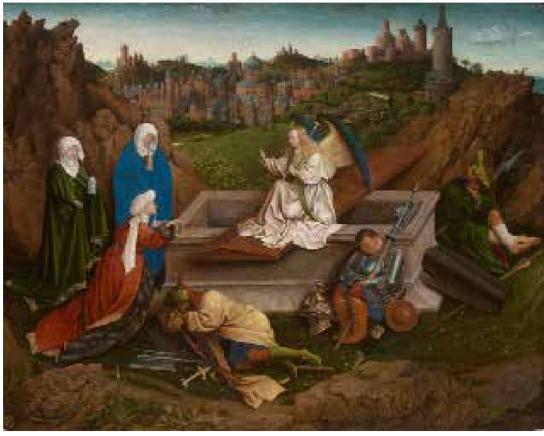


New Findings on *The Three Marys at the Tomb* by Van Eyck in Museum Boijmans Van Beuningen

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ABSTRACT

The recent restoration and investigation of *The Three Marys at the Tomb* by Jan and/or Hubert Van Eyck (c.1425-35) from the collection of Museum Boijmans Van Beuningen in Rotterdam has provided new information. The painting will be shown in the coming exhibition 'The Road to Van Eyck' (Boijmans, Oct 2012- Feb 2013). In February 2012, MOLAB carried out in-situ non-invasive measurements on the painting. Also samples taken by prof. dr. J.R.J. Van Asperen de Boer in 1980, have been re-examined. In this poster, the results of the recent research will be presented.

During varnish removal an old, yellowed oil-based layer was discovered on the paint surface, below the varnish. Further examination and analysis of cross-sections proved that this layer might be an original varnish, or even part of Van Eyck's painting technique, as in many places the gildings were applied on top of this layer. The findings were essential during the restoration treatment and give more insight into the painting technique in the circle of Van Eyck.

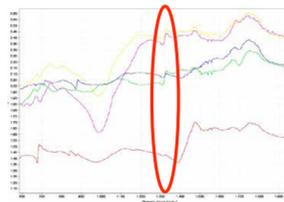
Jan and/or Hubert Van Eyck, The Three Marys at the Tomb, c.1425-35, 71,5 x 90 cm, oil on oak panel, Museum Boijmans Van Beuningen, Rotterdam, photo after treatment.

DURING CLEANING

During varnish removal, a brown, transparent layer was found in many areas in the painting, especially in the greens and browns. This layer turned out to be highly insoluble. The micro-detail (left image) shows that it either appears as a continuous, glossy brown layer on the surface, or, where it is heavily broken up, as whitened, blanching layer. The macro-details show a detail of Mary's green dress during cleaning (middle and right images). The strongly blue fluorescent islands in the cleaned area correspond with the areas where the brown, insoluble surface layer is present.

MOLAB RESULTS

Before the treatment was started MOLAB carried out in-situ non-invasive measurements on the painting. Mid- and near-Fourier transform infrared spectroscopy (FTIR) revealed the presence of oxalates throughout the surface of the painting (characteristic sharp peak at 1318 cm^{-1} , $\nu_s(\text{COO})$).



Micro-detail of a brown rock.



Macro-detail of Mary's green dress in normal light.

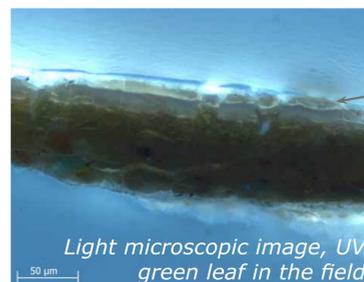
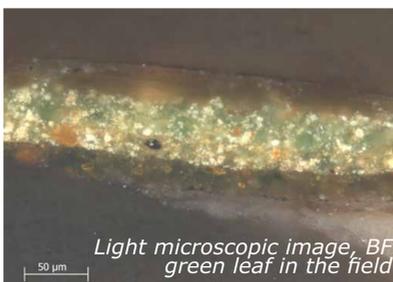


Corresponding macro-detail in UV-light.

