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Cover: Detail of re-created Chinoiserie lacquer on an 18th-century English serpentine-front commode. See page 19.



A "Slightly Odd-Shaped Room" The Italian room at Seattle Art Museum: Collaborating to get the job done

James Boorstein, Traditional Line & Nicholas Dorman, Seattle Art Museum

ABSTRACT

In 2003, staff at Seattle Art Museum geared up for the most comprehensive series of transformations in the museum's history. The spectrum of activity and change at the institution ranged from the construction of a new downtown museum, building a nine-acre sculpture park on the Seattle waterfront and wide-ranging renovation of storage areas at Seattle Art Museum and Seattle Asian Art Museum. In the midst of these great changes, a small but highly complex collaborative project took place: the conservation and installation of SAM's sixteenth-century wood paneled Italian Room.

Following exploratory conversations with colleagues at other museums, SAM staff selected James Boorstein and Traditional Line to work with them on this project. A defining collaborative character distinguished this project from the initial planning phase to the treatment and installation of the panels and beyond these stages to the way the room functions in galleries that are now open to the public.

In addition to the SAM conservation and Traditional Line teams, myriad personalities worked together to resolve the project; curators, architects, engineers, art-handlers, preparators, stonecarvers, cabinet-makers, scientists, contractors, fund-raisers, donors (in no particular order) all played a role in the realization of the Italian Room, which can be considered a microcosm of museum activity.

In this paper, James Boorstein, Nicholas Dorman and Sarah Kleiner will share their experiences of planning and installing the room in the new SAM galleries and the contributions made by the various collaborative parties in the process.

In May 2007, Seattle Art Museum (SAM) opened a newly designed wing of galleries and public space in its downtown facility. The sleek galleries, designed by Allied Works Architecture, provide a tastefully spare backdrop to the extraordinarily varied collections housed at the museum. In the context of the gallery design and the absence of a tradition of displaying the European collections in period settings, the decision to use precious gallery space for the erection of a sixteenth-century Italian wood-paneled room might seem surprising. Yet this small room has become a popular destination for the public and it has broadened both the visitors' range of experiences and the curators' means of showing works of art in context and making connections across collections.

When a mid-sized institution like SAM embarks upon a task such as an expansion that requires development of projects of this complexity, there is a need to rely on expertise beyond the four walls of the museum. The range of skills required to complete the project must be determined and secured from carefully selected contract experts as well as institutional resources within and beyond the museum. This essay documents the project of installing the room and the essentially collaborative character of the endeavor. In 2000, when SAM Decorative Arts Curator Julie Emerson was approached by donor Richard L. Brown to consider accepting a gift of approximately 150 primarily wooden components of interior panel-work from an historic room interior, very little was known about this room apart from the most basic information on the twentieth-century provenance and the character of the room. Over the ensuing seven years, through collaboration with a range of craftspeople and experts, the Italian Room has been successfully installed and a number of questions about this extraordinary work of art have been answered.

SAM's Italian Room is a sixteenth-century interior from the northern Lombardy town of Chiavenna. The town commands a confluence of two important alpine thoroughfares that lead to passes in the mountains, routes for trade that ensured times of considerable prosperity between periods of political turbulence. This wood-paneled interior is believed to come from one of numerous palazzo buildings that occur throughout the town and it may have served as a reception room or a domestic space. In the 1920s, the room was removed from the original location by art dealer Renato Bacchi, and it had been purchased and installed in Venice by his friend, Adolph Loewi, by the early 1930s. Following the increasingly proscriptive position of the fascist administration in Italy and the persecution of Jewish foreign nationals in 1938, Loewi fled to the United States with a considerable quantity of his stock of fine and decorative arts. In the U.S., Loewi took receipt of the Chiavenna room and other important interiors such as the Gubbio Studiolo, now at The Metropolitan Museum of Art. The SAM room was eventually purchased by the family of architect John Yeon, who installed it as the dining room of his San Francisco apartment in the early 1950s. It was subsequently bequeathed to Richard Brown who donated it to Seattle Art Museum in memory of John Yeon.

Although when the room components entered the SAM collections the donor was assured that

it would one day be installed in the galleries, it was by no means clear when that day might come. The situation changed rapidly, however, when in 2001 the museum was approached by Washington Mutual Bank, who expressed a wish to construct a headquarters tower on the SAM-owned property adjacent to the downtown museum. With this development arose the opportunity of installing the Italian Room far sooner than had been expected. At this point, the curators embarked upon a process of comprehensive evaluation of the collection as a whole, in order to establish the curatorial approach that might best serve a newly expanded museum. The team determined that the galleries might effectively be punctuated with displays that would provide context for works of art and that would afford them a chance to make stimulating connections across the diverse range of objects housed at SAM. It was felt that the Italian room might serve both aims.

Critical to the justification for installing the room at this time, however, were questions of quality and condition. The first step in the project evaluation process was to determine that the room was of the appropriate level of craftsmanship and in suitable condition for museum staff to endorse the investment of resources that would be required for successful installation. In addition to these concerns, further questions needed to be answered: What was the history of the room? Of what was it made? How did it fit together? How much original material was extant? Who would install it? What staffing resources would we need and who would manage the team? Would we display art inside the room? Should visitors be permitted to enter the room? What would we do for lighting, flooring, a fireplace, threshold, and maintaining security? What would the budget be?

We commenced the project by inviting conservators Brian Considine of The J. Paul Getty Museum and Ton Wilmering from The Getty Foundation to study some of the panels with us at an off-site storage facility in Seattle. This initial examination was an essential exercise for us, during which we learned from the experiences of Ton and Brian, both of whom had been at the heart of major room installations at The Metropolitan Museum of Art and the J. Paul Getty Museum. An overall determination was made that the room had not been painted in the past, that the quality of the joinery was quite consistent throughout and that the carving retained great freshness. Numerous tool markings were also observed and we began to formulate an approach that would preserve access to the back of the panels for future study. This visit also constituted a moment of evaluation during which the curator considered the overall merits of the room and determined that this was the room that would most strategically complement her display aims and justify the installation process.

The second part of our collaboration with the Getty experts involved a visit to the J. Paul Getty Museum to see and discuss in detail the installation of their period rooms, a visit that helped us to better understand the work breakdown structure of our project.

During this planning stage, we began to refine our consideration of the associated issues (fire suppression, permitting, construction, lighting, and timing) and established that it would not be advisable or possible to undertake installation using our inhouse crews, who would be heavily preoccupied with the expansion of the museum. It was decided that the most effective means of safely and professionally installing the room would be to engage the services of an expert team of installation conservation specialists, working closely with SAM's conservation and curatorial departments. It was agreed that this approach would enable us to quickly determine the most accurate budget parameters and ensure the best results. The installation team would work closely not only with the conservation and curatorial departments but with the SAM expansion project administration, the expansion architect of record (LMN Architects of Seattle), and the construction contractor (Sellen), as well as numerous other sub-contractors and SAM staff.

Our next important step was to select this project partner for the installation. For this, we chose Jim Boorstein and Traditional Line of New York for their high-quality craftsmanship and conservation credentials and impressive resumé of period room installations in many U.S. museums. It was essential to commence this collaboration so that we could start to define the budget and parameters of the project more accurately. After an initial approach by telephone and email, and a brief scouting trip to New York we agreed to set up a visit so that Jim and his team could assess the scope of this project.

For the first visit of the Traditional Line team, a temporary workspace was established in closed galleries and all components of the room were laid out on blankets. Jim and his crew were then able to come and sort the components into individual areas of the room (window wall, entry wall, ceiling, left and right walls) and to test the fit of the parts and the number and location of any missing material through preliminary assembly of the walls. Through this visit, the team ascertained that most of the panels were present but we had insufficient documentation and little idea of the relationships between the parts. One result of this viewing and test-fitting was the dawning of the crew's understanding of how the parts fit together. It became clear, for example, that the baseboard served as a plinth on which the other components of each wall rest. Jim and his crew discovered that any adjustments that would be required following the installation of the baseboard would require the dismantling of the whole wall. Following this test-fit visit, the condition of each component was documented and photographed by SAM staff, a new numbering and labeling system was devised by Jim¹ and implemented by Sarah Kleiner and the SAM staff, and architectural drawings of each architectural element were commissioned. Following this visit, we were able to provide museum leadership with a reasonably accurate budget for approval.

For the installation stage, the approach to assembling the room was inherently collaborative. The scale of this project spanned the gap between object treatment/installation and architectural conservation and thereby required a level of planning, organization and team-work beyond the needs of regular bench work. As with construction projects, the quality of relationships between each contributing team-member or working group become decisive factors in the successful outcome of the project.

The second visit by Traditional Line took place almost a year after the first. By this time, shell and core construction of the new building was complete and a great deal of planning had been undertaken. The construction company had used the drawings, compiled from the architect's studies of the components, to provide a metal stud superstructure from which the Italian Room would be hung. From experience, Jim realized that the ceiling of an oddly-shaped room needed to be installed first in order to correctly lay out the floor . A crew of SAM and Traditional Line staff collaborated to transport the three very large ceiling panels across the construction site to the room location, to negotiate the cramped confines of the stud framework and to suspend the ceiling from this stud structure using adjustable hardware attached using pre-existing holes in the panels.

For the floor, we had determined through historical research, travel to view comparable rooms in Chiavenna, and evaluation of potential finishes, that we wanted to install large, wide planks of custom-stained, reclaimed chestnut. Jim helped us to identify a U.S. source and to procure and treat the wood, and his team developed a range of staining options. The planks were transported to SAM where conservators stickered the wood in a climate-controlled staging area to acclimatize the planks to museum conditions before installation. Once installed, Jim's team worked with a local sanding crew and applied the stain and finish coats to the floor in situ. This visit was also our opportunity to work with SAM's in-house project architect and with engineers to evaluate the seismic stability of the system that would be used to attach the panels to the metal stud framework.

Several months later Jim's crew returned to install the rest of the room. By this time, we had worked with curator Julie Emerson to determine the specifications for the non-original components, including the hearth, fireplace, firebox and threshold. We had also continued with conservation treatment of the wall panels in preparation for installation. The limited scale of in-house conservation resources, and the enormity of the range of tasks associated with museum expansion and construction of SAM's new Olympic Sculpture Park, meant that structural conservation continued during the Traditional Line installation visit. Cleaning and toning of abraded areas on the display surface of the panels were treatment measures that would all be executed by SAM staff and contract conservators later following installation. Although linked to related collaborative tasks, many points in a specialized project such as this-stages such as the second installation campaign-are points where the experts come into their own. During this particular stage, Jim's crew, working very closely with SAM's conservation intern and project liaison Sarah Kleiner, immersed themselves in the process of installing each wall, piece by piece. This was an arduous process, in which, despite all the preparation, many questions remained unanswered. Precise distances between points in the room were unknown. The baseboard needed to go in first, but the exact level and position were unknown. The precise relationship between the trapeziumshaped room, the floor and ceiling, the metal stud framework and the entry to the adjacent gallery all needed to be worked out at this stage through a process of mock-up assembly of wall components that were clamped together and attached to the outside of the stud framework.

During this process of deduction, the experience of the team came into play as the interpretive process was repeatedly confounded by misleading evidence from numerous previous installations. As the room came together, the third dimension and the relationship between the parts became clear. The ceiling needed to be raised and it also became necessary to cut into the non-original flooring to gain the required height.² The capacity to deal with such unanticipated circumstances, to remain calm, to make sensible decisions and to deploy the most appropriate strategy in response to changing work parameters were all points that served to vindicate the decision to collaborate with an expert partner on this project.

The final stages of the room installation involved working with contract conservators, stonemasons and joinery experts to finish the room, and working with contractors and SAM staff on the installation of all supplementary components, including the fireplace and other masonry, lighting, art display casework and security hardware. Again, for each step in the design and implementation stages of each these sub-projects, SAM's decision-making was continually informed through communication and collaboration with expert partners, and these interactions were essential factors in determining a positive outcome for each stage in the project. Communication was greatly enhanced by the provision of SAM's project liaison staff member dedicated to the project, coordinating vendors and tasks and working with Jim's team at all times during their site visits. Only through the collaborative input of each of the expert and dedicated teams mentioned in this paper, as well as numerous other parties that included scientists and funders, was it possible to effect a coordinated, informed and synchronized installation while undertaking comprehensive preparatory measures and adhering to firm conservation principles in the midst of many competing expansion priorities.

Upon entering the room, SAM's visitors can now experience the architectural interior space, gain a sense of being present in a sixteenth-century Italian interior, they can smell the wood and enjoy works of art from the time of the room's creation in a unique period context. The room provides us with a distinctive site of rich visitor experience and we aim to continue the collaborative character of the installation through the pursuit of scholarly enquiries into the history of this particular work of art and the world from which it came.

Acknowledgements

The installation and presentation were accomplished with the help and dedication of many people, although the success of this collaborative project was due, in large part, to the superb core collaborative partners, including Jim Boorstein and the installation crew, Joe White and Oliver Mataga and SAM's Julie Emerson and Sarah Kleiner. Thanks are also due to the rest of the Traditional Line team (Casey Lane, Margaret Mamak, Amanda Faust, Stephen Verman) and to Lauren Emerson, Joy Jacobson, Heather Wirth, Liz Brown, Jan Hurley, Susan Lewandowski, Scott Nacke, SAM's Conservation, Preparator and Art-Handling departments and expansion project team, Ugo Zoppi and Glen Kawasaki of Accium BioSciences, Didier Pousset, Brian Considine, Ton Wilmering, Alex Wiedenhoeft and USDA Forest Service Center for Wood Anatomy Research, Dr. Wolfram Koeppe, Dr. Paolo Via, Bryan Northrop and Dennis Tran of Northrop Case, Alexandra Morosco, Josiah Updegraff, Paul Suschik and Son, Gerrit Schoo and Hendrik Construction, The Clowes Fund, Richard Brown, Miranda Belarde-Lewis, Patricia Leavengood, Vina Rust, Corine Landrieu, Ken Leback, Jennifer Hing and LMN Architects, Sellen Construction, Jay Taylor and Magnusson Klemencic Associates Engineers, Jenny Söderlund, Architectural Resources Group, Jim Hodges and Museum Resources, Marion Campbell, anonymous donors, photographers Eduardo Calderon, Susan Cole and Paul Macapia.

Footnotes

1. Jim describes this as a new text based/intuitive labeling system intended to facilitate all stages of work through conservation and re-installation.

2. That was required to compensate for an earlier out-of-level installation.



Figure 1. Skinner Opus 603 in the Peristyle Theatre.



Figure 2. The organ console.

Breathing new life into the Skinner Opus 603 pipe organ

Suzanne Hargrove, Head of Conservation, Toledo Museum of Art

ABSTRACT

In 2002 the Toledo Museum of Art applied for, and received a grant from the Bradley Foundation to restore the museum's historic Opus 603 pipe organ made in 1926 by Ernest M. Skinner of the Skinner Organ Company. The restoration firm A. Thompson Allen Company was selected to restore the organ, which had fallen into disrepair after years of use in the museum's Peristyle Theatre.

Management of the restoration project was turned over to the museum's first staff conservator, hired three months after renovation work began. The pipe organ and its treatment represented a new conservation experience. It provided the opportunity to learn about a unique and complex musical instrument and to explore another field of conservation heretofore unknown by the conservator. It was a collaborative effort on many fronts; not only between organ restoration and conservation professionals, but also between numerous museum staff departments, and outside contractors from the sheet metal, electrical, and plumbing trades.

In 1926 Ernest M. Skinner of the Skinner Organ Company was contracted to design and build a pipe organ for the Toledo Museum of Art. It was commissioned as a memorial to honor museum founder Edward Drummond Libbey by his sisters Alice Walbridge, and Sarah Libbey. It was initially installed in the museum's auditorium, and then moved between 1931–33 to the newly built Peristyle Theatre, completed in 1933. (fig. 1). Mr. Skinner was contracted to plan the move and installation in the Peristyle.

In the early 20th century, live performances by symphony orchestras were infrequent, and radio and recordings were in their infancy. Huge pipe organs brought orchestral music to the masses. Organs were in demand by churches, municipal auditoriums, concert halls, movie theatres and world's fairs. The Skinner Organ Company was considered one of the premier manufacturers of the day, known for instruments that could readily evoke sounds of the entire orchestra. The refined, versatile, and highly musical qualities and E. M. Skinner's inventive mechanical genius made them the "Rolls Royce" of organs. Ernest Skinner was both an inventor and technophile. He made silent movies of his travels and outings with family and friends. He was proud of his company and took films of his organs being built and highlighted inventions he was proud of. He also had a fabulous sense of humor. Copies of his movies are available through the Organ Historical Society.¹

The Opus 603 (the name refers to the model number) is a built-in instrument, meaning it is literally attached to the building. It is unique in that it has a multiplex roll player mechanism to play paper rolls. It is the only commercially made Skinner organ that has one. The organ is made of three basic components, the console, pipe chambers, and blower motor, all located in different areas within the Peristyle Theatre.

