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The 2011 AIC annual meeting in Philadelphia, PA, offered an opportunity to showcase the tremendous range of issues with which objects conservators regularly engage. The session consisted of a total of eighteen papers and a luncheon over a period of three days, and aimed to look broadly across the Objects Specialty Group (OSG) to define some of the pressing challenges of contemporary conservation practice.

The first afternoon session, on May 18th, was dedicated to issues of archaeological conservation—both in the field and in the museum. The session began with a luncheon co-sponsored by OSG and the Archaeological Discussion Group and featured a lively set of presentations on the ethics of archaeological conservation by Dr. Nancy Odegaard, Harriet Beaubien, Eric Nordgren, and Angelyn Bass. The rest of the afternoon was enriched by papers on research and decision-making in archaeological fieldwork by Donna Strahan, Harriet Beaubien, and Emily Williams, who work in field contexts including the Granicus Valley in Turkey, various sites in Central America, and Colonial Williamsburg, respectively. Suzanne Davis and Claudia Chemello discussed their findings about the nature of collaborations between conservators and archaeologists, while Susanne Grieve spoke of the complex issues raised by collaborations between conservators and members of the public. Finally, Ariel O’Connor presented an elaborate conservation treatment on archaeological glass from Nimrud now in a museum context.

The morning session on May 19th focused on the social impact of conservation treatments and collaborations, and considered the importance of the intangible aspects of the objects that conservators are often called upon to conserve. This session looked at the use and renewal of objects and the relationships they make possible through the conservation process. Truly international in scope, the session began at the Australian Museum with Vinod Daniel’s and Don Peita’s paper on Pacific Islander collections. Next, Ainslie Harrison, Chuna McIntyre, Kelly McHugh and Landis Smith discussed their successful collaboration in preparation for the Smithsonian’s Arctic Studies Center exhibit. Shabnam Honarbaksh, Heidi Swierenga and Mauray Toutloff delved into the new kinds of access made possible by the reinstallation of the University of British Columbia’s Museum of Anthropology’s collection. Victor Sobhani and Sonjel Vreeland discussed the religious and cultural aspects of conserving historical objects of the Baha’i faith, while Dr. Sujeong Lee chronicled the myriad challenges of envisioning and drafting a conservation code of ethics for Korea. The final paper of the session, presented by Stephanie Hornbeck, looked at the international and local efforts to conserve Haiti’s cultural heritage after the devastation of the 2010 earthquake.

The final part of the OSG session, held on May 20th, began with three papers on conservation issues in modern and contemporary art. Christel Pesme questioned the various conceptual and conservation changes made to a work by Joseph Beuys in the Centre Pompidou, Paris. Gwynne Ryan discussed the challenges of the conservator specializing in contemporary art. The paper by Eleonora Nagy, Bettina Landgrebe and Shelley Smith considered the material but also conceptual issues associated with retaining or replacing original components of works by Donald Judd. The second half of this session looked further at material and research approaches to
conservation treatments. Lori Trusheim’s paper discussed how her decisions on how to conserve an 18th century object required extensive contemplation of the AIC Code of Ethics. Tony Sigel’s paper outlined the multiple stages of analysis and decision making that led to the successful treatment of a Bernini terracotta. The final paper, by Ellen Carrlee and Lauren Horelick, introduced conservators to an extraordinary resource developed by the authors, i.e., a methodical, well-illustrated study of the fur of over 50 animals used in objects of cultural heritage.

The papers mentioned above are testament to the myriad issues that objects conservators encounter in their professional practice. I am extremely grateful to all of the speakers who shared their expertise and experience throughout the OSG session, and would like to give my added thanks to those who contributed written papers to this Postprints volume. I am also indebted to the dedicated team of conservators who worked relentlessly to ensure that the work shared at the annual meeting was documented and made available to the OSG membership in the form of Postprints. Christine Del Re, as Postprints editor, completed the Herculean task of gathering and editing the papers and keeping the authors on track. Carolyn Riccardelli designed and implemented the formatting of the Postprints, presenting its readers with an extremely attractive and thoughtfully organized volume. The AIC Publications Committee has also been working to provide the appropriate platform for making the Postprints available electronically, and I am grateful to the many members of that Committee for their careful work. It was a privilege to serve as OSG Program Chair, and it is a humbling and gratifying experience to see the work of the speakers reflected here in this volume.

**Sanchita Balachandran, OSG Program Chair 2011**
BEYOND THE FIELD LAB: EMERGENCY CONSERVATION IN THE GRANICUS RIVER VALLEY IN NORTHWEST TURKEY

DONNA STRAHAN

ABSTRACT

Over the past fifteen years, field conservators at the archaeological excavation of Troy, Turkey have been asked to provide emergency conservation on freshly looted tomb material from the region of the Granicus River Valley. This area in northwest Turkey was controlled by both the Greeks and Persians during the first millennium BCE. Looting became increasingly rampant due to the gold and silver objects still present in many of the tomb mounds. The regional Çanakkale Archaeological Museum does not have conservators on staff, thus when tomb looters were caught, the material they were robbing was often left in a precarious condition. The Director and archaeologists of the museum turned to the nearby Troy excavation conservators to assist them.

In their haste to retrieve the precious objects, the looters damaged the less valuable material leaving destruction in their path. Examples to be discussed will include a tomb with painted marble beds, exploded ivory, and disintegrated wood furniture; a superbly painted sarcophagus that was opened with a backhoe; a burial’s funeral cart; and the material in a child’s sarcophagus.

This cooperation between the foreign excavators and local archaeologists allowed important cultural property to be preserved and published. The museum has added an additional room to display the sarcophagi and painted marble beds. This paper will discuss some of the treatment difficulties and accessibility to the material in storage.

REFERENCES


DONNA STRAHAN received a B.A. in Chinese Language and a M.A. in the Conservation of Ethnographic and Archaeological Objects from George Washington University. Over the past twenty years she has been a conservator at the Conservation Analytical Laboratory, Smithsonian Institution; The Walters Art Museum, Baltimore; and Head of Conservation, Asian Art Museum in San Francisco. Since 2006 she is the conservator at The Metropolitan Museum of Art focusing on Asian objects. Her major interests are the technology and preservation of ancient metals and Asian lacquer.

Donna was the senior field conservator, at the archaeological sites of Harappa, Pakistan and Tell Es-Sweyhat, Syria, where she designed and set up conservation field laboratories. Since 1994 she has served as the chief field conservator at site of Troy, Turkey. At all sites she has been responsible for treating freshly excavated materials, lifting fragile field finds, identifying materials and technologies, recommending housing and storage of the finds; and supervising and training conservators and students.

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RECOVERING PAINTED ORGANIC OBJECTS FROM ANCIENT MESOAMERICA: STRATEGIC CONSIDERATIONS IN THE FIELD AND THE LAB

HARRIET F. BEAUBIEN

ABSTRACT

Objects made of organic materials, such as gourds or wood, have been found at sites throughout the ancient Maya world, most commonly as offerings and furnishings in high-status tombs. In these contexts they are typically detected only when they were also ornamented with paint, appearing as concentrations of paint flakes that are the remnants of paint layers after the collapse and complete decay of the organic substrates. Because of this exceptional instability, conservation involvement during the excavation process is key to their recovery. Considerations in developing an appropriate conservation strategy – including decisions about field preparation, lifting, laboratory excavation, analysis and reconstruction – are discussed using variously successful case study examples from several sites in Central America.

1. INTRODUCTION

Painted objects, made of wood, gourd, fiber, and other organic materials, are an elusive component of the material culture of the ancient Maya, who flourished in what is now Guatemala, Belize and neighboring areas of Mexico, Honduras and El Salvador, during the first millennium BCE through and beyond the time of Spanish Contact. We know from indirect lines of evidence that these types of objects were in use on the basis of depictions in other art forms, such as stone reliefs, mural paintings, and scenes on painted ceramics, from descriptions of indigenous lifeways in the chronicles of early Spanish missionaries, and from persistence in local craft practices of traditional Maya communities today.

From an archaeological standpoint, however, these types of objects are poorly represented in the excavation record. Beyond their susceptibility to wear-and-tear, fire and other events during their use-life, objects made of organic materials typically suffer decay, collapse and eventual disappearance of the substrate in a subtropical climate and terrestrial burial environment. As a result, these types of objects can be detected only when they were also ornamented with paint or other relatively inert materials such as stone appliqués or inlays, which resist deterioration, albeit often in a highly fragmented state.

The contexts within which these types of deposits are most likely to be encountered are those that are generally relatively undisturbed, and for which the excavation methodology tends to be painstaking since these contexts offer well-associated, more comprehensive and better preserved material evidence. Conservators are also much more likely to be involved in excavations anticipating such special deposits. All of these aspects contribute to a better prognosis for detection and recovery of the remains of painted organic objects.

This paper presents strategies to meet the challenge of recovering these types of deposits. Most of the illustrated examples come from undisturbed Classic-period elite burials during the second half of the first millennium CE at primary and secondary civic-ceremonial centers, including Copán (Honduras), Waka’-El Perú (Guatemala, henceforth shortened to Waka’) and Baking Pot (Belize). The non-elite exception is provided by the site of Cerén (El Salvador),
a farming village that was rapidly buried under six meters of volcanic ash in ca. 600 CE, preserving the adobe architecture, household items, and other features in an undisturbed state.

2. DESCRIPTION OF REMAINS

A solid sculptural or flat object may have paint applications decorating all surfaces, or discreet areas thereof; paint applications on a hollow object such as a bowl may be on both exterior and interior surfaces. Depending on the nature of its substrate, a painted organic object may be vulnerable to damage at the time of archaeological deposition as well as during long-term burial, such as crushing by falling debris or soil overburden, and then further deformation, collapse and fragmentation as organic components undergo decay. In subtropical environments, the organic substrate material ordinarily decomposes completely, leaving behind a concentration of unsupported paint fragments (fig. 1).

Despite the object’s severe loss of structural integrity, the fragments – especially in relatively undisturbed contexts – still retain something of their original associations according to location on the object. A key feature of these paint flakes is their structure in cross-section, typically consisting of a monochrome ground or preparation layer, which would have been applied to the organic substrate, topped with one or more applications of variously colored paint, making up the decorative scheme (fig. 2). The texture of the colored paint applications is notably very fine, while that of the ground can vary from fine to quite coarse; particularly in the latter case, an intermediate ground layer with a finer texture sometimes is added as a transition layer before the decorative paint is applied. The underside of the paint flake often retains subtle stains and impressions from the organic material to which it had been applied.

Flakes from a particular paint layer are assumed to share a number of characteristics, including a consistent type of ground, as well as a shared palette of paint colors and decorative approaches; their undersides will also display related impressions of the organic substrate. These characteristics are important in interpreting the remains, as are the as-found positions and orientations of paint layers or group of flakes. In describing orientation (from the viewer’s perspective), the terms used here are paint-side-up (PSU), and paint-side-down (PSD) with ground surface visible.

3. STRATEGIC CONSIDERATIONS

The exceedingly fragile nature of these deposits and the challenges they offer – from field recovery to physical reassembly to safe disposition and interpretation – argue for conservation involvement at every step, coordinated closely with the archaeological team. In developing an appropriate conservation strategy for these deposits, a number of factors should be considered and prioritized, which have archaeological and logistical implications. These include the deposit’s general condition (e.g., how shattered or disturbed the remains are) and details of its context. How accessible is the deposit in situ, including space available for personnel and materials? Can surrounding finds and other intrusive materials be cleared first? What is the surface on which it rests and what is underneath? Can the surrounding and underlying matrix be disrupted? Logistical factors include when access can be scheduled and how much time is available to carry out the work. What field recovery tools and materials are available or would need to be brought in? Finally, where will the lifted material be taken for further treatment or storage, and how would the lifted material be transported there?
Fig. 1. Artifact #011 in Burial 24, Structure O14-4, Waka' (Photograph by L. Weber)

Fig. 2. Paint flake cross-section from Artifact #198 in Burial 39, Structure O14-4, Waka' (Photograph by C. Snyder)
From a conservation perspective, a deposit with preserved adjacency and orientation of fragments offers the best possible opportunity to recover and interpret an object, including its overall features – aspects of shape, decorative scheme, and (through larger expanses of impressions on the underside) information about what the organic substrate material might have been – as well as technical details, such as materials used for grounds and paints, and some of the techniques used to create the decoration. However, even a deposit of disassociated fragments can be lifted and meaningfully interpreted, providing documentation of painting materials and decorative techniques in use; these technical features can also be used to confirm associations with other fragments coming from the same object.

The resulting conservation plan generally focuses on the field recovery phase, encompassing the lifting method along with any preparatory treatment, and any post-lift treatment undertaken to accommodate transit and interim storage concerns. In-depth examination, conservation and analysis are critical to an interpretation of the deposit, but require time and adequate facilities – rarely available in the field – in addition to conservation expertise. Provisions for these laboratory-based activities are ideally considered in advance, if at all possible, and also become part of the plan.

Strategies for the field recovery of deposits in various states of preservation, and corresponding follow-up in a laboratory setting, are discussed in more detail in the following sections.

4. FIELD RECOVERY

4.1 LIFTING LOOSE FRAGMENTS

An example of a large deposit in which loose collection was the primary recovery method is represented by the tomb of Ruler 12, found embedded within a massive stone pyramid at the site of Copán (Burial 37-4, ca. early 8th c. CE, in Structure 26) (Fash et al. 2001, Magee et al. 2001). The tomb chamber was dominated by a stone burial dais, covered with a several-centimeter thick deposit of fragmentary materials, primarily paint flakes, as well as concentrations of jade items, shells and ceramics (Figs.3-4). Because of collapse and decay of organic constituents and subsequent seismic disturbance that dislocated wall stones and artifacts, the deposit was quite jumbled. Its situation on a stone surface also limited recovery options to those that did not involve excavating below the resting surface). This context was fortunately one that could be sealed between seasons, giving the conservation team the necessary time to develop a conservation plan.

