Reduced, reused and recycled: The treatment and redisplay of a repurposed seventeenth-century Coromandel lacquer screen in the Acton Collection, Villa La Pietra, Florence

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This paper discusses the treatment of a seventeenth-century Coromandel lacquer screen displayed in the Acton Collection of New York University (NYU) Villa La Pietra (Florence, Italy). Altered before purchase from its original form as a multi-panel folding screen, several reduced sections of a screen were joined together and reworked to form a decorative panel. After more than 60 years of display, the panel was found to be in extremely poor condition; structurally unstable with severe flaking of the lacquer, it could no longer be displayed as intended by the Acton family. Examination revealed inherent problems resulting from the original fabrication techniques and materials in addition to damage caused by the highly invasive methods used to repurpose the original folding screen into a rigid decorative panel. These issues were exacerbated by exposure to unstable environmental conditions. The eclectic esthetic principles of the Acton Collection dictated the design of the treatment plan and decisions about its redisplay. This article discusses the panel’s original construction and materials, including analysis of the lacquer layers and additives, and later modifications to its structure and format, all of which contributed to its poor condition. The treatment techniques employed are also discussed, including the adaptation of the classical Japanese shimbari frame for stabilization of the lacquer with Paraloid® B-72, and the minimalist approach taken to compensation using tinted Japanese tissue fills. Finally, the panel was rehung on a new tubular steel framework fitted with flexible springs to accommodate planar distortions and fitted with a backing system comprising modular units for humidity buffering as a preventive measure.

Keywords: Coromandel, Chinese, Lacquer, Urushi, Screen, Conservation, Treatment, Historic house

Historical background

Just after the start of the twentieth century, the Anglo-Italian art dealer, writer, and artist Arthur Acton moved to the Villa La Pietra outside Florence, Italy, with his American wife, Hortense Mitchell. The present ‘palazzo-villa’ was based on Michelozzo’s 1444 design for the Palazzo Medici. The Villa overlooks a 57 acre campo of fruit and olive trees and a magnificent Renaissance revival garden with views of the historic center of Florence. The Actons amassed a diverse collection of artwork, textiles and objets d’art from around the world. Objects were often purchased and placed for decorative effect, rather than for their inherent value or pristine nature. In 1994, the Villa was bequeathed to NYU by their son, Harold Acton, who had added significantly to the collection in the area of Asian art.

Today, the Villa and its Acton Collection are maintained not as a formal museum, but rather as the decorative ensemble carefully created by the Actons themselves, in which works of art play off each other and the style of the historic building itself. The Villa epitomizes the spirit of the vibrant expatriate community in and around Florence at the beginning of the twentieth century. Since 1994, Villa La Pietra has been home to NYU’s study abroad program in Florence, and the collections serve as a departure point for studies of Italian history, material culture, and social history.
Since the Villa was given to NYU in 1994, condition surveys of the collection and planning for its long-term preservation have been undertaken with the collaboration of consulting conservators from several American institutions. Under the guidance of these conservators, the collection has provided outstanding opportunities for research and graduate training in conservation. One of these was the treatment of the seventeenth-century Chinese Coromandel lacquer panel, *Scene of a Courtly Palace with Figures, Trees and Pavilions* (inv. No. G. Conti LX.C.5), which had been displayed for many years in the *Camera Verde* (Fig. 1).

The Acton Collection records hold no information about either the origins of the panel or where it was purchased. Close examination revealed that the panel is actually composed of four sections of a larger folding screen. This modification in format undoubtedly occurred before the panel was acquired by the Actons. An intact 12-panel folding screen depicting a Summer Palace by Feng Lianggong in the collection of the Metropolitan Museum of Art, New York, USA, (inv. No.09.6a-1) appears to be very closely related to the screen used to create the Acton panel. Dated 1689, the inscription reads 拙翠/yi cui, indicating that the Metropolitan Museum's panel may depict the Pavilion of Prince Teng (inv. No.1989.363.36) in its incarnation from the twelfth to fourteenth centuries.

