

# Tectonic suture of the meliata (Jaklovce) occurrences – mezostructural and microstructural research application

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The study presents new paleopiezometric data of calcite marbles, contributing to a solution of principal geological and tectonic problems of autochthonous vs. allochthonous position of a carbonate succession north of Jaklovce village in the eastern part of the Northern-Gemeric zone. The Triassic-Jurassic sequences in the Kurtová skala hill are since the 1970s linked with the Meliaticum, so-called Jaklovce succession, but direct tectonic and structural evidences of its allochthonous position were not demonstrated as yet. However, due to the corresponding appearance of both, autochthonous and allochthonous carbonates, the boundary between both complexes was not clearly determined, or even both sequences were considered to be in the autochthonous position with primary lithological transitions towards the Permian bedrock.

The dynamic recrystallization of the whole volume of allochthonous calcite marbles was shown by our research. The origin of deformation twins was found in nearly each calcite grain (twinning incidence is almost to 100%). The high number of deformation twins per

1 mm of perpendicular diameter of the grain ( $D = 173.05\text{--}646.25$ ) at the very small size

of grains (23.7–42.7  $\mu\text{m}$ ) resulted from their recrystallization at high differential stresses  $\sigma = 347.49\text{--}429.55$  MPa.

This differs the allochthonous bodies of the Meliaticum from those of autochthonous Permo-Triassic cover of the Northern Gemericum, which does not exhibit deformation twins and ductile overprint. This difference simultaneously indicates that the total plastic recrystallization of allochthonous marbles should have occurred in the conditions of subduction zone, but their post-exhumation transport occurred with kinematics of the superficial nappe and did not cause any whole-volume recrystallization. The exhumed suite (besides carbonates, radiolarites, mafic, and ultramafic rocks) was overprinted by the two principal Alpine deformation phases  $AD_1$  and  $AD_3$  of tectonic imbrication and horizontal shearing, causing the origin of brittle-ductile and brittle disjunctive structures. Despite the overprint, the primary bedding (gen.  $S_0$  330/55°) of allochthonous carbonates remained preserved, and contrasts to general NW–SE trending bedding and secondary foliation of autochthonous sequences.