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'A Puzzle to the Critics': The Technical Analysis and Treatment of a 16th Century Panel Painting of Possible French Origin.

In 1910, Edward Waldo Forbes, Director of the Fogg Art Museum, purchased from a New York dealer, Louis Ehrich, a panel painting depicting the *Annunciation of the Virgin's Death*[1]. In the same year he also acquired two badly damaged painted fragments that once formed part of the painted verso of the *Annunciation* panel. After a brief period as part of his private collection, Forbes then gave the panel to the Fogg Art Museum. In a letter to a former student, in 1913, Forbes talks about the condition of the verso painting:

'The dealer sawed the picture in two and as the left half was practically destroyed, he threw it away, all but a little scrap which I have, and made a framed picture of. As you will it is much repainted, and in very bad condition.'[2]

Annunciation of the Virgin's Death,
38 x 383/4 "
Photographed before 1957

Entombment of the Virgin,
Fragment, 38 x 173/4 "
Photographed before 1957

Entombment of the Virgin,
Fragment, 5 x 193/4 "
Photographed 2007

[1] Information from correspondence with Ehrich Brothers in 1910. Curatorial File 1910. 122. Fogg Art Museum.
[2] Letter to Ralph Roeder dated 26th May 1913. Fogg Art Museum Archives, Forbes Correspondence files, Alphabetized 'R' file.

Despite the damaged state of the panels, they quickly attracted the attention of scholars and various publications were produced within the first few decades of their acquisition. In the 1990s, the discussion was revived by the French scholar and curator, Dominique Thiebaut, who discussed the panels in relation to a set of four panels by Josse Lieferinxe at the Philadelphia Museum of Art[3]. Recent treatment of the *Annunciation* panel has facilitated a better assessment of its original materials and techniques. I will first give an overview of the initial treatment and then discuss the technical investigation of the panel and its fragments. I will also evaluate these findings in light of information from Ross Merrril's 1974 technical investigation of the Lieferinxe panels at Philadelphia Museum or Art[4].

Condition

The *Annunciation* panel appeared to be less damaged than its two verso fragments. It still had numerous areas of paint loss, however, and had also undergone a number of campaigns of filling and overpainting. The overpaint was thickly applied and had darkened considerably. The panel was also covered in a thick, yellowed varnish layer which had been partially removed, as cleaning tests areas in the form of large squares showed. In ultra violet light the varnish fluoresced strongly and uniformly across the non-cleaned areas, suggesting the presence of a degraded natural resin varnish.

The structural condition of the panel was of concern. Each member had been thinned to approximately a 2mm thickness. The join interface between each member had receded so that large gaps have formed between boards. The boards were mounted to a laminate board of two thin wood layers backed with a faux cradle structure. After movement in all wood layers and embrittlement of the glue, the laminate sections had separated from one another in some places and from the attached original material. All boards displayed a slight concave warp. A further strategy for the structural treatment of the panel is not an immediate part of the present project, but it is acknowledged that an inventive solution

[3] Dominique Thiebaut, 1994, pp 208-212.
[4] Ross Merrill, *Saint Michael in Combat with the Devil: A technical study of a Provencal Painting,* unpublished MA thesis, Oberlin College, 1974

will have to be determined to satisfy the special requirements of a panel made up of eight thin, horizontally joined boards.

Treatment

The treatment of the *Annunciation* began with the removal of the discoloured natural resin varnish. This was achieved using acetone, which also removed a good proportion of the overpaint. After the varnish layer and some of the overpaint were removed, a further two overpainting campaigns were more clearly observed. Tests with free solvents and solvent mixtures were only partially successful.

Applying the gel

Solvent gels were then tested for their efficacy. It was found that a Xylene and Benzyl alcohol based gel was effective in addressing some of the overpaint. This gel did not remove the thicker overpaint, but a high swelling Pyrrolidanone-based gel was effective. The softened swollen paint could be sloughed off using mechanical action.

Art Historical Context

After cleaning, the materials and techniques of the panel were given further consideration in relation to the various art historical questions that had been raised. In 1913 Forbes stated that the panel was ‘a curious and interesting picture, the attribution of which has

been a puzzle to the critics'[5] Early 20th century attributions ranged from German to Italian to Spanish to Portuguese, and French schools. The majority of scholars however, felt that Southern France was the likely origin of the panel[6].