The console is the brain of the organ and is located on a moveable dolly to be rolled on and off stage. (fig. 2). It is truly a computer. This one has four keyboards, called manuals, plus the pedals, which are in effect





another manual. Each key plays one note. Beside the manuals are ivory knobs referred to as stops, which control groups of pipes to combine sounds. The saying "pulling out all the stops" meaning give it all you've got, comes from organ terminology. There are also small buttons above the keyboards that can be programmed to combine stops. An interior view of the console begins to reveal the organ's complex inner workings. (fig. 3). When a key is pressed or a stop is opened an electric signal is sent to electro pneumatic valves which in turn open air channels to the various pipes. The system is attached through a 20 ft umbilical cable to the other organ components.

The two chambers located on either side of the Peristyle stage, house the organ pipes (3,201 in all). The pipes range in size and material from lead/tin metal ones smaller than a pencil, to massive wood ones made of clear sugar pine, the largest is 16 feet tall. (fig. 4) The material and construction of the pipe will create different orchestral sounds, including trombones, tubas, clarinets, strings, chimes, and even the human voice. The pipes are arranged in rows called ranks. Each rank makes different tonal sounds that are controlled by the stops.

The blower motor and relays are located in the basement. (fig. 5) The motor is a 10 hp motor and generates the wind power for all of the 3,000 plus pipes. Spring tensioned bellows located to the right of the motor and elsewhere in the organ chambers regulate air pressure to insure consistent sound levels for the pipes.

The Opus 603 enjoyed many years of service for audiences young and old, however, over the years problems occurred. Over time musical tastes



Figure 4. Chamber detail with pipes.

changed and large orchestral "Romantic style" organs fell out of favor. The organ itself fell into disrepair and sustained damage from water leaks in the building. The final blow came in 1990 when the Peristyle stage was modified to include an elevator stage extension to access the basement storage for pianos and symphony equipment. As a result a 30 ft trunk line comprising the organ's main wind line and electrical cables was removed, permanently silencing it.

The Opus 603 was left in a state of benign neglect until 2002, when the museum applied for and received a grant from The Joseph G. Bradley Foundation with matching support from Toledo benefactors to restore it.² Benign neglect in this instance was beneficial in that it was not subjected to the modernization which befell many organs. The organ restoration firm A. Thompson-Allen Company was selected. Actual work had already begun by the time the museum's first full-time staff conservator arrived in 2003. The conservator was placed in charge of the project after Nick Thompson Allen and Joe Dzeda, partners of the A. Thompson Allen Company had already dismantled one of the organ chambers containing over 1,200 pipes. (Fig. 6, compare with fig. 4 before pipes were removed).

Contemplating a project already in motion, there were many concerns about encounters that could occur between conservator and restorer such as differing conservation approaches over the extent of restoration, replacement of damaged, broken or missing parts and at worst modification of original components. It was reassuring to review the restoration contract, which promised the A. Thompson-Allen Co. would perform a faithful restoration to insure that "the organ's tonal and technological integrity will be respected and restored to the Skinner Organ Company's specifications" (for the year it was built in 1926). Nevertheless, contract

was built in 1926). Nevertheless, contract wording using the conservation terms dismantle, remove, transport, restore, and reassemble seemed foreign and disconcerting when viewing all the complex organ components. Other descriptions



Figure 5. The blower motor.



Figure 6. Pipes being removed from chamber (see fig. 4).

such as "releather, rebuild, replace damaged, install new..." necessitated the conservator/project manager's desire to be vigilant in reviewing the conservation work.

In all, the treatment involved complete disassembly of the organ. (fig. 7) The restorers dismantled, wrapped and packed all components including the console inner workings, the chamber pipes, and basement relays for shipment to their New Haven, Conn. workshop for treatment where they would "restore, test, regulate and warranty all parts of the organ, within the organ (including the defunct player mechanism), chambers, and the basement chamber (except the blower and motor)" as stipulated in their contract.

Managing a project of such monumental proportion required diplomacy. The conservator/project manager cautiously discussed "all things organ"

with the restorers Nick Thompson-Allen and Joe Dzeda. The goal was to learn as much as possible about this unfamiliar "king of instruments" as Mozart called it, and to get a sense about the restorers themselves. The intent was to avoid being shunned for a lack of experience should the need arise to step in and start dictating what work could and could not be done. Concurrently it was important to maintain proper stewardship of such an amazing musical instrument to insure the treatment did not compromise its integrity. In time, discussions revealed the world of conservation and organ restoration are very similar in their desire to respect and preserve the integrity of organs, which are also historic and artistic works. Nick and Joe represented the ethics maintained in our conservation field. Joe is most poetic in articulating his concerns about the longevity of all things and his desire to maintain the status quo. The restorers were vigilant about the need to respect the organ's tonal and technological integrity in keeping with the Skinner Organ Company's 1926 specifications. Their knowledge of organs, organ building, and particularly the life and work of E. M. Skinner was profound. They contained a wealth of knowledge and anecdotal information about the life and times Ernest Skinner and his business, which was not all rosy.

Discussions revealed a similar interest in keeping all components as original as possible. Cleaning the pipes was the greatest departure in treatment philosophy. Nick wanted to remove the original now yellowed shellac coatings on the metal pipes using an ammonia-based stripper. He wanted the pipes to look clean and fresh, (an aesthetic preference of organ restorers), however, since the original coating was intact and these pipes do not show in public areas (unlike some organs), he agreed to maintain the yellowed coating and simply wash the pipes to remove dirt. Another compromise was to use nylon nuts with a 50-year lifespan on interior organ components instead of leather ones with a 15-year life expectancy, since later replacement would entail major disassembly of the organ.



Figure 7. Disassembled chamber on Peristyle stage before packing.

Wood pipes and surfaces were given a fresh padded on coat of shellac. In New Haven, Conn. other components such as the deteriorated leather had to be replaced with new similar leather to insure an airtight fit. Damaged metal pipes from prior overzealous tuning had to be repaired. Traditionally, tuning was done using tools called tuning cones. (fig. 8). One end of the tool is conical, the other end concave. Pipes were tuned by hammering the top of metal pipes to make it either wider or narrower to alter the pitch. The pipes were torn or

bent in the process. Treatment involved straightening pipes where possible, or repairing/replacing damaged sections. In other instances metal pipe mouths contain metal rolls like a sardine tin where the mouth is rolled or unrolled to tune which can result in tears. For the Opus 603, all the original pipes were retained and repaired and voiced to render them functional.

The roll player mechanism was one of the more unique treatment aspects of the project. Rolls were typically made for smaller freestanding home organs. In their day the rolls were mass produced so the paper was not high quality. The aged rolls can easily be damaged when run through the player and not many survive. As an interesting side project, Nick has arranged to have new rolls repro-



Figure 8. Tuning cones with bent pipes.



Figure 9. Testing relay wiring

duced from the originals using new technology, as the original technology and means of manufacture have been lost. To date new test rolls look promising, and plans are underway to copy all extant rolls to form a library.

While organ restoration occurred in New Haven, the conservator/project manager dealt with related organ construction issues in the Peristyle Theater. Contractors from sheet metal, electrical, and plumbing trades worked with museum staff to make the chambers, main trunk wind line, blower motor and basement area clean and functional. In the chambers, thirty years of benign neglect made them convenient locations for storage and places to install electrical stage devices. An incredible amount of tactful and political negotiation was required to remove extraneous storage material and relocate electrical equipment outside the chambers. It was necessary to remove everything non-organ from the chambers since they too are part of the organ, as they resonate sound. On a

return visit, A. Thompson Allen Co. staff cleaned, patched and repainted the organ spaces. Below stage, the severed wind line and electrical cable were refabricated and reconnected. In the motor room the blower motor was removed and rebuilt. The electric starter had to be replaced to meet building code since it was a fire hazard. A waterdamaged area by the relays was plumbed to drain a seasonally damp corner and a water alarm was added. An unforeseen circumstance was the extent of corrosion caused by water damage to relay wiring for the roll playing mechanism. Thousands of relay wires had to be reconnected by an organ specialist. (fig. 9) Each wire had to be circuit tested to find the correct location, as no wiring diagrams existed. The organ console had been painted black, a departure from the varnished quarter sawn oak typically visible in Skinner organs. Photos indicated the paint was most likely applied early in the organ's history to make it "concert black" to match symphony equipment. The conservator/ project manager decided not to have it removed.



Figure 10. Organ console after treatment.

Furniture conservator John Barfield cleaned the black lacquer paint and toned losses. The project was completed within the A. Thompson-Allen Co. 22-month projected timeframe. The inaugural concert took place on April 23, 2005 to a standing ovation. (fig. 10) The organ is regularly featured during symphony performances and played on a regular basis by the museum's docents for school groups. The entire project involved hundreds of hours of work and was a team effort for museum staff, contractors, and the A. Thompson-Allen Company. The work could not have been done without the cooperation and assistance of many dedicated professionals.

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A. Thompson-Allen Co., Jonathan Ambrosino, John Barfield, Joseph G. Bradley Foundation, Lemsco Inc., Jack Pozik, Dorothy Price, Romanoff Electric, Toledo Museum of Art Staff, Toledo Stage employees, Toledo Symphony staff, Joe Vitacco. Thompson-Allen Company: Nick Thompson

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Endnotes

1. E. M. Skinner's home movies, the Organ Historical Society, http://www.organsociety.org

2. Joseph G. Bradley Charitable Foundation, 1650 Arch St. fl. 22, Philadelphia, PA, 19103-2003



Figure 1. Commode 1986-42, before treatment.



Figure 2. Commode 1986-42, top before treatment.

The Re-creation of Chinoiserie lacquer on an 18th-century, English serpentine-front commode

Ton Wilmering, Conservator & Lan-Chiann Wu, Artist

"The glory of one Country, Japan alone, has exceeded in beauty and magnificence all the pride of the Vatican at this time, and the Pantheon heretofore; this last, as History informs us, was overlaid with pure Gold.... Japan can please you with a more noble prospect, not only whole Towns, but Cities too are there adorned with as rich as a Covering; so bright and radiant are their Buildings, that when the Sun darts forth his lustre upon their Golden roofs, they enjoy a double day by the reflection of his beams."—Stalker & Parker, 1688¹

ABSTRACT

Artist Lan-Chiann Wu and furniture conservator Ton Wilmering collaborated on a restoration/conservation project recreating missing Japanning on a privately-owned eighteenthcentury English Chinoiserie commode of ca. 1760. Working with the artist's design drawings, based on existing motifs, elaborate lacquered decorations were made for the commode's top and drawer fronts using a blend of traditional and modern materials. Decorative motifs were copied and adapted from a matching commode in the same collection, as the two pieces of furniture originally may have been a pair. John Stalker and George Parker's 1668 *Treatise on Japanning and Varnishing*, as well as Robert Dossie's 1764 edition of *The Handmaid to the Arts*, served as a guide for the technical processes.

This paper will describe the various steps that were taken in making the new lacquered decorations; ranging from creating the design, to preparing ground layers, transferring design elements, building, shaping, and toning raised areas, applying different gilding techniques, to final painting of design details. Some of the pitfalls encountered during the process will also be discussed.

Considerations

Several points were considered with respect to recreating the missing Japanning without having any original designs at hand. The commode that was treated entered the owner's collection in 1986, (accession # 1986–42, hereafter commode '86). (figs. 1 & 2) It was not known what the original Chinoiserie lacquer design might have looked like and it was not known when the lacquer was removed. However, a very similar commode (possibly originally a pair) was purchased by the same owner in 2005 (# 2005–39, hereafter; commode '05), which featured original European Chinoiserie Japanning surfaces on the top and drawer fronts in addition to the Asian lacquer on the sides and doors. (fig. 3) Given the commodes' close match, the owner was keen to have commode '86 fully restored.

Lan-Chiann Wu drafted designs adapting elements from both commodes to the scale of the Asian lacquer decorations of commode '86, which was slightly smaller than those found on commode '05. While considering the commodes' decorative vocabulary, the artist's hand remains recognizable in the design. In addition to this paper being made available electronically on the WAG website, the design drawings will also be posted on the artists website (www.thetranquilstudio.com)—thus in the public domain—so that future researchers will be able to date and attribute the new lacquer decorations, should the restora-



Figure 3. Commode 2005-39, top.

tion report become separated from the commode. A few modern materials were blended with traditional ones and should also serve as indicators for dating the new Japanning.

Initial examination

Commode '86 was examined at the collector's house and more thoroughly in the conservation studio, which confirmed that:

• The original Japanning on the top of commode '86 had been lost.

• There was no evidence of any fragments of the original design underneath the top layer, which consisted of black varnish mixed with brass or bronze powder. The surface was badly cracked and abraded.

- The bottom drawer was missing.
- Japanning was also missing from the three remaining drawer fronts.
- Many of the bronze moldings were broken.

• There were abrasions on both commodes and areas where the gold decoration of the European

lacquer was obliterated caused by the darkening of later varnish applications and/or carelessly executed repairs.

Conservation treatment & recreation of the lacquered decorations

The proposed restoration and conservation work was undertaken according to the underlying concept of preserving any and all original material on the commodes. In discussion with the owner's curator, missing elements that detracted from the commode's appearance would be recreated.

The designs

Prior to any treatment both commodes were studied to gain a deeper understanding of the original decoration's "vocabulary." This stage involved producing design probes, study of various motifs and color composition, and sketches, which resulted in an initial half scale drawing for the top of commode. This drawing was submitted to the owner's curator for feedback and served as a guide in creating the lacquer top. (fig. 4) Following completion



Figure 4. Design for the top of commode 1986-42.



Figure 5. Design for the drawers of commode 1986-42.

of the design for the top, Lan-Chiann Wu produced a second design for the drawers.² (fig. 5) An accurate copy of the border design of commode '05 was traced on a transparent polymer film for use on commode '86.

Several full-scale photocopies were made of the Chinoiserie designs and were annotated concerning color scheme and level of detail found on commode '05. The notes served as a guide with regard

to which areas would remain flat and what areas would be raised, what elements would receive gilding (different colored pencil represented different color [karat] gold), and what parts would be "silvered." Palladium leaf was used as a substitute for silver leaf. The drawing was also used to indicate where solid leaf was to be applied, and where gold and/or "silver" flakes would be sprinkled, and finally where gold powder would be added. It also proved a helpful guide in selecting what gilded parts would be enriched with further detailing, which were painted in fine lines in black and dark red.

The scale of the Asian lacquer decorations on the sides and doors of commode '86 was slightly smaller on '05. For this reason, the scale of the "European" design for '86 was kept slightly smaller than on its companion piece.

The top of commode '86

Lacquer removal: The first step of this stage of the work involved investigation through small "windows" made in the black finish to see whether any traces of a previous design had been preserved underneath. Examination under a low-magnification microscope confirmed that no original or earlier lacquer layers existed. The top lacquer layer and the underlying gesso

layer were removed by hand sanding. Continued further investigation during sanding also did not reveal any previous Japanning under the black lacquer.

Gesso application: Two thin coats of fish glue were applied to the surface to facilitate better adhesion for a fabric layer. (A fabric layer had been observed during examination of commode '05).



Figure 6. Commode 1986-42, design transfer completed.

Fine linen was selected and adhered to the top with heat-activated Beva 371 film and trimmed around the edges with sand paper. The fabric layer helps stabilize movement differentials between the substrate wood of the top and the gesso/lacquer layers. Then several gesso layers were applied and sanded between each layer until a sufficiently thick ground had been prepared.

Shellac polishing: The top was polished with pigmented shellac. Ivory black was used for coloring the lacquer, in keeping with the recommendation given by Stalker & Parker. The black lacquer base was made from clear shellac flakes mixed with pigment and ethanol, and filtered through a cloth to reduce any irregular particles. Initially applied with a flat brush, the majority of the coats of shellac were applied by friction polishing. The first applications of layers were fully pigmented, decreasing the amount of pigment towards the final layers so that a beautiful glowing surface emerged. A total of fifty layers or more were applied to produce a sufficiently bodied coat. Ample drying time was allowed between each coating. Then, again following Parker & Stalker's instructions, the surface was slightly dulled, to facilitate better adhesion of the transfer chalk.