4.1.1 Lifting Process

The selected lifting strategy for most of the surface area was one of loose collection, after the robust materials had been carefully removed by the archaeologists shortly after discovery. This was carried out within a defined 10cm x 10cm grid system and in a stratigraphic manner whenever layering of components was evident, using soft brushes and small “dust pans” cut from plastic weighing boats (fig. 5). Small aluminum containers were used to hold the fragments from a given grid square, or from a particular layer within a grid square, each secured within a plastic bag labeled with provenience information. These could be stacked carefully in modular plastic boxes according to grid square for transport out of the burial chamber to the site laboratory, and be used for storage.
Fig. 3. Tomb chamber of Burial 37-4, Structure 26, Copán: dais deposit at the time of discovery in 1989 (Fash et al. 2001)

Fig. 4. Detail of fragments on the dais of Burial 37-4, Structure 26, Copán (Photograph by H. Beaubien)
Fig. 5. Loose collection of fragments on the dais of Burial 37-4, Structure 26, Copán (Photograph by C. Magee)

Fig. 6. Artifact #011 in situ with fragment boxes in the tomb chamber of Burial 24, Structure O14-4, Waka’ (Photograph by H. Beaubien)
Robust fragments surrounding a ceramic vessel on the floor of the same burial at Copán (discussed in more detail in Section 5.1 and shown in figure 12), and sculptural elements that were part of a fragmented deposit in an elite burial at the site of Waka' were removed in a similar fashion (fig. 6). In both cases, the fragments were stored in well-padded containers.

4.2 LIFTING FRAGMENTS IN ASSOCIATION

In the deposit on the burial dais at Copán were several areas where the paint fragment organization was much less disrupted and larger patches of PSU or PSD fragments were exposed. These were lifted as articulated groups after *in situ* treatment.

4.2.1 Pre-Lift Treatment

The fragments were first carefully cleaned with a soft brush and blower bulb, and then linked together using Japanese tissue adhered with an aqueous methyl cellulose gel. This combination of materials proved effective because the fine cellulosic tissue, with moisture, conformed closely to the irregular surfaces, and methyl cellulose was a sufficiently strong, compatible and easily reversible adhesive. Adjacent fragments could be strapped together with tissue strips or, for larger expanses, with a continuous tissue facing applied in overlapping patches. It was often helpful to strengthen the surfaces first with a dilute Paraloid B-72 solution in acetone, which helped tack adjacent fragments together. This application also made it possible to aqueously remove the facing tissue later, without disaggregating the fragments. Easy reversibility of facing/backing materials is an important consideration as the obscured surface may need to be studied during subsequent laboratory investigation.

4.2.2 Lifting Process

In the Copán example, the lift process involved gradually lifting up and sliding a Mylar sheet under the faced group (fig. 7), transferring the group to a flat surface, and then inverting it so that it rested on the more secure faced side. These could be stacked with interleaved padding (e.g., thin Volara or other soft sheet) in plastic boxes for transport and storage.
Sometimes, another layer of fragments was found adhering to the underside of the faced fragment group, with their respective stucco ground layers in contact. We were concerned that this had occurred from B-72 consolidant seeping through cracks from the upper layer of fragments to the underlying fragments, making separation more difficult. We found instead that this aggregation could occur naturally. Many painted objects were once decorated on both sides of the organic substrate material. With the decay of the substrate bringing the two stucco ground layers into contact, these gradually cemented lightly together during burial. Fortunately they could be separated quite easily by facing the adherent layer and then judiciously applying water or ethanol in the seam between them. We noted that this aggregation of paint layers rarely happened when the finely finished painted sides of fragments were in face-to-face contact, likely due to the reduced porosity of the surfaces.

4.3 BLOCK-LIFTING

The scenario that provides the best chance of more nuanced reconstruction is when block-lifting is possible. With this method, a deposit of paint flakes is removed in its entirety. The significant advantages of a block-lift are that it does the best job of keeping all the fragments in their original positions, and “buys time” – allowing the challenge of determining the best way to extricate the fragments to happen later in a more controlled laboratory-type setting.

Because the object is a deposit of loose paint fragments, lifting will require the matrix in which the deposit is embedded to play a significant role in its support. Eligible contexts include those in which the deposit is resting on an earthen floor, such as a number of the elite burials at Copán, Waka’ and Baking Pot, or embedded within a particulate matrix, such as the ash filled adobe structures at Cerén. These allow excavation steps to be carried out that isolate the deposit on a pedestal of matrix material, as follows. Enough overlying material is removed to define the nature and extent of the deposit. Leaving at least several centimeters of matrix intact around the periphery as a protective margin, the object is pedestaled by lowering the surrounding matrix to a depth that corresponds to that of the entire object and continues deeper, with enough clearance below the object that the block can be cut from beneath with minimal disturbance to the deposit (fig. 8).

One of the most important aspects to consider in advance is the desirable orientation of the block after lifting. During the initial lift process, the block is maintained in its original orientation, but the circumstances of transport to an adequate location for the next phase of treatment or storage, or the immediate stability needs of the block, may argue for inversion of the block right after lifting. The orientation for transport should be decided in advance, as this will dictate some of the decisions about surface protection of the deposit and matrix support methods, both of which are critical elements for a successful lift.

4.3.1 Pre-Lift Treatment

Once sufficient overlying material has been carefully removed, most deposits of loose paint fragments require some kind of surface stabilization in situ as the first step in the process, whether to maintain the articulation of fragments, to protect the surface from disturbance during the subsequent excavation and lifting process, and/or to strengthen the surface if the block is to be inverted.

In the first of the author’s encounters with the remains of painted organic objects, a flat rectangular patch of PSD fragments adhering to the floor of a residential building at Cerén (Artifact #2-51, Structure 2) was exposed and gently cleaned, consolidated with B-72, then faced
ith tissue using methylcellulose to secure it prior to block-lifting, shown after block-lifting in figure 16 (Beaubien 1993). The same approach was taken to secure the fragments of a flat circular PSU layer prior to lifting, from a cache found near an elite burial at Copán (Burial 95-1, Structure 16), discussed further in Section 5.2 (Lynn A. Grant, personal communication; Grant 1999).

Paint deposits of a more 3-dimensional nature were also found in various buildings at Cerén, including a number of bowl-like forms (Beaubien and Corbett 2002:160-162). In these situations, fine ash had fully surrounded the objects and filled their interior cavities, thus holding the paint layers in place even after substrate decomposition. As excavation exposed a “rim” of paint fragments, ash was left intact around the object but cleared from the concave hemispherical interior until the paint surface became visible. Before conservators were involved with the site’s excavation, several had been lifted by the archaeological team following a method used in the 1960s for recovery of several painted organic objects in a royal burial at the site of Tikal in Guatemala (Temple 32 Burial 195, Virginia Greene, personal communication); this involved pouring plaster of Paris into the object’s cavity (fig. 9).

While capturing the form and securing the fragmented paint, the disadvantage of this approach emerged as later discoveries showed that such objects were painted on both exterior and interior surfaces, surviving as back-to-back paint layers, both of which were now sealed to and inseparable from the plaster. We also found that the visible paint surface was susceptible to damage from efflorescent salts from the plaster, and the objects were considerably heavy.
Fig. 9. Artifact #1-247 from Structure 1 at Cerén, shown inverted after lifting by pouring plaster into the concave interior space (Photograph by H. Beaubien)

Fig. 10. Facing the concave interior paint surface of Artifact #8-160 in Structure 10 at Cerén (Photograph by M. Fenn)
This approach was subsequently modified as follows. The object’s interior paint surface was exposed (as before), carefully documented and then lightly consolidated with B-72; this tacked the inner layer to the outer layer by seepage of the consolidant through cracks and losses. The entire concave interior surface was then faced with tissue and methylcellulose (fig. 10), lined with plastic cling wrap as a barrier layer, and filled with plaster. Once set, the plaster insert could be removed; it was then coated thoroughly with B-72 to render the material more inert, and put back in place without the barrier film to serve as a conforming interior support for the paint layer. (Note that alternate materials can be used for the interior support.)

Cyclododecane (CDD), another material for stabilizing and lifting fragile finds, was newly available when paint flake deposits were found in an elite burial at Waka' (Burial 24, ca. 6th-7th c. CE, in Structure O14-4) (Beaubien and Weber 2007). Careful cleaning in situ revealed fragments that still maintained their original alignment, including undulating walls (seen in fig. 8); these were backed with tissue and methyl cellulose to hold fragments in position. A combination of facings, cotton wool packing around fragments, and drizzled molten CDD secured the upper surface and the edges of the deposit, and created a simplified overall shape (as seen in the foreground artifact in figure 11). The CDD also provided an effective barrier layer for application of plaster bandages (described below) to create a cap across the top, which would later serve as a robust base when the block was inverted.

4.3.2 Lifting Process

Because the pedestal matrix serves to immobilize the deposit, some kind of subsidiary support around the sides is always recommended. Even if the matrix is very clayey and cohesive, hidden roots or rocks can destabilize the block, so materials that conform and provide a rigid collar around the pedestal are advisable. Gauze bandages impregnated with plaster of Paris powder have proven to be the most useful in these situations, requiring nothing more than scissors to cut the strips into useful lengths, and a bowl of water to dip them in to activate the plaster; the wet strips can then be placed, overlapping and layering them to quickly form an effective collar around the pedestal and/or cap once the plaster hardens (fig. 11). No barrier layer is needed around the pedestal unless the plaster is close to or in direct contact with original material; in these cases, a conforming barrier layer (e.g., aluminum foil, plastic cling film, CDD) must be used to prevent problematic adhesion. In the case of the bowl-like objects from Cerén, a plaster collar around the ash pedestal’s sides, in combination with the plaster bowl insert, immobilized the fragile form. A support is also needed for the bottom of the block to keep the matrix in place, and to carry the block’s weight. This can be a thin rigid board that is slid underneath or onto which the block is maneuvered, and it is useful to cut the pedestal first with a long blade or wire to ease the sheet’s passage. Note that enough matrix needs to be cleared around the sides of the pedestal to allow tools or lifting supports to be inserted during the lifting process. A metal sheet with a sharpened leading edge was invaluable for a number of lifts at Cerén.

Another method of supporting the base is to gradually undercut the block, adding plaster bandages in the process, until the bottom is partially or fully encased and the block is freed (as seen in the background artifact in figure 11). This method was used to secure the sides and bottom of the blocks for the three paint flake deposits from Waka'. A clipboard was used as a temporary support on which to slide each of the prepared blocks, but all were immediately inverted onto their plaster caps for transport in boxes to the field lab.
4.3.3 Post-Lift Field Treatment

Additional surface stabilization treatment and creation of plaster caps or other block reinforcements can be carried out in the field immediately after lifting. Plaster caps can be made removable using an aluminum foil or plastic cling film barrier layer, and can serve as a sturdy base if the block is inverted. Inverting the block in the field is generally done if this provides the more secure orientation for transport from the site, as was true for the three blocks from Waka'. For maximum immobilization during transport, any exposed pedestal matrix of the inverted blocks was covered with additional plaster bandage to fully encase the deposits.

5. LABORATORY CONSERVATION

5.1 LOOSE COLLECTIONS AND FRAGMENT GROUPS

If collected carefully by context, loose fragments can potentially be reassembled in the laboratory. One example is provided by a collection of disturbed fragments surrounding a ceramic vessel on the floor next to the dais in the Ruler 12 burial at Copán, previously mentioned in Section 4.1 (fig. 12). A number could be joined, in some cases by simply edge-joining.
fragments with B72, or with the addition of small pieces of Japanese tissue adhered with methyl cellulose (fig. 13). The resulting fragment groups included long curving segments of what appeared to be edge or rim segments, as well as quite flat body fragments. These reassembled groups allowed larger expanses of texture to be detected on the reverse, which gave clues to the organic substrate that they once decorated. One reconstructed flat patch showed an intriguing array of what looked like chisel marks, and edge fragment groups showed linear striations in varying orientations as if positioned around a circular shaped piece of wood. These clues suggest that the fragments represent the remains of a painted wooden lid for the ceramic vessel.

We did not expect that the complex disturbed deposit on the burial dais would hold any promise of reassembly in a physical sense. However, the systematic study of the lifted loose fragmentary materials from approximately 350 grid squares yielded surprising results (Fash et al. 2001, Magee et al. 2001). Close examination under the microscope – distinguishing patterns in paint-side-up and -down orientation, color scheme, layering and distribution for each grid square – resulted in a virtual reconstruction of the deposit, which included a painted platform extending across most of the dais, and a raised painted “bed” holding the body of the primary individual.

Even disassociated fragments can yield information useful for their interpretation, through this process. In the case of a paint deposit from an elite burial at Baking Pot (Artifact R from Tomb 2, ca. 7th-8th c. CE, in Structure E), unforeseen tree roots had severely disrupted the block-lifting process, resulting in two partial blocks and an abundance of fragments from unknown locations. With careful sorting of these fragments according to ground type and texture, and further by color and decorative scheme, several discreet objects making up the deposit could be proposed, albeit of unknown form. Three different ground colors – cream, white and brown – were found, with additional textural differences present within the first two ground colors, possibly reflecting application to organic materials with variously textured surfaces. The textural characteristics of the fragments with a cream ground, for example, in combination with their decorative schemes, suggest that they had once ornamented a gourd with a monochrome interior and polychrome exterior (Section II in Audet 2005).

5.2 BLOCK-LIFTED DEPOSITS

With a goal of articulating and documenting all the paint layers in a block-lifted deposit, the conservation treatment will typically require a lab setting because of the potentially complex sequence of steps and time needed. The treatment strategy will likely need to accommodate one or more approaches, such as manual transfer of fragments from discrete layers, or supported removal of expanses of fragments, as well as additional interventions to enable working from the top down and from bottom up at various stages. Note that the painted surface that either directly lies on or is otherwise collapsed onto a flat floor tends to be more intact and better preserved than the vulnerable uppermost layer(s); as a result most excavation strategies include a block inversion step that makes this layer accessible quickly.
Fig. 12. Paint fragments in situ on the tomb chamber floor of Burial 37-4 at Copán (Photograph by B. Fash)

Fig. 13. Reassembly in the Copán field lab of fragments collected from the tomb chamber floor (Photograph by H. Beaubien)
Fig. 14. Excavation of the pedestal soil to expose the bottommost paint layer for Artifact #012 in the Waka' field lab (Photograph by H. Beaubien)

Fig. 15. Artifact #1/6/385-2 from a cache near Burial 95-1 in Structure 16 at Copán, after L. Grant’s field treatment (Photograph by H. Beaubien)
Although block-lifted deposits can be stored immediately after field recovery with no further intervention, it is useful to carry out a preliminary excavation step in the field lab to remove excess soil from the block and reduce the size and weight of the object. The three block-lifted artifacts from Waka’ were all processed in this way once they were transferred to the field lab. The plaster wrapping was cut away from the upper surfaces of the inverted blocks and the pedestal soil shaved down to a level where paint flake surfaces began to be revealed (fig. 14). These represented the painted surface that originally either directly lay or otherwise collapsed on to the flat floor. The exposed flakes were consolidated lightly with B-72 and locally faced with tissue using methylcellulose. An overall tissue layer was lightly attached to the entire surface with methylcellulose, and a removable plaster cap was made to form a secure housing for the block, which now contains little else but the paint deposit.

