

TECHNICAL EXAMINATION OF *VIRGIN SURROUNDED BY FLOWERS*, BY JAN VAN KESSEL I

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INTRODUCTION

Jan van Kessel I (1626-1679), came from a very artistic family circle, the Brueghel family. His father Hieronymus van Kessel (c. 1578- 1635) a portrait painter, married with Pachaise Brueghel. Van Kessel was the grandson, by maternal line, of Jan Brueghel "The Elder" (1568-1625), nephew of Jan Brueghel "The Younger" (1601-1678), and David Teniers "The Younger" (1610-1690). In 1644-45 Jan van Kessel became specialized on flower painting by the St. Luke Guild of Antwerp, and his painting reflects the influences of his family concerning the representation of flowers and van Kessel's affection for zoology and miniature painting.

Virgin Surrounded by Flowers follows the model from the earliest known garland painting with a religious theme performed by Jan Brueghel "The Elder", in collaboration with Hendrick van Balen (1575?–1632), *Virgin and Child in a Garland of Flowers*.

Virgin Surrounded by Flowers was performed by the collaboration of artists were Jan van Kessel performed the wreath of flowers, as it was his specialty, and the representation of the Virgin was done by another painter. According to Dr. Sam Segal the portrait painter could be Gonzales Coques (1614 or 1618- 1684), but Dr. Klaus Ertz, for stylistic reasons, suppose that it may be someone from the van Balen family, possibly Jan van Balen (1611-1654).



Fig. 1- Engraving of Jan van Kessel I. 1662.
Hubertus Quellinus.



Fig. 2- Jan van Kessel I, *Virgin Surrounded by Flowers*.
Oil on canvas.
Dimensions: 124 x 90 cm.
Museu Nacional de Arte Antiga, Lisbon.



Fig. 3- Jan Brueghel and Hendrick van Balen, *Virgin and Child in a Garland of Flowers*.
Oil over panel and silver.
Dimensions: 27 X 22 cm.
Pinacoteca Ambrosiana, Milan.

SCIENTIFIC TEST AND ANALYSES

Technical examination allied to the conservation treatment of *Virgin Surrounded by Flowers* provided a deep knowledge to the main questions posed by this painting: Which materials (pigments, fillers and mediums) are present at the Virgin Surrounded by Flowers? Did van Kessel follow the painting practice documented on 17th century treatises? Is this work a collaboration of artists regulated by the Antwerp Guild? If it is a collaboration of artists, which artists participated?

To answer these questions it was required several exams and analytical methods such as: ultraviolet (UV) and infrared (IR) photography, IR reflectography, radiography, optical microscopy (OM), staining tests, gas chromatography, scanning electron microscopy with energy dispersive x-ray spectrometry (SEM-EDX), Fourier transform infrared spectroscopy (FTIR), to further supplement the technical evidence from the painting.

ANALYSIS CONDITIONS

The radiography has been performed with an ANDREX SMART 160E/0.4 X-ray tube, in 270 cm length with the painting. The emission of energy was 16 kV, 6 mA, under 150 s of exposition time. After the radiographic film was revealed and joined together. IR reflectography has been performed with an OSIRIS reflectographic camera with F8 diaphragm overture. Both luminous focus where at 36.5 cm over the camera with ISO 100; 1sg; F/167. It has been use 12 mosaics which one measured 48 cm, in 3 columns and 4 lines.

Technical examination was achieved through sampling and sample cross-section examination by optical microscopy. Analysis of sizing layer was performed by staining test with acid fuchsine. It was diluted 1 g of acid fuchsine under 100 ml of distilled water. For the identification of pigments, paint layer structure and their materials constituents it was achieved through the cross-section analysis by scanning electron microscopy with energy dispersive X-ray spectrometry (SEM/EDX). For the binding and varnish identification analyses were performed by Fourier transform infrared spectroscopy (FTIR). Spectra were collected in the region between 4400 cm⁻¹ and 370 cm⁻¹, using KBr pellets or an Attenuated Total Reflectance (ATR) accessory. The binding medium was also analyzed by gas chromatography and the samples were derivatized with Meth-prep II, for lipophilic materials, and with MTBSTFA in pyridine, for protein materials. Proteins were hydrolyzed with HCl 6M before derivatization.

TECHNIQUE AND MATERIALS

A sample taken from a green leaf over a red petal from *Virgin Surrounded by Flowers* for analyses provided information about Jan van Kessel materials.