More recently the scholar Dominique Thiebaut discussed the Fogg panel in relation to the output of Josse lieferinxe. Lieferinxe was born in 1470 in Flanders and worked in Marseille. Through a combination of his homeland, travels and artistic collaborations, Lieferinxe would have been aware of Flemish, Northern Italian and Burgundian styles and material practices. Thiebaut points out that the combination of Gothic and Renaissance architectural types in the Annunication panel can be seen in other works of southern French origin[7].

Thiebaut notes that this blend of architectural styles also makes an appearance in some of the Lieferinxe panels at Phildelphia. Thiebaut also asserted that the facial types of the Angel and the red robed figure in the Fogg panel echo some of the figures in the *St Sebastian* panels in Philadelphia and Rome. The monk in the panel depicting *St Sebastian destroying the Idols*, and the Cripple in *The Pilgrims at the Tomb of St Sebastian*' also have the long faces, small mouths and the sloping eyebrows of the Fogg panel's angel and robed figure[8].

A complete discussion of the stylistic parallels between the Fogg panel and works attributed securely to Lieferinxe is beyond the scope of this paper. Newly gathered technical data from the Fogg panel, along with previously collected technical information from the panels at Philadelphia, can, however, add to discussions about attribution and school.

[5] Forbes, p.39 Museum of Fine arts Bulletin, Boston, August 1913, No.64, Vol.XL.
[6] Curatorial File 1910. 122. Fogg Art Museum.
[7] Dominique Thiebaut, 1994, pp 208-212.
[8] Dominique Thiebaut, 1994, pp 208-212.

Technical Examination: Support

Despite radical alteration, it is possible to reconstruct the panel's configuration as a doubled-sided panel**.** In examining the panel from the side, the rays seen on the end grain were orientated in different directions. As a result it is possible to conclude that eight separate boards were used. Most boards were radially cut with upper most board being more strictly radial than the rest. The use of eight boards to make up the support seemed unusual and at first it was assumed that the multiple joins may have been associated with panels alteration. After further investigation however, other occurences of multi-board construction in early southern French paintings were noted[9], though this was not the case with the Lieferinxe panels at Philadelphia[10].

Visible rays on the end grain of the panel

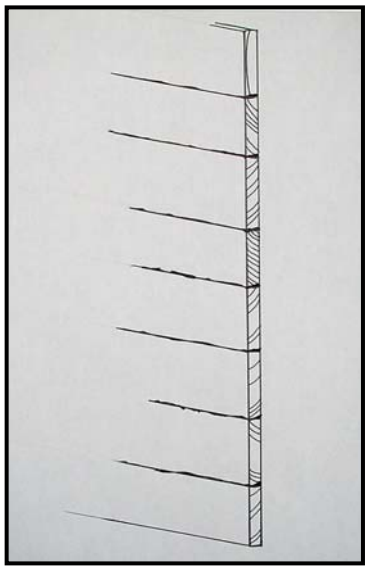


Diagram of ray direction on members of the *Annunciation* panel

Scholars have analysed the supports of works attributed to Josse Lieferinxe. Merrill found that the Philadelphia panels were all painted on Walnut[11]. A further three paintings given to Lieferinxe at the Lourve were analysed by Jaqueline Marette. Two were identified as being on Walnut supports and one on Poplar. Marette also surveyed the

