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A RUSTIC MIRROR FRAME - AN IN-DEPTH INSIGHT INTO THE METHODS AND CHALLENGES OF THE RESTORATION PROCESS

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Abstract:

The paper presents a case study of the restoration of a rustic mirror frame from Brașov. The front surface of the frame reveals a typical decorative flader painting, a technique that imitates the wood texture. The frame was in quite good condition, but it had several initial defects: dust and dirt buildup on all surfaces and crevices that gave it a dark, dull appearance, numerous nail repairs, active insect damage that compromised the wooden support's structural integrity, joints showing significant displacement and some missing ornaments. Additionally, the finish showed signs of degradation in certain areas or a noticeable peeling tendency in others.

The restoration process was a challenging and very delicate work. Before interventions, curative treatment was necessary due to the presence of insect infestation. A microscopic investigation was conducted to assess the severity of biological degradation and identify problems with the finishing layer on the face of the frame. This investigation also examined the stratigraphy of the flader painting.

After the cleaning of the backside of the frame, the active conservation to preserve the flaking finishing layer was applied. The frame was then dismantled and reglued, so that the gaps in the joints were eliminated and the components were correctly aligned. The missing decorative elements were added and the cleaning operation was performed on the front side. For this purpose, classic solutions designed for painted wood were used. Colour integration and finishing completed the restoration process.

The restoration of the wooden frame required not only the aesthetics but also the structural reinforcement and preservation of authenticity by maintaining the original character, materials, finishes, and decoration. Furthermore, interventions were reversible, documented and in accordance with the restoration principles.

Key words: *mirror frame; wood restoration; wood-graining decoration, flader painting, microscopy.*

INTRODUCTION

Wood is a widely used material for manufacturing decorative objects, not only due to its availability but also because of its natural qualities and properties. Currently, there is limited information available on the history of frames compared to the vast amount that discusses the works they surround and protect (https://www.fusionfineartframing.com/history-of-the-frame). Special attention was given to gilded frames, more precious, which have been more extensively addressed in terms of restoration (Glover 2006, Beldean and Majos 2017, Bjorneberg 2017, Hatchfield 2018).

Decorative frames have been produced since ancient times and serve two primary purposes: to protect the artwork within them and to enhance its appearance. The development of decorative elements on frame surfaces began in ancient Egypt with wall paintings. In the Middle Ages, artists painted on wooden panels and then the frame became a separate entity, apart from the painting. (https://lauramorelli.com/history-of-picture-frames/).

Frame-makers exhibited an impressive awareness of the unique characteristics of different wood types. Walnut was valued for its deep hue and durability, making it the preferred choice for frames featuring intricate details or ones that allowed the wood grain to be visible. Cheaper and softer woods such as pine and poplar were used for less significant sections of the frame, simpler carvings, or for parts that would be gilded or

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painted in subsequent steps (https://lauramorelli.com/history-of-picture-frames/. An example of imitation of tortoise shell on frame from the Tudor era, on the famous painting *Portrait of Henry VIII* (London), was created with brushstrokes of smoky azurite applied over the red-ochre base and finished with a reddish oil-based coating (https://www.artgallery.nsw.gov.au/artsets/ymnyi4/print). When no valuable wood species were available, imitation by painting wood to look like expensive wood was a solution and a challenge. Imitation of wood texture or wood graining is a technique of artisans from the 18th to 19th centuries (Oestreicher 2014, Varodi et al. 2015, Crijns 2017, Mihu et al. 2023).

Restoring wooden frames involves not only aesthetic recovery but also structural consolidation and the preservation of authenticity. This means maintaining the original character, materials, finishes, and valuable decorations whenever possible. Scientific research on wooden objects helps us understand their behaviour over time and informs conservation methods to ensure their longevity (Sandu et al 2011). Analysing the initial state of conservation, followed by a proper diagnosis, is essential in the restoration and conservation processes. These processes aim to select the best restoration methods that preserve the cultural value of the object as much as possible. Additionally, any interventions made during restoration must be reversible, well-documented, and adhere to preventive conservation principles (Timar 2003).