A similar strategy was followed by Lynn Grant to investigate the circular paint deposit from Copán (Artifact #1/6/385-2 from near Burial 95-1, ca. mid-5th c. CE, in Structure 16), mentioned in Section 4.3 above. Its polychrome PSU surface had been consolidated and temporarily faced in the field and the deposit block-lifted from the dense clayey matrix, using elastic bandages wrapped around the pedestal sides. The block was inverted in the field (not transported to the lab in this case), in order to remove the pedestal matrix and expose a possible paint layer decorating the object’s underside (Lynn A. Grant, personal communication). In this case, no other paint layer was encountered, nor any trace of substrate material. A thin film of soil was left in situ to protect the underside of the paint layer; it was consolidated with a dilute B-72 solution, and then backed with tissue secured with B-72 adhesive. The supported paint layer was then returned to its original orientation, and the temporary facing tissue removed (fig. 15). These conservation steps reduced the size and weight of the artifact, simplifying its storage, and the surface treatment allowed the dimensions, the format of the decoration, and the iconographic elements to be preserved for further study (Grant 1999).

In the case of Artifact #2-51 from Structure 2 at Cerén, the lifted remains were approved for temporary loan to the Smithsonian’s Museum Conservation Institute for conservation and technical study. For the single (bottommost) layer of PSD fragments adhering to the earthen floor of the structure, mentioned previously in Section 4.3, the goal of lab treatment was to uncover the painted side of the fragments (fig. 16). A removable conforming plaster support was molded (using a barrier layer) over the tissue-backed layer. The block was inverted and the pedestal soil was removed to expose the polychrome painted side of the fragments. As described in detail elsewhere (Beaubien 1993), this paint layer was part of a thicker deposit that had been removed by sliding a metal sheet along the floor surface, prior to the author’s arrival on site (fig. 17). The thicker deposit was left untouched until transfer to the lab.

The treatment of this deposit began from the top down. The uppermost layer (#1) was transferred fragment by fragment to a sheet of tissue, while still maintaining the fragments’ relative in situ positions. These PSU polychrome fragments were found to have a second layer of very thin monochrome fragments adhering to their undersides with ground surfaces tangent (#2, PSD). Other than basic documentation, these PSD fragments were not separated as a discrete layer; instead the back-to-back fragments were secured to the tissue with methylcellulose, oriented with the PSU decorated layer #1 visible. The layer (#3) exposed by this removal step was a continuous, relatively undisturbed, monochrome PSU group of fragments. To make sure that only fragments from this layer were lifted, they were transferred manually to Mylar, maintaining their relative in situ positions using a grid system. These fragments were generally more robust than the layer #2 monochrome fragments; adherent fragments from a paint layer
below were less common, and were gently separated prior to transfer. Placement on Mylar facilitated any repositioning of fragments to create better joins, and when a temporary tissue facing was adhered to their painted surfaces with methylcellulose to hold the reconstructed layer together, the Mylar also kept the fragments from sticking. Layer #3 could then be inverted to examine the texture preserved in the ground. Once documented, a tissue backing was then attached to the ground side of the fragments, thus sandwiching them between tissue, and the layer was returned to its PSU orientation. The easy reversibility of the adhesive made it possible to selectively remove the earlier facing using a dampened brush. The polychrome PSD fragments that remained in the deposit were the final layer (#4), originally in contact with the floor and adjoining the fragmentary single layer lifted separately and described above. These were removed as an articulated group of fragments, by attaching a backing tissue, molding a removable plaster support on them, and inverting the block to expose the painted surface of the layer #4 fragments.

A complex series of steps such as this should be anticipated for the articulation of any multi-layered paint deposit. In the case of the Cerén artifact, access to both painted and ground surfaces of the fragments, and large expanses of fragments in close to original positions, supplied evidence needed to interpret the remains. These allowed the painted decoration, substrate impressions and layer orientation to be better understood, and supported an identification of the object as a painted globular bowl made from a gourd. This had decayed into a flattened deposit, leaving behind fragments of a monochrome green interior paint layer and a polychrome exterior decorated with repeating seated figures around the rim, and radiating bands at the base referencing the gourd’s own botanical features (fig. 18).

Other paint deposits found at the site followed a similar pattern of decoration, increasing the number of known examples of painted organic objects to more than ten items (Beaubien and Corbett 2002). Among these were several bowl-shaped deposits block-lifted using the removable plaster inserts described in Section 4.3 above; the block pedestals were supported around the sides with collars made of plaster-impregnated cloth strips, and removed using a metal sheet. In the field lab, the block-lifted objects were inverted, to rest on the plaster insert (fig. 19). Working down through the pedestal, the matrix ash was cleared, exposing the paint layer first at the object’s base. Where the tissue from the interior application was visible, it was spot-tacked with B-72 to anchor it to the plaster support. The painted surface was successively cleared in this manner. Future access to interior surfaces of the inner and outer paint layers will be difficult but not impossible because of the use of reversible materials, while the lifting method also allowed the paint schemes to be documented and the form to be preserved.
Fig. 16. Block-lifted paint layer from Artifact #2-51 (Structure 2, Cerén), during lab excavation (Photograph by H. Beaubien)

Fig. 17. Lifted paint deposit from Artifact #2-51, Structure 2, Cerén (Photograph by H. Beaubien)
Fig. 18. Exterior decorative scheme of Artifact #2-51, reconstructed from fragmentary layers: rim decoration from PSU layer #1 (above); base decoration (below) combining PSD layer #4 and the single layer segment (Drawing by H. Beaubien)

Fig. 19. Artifact #8-160 from Structure 10 at Cerén, secured to the plaster mount with polychrome exterior decoration visible (Photograph by H. Beaubien)
6. TECHNICAL ANALYSIS

Fragments, whether available from loose collections or as components of block-lifted deposits, offer ready access to outermost painted surfaces, undersides and edges for further analysis, supplementing observations recorded during the lifting and lab conservation stages described above. Instrumental analysis of selected fragments, using techniques such as microscopy, X-ray diffraction, scanning electron microscopy-energy dispersive spectroscopy, Fourier transform infrared spectroscopy, and gas chromatography-mass spectrometry, can potentially yield key technical information about the materials making up the paint flakes, the paint application process, as well as the now-decomposed organic substrate. While presentation of those results of analysis is not the focus of this paper, it has been an important component of the conservation work carried out by the author and colleagues on the painted organic objects described above (Audet 2005; Beaubien 1993; Beaubien and Corbett 2002), yielding in combination new information about these elusive and largely unstudied artifact types, and enriching the body of archaeological research on the ancient Maya.

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DEEP STORAGE: REBURIAL AS A CONSERVATION TOOL

EMILY WILLIAMS

ABSTRACT

Reburial is increasingly being considered as a conservation tool to help preserve archaeological materials and to relieve
the pressure on already strained curation facilities. This paper will examine the rationale and ethics behind this trend
and consider as a case study the recent reburial of architectural material excavated in the early 1930s and 1940s by the
Colonial Williamsburg Foundation. The sheer volume of the material and the need to manage it responsibly has, in the
past, had a detrimental effect on the accessibility and care of other segments of the collection. After much
consideration, controlled reburial was chosen as a storage option for portions of this material. The approach chosen for
reburial will be assessed and potential future modifications discussed.

1. BACKGROUND

Rapid property development as well as new excavation and data recovery techniques have led to
an exponential growth in the number of archaeological collections placed in storage since the
1970s. In America, a national curation crisis was declared in the 1990s and the situation has not
improved notably since then (Stankowski 1998; Traver 2001; Reichhardt 2007). Museums and
States have been forced to close their curation facilities to incoming finds or have run into severe
problems finding space for collections they are contractually obligated to take (Thompson 2000;
Traver 2001). Critical space shortages are often compounded by lack of funds to adequately
catalog older collections, lack of expertise and manpower and the vast quantity of objects
excavated across the nation on an annual basis. The cost of building and manning new
repositories that meet the standards laid out in 36 CFR part 79 are high and difficult to sustain
over the long-term (GPO 1990).\(^1\) It is illogical to expect that collections can continue to grow
and migrate like hermit-crabs to ever larger facilities. In Europe, similar problems exist (Swain
2010; Perrin 2010). The response to these pressures has been somewhat different in each locale.
In America, attention has focused on the question of deaccessioning while in Europe, research
has centered on the problem of reburial or preservation in situ (Rohe 1998; Byrne 2000; Corfield
et al. 1998; Taryn 2004).

Deaccessioning, defined as “the formal process used to remove permanently an objects
from the collections” (Byrne 2000, 15) is used widely for most types of non-archaeological
collections and is seen as a valid technique for removing objects that no longer fit within an
institution’s collecting mission or are problematic (for example fakes, forgeries, or hazardous
materials) or in cases where the preservation of the piece no longer warrants its inclusion in the
collection. However, deaccessioning within an archaeological context is viewed as a riskier
undertaking because of the interdependence of the artifacts within a site and an often quoted belief
that removing any materials from the collection compromises the potential of future analysis.
Vague ethical codes may exacerbate this. For example, the Society for Historical Archaeology’s
code of ethics states in Principle 4 that members of SHA “have a duty to collect data accurately
during investigations so that reliable data sets and site documentation are produced, and to see
that these materials are appropriately curated for future generations” (SHA 2003). What
constitutes a reliable data set? Is it the product of 100% collection or of significance testing?\(^2\) If
the latter, which statistical subsets should be selected? These arguments neglect to notice that
deaccessioning already routinely occurs under the aegis of the Native American Graves Repatriation and Protection Act (NAGPRA).

Another reason that deaccessioning is regarded with dissatisfaction by the archaeological community is the lack of a satisfactory method for disposing of the materials. Of the three disposal techniques commonly used by typical museum collections (sale, transfer to another institution and destruction) only one is available to archaeologists since the sale of archaeological collections is widely accepted as being unethical (SHA 2003) and, given the types of artifacts most commonly considered for deaccessioning, transfer to another institution or collecting body is rarely an option. Destruction therefore may appear to be the only option. When weighed against the presentation of archaeology as a preservation-related activity however, destruction is not a particularly palatable one.

Reburial, most commonly carried out on marine sites or waterlogged terrestrial sites, seeks to emulate the depositional environment prior to disturbance by excavation and thereby create a storage environment that has preservation capabilities that can be compared with a “normal” museum storage environment. Ideally, the reburial environment should match or exceed the expected survival rate in a museum environment. The advantages lie in avoiding treatment costs and minimizing the continuing care of the collections while the disadvantages lie in the interconnectivity of the sites with their landscape (changes in land-use miles up the road can have enormous impacts on drainage potentials), the need to really understand the pre-disturbance environment and the fact that the optimal techniques are still being defined and developed (Corfield et al. 1998; Nixon 2004; Bergstrand and Nyström Godfrey 2007). Reburial studies often focus on large scale organic structures, such as buildings or shipwrecks that would be prohibitively expensive to raise and conserve. However, one project, the Reburial and Analyses of archaeological remains, or RAAR project, in Marstrand, Sweden has set out to look at a number of different classes of deliberately reburied 18th century materials (such as ceramics, glass, metals, and all classes of organics), twentieth century controls and the packing and labeling materials commonly used with archaeological materials over a fifty year period (Bergstrand and Nyström Godfrey 2007; Nyström Godfrey et al. forthcoming). Controlled retrievals occurred at 1, 2, 3, 6, and 12-year periods and are also scheduled to occur at the 24 and 48-year marks. Already the project has experienced funding shortages which have made it difficult to carry out the full analytical program on the retrieved samples. These sorts of problems bode poorly for the sustainability of long-term reburial projects (Nyström Godfrey et al. 2012).

2. THE PROBLEM

In late 2007, Colonial Williamsburg was faced with a problem that caused us to consider both these approaches, their benefits and their drawbacks, and to create a hybrid solution to fit our needs. We were in the process of moving the bulk archaeological collection from an overcrowded and aging storage facility to a new one. The move, funded in part by grants from the Institute of Museums and Library Services Conservation Project Support Program and the Save America’s Treasures Grant fund, provided a number of amenities, such as a climate controlled space for environmentally sensitive parts of the collection, new storage furniture and room for long-term growth. At a late stage in the move, 50 pallets of architectural materials, dug up by the Foundation between 1930 and 1950, were transferred to the Department of Archaeological Research. Recovered prior to the advent of stratigraphic excavation in
Williamsburg, the material consisted largely of brick and stone fragments from building foundations within the Historic area and from sites outside of Williamsburg. The material was not catalogued although some items were labeled and occasional paper records were found with individual items. It was housed in pine crates which had clearly not been accessed in many years, judging by the mice nests, snakeskins and other detritus in them. Many of the pine crates and the wooden pallets they rested on were disintegrating, the result of action by powderpost beetles. In total, the material represented over 5000 cubic feet of storage or approximately 45% of the budgeted long-term growth space in the new facility. In considering the material and its information potential against that of the archaeological collection as a whole, it became clear that there was an imbalance that posed a degree of risk to the long-term preservation of the archaeological collection.

3. THE SOLUTION

For various reasons, it was necessary to find a solution within a short time frame and at minimal cost. It was proposed that we sort through the material, select non-diagnostic pieces and rebury them in the cellar of a site currently under investigation, an approach that was accepted after some discussion. This course of action recognized the fact that much of the material might be of little research value under current conditions, but retained the option that should circumstances change, the material could be excavated and studied. In adopting this approach we took advantage of the long-term stability of the materials with which we were working. It is not an approach that we would have felt nearly as comfortable adopting had the materials been more prone to deterioration during burial.

