Lacquerwork and Japanning

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Editors: Sophie Budden, Frances Halahan

Production Editor: Stephanie Douglas

Contents

Foreword Sophie Budden and Frances Halahan 2

Prevention or Cure Nick Umney and Merete Winness 3

Examination of lacquer for conservation Helena Jaeschke 6

Conservation of an 18th Century chest lacquered and japanned Margaret Ballardie 11

The conservation of two early edo period gilt lacquer bodhissatvas Frank Minney and Allyson Rae 14

The indian cabinet in Schloss Falkenlust: A technical study Brigitte Hagedorn and Irmela Breidenstein 18

Conservation of an 18th century english japanned surface Melvin Wachowiak, Jr and Donald Williams 27

An examination of fill materials for use with lacquer objects Marianne Webb 30

Conservation and restoration of a 13th century lacquer dish from the Song Period Tessa Jackson 36

Conservation and restoration of a 19th century Nashiji lacquer panel Marilyn Smith 39

Conservation principles applied to a restoration project: The Allam clock case Julia Park 41

Restoration of a late 17th century japanned longcase clock case Richard Beale 45

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Conservation of an 18th Century English Japanned Surface

Melvin J. Wachowiak, Jr.
Furniture Conservator, C.A.L.,
Smithsonian Institution, Washington D.C.

Donald C. Williams
Senior Furniture Conservator, Conservation Analytical Laboratory
Smithsonian Institution, Washington D.C.

William A. Lewin
Conservator of Gilt Decorative Arts & Furniture
1637 East Baltimore Street, Baltimore, MD 21231

Introduction

In 1987 the National Museum of American History, Smithsonian Institution, was offered a polychrome long-case clock, and the signed works which had been made by the London clockmaker Isaac Rogers, c. 1760. The provenance of the clock was unassailable - the donor was the descendant of a founding family of Brooklyn, New York, and the clock had been in the family continuously since its fabrication. At the request of the Clock Conservator, the Furniture Conservation staff at the Conservation Analytical Laboratory (CAL) travelled to the donor's home to examine "the plain, black painted clock case" as it lay in its crate in the basement. To our surprise and delight, even in the dimly-lit basement, with flashlights we could see that the clock was neither simple nor black. It was clear to us that the case had been originally blue (a very unusual artifact to us), and decorated in the Oriental fashion. This paper describes the materials analysis, a comparison to period recipes, treatment design and execution.

The Problem of the Degraded Coating

The presentation surface was almost completely obscured by the presence of degraded and discolored over-varnish, which the donor said had been applied periodically as a family tradition to "brighten up" the old clock. Over time, these varnish coats had become nearly opaque to the point where the details of the surface were undecipherable.

Under intense illumination (500W hand-held photo-flood) in the CAL Furniture Conservation Laboratory, the extent of the clock's decoration became apparent. Nearly every surface of the case was elaborately decorated with gilded Chinoiserie or stencilling, free-hand gilding, other metal (silver) leaf, toned varnishes, and raised, modelled figures on the two main front panels. Our observations led to the conclusion that more than three-quarters of the decoration was intact, encased under the massive varnish film. All we had to do was "simply" remove the over-varnish, and a brilliant, blue clock case would ready for display. Unfortunately, reality was not so simple.

The magnificent decorated surface was underneath a series of dark, degraded coatings. Under normal circumstances, we would devise an organic solvent recipe and remove the offending materials with liquid solvents. A number of factors discouraged this approach.

In this instance, the varnish layers were so badly degraded that they were flaking off the surface of the case. Complicating the situation further was the problem that the original surface was adhering to the over-varnish better than it was adhering to the ground. As the over-varnish degraded and traction-fracture became widespread, the japanned decoration was pulled off of the surface. When it arrived in the Furniture Conservation Laboratory of C.A.L., the decoration was cleaving actively. That which remained was extremely unstable, fractured badly, and barely attached. Had we approached this in the typical wet-cleaning manner, both the hydraulic action of the solvent and direct contact with the swabs would damage the decorated surface by knocking flakes off the surface.

