

## LIMESTONES FROM THE KRIVELJ QUARRY (EAST SERBIA) – PETROGRAPHIC STUDY

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The Lower Cretaceous shallow-marine carbonate sediments in the East Serbia, belonging to the southwestern margin of the Carpathian Belt, have a large extent and thickness. The investigated carbonate rocks of the Krivelj Kamen are the part of the Kucaj-Tupiznica carbonate platform i.e. its eastern margin composing mostly of thick-bedded and massive reef limestone with remains of corals colonies, oospirites etc. named Urganian Limestones. These rocks appear on the eastern margin of the Timok Magmatic Complex making an area of about 2 km<sup>2</sup>. The Krivelj quarry (0.7 km<sup>2</sup>) with four working benches, situated in the central part of it, represents a lens of Urganian limestones thrust over Upper Cretaceous volcano-sedimentary rocks. Over them Albian glauconitic sandstones, shale and conglomerates are deposited. It mostly composed of limestones with number of varieties (as for example, dolomitic limestone), marbles, marble limestones, fault breccias etc. Transition between limestone and marbles is gradual, but dominated rock types are limestones. Intrusions of quartz diorite during Laramian-Pyrenean orogene phase caused thermal metamorphic phenomena i.e. occurrences of marbles and marble limestones. By the latest tectonic events the lens of Urganian limestones was broken into five blocks along the transform faults.

The limestones from the quarry are homogenous, non-bedded and intensively tectonized. The *a*-lineation marked by argillaceous component deposited on fault planes is visible on the small tectonic blocks. Rocks are affected by dense

crack-net filled by calcite, limonite and argillaceous material. That material filled also frequent sinusoidal stylolites with throat of weld from 0.1mm to 2 mm and amplitude height to 1 cm. Limestones are generally grayish in color but variable amount of bituminous (organic) matter caused local change of color from light to dark gray and black. Thin-sections study of samples extracted from the bottom to the top of the quarry revealed slightly sorted micritic limestones with different amount of allochems. Among them the following microfacies can be distinguish: dismicrites, intrabiomicrites to biomicrites. Some of them contain more than 10 % of marine macrofossiles (~5 cm in size or larger) and defined as biomicrudite. According to structure, beside micrite with stylolites, fenestral micrites (with spar-filled fenestraes i.e. birds-eye structure) are defined. Allochems are represented by bioclasts and intraclasts (very often recrystallization processes preclude classification of allochems). Skeletal particles are identified as molluscs (gastropods), corals, foraminifers (*Miliolidae*, *Orbitolinae*).

The quarried material is characterized as pure limestone. It does not contain detrital grains, iron oxides-hydroxides or clayey materials. The microfacies analysis revealed that limestones of Krivelj quarry were deposited in nereitic facies (shallow marine) of subtidal paleoenvironment during Lower Cretaceous.