

_ Scientific Support for Palatine Hill Excavation

CONSERVATION INSTRUMENTS AND TECHNIQUES

The excavation proceeds step by step with specialist scientific support essential to the development of the field work, from geophysical and geological research to the non-destructive analysis of structures and artefacts, the construction of a GIS for spatial data management, and post-excavation conservation of finds. Modern technology is essential in defining the conservation status of artefacts, and establishing the most appropriate techniques. During an excavation, wall surfaces, painted and not, as well as the mosaics, undergo chemical and physical stress that may lead to a rapid deterioration. Scientific activities at this stage will aim to identify the state of degradation of materials, to evaluate the type of degrading attacks, and establish the conditions for treatments and periodic maintenance. Next generation applications include treatments with nano materials, protective but not filming, anti-pollutants, and bio-compatible to develop a new conservative vanguard methodology. To support the structural conservation work, we will consider compatible and non-invasive next-generation materials, (i.e. basalt fibres or ETFE slabs) together with ad hoc tests, to provide a safe working environment.

The scientific activity pertaining to the Palatine Hill Excavation will require the use of the following instruments: portable equipment (X-ray fluorescence (XRF) spectrometry, Raman Spectroscopy, Fourier transform infrared spectroscopy (FTIR), Colorimetry); laboratory instruments (Micro-Raman spectroscopy, Micro- X-ray fluorescence (XRF) spectrometry X-ray diffraction (XRD), Field Emission Scanning Microscopy/Energy Dispersive X-ray Analysis (FESEM/EDX), Thermal analysis, Optical microscopy on thick and thin section, Microbiological characterization).