

# PALEOECOLOGICAL SUCCESSIONS IN THE BADENIAN (MIDDLE MIOCENE) LEITHA LIMESTONE (RETZNEI/ROSENBERG; SOUTHERN STYRIA )

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The Styrian Basin is located at the eastern margin of the Alps and part of the Pannonian Basin System. Its internal topography is highly structured and consists of a variety of subbasins. The basin fill consists predominantly of Neogene clastic sediments with volcanic intercalations. During the Badenian (Middle Miocene) stage, however, carbonate sediments (Leitha Limestones) were deposited on topographic elevations within the basin and along basin margins. They range from coralline algal dominated limestones to coral carpets and coral bioherms.

An active quarry system in Retznei near Ehrenhausen (Lafarge-Perlmooser Zementwerke AG) offers good insight into the internal organisation of these carbonates and enables a complete cut through one of these carbonate bodies of early Badenian age. Although two major quarry areas exist, the northeastern quarry (Rosenberg) is currently under exploitation and offers better outcrop conditions. The older quarry was studied and described in detail by Friebe (1988, 1991). The particular aim of this study is to document and interpret the internal composition and paleoecological successions of this about 25 m thick and terrigenously influenced carbonate body in the Rosenberg quarry.

The carbonate development starts with a basal conglomerate on a primary, tectonically induced relief. This relief correlates with the „Styrian Unconformity” separating the Karpatian „Steirischer Schlier” from the Badenian Leitha Limestone. Within the limestones ten facies units can be distinguished according to the frequency of skeletal (rhodolites, corallinean branches and fragments, bryozoan, foraminifera, echinoids and corals) and non-skeletal grains (mainly siliciclastics); most facies types are characterized by a marly matrix. Patch reefs, built mainly by *Montastrea* sp., *Tarbellastrea* sp. and *Porites* div. sp., developed in different stratigraphic levels and show internal zonation of coral taxa and growth-forms. Inter-reef areas are represented by carbonate sands and gravels, showing a distinct lateral zonation with a rhodolite facies next to the coral patches, followed laterally by bryozoan and larger foraminiferal (e.g., *Planostegina papyracea gigantea*) facies. This zonation in combination with sedimentary structures indicates a distinct topographic elevation of these patches above the surrounding sea-bed (superstratal). Upsection, the primary topographic relief of the patch reefs is largely levelled by algal sediments and some coral layers.

Several dark marly layers, enriched in volcanoclastics, interrupt the carbonate body and are traceable throughout the quarry area. Some of these interruptions as well as the termination of the currently outcropping carbonate development are marked by an irregular surface pointing to erosion and probable subaerial exposure. The volcanoclastic sedimentation distinctly influenced carbonate production and reef-growth.

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## References

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