Material analysis had highlighted the use of similar materials and techniques of painting practice documented on 17th century's treatises (Mayerne, 1620; Volpato, 1670, Felibien 1699). *Virgin Surrounded by Flowers* has been sized with a layer of animal glue. For the ground, Jan van Kessel I preferred a double-ground where the first layer whitish-beige is composed with calcium carbonate, lead white, earth pigments, clay minerals and carbon black pigments binded with animal glue. The second layer is composed by a grey priming, with calcium carbonate, lead white and carbon black pigments in linseed oil médium.

The pigments are commonly used in the 17th century artist's pallet, and they are described in several treatises and manuscripts, such as the Mayerne manuscript (1620). Technical analysis showed vermilion, earth pigments, lead white, azurite, manganese black and carbon black pigments.

Virgin Surrounded by Flowers has a golden inscription underneath the Virgin chromatic layer which has been found during the conservation and restoration treatment. However the Virgin radiopaque chromatic layers did not revealed the full text.

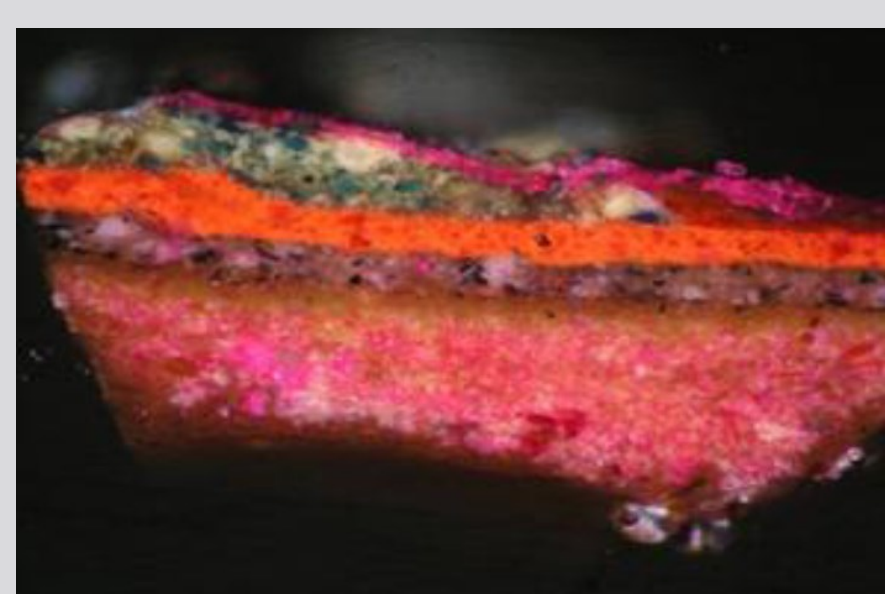


Fig. 4- Staining test with acid fuchsine.



Fig. 5- OM image of the cross section.
Vis-light - Polarized Light

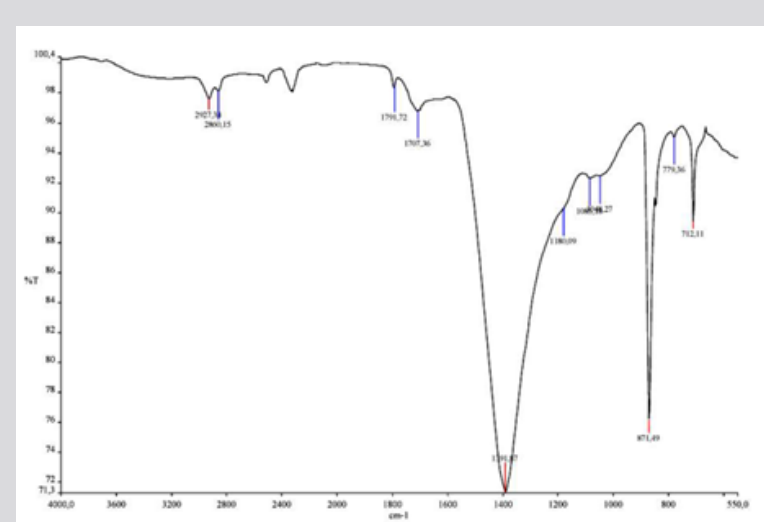


Fig. 6- FTIR spectrum of the ground layer.