Design transfer: First, the border design was transferred to the top. The transparent, polymer film tracing that had been made of commode '05 was photocopied 1:1. The copy needed to be trimmed, because the back of commode '86 is slightly narrower than its companion piece. Once the size had been adjusted, the transfer was made by gently retracing the design of the photocopy with the transfer paper (chalk paper) facing down underneath. It was critical that the design was not moved once the transfer process had started. Upon completion of this step, the center design was transferred by the same technique. (fig. 6)

Raised areas: After the design had been transferred and minor dimensional adjustment made, the top could be prepared for the raised areas. In order for the paste to adhere better to the substrate, the lacquer was lightly abraded with scalpels, staying within the outlines of the design. Design details were redrawn in the abraded areas as necessary. Raising some of the decorative elements proved one of the most interesting, complex, and laborintensive parts of this project. According to Stalker & Parker, the raised areas were created not with gesso, but with a thick paste composed of whiting, bole and gum arabic. This paste could not be brushed on, but had to flow off a stick, roughly the size of a chopstick, directly onto the top and keeping within the outlines of the design. The process is described by Stalker and Parker as follows:

"To attempt the composition of the paste, you must provide a strong gum Arabic water, charged with a double quantity of gum to that we before taught you. Have in readiness an ounce of whiting, and a quarter of an ounce of the finest and best bole Armoniack; break them on your grinding stone with the gum water, until they are made as fine as butter, but so thin, that when moved into a galipot, it may but just drop from the stick with which you work and stir it."³

The paste was prepared according to Stalker & Parker's recipe with whiting, bole, and gum Arabic, to which some cold-setting fish glue and 3M micro-balloons were added to increase its working properties. The last two additives prevented cracking of paste upon drying. This modification proved essential because of the relative height of the raised areas. Raised designs were lower during Stalker & Parker's time, and therefore presumably less prone to cracking. The paste was applied, as recommended, drop after drop. (fig. 9) The tricky part was not to apply too little and not too much of the paste at one time. Adjacent raised areas had to be kept clear from each other to prevent flowing of the wet mixture from one design element onto the next. Where possible, the paste was shaped while damp, but more often the areas were shaped and smoothed after the paste had dried. This implied that many motifs had to be redrawn so that they could be reshaped according to the design. After each round of paste application, edges needed to be cleaned with moistened micro-swabs so that the raised areas fit neatly within the outlines of the design. This meticulous operation ensured that the strength of design was maintained.

Toning of raised areas and gilding preparation: Because the dried paste of the raised areas was porous and the original color in the Chinese lacquer was deep dark red, a paint layer needed to be applied. Originally, this layer would have been an oil paint, but in this instance an alkyd-based paint was used instead because of its better flow properties and faster drying times. Where necessary, more that one coat was applied. Here too, meticulous cleaning was required for the reasons mentioned above. This paint was also applied to parts of the design that were not raised, as it was needed to form a base for the oil gilding, such as for example, in some of the fine branches. The paint was smoothed in between layers with finegrit custom-made sanding sticks.

Gilding: The gilding and silvering (with Palladium leaf) was done with oil size, and the process involved various steps. In order to create a vibrant Japanning, different colors and types of gold were used in the design. While pale gold was used as a base on tree trunks and branches, dark gold was used on most of the foliage. Palladium leaf was used on some of the flowers and on areas representing Chinese scholar rocks. Some elements, such as the foliage, were gilded in a variety of ways and in different steps; in some cases, first the entire leaf received gold and, second, veins were painted on top. Others received a gilded outline and gilded veins, keeping the red base color exposed. Chinese scholar rocks were enriched with fine, custommade palladium powder, and received highlights and shadows added with gold leaf and black paint. This powder was made by putting palladium leaves in a glass container filled with ethanol and placing in a small ultrasonic cleaning tank; after several hours of immersion the ultrasonic action disintegrated the leaves to powder.



Figure 7. Commode 1986-42, top after treatment.



Figure 8. Commode 1986-42, detail of top after treatment.



attached to one side so that gold particles fell like "snow flakes" onto the oil size. Another technique consisted of dusting very fine gold powder to the drying size, in order to add some vibrant differences to the overall decorative scheme. Some fine details were added to the gilding with black and dark red paint in order to add definition and liveliness to the design. Details were added

Figure 9. Commode 1986-42, bottom drawer during treatment.

Applying the metal leaf was done in various stages using oil size as adhesive, in keeping with the recommendations of Stalker & Parker. Sufficient setting and drying times were observed at each phase to ensure a good gilding ground. After applying leaf to each section, intensive cleaning of excess gold leaf was needed because the cohesion of the leaf to areas where no oil size had been applied proved almost as strong as the leaf's adhesion to the dried gilding size. Before painting any details on the gilding in the center design, the border gilding and 'silvering' was completed. This part too, was done in the previously described technique; however, the border gilding was applied directly on the black shellac surface. Here too, meticulous cleaning was required at each step.

Additional detail was added to the gilding in the center design after the base gilding had been completed. This consisted of sprinkling various colors of gold specks and palladium specks to the surfaces of the trunk, knots and branches in order to create a bark-like surface appearance. A special technique—adopted from Makie Urushi—was used for creating the gold sprinkles, whereby gold leaf was brushed through a tube with a fine wire mesh in several rounds of painting to ensure strong and full-bodied brushwork. (figs. 7 & 8)

As a final step, the decoration on the top was sealed for protection with several layers of clear shellac padded by hand. Final patination took place at the owner's storage facilities.

Retouching: Much of the European lacquer surface on the carcass of the commodes was preserved, but had been restored in the past, probably on several occasions. Many of these restorations had darkened so that most of the scrollwork and striping were illegible; this was especially noticeable on commode '86. In order to make the scrollwork readable and to bring them up to the level of commode '05, they were very lightly retouched with Gamblin conservation colors mixed with ultra fine 24 Karat gold powder. Black lacquer abrasions and black lacquer detailing lost from gilded surfaces were also retouched with Gamblin conservation colors.

The drawers

The missing bottom drawer was made of seasoned fine-grained white oak. The boards had initially



Figure 10. Commode 1986-42, after treatment.

been machine-processed, but all surfaces were sized and planed by hand in order to get a good quality open-grained surface. The serpentine front was created from stacked battens ensuring sufficient bulk to saw the serpentine curves. Coldsetting fish glue was used as an adhesive. After sawing the outline, the surfaces were finished and smoothed by hand with a spoke-shave. All surfaces were hand-scraped so that the surface of the wood closely resembled the original eighteenthcentury drawers. Fine dovetails were cut and fitted by hand, following the construction details of the original drawers. The drawer front was coated with two layers of dilute rabbit skin glue, followed by several layers of gesso. Gesso was prepared with calcium carbonate and hot rabbit skin glue. The layers were sanded between each application. Once the gesso was built to sufficient thickness and had been smoothed, the drawer was ready for the application of pigmented shellac following the same sequence as on the top.

Splits and loose parts of the original drawers were glued with cold-setting fish glue and, as necessary, thin splices of white oak were used to fill gaps. Small losses were filled with new wood where needed. All drawer fronts were lightly sanded and then polished with black pigmented shellac in order to create a base for the Japanning. Designs were photocopied and cut to the size of each drawer. Transfers were made as described above.

As on the top, details within the design were abraded with a scalpel in order to create better adhesion for the paste. In applying the paste, again as recommended by Stalker & Parker, the paste was dripped from a stick, but this proved more challenging than on the top. Because the drawer fronts were serpentine curved, the paste could only be applied on one section at a time, keeping the work surface horizontal. This was necessary to prevent run-off and/or sagging of the paste. The curved surfaces also affected the application of the oil paint toning and gilding layer. This complicated several crucial steps in the entire process and made the work more labor intensive. (fig. 9)

The bronze mounts: After the bronze mounts had been removed, they were shipped to Mr. Deville in Paris for repair and re-gilding. They were repaired and fire gilt so that they would match the mounts on commode '05. Mr. Deville also cast two handles for the newly fabricated bottom drawer. The handles were toned with Orasol dyes in shellac to match the original handles on both commodes. (fig. 10)

Materials used

Calcium carbonate, bole clay, cold-setting fish glue, rabbit skin glue, shellac, ivory black, bone black, 24 karat gold powder, 23³/₄ karat dark gold, 23³/₄ karat dark gold powder, 22¹/₂ karat French pale gold, palladium leaf, transfer paper, Beva 371 film, Orasol dyes, Rolco fast drying gilding oil, Gamblin conservation colors, and Alkyd paint.

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Endnotes

1. Stalker & Parker, xv.

2. Copyright of the designs remain with Lan-Chiann Wu.

3. Stalker & Parker, p. 33.



Figure 1. The commercial frame on *A Moorish Doorway*, a modern re-framing that aims to reflect the Spanish theme of the work.

Re-framing for Australian Impressionism

MaryJo Lelyveld, Conservator Frames and Furniture, National Gallery of Victoria, Australia

ABSTRACT

In March 2007, the National Gallery of Victoria (NGV) in Melbourne staged a major exhibition bringing together the works of five key Australian artists that founded and advanced the Australian Impressionism movement in the late 19th century. *Australian Impressionism* brought together some 250 works by Tom Roberts, Arthur Streeton, Charles Conder, Frederick McCubbin and Jane Sutherland. Spanning the years 1883–1897, the works were gathered from private and public collections both in Australia and overseas.

In addition to numerous conservation treatments, a total of twleve works were re-framed in the lead-up to the Australian Impressionism exhibition. It is intended that current reframing projects carried out at the NGV produce historically accurate frames that are in accordance with the aesthetics of the painting and able to withstand future re-assessment. From the initial selecting of works to be reframed and identifying the reproduction frame prototype, through to the manufacturing and finishing of several frames within a fixed timeframe, the project was an especially collaborative undertaking. Curators, paintings conservators, frames conservators, private owners and institutions, frame makers and craftspeople were consulted throughout the project. It is hoped that this interdisciplinary approach to reframing within the NGV ensures that the resulting reproduction frames objectively reflect the needs of the painting.

The Collection

The National Gallery of Victoria (NGV) is Australia's oldest public gallery. Opening in 1861 on a shared site with what is now the State Library of Victoria in Melbourne, it relocated a century later to a purpose-built building south of the city centre on St. Kilda Road. To accommodate for the increasing number of visitors and the growing collection, an additional gallery dedicated to Australian art was opened in 2002 known as NGV-Australia (NGV-A). The following year, redevelopment on the St. Kilda Road (NGV-International or NGV-I) site was completed, doubling the exhibition space to approximately 220,000 square feet.

Despite the name, the National Gallery of Victoria collection is a state collection. It is comprised of more than 70,000 works of art assembled almost exclusively by gift, a third of which are by Australian artists.

The Conservation Department

The NGV's conservation department employs up to 18 full-time conservators, plus several other technicians, fellows and interns specialising in paintings, objects, paper, textiles, exhibitions and frames and furniture conservation. The latter of these evolved from a long history of artists, craftsmen and technicians carrying out restoration on the frames and furniture within the NGV collection. In the mid-1990s a conscious decision was made to shift the focus of our work from restoration and frame-making toward a conservation based examination and treatment program, however the legacy of reproduction framemaking remains an interesting aspect of our work. Similar to the physical filter provided by a painting's varnish layer, the frame acts as a metaphorical filter that can greatly affect the viewers reading of the work. Both are the modifiable layers that greatly impact the aesthetic integrity of the painted surface by either obscuring (as is common with the former) or by distracting the viewer's attention. Therein lies the conservators role to ensure the aesthetic integrity of the work in its frame as a unified whole.

NGV Frames committee

In 2000, a Frames Committee was established to provide face-to-face discussions between conservators of frames and paintings and curators of international and Australian art in regards to frames conservation treatment and re-framing requests. The initial intent of the meeting was to moderate conflicting scheduling needs however, the meetings have since become an invaluable tool to centralise and democratize framing decisions. What began as a budget and work schedule review has evolved into a six-weekly forum where framing and relevant art historical research is shared and past, present and future frame conservation and reframing projects are evaluated.

Although the management of frame-making is under the direction of the Frames and Furniture Conservation section, the decisions made in regards to re-framing candidates, frame style and surface finish are very much the result of an interdisciplinary dialogue. The curator's role is one of research and connoisseurship. In the lead up to any exhibition, curators will have searched through archives and visited private and public collections and in addition to determining exhibition content, will have gained an overview of framing styles used to house the artists' works and possibly turning up images of the works in their original frames.

Conservators also undertake research both into the broader history of decorative art and framing styles and the traditional materials and techniques used in their manufacture.¹ This is supported by technical analysis of original frame surfaces.

Australian Impressionism

In mid 2007, the NGV staged one of Australia's premier exhibitions, Australian Impressionism which united "the finest and most precious paintings from public and private collections in Australia and [was] one of the most important assemblages of works of art to come together in this country."² It was the first exhibition in more than twenty years to bring together the works of the five key initiators of the Australian Impressionist movement from the years 1883–1897: Tom Roberts, Arthur Streeton, Frederick McCubbin, Charles Conder and Jane Sutherland.

During the fourteen years covered in the exhibition, these artists painted in camps around Melbourne and Sydney, developing a style of painting that aimed to capture the light and mood of the expansive Australian skies. Unlike the French Impressionist movement with its extreme stylistic and chromatic experiments, the Australian Impressionists were concerned with representing natural light effects through colour with a focus on national subjects, not dissimilar to the plein air and naturalist painters of American Impressionism.

Comprised of some 250 works, the Australian Impressionism exhibition documented what can be described as "the first truly national school of art"³ and concurrent to the artworks themselves, we as frames conservators were aware that the exhibition would also act as a survey of Australian Impressionist framing styles, both original and non-original.

After an initial survey of the NGV collection works to be included in the show, it was found that in addition to a number of frames requiring conservation treatment, several more were noted as being in frames that were stylistically unsuitable in terms of the period and history of the painting. These would require further research to determine whether a suitable alternative, based on sufficient evidence, could be found.⁴

Two of these are presented as case studies here: A Moorish Doorway by Tom Roberts painted in 1883 during his travels through Spain and The Purple Noon's Transparent Might by Arthur Streeton painted a year before he departed for England in 1896.

Case study: A Moorish Doorway, Tom Roberts (1883)

A Moorish Doorway came into the NGV collection in 2004 through the generous bequest of Dr. Joseph Brown, as part of some 150 works that comprise the Joseph Brown Collection. As is sometimes the case with private collections, many of the original or period frames in the Joseph Brown collection were replaced and housed in late 20th century style frames reflecting the age of the collection rather than individual artworks. More particularly, *A Moorish Doorway* was housed in a schlag metal, commercial moulding with linen slip (fig. 1).

Determining the prototype

In conjunction with curators it was felt that a more suitable frame be found, one that would be historically accurate and visually compliment the picture. This process involves investigation by both curators and conservators and includes:

• Primary research using exhibition catalogues, newspaper articles, image archives and the like, in the hope of finding incidental images of the work in its original frame or similarly, text referring to it

• Secondary research comparing the work with others by the artist or a contemporary to find potential original frames and research into frame styles generally within the period.

In this instance the Senior Curator of Australian Art at the time, Terrence Lane, had been in contact with several lenders of Roberts' paintings for the exhibition and identified a suitable frame on a 1883 work, entitled *Una Muchacha*.

Both the painting and frame had a clear provenance. The work had been presented by Roberts himself to the owner's great grandparents as a wedding gift in 1887. On examination, the housing showed little evidence of modification and a frame-maker label on the verso assisted in dating the frame to between 1885–1886.⁵

With the potential prototype determined a montage was made of the painting in its proposed frame. This procedure is carried out in Adobe Photoshop⁶ with frame members, centre and corner ornaments and the painting itself set as separate image layers that can then be scaled or cropped accordingly. The result is evaluated by both conservators and curators to determine whether the reproduction frame would be aesthetically acceptable.

Months before the exhibition, the owners kindly made the frame available to us for a detailed examination of the surface and frame construction, as well as to take a profile drawing and ornament impressions. The frame on *Una Muchacha* is neoclassical in style and very much in keeping with Melbourne's artistic temperament of the time.⁷

The frame maker Blair and Co. made use of traditional methods of pressed compo ornament applied to a cedar carcase. Both the frame and compo ornament were finished with gesso, with a light red bole beneath water gilded areas at the corner ribbon and ovolo/cavetto, and yellow bole beneath the remaining oil gilded areas. The frame was gilded with gold leaf overall with the water gilding burnished.

Reproduction frame manufacture

The impressions with which to make the moulds were carried out with the painting still in its frame so as not to disturb the original housing. These impressions, along with detailed profile drawings and prescribed surface finishes, were sent to a specialist framer.

For this project, the reproduction frame was commissioned to Specialist Framing Services and included submission of a frame sample. Manufacture of a frame sample is an integral part of the process and, as is the case with a sculpture maquette or architect's model, provides an oppor-



Figure 2. A Moorish Doorway following re-framing with a Thallon prototype based on Roberts' Una Muchacha.

tunity for curators and conservators to resolve any issues and seek agreement prior to the making of the frame proper.

Distressing and toning

The reproduction frame was finished to the gilding stage and brought back to the NGV for distressing and toning. This procedure is almost always undertaken by the conservation lab, given that the conservator has direct access to the painting, gallery lighting conditions and contact with curators and fellow conservators with which to evaluate toning subtleties. Our overall approach to toning is to distress and tone to a level that articulates a well cared for surface, appropriate to the age of the painting. In this instance the prototype that



Figure 3. Streeton's *The purple noon's transparent might* in its 1940s Whistlerianstyle frame.

informed the frame style was also a good example of a frame that, although over 120 years old, had been well cared for.

Tests were carried out using the frame sample. A series of surface finishes were developed to replicate the wear across the high points of ornament, dust deposited on horizontal surfaces and general damage caused by wear, handling and minor water damage at the back edge.

Figure 2 shows the final result from the reframing project with the painting in its reproduction frame, which we now feel allows the work to sit more comfortably with its peers.

Case study two: *The purple noon's transparent might*, Arthur Streeton (1896)

Unlike the earliest Australian Impressionist exhibitions, Impressionism had by the late nineteenth century advocates in both the public and art arenas alike. *The purple noon's transparent might* was of particular interest to then NGV director Bernard Hall who described it as being in the class of "the best work by the best men." It was immediately exhibited in Melbourne and London, followed by a number of other Australian galleries over the following years.

