

Facing stones used in construction of the Bolnisi municipality architectural monuments, their modern analogues from natural outcrops and prospects for use

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Georgia is one of the richest countries in facing stones resources. These stones were applied for facing ecclesiastical and secular buildings in the past and they are applied currently in constructing monumental objects

Architectural monuments of the past centuries, especially ecclesiastical buildings are presented in large numbers in different parts of Georgia. At present most of them are severely affected and need to be restored; when restoring ancient architectural monuments, the right choice of building materials, especially of facing stones, is of great importance; it must precisely correspond to the stone applied for facing the monument as not to disturb its authenticity.

In South-Eastern Georgia for construction and facing of architectural monuments the building material was rocks of various composition and origin – especially magmatic (intrusive and effusive) and volcanogenic (pyroclastic) rocks. In the past, the sites for building of architectural monument was often chosen in the vicinity of the quarries of building stones; examples of such ecclesiastical buildings are: Bolnisi Sioni (basilica of the 5th century), Kvemo Bolnisi Three Church basilica (V- VI cent.) and Tsugrugasheni Doomed Cathedral (XIII cent.); they are located between the Bolnisi town and the village Kvemo Bolnisi at a distance of 2 -2.5 km from each other.

The area where the afore-mentioned monuments are built is represented by Upper Cretaceous volcanogenic series and Quaternary deposits. The most developed is the Upper Turonian - Lower Santonian Mashavera suite. Toward the bottom there occur layered andesite-dacite lapilli and finely segmented lithic-crystal-vitroclastic and crystal-vitroclastic tuffs and breccia-andesite layers. The upper part is mainly represented by lithic-vitroclastic and vitric-crystal bedded acidic tuffs, tuff-gravelites, tuff-sandstones and tuff-argillites. The less developed Lower Santonian Gasandami suite is represented by lava breccias, ignimbrites and ash tuffs. Volcanogenic deposits are crossed by intrusive and subvolcanic bodies.

During the research, samples were taken from these architectural monuments for their microscopic and chemical study and finally we did the selection of analog material from their natural outcrops.