ONLINE ISSN 2069-7430
ISSN-L 1841-4737
PRO LIGNO
www.proligno.ro
Vol. 19 N° 4 2023
pp. 112-121

ANTIQUE FINISHES VALORISED IN FURNITURE RESTORATION

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Abstract:
The paper presents different types of materials and methods for wood finishing, used to reproduce an antique appearance of wood. The aim of this research is to develop new recipes useful for furniture restoration or to manufacture new furniture with antique look. The experimental study presents a selection of recipes for transparent and opaque finishes. The special aging effects and imitations of finishes discovered on furniture belonging to cultural heritage were highlighted. All the substances and methods can be further used in the furniture restoration process, but also valorised on new pieces of antique-looking furniture.

***Key words*:** *antique finishes; flader technique; furniture restoration; old recipes.*

INTRODUCTION

The pieces of furniture made of different types of woods have been present in people's lives since ancient times. Over the time, their finishing has gained increasing importance, starting with the classic Gothic, Baroque, Rococo styles and continuing with the most modern Art Nouveau, Art Deco, Bauhaus, Scandinavian. Wood was also present in the more elaborated styles such as Empire, Biedermeier, Sheraton, English Regency. It was the substrate or the material in which it was carved, on which marquetry and inlays were applied, which was finished and covered with different materials by various techniques.

With the change in the rhythm of life, when the virtual and the artificial dominate, with activities and a lot of time spent in closed spaces and in front of monitors, more and more designers set out to bring as many natural elements as possible into everyday existence. Thereby, they have come to tend to the most natural pieces of furniture, with solid wood elements with knots and cracks, with patina appearance, effects that can be accentuated by antiquing techniques. But often, due to the high costs of furniture made of valuable wood and not only, the option of creating imitations of wood grain, through finishing techniques, on various supports, from different materials, was preferred.

The study presented in this article included the identification of some types of finishes found on heritage furniture and the replicating them by experimental methods, both with modern techniques and materials, as well as with traditional techniques and products. For this purpose, a theoretical and in field documentary research in museum was done to discover the variety of finishes. Generally, the types of finishes found can be divided into several categories: transparent finishes that leave visible the wood grain (natural or coloured) and opaque finishes that cover the wood grain through different techniques (opaque or semi-opaque finish, polychrome, flader, gilded etc.).

One of the most commonly used technique for wood finishing was *faux bois* technique. Wood grain painting technique called *faux bois* or *flader* is a painting technique that is used to imitate various wood types, closely related to the knowledge of wood and environment. The art of finishing, of practical imitation, has been known since the Roman era, but reached its peak in the Victorian era, throughout Europe, reaching North America as well. First, the technique developed out of necessity, as furniture made from valuable essences was expensive. Apprentices from the peak period, between the mid-19th century and the beginning of the 20th century, were obliged to sketch the texture of different wood types for years, in order to

gain an understanding of the drawing of each essence. Only when they could draw these models from memory, they moved on to the next stage, the painting technique (www.dekorationsmalerei.at).Owen Jones, an respectable architect and designer, said about this technique: "*The painter's knowledge of wood should be so vast that the brush becomes an extension of the arm to create the image rooted in the mind's eye*" (Jones1886).

The flader technique, or that of imitating other types of materials (marble, stone, etc.), was made in three or four stages. The techniques differed depending on the workshop, geographical area, period, but, overall, they had many common elements. One of the techniques described in a lithograph from 1887, published by Crosby Lockwood & Co, briefly presented:

- Preparing the support and applying a layer of base coat in the shade specific to the imitated wood type.
- The next process was more unconventionally called "flogging" where the surface was sprinkled with water and a horsehair brush, called a flogger, was used on the wet support to simulate the wood.
- After drying, the oil-based, pigmented paint was applied using a brush made of badger hair, painting the woodgrain in this way.
- At the end, the varnish was applied which changed the general tone and enhanced the final appearance https://collections.britishart.yale.edu/catalog/orbis:615542.

