
THE MEDIAEVAL CRYPT OF SAINT SEPULCHRE IN ACQUAPENDENTE (ITALY) STUDY AND PHOTOGRAMMETRIC DOCUMENTATION OF THE PAINTED SURFACES

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Abstract

The aim of this paper is the study of the paintings on architectural elements in the mediaeval crypt of the 'Santo Sepolcro' (Holy Sepulchre) in the Cathedral of Acquapendente (Northern Lazio, Italy). The scientific approach has been developed through the mapping of the traces of original painting still visible on the architectural elements of the crypt. The mapping was done by analysing the paint pigments and binders still preserved in small fragments on the architecture of the crypt. Then painting samples were taken for laboratory analysis aimed at identifying the composition of pigments and binders. These samples were examined through micro-stratigraphic analysis, Fourier transform infrared spectroscopy and X-ray fluorescence spectroscopy. To reach the established goal, in situ documentation was performed by visible and ultraviolet fluorescence photogrammetry. In order to obtain a reconstructive three-dimensional model of the architectural elements with colours as much similar as possible to the originals, the obtained model was rendered using the colour palette gathered by the scientific analyses.

Keywords: medieval, analysis, digital, 3D, documentation

1. Introduction

The investigation of cultural heritage composition is nowadays a well-consolidated approach aiming at characterizing original and restoration materials to better address the conservative procedures [1-6]. The study of these materials could supply information about construction techniques, conservative history of the artefact, possible transformation of the original appearance of the artwork, etc. Today, thanks to the potentialities of non-invasive multispectral techniques, it is possible to obtain a lot of information about artworks without sampling and to address the eventual taking of samples [7-9].

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