OBJECTIVES

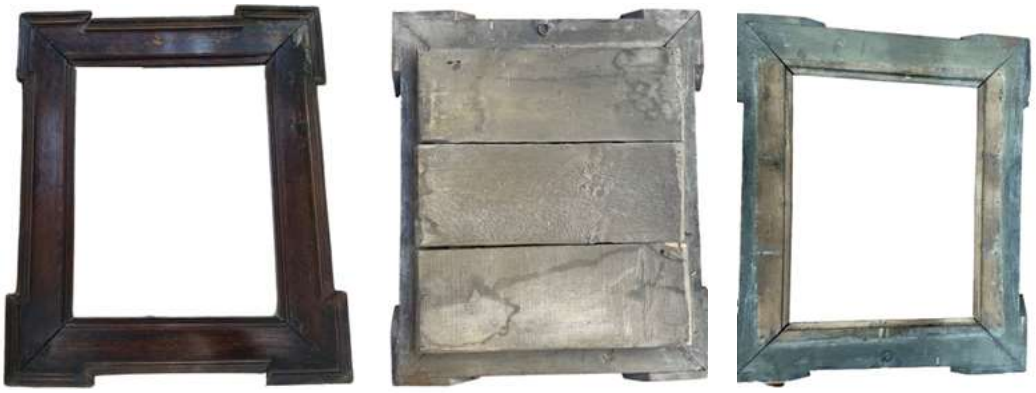
This paper presents a case study focused on the restoration of a rustic frame featuring a “flader” finish that imitates the wood texture. This study follows established principles of restoration and complies with the ethical standards outlined in the restorer's code of ethics.

A RUSTIC MIRROR FRAME-THE RESTORATION PROCESS

A short presentation of the object

The object is a rustic mirror frame, originating from Schei, Brașov. It was manufactured at the beginning of the 20th century. The frame is made from spruce wood (*Picea abies*), with mitre joints at 45° (Figure 1). On the back side, three longitudinal panels, roughly processed, fixed the mirror (Figure 1b). Profiled hardwood strips are applied to the frame contour on the front side. These create an oversized effect on the corners and have a decorative outcome (Figure 1a).

The surface was finished in the technique of wood-graining imitation, in brown shades, known as the flader technique.



a ***b*** ***c***

Fig. 1.
Initial state of the mirror frame – a-front face, b-back panels for mirror fixing, c- back side.

The initial conservation state

The conservation state of the frame indicates that it has been relatively well maintained. However, signs of major xylophagous attack are evident over the entire surface of the frame, with a lot of galleries and wood dust, especially on the back side. When the back panels were dismantled, an extremely dirty area was found between the panels and the mirror (Figure 2a). The mitre joints have become spaced because of the dimensional changes of the wooden material due to the humidity fluctuations (Figure 2b). Additionally, the inappropriate fastening of the back panels with nails led to rust and the breaking of the material. (Figure 2. c, d)

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a b c d

Fig. 2.
Initial defects on the back sides of the frame: a – dust deposits on the back of the mirror; b- displaced joints and insect attack; c and d- wood detachments and nail damage.

On the front of the painting, there were noticeable detachments in the paint layers, especially in the lower part of the frame. The most affected areas are the corners, which have visible gaps in the joints (see Figure 3a). This damage may have resulted from the storage and usage conditions of the object. Additionally, the finish layer has visibly darkened over time. Some decorative strips along the frame's outline are also missing (Figure 3b). Figure 3c presents a magnified image taken under an optical microscope, revealing the lacunar areas in the finish layer. This indicates the stratigraphy of the painting, showing a white gesso layer beneath a brown layer that imitates wood grain.

a b c

Fig. 3.
Initial defects on the front sides of the frame: a- lacunar areas in the painted surface and an unattractive brownish finish; b- missing decorative elements; c- painting layers magnified by a digital microscope.

To ensure that the entire intervention aligned with current professional ethics, a conservation-restoration concept was developed. This conceptual framework guided the subsequent technical phases and maintained consistency throughout the process (Figure 4).

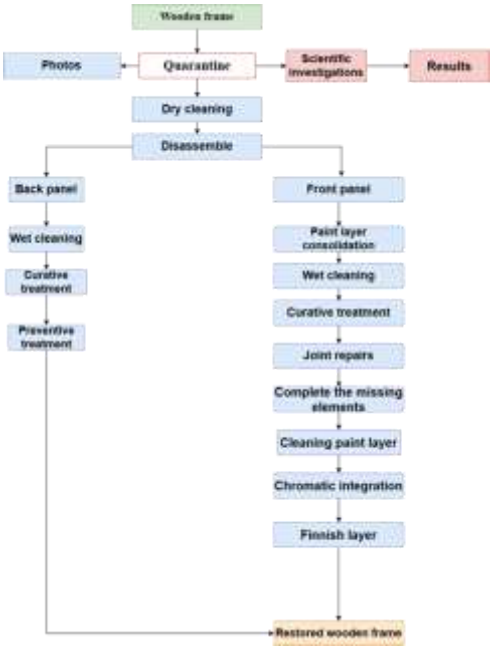


Fig. 4.
Restoration and conservation concept.

The restoration process for unfinished wood and wood painted in the *flader* technique requires distinct approaches, as the methods involved in each case differ significantly.

Challenges in the conservation-restoration process

When the frame arrived at the restoration laboratory, it underwent a quarantine period to protect the existing objects from biological contamination. Following a visual analysis, a brief microscopic examination of the surfaces was conducted using a digital portable microscope with a magnification capacity of up to 500x. The microscopic images revealed the paint layers and indicated significant insect damage.

