The Nabataean Mortars in Petra Area:
Investigation of Types and Applications

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ABSTRACT

Mortar application appears to have been abundant at the ancient Nabataean site of Petra, where remains can be found covering the exterior and interior walls of monuments, caves and cisterns. Evidence has clearly shown that many of the carved facades were once covered with a plaster coating that sometimes had color. Many plaster remains have been found on architectural elements of the facades, and can be comparable to the plaster remains covering similar tomb facades at Medain Saleh. Analysis of various samples representing binding, cistern and covering mortar, as well as stucco has revealed that the mortar mixes are either lime based, gypsum based or gypsum-lime based.

Lime mortars have been found covering mainly hydraulic installations as well as facade elements where protection against the weathering action of water is necessary. Lime mortar is stronger and more durable than gypsum mortar and was thus used where mortar coatings were needed the most. This clearly shows that the Nabataeans differentiated between the two mortar types. Mortars that have been found lining cisterns can be distinguished by their appearance and great durability. Moreover, it is possible that the reason as to why not so much plaster has survived on the monumental tomb facades is due to the fact that the mortar mix used was gypsum based and thus did not last for a long time. Gypsum requires a lower temperature for burning, and hence, less fuel. Therefore, a justification for the use of gypsum is the lack of abundant timber in the area.

The number of plaster layers applied on the walls varied in each case, and was predominantly between one and three. Moreover, the analysis of painted plaster has revealed that hematite was smelted to produce the red color, while Egyptian blue was actually the blue pigment that was used.

Egyptian influences can be noted in the use of gypsum mortar and the Egyptian blue pigment, while Classical influences can be found in the application of ornamented stucco mouldings. Furthermore, it is possible that there is a correlation between plaster application and the socio-economic position of a tomb owner, where the more elaborate tomb facades, which would have probably belonged to higher ranking individuals of the Nabataean society, had painted plaster.

Therefore, mortar, plaster and stucco appear to have played a significant role in Nabataean architecture, and, plastering seems to have been a well established craft in Nabataean times.