Comparison and correlation of Jurassic and Lower Cretaceous successions of the Eastern Alps and the Transdanubian Range: Similarities and differences

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The Transdanubian Range was part of a huge carbonate platform until the earliest Early Jurassic. The first signal of the opening of the Penninic Ocean is the break of the carbonate platform system. The result of this process is the differentiation of the sedimentary environments into highs with comparatively thin, discontinuous and into deeper-water areas with condensed lithofacies, and thicker, continuous successions showing less condensation. There are differences in thickness and also in lithology of the Jurassic lithostratigraphic units in soutwest and northeast direction in the Transdanubian Range. The oldest Jurassic formation is the oncoidic and ooidic Kardosrét Limestone Fm developed from the Dachstein Limestone in the Bakony Mts but getting lacunose and thinning to the northeast direction and completely missing from the Gerecse Mts. Higher up the Jurassic succession is characterized by the alternation of cherty limestones (including radiolarite) , nodular and ammonite-rich limestones (Tölgyhát Limestone Fm and Pálihálás Limestone Fm) and subordinately by thin marl intercalations. The deep-water condition is also indicated by enrichments of other planctonic elements (Radiolaria, planktonic forams, calpionellids, etc.).

The shallowing tendency started in the Tithonian and continued in the Early Cretaceous in the entire territory of the Transdanubian Range. In this respect the great difference is that in the Gerecse Mts in addition to the coarse-gaind rock fragments (pebbles and graided sandstones) also developed in the Early Cretaceous. In the subsurface conditions it is strongly developed in South Slovakia too. This succession at the turning a facies conditions contains large limestone fragments of colonial fossils, indicating the shallow marine environment, but going upwards the size of varied rock fragments getting smaller and containing also volcanic rocks, wich is indicating the increased activity of the tectonic zone.

During this time in the South-Bakony completely different formation developed, which is getting thicker and more and more similar to the South-Alpine development. The formation is called Mogyorósdomb Limestone in Hungary. This maiolica type limestone is getting more and more similar to the South-Alpine development.