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Author(s): Michaela Z. Neiro

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TWO CONSERVATORS, A WHOLE LOT OF WALLPAPER AND A ROOM WITH A VIEW – SCENIC RESPITE OR RECIPE FOR DISASTER?

MICHAELA Z. NEIRO

ABSTRACT

Working with different personalities and getting along with others are aspects of the conservation profession that are ever present and seldom discussed. Conservators are a unique breed and have a great deal in common simply due to career choice, but considering the amount of creativity in the profession, it is reasonable to expect that two people faced with the same problem might approach it in different ways, especially if they are from different disciplines, different experience levels, and different countries. Throw into the conversation a curator with 40 years at the institution in question, a site manager who wants the house looking good for frequent photo shoots, and house guides who have been telling the public the same story for 10 years, and you have a decision-making process for a project with the potential to become completely unmanageable. The collaborative process can also lead to innovation, and an interdisciplinary approach provides learning opportunities for all concerned.

This paper will discuss this decision making process and the subsequent treatment of extremely damaged and degraded wallpaper with water sensitive pigments, which involved the successful use of cyclododecane as both a barrier layer and a facing adhesive.

1. CONTEXT OF THE CONSERVATION

1.1 THE HISTORIC HOUSE AND THE WALLPAPER

During the summer of 2007, treatment of 100 square feet of historic wallpaper in situ was undertaken by the Historic New England (formerly SPNEA) conservation staff in an effort to maintain the intended appearance of the historic interior, prevent further damage and loss to the paper, solve adhesion problems, improve the poor appearance and condition of the paper, and increase its longevity for the future. The treatment was conducted by the associate conservator at Historic New England, who is an objects conservator, and by a Mellon fellow who studied historic interiors in the Netherlands. Constraints of time, space, location and experience molded this project, but in the end creative, collaborative, and successful results.



Fig. 1. Beauport – The Sleeper-McCann house
(Photograph by Michaela Neiro)



Fig. 2. The Central Hall before treatment
(Photograph by Michaela Neiro)

Beauport, a sprawling marvel of a house literally on the cliffs of Eastern Point in Gloucester, Massachusetts, was built as a summer retreat by interior decorator Henry Davis Sleeper (fig. 1). Building began in 1907 in the style of a small Queen Anne cottage. Sleeper expanded it by continually adding rooms until his untimely death in 1934. One of the later-added rooms was the Central Hall - as its name suggests, a main thoroughfare between the rooms at Beauport (fig. 2). The condition of the wallpaper in this room had been a source of embarrassment for Historic New England for many years but there was no easy answer to improve its appearance.

The Chinoiserie wallpaper was likely hung around 1929 when the Central Hall was completed and dates approximately to that period. The wallpaper depicts a repeating pattern of Chinese figures, phoenix, hummingbirds, and exotic flora. Chinoiserie wallpapers were inspired by 18th-century Chinese hand-painted wallpapers and silk hangings. The Chinoiserie style was very popular at the turn of the century and lower quality papers such as this were used in Europe and America to satisfy demand. The paper is machine made, identified by the brittleness and brown color of the acidic wood pulp paper and the lack of horizontal seams common with handmade paper sheets. The wallpaper is printed in approximately 20 colors on ungrounded paper. The wallpaper has a roll width of 18 5/8 inches with a vertical repeat of 30 1/4 inches and there are no additional borders.

1.2 CONSERVATION CONSIDERATIONS

There are several factors that contributed to the poor condition and, therefore, appearance of the paper. The paper was darkened and embrittled over time, caused by the oxidation of the acidic wood pulp paper. As the paste dried and shrank over the years, delamination from the walls became widespread, as did tears and losses. The losses were especially unsightly since the paper was applied without a lining, and the rough, white plaster wall showed through. Additional losses were created by silverfish living in the dark, damp hall (fig. 3).