It was because of this ongoing popularity that the painting was divorced from its original frame. In the late 1930s and early 1940s, the NGV under-





Figure 4. Remnants of the original frame for *The purple noon's transparent might* found at the Benedictine Community of New Norcia during a collections audit.

took a modernisation program incorporating the systematic re-framing of key Australian paintings in its collection. An article in the Melbourne Herald dated 21st June, 1941 remarks "He [Director James McDonald] is putting dull gold frames around all the pictures...All of them gain surprisingly from the change.... The lines are straight and simple, and there is none of the teeming ornament which makes some other frames in the Gallery so disturbing."⁸ The choice of standard frame was in the Whistlerian style as seen Figure 3. Sadly, the redundant original frames were sold at auction in October 1941.

Determining the prototype



Figure 5. The purple noon's transparent might in its 2007 reproduction frame.

Due to its significance the work was again reframed in 1995. Made in-house by the NGV framer, the first reproduction frame was based on images of the work as it appeared in earlier exhibitions, however the black and white photographs offered little detail and only educated estimations as to the frame dimensions, ornament style and surface finish could be determined. In terms of style, the frame appeared to be broad and flat with minimal decorative elements. It reflected a shift in the framing of Australian art in the 1890s away from complex profiles with highly detailed ornament and a move toward an honesty of materials and simplified forms.

In 1996 a freelance curator9 cataloguing the col-

lection of the Benedictine Community of New Norcia, in Western Australia, stumbled across a frame in its collection that had been acquired in the aforementioned 1941 auction of NGV frames. This was the first of several frames that the Benedictine Community of New Norcia had acquired from that same auction. In 1999, when four more of these frames were reacquired by the NGV, remnants of three exhibition labels on a frame corresponding to Purple noon's... earliest exhibitions confirmed that it was indeed the painting's original frame. Unfortunately, it was in very poor condition (fig. 4). It had been reduced in width by approximately 21/2 inches, with the timber excess attached to the verso to form a type of build-up. Much of the imbricated oak leaf ornament had
been lost, revealing what appeared to be originally a sanded frieze.

In regards to the uncovered frieze, an 1898 entry in the ledger of a leading Melbourne frame-maker of the time, John Thallon refers to a large NGV work with an uncommon square format that can only refer to *The purple noon's transparent might*. It reads "National Gallery, October 26: preparing ornamenting and gilding one frame 6 ft. x 6 ft 12' wide 7 pound 4 shillings" and likely refers to the addition of the ornamentation at this time. As no images of the frame in this earlier sanded state were found, nor a prototype available to offer more conclusive evidence as to the finish, the decision was made to present the frame as it was in its 1898 state with oak leaf ornament.

Manufacture of the reproduction frame

As noted earlier, many re-framing projects are largely or in part contracted out to specialist craftspeople, though where possible attempts are made to ensure that such frame making skills are developed and retained within the department itself. In this instance, the frame structure and toning procedures were carried out in-house and only the gilding was contracted to a professional gilder.

Visual examination and characterisation tests were carried out to determine the methods and materials of construction and surface finish. In the original, the frame construction was very simple with softwood timber lengths attached at mitred corners and reinforced with butt joined battens to the verso. An imbricated oak leaf ornament with corner and centre ribbons was made of plaster and attached with glue and nails. The frame was originally finished with gesso, a thin layer of ochre coloured bole and oil gilded with gold leaf across the flats and schlag metal across the ornament.

As the slip of the frame was removable, initial discussions between curators, conservators and our technicians were had as to whether to incorporate the original slip into the reproduction frame. However when fitted, it was found that the sight size was fractionally large for the painting and a decision was made to re-use the slip from the 1995 reproduction frame.

Moulds were taken of the existing ornament from which lengths of positive casts were made to replicate the oak leaf plaster ornament. Once these lengths were cut and fitted together, surface irregularities were filled or removed as required. As visible in Figure 4, only the proper right hand side running ornament remained on the frame but as the proper left hand side appeared as its mirror image in frame photos, adjustments to the casts were made.

Once attached to the frame the torus ornament was sealed with shellac and the flats given two thin layers of yellow bole prior to the frame being sent to the gilder for the oil gilding.

The distressing and toning treatment was carried out in a similar method to that of the *Moorish Doorway* frame using paper abrasives and several toning layers of shellac and ormolu, tinted with Orasol dyes and gouache paints respectively. Figure 5 reveals the finished product, comparable to the 1940s framing. The most striking aspect of the re-framing is the return to a frame which at over a foot wide at each member, commands both physical space and the viewer's attention, a style of framing that was actively removed from Australian framing history.

Conclusion

To conclude, although re-framing paintings does not fall under the traditional responsibilities of conservator, it is a complex practice that greatly benefits from conservation input. The projects undertaken require the input of many in order to make reproduction frames that are both historically accurate and visually pleasing, through decisions based on solid historical research and scaled visual mock-ups. Although further information may come to light over time, we hope that the frames produced using this process will stand up well under future appraisal.

Acknowledgements

I came to this project within the last few months prior to the opening of the Australian Impressionism Exhibition, so much of the work I am presenting is not my own but rather the efforts of my seniors and colleagues including Holly McGowan-Jackson (Senior Conservator, Frames and Furniture), Terence Lane (Senior Curator of Australian Art), Suzi Shaw (Conservator, Frames and Furniture) and Noel Turner (Conservator, Frames and Furniture). This paper is a testament to their ability to work collaboratively and more importantly share their time, knowledge and skills. Thanks to several specialist framers, including Rob Murdoch and David Butler, with whom we are able to discuss manufacturing methods and turn to for assistance with frame-making problems. We are also very fortunate to have a Senior Paintings Conservator, John Payne, whose own personal passion for frames adds greatly to re-framing debates.

Endnotes

1. Within Australia, much of the published literature pertaining to framing styles has been produced by paintings conservators. Decorative arts books largely ignore them. The smaller number of frames conservators have generally focused on publishing that relates to treatment methods and materials.

2. Robert S. McKay, Chairman of the Australian International Cultural Foundation in Lane, T (2007) *Australian Impressionism*. National Gallery of Victoria: Melbourne. p. 9

3. As described by Gerard Vaughan, Director of the National Gallery of Victoria. ibid. p. 10

4. The re-framing process may take several months of research and consultation in addition to the several months required for manufacture. Re-framing projects commonly take several years from inception to completion and many remain on hold until further evidence can be found.

5. The Melbourne business directory of the time, Sands and Kenny, gives the first listed address of Blair and Co. at 28 Swanston Street but by 1887 they are listed at an address much further up the street. Maddocks, H. (1999) Picture Framemakers in Melbourne c.1860–1930, in *Melbourne Journal* of Technical Studies in Art. Volume 1: Frames. The University of Melbourne Conservation Service: Melbourne. pp. 1–33.

6.We have found that Adobe Photoshop Elements is sufficient to create montages of reasonable quality where the photos of both the painting and potential prototype are of decent size and relatively square. For montages incorporating granular photographs or obscure angles, the full Photoshop program is required.

7. The tastes of the small but wealthy, art-buying community of late 19th century Melbourne was extremely conservative and still very much tied to the traditions of the Continent. Neo-Classical and Neo-Rococo frames were *de riguer*.

8. As noted in Payne, J. (2007) *Framing the Nineteenth Century: Picture Frames 1837–1935.* Peleus Press: Melbourne. p. 9.

9. Many thanks to Joy Legge, Art Advisor of the Benedictine Community New Norcia for bringing to the NGV's attention the existence of the first of these frames. This led to a total of seven frames being reunited with their paintings or providing models for reproduction frames.

10. From Payne, J. (op. cit.) pp. 206–209. Further details regarding this and five of the other frames recovered from the Benedictine Community in New Norcia can be found in this publication.



Figure 1. Chair designed by Hunzinger ca. 1860 (MFA 1979.625). Condition as received by the MFA in 1979 with the original back underupholstery, the seat materials are all 20th century. Image on the right shows the chair with the new removable buttoned seat and reproduction showcover (the embroidered vertical panels and trims will be added to complete the treatment).

New support frame designs for upholstery conservation

Stephanie Auffret & Heather Porter

ABSTRACT

Upholstery conservation is a complex specialty that is most successfully completed when different conservators and other professionals work together. During recent treatments at the Museum of Fine Arts, Boston, furniture and upholstery conservators and mount-makers have worked together to design and construct wood and carbon fiber support frames for various upholstered objects. The examples presented will include a mid-nineteenth century chair made by George Hunzinger that retains the original back upholstery but only the original springs in the seat (all other seat materials were inappropriate for display), a set of Rococo revival parlor furniture c. 1850 with all of the original under-upholstery except the original webbing, and late eighteenth century side chairs with half-over the rail upholstery. Through the process of resolving these different challenges it has become apparent that certain chair types lend themselves more successfully to one material over another due to the mechanical properties of the material and shape of the chair frame. First, this paper will discuss these options and the decision making processes behind their use, as well as the advantages and disadvantages of each. A brief description of the previously published Sene furniture at the MFA will be included in order to show how its treatment effectively influenced our own. Second, we will present new ideas to the familiar problem of supporting seat springs, both when they are detached from all other materials and when they remain connected to original layers above. Although final designs for support systems often take time to evolve, the most successful ones are usually simple concepts that are easy to construct using readily available materials and limited tools and machinery. By detailing the production processes for each project, this paper aims to describe how new materials and frame designs can be adopted without difficulty in the treatment of upholstered furniture.

Introduction

Ver the years, conservators have developed a variety of different methods to deal with the problems of supporting extant upholstery materials and adding new ones. Existing solutions are very often dependent on traditions within an institution or business, access to those materials and tools, and familiarity with a certain technique which is typically dependent on the skills of the conservator. Often, better ideas evolve from good ones and it frequently requires a conservator to borrow, learn or understand an idea from past treatments so that improvements and adjustments can be made. At other times, ideas are original and are the product of brainstorming current problems to offer individual solutions. This paper will discuss two different support frames, designed by upholstery and furniture conservators at the Museum of Fine Arts, Boston, where no previous treatment solutions were known to exist. One will describe a method to support coil springs onto a solid base while retaining access to the new upholstery above for deep buttoning in a completely removable system. The second will explain the process of designing and making wood frames to attach new webbing to support the original springs and under-upholstery that could not be removed from a set of mid-nineteenth century parlor furniture. Decisions about the final appearance of the finished upholsteries and the methods used to apply it will not be discussed in detail.



Figure 2. Removable system with plywood lattice "webbing" to support the seat springs and a poplar frame to sit onto the chair rails with muslin-covered plywood edges for stitching. Frames are joined together with brass plates and posts, screwed together.



Figure 3. Seat rails with fragments of original lashing cords and jute spring cover cloth. Detail shows the little pieces of wood on the underside of the frame, positioned in between the fragments to raise the new system above the original materials.

Hunzinger side chair with original springs and complex upholstery design

In 1979 the Museum of Fine Arts, Boston (MFA) acquired a small chair designed by George Hunzinger ca.1860.¹ (fig. 1) The chair retains the original underupholstery on the back including the jute base cloth, filling materials and muslin filling cover that was arranged with the so-called tri-part design, with deep buttoned panels on the outer edges and a flat vertical section in the centre. However, the seat materials are all 20th century, with the exception of the springs that had been reused on new jute webbing. The seat profile is high, plain and rounded and in no way represents its original appearance. Surviving examples of Hunzinger upholstery confirm that the design of the upholstery on the back and seat should be the same.² Treatment of the chair required the removal of the 20th century upholstery, and the creation of new upholstery on the seat that would contain the five springs; making the finished unit a convincing partner to the original back.

From a conservation point of view, the "best" treatments require no mechanical fixtures or upholstery attachments into the chair frame, both to prevent additional damage caused by tacks or staples and to preserve all of the evidence of previous upholstery campaigns. The difficulty here is



Figure 4. View from the top of the new system in position on the chair, shows the plywood is level with the original webbing, the springs are secured with folded linen and stapled. The centre spring retains a piece of the 20th century webbing and lashing cords for documentation.

choosing a material that is rigid enough to anchor the textiles but at the same time thin enough to give the appearance of tacked-on upholstery. In this case, the seat has half-over-the-rail upholstery making it relatively straightforward to design a removable system; the material used to cover the tacking edges can slide downwards and be finished directly above the line of the show wood. However the inclusion of springs, which are usually supported onto webbing tacked to the underside of the rails made this treatment more complex. In effect the solution required two separate sections; the lower section must support the springs on a rigid surface and the upper part should provide a location to attach the new underupholstery and deep-buttoned muslin filling cover with tacks (due to the substantial stress from tension in the buttoning pleats) and the new showcover and trim with stitching. Figure 2 shows a view from the top of the removeable system that was designed and made to fulfill these requirements.

For the lower section, the simplest solution would have been to exchange the webbing for a piece of plywood or other continuous solid material. However due to the access needed for the long buttoning needle in the following stages of the upholstery, this easy solution was not suitable. Instead a plywood lattice was made using 4mm plywood that was cut into six strips, each one slightly shorter than the area between the rails, and they were assembled with lap joints so that the springs could rest on a flat surface. The position of the lattice strips was copied from the location of the original webbing on the underside of the seat rails using fragments of webbing and clusters of tack holes for reference. The lattice was strong in the middle but the ends of each strip flexed at the joint, so three extra

pieces of plywood were glued on the underside of the front-to-back strips to increase the overall strength.³

For the top section a frame was made to sit exactly onto the chair frame using 1 cm thick poplar. As fragments of the original lashing cords, spring cover cloth and filling cover remained on the seat rails, the new poplar frame was raised above them by gluing little pieces of wood on the underside of it, in between the original elements, preventing them from being squashed (fig. 3). Four strips of black, muslin-covered 1 mm model-makers plywood were glued, with white wood glue, to the outside edges of the poplar frame; they extend down and cover the tacking edges on the chair rails.⁴ The muslin was adhered with Beva 371 film on the back of the plywood and kept loose on the outside so that the new showcover could be stitched in place.

In order to connect the wood frame and the plywood lattice together to make one finished system, two-part brass brackets were designed and fabricated. For each a brass plate was screwed into a brass post and the assembled brackets were secured to both wood sections with screws.⁵ The removable structure is lowered down and sits on top of



Figure 5. Sofa (MFA 1982.479) before treatment, at the top, the seat materials are falling down and the front stitched edge has collapsed. After treatment, at the bottom, the seat is supported and returned to its original profile with the new damask showcover.



Figure 6. Side chairs (MFA 1982.482 – 1982.485) before treatment, on the left, the 20th century jute webbing tacks are loose and the seat is falling down. After treatment, on the right, the seat is well supported and the new damask showcovers are in place.



Figure 7. Side chairs (MFA 1982.482 – 1982.485) before treatment, on the left, shows the 20th century jute webbing and lashing cords tied to the bottom of the springs. After treatment, on the right, the new linen webbing is tacked to the poplar frame and the brass plates of the brackets are visible on each side.



Figure 8. Working sketch shows the options explored for the brackets, the chosen design is circled at the bottom left.

the original seat rails. Figure 4 shows that the plywood lattice is at the same height as the original webbing. The springs are tied vertically to prevent upward pressure before being secured to the plywood using strips of linen folded around the bottom coil and stapled.⁶ A piece of the 20th century jute webbing has been retained for documentation. Figure 1 shows the condition of the chair now, with its treatment almost complete.⁷

Mid-nineteenth century upholstered parlor furniture

One of the major upholstery displays in the new American Wing galleries at the MFA will be the Roswell Gleason parlor.⁸ The parlor was dismantled from the house and brought to the museum in the late 1970s. However, the museum did not have the opportunity to acquire the original contents that had already been dispersed, so instead a set of mid-to-late nineteenth century Boston-made parlor furniture was bought for it in 1982 using a photograph of the Roswell Gleason Parlor ca.1870 for historical reference. Previous to this treatment, neither the room nor the furniture has ever been on display at the MFA.⁹ In total the set includes



Figure 9. Poplar frame, at the top, for the side chairs, with sliding tenons at the back joints and notches cut at the front joints. The lower profile follows the shape of the chair rails. The frame for the sofa is shown at the bottom, with a straight rail at the back, a curved rail in the front and two straight rails between held together with L-shaped brackets. The notches for the spring coils are visible. Both frames have Z-shaped top brackets and flat brass plates held together with a bolt and wing nut.

one sofa, two armchairs and four side chairs.¹⁰

The sofa, small armchair and the side chairs retain the original underupholstery including the iron springs. The small armchair retains all of its original webbing and tacks with new 20th century webbing tacked over it for additional support.¹¹ Likewise, the sofa has both original and later webbing although many of the webs are torn and the attachments have failed. With no support the seat materials are falling out of the bottom, which has caused the seat edge to collapse (fig. 5). None of the side chairs have any original webbing; they



Figure 10. Underside of the sofa (MFA 1982.479) before treatment, shows the original webbing below later jute webbing, a piece of the original dust cover remains along the front seat rail. The horsehair filling that has fallen through the torn spring cover cloth is visible.

have replaced jute webbing which is now stretched, powdering and weak. Figure 6 shows that some of the tacks have come loose and the springs are hanging down.

