

## THE POHORJE MARBLE QUARRY COMPLEX ŠMARTNO/FRAJHAJM (SLOVENIA)

Bojan Djurić<sup>1</sup> – Igor Rižnar<sup>2</sup> – Edisa Lozić<sup>3</sup> – Katharina Zanier<sup>4</sup> – Walter Prochaska<sup>4</sup>

<sup>1</sup> University of Ljubljana, Slovenia <sup>2</sup> Geološke ekspertize Igor Rižnar, Ljubljana, Slovenia <sup>3</sup> Institute of Archaeology, Ljubljana, Slovenia <sup>4</sup> Austrian Archaeological Institute, Austrian Academy of Sciences, Austria

Keywords: Marble quarry, Eastern Alps, quarry organization

One of few marble production centres (apart of the Gummern and Kainach quarries) that was exporting their products in Pannonia is Šmartno/Frajhajm quarry complex on Pohorje Mt. In recent years, using Airborne Laser Scanning technology (LIDAR) and geological/archaeological survey, a large quarry complex has been uncovered on the slopes along the Velika Polskava stream. Its valley was the main route for transporting the marble blocks out and down to the officina at Velenik located on the main road (via publica) Celeia (mod. Celje) – Poetovio (mod. Ptuj). The quarry complex consists of different quarrying areas – quarries of which only small parts were known until now due to the dense spruce forests covering them. These parts bear names after the nearest mountain farms – Motaln, Brančurnik, Videc or topographic names – Bojtina. One of the quarries (Videc quarry) was thoroughly investigated in 2020/21. It revealed the characteristics of the marble and its layers, the dynamic and the method of quarrying and its internal organisation. The large spoil dumps were used in modern times for the exploitation of dimension stone and burning lime in the limekiln located in the quarry. The archaeological excavation of the kiln confirmed its use in the 19th century.

## STONE CARVING CHRONOLOGY AT HELLENISTIC AND ROMAN IMPERIAL SAGALASSOS (SOUTH-WESTERN ANATOLIA)

Frans Doperé  
KU Leuven, University of Leuven, Belgium

Keywords: Stone carving, ashlar, chronology

Observations on archaeological sites/buildings show that stone carving techniques on ashlar change. As masonries often go back to distinct building activities, the question arises whether these technological changes are sufficiently characteristic for specific periods and thus whether a stone carving chronology can be established based on the tool traces on the ashlar's facing surfaces. This question was tested on the Hellenistic and Roman Imperial masonries of the urban site of Sagalassos, excavated for over more than 30 years by KU Leuven, thus allowing observations and registrations of stone carving techniques in optimal conditions on freshly exposed masonries. The chronologies of the different buildings/masonries were obtained from stratigraphical analyses, epigraphic data, or cross-dating in case of decorated architectural elements. The periodisation applied on the chronologically classified masonries relies on the presence of specific tool traces. All ashlar masonries were examined, resulting in more than 200 observation-points. The registrations distinguish between the traces of the stonemason's tools on the central zone of the ashlar's facing surfaces and those on the drafted margins. The pointed claw chisel was the most frequently used tool, particularly during Roman Imperial times. To obtain a finer chronology, this tool was not only identified as such, the width of the cutting edge and the number of pointed teeth was registered as well. During the first half of the 2nd c. BC (Middle Hellenistic period), the ashlar are characterised by punched/broached dressings (pic/point) on rustications with double drafted margins. Somewhat later, during the late 2nd-early 1st c. BC (Late Hellenistic period), ashlar are still similarly dressed, but now with single drafted margins. A whole set of pointed claw chisels appears during the early Roman Imperial period, but only those with 8 and 11 teeth are period specific. The others continue to be used during the 2nd c. AD, only the one with 4 teeth is exclusively present during the 2nd c. AD. At this point, these results are valid at Sagalassos only. Therefore, this lecture will extensively focus on the methodology, thus encouraging building archaeologists working at other classical archaeological sites to apply it to their ashlar masonries as well, so that future data comparisons and geographically-oriented projects can be programmed in collaboration between archaeological sites.