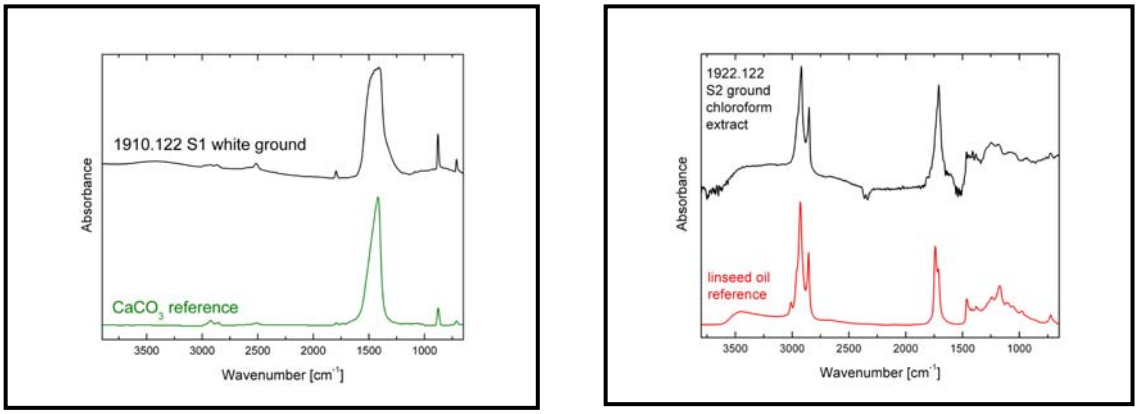
[9] This support construction can be seen on a panel by the Master of Dunois, La Trinite aux chanoines de Notre-Dame de Paris, Ecole Nationale Superieure des Beaux-Art, and on a panel by the Master of the Pieta de Saint Germain des Pres. Illustrated in *La Peinture medievale a Paris 1300-1500,* Bibliotheque des arts, Wildenstein Foundation, Paris, 1990.
[10] Merrill 1974, p16-18
[11] Merrill, 1974, p20

support wood types of 15th and 16th century Southern French panels. Of the 57 paintings she examined, she concluded that Southern French painters used a range of woods. The highest percentage of works, at 28%, were painted on Walnut, Poplar was the next most frequently used wood type, followed by Oak[12].

With the unaided eye it was noted that the support of the *Annunciation* and fragments exhibited the broad characteristics of Oak, such as large pronounced multisteriate rays, large early wood pores and dash shaped ray flecks. A thin section of the support was taken from the small fragment and examined under magnification. This confirmed that the arrangement of the pores and their size, was characteristic of Oak.

Ground

Grounds in Northern European Medieval and Rennaissance painting tend to be of a calcium carbonate animal glue mixture. The grounds of the Philadelphia panels were tested by Merril using microchemical and staining tests which characterised them as calcium carbonate bound with a proteinacous medium[13].



FTIR Spectra for ground samples 1 and 2

The ground layer present on the *Annunciation* panel is white, conspicuously thin and in cross section appeared in some cases as a double layer, and at other times as a single layer. Samples of the ground layer taken from the *Annunciation* were analysised by Jens

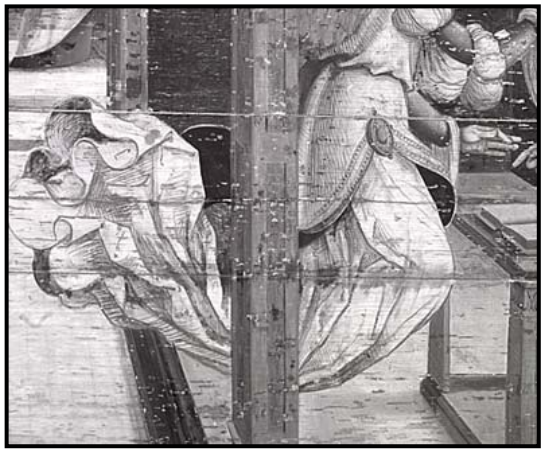
[12] Marette, 1961 p50-51. Table reproduced in Merrill 1974 p22.
[13] Merrill, 1974 p31

Stenger using FTIR spectroscopy[14]. This showed that while the white particles were calcium carbonate, they were bound with oil rather than with a protein-based glue. A literature survey of published technical investigations has so far revealed no other occurrences of oil-based grounds on late 15th or early 16th century Italian, French or Flemish paintings[15]. An examination of selected painter's treatises also uncovered only one appropriately dated reference to oil based grounds, but it concerned the preparation of animals hide for painting, rather than wooden substrates[16]. Further enquiries are being directed at scholars who may have unpublished information concerning the identification of early oil grounds. The use of an oil ground is a clear deviation from the glue binding media in the grounds of the Lieferinxe panels.

