
RESEARCH OF THE ICON 'SAINT ELIJAH THE PROPHET' (1774) FROM THE ECCLESIASTICAL OBJECTS COLLECTION OF THE ARCHDIOCESE OF IASI, ROMANIA

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Abstract

The icon 'Saint Elijah the Prophet' belongs to the repository of ecclesiastical objects collection of the Archdiocese of Iasi, Romania. The icon's inscription indicates that it was painted in 1774 at the expense of the furriers' guild. The icon was covered with a silver revetment, which is now lost. X-radiographs and macrophotographs have revealed its fixing nails. Over time, the icon has suffered numerous deteriorations caused by poor authorship technique, poor storage conditions and subsequent interventions (both vandalism and inappropriate grouting and repainting). Wood-boring insects also played an important role in the deterioration of the icon, causing aesthetic damage to the surface of the painting and affecting the mechanical strength of the wooden support.

Keywords: icon, wood, painting, FTIR, radiography

1. Introduction

The royal icon 'Saint Elijah the Prophet' belongs to the repository of ecclesiastical objects of the Archdiocese of Iasi (Romania) (Figure 1a). In this warehouse are kept icons, liturgical books and textiles, metal objects out of use, from the monasteries and parishes of the Archdiocese.

The history of the icon is largely lost; however, by investigations, we can recover some important data both for its valuation and for the history of the churches of Iași.

The icon has the typical dimensions of Romanian royal icons (119x72x3 cm) which signifies the fact that it was the patron icon of a church devoted to 'Saint Elijah'. On the lower part of the icon, there is an inscription in Greek, mentioning the furriers' guild and the year 1774 (Figure 1b).

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This information leads us to believe that the icon belonged to the church of ‘Saint Elijah’ in Iasi. This church was build around 1620 and was long led by Greek monks [1]. N.A. Bogdan mentions that from this church there is a silver thaler from 1762 donated by the furriers’ guild, who had the duty to maintain the church. The church ‘Saint Elijah’, also named Ghenghei or Gheanghei church (name of the first founder being Ionașcu Ghenghe) was located in the city of Iasi, Vasile Alecsandri Street. Over time transformed in monastery, the building was damaged during the Second World War and demolished by the communist regime in 1953 (Figure 1c) [2, 3]. Part of the movable heritage of monastery was taken to Talpalari and Toma Cozma churches in Iasi, other objects being donated to some parishes in the city of Iasi or in the surrounding area [3].



Figure 1. (a) The icon ‘Saint Elijah the Prophet’; (b) detail with icon dating: year 1774; (c) church ‘Saint Elijah’ from Iasi, before the demolition [3 p. 61].

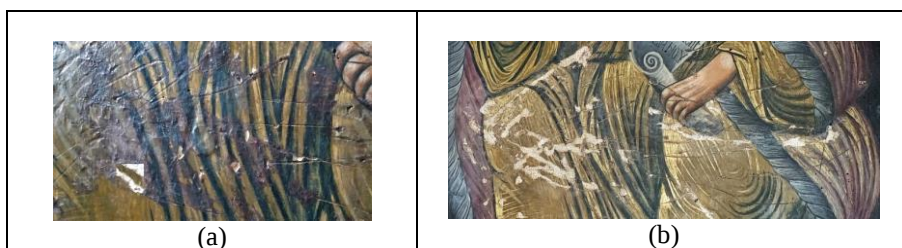


Figure 2. Detail showing cuts reminiscent of the edge of a sword: (a) before restoration and (b) after removal of putties and repainting.

An important moment in the history of the icon is link by its vandalization. The central part of the icon shows numerous cuts, approximately 20-30 cm in length, reminiscent of the edge of a sword (Figure 2). This indicates that the silver revetment (oklad, riza) has been removed from the icon before the time of the vandalism.

2. Experimental

2.1. Physical analysis

The icon was studied in visible light under a Leica MZ7 light stereomicroscope with camera, using an ultraviolet lamp (UVF) at 365 nm wavelength [4]. The piece was X-rayed at 40 kV, 25 mA. The icon maker's working technique and the forms of degradation suffered by the icon over time were analysed.