Working site by site, each fragment was removed from its packing crate and laid out for curatorial assessment. Items were chosen for reburial based on a number of criteria. For stone fragments, materials selected for reburial included those with no discernible wear marks, shadowing, finished edges, holes, markings, attachments, construction evidence, or other characteristics. For brick, materials chosen included primarily severely broken and crumbled brick. Samples of even the most ordinary broken brick, stone and mortar were retained for testing, comparison with other examples in the archaeological collection, and a general understanding of all materials represented from the different groupings. This included brick fired at different temperatures or made of different clays, all types of mortar, and a representational sample of all types of stone present from 18th century to modern marble. Whole brick, shaped brick, stone with any markings, attachments, finished edges, wear marks or other use and construction evidence were all retained. Of the items selected for reburial, stone fragments comprised 91% of the reburied material; of these, the majority was less than 4 inches in dimension.

Once they were emptied, the crates were examined carefully; those with any evidence of borer activity or other structural weakness were disposed of. The materials to be reburied were replaced in the sound crates. Brick, stone less than 4 inches in dimension, and stone greater than 4 inches in dimension were segregated into different crates by site. Two polyethylene bags, each containing a Tyvek label on which the site information was written in both pencil and Sharpie, were pushed as deeply into the box as possible. The materials that were slated for retention were moved to shelf storage pending further curatorial work. The crates were placed in the cellar. Materials were grouped by site and an attempt was made to segregate the sites from each other. The crates were stacked no higher than two deep to ensure that they did not extend beyond the
lip of the cellar. The cellar was subsequently filled with engineering sand and then the site was backfilled.

4. ASSESSMENT

To some degree, the success of this approach can only be measured over the long-term. Can the material be readily retrieved and consulted if necessary? However, there are certainly lessons that we have learned from this experience and that we feel may be of value should we adopt a similar approach in the future. To begin with, while the availability of the cellar allowed us to adopt this option in the first place, in the future, we would ideally site a reburial trench outside the historic area. The use of a structure imposed certain limitations. The first was that although we would have liked to establish a long-term environmental monitoring program at the reburial site, this was not possible because of the Foundation’s desire to maintain as authentic an 18th century landscape as possible. Although it is not strictly necessary given the materials we chose to rebury, the opportunity to have collected this data would have been beneficial for future planning. Additionally, while there are no short-term or even long-term plans to rebuild the cellar site at present, plans can change. The slight degree of uncertainty that that imposes over the reburial site is one that we felt was acceptable but not ideal. Finally, if we were to carry this reburial out in the future, we would not use the pine crates. At the time of the project, it was the only option available to us, both because of the timeline and due to financial constraints. However, we know that the pine crates will deteriorate much more rapidly than anything else at the reburial site, and that there will be a certain loss of order within the reburial site as a result. We believe that we were able to segregate the individual sites well enough that they should not bleed into each other, the sorting of brick and stone sizes is likely to be compromised with the deterioration of the crates. Were we to do this again, our current choice would be to use high density polyethylene crates to house the materials. We chose not to label the materials individually for several reasons. One was the lack of any true provenience information beyond the site designation. Another reason was that we could not be sure that any method of labeling applied directly to the surface of the object would survive. Finally, given the number of fragments we were working with, individual labels did not appear feasible. Given more time, the ability to carry out simulated aging tests under reburial conditions on a number of labeling materials would have been valuable.

Looking at broader issues, we feel that the project has benefited the archaeological collection as a whole in several ways. Although it has been argued that one of the disadvantages of reburial, when compared to museum storage, is loss of access, we feel strongly that the limitations placed on accessibility were offset by the preservation gains that were made by the collection as a whole. It can be argued that the larger a collection becomes, the harder it is to preserve and service its various parts. Cataloging efforts, stabilization treatments and accessibility can all become bogged down as a result. At its transfer to the Department of Archaeological Research, the architectural material required huge amounts of curatorial time in order to catalog it, and even begin to make it accessible for researchers and scholars. Further scarce resources were needed to rehouse the material in archival packaging, a process which was not only likely to give it a larger footprint (since materials would be spaced out) but also fell under the umbrella of the conservation department and was therefore likely to divert attention from other objects in more dire need of stabilization. Viewing the archaeological collection holistically, it could be argued that the needs of the newly-added architectural materials were out
of balance with the collection as a whole, particularly given its collection history and lack of true provenience. To address its needs meant prioritizing this material above objects generated by systematic stratified excavation and diverting resources from other projects. To ignore its needs meant a degree of risk to other artifacts in the collection in both the short term by putting them at risk of pest infestation and in the longer term due to overcrowding and the pressures that it exerts on a collection.

Recognition of these risks required an understanding that the value of collections shifts and changes over time. What in 1930 seemed extremely valuable as an architectural link to the city under restoration has a different value in the 21st century when it is considered against the products of 50 plus years of systematic archaeological excavation. The need to reassess collections on a periodic basis is a basic tenet of collections building, but it is one that is often forgotten by the archaeological community where curation by record has become the norm (Swain 2010). This may be in part because the accessioning of archaeological artifacts differs from that of other museum collections in that it is rarely considered at the time of collection. Great amounts of thought are given to which site should be excavated and why, but the materials produced by the site are not always given equal thought. Archaeologists comfort themselves with the concept that even if they do nothing with these collections now, future generations may be able to apply advanced and undreamed of analytical techniques to them as they slide them into long-term storage. Yet it is true that often these collections are not revisited and the analytical techniques when they are invented often focus on one-of-a-kind pieces or freshly excavated materials.

In many ways this project is not a model project. There are a number of things that we would have changed if the circumstances had been different, such as those already mentioned. However, it did achieve its goal of reducing risk within the collection. It also opened the door for discussion of a topic that had heretofore been completely off the table. Engagement in deaccessioning and reburial decisions challenges the often held and comfortable idea that conservators should not be involved in making value judgments about artifacts or collections. It may be true that conservators should not lead these efforts; however, this author believes that we do have a unique voice to bring to the discussion. While archaeologists and curators are better equipped to speak to the significance of individual finds or groups of finds, particularly as these may change site to site, era to era; conservators are uniquely placed to address the risks that an object or group of objects faces in a collection; consider the risk it poses to other materials in the collection; and to assess the deterioration processes not only in storage but during reburial. As with treatments, there is the risk that the actions we take to mitigate one risk may impose a new risk. If reburial is chosen, it can quickly transform in policy maker’s minds to an “out of sight, out of mind” situation at which point the reburial actually becomes an artifact dump (akin to the many paths made of body sherds one finds on near-eastern digs). By conservators involving ourselves, pushing for long-term planning and advocating for the artifacts even as they transition into new environments, we have a greater chance of driving a successful outcome. Therefore we must involve ourselves in these decisions.

The reburial process reminded everyone involved of the need to look at the collections and consider their preservation and curation needs from a holistic rather than a particularistic point of view, and try to come up with solutions. It has spurred continuing discussion on a range of collection management issues. Reburial is not a viable option for every collection or every site. It works at Colonial Williamsburg in part because we have access to both undeveloped and protected land, which can be utilized for this type of undertaking. It must be considered, in part
because of the size of our collection, currently topping 20 million artifacts; its rapid growth rate (which can exceed a quarter of a million artifacts per year depending on the types and combinations of sites we excavate); and the knowledge that over half of Colonial Williamsburg’s Historic area remains to be excavated.

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NOTES

1. 36 CFR Part 79 is the federal regulation on the “Curation of Federally-Owned and Administered Archaeological Collections”. It contains the definitions, standards, procedures and guidelines for preserving collections of prehistoric and historic material remains, and associated records, recovered under the authority of: the Antiquities Act (16 U.S.C. 431- 433); the Reservoir Salvage Act (16 U.S.C. 469-469c); section 110 of the National Historic Preservation Act (16 U.S.C. 470h-2), and the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm).

2. Clearly, the ability to consult the largest possible sample is most valuable but it is not always possible. Sampling strategies may be employed on sites or in the collection of artifacts and statistical methods used to interpret them. A result is deemed “statistically significant” if it is unlikely to have occurred by chance, however, the fewer artifacts are collected and considered the higher the chance that their actual significance may be over or underestimated by this technique.

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GET YOUR FIELD WORK FOR NOTHIN’ AND YOUR SHERDS FOR FREE: COMPENSATION FOR ARCHAEOLOGICAL FIELD CONSERVATORS

SUZANNE DAVIS AND CLAUDIA CHEMELLO

ABSTRACT

A wealth of information exists on the practice of archaeological field conservation, and many objects conservators will provide field conservation for an archaeological project at some point in their careers. However, very little has been published about the business aspects of this work. For example, what services do archaeological conservators typically provide? Is there a standard? How are they paid for their work and by whom? How many conservators volunteer their time for archaeological projects and why?

To answer some of these questions, the authors developed an anonymous online survey to gather data about the work practices of archaeological conservators. The primarily multiple choice survey was designed to collect information about archaeological field conservators, including their level of experience and education, where they work, the services they provide, and their rates and methods of financial compensation over the past ten years.

In addition to a discussion of the survey’s findings, this paper will describe the methodology and design of the survey as well as give demographic data on the respondents. The authors will also examine prevailing attitudes about compensation for archaeological field work. Finally, they will provide suggestions as to how our professional body might use the data generated by this survey.

1. INTRODUCTION

Over the course of their careers, the authors have encountered a variety of different attitudes and beliefs about compensation for field conservators. Casual questioning of fellow conservators and archaeologist colleagues revealed no standard for how conservators are compensated, and many colleagues expressed feelings of confusion, unease, and awkwardness with the idea of determining and negotiating for appropriate financial compensation.

In an effort to shed light on compensation for field conservators, the authors conducted an online, primarily multiple choice survey. The survey collected information about archaeological field conservators, including their level of experience and education, where they work, the services they provide, and their rates and methods of compensation over the past ten years. For the purposes of the survey, and this paper, the word “compensation” is defined as financial compensation or payment for services provided. Previous surveys have examined the education and experience of archaeological conservators (Peachey 2010), as well as compensation for conservators in general (AIC/FAIC 2009). However, to the authors’ knowledge there has been no examination of compensation specifically for conservators who provide conservation in the field, on-site at archaeological projects.

An additional, equally important goal of the survey was to gather information about conservators who are providing conservation for archaeological projects as well as about their on-site practice. Where do these conservators work? How much time do they spend on-site during an average field season? What services do they provide? The demographic and professional practice information collected by this survey provides a picture of what is currently happening in this field.

The primary purpose of this paper is to provide a summary of the data collected. This paper will also describe the methodology and design of the survey. It will examine and discuss...
compensation of respondents and also their work practices in the field. Finally, it will provide suggestions as to how our professional body might use the data generated by this survey.

2. RESEARCH METHODOLOGY

Research began by examining past studies of compensation for conservators to assess whether this topic had been previously addressed. The authors determined that it had not. Existing, comprehensive publications about how to care for and treat archaeological material do not address compensation questions. Ethical business practice for archaeological conservators is discussed only briefly in these publications (Cronyn 1990; Pye 2001; Sease 1987; Watkinson and Neal 1998). The authors felt that an examination of compensation and business practice would be useful for archaeological conservators, and designed a survey to specifically target conservators who work on-site at archaeological excavations. Conservators who had worked for archaeological excavations within the past ten years were asked to participate. The time period of ten years was chosen to provide relatively current data. Because field work is often sporadic, the authors felt that a shorter time period might adversely limit the sample size.

The authors first created a draft survey in FileMaker Pro to test content, question flow, and ease of data acquisition and analysis. Various online survey tools were considered, and the authors chose to use Qualtrics, a versatile online survey tool which is used by multiple academic units within the University of Michigan. Qualtrics is relatively simple to use, has sophisticated analytical capabilities, and allows survey responses to be exported to multiple file formats including Microsoft Excel and SPSS (Statistical Package for the Social Sciences).

The authors’ goal was to create a survey which was clear, easy to take, and had a completion time of ten minutes or less. The survey had a total of 26 questions, but employed skip and display logic so that the number of questions answered by individual respondents varied. For example, a conservator who is the proprietor of a private practice was not asked whether s/he takes paid vacation time to do field work. The questions were primarily multiple-choice, with a few write-in boxes and areas for longer text responses. Answering most questions was mandatory in order for respondents to continue taking the survey (forced validation), but a few questions which the authors thought might be sensitive, such as the actual rate of compensation, were optional. Respondents had the option of providing their names and contact information, and the responses of individuals who did so were kept confidential. Otherwise, respondent anonymity was maintained; each response was coded with a unique number generated randomly by Qualtrics.

A group of conservators selected by the authors was asked to test the survey, and changes were made based on their comments. A final draft of the survey was tested again prior to launch. The survey was distributed in October of 2010 and was active for 3 weeks. A link to the online survey was emailed to the following specialty groups within the American Institute for Conservation (AIC): Architecture, Conservators in Private Practice, Objects, Paintings, Research and Technical Studies, Textiles, and the Wooden Artifacts Group. These groups were selected by the authors as those most likely to have members working on-site at excavations. A link to the survey was also posted on the Conservation Distribution List (Conservation DistList Instance 24:23, distributed: Friday, October 29, 2010).

Each survey response was examined by the authors to determine completeness and to check for duplications. There were 161 responses, 45 of which were discarded because they were incomplete. Removal of the incomplete responses resulted in 116 responses which could be used
for analysis. No duplications were found. Only one survey was found with an obvious error, which was re-coded.

All monetary data provided in currencies other than U.S. dollars were converted to U.S. dollars. Conversion was carried out on March 23, 2011, using the exchange rates on that day.

3. RESULTS

Readers are asked to consider two important factors when interpreting the results. One, the sample size is small, with only 116 respondents. Outlying data points, such as very high and very low salaries, skew the results more for smaller samples. Two, the authors cannot compare the sample size to the total number of conservators doing archaeological field work, since the latter number is unknown. AIC does not capture archaeological field work in its member profiles.

3.1 RESPONDENT DEMOGRAPHICS AND PROFILE

This section provides a summary of respondent demographics. Demographic and profile questions in the survey included gender, primary employer, level of conservation training, and level of experience as an archaeological field conservator. With the exception of geographic location, the following sections summarize quantifiable respondent demographics.

Geographic location: Of the respondents who chose to identify where they were based, the majority were conservators based in the United States, but there were also responses from conservators in Mexico, Australia, Croatia, Greece, the United Kingdom, and Cyprus.

Gender: Of the 116 respondents, 85% (99 individuals) were female, while 15% (17 individuals) were male.

Primary employer: As seen in table 1, the largest number of respondents, 39%, indicated that they worked for a museum or other cultural institution. The next largest groups were conservators who are the proprietors of private practices, at 17%, and federal or state government employees, also at 17%. Examples of responses to the “other” category, where respondents could write their own answer, included “historic preservation consulting firm” and “currently unemployed.”