Underdrawing

In examining the panel in normal light without magnification some underdrawing was present on the panel. It was most noticeable in the form of dark, diagonal lines. After an overall examination using Infra red reflectography, it was concluded that most of the underdrawing was carried out with a liquid medium probably applied by brush which was used primarily to set out the elaborate folds of drapery and the modeling of them. Further underdrawing was used to denote facial features and their modeling, as well as hands, and the shadowed side of architectural elements.

Detail from an infra-red digital photograph



[14] Analysis was carried out Dr Jens Stenger, Andrew W Mellon Postdoctoral Fellow in Conservation Science, Straus Center for Conservation, Harvard University Art Museums using the department's Nicolet 510 FT-IR Spectrometer

[15] This literature survey was conducted using online conservation bibliographies provided by BCIN and AATA.

[16] Theophilus, 1979 p27

Fainter drawing in the sky perhaps indicates a previous position of the drapery. These lines seem to have been imparted with a dry, friable medium. It is possible that most marks were put down dry first and then reinforced with the darker liquid medium and that the drawing in the sky escaped reinforcement. Cennino Cenini describes this two stage process of underdrawing in his il libro del'arte[17]. Cross sections taken from areas containing underdrawing in the angel's pale drapery reveals that a layer of differently sized black particles is situated above the ground. Technical analysis by conservation scientist, Kathy Eremin using SEM-EDX, has indicated that these particles are carbon based and are probably charcoal[18]. The absence of any phosphorous in elemental mapping has indicated that the black is unlikely to contain bone. Finely incised lines were also used to indicate brickwork and the curved arches of the loggia that were not realized at the painting stage.

In comparison, the underdrawing seen on the Philadelphia panels[19] was used in a similar manner to that on the *Annunication* panel. Most of the drawing is concerned with establishing the drapery and the faces of the figures. The shadowed sides of architectural elements also feature parallel lines. The Philadelphia panels however, do not have any incision, apart from sight lines that run along the edges of each panel denoting the area to be occupied by the composition.

Paint Layers

The technique employed in the *Annunciation* in most areas, is a simple one with most layers being single opaque layers above the ground layer with variations in the ratios of white and an additional pigment to create the modeling and form. Darker areas are created either with the addition of black or with glazes of transparent dark paint.
The artist has used Vermilion for the red robe of the figure. It is also present mixed with lead white for flesh passages and the pinkish brickwork. The use of Vermillion was

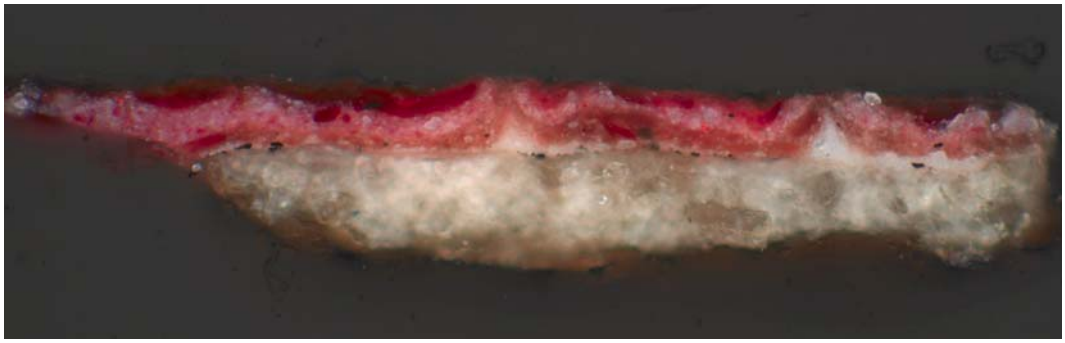
[17] Cennini, 1960 p4
[18] Kathy Eremin, Conservation Scientist, Straus Center for Conservation. Harvard University Art Museums. SEM-EDX. JEOL JSM-6460 LV Scanning Electron Microscope and Oxford Instruments Spectrometer with INCA software
[19] IR photographs, Conservation files, St Sebastian Panels, Philadelphia Museum of Art.

determined by XRF analysis by Jens Stenger, with its identity being characterized by the appearance of Mercury peaks[20].