Diffuse Reflectance Infrared Fourier Transform Spectroscopy (DRIFTS) is a versatile tool for qualitative analysis of opaque solid powders. DRIFT spectra was measured using VERTEX 70 Bruker spectrometer. This instrument was equipped with an EasiDiff diffuse reflectance-sampling accessory (Pike Technologies, USA). The spectral measurements have been processed with the Spectra Manager. Normalization of the spectra was based on an internal standard. All spectra were recorded from 4000 cm^{-1} to 400 cm^{-1} with 16 scans and spectral resolution of 4 cm^{-1} . Samples have been ground with spectrophotometric grade potassium bromide (KBr) in an agate mortar. KBr powder was used as background of the spectrum.

2.2. Biological analysis

Xylophagous insects (in the adult stage) were collected from the wood in flight holes and galleries on the wood surface. Insects were macerated in 10% potassium hydroxide (KOH), neutralised with 9% acetic acid (CH_3COOH) and rinsed with distilled water. Observations were made under a Leica MZ7 stereomicroscope with camera.

Samples for microbiological analysis were taken from the piece surface by impression with saline solutions. The samples were seeded on specific culture media for fungi (Sabouraud). Incubation was carried out at 28°C for 5 days.

3. Results and discussion

3.1. Macroscopic and microscopic analysis of the icon

3.1.1. Description of the icon

The painting captures the moment when the Prophet Elijah, taking refuge in the cave near the Kerit stream, is brought food by the ravens (III Kings 17.5-

7). The saint is depicted seated with his head resting on his right hand, looking towards the two ravens holding pieces of bread in their beaks. He is dressed in a long yellowish-ochre tunic and a purple cloak with a grey fur border, and is wearing sandals on his feet. In his left hand, he is holding an unrolled phylactery with a Greek text. The saint figure is framed by the black colour of the cave and the bluish-grey mountain. The background of the icon is gold. In the upper corners is inscribed in white, the name 'Saint Prophet Elijah'. A red border frames whole scene.

3.1.2. Investigations

The painting was executed on a panel of soft hardwood, consisting of two planks glued together and fixed with two dovetailed crossbars of the same wood as the panel. The pictorial layer consists of ground with plaster and animal glue, tempera colour layers with mineral pigments (lead white, cinnabar red, yellow iron oxide, copper blue), colloidal gold on the clothes lights, gold leaf on the halo and on the background applied over a layer of burnished red Armenian bole.

3.1.3. The state of conservation of the icon

The piece has suffered various degradations caused by the technique of the author, the conditions of conservation and the anthropic factors.

The wooden support has been degraded by xylophagous insects; it has cracks along the wood grain, the joints of the planks have partially come loose, the surface is covered with adhering dirt. The painting has traces of vandalism (scratches), numerous repaints and putties applied unevenly in gaps and over the original painting, gaps over large areas, paint detachments from the wooden support, dirt, oxidized varnish, burns area (Figure 3).

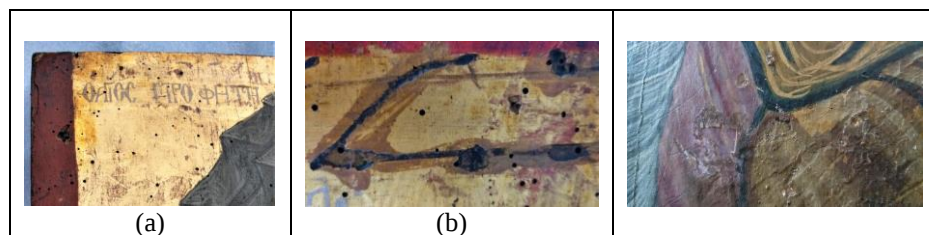


Figure 3. Degradation effects: (a) holes made from xylophagous insects, (b) putties applied unevenly in gaps and over the original painting, (c) improper repaints.

In the lower part of the icon, there are many detachments and gaps in the pictorial layer (Figure 4). In direct and tangential visible light, areas with subsequent interventions there are different tones between the original and later added colors, surface irregularities caused by subsequent putties or overlaid on the original painting (Figure 5).