Level of conservation training: Respondents were asked to choose the option which best described their level of conservation training (table 2). At 78%, the most commonly chosen option was “graduate degree in conservation.” The second largest group, 9%, were respondents who hold an undergraduate degree in conservation. Unlike the FAIC survey on compensation (AIC/FAIC 2009), this survey collected data solely on conservation training, not on all degrees held.

Level of experience as an archaeological field conservator: Respondents were asked to choose which range of experience, in terms of years, best described their experience as archaeological field conservators (table 3). Ranges varied from 0-5 years to 11 or more years. The authors considered this question to mean the number of field seasons worked to date in the conservator’s career, but did not specify this when asking the question. This question may have been understood differently by different respondents. For example, a conservator who has worked on-site 3 times in the past 12 years may have answered that s/he has 11 or more years of experience. Another conservator with the same experience may have answered that s/he has 0-5 years of experience as a field conservator. In determining respondents’ level of experience as archaeological field conservators, data from this question may be less useful than data from a later question (table 5), which asks respondents to identify how many times they have worked...
on-site in the past 10 years. For comparison, table 4 provides a cross-tabulation of responses to both questions.

The largest group of respondents, about half (44%), had the least experience. This group indicated that their level of experience was 0-5 years as a field conservator. But the next largest group, 35%, was conservators with 11 or more years of experience. Less than a quarter of respondents fell in the middle group.

3. 2 PROFESSIONAL PRACTICE

This section examines the professional practice of respondents, including whether or not they take leave from their primary job for field work, the frequency of their field work, and the location, number, and types of sites for which they work. The survey also asked about the length of time respondents typically spend on-site and about the services they regularly provide for archaeological projects.

Leave from primary employer: Two questions asked respondents about vacation and unpaid leave taken for conservation field work. Individuals who indicated that they were the proprietor of a private practice business were not asked these questions. 96 respondents answered these questions. 43% indicated that they had taken paid vacation time for field-work within the past ten years, while unpaid leave was taken by 46% of respondents.

Frequency of conservation field work: Survey participants were asked about the frequency of their field work during the past ten years (table 5). The choices ranged from “1-2 times in the past 10 years”, to “I work year-round for an archaeological project.” The greatest number of respondents chose the option with the lowest frequency.

Location of sites and number of projects: Respondents were asked if they work for archaeological sites located in the United States or in a country or countries outside the United States and were asked to choose both if applicable. 22% indicated that they worked on sites located in the United States, while 91% indicated that they worked on sites located outside the U.S. In a separate question, respondents were asked if they had worked for more than one project during the past 10 years. 66%, or about two-thirds, answered that they had.

Types of Sites: When asked about the types of sites for which they worked, terrestrial or underwater, 100% of respondents indicated that they worked on terrestrial sites. 13% also indicated that they worked at underwater sites. No respondent indicated that s/he worked solely for underwater sites.

Length of time spent on-site: Most respondents, 68%, spent 3-4 or 5-8 weeks on-site, with an even split between each choice (table 6). The next largest group of respondents indicated that they spent only 1-2 weeks on-site. Fewer numbers of respondents were on-site for 9 weeks or longer. Respondents who had previously indicated that they worked year round for an archaeological project (table 5) were not asked this question.

Services provided: Respondents were shown a menu of services commonly provided for archaeological excavations and asked to choose the ones they regularly provide (table 7). They could choose all applicable options. The highest percentage of respondents, 96%, indicated that they provided artifact processing for projects; however, only 78% provided projects with a written report describing the conservation activities performed.
Table 1. Primary employer

<table>
<thead>
<tr>
<th>Which best describes your primary employer? Please choose only one.</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
</table>
| museum or other cultural institution                          | 45       | 39%
| private conservation practice – proprietor                   | 20       | 17%
| private conservation practice – employee                     | 2        | 2%
| regional conservation lab                                     | 1        | 1%
| academic department - faculty or staff                        | 12       | 10%
| academic department - student                                 | 6        | 5%
| federal or state government                                   | 20       | 17%
| cultural resource management firm                             | 3        | 3%
| Other                                                         | 7        | 6%
| Total                                                         | 116      | 100% |

Table 2. Level of conservation training

<table>
<thead>
<tr>
<th>Which best describes your level of conservation training?</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
</table>
| no formal training in conservation (self-taught)         | 0        | 0%
| 1 or more short-courses or academic classes in conservation | 2    | 2%
| undergraduate degree in conservation                     | 11       | 9%
| traditional apprenticeship training in conservation      | 6        | 5%
| student enrolled in graduate-degree program in conservation | 6    | 5%
| graduate degree in conservation                           | 91       | 78%
| Total                                                    | 116      | 100% |
Table 3. Level of experience as an archaeological field conservator

<table>
<thead>
<tr>
<th>Which best describes your level of experience as an archaeological field conservator?</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 years</td>
<td>51</td>
<td>44%</td>
</tr>
<tr>
<td>6-10 years</td>
<td>24</td>
<td>21%</td>
</tr>
<tr>
<td>11 or more years</td>
<td>41</td>
<td>35%</td>
</tr>
<tr>
<td>Total</td>
<td>116</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4. Cross Tabulation: frequency of fieldwork (rows; data shown separately in table 5) with level of field experience (columns; data shown separately in table 3)

<table>
<thead>
<tr>
<th>Note that these results are given as numbers of individual respondents, not as percentages.</th>
<th>Which best describes your level of experience as an archaeological field conservator?</th>
<th>0-5 years</th>
<th>6-10 years</th>
<th>11 or more years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the past ten years, how often have you worked as a field conservator for archaeological projects?</td>
<td>one to two times in the past ten years</td>
<td>28</td>
<td>3</td>
<td>9</td>
<td>40</td>
</tr>
<tr>
<td>three or more times in the past ten years</td>
<td>16</td>
<td>11</td>
<td>10</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>at least once per year</td>
<td>3</td>
<td>8</td>
<td>13</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>more than once per year</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>I work year-round for an archaeological project(s)</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>24</td>
<td>41</td>
<td>116</td>
<td></td>
</tr>
</tbody>
</table>
### Table 5. Frequency of conservation field work

<table>
<thead>
<tr>
<th>In the past ten years, how often have you worked as a field conservator for archaeological projects?</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>one to two times in the past ten years</td>
<td>40</td>
<td>34%</td>
</tr>
<tr>
<td>three or more times in the past ten years</td>
<td>37</td>
<td>32%</td>
</tr>
<tr>
<td>at least once per year</td>
<td>24</td>
<td>21%</td>
</tr>
<tr>
<td>more than once per year</td>
<td>9</td>
<td>8%</td>
</tr>
<tr>
<td>I work year-round for an archaeological project(s)</td>
<td>6</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>116</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### Table 6. Length of time spent on-site

<table>
<thead>
<tr>
<th>On average, how much time do you spent on-site at an archaeological project?</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 weeks</td>
<td>22</td>
<td>20%</td>
</tr>
<tr>
<td>3-4 weeks</td>
<td>37</td>
<td>34%</td>
</tr>
<tr>
<td>5-8 weeks</td>
<td>37</td>
<td>34%</td>
</tr>
<tr>
<td>9-12 weeks</td>
<td>7</td>
<td>6%</td>
</tr>
<tr>
<td>13 or more weeks</td>
<td>7</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>110</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### Table 7. Services provided

<table>
<thead>
<tr>
<th>Which professional services do you regularly provide for archaeological projects? Please choose all that apply.</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>artifact processing such as stabilization, cleaning, and reconstruction</td>
<td>111</td>
<td>96%</td>
</tr>
<tr>
<td>conservation of architectural structures and/or elements</td>
<td>54</td>
<td>47%</td>
</tr>
<tr>
<td>conservation planning and consultation</td>
<td>67</td>
<td>58%</td>
</tr>
<tr>
<td>site management</td>
<td>23</td>
<td>20%</td>
</tr>
<tr>
<td>teaching and training</td>
<td>73</td>
<td>63%</td>
</tr>
<tr>
<td>outreach about conservation at the site (e.g., lectures, web content, or other public education efforts)</td>
<td>49</td>
<td>42%</td>
</tr>
<tr>
<td>a written report describing the conservation activities performed</td>
<td>91</td>
<td>78%</td>
</tr>
</tbody>
</table>
3.3 COMPENSATION

This section first examines salaries or stipends paid to conservators for their archaeological field work. It then looks at compensation for expenses, such as travel and room and board. Finally, it examines volunteerism by conservators on archaeological projects.

Percentage of respondents paid a salary or stipend for conservation field work: Respondents were asked a yes/no question about whether they had received financial compensation for their field work during the past 10 years. Conservators who were paid their regular salary by their primary employer while they were on-site were instructed to choose “yes.” Students had been previously instructed to consider their school to be their primary employer, and the group of respondents who were paid should be assumed to include some students who were drawing stipends from their schools.

82% of respondents, or 95 individuals, were paid for their field work, while 18%, 21 individuals, were not.

Compensation (salary or stipend): Respondents were asked, if they were willing, to provide their financial compensation. This question was optional because salary information tends to be highly sensitive. Many respondents do not wish provide sensitive information in surveys, even when the information is kept confidential, and the drop-out rate tends to be higher where such responses are required.

Of the 116 respondents, 50 individuals or 43% chose to tell us what they are usually paid. To encourage a higher response rate, the question was left open; the authors did not ask respondents to specify whether the pay given was gross or net, although they did ask respondents to indicate a time period basis for pay—i.e., weekly, per season, or fee for service.

Individuals answered with different bases for the rate—e.g.: hourly, daily, weekly, monthly or annual salary. The authors multiplied/divided amounts to get compensation per week in order to be able to report one unit. They also felt that the weekly rate of pay would be most helpful for conservators negotiating on-site salaries in future.

The minimum rate of pay was $58 per week, while the maximum was $8,000 per week. The average was $946 per week, and the median was $563 per week. The mode, or most frequently occurring rate of pay, was $1000 per week.

Provider of compensation: For this question, respondents who had been paid for their field work within the past 10 years were asked to indicate who had compensated them: the archaeological project, their primary employer with professional development funds, or their primary employer with regular salary (table 8). Keep in mind that individual respondents may have had more than one compensation source within the past 10 years.

Respondents who indicated that they were paid by an archaeological project were asked an additional question about how they determined their fee for the project (table 9). Note that highest percentage of respondents, 68%, indicated that their compensation was determined by the project’s budget.

Expenses: All respondents were asked who paid the travel and living expenses for their fieldwork (table 10). Keep in mind that some respondents worked for more than one project and that their expenses may have been covered in a variety of ways. The largest group, 80%, of respondents indicated that their expenses were covered by the archaeological project. 22% paid their own expenses. This latter group was asked an additional question about the primary reason their expenses were not covered (table 11). For this group, the largest number of respondents, 56%, indicated that the archaeological project could not or did not wish to pay their expenses.
Volunteering: This survey captured information on two groups of conservators who volunteer their services. The first group did not receive any financial compensation, defined as a salary or stipend, for their field work within the past 10 years. The second group consisted of conservators who were paid for their fieldwork at least once within the past 10 years, but who also, during that 10 year period, volunteered their services or worked at a substantially reduced rate.

The first group, who were not paid for their field work within the past 10 years, represents 18% of the total number of respondents, or 21 individuals. These individuals were asked to choose the primary reason they were not paid (table 12). For this group, the largest number of respondents, 33%, indicated that the primary reason they were not paid was because the archaeological project could not afford to pay a conservator, although it did pay other professional staff. Closely following this 33%, at 29% and 24% respectively, were respondents who were volunteering in order to gain experience and respondents who worked for projects that did not pay any professional staff. The smallest number of respondents, only 2 individuals, indicated that they were willing to volunteer their time and services regardless of the project’s ability to pay them. These 2 individuals were asked an additional question about their reasons for volunteering and both indicated that they enjoy the work.

Conservators who were paid within the past 10 years were asked if they had also volunteered or worked at a substantially reduced rate within that time. Of the 95 respondents who were paid during the past 10 years, 69%, or 66 individuals also volunteered or worked at a reduced rate. This group was asked a follow-up question about their reasons for volunteering or working at a reduced rate (table 13). The largest two groups, at 71% each, were working to gain experience and found the work enjoyable. The smallest group, 8% or 5 individuals, chose the “other” response. Write in responses included the opportunity to travel and lack of other work.

Satisfaction with compensation: All 116 respondents, regardless of whether or not they were paid, were asked if they felt adequately compensated for their field work. 41% of respondents, or 47 individuals, indicated that they felt adequately compensated, while 59%, or 68 individuals, said that they did not. This was a yes/no question, but respondents also had the opportunity to write a descriptive comment about their answer. 68 respondents chose to write comments.

Of the 47 individuals who said that they felt adequately compensated, 20 wrote a comment. Common reasons given for feeling satisfied were that they were working to gain experience, and thus felt compensated by the learning experience; that they were being paid their regular salary by their primary employer; and that they love the work. Many individuals also qualified their answers. For example, several respondents wrote statements such as: Yes, I am satisfied, but the hours are quite long.