After examination, the green silk velvet show covers were found to be the third generation; there was evidence of two previous green show covers including small fragments of the original satinweave green silk.¹² Treatment required removing non-original materials, tying the springs vertically to reduce pressure on the upholstery above, supporting the upholstery from underneath and the application of new show covers. The seat rails all have compound curves so a flat support was not possible, making designing a way to add new webbing under the springs without attachments into the chair frame the most complex part of the treatment.

The four chairs were treated first; once the replacement jute webbing was removed allowing free access to the underside of the seat, the decision was made to build a separate frame where new webbing could be tacked or stapled (fig. 7). The first challenge was to design a suitable frame and the second was to find a way to secure it under the seat and prevent it from moving up and down. The new frame had to follow the shape of the rails so that it would not be visible after treatment; however, there was initial concern that shaping new curved rails would be too time-consuming. Designs were suggested using a square frame, with Ethafoam placed in between the chair rails and the new frame to fill the gaps, but measurements showed that the springs could not fit inside a square frame.¹³ In order to have an idea of how long it would take to make a shaped frame, a mock-up of one side rail was executed in balsa wood; based on this experiment, it was decided to make new shaped wood frames out of poplar.

The height of the new frame rails was determined by the method of attachment to the chair rails. Figure 8 shows several options that were explored including using screws, although metal brackets that hang from the chair rails are the preferred non-damaging alternative. If the new rails are full height or the brackets extend any distance towards the center of the seat, the original upholstery will be damaged. Angled rails and angled brackets are too complex to make in multiples. The last draw-



Figure 11. At the top, one of the two sofa frames in position, the later webbing has been removed, the original webbing has been rolled up for access, the springs are tied vertically and the linen cords are stitched front-to-back and side-to-side to keep the springs in position. At the bottom, the original webbing is unrolled into place and new linen webbing is stapled and tacked to the poplar frame. The piece of the original dust cover is laid down and will have a textile support to keep it in position.

ing at the bottom shows the design for the new frame with the Z-shaped brackets and flat plates that were made for this treatment. The Z-shaped bracket at the top prevents the new frame from moving downwards and the flat plates on the bottom prevent it from moving up. Bolts and wing nuts connect the two brackets through the new rail. As the access to the nut will be limited once the frame (with the webbing attached) is in place, the holes were drilled close enough to the vertical parts of the upper brackets so that the wing nut is prevented from turning when the bolt is screwed from the underneath. This design feature means the nut tightens on its own without needing to be held. Pieces of self-adhesive felt were added to the brackets in contact with the top and bottom of the chair rails to avoid scratching the surfaces and crushing the wood fibers.

To make the new frame, the side rails were cut first, followed by the front ones. Sliding tenon joints were chosen to connect the side and back rails together, located at the stiles. A simpler and faster solution was adopted for the front where notches were cut out of the end of the side rails to receive the front rail (fig. 9). Two dowels were inserted from the sides to reinforce the joints. This simple joint prevents all the rails from moving inwards. To prevent any damage to the chair rails and to help the new frame slide in, the face in contact with the chair frame was covered with thick Mylar adhered with Beva 371 film. Once the frame was finished, the underneath was stained brown so that it would coordinate with the color of the original rails.¹⁴ Figure 7 shows the completed frame with the brackets in place.

New challenges arose with the sofa. Unlike the side chairs, the original webbing was preserved and even though it was broken in many locations; some ends were attached, which prevented the use of a pre-assembled frame that would slide into the seat (fig. 10). Using the same rail profile and brackets, two frames were designed and made that could be assembled in situ; one on each side of the central rail¹⁵ (fig. 9). During treatment the webbing was rolled up, from the broken end towards the attached end, to give access to the working area (fig. 11). First, the front and back rails were cut, following the shape of the sofa rails. Once in place,

two straight rails were prepared and positioned between the rows of springs. Again, sliding tenon joints were used to connect the rails together but were not glued so that the frame can be taken apart easily in the future. Instead, L-shaped brass brackets were made and screwed on either side of the joints once all the rails were in place. In addition, notches were cut along the straight rails to allow space for the lower coils of the springs (fig. 9). Once the frames were assembled, the original webbing was unrolled and new linen webbing was stapled between the back and front rails directly under the rows of springs; no webbing was attached side-to-side. Figure 11 shows a view with the original webbing back in place with the new linen webbing tacked onto the new frame.¹⁶ With the frames in place, the upholstery was returned to its original position before the green damask showcover was applied (fig. 5).¹⁷

Conclusion

Treatment challenges that arise in upholstery conservation are wide-ranging and sometimes cannot be adequately solved and executed by one conservator. The need for brain-storming between conservators and other professionals who approach problems with different skill sets and thought processes is often necessary to reach the best solutions. These two projects have shown how upholstery and furniture conservators at the MFA worked together with mount-makers to design and make wood frames and brass brackets for a number of upholstery conservation problems. Treatment was completed on a small nineteenth century chair where the original springs were supported by a plywood lattice and the replacement deep-buttoned upholstery was attached with tacks and staples into a new poplar frame that sat on top of the chair rails. The finished seat is completely removable giving access to the fragments of original upholstery that remain on the object. In a separate project a new solution was found to support springs and attach new webbing onto frames that either slide inside the chair rails or can be assembled from the underside of the seat when the original webbing remains in place. Both frame types are secured in place with simply designed brass brackets and carefully positioned bolts and wing nuts. All of the treatment solutions were successful; the original materials are adequately supported, the frames will not be visible to the viewing public and they all held in place without any fixtures into the original materials. It is important to recognize that each one was designed for these specific problems but they can be adapted according to the exact requirements of future upholstery conservation problems.

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Endnotes

1. George Hunzinger was a German born cabinetmaker who had businesses in New York City in the second half of the nineteenth century. Accession # 1979.625.

2. See Barry R. Harwood. *The Furniture of George Hunzinger: Invention and Innovation in Nineteenth-Century America.* Brooklyn, New York: Brooklyn Museum of Art, 1997.

3. For a future similar treatment, thicker plywood or solid wood is recommended.

4. This idea was taken from the treatment of the MFA French furniture, made for Marc-Antoine Thierry de Ville d-Avary in 1787. The frames were designed by Remy Brazet and Michel Jamet during conservation treatment in 2001. Details of that project are published in *The Museum of Fine Arts*, an *Apollo Magazine* publication, 39–44.

5. Brett Angell, Exhibition Preparation Collections Care Manager, designed and made the brackets.

6. This method was used in American upholstery

in the 1830s and 1840s when springs were placed onto board bottoms. Examples are at Lyndhurst, National Trust for Historic Preservation, Tarrytown, NY.

7. The blue rep show cover was chosen because blue cotton fibers, thought to be original, were found on the chair frame. Cotton rep was advertised by Hunzinger and is found on other surviving examples, including chairs at the Brooklyn Museum, NY. The central embroidered stripe is being handmade by Gabriella Beranek, from a design "Stripe for a chair" published in *Peterson's Magazine*, December 1877, discovered by Kelly H L'Ecuyer, Ellyn McColgan Assistant Curator, Arts of the Americas, MFA.

8. Roswell Gleason was a pewter and silverplate manufacturer who built a house in Dorchester (Boston) in the 1840s.

9. The Arts of the Americas wing will open at the Museum of Fine Arts, Boston in the fall of 2010.

10. The upholstery was missing on the large armchair and was recreated with Ethafoam. The springs in the small armchair were tied vertically to reduce pressure on the original materials above and below and the later 20th century jute webbing was retained.

11. No frame was required for this treatment.

12. Because the furniture was destined for a period room with original green walls, the decision was made to use new green silk damask as the showcover using a design documented in America in the 1850s. The fabric was woven by Gainsborough Silk Weaving Company, UK, purchased through Belfry Historic Consultants, Lynn, MA.

13. Indeed it was not any easier to cut shaped Ethafoam and attach it to straight wood than it would be to cut shaped rails.

14. Stain was made with pigmented shellac.

15. As the treatment would take a number of weeks the sofa was hung upside down on a scaffold. The sofa legs were wrapped with twill tape to hold long straps that were slung over a platform on the top of the scaffold. This unusual position was adopted because many of the spring ties (holding the top coil to the spring cover cloth) were broken and the spring cover cloth was torn from its tacks in many places. Resting the sofa on its back resulted in the upholstery materials slumping downwards causing further damage; not an option for long-term treatment. Using the scaffold, the sofa was safe and the working area easily accessible. Dante Vallance, Collections Engineer, designed and directed the scaffold construction and sofa hanging process for us.

16. The piece of the original brown cotton dust cover will be supported onto a new textile lining that will be attached to the new frame.

17. Additional treatment using stitching was required to draw the collapsed stitched edge forwards to its original position on the front seat rail. Trim will be applied around all of the "tacking" edges (exchanged for stitching during this treatment) with adhesive.

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Figure 1. Condition of carriage in the store at the Heritage Conservation Centre. The rattan cover at the top was later found to be not part of the hearse.

Conserving a Straits Chinese hearse

Alvin Tee, Heritage Conservation Centre, Singapore

ABSTRACT

The paper is based on a large wooden artefact which was conserved for the National Museum of Singapore's History Gallery. The artefact is the funerary hearse of Tan Jiak Kim (1859–1917), one of the pioneers of Singapore. He was a Straits Chinese merchant and a community leader. The paper will give a brief account of the Straits Chinese community, the significance of the hearse and the complex issues encountered during conservation treatment.

The elaborately-carved hearse is a rare Singapore artefact and it represents a period of reform in Straits Chinese funerary practices in the early twentieth century. Its carvings bear distinct evidence of European and Chinese styles. The hearse was acquired in the 1970's as separate parts with no specific document or image of how the parts should be re-constituted. Putting the component parts together was one of the challenges of the conservation treatment.

The objective of the treatment was to retain its historical and aesthetic integrity by restoring it to the extent that it can bear its structural load when fully constituted. Conservation treatment started in mid-2005 with seventeen components, thirteen of which were in complete form. Poor storage had resulted in accumulated dirt and metal corrosion. There were numerous broken carvings, severe structural damage, missing structures and termite infestation.

Treatment was carried out in several stages. Thirty to forty per cent of the structure was either damaged or missing. The missing parts included two important roof structures and a wheel. All these are important support structures. Identifying suitable skilled craftsmen to fabricate replacement parts proved another challenge. The specifications then needed to be carefully and precisely communicated with the craftsmen and builders.

Introduction

The paper discusses the conservation of a large wooden artefact for the National Museum of Singapore's inaugural exhibition in December 2006. The artefact is the funeral hearse of Tan Jiak Kim (1859–1917), a Straits Chinese merchant and a community leader. The paper will give a brief account of the Straits Chinese community, the significance of the hearse, the complex issues encountered during conservation treatment and the collaborative experiences with contractors and the craftsman.

Tan Jiak Kim (1859–1917)

Tan Jiak Kim was a wealthy merchant running a family business in Singapore, Kim Seng & Co, and also a philanthropist. He was born in Singapore on April 29, 1859.¹ He was the eldest son of an established merchant Tan Beng Swee (1828–1884) who moved to Singapore from Melaka in the nineteenth century.

Tan was the longest-serving Chinese member of the Legislative Council in Singapore (1890–93; 1903–15), and was also a member of the Municipal Commission (1888–92; 1894–97). He served as

the Hokkien representative on the government's Chinese Advisory Board (1890–1906); a committee member of the Po Leung Kuk;² a Justice for the Peace (1891–1917); a member of the Tan Tock Seng Hospital Committee (1896–1916); and a member of the Opium Commission (1908).³

Tan was also a supporter of education. He was trustee to the Chi Ok Free School, the Raffles Institution and the Anglo-Chinese School, and donated generously to the schools. Tan led a petition to the authorities for the establishment of the Straits Settlements Medical School. Together with the business community, it raised funds for the establishment of the medical college in Singapore.⁴ In 1912, he was made a Companion of the Order of St Michael and St George.

He died on October 22, 1917.⁵ His funeral procession took place seven days later on October 29, 1917, attended by many, including British government officials and businessmen.⁶

Straits Chinese/Peranakan

The Straits Chinese, also known as Peranakans, were descended from immigrants from China who came as seafarers or merchants and eventually settled in what became the Straits Settlements of Penang, Melaka, and Singapore. Many of these Chinese came from Amoy and other parts of Fujian Province in China. Fujian maritime networks were known to have flourished between 1570 and 1760, "resulting in the establishment of sojourning communities in Nagasaki, Manila, Banten, Batavia and Melaka."⁷

Those Chinese locally born and raised in these areas are thus known as the "Straits Chinese." They are also referred to as Peranakans, meaning "local-born." Peranakan families can also be found in other parts of Southeast Asia such as Indonesia and Thailand.

These locally-born Chinese in the Straits Settlements, while retaining Chinese traditions and cultures assimilated with the local culture in some customs of dress, food, and language, resulting in a distinctive community in the nineteenth and twentieth centuries. The Straits Chinese men were known locally as *Baba*, more mature women as *Bibik*, and younger women as *Nonya* or *Nyonya*. The language was a mixture of a Chinese dialect (often Hokkien), Malay, and later English after it became the principal language of education among the Straits Chinese.⁸

The British East India Company established their interests in Penang and Melaka from the late eighteenth century and in Singapore from 1819. The three entities were united to form the Straits Settlements in 1826. The Straits Chinese also adapted aspects of British and European culture, and the mid-eighteenth to the mid-nineteenth century has been regarded as "the heyday of the wealthy *Baba* elite and entrepreneurs. It was then that they became westernized."⁹

Most were acquainted with European lifestyles, and such was reflected in their eclectic tastes in furniture and furnishings. They were proud of their established position in the British Colony and to be known as British subjects. The Peranakan men were not uncomfortable donning European-style suits, could speak in English and engaged in English sports while still retaining their Chinese and local traditions and culture. The women typically wore the Malay dress consisting of the sarong (an ankle length batik skirt) and the *baju kurong* (a long blouse) or the *kebaya* (a shorter, more formfitting blouse).

The construction of the hearse

This unconventionally-styled hearse was custommade for Tan's family. It has the elements of European, Chinese and Malay design, reflecting the eclectic tastes of the Straits Chinese.

The capitals and cornices of the eight columns of the hearse, the knobs which adorn the topmost frame, carvings of floral and fruits reflect the European influences which are seen in Rococo/ Renaissance revival period furniture, which was inspired by studying the ancient Greek architecture. Chinese influence can be seen in the curling ends at the corners of the roof ridges, and the carvings of Chinese copper coins, chrysanthemums, peonies, and geometric meandering motifs on the roof frame. The carved floral motifs with coiled leaves and branches, known as *Awan Larat* (Driving Clouds) on the top-tier roof is a design which can be found on Malay houses.¹⁰

Most Straits Chinese furniture in Penang, Melaka and Singapore was probably made by skilled Chinese cabinet-makers, most of whom came from Shanghai from the late 19th century.¹¹ As Ho mentioned, "(t)he older generation of surviving *Babas* and *Nonyas* will readily tell you that the bulk of their antique teak wood furniture was made by *tuk angs* Shanghai,"¹² referring to Shanghainese carpenters who migrated to the Straits Settlement.

An elaborate hearse of this scale could only be afforded by the wealthy. This grand hearse is a testament of Tan's wealth and status. The funeral procession traveled from his home in River Valley Road to the family graveyard in Alexandra Road.¹³

Conservation

Storage condition

The hearse was stored in a shed in the compound of Panglima Prang, the residence of the Tan family. It was discovered by Keng Ah Wong of Tong Mern Sern Antiques. Keng informed the museum curators who, in turn, contacted one of Tan Jiak Kim's great grandsons residing at Panglima Prang, who decided to give it to the museum.¹⁴

Partial previous restoration was done on the carving with elm wood by a restorer, Chan Hong Cheong, before it was donated to the museum. He was unable to complete the job as he had to move out of his premises.¹⁵ The museum acquired the hearse in a disassembled state during the 1970s without documentation as to how the parts should be re-constituted. There was also no image of the hearse in its fullyconstituted form. The search for documentation about this funerary hearse proved futile and no published sources on Chinese and Straits Chinese hearses could be found. The Straits Chinese hearse of Tan Jiak Kim was indeed unique.

There was no proper museum repository before Heritage Conservation Centre (HCC) was completed in 1998. The hearse, like several other artefacts in the museum's collection, was stored in the most unsuitable environments, unrivalled to the conditions of the current Centre. Large objects including the carriage of the hearse were for a period of time stored behind the old National Museum building, unsheltered, under the mercy of sun, rain, and the humid conditions of Singapore. Poor storage had resulted in metal corrosion and accumulation of dirt on the surface.

In 2005, the museum curator, Jason Toh, selected the hearse for the museum's inaugural exhibition on the history of Singapore. The exhibition design proposed a contextual display of the hearse. Conservation treatment of the hearse commenced in the middle of that year.