Dry cleaning was performed on all wooden components with soft natural-bristle brushes. This intervention removed superficial contaminants accumulated over decades. Subsequently, consolidation of the degraded paint layer was carried out by the application of Japanese paper as a temporary protection layer to prevent further losses during the next procedures (Figure 5a).

a ***b*** ***c*** ***d***

Fig. 5.
Operations from restoration of the frame: a - painting consolidation; b- processing of mortise; c,d- assembling and clamping the frame.

Since the finishing layer has been stabilized and protected, wet cleaning was possible. A standard cleaning solution was applied to the backside using brushes and cotton wipes, combining solvent action with gentle mechanical cleaning. An essential step involved a curative treatment against insects. This was done by injecting a Bochemit solution diluted in ethyl alcohol, ensuring deep penetration into the wood structure.

The wooden joints required complete structural intervention. The four elements of the frame were separated, and defects in the alignment and precision of the 45-degree joints were identified. These imperfections compromised both the structure and the aesthetics of the frame. Each element was re-cut at the ends to correct the joining planes by removing deformed or misaligned material. This geometric recalibration ensured perfectly flat contact surfaces and an accurate 45-degree angle, which is essential for achieving tight, aligned joints (Figure 5b). New mortises were cut along the edges of the elements at the proper depth and position according to the new dimensions, allowing for optimal insertion of “biscuits” for reinforcement. The frame was reassembled, which involved applying bone glue followed by mechanical clamping (Figure 5c,d). This procedure restored the frame's structural integrity to a level superior to its initial state. The missing decorative elements were milled according to the original design and then attached to the frame using bone glue (Figure 6a).

The front face of the frame was then tested for cleaning the finishing surface. After preliminary tests with cleaning solutions for painted wood, it was found that the most effective and gentle, without affecting the colour, was the cleaning solution containing water, turpentine, ethyl alcohol, linseed oil and ammonia.

a ***b***

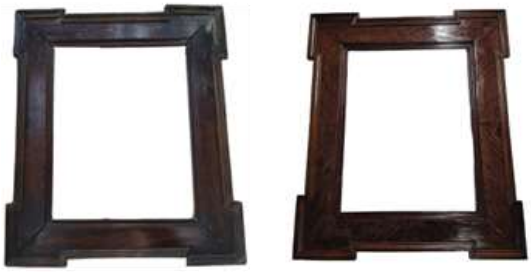
Fig. 6.
Decorative element completing (a) and chromatic reintegration of the finishing layer - before and after (b).

The controlled application by cotton swabs allowed for the gradual removal of dirt without damaging the original finish.

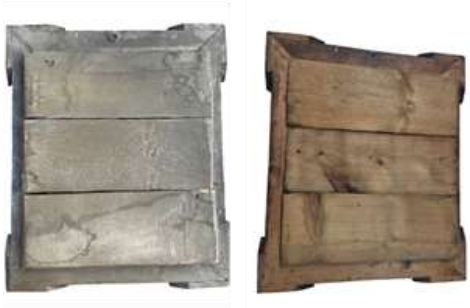
After confirming that the finishing layer was shellac, as evidenced by its solubility in ethanol, chromatic reintegration was carried out. The gaps were filled with a primer made from 3% fish glue, chalk powder, and yellow stain. Retouching was then performed using multiple translucent layers of tempera colors, and the final layer was sealed with an 11% shellac solution (Figure 6b). Finally, two coats of shellac were applied with a brush. The surface was then sanded with 320-grit abrasive paper and polished with a cloth pad.

As a final preventive-conservation measure, all unfinished wooden areas, particularly at the back, were treated with insecticide-fungicide Proxilin primer.

The final appearance of the rustic frame, compared with the initial state, is presented in Figure 7.



a



b

Fig. 7.
Mirror frame before and after restoration: a- Front side; b- Back side.

CONCLUSIONS

The restoration and conservation of this rustic frame proved to be a far more extensive effort than initially anticipated. This task revealed that seemingly “simple” objects, devoid of elaborate ornamentation, can often mask structural fragility, material compatibility issues, signs of wear, and unique technical considerations that necessitate a professional and well-considered approach.

This project also emphasised the significance of thorough documentation-through photography, detailed written descriptions, and the careful recording of each stage-not only for traceability but also for its methodological and educational value.

The result affirms that restoration transcends mere aesthetic repair; it is a vital and responsible act of preserving our material heritage. The frame has effectively restored its structural integrity, ensured stability over time, and revived its aesthetic appeal, while preserving its patina, identity, and the story embedded within the wood-grain fibers.

Though seemingly modest, this intervention reaffirms that every cultural object deserves the same level of attention: methodical, thoughtfully nuanced and rooted in a dialogue.

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