

RAMAN SPECTROSCOPIC ANALYSIS OF ROMANO-BRITISH WALL PAINTINGS AND CERAMIC VESSELS: EASTON MAUDIT, NORTHANTS AND CASTOR, PETERBOROUGH

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Abstract: This contribution reports the analysis of a collection of wall paintings and fragmentary ceramic vessels, containing pigment, from the Romano-British villa at Easton Maudit, together with analysis of a complete ceramic vessel from a Romano-British workshop at Castor, also containing pigment.

Raman spectroscopy has been used extensively in the scientific analysis of pigments in ancient Roman paintings and manuscripts for the identification of pigment compositions and artists' palettes [1]. With the identification of source materials for the pigments, wider questions such as the supply networks involved in the provincial of Roman empire and the spread of specialized techniques can be more methodically addressed. Following previously successful research in our laboratories in which significant chemical and historical information about Roman and prehistoric art has been obtained [2], we have expanded our study to other locations of Roman villas. In this present research, samples excavated from two villa sites have been analysed consisting of painted wall fragments with familiar colour palettes employed during the Roman period, mainly red, white, yellow and green pigments.

In addition, a complete ceramic vessel/paint pot (6cm in diameter) which was found on the site of a Romano-British workshop (ca 200 AD) has been of interest since it contains both white and red pigments. The establishment from which the paint pot comes appears to have been engaged primarily in metalworking, and there is therefore no obvious connection with wall painting. Nevertheless, there would have been ample opportunity for a painter to use their skills on a number of wealthy villas nearby.

Results in Fig. 1 show the spectra of wall paintings with four different colour palettes. Red and white pigments have been employed extensively on this villa, where the former is identified as haematite with a trace of calcite, carbon and limewash and the latter is mainly calcite and limewash. Yellow pigment is due to goethite and a green pigment related to the use of malachite, which can be considered expensive.

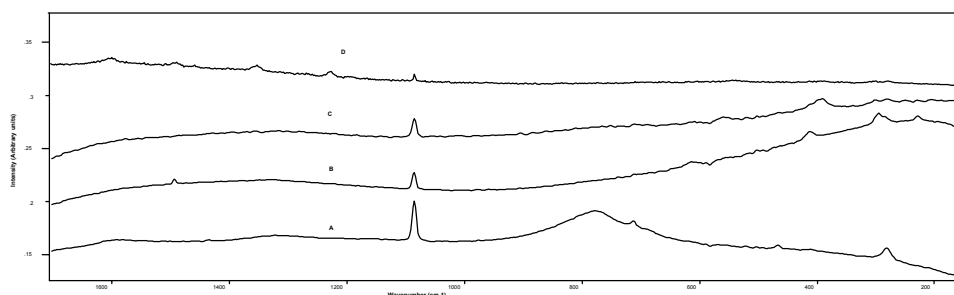


Fig. 1 Raman spectra of fragmentary painted wall plaster A) White (S1) B) Red (R1) C) Yellow (G03) D) Pale green (E04).

Fig. 2 shows the spectra of white and red pigments analysed from a complete paintpot from the Castor site (CAS 69, 136). Interestingly, the white pigment is identified as anatase which is unusual and has never hitherto been considered as pigment in ancient times. This calls for special comment. It is a rather rare mineral and its synthetic form appeared in the 1920s [3]. The red pigment is indicative of red ochre (haematite).

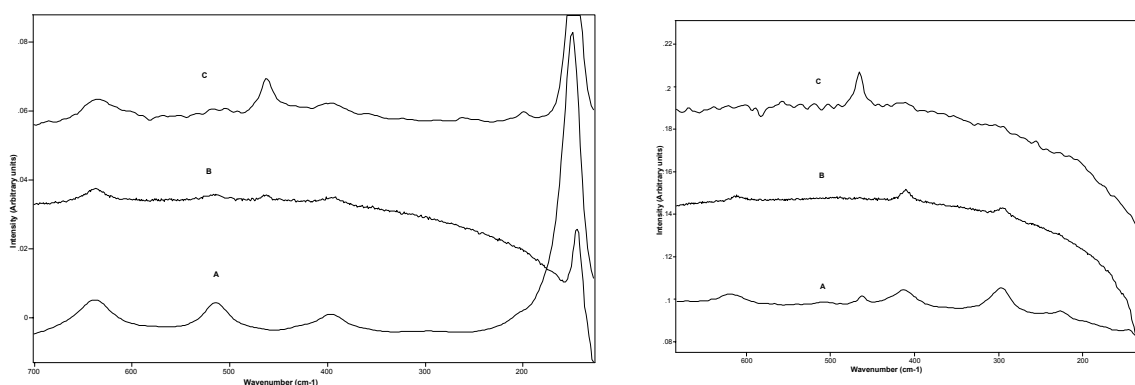


Fig. 2 Left: Raman spectra of Anatase (Standard) (A); and white crystal found inside (B) and outside (C) of the complete ceramic vessel CAS69, 136.
Right: Raman spectra of Haematite (Standard) (A); and red pigment found inside (B) and outside (C) of the complete ceramic vessel CAS69, 136.

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