

dark-grey soft marls are interbedded in a sequence of sandstone. The following species are described by Grün: *Psammosphaera fusca*, *Saccamina placenta*, *Psammosiphonella* div. sp., *Kalamopsis grzybowskii*, *Reophax duplex*, *Ammodiscus infimus*, *Glomospira irregularis*, *Glomospirella gaultina*, *Rzehakina* div. sp., *Trochamminoides* div. sp., *Recurvoidea*, and *Plectina*.

The road follows the overthrust of the Flysch Zone on the disturbed Molasse to the W, ascending again from Königstetten to the summit of the Flysch at the Dopplerhütte.

STOP 4:

- * Old quarry at the Dopplerhütte.
- * Flysch Zone, northern border zone of the Greifenstein Nappe, Wolfpassing Beds ("Neokomflysch"), Early Cretaceous.
- * References: Bertle, 1970
Brix, 1961
Plöching & Prey, 1974 (point 1/5)

Calcareous flysch development with 30 to 50 cm thick limestone layers and thin intercalations of black-grey and grey clays. The limestones contain considerable quartz sands and show graded bedding. Chert nodules are common in the upper part. The sequence is folded and strongly dipping. The microfauna is poor, consisting mainly of radiolaria, a number of Hedbergellids, trochollinas and certain rotaliids. The nannoflora, with *Nannoconus stelmani* and *Zeughrabdodus embergeri* allows this formation to be dated as Early Cretaceous.

Dopplerhütte: parking lot, sight-seeing point. From this vantage point one can see the Molasse Basin north and south of the Danube, and in far NW the Bohemian Massif is visible. The lower hillsides are formed by silty clays and conglomerates of the disturbed Molasse. At this site the Alpine range bends to a NE Carpathian direction. The Flysch Zone is transformed to the W, north of the Danube by a fault where the Danube has entered the Vienna Basin since Pliocene times. From here the excursion returns through the Flysch Zone nappes and passes the deep well Mauerbach 1.

DRILL SITE MAUERBACH 1a:

R. Fuchs, ÖMV-AG, Vienna.

The exploration drilling Mauerbach 1a (drilled in 1964 by the ÖMV-AG, the Austrian National Oil and Gas Company) is situated 3.5 km south of the northern margin of the Flysch Zone, south of the front of the Alpine thrust fold belt. The borehole demonstrates the nappe structure of the Flysch (mainly Late Cretaceous and Early Tertiary turbidite sandstones intercalating with argillaceous and calcareous layers) and its overlapping on the Molasse Zone.

The borehole reached a depth of 3487.3 m in the Paleozoic crystalline of the Bohemian Massif (fig. 13).

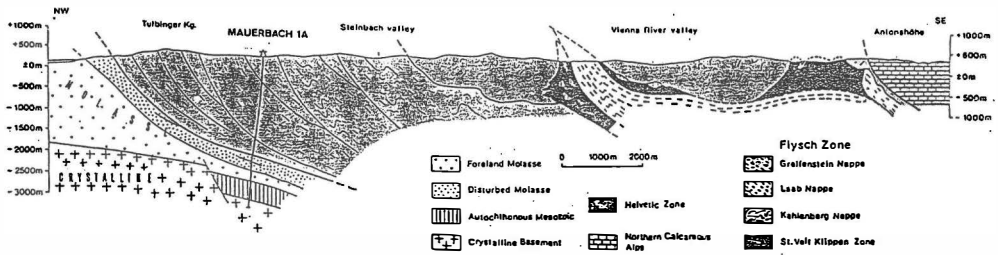


Fig. 13: Cross-section of the Flysch Zone with the drilling Mauerbach 1a. The borehole sank through the so-called "Greifensteiner Nappe" (Flysch), reached Disturbed and Autochthonous Mesozoic and ended in the Crystalline of the Bohemian Massif (after S. PREY in W. DEL-NEGRO, 1977)

DRILL SITE MAUERBACH 1a:

Stratigraphy:

0	-	6 m	Quaternary
6	-	2364 m	Flysch (Early Cretaceous–Early Tertiary; scaly structure)
6	-	346 m	Early Eocene
346	-	443 m	Late Cretaceous
443	-	619 m	Early Eocene
619	-	818 m	Late Cretaceous
818	-	892 m	Danian
892	-	933 m	Late Cretaceous (Maastrichtian)
933	-	1008 m	Danian
1008	-	1612 m	Campanian & Maastrichtian
1612	-	2192 m	Late Cretaceous & Paleocene
2192	-	2364 m	Early Cretaceous

- 2364 - 3038 m Subalpine Molasse (Neogene)
 Disturbed Molasse:
 2364 - 2438 m Eggenburgian scaly
 2438 - 2486 m Egerian (=Oligo-Miocene) structure
 Autochthonous Molasse:
 2486 - 2993 m Eggenburgian
 2993 - 3038 m Egerian
- 3038 - 3457 m Autochthonous Mesozoic
 shales and sandstones (Dogger and Lias)
- 3457 - 3487,3 m Crystalline (Paleozoic)

Another drilling, Berndorf 1, about 35 km south of Mauerbach, penetrated two alpine limestone nappes as well as Flysch and encountered Molasse (Egerian) at a depth of 5910 m (R. FUCHS et al., 1980; G. WACHTEL & G. WESSELY, 1981). This was another excellent demonstration for the nappe structure of the Northern Calcareous Alps and the Flysch Zone.

References: Del Negro, 1977
 Fuchs, R. & al., 1980
 Wachtel & Wessely, 1981

Near the overthrust of the Kahlenberg Nappe we pass the former Carthusian monastery Mauerbach and approach the valley of the Wien river (Wienfluß) at Purkersdorf.

STOP 5:

- * Old quarry in the Dambach valley, 3 km W of Purkersdorf, 300 m S of the Wien river (Wienfluß).
- * Flysch Zone, Kahlenberg Nappe, lower Kahlenberg Beds, Campanian.
- * References: Plöchinger & Prey, 1974 (point I/6)

Typically developed sequences of alternating grey to blue-grey limestones and sandstones (0.5 - 1 m thick) with grey marl and clay intercalations. Sandstone with graded bedding, load casts, sole marks, trace fossils at the lower surface of the beds. Marls commonly burrowed. Beds dipping 20-30° NE.

The microfauna is represented by large, tubiform agglutinates, e.g. *Dendrophrya*, and rare *Rzehakina epigona*; double-keeled globotruncanas occur. (Campanian age based on nannoplankton determination by H. Stradner).

The route follows the highway A1 from Pressbaum to Steinhäusl where representative outcrops in the flysch have been investigated at construction sites by the Flysch group (Grün & al., 1964, 1972). The road also crosses Alt-lengbach and Greifenstein Beds. Highway A21 from Steinhäusl to Alland again traverses all Flysch nappes (Greifenstein-, Kahlenberg-, Laab-Nappe). Shortly before Alland, to overthrust of the Northern Calcareous Alps on the

Flysch Zone is crossed. Without a stop the excursion continues along the Schwechat river valley to Baden. The Alps end here with steep down faulting to the Vienna Basin.

STOP 6:

- * Baden – Sooss, brickyard, clay pit SE of the Southern Railway.
- * Vienna Basin, Middle Miocene, Badenian stage (type locality), Upper Lagenidae zone, Baden-clay.
- * References: d'Orbigny, 1846
Papp & Steininger, 1978
Papp & Schmid, 1985

In the western part of the clay pit, marine, blue-grey, silty Baden-clays (Badener Tegel) are exposed. It is the only existing outcrop in this area providing foraminifera material corresponding to the large number of species described by d'Orbigny. The assemblages are very rich in lagenids and planktonic foraminifera. Agglutinated species characteristic of a shelf sea environment are: *Textularia* div. sp., *Spiroplectinella carinata*, and *Martinotella communis*.

In the eastern part of the clay pit, one of the steep faults of the basin margin shows down thrust olive-green Sarmatian clays. The reduced salinity resulted in a poor microfauna with small nonionids, elphidiids and ostracods.