Of the 68 individuals who said they did not feel adequately compensated, 48 chose to write a comment about their answer. Common reasons cited for dissatisfaction included: the compensation received was not enough to cover bills at home; the compensation was not adequate for the long hours and effort required; and, that conservators were underpaid compared to other professionals on archaeological projects.
Table 8. Provider of compensation

<table>
<thead>
<tr>
<th>You indicated that you have received financial compensation for your field work within the past ten years. Who compensated you? Please choose all that apply. If you are a student, please consider your school to be your primary employer.</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I was financially compensated by the archaeological project</td>
<td>68</td>
<td>72%</td>
</tr>
<tr>
<td>I was financially compensated with professional development funds provided by my primary employer</td>
<td>16</td>
<td>17%</td>
</tr>
<tr>
<td>I was financially compensated by my primary employer with my regular salary</td>
<td>46</td>
<td>48%</td>
</tr>
</tbody>
</table>

Table 9. Determination of fee

<table>
<thead>
<tr>
<th>You indicated that you have been financially compensated by an archaeological project within the last ten years. Which best describes the primary method used to determine your fee?</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>my financial compensation was determined by the project's budget</td>
<td>46</td>
<td>68%</td>
</tr>
<tr>
<td>I charged based on the amount of time spent on the project (e.g. by days, weeks, months)</td>
<td>12</td>
<td>18%</td>
</tr>
<tr>
<td>I charged based on the services provided</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>I charged based on both the time spent and the services provided</td>
<td>9</td>
<td>13%</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 10. Expenses

<table>
<thead>
<tr>
<th>In the past ten years, who has paid the travel and living expenses for your conservation work on-site? Please choose all that apply. If you are a student, please consider your school to be your primary employer</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I paid for these expenses myself</td>
<td>25</td>
<td>22%</td>
</tr>
<tr>
<td>the archaeological project paid these expenses</td>
<td>92</td>
<td>79%</td>
</tr>
<tr>
<td>my primary employer paid these expenses</td>
<td>31</td>
<td>27%</td>
</tr>
<tr>
<td>not applicable - I lived near the site(s)</td>
<td>11</td>
<td>9%</td>
</tr>
</tbody>
</table>
Table 11. Reason expenses were not covered

<table>
<thead>
<tr>
<th>Reason</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I was willing to pay my own expenses regardless of the project's financial resources</td>
<td>7</td>
<td>28%</td>
</tr>
<tr>
<td>I built the cost of my expenses into the fee I charge projects</td>
<td>4</td>
<td>16%</td>
</tr>
<tr>
<td>the project could not or did not wish to pay my expenses</td>
<td>14</td>
<td>56%</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 12. Primary reason for not receiving financial compensation

<table>
<thead>
<tr>
<th>Reason</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>the project(s) I worked for was not financially able to pay any professional staff</td>
<td>5</td>
<td>24%</td>
</tr>
<tr>
<td>the project(s) I worked for was not financially able to pay a conservator, but did pay some other professional staff members (e.g. surveyor, illustrator)</td>
<td>7</td>
<td>33%</td>
</tr>
<tr>
<td>I would have liked financial compensation, but did not feel comfortable asking for payment</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>I was working in order to gain experience</td>
<td>6</td>
<td>29%</td>
</tr>
<tr>
<td>I was willing to volunteer, regardless of the project's ability to pay a conservator</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 13. Reasons for volunteering or working at a reduced rate

<table>
<thead>
<tr>
<th>Reason</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>to gain or broaden my experience as an archaeological field conservator</td>
<td>47</td>
<td>71%</td>
</tr>
<tr>
<td>to assist a colleague</td>
<td>24</td>
<td>36%</td>
</tr>
<tr>
<td>to assist a project with few financial resources</td>
<td>42</td>
<td>64%</td>
</tr>
<tr>
<td>because I find the work enjoyable</td>
<td>47</td>
<td>71%</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>8%</td>
</tr>
</tbody>
</table>

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4. DISCUSSION

Although the authors hoped to find predictors for whether conservators are paid for field work, and for the rate of pay, the sample size was too small to identify statistically significant predictors. In this section, the authors will discuss survey findings which were of particular interest to them. Additionally, the authors will present thoughts on how to improve future surveys on this topic and identify areas for further work.

4.1 SURVEY FINDINGS

4.1.1 Gender

85%, or more than three-quarters, of respondents were female. This is interesting when compared to the FAIC survey (AIC/FAIC 2009), for which 75% of respondents were female. Keep in mind, however, that this observed difference may not be statistically significant when compared the FAIC survey due to the large difference in sample size. This survey had 116 responses which could be used for analysis, whereas the FAIC survey had a useable sample of 643 responses.

Is one gender compensated more frequently than another? 17 men took the survey, and 76% or 13 of these men, indicated that they had been paid for their fieldwork within the past 10 years. 99 women took the survey, and 83% or 82 of these women, were paid within the past 10 years. Although a difference in the percentage of individuals paid is observed in relation to gender, 76% of men paid versus 83% of women, the number of men is too small to consider this difference statistically significant.

Is gender linked to compensation? Only 50 respondents provided salary information, and only 6 of these respondents were men. There are not enough data to determine if the rate of pay is correlated with gender. However, of respondents who provided salary information, the two highest earners are a man and a woman.

4.1.2 Practice

From the questions examining individuals’ field practice, there are a few findings worthy of special consideration. The first is the number of respondents documenting their conservation field work in an end of season report (table 7). 78% of respondents indicated that they provided such a report, which means that 22%, or almost one quarter, of respondents did not. Whether or not individual artifact or architectural feature treatment records are generated for archaeological projects, an end of season report provides a professional summary of the conservator’s work during the season and is an important means of documenting and communicating such work. The full range of conservation activities on archaeological projects may not be visible to the project’s director unless these activities are communicated in writing. The authors would like to encourage conservators who are not currently submitting end of season reports to start doing so.

One question in the compensation section crosses over into practice; conservators who were paid by archaeological projects within the past ten years were asked how they had determined their fee (table 9). 68% of respondents who answered this question indicated that their compensation had been determined by the project’s budget, which suggests that most conservators were not able to set their own rates of pay.
4.1.3 Compensation by Provider

Table 8, found in Section 3.3 Compensation, reports the numbers and percentages of respondents compensated for field work in 3 ways: by the archaeological project, by their primary employer with professional development funds, and by their primary employer with regular salary. Respondents could, and did, choose more than one option, and it is clear that most conservators piece compensation together from multiple sources. 72% of respondents were compensated by an archaeological project with a salary or stipend, and in terms of expenses (table 10), 79% of respondents had their expenses paid by the project.

48% of respondents were supported by their primary employer with their regular salary. Of this 48% (46 individuals), 46% worked for a museum or cultural institution, 24% worked for federal or state government, and 13% worked as faculty or staff for an academic department. 100% of the private practice proprietors were compensated by archaeological projects.

68 respondents, or 72%, were paid at least once in the past 10 years by the archaeological project for which they worked. Of these 68 people, some were also compensated by their primary employers for archaeological field work. During the past 10 years, only 28% of respondents received no financial compensation from the projects for which they worked.

4.1.4 Practice and Compensation by Primary Employer

The authors looked in more detail at the top three groups of respondents by primary employer. These were employees of museums or cultural institutions (39%), individuals who are the proprietors of private conservation practices (17%), and the employees of federal or state governments (17%).

Of the first group, employees of museums or other cultural institutions, 82% were paid for their field work within the past ten years. Of this 87%, 73% indicated that they also volunteered or worked at significantly reduced rates. Most respondents in this group, 44%, indicated that they spent three to four weeks on-site at archaeological projects. 47% of this group took paid vacation for fieldwork, and 44% took unpaid leave. This group indicated that they were financially supported for fieldwork in a variety of ways. For provider of compensation, respondents could choose more than one option. 57% were paid their regular salary for field work, 22% were compensated with professional development funds, and 70% were paid by the archaeological project. Keep in mind that individual respondents may have had more than one compensation source within the past ten years (i.e., paid salary one year, compensated by the archaeological project in a different year). Similarly, 87% had travel and living expenses paid for by the archaeological project, 33% had these expenses paid for by their primary employer, and 18% paid these expenses themselves. There is little data on what this group is paid because not enough respondents in this group answered the salary question. Only 14 respondents chose to provide this information.

For the second group, conservators who own private practice businesses, 75% were paid for their field work within the past ten years. Of this 75%, 87% also volunteered or worked at a reduced rate. 100% of those paid were paid by archaeological projects. Most conservators in this group spent 3-4 weeks on-site. Every paid conservator in this group provided salary data. The minimum salary was $375/week, and the maximum was $8000/week. The mean was $2,069/week, the median $1,000/week, and the mode $1,000/week.

The third and last group is employees of federal or state governments. 85% of this group was paid for their field work within the past ten years. Of this 85%, 47% also volunteered or
worked at significantly reduced rates. In terms of time spent on-site, 35% of respondents in this group, the highest percentage for this question, indicated that they spent five to eight weeks on-site at archaeological projects, while 15% of respondents worked year round for a site. 25% of this group took paid vacation for fieldwork, and 40% took unpaid leave. This group indicated that they were financially supported for fieldwork in a variety of ways. For provider of compensation, respondents could choose more than one option. 65% were paid their regular salary for field work, 18% were compensated with professional development funds, and 65% were paid by the archaeological project. Keep in mind that individual respondents may have had more than one compensation source within the past ten years (i.e., paid salary one year, compensated by the archaeological project in a different year). Similarly, 75% had travel and living expenses paid for by the archaeological project, 35% had these expenses paid for by their primary employer, and 10% paid these expenses themselves. 50% of respondents in this group provided salary data. The minimum salary per week was $188, while the maximum was $1375. The mean was $522/week, and the median $354/week. There was no mode for this data set, since every salary response in this group was unique.

4.2 PREVAILING ATTITUDES ABOUT COMPENSATION FOR FIELD WORK

Conservators may be asked why they should be paid for their services, since many other professionals on academic archaeological projects appear to donate their time and expertise. In fact, most academic archaeologists and scholars continue to draw a salary from their home institution while working on excavations, while conservators who are not compensated by their primary employers will simply not be paid if asked to volunteer their time. Additionally, on academic excavations, many professionals associated with the project may be working for non-financial types of compensation. For example, scholars may have publication rights associated with specific artifact types. This is not a way in which conservators have traditionally been compensated.

Conservators who were not paid for their field work within the past ten years were asked to indicate the primary reason they were not paid (table 12). 33% of this group indicated that the archaeological project had paid other professional staff, but not the conservator. This statistic suggests that projects do budget for professional staff, if not specifically for conservation. This survey also shows that many conservators, 82%, were paid for field work during the past ten years. The authors hope that conservators will advocate for appropriate salaries for field work and be unafraid to examine the attitude that they should be willing to volunteer their services.

4.3 RECOMMENDATIONS FOR FUTURE SURVEYS

In future, it would be beneficial to collect data on whether a respondent is a member of AIC. Since the authors intended the data from this survey to benefit fellow professional conservators in North America, and intended the presentation and publication venue to be within AIC, it might have been better to specifically target AIC members (or least have been able to filter the responses accordingly). Additionally, it would be beneficial to collect data on where respondents are based. The low salaries of respondents based in developing countries may skew salary data for conservators based in North America, while the comparatively high salaries paid to conservators in the European Union may have the same effect. Knowing where the respondent is based would have allowed the data to be examined and filtered with this in mind. Limiting the survey to AIC members would undoubtedly have resulted in an even smaller sample size; however, the data might have been more useful for this group.
The survey data would have been more useful if a larger number of respondents had provided salary information. The authors have carefully considered ways to encourage respondents to provide this type of information in the future. One way might be to give ranges of pay to choose from—e.g., $0-$500/week. Asking respondents to choose a pay range might be a less intrusive way to ask about salary and encourage more individuals to provide this information. Asking the question this way would also improve data analysis, because the time basis for the rate of pay would be stipulated within the question. The authors did not specify the pay period or rate basis (weekly, monthly, per season, etc.) because they hoped to make the survey as easy as possible to take. Asking respondents to calculate a weekly rate of pay seemed like an extra step which might discourage responses to the question. However, this added significant time to the data analysis, since weekly rates had to be calculated by the authors. This survey did not collect data about funding for conservation equipment and supplies on archaeological projects. Future surveys might wish to examine this question.

4.4 FUTURE DIRECTIONS

The authors hope that the data provided by this survey, which is the first ever to examine compensation and practice for archaeological field conservators, will be useful to our professional body. The data gathered can be used in salary discussions with dig directors and/or employers. The authors would like to encourage conservators to get involved in grant writing and funding development for archaeological projects so that realistic conservation budgets are included in funding proposals. Additionally, the authors hope that this survey will encourage field conservators to educate excavation directors about the number and types of services they are providing for archaeological projects.

To gain a better picture of archaeologists’ engagement with and access to professional conservators, the authors will be conducting a survey of excavation directors. As part of this survey, respondents will be asked about their total project budget and the percent allocated for conservation.

Increased advocacy with federal agencies which fund archaeological field work, such as the National Science Foundation and the National Endowment for the Humanities, is recommended to encourage such groups to include conservation in grant narratives and budgets. More formalized and systematic outreach from AIC to professional archaeological groups is also recommended.
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NOTE

1. The data and data analysis for this paper were generated using Qualtrics Labs, Inc. software, Version 2009 of the Qualtrics Research Suite. Copyright © 2010 Qualtrics Labs, Inc. Qualtrics and all other Qualtrics Labs, Inc. product or service names are registered trademarks or trademarks of Qualtrics Labs, Inc., Provo, UT, USA. www.Qualtrics.com

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THE IMPACT OF ACCESS: PARTNERSHIPS IN PRESERVATION

AINSLIE HARRISON, KELLY MCHUGH, CHUNA MCINTYRE, AND LANDIS SMITH

ABSTRACT

Over the last several decades, increased access to collections and museums has opened the possibility for long-term relationships with Native consultants. These ongoing partnerships encourage a true dialog, thus allowing us to better preserve both the tangible and intangible aspects of museum objects. Such a partnership has developed between Yup’ik artist Chuna McIntyre and conservators at the Smithsonian Institution. Mr. McIntyre’s working relationship with Smithsonian conservators began in 2007 with the joint National Museum of Natural History (NMNH) and National Museum of the American Indian (NMAI) Anchorage Project consultations and continued in a number of other projects, including the restoration of a Yup’ik mask for the NMAI Infinity of Nations exhibit and NMNH Arctic Studies Center Recovering Voices programs. The focus of these collaborations involved comprehensive documentation (including traditional knowledge and language preservation), treatment decisions, and restorations. The mutual trust and respect fostered by the well-established partnership with Mr. McIntyre aided in each of these projects by ensuring that all perspectives were considered in the decision-making and treatment process.

1. INTRODUCTION

1.1 HISTORY OF ACCESS TO MUSEUM COLLECTIONS

For many museum professionals working with ethnographic collections providing access has become an underlying principal and commitment. The nature of this access has changed over the years as societal expectations of cultural institutions, laws and academic methodologies have evolved. Only decades ago ethnographic and natural history museums were closed to those who were considered outsiders: anyone other than academics, researchers, and curators. This included the Native descendants of those who created the objects housed in these museums.