It is observed the difference in tone between the original black (of the cave) and the later added (around the left leg): the original black is warmer, tending towards brown, while the later black is cool, bluish.



Figure 4. Detachments and gaps in the pictorial layer.

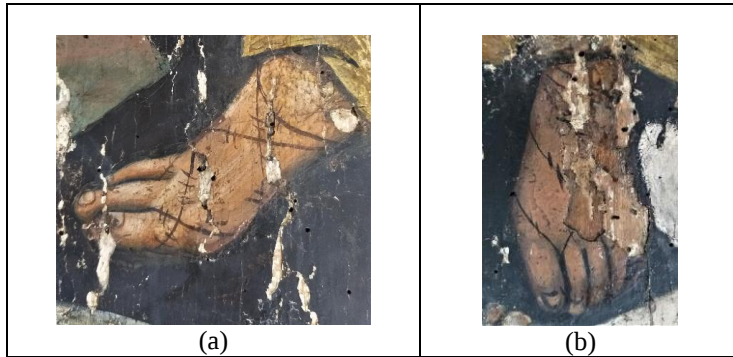


Figure 5. Repaintings from the area of the saint's feet: (a) original painting; (b) repainting (carnation, lights, shadows of the legs are different colors, the drawing is different, the laces of the sandals are black, in the original they are brown, the ground is uneven).

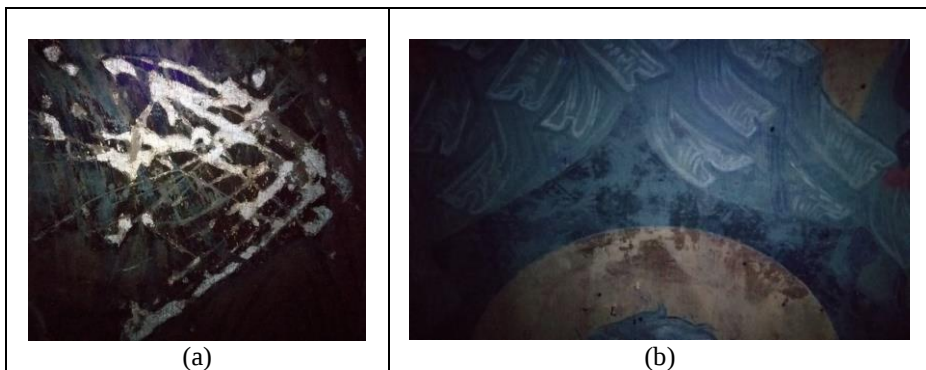


Figure 6. UV light examination observations: (a) repaints in areas adjacent to sword cuts, (b) uneven varnish layer highlighted by UVF.

3.2. UVF and X-ray observation results

UV observations showed the presence of repainting over the original painting layer as well as uneven varnish layer (Figure 6).

X-radiography revealed the presence of nail marks from the lost revetment, a large number of galleries dug by xylophagous insect larvae and the delineation of gaps in the painting. The incisions in the drawing made by the icon maker and the distribution of radiopaque pigments in the layers of colour can be seen (Figure 7).

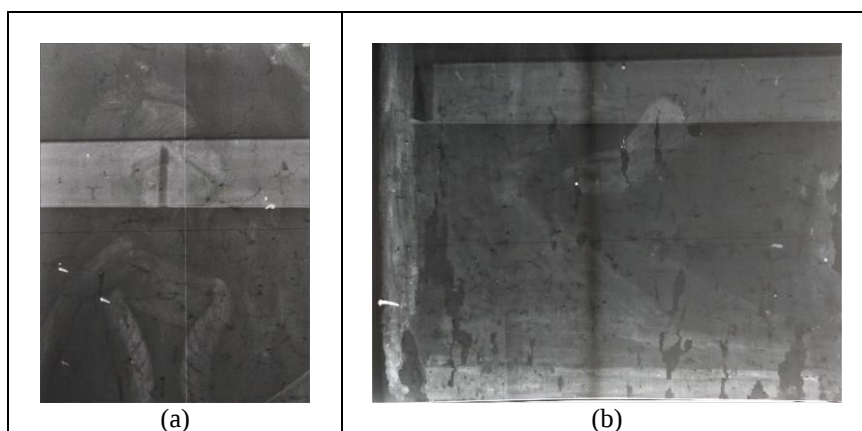


Figure 7. X-radiography examination observations: (a) nail marks from the lost revetment, galleries dug by xylophagous insect larvae; (b) delineation of gaps in the painting.