Artefact condition

Seventeen main components of the hearse were identified. These were a carriage (fig. 1) with three wheels and one incomplete wheel, four carved side-skirts, four carved panels, two roof-support frames, two parts of a three-part big roof, one part of a two-part small roof, the other part of the small roof (severely damaged with losses), one crown, and a wooden pole. There were also numerous broken wooden carvings (fig. 2) from the hearse which had gaps of missing carvings. Besides those, assortments of other pieces were initially identified as possible components but eventually found to be not parts of the hearse.



Figure 2. Example of broken carvings salvaged from the store.



Figure 3. Damaged smaller upper-tier roof.

The condition of each component was assessed and found to have different degrees of loss and damage. Three pieces were more severely damaged with structural losses.

One of the wheels of the four-wheeled carriage had suffered severe losses and all that remained were the hub and spokes, of which only three were still attached to the hub. A temporary support had earlier been built for storage purposes. However, this crude make-shift support was also damaged and deformed, thus causing the carriage to warp. The rubber rims on the three wheels had hardened and flattened, showing multiple crack lines as a result of degradation through time and exposure. Prolonged compression from the weight of the carriage had also caused permanent deformity to the shape of the rubber.

The other two damaged parts were the smaller upper-tier level roof (fig. 3) and its support-frame (upper-tier frame). The roof had fifty per cent structural losses. The frame showed evidence of termite infestation which caused structural weakness. The roof and the frame could not be safely assembled with each other.

Cross-sectional study showed two coatings on the wooden surface: a layer of lacquer over a layer of black paint. The lacquer had degraded beyond treatment and was flaking. It was brittle and some of it came off with swabbing while cleaning. Although the loss of lacquer was major, it did not affect the aesthetic of the finish as the losses were almost 90%, revealing the shiny black paint. Thus we did very little consolidation. The pigment that was used to coat the wood was an oil-based paint. This was in very stable condition and no treatment was required. We concluded from the crosssection of the wood that the black paint layer is part of the original surface of the hearse, not a later intervention. The black paint layer on the metal roof was also studied, and the same conclusion was drawn that it is part of the original surface.

The coating on the carriage was noticeably dull and weathered compared to the other parts. This was probably due to the conditions it was subject to when it was stored outdoors and exposed to the elements.

Stage One: Treatment

Conservation treatment started in mid 2005. In HCC, our approach towards treatment is guided by the objectives of retaining historical and aesthetic integrity. It was emphasized that all effort would be made to avoid and prevent any means of restoration which would alter the original appearance of the hearse, or which would lead to misinterpretation of its functional and historical significance.

The treatment was carried out in various stages, involving six objects conservators and a part-time staff specially hired to assist in surface cleaning.

Conservation treatment started with surface cleaning. A thick and stubborn layer of dirt had accumulated over the years of storage in uncontrolled environments, and it was difficult and tedious to clean. Deionised water was used to remove the dirt. This simple undertaking of surface cleaning proved to be unexpectedly painstaking and extremely time-consuming. The size of the object contributed to the lengthy process.

We deliberated two options to treat the severely damaged wheel. One option was to reconstruct the missing and unsalvageable parts of the damaged wheel with wood. The other option was to use sculpting foam to shape the missing components and to design a mount fitted with wheels for mobility.

The former was a more permanent intervention than the latter, and had the advantage of giving stability to the artefact. On the other hand, sculpting foam was easier to remove should the need arise.



Figure 4. Aftermath of termites infestation.



Figure 5. Treatment completed, filled with microballoons in Paraloid B-72 .

Eventually, the decision to reconstruct the wheel was made, based on critical needs. The carriage and its wheels formed the main support of the hearse. Thus, it was essential that the carriage, including its wheels, be able to withstand the entire weight of the assembled hearse, a complex and heavy structure with wood panels, a double-tier roof structure, and a crown. Reconstructing the wheel would also make it easier and safer to maneuver the hearse in the museum. Although a support-mount would be made to take the weight off the wheels, the wheels could act as a secondary support should the mount fail, in which case having four wheels would ensure a more even weight distribution than three.

A piece of wood located above the fifth wheel at front of the carriage which served to stabilize the hearse and prevent it from toppling while in motion proved a challenge to conserve. It had suffered more than forty per cent structural losses from termite infestation (fig. 4). The termites had left a well-engineered multi-tunnel highway in the wood. Treatment was done in situ as the wood was aligned with the fifth wheel by a metal rod, and difficult to remove without further damage. We saw the need to fill up the tunnels in the wood and needed a material with a certain degree of hardness and stability. After deliberating between wood filler and micro-balloons, we chose the latter as they do not shrink like wood fillers do, and they harden when dry.

Micro-balloons mixed with twenty per cent Paraloid-B72 in acetone and black pigment was used as filler (fig. 5). The mixture was malleable with a certain degree of viscosity, allowing us to fill not only the tunnels visible from the top, but also the small tunnels which were more inaccessible. This was helpful for filling up the tunnels without leaving much hollow space in the structure. We wanted to pre-

vent unfilled gaps, as uneven distribution of the filler could result in uneven stresses which may cause breakage due to the weakness of

the wood. Another advantage of using the mixture is that twenty per cent Paraloid B-72 acts as a consolidant to strengthen the inner thin wall.

The lever, metal rod, carriage springs and fifth wheel were made of iron. The iron corrosion had left the surfaces uneven. A brass wire brush was used to remove the corrosion product and tannic acid was used to convert the iron corrosion to ferric tannate, a protective blue-black film.¹⁶ A coat of microcrystalline wax was applied to give a protective coat.



Figure 6. Trial assembly of the hearse without carriage. The middletier roof and smaller upper-tier roof are missing.

Corrosion on the carriage had also caused a moveable mechanism to lock in place. This mechanism was a manual brake for the hearse. The brake could be applied by pulling a lever. The thick corrosion was impenetrable causing the brake to permanently lock into position.

The numerous pieces of broken carvings were matched and reinstated to their original positions with PVA adhesive. Despite our efforts to match all the broken pieces, there were several which remained unattached.

Stage Two: Re-assembly

The first stage of conservation treatment was completed in September 2005 and the hearse was ready for assembly. As mentioned earlier, there was no documentation of how the hearse should be assembled. We studied the components and found that the maker had left markings of "X" and "XI" on the carriage, side panels, and side-skirting which helped us to identify their relative position. The components were arranged according to the markings and placed beside the carriage, awaiting assembly. It took two preliminary assembly attempts to confirm the positions of the components. At the first preliminary assembly, we constructed the hearse from the carriage to the lower-tier frame, stopping short of the lower-tier roof structure. We were unable to complete the assembly due to the height of the hearse and the lack of equipment. Thus, another exercise was carried out to assemble the hearse from the side panels upwards to the roof structure, without the carriage (fig. 6).

At this stage, we were able to identify missing and damaged items. From the assembly, we noticed that the middle section of the lower-tier roof was missing, and one of the severely damaged smaller roofs sits on top of the bigger roofs. The uppertier frame that the two smaller roofs sat on was partially damaged by termites.

The condition of the hearse at this point, with structural losses and weaknesses, made it unstable, unsafe, and unsuitable for display. Its incompleteness also affected its aesthetics, and was inappropriate to the contextual display of the hearse.



Figure 7. Cross section of *Tectona grandis* at 25X magnification.

Stage Three: Reconstruction

In order for the hearse to be safely on display, we decided to intervene. We saw the need to re-fabricate the missing components and rebuild the damaged parts. The objective was not to fully restore the hearse, but to provide stability to the extent that it can safely bear its structural load when fully-constituted, and restore enough to portray the significance of the object.

As we lacked adequate carving skills, and also in view of the size and weight of the hearse, we decided to out-source part of the work and collaborate with parties with the relevant expertise and equipment for the project.

We identified four components that required reconstruction and restoration, incorporating, as far as possible, the original pieces of the hearse. The wheel and the middle portion of the lower roof needed to be rebuilt. One part of the uppertier roof was severely damaged and required intensive repair. The upper-tier frame required structural strengthening. Details of the requirements are set out in the following table.

We set out to look for contractors known for good workmanship, sound knowledge and competence, meticulousness, and able to carry out most of the work within the premises of the Centre. Five companies were invited to quote for the job, and a briefing about the requirements was conducted.

	Components requiring extensive recon-
	struction and restoration
1	Wheel The spokes, wooden rim, metal rim, and rubber rim needed to be fabricated. Wood could be used as a substitute for rubber if the latter was not available.
2	Middle section of lower-tier roof This was to be rebuilt and provided with a galvanized zinc finish like the original.
3	Upper-tier frame This structure required extensive repairs which included fabrication of its missing carvings.
4	One part of the two-part upper-tier roof This needed to be rebuilt and re-fabricated while incorporating the few available and us- able elements from the original. It was also to be provided with galvanized zinc finish like the original.

Only one company – Hup Gay Engineering Private Ltd -submitted a quote. The other companies declined to quote as they were unable to find craftsmen for the woodcarvings.

Hup Gay is not a restoration company. It is a civil engineering and construction company with experience in woodwork. It managed to find an interior decorator who did woodcarving as a hobby who attended the briefing and was confident to undertake the task. From this point, we leveraged on their resources and skill to meet our requirements. During the discussion about the choice of wood to be used for reconstruction, Hup Gay identified the wood that the hearse was made of as teak (fig. 7) and this was later confirmed by the Director of Singapore Botanical Garden with the help of Herbarium Department. The Scientific name of the wood is *Tectona grandis (Verbenaceae)*.¹⁷ The common names are teak, jati and India oak. Teak is commonly found in Southeast Asia.



Figure 8. Reconstructed wheel for the carriage. Two original spokes were salvaged and incorporated into the new wheel.



Figure 9. Reconstruction in progress. The contractor has skillfully merged the damaged small middle-tier roof with a new frame.

The contractor took few pieces of detached carvings and other parts of the hearse necessary for the fabrication to their workshop. When the fabrications were completed, they returned with the original pieces to the Heritage Conservation Centre where the assembly of the different parts took place.

The contractor started with the fabrication of the wheel. They closely followed the shape, measurement and construction method of the original rear wheel of the carriage. Wooden spokes, wooden rim, outer metal rim and rubber rims were replicated. Most of the original spokes were damaged by termites, and only three were identified as structurally sound and safe for incorporation the new fabricated wheel. A light abrasive was applied to the reconstructed wheel (fig. 8) to smooth out the wooden surface, after which it was coated with black emulsion paint.

The middle section of the lower-tier roof had suffered close to ninety-five structural losses. However, we managed to match its few broken pieces of carvings and formed an initial idea of its design and construction method. We identified its skeleton frame, a broken wooden panel, blocks of decorative carvings, and carved panel-divider, which also functioned to secure the panels of carvings. Together with some clues from the flanking roof structures, we were able to complete the fabrication confidently and correctly. We used the same construction methods identified on the original parts. The skeleton frame was constructed with butt joint method, wood glue and nails. Barefaced tenon and through dovetail joint connected the carving panels.

Fifty per cent structural losses had

occurred on one part of the two-part upper tier roof. These two roofs and their base frames mirrored each other. The base was built according to the mirroring roof's base and the contractor skillfully merged the damaged structure with the newly constructed roof (fig. 9). With the mirroring roof for reference, the reconstruction of this roof was smoother and faster.

The upper-tier frame which secured the upper-tier roofs required structural strengthening. Its short side had been infested by termites which chewed away the wooden substrate, leaving only a thin



Figure 10. Fully constituted hearse on display at the museum.

skin of outer casing. The infested portion was cut away and joined with new teak wood.

All the reconstructed wooden parts were painted with semigloss emulsion to blend with the existing colour. The original roofs were overlaid with galvanized iron. As we could not find anything similar, steel sheets were used instead and later toned to match the original in appearance. This was completed by a set painter from the museum's design consultancy firm, GSM. The artist matched the colour well and the reconstructed metal roof blended seamlessly with the original. The rubber linings of the external rims of the wheels had vulcanized to the stage of hardening and deformity, causing the carriage to distort. This was particularly dangerous and unsafe for assembly. Two mounts were designed and custom-made to lift the wheels slightly off the floor, thus taking the weight of the hearse. This allowed us to adjust to level the hearse carriage in balance before full installation. As the built up hearse is over 4 meters (13 feet) in height, this leverage is important to prevent the structure from toppling during display.

Full assembly of the hearse took place for the first time during installation at the museum gallery. On the day of installation, scaffoldings were erected along the sides of the carriage to give us more height. As we had assembled parts of the hearse several times by then, and had puzzled out how the pieces fitted, the final installation took less than three hours to complete. The installation of the crown on the hearse marked the end of this epic project. This was the first time we saw the hearse in its fully reconstituted form (fig. 10).

Summary

The conservation and reconstruction work of this elaborate hearse took 925 hours. It measures 3.3 meters in length, 1.7 meters in width and 4.17 meters in height. This project was complex in terms of conservation and restoration, requiring us to strike a balance between the conservation standards and level of interventive treatment to make the object safe for museum display. About 35% of the hearse was restored. This level of restoration was unprecedented at the Centre. The objective of this project was not to fully restore the hearse to its original, early twentieth-century condition, but to conserve as much of the original components and structures as possible and reconstruct the unsalvageable parts so that the hearse can be appreciated by the public.

This project called for some specific knowledge and skills outside conservation expertise. Hence, outsourcing and collaboration helped us to complete the task. The engineering company provided the expertise necessary to make the wheel, the metal parts of the roof, and intricate decorative carvings. The excellent opportunity to draw on the strengths of a non-conservation firm came with some challenges, from which we drew valuable learning points. As the firm was of a different industry, they could not be reasonably expected to be aware and conscious of the extent of care and conscientiousness needed to handle artefacts. They also needed reminders about how significant and important the museum collection was. Close supervision was crucial throughout the project.

This Straits Chinese hearse is unique in the museum collection and conserving it was a great learning experience for the team of conservators and contractors. We hope that the documentation of the process might serve as useful reference for similar projects.

Conservation team

Supervising Conservator: Timothy Hayes (Senior Conservator) Co-ordinating Conservator: Alvin Tee (Senior Conservation Officer) Team Members: Lee Swee Mun, Angie Liow, Ishak Ahmad, Woo Mun Seng Part-time assistant: Albert Choong Alvin Tee, Objects Conservation Section. Heritage Conservation Centre. 32-Jurong Port Road, Singapore 619104 Email: alvin_tee@nhb.gov.sg / alvin_teesg@ yaho.com.sg

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An investigation of pigments and binding media on painted early New England furniture in the collection of the Museum of Fine Arts, Boston

Carola Schueller and Michelle Derrick

ABSTRACT

The research project is investigating the pigments and binding media of forty-one pieces of chests, chairs, stools, chest of drawers, boxes and cupboards. The paint examination and analysis of three case pieces are presented. Optical examination included the study of the pigment morphology and stratigraphy in reflective and ultra violet light. Particles were analyzed using scanning electron microscopy and Raman spectroscopy. Binders were investigated with infrared spectroscopy. Main pigments and colorants found are: red and yellow ochers, including hematite and goethite, red lead, lead white, bone black, carbon black and indigo. The project is ongoing and results will be made accessible via an online database.

Introduction to examined group of MFA New England furniture

The Museum of Fine Arts, Boston (MFA) hosts a significant collection of furniture with painted decoration from New England, manufactured between 1640 and 1740. These important artifacts from the early colonial period have been the subject of extensive art historical research (Randall 1965, Fairbanks 1982). However this is the first comprehensive effort to examine and analyze their pigments and binding media. This paper will present the first results of an ongoing research project started in the MFA's Furniture and Frame Conservation Laboratory in collaboration with the Scientific Research Laboratory in 2006 as part of a Sherman Fairchild Fellowship.

During 17th and 18th century many joinery and carving shops were active in New England. The craftsmen who emigrated from England or who were being trained by English emigrants continued to produce furniture in the Anglican tradition. Designs, woodworking and decoration techniques often resembled those of the region from where the joiners and cabinet makers came. Therefore most of the pieces derive their form and ornamentation from Anglican furniture of the same period.

The group of furniture includes various types of seating furniture such as stools and chairs as well as storage furniture like cupboards, chests, chests of drawers and boxes. Examined pieces mostly employ regional and readily available woods like oak and pine. A few of the pieces are also made of maple, cedar, walnut, chestnut, or ash. Construction techniques range from simple structures of butt-joined panels for chests and boxes to more extensive frame and panel joinery like for cupboards. Dovetail construction for box furniture is rare. Construction elements of stools and chairs are often prepared of unseasoned wood so that natural shrinking secured the joints to a tight fit.

Decorative techniques vary: plain surfaces of simple chests are entirely colored with a dark background onto which flowers, banding of leaves and branches or other ornaments are applied. The wooden decoration on other pieces, mainly high quality chests and cupboards employing frame-and-panel construction, consists of elaborate shallow relief carving depicting stylized flowers, leaves and floral strapwork. The background to the carving is left rough and frequently painted to highlight the carved patterns. The carved decor is often combined with applied moldings, diamonds and half columns known as "split spindles" painted black or red. The latter was probably meant to imitate more expensive and less readily available woods like ebony and mahogany. The rather sophisticated architectural design is reserved for prominent pieces in a New England household.