Over the last several decades, museums have become increasingly open and inclusive, particularly with the enactment of the Native American Graves Protection and Repatriation Act (NAGPRA) in 1990. NAGPRA required American institutions with ethnographic and archaeological materials to contact Native communities, many for the first time, for the purpose of repatriation. While NAGPRA has helped push many institutions in the direction of inclusiveness, there have been many other international policy documents and museum mission statements that go further in acknowledging the rights of Native people to active involvement in the interpretation and preservation of their material culture. There are a number of excellent publications that discuss the legislation and codes of ethics addressing these issues in more depth and an abbreviated list of key policy documents is provided here (Clavir 1996; Clavir 2002; Edmunds and Wild 2000; Peers and Brown 2003; Bell and Napoleon 2008; Heald 2010; McCarthy 2011).2

The acceptance and implementation of these ethical principles has resulted in a framework of ‘consultations’ and ‘advisory committees’ within the museum context. While there are many issues still to be resolved in regard to the consultation process, namely the tendency to rely on an individual or committee to represent an entire culture, it provides a foundation for increased dialogue and wider perspectives. This relates particularly to museums such as the Smithsonian Institution (SI) that are largely geographically separated from their Native constituency and so must find mechanisms of communication that are inclusive and practical. As
these strategies continue to develop, new ideas are incorporated, such as object consultations via video conference, and a commitment to more long-term relationships with cultural representatives.

As museums seek to become more multi-vocal and inclusive, employment of Native museum professionals has provided an effective means to help achieve this goal. While employment of indigenous museum staff within institutions creates an environment of diverse cultural values, it is often necessary to supplement their specialized knowledge when projects involve cultures and subjects outside of their areas of expertise. In these cases, partnerships with Native consultants can offer similar benefits to working with permanent staff, including mutual trust developed over time, and the ability to engage in an ongoing dialog. The atmosphere of openness and problem-solving fostered by these relationships allows us to better preserve both the tangible and intangible aspects of cultural objects. Through such collaborations, it is also possible to provide improved access not just to the collections, but to all of the inter-related aspects of museum work: curation, conservation, exhibit development, public programs and education.

1.2 EXPERIENCE OF ACCESS TO MUSEUM COLLECTIONS

Chuna McIntyre, a Central Yup’ik artist, dancer, garment maker, storyteller, and musician, first travelled to New York to see the Yup’ik collections at the Museum of the American Indian (MAI) as a high school student in the 1970s (well before the name, location, and mandate of the museum were changed with the 1989 NMAI Act). Seeing the Yup’ik collections displayed at the MAI and at other museums he visited, Mr. McIntyre relays that he felt privileged to view these wonderful objects, gratitude that they had been preserved, but also frustration at finding himself always “on the other side of the glass.” While he believed each piece had stories to tell, he knew that they could only be known through access to the objects; by seeing them on all sides- front, back, inside and out.

Mr. McIntyre’s experience with museums has evolved greatly since the 1970s, particularly over the last two decades as he has worked with various levels of access to museum collections. Initially he found the collections inaccessible; eventually, he was allowed into the collections but without the authorization to actually touch any of the objects. Working within these constraints, Mr. McIntyre collaborated with the University of Michigan, School of Information to create a virtual restoration program in which Yup’ik objects could be completed with the click of a mouse. A pair of dance fans with missing and damaged plumes, for example, can be restored using the interactive DVD by pressing a button until the desired amount and types of virtual feathers are added (fig. 1). Mr. McIntyre embraced this new tool, saying “The Yup’ik are not squeamish about using new things. We find them exciting and they help us augment our culture and our place in the universe.” Using this technology, it is possible to reunite the Yup’ik objects with the materials and attachments they were meant to have, allowing their stories to come to life. In the restoration computer program, the objects are now “properly attired” in their feathers and plumes, if only virtually.
The first opportunity for Mr. McIntyre to work hands-on with a collection of Yup’ik objects came with the restoration of dance masks in the Eugene Thaw collection at the Fenimore Museum in Cooperstown, NY. Mr. McIntyre was asked to refurbish this collection as many objects were damaged or missing original attachments. In some cases, fur and feathers were worn or missing, preventing them from serving their true purpose, whether to move and sway with the dancer, or represent the celestial bodies with their whiteness. The precise number of attachments on Yup’ik objects is also significant and their loss can therefore misrepresent the meaning of that object. Mr. McIntyre relished the opportunity to help the masks and dance fans convey the story they were originally meant to tell by replacing lost pieces and adding new, bright feathers and other culturally appropriate materials.

As a youth, when Mr. McIntyre asked his Grandmother why it was so important to the Yup’ik to adorn themselves with so many accoutrements, she replied “We do it for our ancestors. We do it for them out of respect. It makes them happy to see us beautiful.” The wearing of labrets, necklaces, masks, and dance fans, whether for ceremonial occasions or for everyday, is always done with purpose and meaning. These objects all play an important role in Yup’ik culture and society; like many of the world heritage sites recently visited by Mr. McIntyre, such as the Pyramids of Egypt, Angkor Wat in Cambodia or Machu Pichu in Peru, they are expressions of our shared humanity. Seeing the reconstructed columns at Petra and conservation projects at other monuments around the world, Mr. McIntyre was struck with the importance of restoring the objects we care about. He makes the observation that with increasing globalization, these world monuments, though they belong to their respective countries, also belong to all of us, to be enjoyed by the world community.

2. CASE STUDIES

2.1 THE ANCHORAGE LOAN PROJECT

Mr. McIntyre first began collaborating with the NMNH and NMAI on the Anchorage Loan Project in 2007. This project was a long-term loan of over 600 objects for The Smithsonian NMNH Arctic Studies Center exhibit entitled, “Living Our Cultures, Sharing Our Knowledge,” which opened in their new facility at the Anchorage Museum in May 2010. Mr. McIntyre was one of many consultants who were flown to Washington DC to participate in extensive
consultations regarding all aspects of the exhibition process. Conservators and curators were interested in learning more about the technologies, traditional uses, and meanings of Alaska Native objects for documentation purposes, but also intended to engage consultants in the decision-making process for exhibit content, design and conservation treatment (Gleeson 2009; Smith 2009; Anchorage Loan website 2011).

2.1.1 Treatment Decisions

The collaborative environment and open discussion established in the Anchorage Loan Project resulted in creative treatment solutions that were aimed at preserving not just the physical objects, but the technologies and ideas behind them. During examination of a Yup’ik mask in the NMNH collection (E033114), for example, the conservators asked Mr. McIntyre and Vernon Chimalegrea, a Central Yup’ik cultural expert, about the correct placement of several detached pieces (fig. 2). Research revealed a history of exhibiting the mask in various configurations over the years. In addition, it was found that the extant caribou ruff had been added to the mask by the museum for an exhibit in the 1980s. Based on museum records and reports by early Smithsonian scientists, and comparisons with similar masks in the NMNH Anthropology collections, it was determined that masks such as this often had ruffs. However, according to Mr. McIntyre and Mr. Chimalegrea, the restored ruff was not the correct type and further, it had been attached incorrectly; this was confirmed in other such masks as well as in late 19th century drawings made by the museum scientists. Lastly, the ruff made it impossible to see areas where the detached parts might have been joined with the mask. Based on a synthesis of information from background research, museum records, examination, Yup’ik and curatorial consultation, the decision was made to remove the ruff (fig. 3). Although the ruff had not been the initial focus of the consultation, an open dialogue allowed for what was important to the consultants to come to the fore. In this case, the meaning of the mask was partially restored through the removal of the misleading, previously made additions. The detached parts travelled with the mask to Anchorage where further consultations with Yup’ik community members are planned as part of a continuing partnership between the museum and Alaska Native advisors.
Fig. 2. Conservator Landis Smith discusses the treatment of a Yup’ik mask (NMNH E033114) with Chuna McIntyre and Vernon Chimalegrea (Photograph by the Anchorage Project conservation team)

Fig. 3. Chuna McIntyre explores possible placement of a detached piece on the mask (NMNH E033114) after the caribou ruff was removed (Photograph by the Anchorage Project conservation team)
2.1.2 Simulated Restoration

Each object presents a unique set of issues; consequently, restoration may not always be an ideal solution. For example, the decision-making process took a different turn during the examination and documentation of a pair of NMNH Yup’ik dance fans, or finger masks, currently on display in Anchorage (Smith et al. 2010) (fig. 4). These fans, carved of wood and painted, were originally constructed with feather plumes inserted in holes along their edges. During one of his visits to the NMNH Anthropology Conservation Laboratory (ACL), Mr. McIntyre demonstrated the use of these fans in Yup’ik dance and expressed his opinion that the feather plumes should be restored (fig. 5). It was immediately apparent that the purpose of the plumed dance fans—to accentuate flowing arm movements—was lost in their current condition. However, the decision was complicated by the presence of original quill remnants in the holes, making it impossible to restore the plumes without their removal. This idea was problematic for the project conservators and for the curator, so a solution was found that would restore the meaning of these objects as dance fans while preserving all original materials.

Plexiglas mounts were designed that would back each dance fan, with holes drilled into the edges of the Plexiglas that exactly lined up with the original holes in the dance fans (fig. 6). Mr. McIntyre has made new feather plumes for the dance fans and will travel to Anchorage to ensure that they are placed correctly into the Plexiglas mounts. As a result, the exhibit visitor will see the fans as they were meant to be seen and understood, while the original materials are preserved intact.

2.1.3 Two-Way Flow of Information

The participation of consultants provided a wealth of information to conservators and curators and resulted in a richer and more complete exhibit in Anchorage; however, these partnerships are not just a one way flow of information but have been of benefit to all involved. For instance, during one of Mr. McIntyre’s initial visits to the NMNH ACL, he expressed the desire to copy the pattern of an elaborate Yup’ik fur parka in order to make his own (fig. 7). The commitment to an ongoing and long-term relationship with Mr. McIntyre on the part of the Anchorage Loan Project conservators allowed him to refine his method of taking patterns from garments in the collections from a first attempt using Mylar to a more successful method using glassine. Mr. McIntyre had the opportunity to work with NMNH collections, to get to know them and to use them as inspiration for his own art and the preservation of cultural traditions.
Fig. 4. Annotated photographs of Yup’ik dance fans (NMNH E217808)  
(Photograph by the Anchorage Project conservation team)
Fig. 5. Mr. McIntyre demonstrating the use of the dance fans (NMNH E217808)  
(Photograph by the Anchorage Project conservation team)

Fig. 6. Plexiglas mount with holes drilled for feathers to be inserted  
(Photograph by the Anchorage Project conservation team)
2.2 THE “RECOVERING VOICES” INITIATIVE: THE PRESERVATION OF LANGUAGE AND TRADITIONAL KNOWLEDGE

The “Recovering Voices” program is an ongoing initiative at the Smithsonian Institution that promotes collaborative research with indigenous communities worldwide in the documentation and preservation of endangered languages and traditional knowledge, especially as they relate to the Smithsonian’s collections. Mr. McIntyre participated in the initial Recovering Voices workshop by co-presenting a talk on the Anchorage Project with Landis Smith. A subsequent Recovering Voices project brought Mr. McIntyre back to the SI along with Yup’ik elder, Mark John (Calista Elder’s Council, Bethel, AK) to participate in collections consultations as part of the programming surrounding the NMNH opening of the exhibit Yuungnagpiallerput (The Way We Genuinely Live): Masterworks of Yup’ik Science and Survival. Together with NMNH curators, scientists and a conservator, Mr. McIntyre, and Mr. John recorded Yup’ik terminology and traditional knowledge of cultural objects, birds and mammals (from which the Yup’ik objects were made) collected in Yup’ik lands by early NMNH scientist, Edward Nelson (Smith 2011). The expertise and perspectives of all participants were brought together in the documentation of these collections. Many of the sessions were carried out in a public forum, further increasing and expanding access to collections by allowing museum visitors the opportunity to engage in the process of consultation and to understand the function and impact of museums beyond exhibitions. Furthermore, the public was able to hear directly from Mr. McIntyre and Mr. John about the value, meaning and current relevance of Smithsonian collections and their preservation to source communities.
2.3 THE *INFINITY OF NATIONS* EXHIBIT: RESTORATION OF A YUP’IK MASK

In 2010, working with the conservation department at the NMAI, Mr. McIntyre participated in the treatment decisions and ultimately in the restoration of a Yup’ik mask from the NMAI collection that is currently on display in the *Infinity of Nations* exhibit in New York City. Archival photographs from the 1950s revealed that several appendages had been lost since the mask was acquired by the museum, including a wooden hand and two flippers (fig. 8). The photos also made clear that the feathers had been switched between their locations and that the cylindrical appendage at the top of the mask had at some point been replaced. In its 2008 condition prior to treatment, the mask was missing the hand, two flippers, and possibly a feather. The baleen connecting the mask to the lower crescent shaped attachment was also splitting and the feathers were slightly dirty and brittle.

Mr. McIntyre explained that the mask is meant to represent a diving seal, which is signified by the central figure of a seal with its tail facing upwards. Often these masks communicate a relationship with the animal world, but also crucial is the connection with the spirit world. This is implicit in the presence of the hand on the proper right side of the mask shown in the 1950s photograph. This is not just any hand, but a spirit hand with four fingers. As Mr. McIntyre relates, “The story goes that with only four fingers and no thumb, the spirit cannot grab on to you.” Mr. McIntyre went on to convey that without its proper appendages, especially the spirit hand, the mask would be telling an incomplete story. The conservators, Mr. McIntyre, and curator Cecile Ganteaume therefore made the decision to replace the lost attachments after an exhaustive search through the miscellaneous and missing parts shelves in storage.

![Fig. 8. (Left) Archival Image of the mask (NMAI 120910.000) in the 1950s with the spirit hand present. (Right) The mask before treatment in 2008 with the spirit hand missing. (Courtesy of NMAI)](image-url)
Mr. McIntyre re-created these pieces from the early museum photos, drawing on his extensive knowledge of Yup’ik traditional arts and his skills as an artist and carver. The dimensions of the lost spirit hand were calculated using the relative size of features in the early photograph and a template was produced from these measurements. Mr. McIntyre used this template as a guide to cut a new spirit hand out of poplar, which he sanded down to match the appearance of the original hand (fig. 9). The new hand was painted in the traditional Yup’ik method using a white clay slip tinted with iron oxide for the base color and charcoal for the gray. The missing flippers for the seal figure on the mask were re-created and painted following the same steps. Holes were drilled into the re-created attachments that lined up with those already present in the mask and bamboo skewers were cut and sanded down to fit into the drilled holes. Using the traditional Yup’ik methods of attachment—mechanical peg joining—the restoration satisfied the conservation requirement of “full reversibility” as the bamboo dowels can be easily removed at any point in the future (fig. 10).