In addition, the over-varnish and the original decoration exhibited identical solubilities, and it was unlikely that we could design solvent mixture to adequately treat those materials differently. Given the severity of the fractures, we were certain that any contact of liquid solvent would penetrate immediately the original surface, and probably damage it extensively as the degraded varnish was removed. So, a typical solvent-and-swabs approach would not be acceptable.

Microscopy and Analysis

Following our gross examination of the clock, which yielded a great deal of information about the clock, we engaged in a thorough microscopic evaluation of samples taken from the clock. Our intent was to confirm or alter what we already believed about the original techniques in addition to determining the treatment procedure.

Representative samples from the various types of decorative surface (free-hand gilding, gilding on raised (compo) surfaces,etc., see illustrations) were removed for further analysis. Samples of the brittle coatings were easily removed intact because of the cleaving of the decoration from the substrate at the middle of the blue ground layer. Before further analysis or treatment, the samples were examined using a stereomicroscope, and an inventory of the layers present was made. We found that the surface was coated with a thin white ground. Next, a blue pigmented layer was applied, probably bound in spirit varnish. A thick spirit varnish was applied over the blue and mechanically levelled. The decorative layers--including compo--were applied over the varnish. Even wooden elements--for example, quarter-columns on the bonnet--were applied over the varnished surface. This practice seems at odds with common sense, but it has stood the test of time, until recently. This method does have a distinct advantage. Time (labor) can be saved since the background can be rapidly leveled before decoration is applied. Naturally, there is less risk to the blue ground when proceeding in this manner. Photomicrographs were made of the areas

sampled (see illustrations). We anticipated binder analysis, pigment analysis, and cross-section examination would be executed. These results would serve as a record of materials and methods of fabrication, as explanation of the deterioration, and indicator of treatment direction.

Examination of cross-sections by optical microscopy was carried out on embedded specimens. Polyester embedding medium was used for convenience, as instrumental analysis was conducted on un-embedded samples to discount any possible interference. Samples were embedded to evaluate the course of on-going treatment. Our standard examination employs a Leitz Dialux microscope modified for transmitted, polarized, and reflected incident and ultraviolet light. Light is filtered to standard daylight color temperature. The ultraviolet-blue light is from a xenon source, filtered by the Leitz D cube. A 35mm camera system recorded the various light microscopy results. Video microscopy was also employed for analysis and storage of images.

The examination of the sections reinforced conclusions developed on the gross level. Unexpectedly, the examination showed the individual layers in good condition. While there was some inherent vice and natural degradation over time, the original decorative materials remain largely intact. The reason for the de-lamination of original material became clearer, as confirmed via optical microscopy: the over-varnish (averaging twelve layers with as many as 33), is degrading and the resulting stress is pulling the original materials off. The removal of the restoration varnish was imperative for both preservation and aesthetic reasons. Our examination gave fairly detailed information regarding the materials and construction of the decorative surface. (This will be discussed in detail below.) What was largely an exercise in materials characterization became forceful evidence to pursue immediate treatment.

Initial Fourier-Tranform infrared (FTIR) analysis, and thin-layer chromatography of the over-varnish and the original decoration indicates predominately natural resin systems. This includes pigment binder. Secondary materials include small amounts of protein and oil. SEM/EDS indicated that the primary colorants in the white and blue ground layers were lead white and Prussian Blue. Thus far, none of the toners or fine pencil work have been analyzed. Metals will be more extensively analyzed by SEM/EDS.

Analysis v. History

Much of the scholarship of 18th Century polychrome furniture revolves around the information gleaned from "recipe" books of the period, manuals which provide detailed accounts of the craft practices of the time. These books, such as Stalker and Parker's Treatise on Japanning (1688) [1], present detailed descriptions of craft practice, from preparation of gesso grounds and sculpted figures to final design and pattern images.

However, the material evidence found in the clock case itself indicates that the maker(s) utilized methods significantly different than those found in the instruction books. While the imagery was sophisticated, the techniques used were much simpler than those described in the craft manuals.

