

## MINERALOGICAL STUDIES ON HUNGARIAN GEOLOGICAL PROFILES CROSSING THE PERMIAN/TRIASSIC BOUNDARY

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In the frame of a multidisciplinary research we are studying the Permian/Triassic (P/Tr) boundary, to understand better the dramatic and abrupt ecological change in this period. At the P/Tr boundary about 90% of the marine species become extinct (SEPKOSKI, 1996).

The current presentation is a preliminary report of some of the mineralogical data on Hungarian geological sections crossing this border.

Having sampled several P/Tr sections we started with the detailed mineralogical study of the two most promising sets of samples. The first set is from the borehole Gá-1a from Gárdony, Hungary (about 40 km SW of Budapest). In that borehole the Upper Permian cyclic lagoonal dolomitic facies changes, probably due to a eustatic sea level rise, into an Early Triassic shallow marine limestone facies containing more or less terrigenous material as well (HAAS, 2001). Our results show that the dominating clay mineral in the boundary zone (both in the limestone and in the earlier reported 20 cm thick clay bed) is illite. The micromineralogical description of the profile is still in progress.

Our second, main, section is located close to the top of the Bálvány Hill in the Bükk Mountains (about 120 km NE of Budapest). This is a composite section, exposed in two outcrops in a distance of a few hundred meters from each other. The outcrop containing the lower part, is on the northern slope of the hill ("Bálvány North"). The upper part is located on the eastern side of the hill ("Bálvány East"). The section contains the top of the black, thick bedded Nagyvisnyó Limestone Formation (NLF; samples #BE1-7, Fig. 1) and the lower part of the Gerennavár Limestone Formation (GLF). The GLF starts with the fine siliciclastic "Basal Bedset" (BBS; #8-11 and #18-25, Fig. 1) followed by the thin bedded "Transitional Bedset" (TBS; #12, 26-27, Fig. 1) (HIPS & PELIKÁN, 2002).

Going upward in the Nagyvisnyó Limestone the marl component increases (from 2 to 40%, see Fig. 1). The marl of the BBS is very homogeneous with an average carbonate content of 26%, except for a 2 cm thick limestone and a 3 cm thick sandstone bed. The thin bedded TBS contains limestones, interlayered by marls and clay horizons.

Through the section, the terrigenous grains are rare, except in the above mentioned sandstone layer in the BBS. Beside the dominating actinolite there are about 20 more minerals to be found, from strongly resistant to easily weathering species. In the upper part of the TBS the resistant minerals are missing. The sandstone layer in the BBS contains a much (two magnitude) higher amount of terrigenous grains. This population is mature. Zircon represents most of the grains. The rest is tourmaline and rutile, some actinolite is also present.

The samples from the section usually contain few magnetic spherules. In the "Basal Bedset" their amount is reduced, there are usually none or only a few of them present. The uppermost bed of the Nagyvisnyó Limestone contains a very high amount of spherules (88 pieces/kg). Previous measurements support that the material of the spherules is magnetite.

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### References

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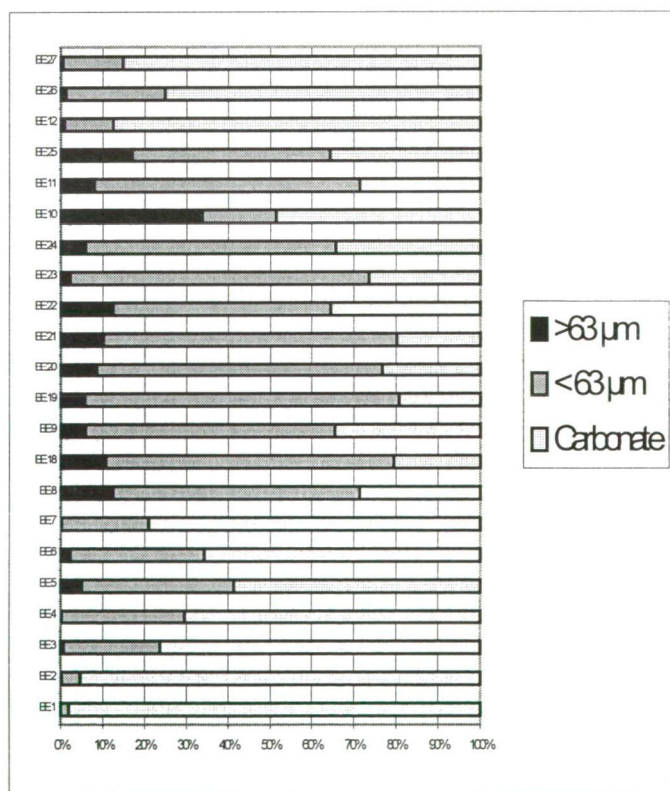


Fig. 1: Composition (wt%) of the Bálvány North section, showing the acid soluble (carbonate) and the non-soluble fractions. The latter is divided into two size fractions. For the identification of the samples see the text.