Fig. 1). The foraminiferal assemblage

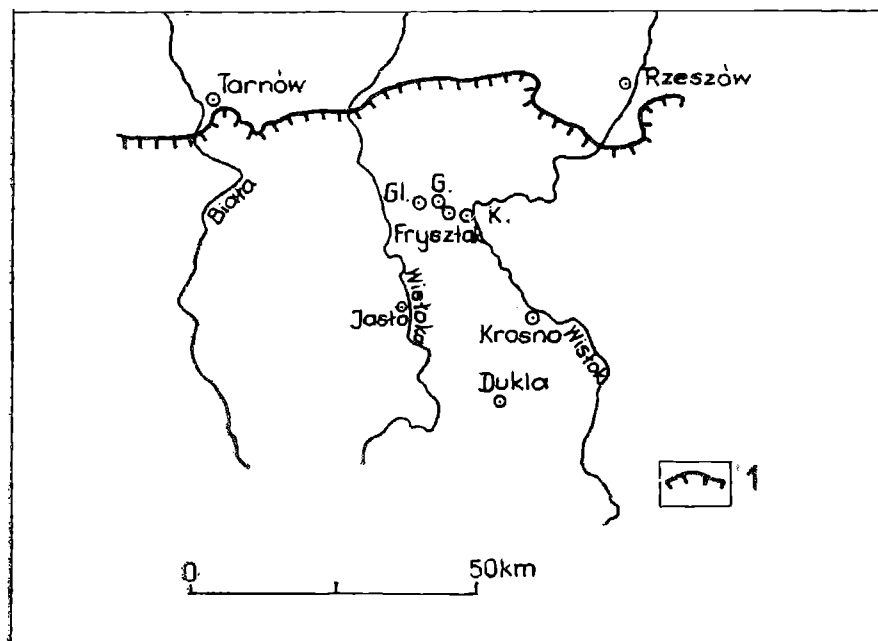


Fig. 1. Szkic sytuacyjny miejscowości cytowanych w tekście. 1 — brzeg Karpat; G — Gogółów; Gl — Glinek; K — Kobyle

Fig. 1. Schematic map of localities mentioned in the text. 1 — Carpathian border; G — Gogółów; Gl — Glinek; K — Kobyle

consisted for the most part of benthonic calcareous forms with insignificant amount of arenaceous and planktonic species. There were also rare specimens of *Nummulites* and *Discocyclina*. Besides foraminifers there occurred ostracods, fragments of *Lithothamnium*, and remains of macrofauna. J. Grzybowski hesitated whether the assemblage in question should be assigned to the Upper Eocene or Lower Oligocene. At present this microfauna is believed to be of Upper Eocene age. Unfortunately, the assemblage from Dukla has not been preserved in the collections of Grzybowski, and several later quests for the find point were a failure. This author gives a figure and the description of *Marginulina ostiata* (l. c. p. 194, Pl. III, Fig. 12, see text-fig. 2) as follows:

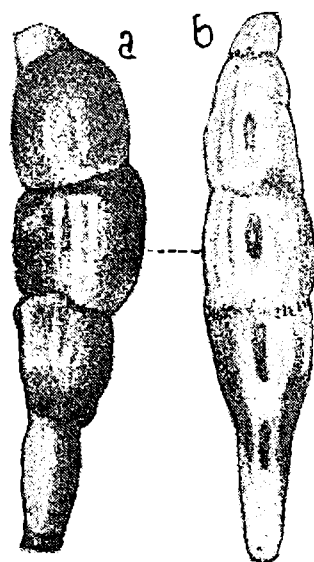


Fig. 2. „*Marginulina ostiata*” Grzybowski 1894, Pl. III, Fig. 12a, b (reprodukcja — reproduction)

“Test straight, composed of 4 chambers. First chamber is shaped like a spine. The succeeding 3 chambers are wider but shorter; aperture in the form of a small beak at the apex of the last chamber. Besides that, every chamber has a small elongated slit-like scar. These scars lie in one line above each other and are probably the traces of former apertures. The presence of such a slit on the bottom spine induced me to regard it as the embryonic chamber. Sutures distinct, slightly depressed. Length 1 mm. Rare”<sup>1</sup>.

Dr S. Jucha collected a number of samples rich in microfauna, from Menilite Beds in the neighbourhood of Frysztak at the localities Gogółów, Kobyle and Glinek Górny (see Fig. 1). Benthonic calcareous foraminifers are prevalent in the samples, just as in the assemblage de-

<sup>1</sup> Translation in English from Polish tekst according, to B. Ellis and A. Messina “Catalogue of Foraminifera”.

scribed by Grzybowski, 1894. Moreover, there are a few planktonic foraminifers, some damaged specimens of *Nummulites*, remains of macrofauna, ostracods, bryozoans, pyritized diatoms and fish teeth (S. Liszka, 1962). In the assemblage from Kobyle (S. Jucha and W. Krach, 1962) specimens similar to *Marginulina ostiata* Grzybowski were found. This species has not been given in the list of microfauna (l. c.) since it was impossible to classify it into any definite group of organisms. Similar forms have been recorded as well in the assemblage coming from Glinek Górny. The stratigraphic position of the assemblage from Kobyle has been assigned to the uppermost Eocene whereas that of microfauna from Glinek Górny to the Lower Oligocene.