Even if the steps in wood painting were known, the experience of the artisans guaranteed a special quality of the work and not everyone could make such imitations."*A perfect artist has a dexterity of hand and a deep understanding of nature*", also says the quoted source (https://collections.britishart.yale.edu/catalog/orbis:615542).There was also a wide debate regarding the argument of the aesthetic morality of this technique (https://collections.britishart.yale.edu/catalog/orbis:615542). In 1846, The Scientific American Journal published an article about decorative painting in the faux-bois technique, in which it stated that the practice of such techniques "was not so in vogue as it is today". Imitations or so-called imitations of oak, maple, mahogany or marble can be seen on three-quarters of the doors of houses in cities, apart from wood panelling and pieces of furniture" (https://collections.britishart.yale.edu/catalog/orbis:).
Such praise and suggestions also had opponents. John Ruskin, among others, characterized the imitations as "*a lie in a declining society*" (Ruskin 1851). On the other hand, Owen Jones defends the use of these techniques "*as long as the practice remains within the proper limits of architecture*". (Jones 1856 at:https://collections.britishart.yale.edu/catalog/orbis:615542).
However, painting on wood or woodgraining, the decorative flader painting technique was practiced, especially in the 19th century, by decorative painters of the highest class.

Fig. 1.
Painter in a painting school, Hamburg Altona 1910 - School for wood and marble painting A. Clauss.

In Vienna, Wilhelm Hagelstein founded a painting school in 1906 - at the urging of the master painters in Vienna at the time because of his special skills in wood painting (Fig.1).

The first Austrian technical school for wood and marble imitations quickly gained a reputation beyond the borders. This technique was present for a long time in decorative art, until around the year.1960. One of the last works on wood and marble painting - before this painting technique slowly began to lose more and more importance - was by E. Oldenbruch from Vienna - The Great Viennese school of wood and marble painting „Die Groβe Wiener Schule, vollständing mit 30 Lehrkarten und Anhang„ - 1929 (www.dekorationsmalerei.at) (Fig. 2,3).

ONLINE ISSN 2069-7430
ISSN-L 1841-4737
PRO LIGNO
www.proligno.ro
Vol. 19 N° 4 2023
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Fig. 2.
Booklets from Great Viennese School E.Oldenbruch (www.dekorationsmalerei.at).

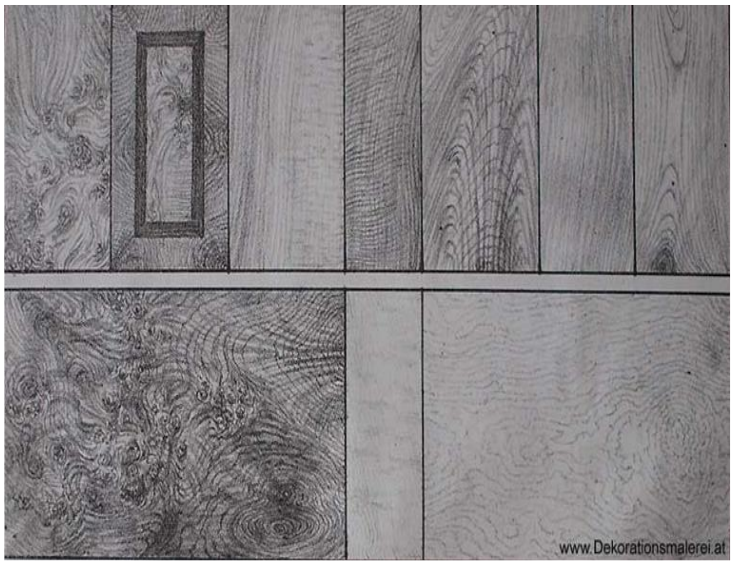

Fig. 3.
Figure shows sketches of various woods (mahogany, oak, burl walnut, maple, bird's eye maple etc.) for wood painting by F. Rahm. (www.decorationsmalerei.at).

F. Rham, a specialist in wood painting and head of the Bonn School of Painting, wrote in 1870: "*A great development has taken place in the art of wood painting over the past 20 years and has now reached a point that will not be exceeded so easily*." In the 19th century, classic wood painting was usually carried out on a coat of oil paint with water glazes or oil glazes. The oil paint and oil glaze for imitating wood was usually always made with linseed oil or linseed oil varnish. The water glazes were processed with vinegar, beer, sugar, dextrin, arabic gum and even milk or wine. The last colourless protective paint or coating for first-class designs was usually shellac and for cheap glaze work, the painter used rosin at the time. Rosin is a product that is obtained from the extraction of turpentine oil. Wood painted with it often began to stick again or crack. (https://collections.britishart.yale.edu/catalog).

The pigments or glaze colours commonly used for wood painting were and still are sienna and burnt sienna, Kassler brown, Parisian black and slate brown light and dark. Until the 1980s/90s, the Kaspar and Worritsch company in Vienna produced first-class glaze paint for imitating wood in oil and water.(www.dekorationsmalarei.at) (Fig 4).

Fig. 4.
Glaze paint for graining from Kaspar and Worritsch (www.dekorationsmalerei.at).

