



Criminalistics Section – 2004

B49 A Selection of Some of Dr. McCrone's High and Low Profile Cases in Forensic Analysis of Art

David A. Stoney, PhD, McCrone Research Institute, 28205 Michigan Avenue, Chicago, IL*

Dr. McCrone performed considerable casework focused on the materials analysis of works of art. This includes his very high profile work on the Shroud of Turin and the Vinland Map, but includes a variety of other casework that is less well known or known principally among art conservators, rather than forensic scientists.

A selection of these cases will be reviewed, which incorporate a basic forensic science approach and, of course, microscopy.

Dr. McCrone's analysis of tape lifts from the Shroud of Turin established the presence painted linen fibers that corresponded to the image areas of the Shroud. The paint was made of a collagen tempera medium and two pigments: red ochre and vermilion. Red ochre (a form of hydrated iron oxide) has been available throughout recorded history, but the form of vermilion used was one commonly available only in the Middle Ages.

Dr. McCrone's analysis of the Vinland Map established the presence of a fabricated yellowing of the parchment associated with the map's ink lines. The yellowing incorporated the synthetic pigment form of titanium dioxide as anatase. Anatase in this pigment form was not available until the early 20th century.

In other work, Dr. McCrone has uncovered many similar forgeries based on the detection of materials that are inconsistent with the alleged date of origin and the detection of methods used for the fabrication of the appearance of age. Much more rarely he was able to demonstrate that a questioned piece of art was entirely consistent with its alleged date of origin, or was very likely to be from a specific artist by comparison of the materials used in contemporaneously produced, unquestioned works of art.

Dr. McCrone, Forensic Science, Tribute