In 1965 similar forms were described by H. G. Lindenberg, who classified them among *Bicornifera* n. g. incertae sedis with two species, *B. alpina* and *B. longa*. The species in question have been found in the Lower-Middle Oligocene deposits (Tyrol, Bavaria, North Slovenia) and also in the Lower Oligocene (Turkey). A. J. Keij (1969) recorded a species resembling *B. longa* in the Upper Oligocene formations (Alabama).

The form described by J. Grzybowski (1894) as *Marginulina ostiata* very likely belongs to *B. longa* Lindenberg.

#### *Bicornifera longa* Lindenberg

Pl. I, Fig. 1a, b

? 1896 *Marginulina ostiata* Grzybowski. Grzybowski J. 1896, pp. 194, Pl. II, Fig. 12

1965 *Bicornifera longa* Lindenberg, Lindenberg, H. G. pp. 18—29, Fig. 6

1969 *Bicornifera longa* Lindenberg, Keij, A. J. pp. 241—246, Fig. 7a, b

**Material:** 1 damaged specimen.

**Dimensions:** the length of preserved central chambers together with a "tubular" chamber — 1,05 mm; presumable length of the whole specimen — 1,45 mm; thickness and width of central chambers — 0.4 mm.

**Occurrence:** Kobyle, Menilite Beds, Uppermost Eocene.

The straight, elongated shell consists of 3 chambers. Two chambers are rather thick and short (total length 0.65 mm), whereas the "tubular" one is 0.4 mm long. Sutures are slightly depressed. All the chambers have slit-like scars, somewhat shorter than their length, set in a straight line. Moreover, each scar is surrounded by an indistinct rim. "Tubular" chambers besides scar have a round aperture at the apex. Walls are smooth and glassy, without pores; only small round holes are visible in different places, which are probably injuries made by predators. *Marginulina ostiata* Grzybowski (text fig. 1), differs slightly from the specimen described in that it has 3 thicker chambers and, on one side, an open "tubular" chamber, though it is conceivable that such chamber, later destroyed, was also present on the other side.

*Bicornifera alpina* Lindenberg

Pl. I, Fig. 2a, b

1965 *Bicornifera alpina* Lindenberg, Lindenberg, H. G. pp. 18—29, Fig. 3

Material: 1 well-preserved specimen.

Dimensions: length 0.72 mm, length of 2 central chambers 0.5 mm, thickness of central chambers 0.3 mm, width 0.3 mm.

Occurrence: Kobyle, Menilite Beds, Upper Eocene.

The oblate, crescent-shaped shell is made up of 4 chambers. Two central chambers are almost equal in length, the two extreme "tubular" ones narrow fairly abruptly and are open at the ends. The separating walls are marked on the shell surface by slightly depressed sutures. Besides apertures at the apices of "tubular" chambers, all the chambers have slit-like scar on the convex side, the scars being somewhat shorter than the chambers and surrounded by a fairly wide, slightly raised rim. The shell wall is calcareous, thin, on the surface smooth and glassy, slightly opalescent. On the surface are discernible injuries made by predators. *B. alpina* Lindenberg has a somewhat different shape from that of the specimen described. The central chambers are rather globose due to strongly depressed sutures between them, and the "tubular" chambers on both sides of the shell are thinning abruptly.

? *Bicornifera* an n. sp.

Pl. I, Figs. 3a, b, c, 5a, b

Material: 1 well-preserved specimen (Kobyle), 1 pyritized, slightly damaged specimen (Glinek Górny).

Dimensions: length of specimen 0.9 mm, greatest thickness and width 0.4 mm.

Occurrence: Kobyle — Upper Eocene, Glinek Górny — Lower Oligocene.

The shell consists of 4 chambers, 3 of them being large, the fourth, terminal one, narrows gently terminating with a round aperture. On the convex side of the shell there are scars, shorter than chambers and surrounded with a fairly wide, slightly raised rim. The specimens of ? *Bicornifera* an n. sp. differ from *B. longa* and *B. alpina* in unilateral narrowing of the shell.

As appears from publications quoted, genus *Bicornifera* was widely geographically distributed and it existed in a relatively short period of time (Upper Eocene — Lower Oligocene). It belongs, however, to rare fossils.

translated by H. Kisielewska

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## STRESZCZENIE

Nieliczne okazy z rodzaju *Bicornifera* (incertae sedis) Lindenberg, 1965, znaleziono w Karpatach fliszowych w osadach górnego eocenu i dolnego oligocenu w okolicy Frysztaka na S od Rzeszowa. Do rodzaju *Bicornifera* należy prawdopodobnie również forma opisana przez J. Grzybowskiego, 1894, jako *Marginulina ostiata* z osadów górnego eocenu okolicy Dukli na S od Jasła.

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## EXPLANATION OF PLATE I

## OBJAŚNIENIE TABLICY I

- Fig. 1a, b. *Bicornifera longa* Lindenberg, górny eocen (Upper Eocene), Kobyle. 50 ×
- Fig. 2a, b. *Bicornifera alpina* Lindenberg, górny eocen (Upper Eocene), Kobyle. 50 ×
- Fig. 3a, b, c. ? *Bicornifera* an n. sp., górny eocen (Upper Eocene), Kobyle. 50 ×
- Fig. 4a, b. *Bicornifera* sp. dolny oligocen (Lower Oligocene), Glinek Górny. 50 ×
- Fig. 5a, b. ? *Bicornifera* an n. sp. dolny oligocen (Lower Oligocene), Glinek Górny. 50 ×

