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## **Pitaranha, a Granite Quarryscape in the Hinterland of Roman Ammaia (Alentejo, Portugal)**

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The geoarchaeological research project conducted in and around the Roman town of Ammaia (Portugal) aims to investigate the relationship between a provincial inland urban site and its territory. One of the main examined facets includes the study of the provenance and the exploitation mechanisms of the raw granite building material of the site. In a region where intensive stone use for constructional purposes was very limited until the advent of the Roman culture, the study offers important new perspectives on the Romanization processes in this part of the Roman Empire.

The first phase of the research consisted in mapping the stone use in Ammaia. This allowed to define granite and marble as the main natural building stone. Simultaneously, the geologic and geomorphologic setting of the site and its territory was examined in detail. Samples from both the granite of the Ammaian buildings and the granite in the territory were macroscopically analyzed and possible source areas of the granite were selected. Intensive field survey in these areas revealed several ancient granite extraction sites. The granite of the sites was petrographically analyzed and the results were compared with those of the Ammaia granite. Subsequently the suitability of the different quarries for providing an entire Roman town with the necessary raw building material was tested. This method excluded all quarry sites except for one: the quarry of Pitaranha.

The granite quarry was further studied from a geomorphologic and archaeologic point of view, in order to gain insight into the used extraction methods, the spatial and temporal organization of the site. The rather irregular opencast quarry is implanted on the western slope of semi-circular

hill and consists of a large number of smaller extraction fronts. The extraction method extensively took advantage of the existing joint planes of the granite rock in order to facilitate the quarrying.

A final important topic in the study of the stone supply of Roman Ammaia was the transport of the raw granite stone material from the Pitaranha quarry to the urban site. An analysis of aerial photographs and of the topography of the terrain allowed to conclude that the valley of the Sever river functioned as the main corridor for the transport of the granite building blocks towards Ammaia.