Cross section sample taken from the Virgin's robe
Sample 20 x 2.5 magnification at capture

Copper peaks were in evidence for the green passages indicating the use of Verdigris, copper resinate or malachite. Further analysis using FTIR established a good spectral match for Verdigris. Copper peaks were also identified after analysis of all the blues and FTIR further established that azurite had been used[21]. A cross section from the Virgin's robe showed that a pale blue underpainting of finely ground blue particles and white preceded the application of a thick, darker layer of predominantly azurite particles. The coarsely ground nature of the particles in this layer and its high particle content, accounts for the very matte and granular appearance of the passage of painting in the robe in particular. There are few yellow areas in the painting save for the elaborate border decoration of some of the drapery and the highlights of a small angel's wings. These yellow passages have been identified as lead tin yellow by the appearance of lead and tin peaks in an XRF spectrum.

[20] ArtTAX XRF Spectrometer.
[21] Analysis was carried out Dr Jens Stenger, Andrew W Mellon Postdoctoral Fellow in Conservation Science, Straus Center for Conservation, Harvard University Art Museums using the department's Nicolet 510 FT-IR Spectrometer



Cross section sample taken from the angel's robe
Sample 20 x 2.5 magnification at capture

The angel's tunic is made up of three red layers with a transparent red used for the uppermost layer. It was predicted to be a lake pigment but in cross section, in UV, a low level of fluorescence was observed in the top layer. Instead strong fluorescence was exhibited by the lowermost layer. Analysis of a sample using FTIR spectroscopy showed that the sample seemed similar to a number of lake standards, yet did not show a strong spectral match to one in particular. This is attributable to the sample containing material from all three red layers. It is proposed that the upper layer may be Kermes, a more expensive lake that was sometimes applied over a less expensive but more fluorescent madder. Occurrences of this economically motivated technique have been noted by scholars in both northern and southern European paintings[22].

Merrill carried out an assessment of Lieferinxe's palette by sampling all five panels from St Sebastian series. His pigment identification was achieved through observing the optical characteristics of pigments through polarizing microscopy, and confirmed in some cases with micro chemical tests[23]. The pigments found in the Fogg panel have all been found in the St Sebastian panels[24].

In summary the recent treatment and technical analysis of the *Annunciation of the Virgin's Death* and its fragments, has provided the opportunity to further assess its relationship to some works by Lieferinxe. Certain conclusions can now be drawn. Firstly, the oak support of the Fogg panel is not consistent with the material choice of Lieferinxe as represented by the Walnut and Poplar supports of a number of securely attributed

[22] Ackroyd, Billinge, Campbell and Kirby, 2003 p50. and Dunkerton, Penny and Spring, 2002 p34, 36, 41
[23] Merrill, 1974 p27
[24] Blewett, 2007, p30

works. Though oak may not be consistent with Lieferinxe's practice, its use does connect the Fogg work to Northern European practice in general. The use of oak also accords with a Southern French tradition of the use of oak among other wood types, as Marrette's survey from the region shows.

The use of an oil based ground represents a complete departure from Lieferinxe's working practice and indeed, at present, from what we know of late 15th and early 16th century practice. The underdrawing on the Fogg panel however, resembles Lieferinxe's practice in both material and technique though its extent is more limited. The incised lines on Fogg panel do not perform the same function as those observed on the Philadelphia panels. The pigments found in the Fogg panel echo the palette defined by Merril in his investigation of the Philadelphia works, but the technique with which the paint layers are built up in numerous layers is not reflected in the simpler layer systems on the Fogg panel.

At present it is not possible to attach the Fogg panel to the output of particular region or artist. It is true that taken in isolation, the Fogg panel and the Lieferinxe St Sebastian panels do seem to share broad stylistic similarities. It is tempting to assign these similarities to the idea that the works may have been by different but closely associated artists, but at present, a lack of comparative technical and art historical data impedes further discussion of the context of this work. The collection of further technical knowledge will dictate the extent to which the Fogg panel can be more strictly connected to the output of a known artist, or if its materials and techniques as a whole could even be termed as representative of early Southern French practice. The puzzle, for now at least, remains just that.

Annunciation After cleaning

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