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

LILIAN ŠVÁBENICKÁ (Auswärtige Mitarbeiterin)

Samples for calcareous nannofossil study and biostratigraphical 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 “Laarer Schichten” and on the “Grunder Schichten”, especially on the sediments where foraminiferal microfauna with *Uvigerina graciliformis*, *Pappina parakeri breviiformis* and rare specimens of genus *Globorotalia* appear (L. Cichá, pers. comm.). That is the interval before the first occurrence of foraminiferal species *Globigerinoides bisphericus* and genus *Obulina*. 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 biostratigraphical conclusions, standard NN zones by MARTINI (1971), Mediterranean nannofossil zones MNN by FORMACIARI 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. Thanatocones 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. walbersdorfsensis*, 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 ampliaperta*, *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. walbersdorfsensis* in sediments where foraminiferal microfauna with *Uvigerina graciliformis* and *Pappina parakeri breviiformis* was observed (interval before the first occurrence of *Globigerinoides bisphericus* and genus *Obulina*) 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* (ŠVÁBENICKÁ & ČTYRKO, 1998, 1999).

Nannofossil assemblages are characterized here by:
- Presence of *Helicosphaera waltrans* and rare *H. walbersdorfsensis*.
- Absence of *Sphenolithus heteromorphus* and *Helicosphaera ampliaperta*. Scarce occurrences of *H. ampliaperta* 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. ampliaperta*, probably to the upper part of paracme *Sphenolithus heteromorphus*. These observations are in accordance with those by FORMACIARI et al. (1996): in fact the paracme end of *S. heteromorphus* is very close to the absolutely last occurrence of *H. ampliaperta*. YOUNG (1998) noted that *S. heteromorphus* paracme/low abundance interval is a event proven in the Mediterranean. According to FORMACIARI et al. (item), *H. waltrans* is restricted within subzones MNNa and in the lower part of MNNb. *H. walbersdorfsensis* 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 NNN (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 NNN (MARTINI, 1971; YOUNG, 1998), probably with the lower part of subzone MNN5b (sensu FORMACIARI et al., 1996).

Our observations prove, that the nannoflora of zone NNN 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.