Likely acquired from a dealer of art and artifacts catering to Anglo-American expatriate taste of the day, the panel was certainly purchased in its present form as a decorative, rather than functional, object (Fig. 2). It hung in the *Camera Verde* on an outside wall, from the time of its purchase until 1994. During an initial survey of the collection in 1994, severe cupping, flaking and instability of the surface of the panel were noted, and the panel was removed from display and stored flat in an unused bathroom for several years. Between 2008 and 2014, students from The Conservation Center of the Institute of Fine Arts, NYU, traveled to Florence to work on the panel (Hatchfield et al., 2010).
Original construction and materials

Western fascination with Asian lacquer began after the arrival of Portuguese Jesuit missionaries in Japan as early as 1549. Because of high demand, hastily produced lacquer objects made in China were shipped to Europe through the Coromandel coast of India, hence the name ‘Coromandel’ in early eighteenth-century France. This decorative form is known kuan cai in Chinese, and was referred to as ‘Bantam work’ in late seventeenth-century Britain (Burgio et al., 2007). The manufacture of folding screens involved many steps, including the fabrication of wood panels (typically cypress/Cupressaceae) joined with pegs, the application of numerous preparation layers based on a range of materials including animal glue, blood or fat, rice paper, gesso, clay, pigments, as well as true lacquer (urushi/qi). Designs were intricately incised and painted. Recent research has shown that urushi was in short supply and came from far afield, often at enormous expense. As a result, the temptation was great to adulterate the raw material with additives and fillers, impacting the long-term stability of the panel (Heginbotham & Schilling, 2011). The high demand for exotic Eastern objects, including Coromandel lacquer, increased over the subsequent centuries, leading to the development of a robust commercial industry devoted to the hasty manufacture of objects for export. The Acton panel was very likely one such object. Although the craftsmanship of the carving and painting on the panel is exquisite, its material composition indicates that shortcuts were taken to reduce manufacturing costs (Rivers & Umney, 2003, p. 760).

The lacquer used for the Acton panel was applied over a ground layer comprising a proteinaceous binder (animal glue) and fillers, primarily fibers and particles of clay, as detected by Fourier transform infrared (FTIR) analysis. Cross-sections observed under ultraviolet fluorescence show two distinct layers of urushi containing a large quantity of drying oil, and a layer of oil applied immediately over the ground. Areas to be painted were carved from the urushi surface, applied with a gypsum ground, and then colored with mineral pigments in a now water-soluble medium (Fig. 3(A) and (B)). Some sources suggest the use of paulownia oil for these matt paints (Burgio et al., 2007, p. 243). The layers might have adhered well initially to the much more hygroscopic ground layer in the panel construction, but over time, and with fluctuations in relative humidity, it is not surprising that delamination of the urushi layers occurred (Schellmann, 2011) (Fig. 4).

Reduction and reuse

Today, the panel comprises a wooden substrate surfaced with lacquer and elaborately painted incised areas. The typical folding Coromandel screen is composed of six, eight or 12 sections; four of these were used to create the panel purchased by the Actons. The backs of the panels were sawn off, revealing raw wood and bisecting the dowels used in original joins. Most of the upper and lower decorative borders of the original panels were also removed, retaining only the central palace scene. These panel sections, now only about 5 mm thick, were glued to a cradle-like wooden structure on the reverse, with supporting members positioned underneath the original joins between panels. The edges of the composite structure were adhered to a thin, black painted wooden frame. The thinness and hygroscopic nature of the wood panels facilitated moisture transmission to the ground layer and created a structure that flexed under the slightest pressure. The gluing of the cradle members under the joins between panels created new dimensional stresses. All of these factors undoubtedly contributed to the continued loss of the decorated surface, as well as the formation of new vertical cracks next to some of the original edges of the panels (Fig. 4(A) and (B)).

The original divisions between the panels were filled, the joins masked with a thick layer of overpaint that extends over original surfaces to disguise discontinuities in design. Likewise, damage along the edges of the four panels was filled and liberally overpainted with oil paints. These restorations are now significantly discolored (Fig. 4(C)). Coating materials, identifiable by differences in sheen and under ultraviolet light also appear on the surface. These may have been applied to address flaking or the dull appearance of the degraded urushi.