The brushes for wood painting have barely changed to this day: a badger hair brush to imitate the wood grain, a beater to imitate the pores, a short hair brush and rubber to apply and rub in the glaze colours, the finger brush or serrated brush for painting the lateral side and a flat brush for painting the wood grain (Fig.5). Equipped with these tools, the decorative painter who is familiar with the technique of wood painting can paint or imitate almost any wood perfectly. This has always distinguished the Vienna School of wood imitation. *Achieve quick, first-class results in wood and marble painting using simple means - without any special brushes or tools*. (www.dekorationsmalerei.at).

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Different brushes | *Badger hair brush in wood and sheet metal* | *Finger brushes, toothed brushes or fork brushes* | *Short hair brushes* | *Flader brush for painting the wood grain*

Fig. 5.
Different types of brushes (www.dekorationsmalerei.at).

The woodgrains paintings were made with oil paints, on cardboard plates, 14x19cm in size or other supports. In the figure below (Fig. 6) are illustrated some works belonging to a master painter from the Great Viennese School E. Oldenbruch, which served as models. (Notebooks of the Great Viennese School-www.dekorationsmalarei.at).

Mahogany | *Green ash* | *Walnut* | *Floral ash* | *Cherry* | *Bird's eye maple*

Fig. 6.
Finishes made by precise imitation of some valuable species (www.dekorationsmalerei.at).

A long-standing tool in wood painting, mainly for imitating oak, is the comb. The first combs were made of horn (Fig.7) and also made from tortoiseshell. The horn comb was later replaced by steel combs, which had the same tasks. Combs for imitating wood were also made from cork, leather (leather comb) or rubber (rubber comb).

Fig. 7.
Horn comb.

Fig. 8.
Various knives for scoring wood grain.

Fig. 9.
Old wooden box with deep pore tools, sec.XIX.

Fig. 10.
Pore roller with feeder and unwinding roller.

As early as the 19th century, tools were developed to make the painted wood grain appear even more perfect and real, by means of pore roller, steel comb or core scoring knife. However, the classic execution by a trained hand has not been able to replace any of these inventions for a long time and it is still practiced in the same way today. There was a very special type of pore roller for imitating oak, in deep structure and a core scoring knife or scoring fork with which the grain pattern was formed. These tools were used to press or scratch the grains and pores into the surface. This required a special prepared surface with oil putty and oil paint. This technique was called deep-pored oak - Tiefporeiche (www.dewkorationsmalerei.at), the supreme discipline for imitating oak (Fig.8, Fig.9). Stamps, stencils or different types of rollers to imitate the wood grain were used to make the technique of painting on wood even easier (Fig.10).

One way to make wood painting more efficient or simpler was to use the stencil. There were different versions of stencils for this. The glaze was applied over the stencil using a stencil brush, natural sponge or fixing tube and the resulting wood grain was removed with the badger hair repellent. In the case of fully

detailed stencils, the webs were partly replaced by cords or fine clips and this could be used to create beautiful wood grain images (Fig.11).

Fig. 11.
Templates for creating a walnut grain.

Another way to imitate the wood texture is through so-called *graining devices* or *graining machines*. At the beginning, in the 19th century, these were leather rolls in which the grain was deeply cut. The painter rolled the grain roller over the surface that had been coated with glaze. The glaze was then removed and only the grain remained. Later, the leather rolls were cut so that the grain remained raised on the leather roll. The leather grain roller was replaced by the rubber roller, the so-called rubber grain roller (Fig. 12)

a ***b***

Fig. 12.
Rollers types (a- old grain roll made of leather, b- rubber grain roller).

A completely different way of imitating wood texture was to use special papers to transfer the wood drawing on the support. On a surface that was previously painted in the wood basic tone, the painter then transferred the wood grain from a sheet of paper onto the surface. This was often referred to as “filming”. Such burl papers have been used since around 1880 and have been in use for quite a long time (www.dekorationsmalerei.at) (Fig. 15, Fig.16).

Fig. 15.
Catalogue with transfer papers models.

Fig. 16.
Types of woodgrain transfer paper.

In this technique, tools that worked well were stamps or rollers, in various forms (Fig. 17). When used correctly, a very beautiful grain pattern was created. An old master painter said "*When veneered furniture came along at the end of the 1960s, such grain stamps were still the only way to stay “head-up” regarding the furniture and wood texture imitation.* (www.dekorationsmalerei.at).

ONLINE ISSN 2069-7430
ISSN-L 1841-4737
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Fig. 17.
Types of matrices or stamps for wood imitation.

