

COLOURANTS, PIGMENTS AND GLAZES: STUDYING UNDERGLAZE DECORATED TILES FROM 19TH CENTURY IRAN

Stefan Röhrs^{1*}, Ina Reiche², Jim Tate³, Lore Troalen³,
Graham Martin⁴, Boris Pretzel⁴, Clotilde Boust², Friederike Voigt⁵

¹ The British Museum, Department of Conservation, Documentation and Science,
Great Russell Street, London WC1B 3DG, United Kingdom

² UMR 171 CNRS – Centre for Research and Conservation of the French Museums (C2RMF),
Palais du Louvre, 14 quai F. Mitterrand, 75001 Paris, France

³ National Museums of Scotland, Department of Conservation & Analytical Research
Chambers Street, Edinburgh EH1 1JF, United Kingdom

⁴ Victoria and Albert Museum, Conservation Department,
South Kensington, London SW7 2RL, United Kingdom

⁵ Humboldt University Berlin (HUB),
priv. G.-Scholl-Str. 84, 15566 Schöneiche bei Berlin, Germany
* sroehrs@thebritishmuseum.ac.uk, Fax: +44 (0)20 7323 8276

A Franco-Britain ALLIANCE Project, supported by the British Council and French EGIDE, aims to establish criteria to identify and, if possible, date under glaze decorated tiles made by the workshop of Ali Muhammad Isfhani in Teheran in the 19th century. Under normal circumstances such a task would be almost impossible. However, Robert Murdoch Smith acquired a treatise describing of the manufacturing processes, together with a range of colourant materials, from Ali Muhammad Isfahani in 1887. These form part of the collection at the Victoria and Albert Museum (V&A), London. Minute samples taken from these materials, together with a selection of the pictorial underglaze decorated tiles of the type in question held at the V&A, the National Museum of Scotland, Edinburgh, and the British Museum, London, will be studied in the frame of this project by various non-destructive analytical methods, matching the analytical challenge of studying glazes as well as pigments and colourants applied under the glaze. Non-destructive analytical techniques used in this study comprise confocal micro-Raman spectroscopy, micro-X-ray fluorescence (XRF), micro-particle induced X-ray emission (PIXE), visible light reflectance spectroscopy and in some cases, where fragments were readily available, scanning electron microscopy.

A large set of colourants including traditional pottery pigments and new colourants of the 19th century such as uranium were identified. The first analytical results will be presented and compared to results of a preceding Franco-German project where objects from collections in Paris, Lyon and Berlin were studied. Conclusions will be presented about specific materials, pigments and colourants that can be identified at this stage which may be diagnostic for individual workshops, certain production areas or production periods in the 19th century Iran.