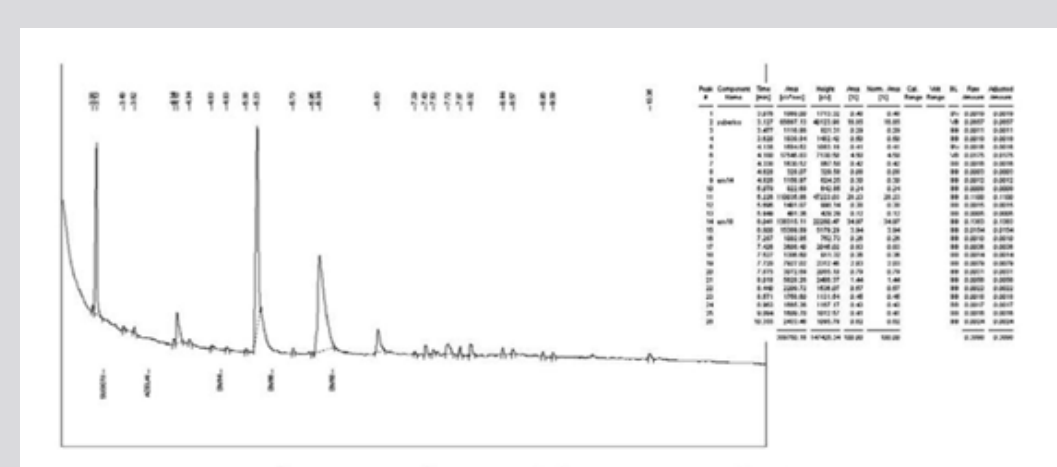


Fig. 7- Chromatogram of the binding media.

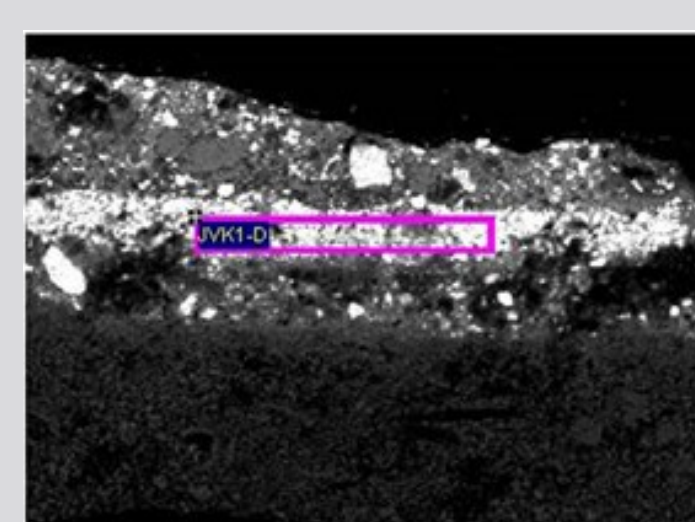


Fig. 8- Electron micrograph showing the red layer's area analysed by EDX.

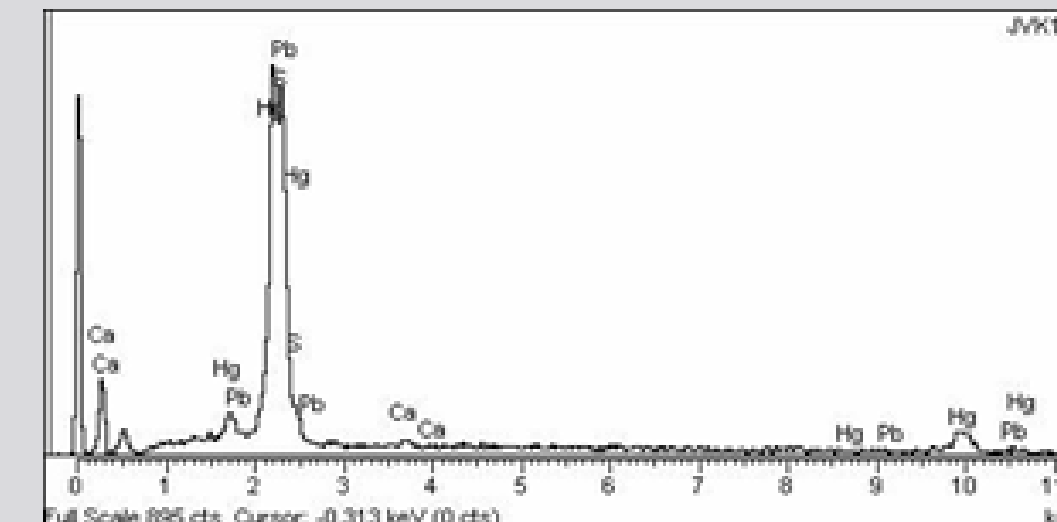


Fig. 9- EDX spectrum from the area indicated in figure 8.