In our country, the technique of decorative flader painting appeared in the period of the end of the 18th century - the beginning of the 19th century, in the area of Sibiu, as a result of the settlement of the Landlers in Transylvania, after the religious persecution in their native country, Austria (Olaru 2014, Varodi et al. 2015). The images below show some examples of flader technique finishes occurring on objects from Transylvanian heritage from museums or personal collections (Fig. 18-21).

Fig. 18.
Chest of drawers with three drawers, front , flader technique(Ethnographic Museum of Rupea).

Fig. 19.
Detail of the top plate, in flader technique.

Fig. 20.
Chest of drawers from Astra Museum collection, with flader drawing.

Fig. 21.
Wooden shelf from Ethnographic Museum of Rupea imitating the wooden structure.

In the restoration laboratory of the Faculty of Furniture Design and Wood Engineering in Brașov, all the case studies addressed included finishing and retouching as final stages. As a result, reconditioning the finishing or refinishing has challenged us to learn finishing techniques and apply them to objects according to the principles of restoration and ethical code. Moreover, this experience can be exploited in furniture design by creating antiqued finishes on new furniture.

The present work aimed to experiment the antique finishes and decorative painting techniques after well-documented research, useful for furniture restoration or for manufacturing new furniture with antique look.

MATERIALS AND METHODS- EXPERIMENTAL ANTIQUE TECHNIQUES

As a result of documentary and field study, several antique finishes have been reproduced, using different techniques and materials These experiments aimed both at the performing of transparent and opaque finishes. In the paragraphs below are presented some examples.

For experiments were used samples from spruce wood panels, cut to sizes (44x22.5x2) cm, sanded with 150, 180gr sandpaper and samples from the wood core panel with MDF surfaces-with the dimensions of (30x20x2) cm.

For **coloured, transparent, aged-looking finishes**, the principle of chemical colouring with reaction solutions was used (Timar 2003, Beldean 2022). The application was made by brushing techniques in one or more layers. The following chemical solutions were used: saturated NaCl solution, 1:3 HCl acid solution, 10% NaOH solution, pyrogallol 10g/l, tannin 5g/l, 5% CuSO4 solution, potassium dichromate, saturated sodium bicarbonate, concentrated black tea solution (2-3 tea bags in 250ml of water). After colouring and drying, the samples were finished with shellac 10% in ethylic alcohol, in 2-3 layers, with intermediate sanding H 320. In parallel, modern finishing products were also used, with an antique look, applied by brushing, then the samples were finished with shellac or transparent or coloured wax.

In the next stage, the **opaque antique finishes** were experimented using traditional materials: bone glue 10-20% in water, siccative linseed oil, chalk powder, tempera colours and tools: brushes, rollers, scraper, sponges (Gettens and Stout 2012, Surt and Ocon 2012).

The application techniques were freehand, some of the challenges being the walnut root and mahogany imitation finishes. For this purpose, MDF samples were covered with 2 layers of primer obtained from: 1 egg yolk, 20ml linseed oil, 20ml of water, 5g of iron oxide pigment. After 48h drying at room temperature the knot appearance was shaped by round brush using a tempera mixture containing: 1 egg yolk, 10ml of linseed oil, 20ml of water and brown pigment. Around the knots a lighter colour and the wood rings were drawn. In the end, on each knot is presses by finger to create the aspect of “fish eye” After drying the surface was wiped with a brown wax. For mahogany imitation the sequence of finishing layers was: transparent acrylic primer, a tempera paint mixed with reddish pigments of Sienna and iron, hand drawing of wood fibres using a wood stick and final covering with Damar resin 12% in turpentine.

Other types of antique opaque finishes were performed with modern products including PVAc adhesives, acrylic water-based primers and paints. For a cracked finish diluted PVAc adhesive (2:1 in water) was used as first layer, then a topcoat of acrylic paint was applied on surface partially dried and samples were further forced to dry with a warm air blower. Finishes imitating stone were also made with diluted PVAc adhesive applied over acrylic paint and drying. A marbled effect was created by mixing 2-3 paint colours on a waxed paper and then transferring on wood previously covered with an opaque paint. Goose feathers were used to make lines like a marbled appearance. Other textured models were made by applying as first layer acrylic paints and afterward a chalk paint type *Annie Sloan.* The samples were later finished with transparent or coloured wax by rubbing with textile pad.

