

PETROGRAPHY OF THE ROMAN MOSAIC FROM THE SANTA MARIA ASSUNTA CATHEDRAL, REGGIO EMILIA, ITALY

M. Reghizzi^{1*}, S. Lugli¹, R. Curina², M. Zanardi², C. A. Papazzoni¹, P. Pallante³, E. Selmo⁴

¹ Università degli Studi di Modena e Reggio Emilia, Dipartimento di Scienze Chimiche e Geologiche, reghizzi.matteo@hotmail.it

² Soprintendenza per i Beni Archeologici dell'Emilia Romagna.

³ For.Geo Modena.

⁴ Università degli Studi di Parma, Dipartimento di Fisica e Scienze della Terra.

Archaeological investigations in the Santa Maria Assunta cathedral of Reggio Emilia, under the scientific direction of the Soprintendenza per i Beni Archeologici dell'Emilia Romagna, have recently brought to light archaeological layers dating back to Roman and later times.

Of particular interest is the discovery of mosaic floor remains approximately 4 m below the cathedral floor and 2.5 m from the crypt floor dating back to the fourth century AD. The mosaic carpet spans about 13 m² and consists of a complex polychrome structure of remarkable quality, which decorated a large room. The decoration is characterized by an alternation of geometric (large semi-circles and circles framed by a multi-colored braid) and figurative elements (partridges, doves, peacocks, magpies and small figures of dancers). The same geometric elements contain also large squares depicting complex scenes, characterized by the presence of richly adorned male and female naked figures. Of great value and fine execution, the mosaic is composed of small tesserae consist of natural stone and glass paste, some covered with a gold foil.

The petrographic and micropalaeontological analyses of 104 samples has allowed us to identify 13 different rocks and determine the characteristics of the mosaic substrate. The natural stone tesserae show a provenance from a very broad area. Among the most abundant types are limestones from the Verona area such as: Rosso Ammonitico (Fig. 1) and biancone, used for red and pink tesserae, and bronzetto for the white ones (Fig. 2). Calcilutites, biocalcarenites and biosiltites from the Northern Apennines were cut to produce dark gray, dark green and yellow tesserae. In addition, we identified 6 varieties of marble using stable isotopes analyses (C and O) and MGS (maximum grain size) data: Paros marble (Greece, Fig. 3), Proconnesian marble (Marmara island, Turkey), Hymettus marble (Greece), pavonazzetto (Turkey) and Carrara marble (Tuscany). Figure 4 shows the provenance locations of the different stones. The *nucleus* contains brick fragments and minor quartz and feldspar aggregate grains up to 4 mm in size. Fragments of pietra di Vicenza, (biocalcarenite from the Venetian pre-Alps; Lugli, 2010) were also identified (Fig. 5). This stone was not used for the tesserae production and probably the fragments represent inclusions coming from the preparation of statues and carved panels. The *sovrannucleus* is up to 2 mm-thick and contains finer aggregate grains. As demonstrated by other studies in the Modena-Reggio Emilia area, the Romans [Lugli et al., 2010; Lugli et al., 2013] limited the use of natural stones from the Northern Apennines to the preparation of dark mosaic tesserae, but these local rocks were not used for other building and decoration purposes [Lugli, 2010]. Figure 6 shows the distribution of rock types in a portion of the mosaic carpet, showing the link between the varieties of rocks used and the range of tones present in the representations.

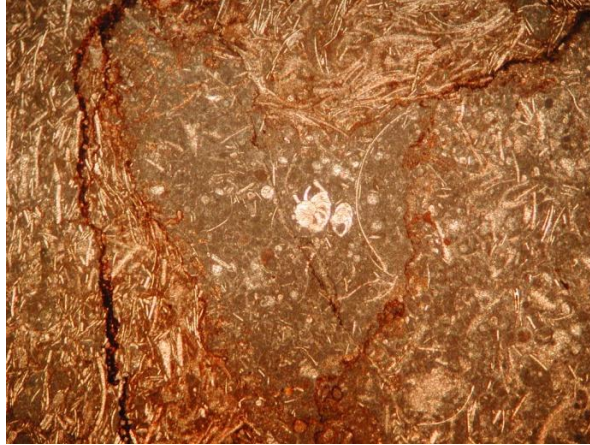


Figure 1 – Photomicrograph of Rosso Ammonitico from a red tessera. Transmitted light, crossed nicols. Horizontal field of view is 5,2 mm.

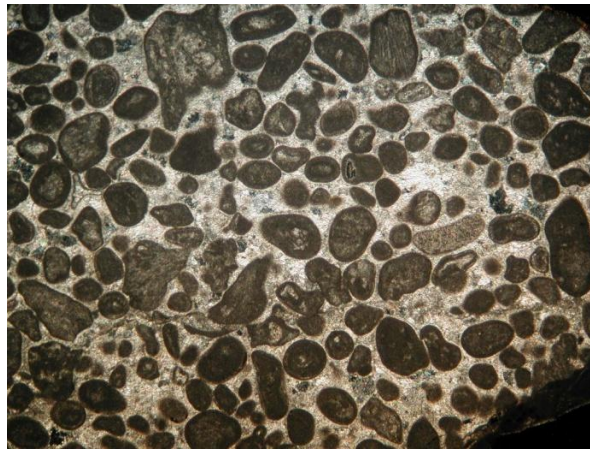


Figure 2 – Photomicrograph of bronzetto from a white tessera. Transmitted light, crossed nicols. Horizontal field of view is 5,2 mm.



Figure 3 – Photomicrograph of Paros marble from a white tessera. Transmitted light, crossed nicols. Horizontal field of view is 5,2 mm.

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Figure 4 - Provenance map of the different stones used in the mosaic.

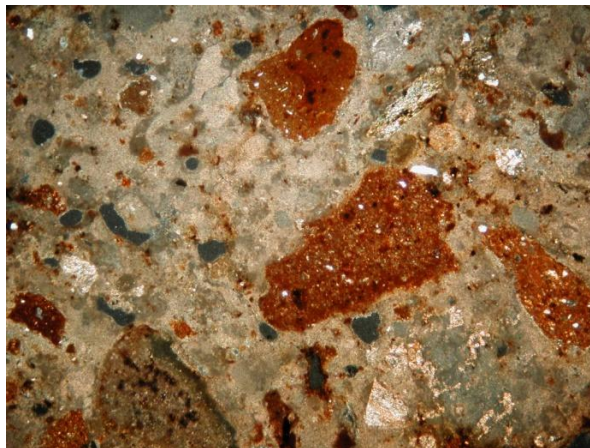


Figure 5 – Photomicrograph of nucleus layer. Transmitted light, crossed nicols. Long side = 5,2 mm.



Figure 6 - Thematic map of a mosaic portion.

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