

White marble sculptures from the National Museum of Roman Art (Spain). Study of provenance.

P. Lapuente (1), T. Nogales-Basarrate (2), H. Royo (1), and M. Brilli (3)

(1) Earth Sciences. Petrology & Geochemistry. Zaragoza University, 50009 Zaragoza, Spain. (plapuent@unizar.es), (2) Museo Nacional de Arte Romano, 06800 Mérida, Spain. (trinidad.nogales@mcu.es), (3) Istituto di Geologia Ambientale e Geoingegneria, CNR. Area della Ricerca Roma1, Monterotondo St, Roma, Italy. (mauro.brilli@igag.cnr.it)

Studies on marbles used to decorate complex architectural projects are aimed at obtaining detailed historical and archaeological data on the origin and building history of the monuments on the basis of scientific data. With regard to white statuary used to embellish public spaces, the marble identification provides not only valuable information on trading patterns and economic history, but also artistic aspects on workshops and itinerant sculptors. In recent years, this interdisciplinary research has focused more attention on the scientific community for its immediate historical implications.

Databases of mineralogy, chemical and physical parameters are intended at discriminating ancient quarrying areas through different criteria. Although there is no single satisfactory method for matching the origin of all marble artefacts, the puzzle of information needed to distinguish one marble from another is gradually being completed using a combination of techniques. One difficulty that arises is the non-uniformity of data in the most reliable databases, while some are based on mineral-petrographic and C-O stable isotopic data, others deal with Electron paramagnetic resonance (EPR), isotopes and only the maximum grain size as the petrographic parameter. Cathodoluminescence (CL) analysis is very helpful in discriminating those marbles for which other characteristics are not sufficiently diagnostic.

This contribution reports the archaeometric study of 52 marble sculptures and decorative elements from the capital of Roman Lusitania, Augusta Emerita. These samples, which are currently exhibited at the Spanish National Museum of Roman Art, comprise a representative record of archaeological pieces from diverse chronology. Their study is proposed to distinguish the selection of local or imported material chosen for different decorative programs.

A multi-method approach combining thin section microscopy, X-ray diffraction, cathodoluminescence and stable C and O isotope analysis was applied to identify the marble provenance. The paper discusses the results of combining different analytical techniques compared with the available databases. They confirm the major use of different Portuguese varieties from the Estremoz Anticline, but also emblematic Carrara pieces and an assortment of classic marble sources were determined from Greece and Turkey. Results have facilitated the contextualization of the imported pieces in a territory where regional marbles competed in their quality.