



WHERE SCIENCE MEETS VICTORIAN ART

The colours of William Burges' Great Bookcase: a material perspective

TEA GHIGO

Colour has bewitched humankind ever since the dawn of time. In Antiquity, coloured pigments for painting and writing were primarily obtained from natural sources such as minerals, plants and animals.

Iron-rich minerals were processed to obtain coloured earth ranging between yellow and red. Indigo blue was manufactured from the plant species *indigofera tinctoria*, and Phoenicians became famous for the Tyrian purple they extracted from *Murex* snails. However, Mother Earth only provides a limited

colour palette and soon enough, artisans began applying their craft skills and technical knowledge to produce new synthetic colours through chemical reactions. Egyptian blue – the earliest known synthetic pigment – dates back to at least the third millennium BC. It is frequently found in Egyptian painting and was

Material analysis of the pigments using a portable handheld X-ray Fluorescence Spectrometer. [G](#)

traditionally prepared by heating together powdered limestone, a copper-containing mineral, silica and soda to temperatures between 850-1000°C.

While the history of synthetic colour production is almost as long as the history of writing, it is only in modern times that technological progress has allowed an exponential development of artificial colour manufacture. The Industrial Revolution played a pivotal role in introducing new synthetic pigments to the market. A milestone was reached in 1856, when the English chemist William Perkin accidentally synthesised *mauveine*, the first dye ever produced from coal-tar. Immediately after their discovery, coal-tar dyes were enthusiastically received by the industry, the media and the general public. England celebrated with joy and awe the extraordinary virtues of chemistry that succeeded in obtaining a range of new vividly coloured tints from a pitch-black waste material that abounded in Victorian London.

Sadly, all that glitters is not gold. Newly introduced colours were as unknown as they were alluring, and it took only a few years for the Victorians to realise – and experience – their insidious qualities. Many industrially manufactured pigments contained poisonous substances such as arsenic, mercury or lead. When used to dye clothes, they caused a variety of skin reactions which contributed to disseminate distrust towards synthetic products. The unknown properties of these new bright colours, secretly formulated



Painting colours in the making following historic recipes: indigo (top) and cochineal (bottom).



within the walls of big factories, were also a cause of concern within the artistic community. The painter William Holman Hunt warned his colleagues during a lecture at the Society of Arts:

“In old days the secrets were the artist’s; now he is the first to be kept in ignorance of what he is using”.

W. H. Hunt 1880, *Journal of the Society for Arts* 28, no. 1431.



In-depth examination of the Great Bookcase using Infrared photography to reveal the underdrawing (left) and computer-connected microscopy to observe details of the painted surface (right).



It was at this time, in an atmosphere of excitement and agitation towards the new painting materials, that the architect William Burges designed his “Great Bookcase”. Burges gathered together fourteen different artists – Edward Poynter, Simeon Solomon, and Henry Stacy Marks among them – to paint the Bookcase for the International Exhibition held in London in 1862. The artists were faced with a decision: did they want to experiment with the newly available colours or instead adopt a more cautious approach, using the more familiar materials whose properties were well known thanks to years of practice and experimenting?

This conflict between traditional versus modern materials is significant not only in light of the concerns for the safety of new synthetic pigments, but also because many of the artists who painted the Bookcase were associated with the Pre-Raphaelite movement, who sought a return to the intense colours typical of Italian Renaissance art. Furthermore, Burges himself was an

exponent of the Gothic Revival style that looked back at medieval artistic traditions. Could this group of artists have attempted to revive the past also by using historical materials rather than modern ones?

The Conservation Department of the Ashmolean is now carrying out a thorough scientific investigation of the Great Bookcase as part of the international and interdisciplinary research project “Chromotope”, funded by the European Research Council. We are applying a range of state-of-the-art analytical methods to identify and characterise pigments and painting materials while reducing the number of paint samples extracted. Curious visitors who wandered through Gallery 66 during the past months might have witnessed part of the ongoing analytical work and come across some of the instruments used. The results of this research will be showcased at the exhibition *The Colour Revolution: Turner to Whistler* that will open at the Ashmolean in spring 2023 and allow the visitors to experience Victorian art from a different perspective. ■