Treatment: a multicultural approach

The strong contractile force of the panel’s aging lacquer surface, combined with the cohesive failure of a ground layer that was based on animal glue and ceramic-bulked, produced a highly unstable, brittle surface. The edges of cupped lacquer flakes sometimes stood as much as a centimeter proud of the surface. Such complex condition issues precluded the exclusive use of traditional methods for the treatment of lacquer objects. The treatment procedure ultimately developed for relaxing, setting-down and securing the lacquer included multiple phases and utilized materials and methods drawn from both Eastern and Western traditions.

A series of treatment tests was first conducted to determine which materials were both effective and safe to use on the panel. While limited exposure to moisture did not appear to affect the urushi surface, blanching occurred on prolonged contact. Heat and organic solvents could be applied to the surface without visual alteration. A range of traditional and
synthetic adhesives was tested, including isinglass, which was too brittle and unable to fill gaps. Paraloid® B-72 was ultimately chosen for its working properties and long-term stability.

A combination of heat, pressure, and adhesive was applied to bring cupping and loose flakes into contact with the substrate and re-adhere them. Curled flakes were softened by application of a stream of warm air or radiant heat from a Leicester Hot Air tool, or an Engelbrecht radiant heat tool. The lacquer flakes were softened with heat while introducing a 15% w/v solution of Paraloid® B-72 in a 1:1 mixture of acetone and ethanol. Pressure was initially applied to the surface using small weight bags, which were used to gradually flatten curled flakes. Shimbari-dai wooden frameworks facilitated the application of additional pressure directed to localized areas of the panel. Once contact with the substrate was achieved, the shimbari frame was used to apply pressure with bamboo sticks and pieces of acrylic sandwiched between sheets of clear polyvinyl chloride (PVC) of varying thicknesses (Fig. 5). The sheets of plastic applied even pressure over the surface and prevented the sticks from slipping. Where the lacquer was severely cupped, numerous applications of heat, adhesive and pressure were required to re-adhere the flakes.

After the lacquer surface was stabilized, it was cleaned and larger structural instabilities were addressed. Grime was removed from lacquer surfaces with deionized water adjusted to pH 3.1 (Coueignoux, 2009). In order to prevent the accumulation of lint on the surface, hand-rolled cotton swabs were covered with Chinese silk. Cracks that had formed adjacent to the original joins between panels were stabilized (but not immobilized) with Japanese tissue, to allow for possible movement in the future.

**Structural support**

Removal of the wooden cradle was initially discussed as an option but was ruled out because the operation posed too great a risk of damaging the panel. Furthermore, the climatic conditions at the Villa are now stable, reducing the likelihood that the cradle will cause further damage. Local mountmakers were contracted to design a rigid structural support that would accommodate the non-planar conformation of the panel. A welded tubular steel framework was built to the outer dimensions of the panel. A spring-loaded clamping mechanism was designed to allow the cradle elements to be captured at different distances and angles from the steel structure, using set screws to secure the clamps (Fig. 6). This structure is flexible enough to allow small dimensional movements of the panel components, but remains rigid to prevent flexing of the panel during handling and reinstallation.

**Esthetic compensation**

In keeping with the esthetic of the Acton Collection, which is presented as it was when the family lived at Villa La Pietra, a minimalist approach was taken to improving the appearance of the panel. The decision was made to leave the discolored overpaint intact, as these restorations pre-dated the acquisition of the panel by the Acton family. Loss compensation focused on restoring the legibility of the panel’s complex and colorful design. The panel is displayed in a rather dark bedroom high over a piece of furniture (Fig. 1). Filling of losses up to the level of the original surface and attempts to approximate the appearance of the original (now degraded) lacquer would have been inappropriate to the condition of the object and the spirit of the Acton esthetic. Instead, losses were compensated at the level of the ground layer by applying fills of Japanese tissue paper that were pre-tinted with acrylic paints. Fills were adhered with polyvinyl alcohol and can be easily reversed. Losses are well integrated from a distance but remain visible and distinct from the lacquer surface upon close inspection (Fig. 7).

