Simon Gillespie Studio

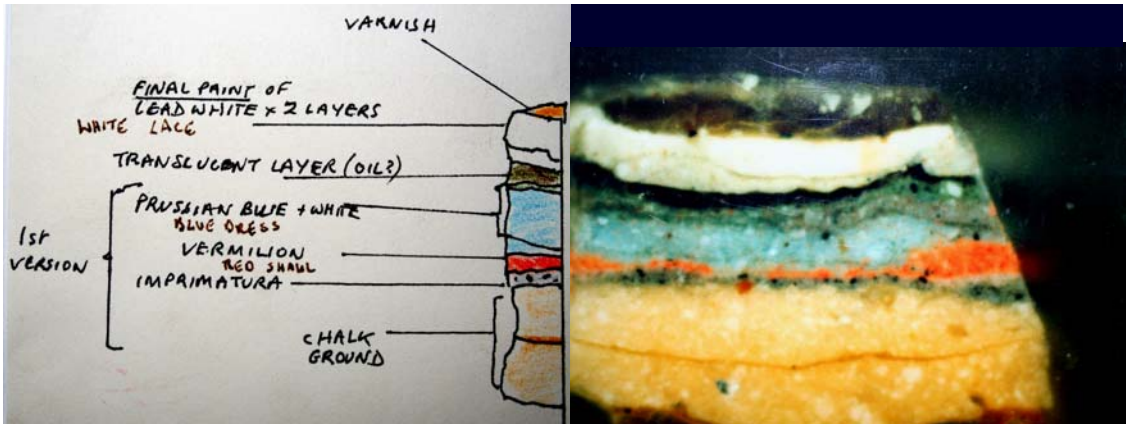
Conservation and Restoration of Fine Art Studio Newsletter: No.8

A slice of time - Cross sections

What is a cross section?
A cross section involves the removal of a tiny sample of paint from a painting. The sample taken should be no larger than a pinhead to avoid this process becoming a destructive method of examination. In addition, the sample is usually taken from the very edge of the painting or from the site of a damage, rather than from a main part of the composition.

The sample should contain all the various layers making up the painted surface of the picture i.e., the ground, the paint layers, varnish and dirt layers. The sample is taken with a scalpel under a microscope. It is then embedded in a transparent, hard setting resin. The next stage is to grind into the resin, and the sample itself, before finally polishing the edge of the sample so that it can be examined under a microscope.

What is the value in carrying out this process?
Cross sections provide a valuable source of information on a painting's layer structure; its pigments and painting-technique; as well as being able to provide indications of over painting or other restoration procedures.



It is also possible to identify the pigments itself. Many pigments can be identified by their appearance at high magnification, particularly the coarsely ground mineral pigments that are found in pictures painted before the 19th century.

A cross section is just one of the scientific options available offering analysis. Viewing the sample in ultra-violet and polarized light can reveal more information. Other techniques can be used to examine a sample in more depth. For example; energy dispersive x-ray (EDX) analysis in the scanning electron microscope (SEM) and x-ray diffraction.