Fig. 3. The Chinoiserie wallpaper showing losses and dark stains (Photograph by Michaela Neiro)

Because the wallpaper was severely damaged, degraded and disfigured, the decision of whether to treat, replicate, or replace the wallpaper was a difficult one involving several people and several factors. With only a furniture conservator and objects conservator on staff (and they only for the past seven years), Historic New England has long debated the issue of how to deal with deteriorating wallpaper. Lacking the knowledge and training to handle large wallpaper treatments, and often without funding, projects such as this idled. Unlike paintings which can be sent out to a contract conservator one at a time, it is virtually impossible to treat only a portion of a room's wallpaper. Eight years ago, treatment for this paper was outlined by a local wallpaper conservator, but the cost was prohibitive. Reproduction of the wallpaper was considered but would not only have been very expensive due to the 20 colors present, but would have resulted in a paper that looked too new in relation to all the other objects and furnishings in the house. A third option recently discussed by curators was digital reproduction. The advancements in this process are great, but it still requires excellent photography, reworking of the digital files to improve the paper's appearance, and, finally, printing. This too would be quite expensive and brings up the question of what then to do with the original?

2. DEVELOPMENT OF THE TREATMENT

2.1 TESTS AND MOCK-UPS

In 2006, the conservation department hired a post-graduate fellow named Judith Bohan who specialized in the treatment of historic interiors, particularly wallpaper. During the summer of 2007, a window of time opened for the conservation department to consider taking on the conservation of the wallpaper. In early spring, a 6 x 8 inch section that was mostly detached already was removed from a discrete location between a door and the ceiling for testing. It was quickly realized that the pigments, especially red, were water sensitive and that polyvinyl acetate (likely Elmer's Glue, first marketed by Borden in 1947¹) had been used in some areas to readhere loose bits. The areas with the PVAC were very difficult to remove dry and came off only with great effort and in small pieces. Water, and, where there was PVAC, water and ethanol, had to be used to remove the paper, therefore a barrier for the water sensitive pigments would be needed as well as a facing to hold together the small pieces.

The small sample was taken back to the lab to test cleaning methods, water barriers, and facing methods and materials. Cleaning methods such as contact washing with damp blotter paper on both sides, spraying with ethanol and water, and float washing in a bath on Hollytex for 5, 10, and 15 minutes were attempted. It was quickly realized that float washing would not be an option for several reasons: the pigments were too sensitive, the paper was too delicate, and the pieces were too small to wash individually. Although little visible change in appearance was made by any cleaning method, there was a significant improvement in the flexibility of the wallpaper, and yellow deterioration products were clearly being rinsed out.

2.2 TESTING CYCLODODECANE AS A WATER BARRIER AND FACING ADHESIVE

A water barrier was needed, and it had to be something that would hold a facing on during removal, that could be used while the house was open for tours, and that wouldn't slow down the treatment significantly. Mock-ups using water-sensitive paint on thin paper were made to test barriers paired with facing adhesives. Materials tested were gelatin, methylcellulose, Aquazol 200, Laropal K80, Paraloid B-67 in mineral spirits, and cyclododecane, each used with

Japanese paper, rayon paper, Hollytex and Mylar. Cyclododecane and Hollytex proved to be the best combination of workability, reversibility, and functionality. The material cyclododecane is a cyclic alkane, and looks like a waxy crystal (Brückle et al. 1999). It melts clear and can be brushed on through the Hollytex. The most useful feature of this material is that it sublimates after a few days, so no solvents would have to be used in the historic house to remove it.

3. IN SITU TREATMENT BEGINS

3.1 REMOVAL OF THE WALLPAPER AND PREPARATION OF THE WALL

Starting work on Monday when the house was closed for tours, the goal for the day was to remove the wallpaper, repair cracks in the wall with lightweight spackle, and apply a pre-cut piece of cotton canvas on the wall. The purpose of the canvas was to provide a buffer between the plaster wall and the cleaned wallpaper, create a flat smooth surface for reapplication, and provide a substrate to enable the removal of the conserved wallpaper if needed. Removing the wallpaper was by far the most difficult, stressful part of the treatment. The first step in preparing to remove the wallpaper was to make a tracing on Mylar of the panel, indicating major shapes, tears, and edges of the wallpaper. This was essential for accurately repairing and reattaching the wallpaper. Hollytex was taped to the painted molding directly above the panel using low-tack blue painter's tape. The cyclododecane was applied over large areas using two-inch chip brushes. Using a heat gun, the crystals were melted in glass jars and quickly brushed through the Hollytex, allowing it to penetrate the wallpaper (fig. 4). The cyclododecane solidified quickly, therefore it had to be frequently re-melted. Heating the cyclododecane in this manner did create potent fumes but they were very localized and dissipated quickly. Information on the health risks of cyclododecane is not available, but the room was well ventilated and exposure was limited. After the facing was applied on an entire section, the wallpaper was removed by sliding 16-inch-long Teflon spatulas specially made for this treatment between the wall and the faced wallpaper (fig. 5). Where PVAC was encountered, the wallpaper easily tore into small bits (0.5 x 0.5 inch to 6.0 x 6.0 inch sections), so in these areas, smaller, finer metal palette knives were used to remove the wallpaper. In many areas it was necessary to remove a thin portion of the plaster wall along with the PVAC and the wallpaper in order to remove the wallpaper section as intact as possible. Unfortunately the facing did not always hold these small pieces together, the result being a puzzle of small pieces.