Methodology of sample preparation, examination and paint analysis

For each color two samples were removed from representative painted areas on each piece for examination and analysis. The samples were cut along the grain using a scalpel. Sample sizes did not exceed 8mm in length, most samples were smaller. Each sample contained all paint layers along with the wooden substrate. Digital close-up photographs of the sample locations were taken before and after sampling. Sample locations were additionally mapped on overall images of the object.

Portions of each cross section were mounted in Bioplastic[®] polyester resin and polished dry with MicroMesh[®] sanding cloths (silicon carbide crystals on cloth-backed sheets). The cross sections were examined in far (340-380nm) and near (425nm) ultraviolet light as well as in reflective light using a stereomicroscope. Sketches of the paint stratigraphy and morphology of samples were produced and digital photomicrographs in different magnifications ranging from 50x, 100x, 200x to 500x were taken to record optical characteristics of pigments, binders and varnishes. In all cases, identification of the lowermost paint layer was our primary focus.

For morphological examination by scanning electron microscopy (SEM) the cross sections were mounted on carbon tape. In addition, energy dispersive spectrometry (EDS) was used to gain information on the elemental composition of each of the individual paint layers.

To confirm results and to obtain information on

molecular composition some colorants were examined by Raman microspectroscopy. Additionally, the non embedded portions of each sample were flattened on a microdiamond cell and binding media and coatings were analyzed by infrared microspectroscopy (FTIR). Both Raman and infrared spectra of the unknown materials were compared to digital libraries of reference materials for identification. In a few cases, mainly for black organic colorants, pigments were examined under polarized light.

Analysis results of three case pieces

In comparison with research undertaken at other institutions (Safford 1998, Buck 1993) the palette of pigments is even more restricted and only a few very common colorants were used. Likewise, the range of shades is usually limited to light and dark red shades and black. In addition to the red and black, some pieces showed other colors including white, yellow, blue and brown. The most common red colorants found were red ocher (hematite) and red lead. Occasionally paints were found to contain vermillion and realgar. The primary black colorant was bone black with occasional occurrences of carbon black, and iron black. The pigment used for white paint was usually lead white, but occasionally lead sulfate, gypsum and calcite were detected. The yellow was typically yellow ocher (goethite). One blue colorant used was found to be indigo. The binding medium for the pigments is of proteinaceous nature. Ongoing work will identify the type of protein by high-performance liquid chromatography (HPLC). All colors found are common pigments at the time of manufacture. Three representative pieces were selected to illustrate the analysis techniques and results.

Box attributed to Thomas Dennis

Portable boxes were widely used to store valuables and precious possessions like documents and small items of personal relevance.¹

The document box attributed to Thomas Dennis (1638–1706) is made of oak and white pine. The



Figure 1 left. Overview of sample locations on box (MFA 40.723), attributed to Thomas Dennis, American (born in England), 1638–1706, from Ipswich, Massachusetts, woods: oak, pine, dimensions: 24.13 x 64.77 x 36.04 cm.

carcass consists of simple panels joined with nails. The front is decorated with flat chip carving of alternating foliate shapes surrounded by elongated S-scrolls. The box is painted in different shades of red: proud areas and the palmette carving is dark red with an even sheen, the paint on the recessed areas is bright red and matte, and the S-scroll carvings are accentuated by a dark translucent wash (fig. 1).

A box of comparable dimensions made of oak about 1620 from the M. Buckmaster Collection shows a very similar design and paint scheme: scrolls in juxtaposition which are painted alternately in blue and red (Edwards 1964).

Paint samples were taken from the three different front shaded areas, the scrolls, the palmettes and the background. Samples showed up to three paint layers with a transparent top coat (fig. 2). In two samples there seemed to be non-continuous areas of a separate paint layer next to the wood. The second lower paint layer is dense and pigment rich so that

Figure 1 right. Location sample 2 of Box (MFA 40.723) removed from red painted palmettes. Also visible is the matte background area and the dark-colored foliate shapes.

individual particles are not visible. The outermost layer consists of much bigger particles dispersed in a white fluorescing binder.

Examination with SEM/ EDS of the red particles in the discontinuous thin paint layer adjacent to the wood yielded silicon (Si), aluminum (Al) and a high content of iron (Fe). This may indicate the presence of aluminum-silicate rich clay that



Figure 2. Sample 2 of box (MFA 40.723) removed from red painted palmettes in ultra violet light.



Figure 3. SEM-EDS spectra for sample 1 of box (MFA 40.723) showing aluminum (Al), silicon (Si) and iron (Fe) in the lower layer indicating the presence of red colored clay and barium (Ba) and sulfur (S) in the upper paint layer, indicating the presence of barium sulfate.



Figure 4. FTIR spectrum of sample 1 of box (MFA 40.723) removed from dark foliate shapes compared with references of indigo and protein.

contains iron oxide elements such as in the earth pigment red ocher. Raman spectroscopy affirmed the presence of hematite crystals, thus iron oxide crystals.

In the second and the thick outermost paint layer iron oxide was found as well. Additionally SEM/ EDS detected the elements also barium (Ba) and sulfur (S) the paint of the S-scroll carvings which indicates the presence of barium sulfate (fig. 3). Barium sulfate was commonly used as a whitener, filler or extender, but not typically as an artists' pigment before the late 18th-century (Feller 1986). Thus the paint layers containing barium sulfate are likely to be later additions and not part of the original paint.

The dark wash on the scrolls was found to be organic in nature. The black organic pigment was possible to identify as carbon black under polarized light. Further analysis with FTIR detected indigo to be mixed with the carbon black particles (fig. 4). Investigations with FTIR on the nature of the yellowish white fluorescing binder for red paint revealed typical amide bands in the transmission pattern corresponding to reference spectra of protein. To confirm what type of protein was used —animal glue or milk protein—further chromatographic analysis with high-performance liquid chromatography (HPLC) is planned. The presence of beeswax most likely refers to a top coat.

It was possible to identify the remains of the lowermost and most likely original red paint layer which is composed of red ocher in a protein binder. This layer was distinguishable from later paint application by identifying the late 18th century additive barium sulfate. The binder was found to be of proteinaceous nature. Paint made of ocher pigments in glue is very common, easy to make and also durable. It still needs to be investigated if pigments like red ocher which frequently occur in clay-carrying river beds were produced in New England or imported from Europe.



Figure 5. Overview of sample locations and example of sample location on cupboard base (MFA 1990.337), about 1680, probably from Woburn, Massachusetts, woods: oak, white pine, dimensions: 82.6 x 127.6 x 58.1 cm.

Cupboard base, about 1680, probably Woburn, Massachusetts (MFA 1990.337)

This cupboard base, which is missing the upper part, dates from about 1680 and was probably made in Woburn Massachusetts (fig. 5). The upper compartment might have followed other press cupboards in design and shape with a trapezoidal recessed upper section with an overhanging cornice supported by turned balusters at the front corners. A comparable piece is part of the collection of the Metropolitan Museum of Art, New York.

The cupboard base is constructed from oak and white pine. It has three long drawers. Their drawer fronts are subdivided by upright panels with S-scroll carvings suggesting two drawers in each row: one center panel on the upper drawer, and three panels on each of the two lower drawers, at the drawer ends and in the middle. The upper drawer has a concave front decorated with elaborate shallow carving of mirrored S-scrolls, flowers and leaves and a centered flower head in a circle. The rough backgrounds of the carving are painted black and red. The two lower drawers have applied moldings suggesting panel and framework with a thin red wash applied to both panels and moldings. The panels at the center drawer show a dotted pattern, the panels of the lowest drawer have a wavy pattern both imitating lively veneers. The moldings of the lower drawers have been coated with a thin red wash as well. The sides are partly painted black with quarterrounds in the corners and an oval field in the center. The entire piece appears to have been re-varnished.

Samples were taken from the bright red and dark backgrounds, proud areas of the carving and the painted decoration of the side.

Optical examination of the red paint cross sections revealed two paint layer generations separated by a thin layer of dirt. The lowest layer is incoherent and thick and consists of small bright red particles dispersed in a binder without a specific fluorescence.

The SEM/EDS analysis of this layer shows iron, aluminum and silicon symptomatic of the presence of natural red ocher. FTIR analysis confirms the presence of aluminum silicate, thus clay; the spectrum resembles a kaolin type of clay. Raman analysis of the lower layer affirms the presence of hematite particles (fig. 6).

Some areas of the red background of the carving show a mixture of red and yellow, as well as red and brown particles in a white-yellowish fluorescing binder.



Figure 6. Raman spectrum for red paint on cupboard base (MFA 1990.337): The top line represents red particle lowest layer and the bottom line represents the hematite reference. Both red and yellow particles contained aluminum, silicon, and iron, typical for ocher. SEM images revealed the distinct difference in particle shape with the yellow particles being elongated, with sharp needle like edges. FTIR analysis made it possible to confirm goethite, a yellow natural earth mineral. SEM/EDS analysis of other cross section samples with dark particles dispersed in the red paint layer show manganese as a trace element which indicates the use of dark ocher like the earth pigment raw umber.

Black paint samples show only a few black particles of distinct shape with sharp edges spread in a transparent binder. The results obtained from SEM and FTIR analysis indicate that more than one type of colorant was used. In some samples the black paint layer primarily contained calcium while FTIR showed calcium carbonate as the main component. SEM/EDS analysis of other black samples showed a high content of iron in black layers which points to the use of iron oxide black but the identification yet needs to be confirmed by other methods. In other areas calcium and phosphorus were found as minor elements suggesting that bone black might have been added to the paint.

FTIR analysis shows that the pigments in most red and black paint samples of the cupboard base were in a protein binder.

Finally, red ocher partly consisting of pure hematite crystals and a kaolin type of clay was found in the lowest layer. Lighter shades of red were accomplished by adding the yellow pigment goethite; darker ones by modifying the red paint with raw umber.

Various black pigments have been used to obtain black paint. Since black colorants are easily and quickly produced by burning organic material such as bones and wood or by collecting soot from oil lamps, black paint might have been made from what was readily available.



Figure 7. Overview sample locations on joined chest (MFA 1978. 1685, from Kittery, Maine or Portsmouth, New Hampshire, woods: oak and pine, dimensions: $77.5 \times 128.9 \times 54$ cm.

Even though in New England in the 18th century most painters still imported their paint materials from abroad, (Vanderhoof 1977) common pigments like black and natural ochers might have been produced locally.

Joined Chest (MFA 1978.382), from Portsmouth New Hampshire or Kittery, Maine dated 1685

The joined chest, dated 1685, was made in southern Maine or the New Hampshire coastline region (fig. 7). It combines frame and panel joinery at its front, with the sides and rear made of simple boards. The uprights to the front and the horizontal rails of the frame work are decorated with flat carving showing alternating scrolls and circles. They frame three panels, with the center one incised with circles and a shield showing initials and date "IS 1685." The outer panels have low relief leaf decoration arranged around the circle motif.

The background of the panels is painted yellow and the circles and leaves are light red. The scrolls are painted black. Samples were taken from the yellow colored background, the black inner area of the leaves as well as the light red leaves' outline and the circles.



Figure 8. SEM image and spectrum of sample 2 of joined chest (1978.382) showing spectrum location and needle like goethite particles in the lower paint layer as well as the high peak for iron, (Fe) typical of pure iron oxide naturally occurring in many clays.



able to confirmed red lead, lead white and lead sulfate. Infrared analysis revealed lead white along with lead drier and lead sulfate. It is likely that these are byproducts of the original paint manufacturing process but further examination is needed.

Pigment literature mentions that red lead is not very durable when mixed with sulfates and the presence of lead sulfate might have contributed to the dark overall appearance of the red colored areas. All the samples were found to

Figure 9. Cross section of sample 4 in UV light of joined chest of cupboard base (MFA 1978.382) taken from red painted circles.

The cross sections of the yellow background areas show two layers of paint with a dense lowest layer of bright red-yellowish particles. Examination by SEM showed the small finely ground, needle-like particles and the SEM-EDS analysis detected the elements iron, aluminum and silicon indicating the presence of a natural ocher (fig. 8). The FTIR spectrum confirmed the presence of goethite and clay in a protein binder.

Samples of red paint show coarsely ground particles. By sanding, single coarse particles split open and revealed a white inner area and a red outer area (fig. 9). SEM-EDS analysis showed a high lead component of all areas of these samples leading to the conclusion that red lead was used. Further analysis aimed to find out if the different colors in one single particle can be traced back to the pigment production process. It is known that red lead could be obtained by burning lead white (Schramm, Hering 1988). Raman spectroscopy therefore aimed at confirming oxalates for the outer red areas. Unfortunately it was not possible to confirm this theory but the Raman analysis was be bound with a protein binder.

Pigments like lead white and red lead are very likely to have been imported from England. In the 1684 inventory of Boston painter Daniel George, the full range of pigments common to the time is listed. Because of the quantity of certain pigments it has been suggested that George also sold pigments to other painters. The inventory is striking not only in the quantities of pigments listed but also in the variation in the quality of fine and coarse red lead and lead white. Lower quality paint was cheaper and might have been used for minor quality work such as for house and furniture paint. (Fairbanks 1982). The finding of such coarse ground lead pigments on the joined chest seems to confirm that lower quality pigments were used for painting furniture.

Presentation of results in MFA database

The extensive amount of information generated in this study is summarized in a database. The database includes a general list of all pieces of furniture


Figure 10. Page dedicated to individual pieces of furniture and data entry page compiling all images and analytical results.

with an overview of physical data and provenance information. Additionally, each piece of furniture can be selected and a further page provides the art historical information as well as an area for the overall summary of the analysis (fig. 10).

A data entry page collects all the results and photographs taken of each individual piece including images sample locations and cross sections in different magnifications and light sources. Once the data and images are placed in the computer, the database format allows the user to readily search and compare results between the varying pieces to look for patterns and similarities.

The Furniture and Frame laboratory in collaboration with the scientific research department of the Museum of Fine Arts is planning to make this set of analytical information available to users via the internet. This database will be an important research resource contributing to the investigation of technical aspects on colonial New England furniture.

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What color is the sky on their home planet?

Lessons learned from collaborations in the bizarre world of mass media and public appearances

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ABSTRACT

Virtually every one of us has experienced encounters at dinner parties or similar where, when learning what we do for a living, the response is almost always, "Wow. That sounds like the neatest thing ever." Yet one of the greatest challenges facing the conservation community is the struggle to engage and be understood and supported by the general public. Our apathy towards aggressively cultivating this constituency has been a missed opportunity of monumental proportions. I believe that continuing along our collective path of inaction in this regard will redound poorly toward our efforts for preserving patrimony. But it is not an incurable problem.

In some ways it is natural for us to avoid public evangelism for conservation, as it requires a skill set generally foreign to us, a mind set antithetical to our preference for quiet solitude in the lab, and a tolerance for patiently nurturing collaborators and audiences who "just don't get it." These missed opportunities are all the more troubling given the compelling nature of what we do, and it is high time we get off our backsides and make conservation awareness something more than isolated instances. If we can create a whole new cohort of stakeholders, the sky will be the limit for our programs.

This presentation will be both a celebratory and cautionary tale reflecting on my recent efforts to bring conservation to the general public resulting in a successful preservation book written in everyday language, a C-SPAN documentary segment, a preservation-based television series pilot, over 100 public and broadcast presentations and almost 100 news articles, and the bizarre cast of characters and situations I encountered along the way.

From mid-2004 through the end of 2007, I had the opportunity to focus extensively on media and public appearances as an advocate for the field of conservation. Since I have long held a passion for teaching folks how they could preserve their own heritage artifacts, it was an amazing opportunity to spread the principles and practices of conservation to audiences whom I would have probably never been able to engage otherwise. These opportunities derived from not only my longstanding practice of public speaking and teaching but most notably the publication of a book titled "Saving Stuff" for the Simon & Schuster imprint Fireside Books, and the following publicity. That endeavor included dozens of public appearances and scores of television and radio appearances, and literally hundreds of inclusions in print media. On the official release date for the book, I had two television appearances, five radio interviews (first one at 5:45 AM, last one ending at 1:00 AM) and five print interviews. An intense time of public exposure immediately following the release of the book in June 2005 eventually calmed down, but engaging the public remained part of my central activities for another two years, including filming a lengthy segment for a C-SPAN documentary and a pilot for the Smithsonian Networks and feature articles in numerous publications.

This period was mostly one of success, occasional instances that were less successful, (no career killers, but having only one person show up for a public presentation is a humbling experience) but most of all one of intense learning on my part. I became increasingly aware of a skill set necessary for communicating in the public square, skills that are almost unknown if not downright antithetical to the mind-set of most conservators. For whatever motive, most conservators accomplish little in the world of mass communication, an unfortunate situation given the compelling nature of our work. This is a missed opportunity almost impossible to calculate.

Think of the last time you attended a social event populated mostly by non-colleagues. What was the response when you told people what you did for a living? My guess is that it went something like this: "Wow, that sounds like the neatest job And the respondents were correct. What ever!" we do is really neat. It takes a fair bit of effort to render our work uninteresting, but if the typical conservation conference presentation is any indicator, we are definitely up to that task. Some years ago I was meeting a friend in the lobby of the AIC conference hotel for dinner after the session. He arrived early, stuck his head into the presentation hall, found me and sat down until the session was over. Later he asked simply, "Man, how often do you guys do that to yourselves?"

