

Hantkenina (Foraminiferida) in the Polish Outer Carpathians

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The Polish Outer Carpathians are situated in the western part of the Carpathian mountain belt that extends from the Vienna Forest to the Iron Gate on the Danube. The Outer Carpathian sedimentary domain was located at the NW margin of the Tethys Ocean and consisted of several longitudinal troughs and ridges. From the south to north the following sedimentary basins existed: the Magura, Fore-Magura set of basins, Silesian, Subsilesian, and the Skole basin. In the present-day configuration they represent individual structural units. The Silesian Ridge, separating the Silesian and Magura basins, was the most important elevation and source area within the Outer Carpathian sedimentary basin system (Oszczypko, 2006). In the troughs mainly flysch-type sediments were deposited while on the slopes and submarine rises hemipelagic and pelagic sediments developed. The entire sedimentation spanned the time between the Late Jurassic and the Late Miocene.

The planktonic foraminiferal genus *Hantkenina* has been sporadically recorded in the stratigraphical record of the Polish Outer Carpathians. *Hantkenina* has been found only in two settings, so far. Nowak (1954) first reported the discovery of *Hantkenina* from the Subsilesian unit in the area of Bielsko. In 1978, Gasiński presented the results of his studies on Nowak's material. Another setting is connected with the Fore-Magura thrust in the vicinity of Żywiec. In both cases *Hantkenina* has been recovered from the Middle Eocene variegated, pelagic marls. The microfossil assemblages are very similar in their overall composition. They represent mixed foraminifera assemblages with planktonic taxa exceeding 80% of the total assemblage. However, the genus *Hantkenina* accounts only for 1%, at the most.

The Subsilesian basin was connected with the submarine, intrabasinal height situated in the marginal part of the Carpathian basin, north of the Silesian basin, while the Fore-Magura thrust sedimentation area was located in the middle part, on the southern slopes of the Silesian Ridge. Within the Outer Carpathian basin such settings favoured pelagic sedimentation, with sporadic intercalations of turbidites. The pelagic sedimentation, occupied relatively small areas in the entire basin. During the Early-Middle Miocene folding and thrusting the pelagic, ductile sediments were detached from their substratum and tectonically reduced. Their present day exposures are rare and structurally complicated.

The presented occurrences of the genus *Hantkenina* in the Polish Outer Carpathians seem to be connected with the most northerly situated sites along the northern margin of the NW Tethys. The hantkeninids, though generally scarce, had a worldwide distribution at low and mid latitudes (Coxall *et al.*, 2003). Their presence in the marginal parts of the basin points to the open marine deep-water conditions and good connection with world-wide circulation in the Middle Eocene.

References:

- Coxall H., Huber B. T. & Pearson P. N., 2003. Origin and Morphology of the Eocene planktonic Foraminifer *Hantkenina*. *Journal Foram. Res.*, 33,3: 237-261.
Gasiński A., 1978. *Hantkenina* in the Eocene at Bujaków (Polish Carpathians). *Rocznik Pol. Tow. Geol. (Ann. Societ. Polon.)* 48:39-53.
Nowak W., 1954. O stratygraficznym znaczeniu rodzaju *Hantkenina*. *Przeegl. Geol.* 2, 9: 377-380.
Oszczypko N., 2006. Late Jurassic-Miocene evolution of the Outer Carpathian fold-and-thrust belt and its foredeep basin (Western Carpathians, Poland). *Geological Quarterly* 50, 1:169-194.