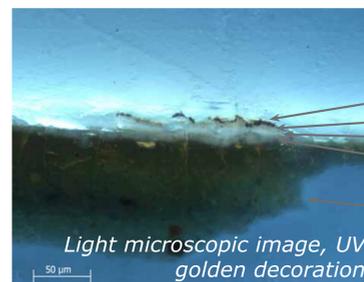
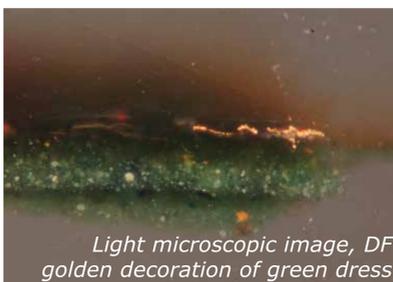
Single point FTIR spectra obtained from various areas in the painting. In courtesy of MOLAB, www.charismaproject.eu.

SURFACE LAYER IN CROSS-SECTION

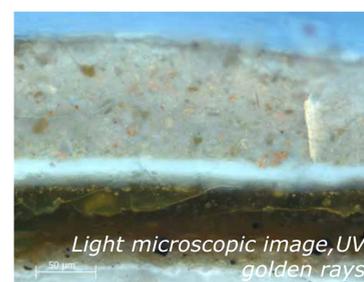
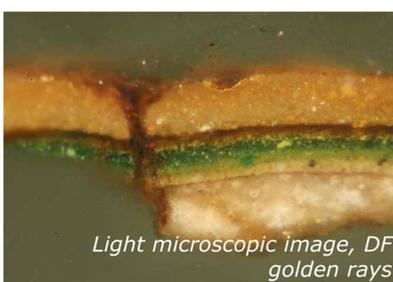
In the 1980s, prof. dr. J.R.J. Van Asperen de Boer sampled the painting to study the paint materials and painting technique [Van Asperen en Giltaij 1987]. During the recent treatment, these samples were re-examined and provided information about the brown, insoluble surface layer. This layer was recognised in the cross-sections as a dark brown, transparent layer that shows a typical greyish fluorescence in UV. Interestingly, the same layer is also present between the original paint and the mordant of the gildings, i.e. the golden decoration on Mary's dress and the golden rays at the right edge of the painting (see cross-sections below), and between the original paint and the coat of arms, a 17th-century addition. Since the authenticity of the gilding on the dress was never doubted, we can conclude that the oil-based layer is part of the original painting process. The gilding of the rays have a significantly thicker mordant in build-up. This follows the tradition at that time to applied the rays in relief [Stroo 2009]. The cross sections of both gildings also show the presence of a thin, strongly fluorescent organic layer between the brown, transparent layer and the mordant. It is not clear whether this layer was originally present over the entire layer, like the brown transparent layer, and has been removed during later treatments or was only present under the gildings.



- varnish from 1940s
- brown, transparent layer**
- green paint layer
- imprimatura
- chalk ground



- gold leaf
- mordant
- organic layer (bright in UV)
- brown transparent layer**
- green paint layers

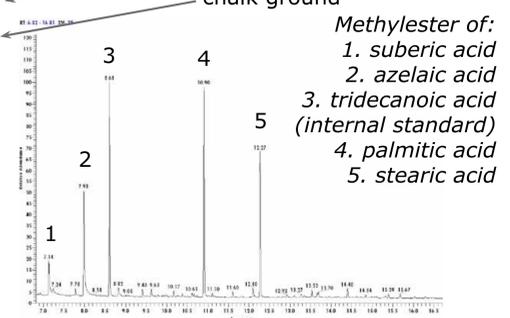


- gold leaf
- mordant
- organic layer (bright in UV)
- brown transparent layer**
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- imprimatura
- chalk ground

CHARACTERISATION OF THE SURFACE LAYER

Scrapings of the brown, transparent surface layer (after varnish removal) were characterized with gas chromatography-mass spectrometry (GC/MS) and transmission Fourier transform infrared spectroscopy (FTIR). GC/MS identified linseed oil as the main component with small traces of natural resin. The FTIR spectra reveal oil and/or resin, oxalates and traces of proteins. We conclude that the brown, transparent surface layer is a strongly oxidized oil-based layer. The oxalates are an end product of the oxidation of the oil. Traces of the natural resin are attributed to remnants of later applied varnishes. The presence of traces of proteaceous material is also ascribed to old restoration materials.

GC/MS chromatogram of the brown transparent surface layer.



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