Were this an American object, this inconsistency could be explained easily through a number of factors - unavailable materials, perhaps lesser skills of colonial craftsmen, etc. But, this is a "high-style" London clock. Why is it not consistent with the trade practices described in the books? [2]. Was this deviation from the recipe an anomaly, or were the books misleading in their recounting of period craft techniques? We have yet to find the answers to these questions.

Treatment of the Over-Varnished Painted Surface

Before we could even consider treatment design and execution, it was necessary to consolidate the surface before it flaked off entirely. Immediately on its arrival in the Lab, it was sprayed with a 5% solution of Acryloid B67 in isopropanol. The choice was based upon the knowledge that the isopropanol would have only a slight effect on the original varnish, and the B-67 could be removed in solvents which would be unlikely to affect the coatings later. In fact the bulk of the consolidant was on the surface, and it was our intention to remove the over-varnish. Spray application was chosen in order to minimize physical contact with the friable surface. This method mitigated greatly but did not entirely eliminate the problem of flaking. Any treatment had to include further steps of consolidation if the decoration was to be retained.

Clearly, our intent from the beginning was to remove enough of the degraded over-varnish to diminish the deleterious effects it was exerting on the original surface, simultaneously revealing the underlying painted surface. Without doing so, we would not be representing the original purpose of the case. The characteristics of the coatings forced us to consider carefully the approaches we were going to take.

As stated earlier, we would be unable use liquids of any sort directly on the surfaces, nor could we to distinguish the coatings through any solvation means at our disposal. We began looking at solvents in gel form, which have become so prevalent in conservation over the past few years. (The benefits of gelled solvents are well-discussed in the conservation literature.) Solvent gels would control solvent encroachment into the surface. However, in this instance, concerns about gel residues in the cleaving and fractured surface could not be alleviated to our satisfaction.

Through trial and error, we struck upon a method. By using a gel, not as contact poultice but as a solvent vapor reservoir, we could control the process of removing the varnishes safely and relatively quickly. The first step to this process was to mix a relatively stiff batch of an appropriate solvent gel, in this case 88% isopropanol:8% water: 4% polyacrylic acid (the gelling agent--other thickeners could have been used). Gelled isopropanol was selected because it was adequate to soften and remove the varnish, it would consolidate the original material, it is relatively non-toxic, and its odors (diminished as they are in the gelled form) are less objectionable than those of many more powerful solvents.

The solvent gel was used in an envelope, arranging the components in the following order from bottom to top:

1) Mylar film with a "window" cut out to allow vapor transmission, while masking adjacent areas
2) Polypropylene screen, arched to lift the gel off the varnish surface
3) Wet-strength Japanese tissue paper as vapor-permeable support
4) Solvent gel as solvent vapor resevoir
5) Mylar film as gel support and vapor transmission block, or seal

Sheet dental impression wax was used as support for the envelope in moldings and other non-flat areas. It was molded to conform to the profile of an area using low heat or cold molding--and the wax was, of course, unaffected by the solvent. Later in the course of treatment, we switched to the wax to support the envelope in all situations, dispensing with the last sheet of mylar and the screen (again, from the bottom up):

1) Wet strength tissue
2) Solvent gel
3) Wax form made to suit area

The envelope was placed directly over the surface of the clock (see diagram). The initial exposure of the surface to the gel-pack was quite long, 2-10 minutes, during which the isopropanol fumes partially plasticized the coating system. Thus, the fumes functioned as a consolidating agent by first relaxing the curled and cleaved paint and varnish, and secondly allowing the softened film to be gently pushed back down onto the surface without further damage. Since the film was softened, tools needed to be slightly moistened to avoid sticking. Areas in the worst condition required several exposures.

After this was completed to a specific area (and the area left to off-gas for a considerable period), the procedure was repeated for a much shorter exposure time to allow the vapors from the gel-pack to penetrate and soften the over-varnish. By this method, although the coating system had identical solubility throughout, we could exploit another property of materials, that is, they cannot occupy the same space. In other words, the solvent vapors could not affect the underlying layer of varnish until it had permeated the upper one. And, since solvent action and permeation was not instantaneous, by timing the exposure of the varnish to the solvent fumes we could control the softness of the material to be removed, and the depth of the vapor penetration. Thus, the vapors softened the varnish film only so deeply, and we were able to remove two or three varnish layers at a time, leaving the layers underneath quite hard. By using a polished dull scalpel, we could then scrape off the softened portion (much as a knife scrapes butter at room-temperature), without worrying about cutting into the lower layers with a blade edge.