After a discrete section was removed from the wall and placed face-down on the Mylar tracing, it was moved in cardboard folders to a small enclosed porch on site. Having to work around the hourly tours of the house, the goal was to re-hang each section by Friday so the Central Hall was kept as intact as possible during tours. On the small porch, the wallpaper was cleaned, pieced together, and lined with Japanese paper. Although the view from this cement room was beautiful, the physically demanding yet delicate task was a daunting one.



Fig. 4. Applying melted cyclododecane by brush (Photograph by Judith Bohan)



Fig. 5. Removal of the wallpaper with facing using a Teflon spatula (Photograph by Judith Bohan)

3.2 CLEANING THE ORIGINAL PAPER

Damp rayon paper was placed on the verso of the wallpaper to clean the paper by capillary action. This was fairly successful in removing yellow degradation products. Even though the dry wallpaper didn't appear much lighter in color, it was noticeably stronger, more even in tone, and more flexible. While the paper was wet from the contact cleaning, the verso was scraped of the residual wheat starch paste, PVAC, and plaster removed with the paper in areas of previous repair. The PVAC came off the verso with much less difficulty after this prolonged wetting.

3.3 TEAR REPAIR

After cleaning the back, the wallpaper was flipped over to begin the tear repair portion of the treatment. Before-treatment photos were crucial at this stage to guide the correct placement of the small pieces. Using Zen Shofu wheat starch paste and thin strips of Japanese tissue on the verso, pieces were pasted together. A tacking iron and blotter paper were used to speed the drying of the wheat starch paste and inhibit tide lines (figs. 6-7). Due to the quantity of wheat starch paste used in this treatment, tests were conducted to determine the feasibility of using the significantly less expensive paste, Aytex-P. These were quite successful, but it was felt that the more refined Zen Shofu paste performed slightly better during the tear repair portion of the treatment. It was decided to only use the Zen Shofu paste exclusively during tear repairs.

3.4 REASSEMBLING AND LINING THE WALLPAPER

At the reassembly stage, only two days had passed since the application of the cyclododecane. With the Hollytex facing still in place, it was difficult to piece the paper back together. Therefore, the cyclododecane was melted with a tacking iron using a Mylar interleaf in order to remove the Hollytex without damaging the pigments. This saturated the paper with cyclododecane, but also sped up its sublimation. Cool temperatures and restricted airflow inhibit the sublimation of the material. Once large sections were assembled, the Mylar tracing was essential in facilitating the registration of the separate wallpaper sheets and fragments.

Once all the original wallpaper pieces from a discrete section of wall had been tacked together, the wallpaper was lined with a large sheet of Japanese paper. The Japanese paper was cut in advance from a roll to fit the section of wallpaper being treated, and toned with thinned acrylic paints to match the background color of the wallpaper. The toned Japanese paper was brushed with Aytex-P that had previously been cooked, cooled, sieved and thinned, and then was adhered to the verso of the repaired wallpaper. The lining paper was pounded using a Japanese *Nazebabe* brush to improve adhesion. After applying the lining, the wallpaper was dried between wool felts (fig.8).



Fig. 6. Assembling small sections of wallpaper using wheat starch paste and Japanese tissue strips
(Photograph by Michaela Neiro)



Fig. 7. Japanese tissue “band-aids” on the verso (Photograph by Michaela Neiro)



Fig. 8. Original wallpaper after lining lying on wool felt. Residual cyclododecane is visible as white spots.
(Photograph by Michaela Neiro)

3.5 REHANGING THE TREATED PAPER

The following day, the paper was ready to be re-hung. A section of toned Japanese tissue was applied on top of the previously-attached canvas with wheat starch paste to encourage better bonding with the wallpaper (fig. 9). The cleaned, repaired, and lined wallpaper was pasted with a 50/50 mixture of wheat starch paste and methyl cellulose for easier positioning. The Mylar tracing was used to support the lined, pasted wallpaper section and lift it into place. Once positioned, paint rollers and the Japanese pounding brush were used to firmly adhere the wallpaper in its original place. The Mylar was removed and the wallpaper was blotted with paper towels to wipe off excess paste. After the wheat starch paper was dry and the wallpaper flat, areas of loss were compensated using pastel pencils to continue the lines of the pattern.