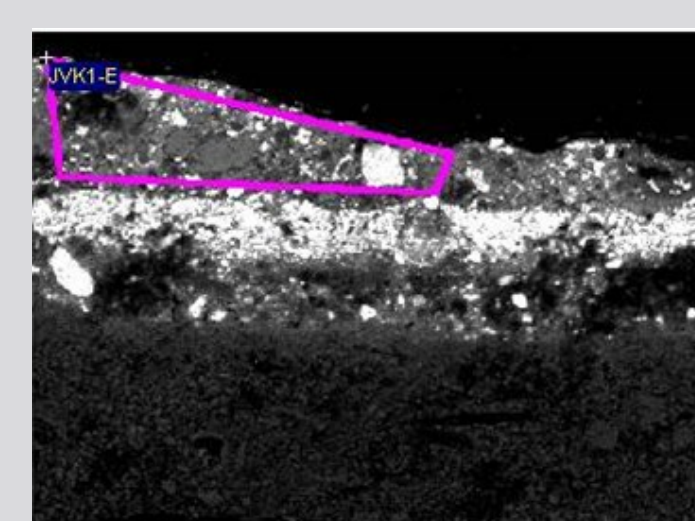


Fig. 10- Electron micrograph showing the green layer's area analysed by EDX.

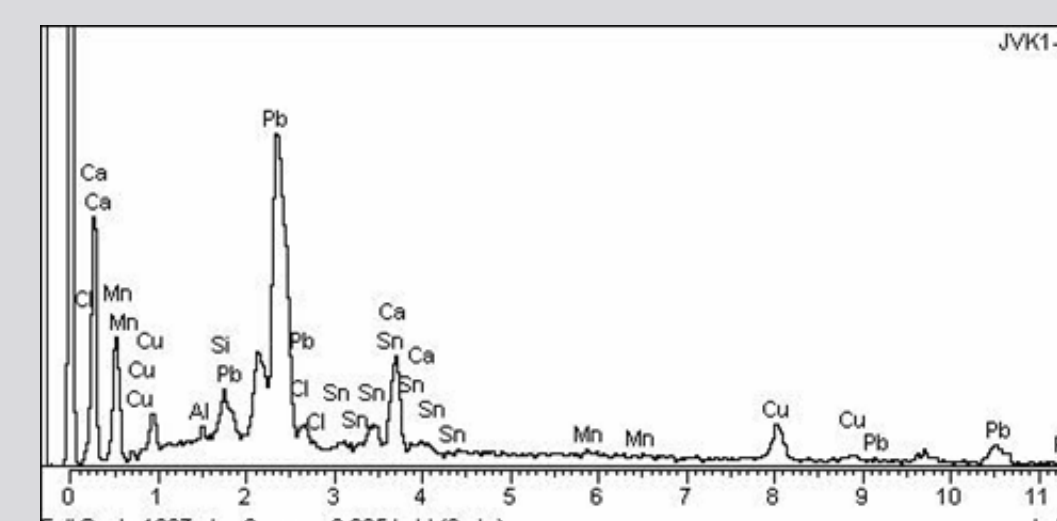


Fig. 11- EDX spectrum from the area indicated in figure 10.



Fig. 12- Detail of the radiography where it is possible to observe the golden inscription underneath the Virgin chromatic layer.



Fig. 13- IR reflectography of *Virgin Surrounded by Flowers*.

CONCLUSIONS

Technical examination of *Virgin Surrounded by Flowers* was a support to answer our doubts concerning Jan van Kessel materials and technical execution. Is it known now that Jan van Kessel followed the technical practices documented in 17th century treatises concerning the use of the double ground and pigments. Furthermore it is possible to understand that *Virgin Surrounded by Flowers* was made by a collaboration of artist, however doubts remains concerning the portrait painter. The golden inscription underneath the Virgin chromatic layer still poses questions about its meaning, function and the later covering action.

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