Two local conditions required additional treatment. One was the areas of heavily cupped and textured surfaces. The other was where restoration glue was between over-varnishes. In both cases, the best solution was to abrade and level the surface, followed by vapor treatmment.

As the removal progressed, we found that due to solvent retention in the varnish film, our

exposure times became increasingly short. As we neared the polychrome layers, we worked with exposure times of a few seconds, rather than a few minutes. This assured that we would not go too far in our recovery of the surface we desired. The last step in the treatment was polishing the surface with fine cloth-backed abrasive (Micromesh, 1200 mesh), followed by a quick exposure from the gel-pack. This created a smooth presentation surface. When treatment is complete, a thin protective coating will be applied.

We began with a dozen layers of varnish, up to 1mm thick, and ended with an extreme thin remaining layer which diminished the threat to and revealed the decorative surface. This treatment has yielded a presentation surface much more stable and similar to that originally intended by the maker, and one more easily interpreted by scholars and the viewing public.

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References
1. Stalker and Parker's Treatise on Japanning (1688)
2. Dossie, Sanderson, Salmon
3. R.C. Wolbers, N.T. Sherman, C. Stavroudis. Notes for Workshop in the Cleaning of Paintings and Wooden Artifacts. (USA: Wolbers and J. Paul Getty Trust). 1990.

Supplier's list
Most of the treatment supplies are available from chemical supply houses, and specialty suppliers such as Conservation Materials Ltd., 1165 Marietta Way, P.O. Box 2884, Sparks, Nevada USA 89431.

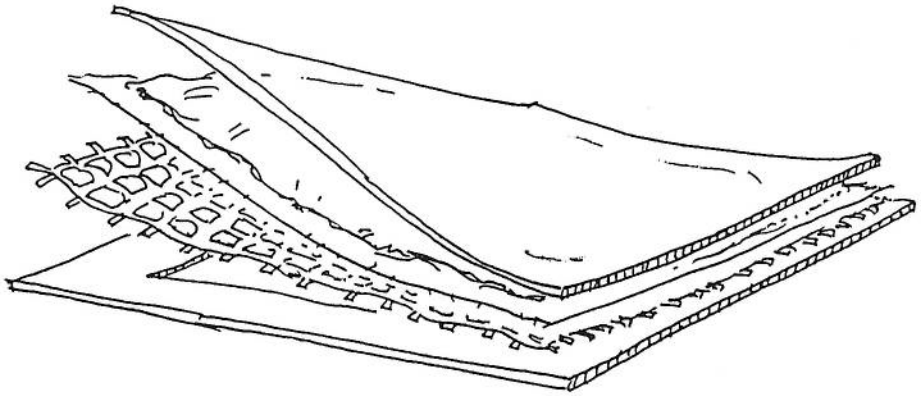
Health & Safety procedures
Because of the low toxicity and small amounts of solvents used, only simple precautions were observed. Since there is constant airflow through the studio, local solvent exhaust was unnecessary. The gel should not be left in contact with the skin, nor should it be ingested. Beyond the portion of the removed varnished retained for further study, the dried over-varnish may be disposed of as solid, non-toxic waste.

Biographies
Donald C. Williams is Senior Furniture Conservator and Director of the Furniture Conservation Training Program, Conservation Analytical Laboratory, Smithsonian Institution, Washington,

D.C. 20560.

Melvin J. Wachowiak, Jr. is Furniture Conservator, Conservation Analytical Laboratory, Smithsonian Institution, Washington, D.C. 20560.

William A. Lewin is a conservator in private practice, specializing in the conservation of gilt decorative arts and furniture. He is presently working on this project for the National Museum of American History, Smithsonian Institution, funded by a grant from the James Smithson Society.



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