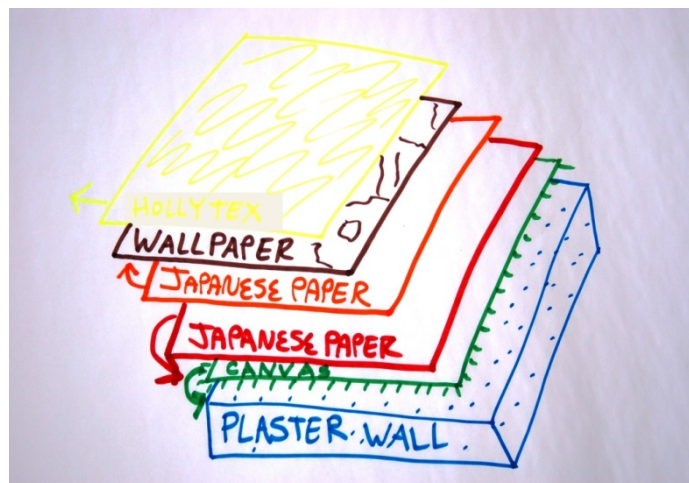


Fig. 9. Diagram of the layers applied to the original plaster wall (Photograph by Michaela Neiro)

4. CONCLUSION

All in all, the two conservators wrote out 121 steps to the treatment. Agreeing on these steps and their relative importance versus time pressures was not always easy, nor was working side by side in a little room all day, or in the way of tour guides and house visitors. No matter how well you get along in a lab working on your own projects, site work is completely different. Factor in different disciplines, nationalities, and training, and conflicts were bound to arise. With all the challenges this treatment offered, in the end it was a resounding success. The wallpaper is now flat, firmly adhered to the wall, losses are filled, and the danger of further loss is greatly mitigated. The treatment of the first floor of paper took approximately 800 hours and was completed for one fifth the cost of the contract estimate, based on hourly wages, travel costs, and materials.

The key to this treatment was the innovative use of cyclododecane as a water barrier and facing adhesive. Surprisingly, the cyclododecane took much longer to sublime than expected. Several reasons for this could be the thickness in which it was applied, the cool air in the house, the lack of air circulation around the cyclododecane, or simply that the author had never used the material in that great a quantity before and therefore did not know what to expect. Since water was used at several stages in the treatment, it was an advantage to have the cyclododecane remain, but its bulkiness and resistance to adhesives caused other problems. Cyclododecane is a unique material that, with further use and research, has great potential in the field of conservation.

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NOTE

1. Elmer's was originally part of the Borden[®] Company, which introduced the first consumer white glue in 1947. It is a PVAC adhesive.

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Brückle, I., J. Thornton, K. Nichols, and G. Strickler. 1999. Cyclododecane: Technical note on some uses in paper and objects conservation. *Journal of the American Institute for Conservation* 38(2):162–175.

Elmer's Glue. www.elmers.com (accessed 08/13/2012)

SOURCES OF MATERIALS

Zen Shofu, Aytex-P, methyl cellulose, Hollytex, Mylar

Talas

568 Broadway

New York, NY, 10012

(212) 219-0770

www.talasonline.com/

Cyclododecane

Kremer Pigments Inc.

228 Elizabeth St.

New York, NY 10012

(212) 219-2394

www.kremerpigments.com

Sekishu extra thick Japanese paper, Rayon paper thick roll, Noribake paste brush, Nazebake pounding brush

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New Berlin, NY 13411

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www.goldenpaints.com

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MICHAELA NEIRO received a BA in Art History from The University of Rochester in 1991 and an MA in Art Conservation from Buffalo State College in 2000. Following graduate school she completed an internship at the Shelburne Museum. She continues to work as objects conservator at Historic New England and resides in Maine. Address: Historic New England, 151 Essex St, Haverhill, MA 01832; E-mail: mneiro@historicnewengland.org