**Display**

While the Villa was inhabited, climatic parameters undoubtedly exceeded the levels and extent of variation observed in 1995, when environmental condition...
readings were first taken. Since the installation of climate control in 1998, relative humidity and temperature have been stabilized to current museum standards. Considering the extreme fragility of the panel, it should ideally be protected within a glass or acrylic vitrine. However, given the improvements in climate control, and the desire to retain the esthetics of the original house and collection, and the unique visitor experience they offer, the decision was made to reinstall the panel without a vitrine. Instead,
modular units containing humidity-conditioning gels were fabricated for insertion into voids created by the cradle at the back of the panel. Each unit includes a Coroplast® backing board on the exterior surface, Plastazote® spacers, a void for gels, and is faced with neutral-pH paper on the interior. These serve both as a protective backing and a relative humidity buffer, minimizing changes in relative humidity at the back of the panel, reducing the amount of moisture absorbed or released by the unsealed and roughly sawn wood.

Conclusion
The conservation of a seventeenth-century Chinese Coromandel lacquer panel in the Acton Collection at Villa La Pietra presented challenges in both the development of treatment procedures and the decision-making processes surrounding its redisplay. The panel’s extremely poor condition resulted from techniques and materials used in its original manufacture, including additives to the lacquer intended to speed the drying process and cut production costs, and the failure of the proteinaceous binder in the substrate. These issues are characteristic of Coromandel objects found in Western collections. However, these problems were exacerbated first by the invasive methods used to modify the object’s format prior to its acquisition and then by unstable climatic conditions in its eventual home. These necessitated a new solution for stabilization treatment, which ultimately took a multicultural approach by incorporating methods and materials used in both Eastern and Western traditions.

The panel’s status as a decorative object in a historic house collection and its immediate physical display context directed the approach taken to esthetic compensation and redisplay. Villa La Pietra and the Acton Collections reflect the lifestyle and idiosyncratic tastes of an Anglo-American expatriate family in Italy at the beginning of the twentieth century. The collections, gardens and interior spaces are used as a teaching tool and resource for undergraduate students in NYU’s study abroad program, graduate students in conservation, art history and museum studies, visiting scholars and researchers. Retreatability and legibility of the panel’s design were prioritized, resulting in a minimalist approach to esthetic compensation using tinted Japanese tissue fills. Discolored restorations that pre-dated the Actons’ acquisition of the panel were left intact. Determining how the panel was to be displayed proved more challenging. Extensive discussions about remounting and glazing the panel took into consideration the panel’s present condition, the stabilized environmental conditions in the Villa, increased public access to the collections, and efforts to preserve the appearance and ambiance of the

Figure 7  Detail from the panel: (A) before consolidation; and (B) after consolidation, with losses compensated using tinted Japanese tissue.
Acton period. Preserving the Acton esthetic requires more than maintaining the careful arrangement of the objects, but also extends to retaining the Villa’s lived-in appearance, which precludes the use of permanent vitrines. Curators, mountmakers, and conservators worked towards a solution in which the panel was remounted on a tubular steel framework. The mounting system provides the necessary structural support for the panel but has a minimal visual impact once installed. It was fitted with flexible springs to accommodate planar distortions and allow for small dimensional movement of the panel’s wooden substrate without adding stress to the compromised structure of the piece. An additional preventive measure was taken by inserting modular units with humidity buffering gels into voids in the framework where the panel was exposed to an outside wall.

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Materials and suppliers
Engelbrecht WZII ERSA heated spatula and radiant heat tool; G. Engelbrecht, Messegerate u. Apparatubau, 8195 Thanning, Germany.

Leicester Hot Air Tool with hot spatula tip used for radiant heat & Labor S with blower box 2008: Assembly Supplies, Co. 1250 Pacific Oaks Place #104, Escondido, CA 92029, USA. www.leister.com
Paraloid® B-72: Rohm and Haas, 100 Independence Mall West, Philadelphia, PA 19106, USA. www.rohmhaas.com
PVC sheet & bamboo dowels: Tokyu Hands, 3-5-4 Nishiki, Nagoya-Shi, 23 460-0003 Japan. www.tokyuhands.co.jp/shibuya.htm

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