The finish made with transfer paper, after a model on a dowry chest from Ungra, Brasov County, from the 1900s, was made by taking the picture of the central drawing on the object, printing the image on a laser printer, then transferred to the wooden sample, in the mirror, on the previously covered surface with a commercial transfer gel. A quite similar technique, known as chromolithography was used centuries ago on dowry chest or other painted objects (Gămălie 2022).

Another finishing technique, imitating the framed ornamented panel was achieved by gluing a plaster ornaments (made previously by moulding technique), on the wood surface, then an acrylic primer was brushed. As final layer was used *Annie Sloan* chalk paint. Then, the ornaments were painted in the same colour and wiped with coloured golden wax to create the patina effect.

Flader technique was tested in different variants, both using traditional or modern materials. In classical variant a 5% bone glue solution in water was applied to seal the wood surface and then a gesso primer consisting of bone glue 5%, 100g of chalk and water was applied in 2 layers. After drying a yellow tempera mixed with chalk and water was brushed in thick layer and the wood fiber drawing was stamped with a special rubber device. The vernis was Damar resin 12% in turpentine. An old recipe involved a preliminary isolation of surface with a primer made of bone glue, chalk powder and water (gesso) and subsequent base coat prepared from natural pigments mixed in binders based on vinegar, water and sugar. Wood texture effects were created on wet surface using rollers or rubber tools. After complete drying they were finished with shellac or Dammar resin. Another variant, using modern products included: 1 layer of white acrylic primer, 1-2 layers of yellow acrylic paint, 1 layer of brown acrylic paint thick enough to create the texture with rubber stamp on wet surface. In final, after drying, 2 layers of shellac 10% alcoholic solution were brushed.

RESULTS

The similar appearance of the transparent aged samples obtained by chemical reaction or domestic colouring vs. professional antique colouring products are presented in Fig. 22. The colours of aged wood, from yellowish, brown, to grey, positive or negative image, depending on the highlighting of late wood and early wood areas were obtained. When finishing with dedicated modern products, the antique effects are easier to achieve because the products are manufactured to produce an immediate effect.

a **b** **c** **d** **e** **f** **g** **h**

Fig. 22.
Finishes with an aged wood look obtained by chemical colouring (a-f) vs. modern antique colouring (g, h).

The walnut root and mahogany finishes are shown in Fig.23. These finishes are more difficult to achieve because they involve the addition of successive coating layers and therefore, require knowledge of the finishing materials, drying times and the anatomy of wood species to be reproduced.

a **b**

Fig. 23.
Precious wood species imitation a-Walnut root, b-Mahogany.

Other types of finishes that imitate the patina of time and wear, such as cracked film, imitation of stone or marble, or textured are shown in Fig.24.

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

Fig. 24.
Opaque textured finishes a- cracked, b- marble type, c-wear, d-textured.

These finishes are particularly valued when new furniture with an antique look is manufactured and further integrated in interior design projects.

Multicolour printing is often present on some heritage painted objects to be restored. Therefore, a transfer technique on a paper support was also tested (Fig. 25a). A lot of opaque finishes on art furniture

have numerous ornaments applied to the surface of the doors or drawers creating the effect of carved ornaments. Such a finish has been recreated in the present study and shown in Fig.25b.

a ***b***

Fig. 25.
a-Finish made by transfer technique, b-Finish with moulded ornaments.

Flader finishes are common on traditional Romanian painted objects and often restorers are faced with challenging in their restoring (Olaru 2014). Knowledge of these techniques and materials is important for understanding the object. Moreover, the practical experience completed by scientific investigations of the finishing layers will make the restoration process more comprehensive and correct. Some examples of experimental flader finishes are highlighted in Fig.26. They are in shades of yellow and brown, imitating wood grain.

Fig. 26.
Flader finishes made by stamps or free hand, imitating the tangential surface or annual rings.

Certainly, to achieve such finishes requires skill, experience and suitable materials. Also, all the finishes presented in this paper can be used in future not only for restoration projects, but for design projects and manufacturing of antique furniture. One area of interest would be the production of replicas of antique furniture to recreate the past in public spaces or museums which, for various reasons throughout history, lost the original furniture.

CONCLUSIONS

To understand and appreciate an old object, it is important to have a basic knowledge of materials and techniques employed by the artist. We can recreate the past, with its charm and beauty, using both modern and traditional means and techniques for wood finishing, exploiting the information gathered over the centuries by great craftsmen.

The antique finishes presented in this study helped to discover and test old recipes, but also modern materials and original methods were used. Altogether with the human skills can be further applied in the furniture restoration process, on wooden painted objects, when chromatic integration is required. On the other hand, when antique finishing is revealed on new furniture, a stylish decor and value is added to a place.

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