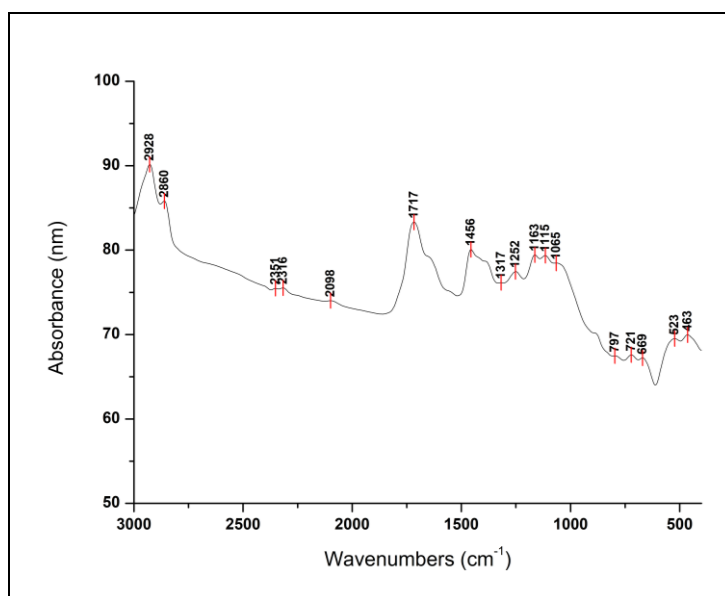


Figure 8. FT-IR spectrum in DRIFT modality of the micro-sample taken from a lacuna of varnish layer.

3.3. FTIR analysis results

FTIR analysis was performed in order to investigate the composition of the varnish of studied painting. Study and interpretation of FTIR spectra were obtained by comparing the experimental results with previous papers and spectral databases [Spectral Data Base, *Infrared and Raman User Group (IRUG)*, 2000, <http://www.irug.org>]. In Figure 8, FTIR spectrum in DRIFT modality of varnish sample is presented.

The FTIR analysis of varnish confirms the presence of characteristic group of an aged oily varnish containing linseed oil (bands at: 2928, 2860, 1717, 1456, 1252, 1163, 1065, 721 cm^{-1}), similarly with previous papers [5, 6].

3.4. Results of biological analysis

3.4.1. Microbiological analysis

The icon wood was infested with microscopic fungi, with numerous white filamentous colonies, 1-2 millimetres in diameter, present on the surface of the wooden support. No colonies developed on the culture media, as the mycelium was sterile.

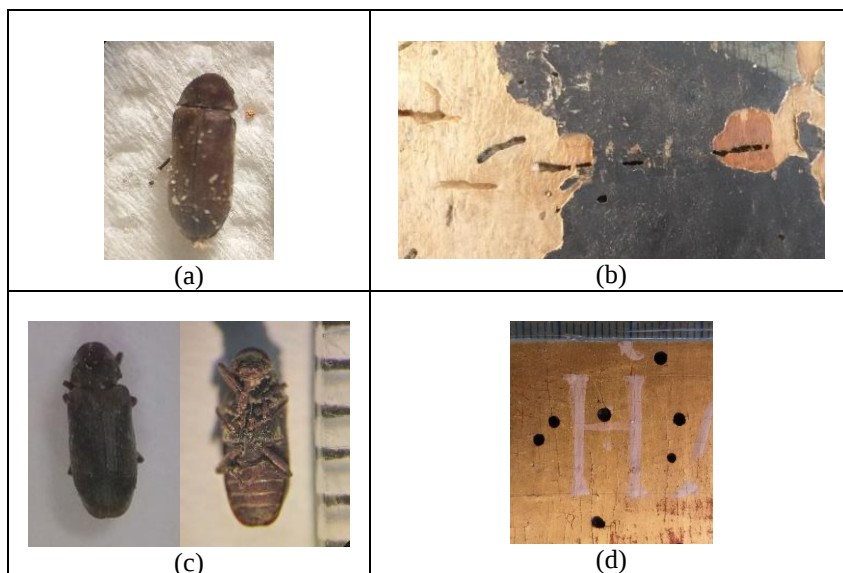


Figure 9. Entomological analysis results: (a) *Oligomerus* sp. (dorsal view); (b) galleries dug by the larvae of *Oligomerus* sp.; (c) *Anobium punctatum* ♂ (dorsal and ventral view); (d) holes made by *Anobium punctatum* adults.

