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Proposal for a student project

Build an Interactive and Intuitive Tool
to Assist Art Conservators in Pigment Analysis

The Project

Build an **interactive tool** (website or app) that would enable conservators to **identify pigments** through their microscopic characteristics.

The reason why we would like to make this a **student project** is that this **educational tool** would be in **online and in free-access**. It would **benefit students and recent graduates** in conservation as well as older conservators who use polarised light microscopy every now and then and need the support. It also offers the IT student a **collaboration with professionals** and most of all, a **multidisciplinary experience**.

How are pigments analysed?

As of 2017, various methods are available to analyse pigments. To cite a few, there is: x-ray fluorescence (XRF), Macro X-ray fluorescence (MA-XRF), SEM-EDX (Scanning Electron Microscopy with Energy Dispersive X-Ray analysis), FTIR (Fourier transform infrared spectroscopy). The major drawback with all these methods is the price: they are **expensive** to acquire and need specific knowledge of the machine and its limitations.

Another method to analyse pigment exist: **polarised light microscopy (PLM)**. It has the potential of **solving problems confidently and quickly**, as the sample set-up and analysis can be done under 15-20 minutes. Plus, the **investment is minimal**, one needs a hot plate and glass slides for the mounting of samples and a good microscope.

What is currently available to support pigment analysis?

- Flowcharts (paper): **very rigid**. If one characteristic is missed then it is impossible to go on.
- McCrone Atlas (www.mccroneatlas.com): **not adapted** for historical pigments.
- Pigment Compendium: dictionary, **not an analytical tool**. (Eastaugh, N., Walsh, V., Chaplin, T., and Siddall, R., 2004. *The Pigment Compendium: Dictionary of Historical Pigments*, Oxford: Elsevier Butterworth-Heinemann)

Who would use the interactive tool?

The survey done in July 2017 received 226 responses, mostly from conservators interested in the project and sharing they would like to have access to such a tool. A few even offered to test it for us before the launch. Interviews with **conservation students** and **emerging and settled conservators** alike showed that such a tool would be welcome and would provide support which would itself bring more confidence.

How is the tool different and useful?

The tool would work as a **deconstructed flowchart**: the conservator can start with whichever characteristic he/she wants. The more characteristics you enter, the few options are presented, narrowing the search. This is more **intuitive** and allows **more freedom** as the analysis is not always straightforward.

Additional information

- The content is being written up by myself, based on available information in the Pigment Compendium and information from flowcharts.
- The website/app would be supported by the IT staff from the Fitzwilliam Museum and would be hosted at the Hamilton Kerr Institute in Whittlesford.
- The design, amongst other things, would be up to the student and every aspect would be discussed to produce the most accurate project.