As a profession we are inept at communicating beyond our boundaries because we choose to be. But it is a natural human activity that need not be overly odious if we accumulate even the most rudimentary skills. Talent is definitely not a prerequisite for success in this arena; just turn on the television if you doubt me.

There are many opportunities and frustrations in seeking out public exposure for conservation, but neither is unlimited and the latter is not insurmountable. In this paper I will present three sets of concepts I learned along the way to help you steer through the reefs. First is the rationale for seeking a higher awareness of conservation within the media and the general public. Next comes my interpretation of the skill set you need to cultivate and practice in order to do it better than you did it before. Finally comes a litany of things you have to learn to tolerate if you embark down this path.

Good luck!

Why cultivate the mass media and public?

The benefit of communicating about what we do to a broader world strikes me as self-evident, but as I look around at the conservation landscape it is apparent that few of my colleagues understand or acknowledge the urgency. Certainly it is not being acted upon very well.

For starters, very little of the world we inhabit even knows of our existence. If you've ever been introduced as a "conservationist" you recognize the problem. My favorite introduction was as a "From Washington, a Conservatorialist [sic] from the Smithosian [sic] Institute [sic]." I almost wish they would have identified me as a "Washingtonbased conspiratorialist." At least that would have been closer.

But the problem goes much deeper than a malapropism from someone outside the seminary: virtually none of the society we inhabit recognizes artifact conservation beyond the context of blockbuster projects, such as the Statue of Liberty or the Star Spangled Banner or mega-dollar artworks. They have no idea that such an enterprise calling itself "conservation" even exists on a day-to-day level. That is entirely our own fault.

Even worse, is that the public and mass media have no idea about the principles and practices we espouse, even though these ideas would be helpful to them in preserving their own personal and family heritage. It is a very short step from preserving family heritage to preserving community heritage, and but a hop from there to preserving societal heritage and institutional collections. Yes indeed, I believe there is a gigantic cadre of willing accomplices for artifact preservation out there, all they need is to be recruited.

Becoming well known can be an integral component to marketing a private practice, garnering grants for specific projects, obtaining fiscal strength for an institutional lab, or even maintaining the existence of yourself within the institutional framework. Funding entities, whether from the voluntary sector or the confiscated sector, appreciate and enjoy seeing their efforts recognized and touted as being instrumental in the continuation of good works. They don't necessarily see conservation support as part of their overall communications strategy, but it never hurts your cause with them either. You will not find any fixed relationship between publicity and funding but it is all part of the calculus. The whole world of marketing and advertising is built on this foundation.

Conversely, seeking to be simply left alone within your marketplace or institution, never searching out avenues for presenting your work is—not to put too fine a point on it—career suicide. Being invisible within an institution's hierarchy is only a tiny shuffle away from being absent from the institutional hierarchy. There is an old saying about conflict within academia and non-profits:

The smaller the ship, the meaner the rats.

If you are not visible and well-known, the meanest rats will eat you in a heartbeat once resource allocation becomes contentious. Like, for example, tomorrow.

Finally, the greatest benefit to cultivating a public presence through the media or presentations is that it can be plain old fun. In all my years, only once has my presence been met with apathy, much less hostility. People think what we do is too cool for words. Invariably their enthusiasm is invigorating and contagious, even for an asocial curmudgeon like me.

The skill set

The good news is that working with the media and the public does not require any specialized theatrical talent and training but instead relies on a fairly narrow set of skills that are "will" oriented. If you want to become good at these collaborations, you can. If you don't, you won't. In fact "skill set" may even be overstating the case, as many of these attributes are as much temperamental as they are facile, but they are all improvable with practice.

Here's my short list:

- Comfort at being on display
- Speaking clearly and concisely
- Affability
- Camera and microphone comfort
- Wardrobe
- Script writing
- Story boarding
- Marketing and promotion
- Self appraisal

Comfort at being on display: If you are so uncomfortable with having people look over your shoulder that you go into a catatonic paralysis, then being on public display may not be your cup of tea. I could be rude and tell you to get over yourself, but I realize that some people are simply pathologically disinclined for this aspect of the task. Some years ago I was speaking at a conference and one of the other speakers was so uncomfortable and nervous I thought they might literally faint. But the paper was presented and the presenter survived, and although I did not know this person I was extremely proud that they could get to the end.

Like almost everything else, being on display gets easier the more you do it.

Speaking clearly and concisely: Can you get your point across in thirty minutes? Fifteen minutes? Five minutes? Fifteen seconds? Unless you have practiced getting a message communicated quickly, the odds are not in your favor. Conservators are notorious for taking forever to get to the point. We resent our correspondents' desire to pronounce the bottom line, as we believe it undermines our elegant scholarship. Get over it, and get to the point.

Consider the following two scenarios, wherein two folks are riding on an elevator. One of them is a conservator, one of them is not.

Opportunity lost: two dopes on an elevator

ONE: Nice day. Too bad we're stuck in here.

TWO: Sure is a beaut. Fortunately I'm not really stuck here.

ONE: You don't work for Dewey, Cheatham, and Howe?

TWO: No, I'm just here to consult with Mr. Dewey.

ONE: Really? What do you do?

TWO: I'm a conservator. (With arrogant pride)

ONE: (sneering after brief pause) W. is an idiot.

TWO: Huh?

ONE: Bush is an idiot.

TWO: What's that got to do with me?

ONE: Huh. I guess you're an idiot too. All conservatives are idiots.

TWO: I'm not a conservative, I'm a conservator. *(Emphasis added)*

ONE: *(much relieved)* Oh, cool. I watch the Nature Channel all the time.

Elevator bings.

ONE: *(getting out)* Nice talking to you. Good luck with the baby seals.

TWO: *(shouting around the door)* Conservator, not conservationist. I fix broken stuff...

Consider how different the scene is when the conservator has thought things through enough to get to point more quickly.

Opportunity found: a concise message ONE: Nice day. Too bad we're stuck in here.

TWO: Sure is a beaut. Fortunately I'm not really stuck here. I just came in from my studio.

ONE: You don't work for Dewey, Cheatham, and Howe?

TWO: No, I'm just here to consult with Mr. Dewey.

ONE: Really? What do you do?

TWO: I'm in conservation. We help people preserve their most precious artifacts, from the family Bible to Grandma's wedding dress to priceless artworks.

ONE: You preserve all that stuff?

TWO: I specialized in furniture and decorative arts, you know, old silverware, candlesticks, stuff like that.

ONE: Wow. How'd you get into that?

TWO: It takes quite a bit of experience and learning on everything from fine art to cutting edge materials science. I've been learning non-stop for over fifteen years, and I'm one of the new ones.

ONE: That's gotta be about the coolest job ever.

What's the neatest thing you ever fixed?

TWO: Oh, probably the [fill in the blank]

elevator bing

ONE: *(holding the elevator door open)* Hey, my dad has Che Guevara's cigar box. I'll bet he wants to talk to you how to preserve it. Can I have your card?

TWO: Sure enough (has one handy)

ONE: Thanks man. I'll give you a call. (leaves)

One of the hardest things I've learned in the past few years has to do with attention span. For most of the media and the public, it's really short. You have to capture their attention before you can spin long, complex yarns. Once while I was doing some filming I was waxing eloquent on some technique for preservation. When I was done the director asked the cameraman for the time code. The answer was that my explanation took about 35 seconds. The director asked me how I could cut the explanation into six or seven segments. That's right—broadcast type presentations are targeting audiences with a *five second attention span*.

Unless you learn to string together snippets rather than spout soliloquies, your efforts will wind up on the cutting room floor.

I love doing radio interviews, especially those with caller participation. It enforces a certain discipline; I have to say something useful in a few seconds, or a minute at most. Long droning soliloquies are memorable in their forgettableness. If I could not fit my information into their mold, I would never be invited back.

Affability: Can you project congeniality? For hours at a time? Be it fair or not, the media and the public prefer not to interact with cranky people. Except, perhaps, to ridicule them. We're a friendly bunch for the most part, so just keep that going and you'll do fine.

Hint: humor is a boon, especially gentle wit, so use it whenever it is appropriate.

Camera and microphone comfort: There's no such thing as "personal space" when a camera or microphone are involved. They are in your face at close range all the time. Learning to "act naturally" in a most unnatural setting was hard for me. The C-SPAN crew used to laugh at me for always talking to them and not the camera. It was a very difficult habit to break, and one I gravitate toward even now. The camera is the audience, and that's just plain weird when it's only a foot from your face.

Wardrobe: Those of you who know me are probably chuckling before I even say anything. Alas, video HATES plaid. I'm a lifelong member of the "Plaid Flannel Shirt Club" so overnight my entire wardrobe was obsolete except for my radio appearances. It came as a great discomfort to buy a whole new set of clothes for myself, emphasizing solid colors and casual business attire. Fortunately the system can tolerate lively suspenders, so at least I had something.

Wardrobe is such an important part of video production that there are usually at least two people keeping track of it for continuity when filming requires several sessions spread out over days, weeks, or months. For single appearances, ask someone where you are appearing what clothes they would like you to wear. Or even bring several options. It's a simple thing. And if the blow-dried hostess is wearing a cranberry outfit, your choice of burnt orange will present a problem that can be easily avoided if you can substitute something in a powder blue.

I cannot believe I'm talking like this.

Script writing: Actually, skillful writing of just

about any sort will be helpful. No, wait, that's not correct. Skill at writing a good detailed conservation report will be a severe detriment to communicating in the world of normal humans as that sort of writing is esoteric, arcane, and off-putting. Conservation reports are to writing what medical transcriptions are to speaking: jargon filled compilations purposefully incomprehensible to anyone who does not know the secret handshake. If you want to put someone in the media or the public to sleep, hand them a long, convoluted treatment report. (Is that redundant?) Works every time.

What you need to do is participate or even control the process that puts words in your mouth, and making those words sound life-like. You must stake out this territory early in any production or you will find yourself fighting with the crew about every single line, and you will get the well-deserved reputation of being "difficult to work with." Jump into the creative process as soon as you are able. Craft the words yourself ahead of time so you don't have to eat them later.

Story boarding: Not surprisingly, thinking visually is one of the most important things when dealing with the media. After all, we are visual creatures for the most part. One of the first video producers I worked with kept yammering about "what the camera sees." It's a difficult thing to conceive at one level, as you are not where the camera is, you are what the camera is pointed at.

Even when dealing with radio, paint word pictures with your phrasing and word choices. Learn to use analogies that the average person can identify with.

Marketing and promotion: Yes, you must involve yourself in the icky world of marketing and selfpromotion. The reason for it is straightforward: either you craft your message, or someone will craft it for you, and usually they will get it wrong.

In a sense you have to envision yourself and your

message as commodities that need packaging and shelf space on the media supermarket. Last summer I had a summer intern, not unusual in itself, but this time my intern was a marketing student rather than a conservation hopeful. She was fabulous at pulling together my past appearances into a manageable record to create a publicity package for future use.

Make a press kit for yourself, and think about having a boilerplate press release ready to go, needing only the title and details to be filled in (the place where you put the particulars you are trying to announce). And know where to send them!

We live in a world with an insatiable "news," infotainment, and propaganda apparatus. They have to fill their seconds and inches with something, and it might as well be you.

Self appraisal: You don't necessarily need to become your own harshest critic (I promise you that others will eagerly volunteer for that task) but you do need to take the time to study your performances. I try to have my public and teaching presentations filmed whenever possible, and yes, I do sit and watch them afterwards. It's about as much fun as a root canal, but like everything else, you have to practice and critique yourself in order to hone your presentation skills.

This often leads to places you don't expect. When you are a viewer, suddenly that favorite story just doesn't work, or worse, serves only to impart confusion. Or your presentation wasn't suited for that particular audience. Or that one gesture looks stupid. Don't pick your fingernails on camera. Stop saying "obfuscation" and "deleterious." You need a haircut. Tuck in your shirt.

Things to tolerate

In addition to the attributes just listed, you have to learn to tolerate a whole lot of things if you want to swim in this particular pool. The media and the public are at their best when you can deal with them on their own terms, not on your own terms. That means you have to overlook a lot of potential irritants as you work with them.

- You *will* be misquoted
- You *will* be inconvenienced
- You *have to* repeat yourself... a lot
- You *have to* be schedule-flexible
- You *must* subjugate "truth" to "facts"
- You will be fussed over
- You *must* look and sound right
- It's *not* all about you
- You will be criticized by colleagues

You will be misquoted: Here's a shocker; the mass media won't always get it right and your words will be misquoted, misrepresented, or downright mangled. They do it to the President, they do it to famous people, they're gonna do it to you. Live with it. Even when you are doing radio or video, you can be edited in such a way as to completely miss the point. You cannot control that. Live with it. The mass media is not picking on you, it's just how they operate. My experience is that the people in the media are usually exceedingly talented at, well, being in the media. Their knowledge about anything we might think of as important is nearly nonexistent. Given that, there's no way for them to know what is real, true, or important. Live with it.

You *will* be inconvenienced: If you want to collaborate with the mass media, you have to expect that they live in their own operational framework, and that it most certainly bears little resemblance to yours. If you insist on not being inconvenienced, pretty soon you will not have to worry about it because the media opportunities will dry up. Rearranging your workspace for the umpteenth time because that's how it works better on camera is just part of the price of doing business.

You *have* to repeat yourself...a lot: Revisiting a shocker from a few lines ago, you will find your-

self working with media folks whose knowledge is, um, incomplete when it comes to what you do. Or about anything else in reality. You have to repeat yourself a lot when dealing with them. In one interview for what turned out to be an excellent newspaper feature article, I spoke the same information FIVE TIMES over 90 minutes, and still some of the details were presented incorrectly. I've just learned that sometimes if I have thirty seconds, I may only present ten seconds of information, but I'll present it three times in the hopes that it will stick. If you are filming, you may have to do a "second take" or a third or an eighth. And if you speak to the public, remember that each time the audience is hearing your ideas and information for the first time. Don't cheat them, they deserve better.

You *have* to be schedule-flexible: When dealing with the media everything takes twice as long as you expect, and you often have half as much time as you need. The odds of you and the film crew being ready for the same activity at the same time are slim to none. Being prepared and ready on a moment's notice will garner you a lot of credit that you may have to draw against at the right time.

You *must* subjugate "truth" to "facts:" Truth requires a lot more time than you will ever have. You don't have time for a complete context required by "truth" so stick to the facts. You have to attribute a certain honesty to the audience to seek out more information to construct the truth, but you simply don't have the time. Knitted together, the facts you present can form a larger fabric but you have to learn to be economical with your words and ideas, and prioritize them.

You *will* be fussed over: Maybe it's just me, but having people fuss over my face and hair and clothes is kind of creepy. It's probably something I could get used to given enough decades. Every time I went on camera it happened, except for C-SPAN. They were brutally honest. However you looked was how they filmed you. For studio appearances I even took to carrying my own brush, hair spray, and skin deglosser pads. I really cannot believe I am saying this.

You *must* look and sound right: The media and the public are looking for congenial authority figures; do you look like one? Do you sound like one? You needn't be young and beautiful and mellifluous. But you do need to look comfortable in your own skin, and you have to project a quiet expertise. If you are not a good presenter, you can fix this with a speech class at the local community college. Diction, syntax, and cogence count.

It's not all about you: I hate to tell you, but the public sees you mostly as an entertaining side show and the media sees you as a programming commodity, not a person. Your mission is to present the ideas of preservation and conservation, so you may have to set aside some of your own amusements for a time. Learn to focus on the people you are trying to inform. They have a passion about their heirlooms, not about you.

You *will* be criticized by colleagues: To a certain extent I was ready for the waves of criticism that never emerged. For the most part my colleagues, especially outside my workplace, were enthusiastic about my efforts. In part I think that was because I was encouraging my audiences to support their local museum conservation efforts and to patronize private conservators with their family heirlooms. That is not to say that everything was peachy all the time. While I heard few direct face-to-face criticisms, over the years I have heard utterances like:

"He didn't deliver perfect information." (In other words I presented facts rather than truth)

"He's diminishing the nature of the profession" (by demystifying it)

"You are harming your reputation and professional stature by speaking to the general public."

"Who does he think he is?"

"Don is such an egomaniacal media hog."

Fortunately I have a reasonably thick skin, and the confidence that I am right and my critics are not.

The rewards

In the end I have found great rewards in seeking out new avenues for presenting conservation and preservation. For starters, I get to witness (and hear follow-up later) people changing their behavior at a fundamental level regarding the preservation of their own heritage artifacts. There seem to be a lot of people interested in the message; thus far I have had hundreds of exposures for The Cause, and the invitations keep coming. I have been able to enhance and broaden my own experiences and expertise in the preservation of material culture through interactions with thousands of people and their artifacts. And finally, if I let myself go, it can be a whole lot of fun.



Mid-nineteenth century parlor sofa from the Museum of Fine Arts, Boston, before and after upholstery conservation treatment. See page 39.