3.4.2. Entomological analysis

The wood was degraded by insects of the species *Anobium punctatum* and the genus *Oligomerus* (Coleoptera, Anobiidae, Insecta) (Figure 9). The intensity

of attack was high, up to 54 holes/dm². The flight holes are 1.5-2.5 mm in diameter, dark in colour. The resulted sawdust is dehydrated.

3.5. Treatments

According literature the goal of conservation-restoration interventions are consolidating the icon, stopping the active degradation processes and putting it in value, by cleaning and completing the lacunar areas [7, 8].

The presence of biological agents made it necessary to carry out biocide treatments, both on the surface of the wood (with 2% quaternary ammonium salts in white spirit) and deep impregnation with permethrin-based insecticide in white spirit. In order to avoid reinfestation of the wood, insect holes were plugged with thermo-reversible putty. It was recommended to the owner to keep these piece in a salubrious environment, with relative air humidity of 50-55% and temperatures below 18°C.

Treatments of the wooden support consist in following operations: removing dirt deposits with 10% ethanol; gluing the joint from the bottom of the panel with 20% rabbit glue solution and fixing with beech dowel; filling the gaps in the wood, the distances between the component boards with balsa wood and 8% rabbit glue solution; plugging insect holes with dry wood shavings; finally, the wood was impregnated with a 15% solution of Paraloid B72 in butyl acetate for crack stabilization and moisture protection.

Treatments of the pictorial layer begin with the consolidating the pictorial layer with 8% rabbit glue solution, hot, on Japanese paper.



Figure 10. The aspect of the icon after different stage of treatment: (a) after removing dirt, putty and subsequent repainting; (b) after grouting; (c) after chromatic integration.

The removal of subsequent repaints and putty was done under a microscope, following multiple clues: the different colour tones of the original painting and the repaintings; the border between the original primer and the one

added later in the gaps or over the original painting; characteristics of the crack networks (vertical cracks in the original primer are about 2 mm apart, while in the later grouts the vertical cracks were much more frequent, about 1 mm apart).

Removal of repaintings from the vandalised central area was done under a microscope, with a scalpel, the solubilisation of the repaintings being obtained with solutions based on ethanol, isoamyl alcohol, 2ethoxyethanol, methyl ethyl ketone, ethylene glycol, turpentine essence [9].

Removal of repaints on the inscription was executed by dissolving the original varnish layer with ethanol-based solutions facilitated the removal of putties and subsequent repaintings, The examination was performed exclusively under a microscope.

Chromatic integration was made by *tratteggio* method, with watercolours. The vandalised areas were not filled in, in order to preserve this tab of history. The gaps in the inscription were filled in with the colour of the background, without interventions on the writing.

The aspect of the object after different stage of treatment is presented in Figure 10.

4. Conclusions

The icon 'Saint Elijah the Prophet' is the only object preserved from the Church 'Saint Elijah' in Iasi (Romania), a church built in 1620, damaged during the Second World War and demolished by the communist regime in 1953. This icon was painted in 1774 and was donated by the city's the furriers' guild. The icon was painted in the traditional technique of tempera on wood, with gold leaf on burnished Armenian bole. The icon has suffered vandalism, with the removal of the silver revetment and the scratching of the central field of the painting. Extensive areas of the lower part of the painting have also been lost, prompting the owners to intervene with inappropriate additions and reworking. Research of the icon using scientific methods preceded the intervention of the restorers to save the original painting and make additions in accordance with the principles of restoration. After restoration, the icon will be returned to the Archdiocese of Iasi (Romania) to keep in proper conditions.

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