

**Bericht 1999  
über Untersuchungen  
an kalkigem Nannoplankton  
auf den Blättern 22 Hollabrunn und 23 Hadres**

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Samples for calcareous nannofossil study and biostratigraphic conclusions were collected during field works on the map-sheets ÖK 22 Hollabrunn and ÖK 23 Hadres.

The attention was focused on the upper part of the "Laaer Schichten" and on the "Grunder Schichten", especially on the sediments where foraminiferal mikrofauna with *Uvigerina gracilliformis*, *Pappina parkeri breviformis* and rare specimens of genus *Globorotalia* appear (I. CÍCHA, pers. comm.). That is the interval before the first occurrence of foraminiferal species *Globigerinoides bisphericus* and genus *Orbulina*. From this point of view, samples from the excavation Grund 1999 (Inst. of Palaeontology, University of Vienna) with the profiles Grund F, G, H, and the localities Guntersdorf-vine cellars and Guntersdorf 4-7/III were studied in detail. In addition, samples from map-sheets 23/16, 23/21, 23/22, 23/24, and 23/34 were evaluated from the biostratigraphical point of view.

### Methods

Suspension slides were prepared using a decantation method (separated fraction 3–30 µm) in the following way: the heavy fraction was allowed to settle for 3 minutes in a 45 mm water-column, the fine fraction for 45 minutes. Slides were inspected with a Nikon light microscope at 1000 x magnification.

For the biostratigraphic conclusions, standard NN zones by MARTINI (1971), Mediterranean nannofossil zones MNN by FORNACIARI et al. (1996), and correlations by YOUNG (1998) and RÖGL (1998) were applied.

### Results

Sediments of profiles Grund F, G, H yield mostly rich associations (1-10 specimens/field of view), nannofossils are ± well preserved. Samples of localities Guntersdorf-vine cellars and Guntersdorf 4-7/III contained only poor and bad preserved nannofossils. Thanatocoenoses are represented here by about 20–30 % of Miocene specimens completed by reworked material of the Upper Cretaceous and Paleogene age.

Miocene assemblages are characterized by abundance of *Helicosphaera carteri*, the presence of *H. waltrans* (relatively common), *H. scissura*, unregular occurrence of *H. walbersdorfensis*, small specimens of the genus *Reticulofenestra* (*R. minuta*, *R. minutula*, *R. pseudoumbilicus* <5 µm) and by rare occurrence of *Discoaster exilis*, *D. variabilis*, *Syracosphaera* sp., *Pontosphaera multipora* (etched specimens), and *Umbilicosphaera rotula*. To complete, very rare specimens of *Helicosphaera ampliaperata*, *H. euphratis* and *H. granulata* were recorded in these sediments. Sample Guntersdorf 4/II yielded a rather different nannofossil assemblage with *Sphenolithus heteromorphus* in association with rare *Helicosphaera waltrans*.

### Discussion

The occurrence of nannofossil species *Helicosphaera waltrans* and *H. walbersdorfensis* in sediments where foraminiferal microfauna with *Uvigerina gracilliformis* and *Pappina parkeri breviformis* was observed (interval before the first occurrence of *Globigerinoides bisphericus* and genus *Orbulina*) is an interesting information from the biostratigraphic point of view. This phenomenon slightly modifies our former observations in the Alpine-Carpathian Foredeep that the short interval of *Helicosphaera waltrans* approximately coincides with the occurrence of the foraminifer *Globigerinoides bisphericus* (ŠVABENICKÁ & ČTYROKA, 1998, 1999).

Nannofossil assemblages are characterized here by:

- Presence of *Helicosphaera waltrans* and rare *H. walbersdorfensis*.
- Absence of *Sphenolithus heteromorphus* and *Helicosphaera ampliaperata*. Scarce occurrences of *H. ampliaperata* can be interpreted as reworked material.
- Relative abundance of *Helicosphaera carteri*.
- Rare occurrence or absence of genera *Discoaster*, *Umbilicosphaera* and *Calcidiscus*.

According to these data, sediments belong to a horizon which is marked by relatively common *H. waltrans* and by the absence of *H. ampliaperata*, probably to the upper part of paracme *Sphenolithus heteromorphus*. These observations are in accordance with those by FORNACIARI et al. (1996): in fact the paracme end of *S. heteromorphus* is very close to the absolutely last occurrence of *H. ampliaperata*. YOUNG (1998) noted that *S. heteromorphus* paracme/low abundance interval is a event proven in the Mediterranean. According to FORNACIARI et al. (item), *H. waltrans* is restricted within subzones MNNa and in the lower part of MNN5b. *H. walbersdorfensis* first occurs in subzone MNN5b. Sediments can be correlated with the MNN5a/b boundary and with the lower part of MNN5b. This interval corresponds to the middle part of zone NN5 (YOUNG, 1998). According to RÖGL's (1998) correlations of Central Paratethys stages with NN zones, this interval can be compared with the middle part of the Badenian. These conclusions are not in accordance with foraminiferal research. The precise correlations and biostratigraphic conclusions in the Alpine-Carpathian Foredeep remain obscure because no continuous section crossing Karpatian and Badenian sediments was available yet for detailed study.

### Conclusions

The samples of the localities Grund F, G, H, Guntersdorf-vine cellars and Guntersdorf 4-7/III belong to the horizon with *Helicosphaera waltrans*. It is correlated with zone NN5 (MARTINI, 1971; YOUNG, 1998), probably with the lower part of subzone MNN5b (sensu FORNACIARI et al., 1996).

Our observations prove, that the nannoflora of zone NN5 shows similar features in common in the depositional areas of the Mediterranean and Alpine-Carpathian Foredeep (Lower Austria and Moravia):

- Presence of *Helicosphaera waltrans*.
- *Sphenolithus heteromorphus* paracme/low abundance interval.

## 23 Hadres

Siehe Berichte zu Blatt 22 Hollabrunn von S. NEHYBA und L. ŠVABENICKÁ.