Fig. 9. Chuna McIntyre checking the shape of the new wooden attachments (Photograph by Ainslie Harrison)
Through his past experiences working hands-on with collections, Mr. McIntyre came to understand the concerns and skills that conservators bring with them and was therefore willing to compromise on several points. While Mr. McIntyre originally asked to replace all of the feathers due to their dull appearance, the conservators expressed the importance of preserving the original materials as stated in the AIC code of ethics (AIC 1994). After seeing the conservation techniques for cleaning feathers, which the conservators demonstrated for him, Mr. McIntyre agreed that the feathers could be cleaned and maintained in place.

The broken baleen join at the lower crescent shaped attachment presented a similar situation. While Mr. McIntyre was concerned that the attachment be more firmly joined to the mask, ideally using a similar mechanical peg join as used for the other attachments, he understood that it was important to the conservators to retain the original baleen in place. The team therefore worked together to carve down a supportive bamboo splint, insert it into the holes in the mask and attachment, adhere it to the splitting baleen, and tone it to match the surrounding color. The result is a secure and unobtrusive join that maintains the original baleen in situ.

Finding a middle ground in these cases was essential and required good communication, respect, and mutual understanding.

Interpreting and understanding Yup’ik masks is complex and their meanings are not always apparent to museum professionals. Through consultation and refurbishment by Mr.
McIntyre, however, the design elements of this mask were interpreted and the missing appendages replaced, thereby restoring its context and allowing the viewer a more accurate portrayal of its purpose.

3. CONCLUSION

The conservation of ethnographic collections has long been viewed in a holistic manner where the care of the artifact includes not just material considerations but context and meaning. In this way, conservation is also intimately related to the preservation and transmission of traditional knowledge. Restoration and refurbishment are therefore not only valid, but often essential components of conservation; further, those with traditional knowledge of the objects, their manufacture, and care are often the best prepared to carry out such treatments. The decision to restore an object, however, is singular, taking into consideration the individual object and its cultural and museum contexts. In the situations presented here, the well-established partnership between the conservators and Mr. McIntyre facilitated the decision-making process by allowing for an open dialog and confidence that all perspectives would be valued.

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NOTES

1. A discussion has recently arisen within the ICOM-CC Ethnographic Collections Working Group evaluating the appropriateness of the term “Ethnographic.” For more information see the discussion paper posted on the ICOM-CC website under the Ethnographic Collections Working Group: http://www.icom-cc.org/54/document/discussion-paper-on-the-name-change-of-the-working-group-ethnographic-collections/?id=969

2. An abbreviated list of policy documents and associated websites on the rights of Native people worldwide to access and active involvement in the use of their material culture:
   - *NAGPRA* (1990), United States federal law (http://www.cr.nps.gov/nagpra/)
   - *Joint Task Force Report on Museums and First Peoples* (1992), sponsored by the Assembly of First Nations and the Canadian Museums Association, Canada
   - *Previous Possessions, New Obligations, Policies for Museums in Australia and Aboriginal and Torres Strait Islander Peoples* (1993), Museums Australia (http://desgriffin.com/indigenous-intro/ppnoprinciples-2/)
- **Continuous Cultures, Ongoing Responsibilities** (2005), Museums Australia (http://www.museumsaustralia.org.au/userfiles/file/Policies/ccor_final_feb_05.pdf)
- **NMAI Mission Statement** (2006), United States (http://www.nmai.si.edu/subpage.cfm?subpage=about)
- **NMAI updated collection policy** (2008), United States

3. The exhibit *Yuungnaqpiallerput (The Way We Genuinely Live): Masterworks of Yup'ik Science and Survival* was curated by cultural anthropologist Ann Fienup-Riordan and supported by the Anchorage Museum.

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WHEN YOU DON’T CRY OVER SPILT MILK: COLLECTIONS ACCESS AT THE UBC MUSEUM OF ANTHROPOLOGY DURING THE RENEWAL PROJECT

SHABNAM HONARBAKHSH, HEIDI SWIERENGA, AND MAURAY TOUTLOFF

ABSTRACT

In the spring of 2004, The UBC Museum of Anthropology embarked on a major Renewal Project to enhance the physical, visual and virtual access to its collections. Taking a total of six years to complete, the “Partnership of Peoples” project encompassed numerous activities including digitization, mount making, packing and moving of the collection, as well as the complete redesign of the visible storage galleries. Prior to the launch of the project, MOA’s 30 year-old infrastructure was no longer able to successfully serve the increasing demands of its users. There was insufficient space to safely store and display material, and minimal room for community visits, research or new acquisitions processing. The museum’s permanent installations were also in need of a significant change in order to accommodate both community and conservation concerns.

While the project would significantly impact the museum’s operations, continued access to the collections for both researchers and originating communities throughout the process was critical. These consultations provide the intellectual, historical and spiritual context for many of the objects in MOA’s collection. The museum’s staff was able to accomplish this throughout the disruptive packing and move process by implementing a number of effective procedures and protocols.

MOA’s philosophy of access, developed through the experience of hundreds of access requests from originating community members, allows for a heightened level of access to objects for the makers/artists, or the originating families of an object. Collections staff provide guidance on care and handling as well as details on the possible or confirmed presence of contaminants in order to enable the user to make informed decision about how they will handle a piece; however precisely how an object is handled is left largely to the individual. Any damage that may subsequently occur is arguably seen as part of the object’s life as opposed to a detriment.

During the Renewal Project, collections staff were presented with the opportunity to further push the boundaries of what constitutes appropriate access thanks to some ceremonial requests that came about as part of the development of the museum’s Multiversity galleries; One of the most noteworthy requests was the re-animation of a bronze representation of the Hindu God Vishnu which involved ceremonially dressing the figure and anointing it with milk, honey and a number of other wet substances. This ceremony contravened the standard protocols set for the care of collections but the benefits to both the community and the institution were found to outweigh the risks to the physical objects.

1. INTRODUCTION

The University of British Columbia (UBC) Museum of Anthropology (MOA) houses over 37,000 objects from at least 145 global cultures. The post-modern Arthur Erickson building has recently received National Landmark Status from The Royal Architecture Institute of Canada. The museum design is integral to the flow of the gallery and exhibition spaces as well as MOA’s culturally reciprocal philosophy. MOA is committed to the collaborative process between the museum and community members. The museum’s post- modern design and concept is not only important for generating a working relationship with the originators of the cultural objects in the collection, but is also integral to supporting community access as well as other cultural events such as ceremonies and performances.

The Museum building, as it was designed in the early 1970s, was not envisioned to have non-public rooms dedicated to object storage as the collections were meant to be entirely housed in the newly conceived visible storage gallery. The premise was that a visible storage system would showcase 100% of the museum’s collections. Thus, researchers and community members could have visual access to material without having to go through museum administration. Over
time, the collections grew, and a few rooms in the non-public area of the Museum needed to be converted to object storage. In addition, the cases and drawer units in visible storage eventually filled up. Oversize objects were stored on top of cases, and objects were squeezed onto shelves, and stacked inside each other, until the available shelf space was full. Storage cupboards were added in the behind-the-scenes areas of the museum to hold further growth of the collections. Even with these conversions, the Museum’s cupboards and cases were crowded. By the end of the 1980s, acquisitions were restricted due to lack of space.

2. THE RENEWAL PROJECT

This lack of space was one of the reasons that MOA embarked on a major renewal initiative in the spring of 2004. The Renewal Project was devised to enhance the physical, visual and virtual access to the collections. One of the other driving motivators for the Renewal Project was the desire to preserve and further develop our current partnerships with the communities that created the objects in our care. It is imperative to the post-modern museum that these relationships be mutual and dynamic. These partnerships ensure that post-modern museums can be an integral part of contemporary societies. Providing the essential access to cultural objects for the originating communities not only provides the museum with valuable information about their collection, but it may also provide a platform for the cultural revitalization of certain objects. This dynamic re-integration of objects into ceremonial or cultural use is beneficial for the long-term cultural preservation of the objects and to the museum as a whole. As the scope of the entre Renewal Project is too broad to cover in detail here, this paper will focus on some key points of the project that illustrate MOA’s commitment to collections access.

![Fig. 1. The UBC Museum of Anthropology (Courtesy of the UBC Museum of Anthropology)](image-url)
Fig. 2. Old display case in the visible storage gallery (Courtesy of UBC Museum of Anthropology)

Fig. 3. Bill Reid's *The Raven and the First Men* being un-crated after completion of construction
(Courtesy of David Campion)
3. COLLECTIONS ACCESS

If you were to ask any member of the collections or conservation staff at MOA to identify the most critical aspect of their job, the answer would be ‘to provide access to the collections’ for researchers, artists, originating community members, students or the general public.

The access itself may be to the physical object and the information that the museum has about that object, but it can also be in the form of visual access in the Public Galleries or virtual access through the museum’s website or the Reciprocal Research Network to be discussed later in this paper.

4. PHILOSOPHY OF ACCESS

Throughout the past few decades, MOA has developed a philosophy of access to the belongings of originating communities that differs somewhat from our standard protocol for collections care. It differs in the understanding that the preservation of the cultural significance of an object is heavily weighted towards community use of the collections—even at the possible risk to the physical object itself. This practice has developed alongside the shift that conservators have been increasingly experiencing regarding the care of cultural material. Museum practice has moved from that of institutional privilege to a collaborative model. Now methods of care are the result of discussions between conservators and the artist or the originating community.

Miriam Clavir, former Senior Conservator at MOA furthered this practice during her tenure by stressing the important of considering the intangible aspects of an object alongside the tangible ones. In the case of a recent access request, the critical intangible element of value to the community were the lessons on style and technique that the works offered, and that could be taken back to the community. On May 5 2009, a group of Nuu-chah-nulth weavers came to MOA to work with a collection of baskets that had been woven in their community. MOA curator, Karen Duffek, was interested in gaining more knowledge about the weaving techniques and materials that had been used to make the pieces in the museum’s collections--information that was important both for inclusion in MOA object database and to assist with the interpretation of the material in the newly designed visible storage gallery.

As with all other access requests, the group was given a brief tutorial on care and handling by a collections staff person and they were informed of the possibility of pesticide residue contamination. With this information, the members of the group were then able to make an informed decision about how they would handle the material--the use of gloves, for example, was left to the individual.

With this group, the materials and the ability to handle them freely created a jovial atmosphere. This permitted a greater connection with the objects and more rewarding experience for the participants than rigid handling protocols would have allowed. The level of risk to the objects was higher given the relaxed atmosphere but this risk was viewed as acceptable.

And in fact--damage did occur. The handle of one of the pieces was broken after a classic handling error--lifting by the handle. So, is this acceptable? Should it be considered allowable damage that may in fact serve to enrich the object as evidence of use? Conservators at MOA believe this to be the case. The breakage is reparable and the damage is not an impediment to further use or study. There may be a fine line here between allowable damage and loss but staff at MOA have not yet experienced an event that has crossed that line due, in large part, to the high level of respect from all parties towards the objects being handled.
Fig. 4. Collections staff reviewing objects with community members (Courtesy of the UBC Museum of Anthropology)

Fig. 5. New display cases in the Multiversity Gallery (Courtesy of David Campion)
Fig. 6. MOA consultation session with group of Nuu-chah-nulth basket weavers
(Courtesy of UBC Museum of Anthropology)

Figs. 7, 8. Community members handling their cultural objects (Courtesy of the UBC Museum of Anthropology)
Figs. 9, 10. Nuu-chah-nulth weaver, Alice Sam, wearing a hat for MOA’s collection (Courtesy of the UBC Museum of Anthropology)

Fig. 11. Basket handle damaged during research session (Courtesy of the UBC Museum of Anthropology)
5. ACCESS DURING THE PROJECT

It was imperative that collections access be maintained throughout the Renewal Project. Community members, curators, designers, conservators and mount makers met on several occasions to decide on the exhibit parameters for the new visible storage spaces, re-named the Multiversity Galleries. Throughout the several streams of the Renewal Project, meetings were held centered on a selection of objects that either the guests or a curator selected beforehand.

6. PROJECTS STREAMS

The project streams included survey, digitization, pesticide residue testing, mount making, packing, moving and installation. In order to ensure that the objects were retrievable at any time during the years of the Renewal Project, the first step in the process was the survey and subsequent barcode assignment to every object in the collection.

This initial step was important for several reasons. First, it ensured that the most up to date information was entered into the collections management database. Secondly it meant that objects could be tracked through the multiple activity streams of the project. However, neither could function without the creation of a separate database.

Ideally an object would be digitized after the survey was complete. Community consultation also proved to be instrumental for image capture during digitization. Since the images were intended for both research and documentation, having community input about what types of images they would want to see of an object being viewed from their home community was critical. An average of four views were taken of each object. The images are currently available online using the MOA Collections Access Terminal (CAT) and the Reciprocal Research Network (RRN).

Fig. 12. Barcode scanner and laptop computer station (Courtesy of the UBC Museum of Anthropology)
The MOACAT is a collections access system that was created to give people unprecedented virtual access to MOA objects. Catalogue information and high-resolution digital images are fed to both the in-house CAT stations and an online version available on website. With either the mouse click or the touch of a screen, visitors on-site, or on-line can search or browse all the objects in the catalogue.

The RRN was one of the key components in the Museum’s Renewal Project. The RRN was co-developed by the Musqueam Indian Band, the Stó:lō Nation/Tribal Council, the U’mista Cultural Society and MOA. The RRN is an online tool to facilitate collaborative research about cultural heritage from the Northwest Coast. There are currently 17 institutions sharing information and providing on-line access to their databases on the RRN.

The second key component of the Renewal Project was the mount-making project. The mounts built during the Renewal Project were designed to serve several purposes. First and foremost, the mounts needed to provide increased earthquake mitigation for objects, both while on display and in storage. The individually fitted mounts would also provide protection against vibration for those objects going into display drawers. The mounts also need to act as service supports in order to facilitate object movement between storages, galleries and research areas. To complicate things further, these research facilitation mounts also had to be aesthetically pleasing enough to be used as display mounts in MOA’s Multiversity Gallery—the redesigned visible storage galleries that would showcase one third of the collections. Each object type presented its own set of challenges in achieving these multiple goals.

Crucial decisions about mount design and construction were made after several consultations with originating communities and MOA staff. Some community members found the clinical nature of the mounting materials or the positioning of the mounts negated the cultural
values of the originating community. In the end there were two main types of object mounts that were built during the Renewal Project with each type having several different variations.

The first type is a very sturdy brass, or brass and plexi-glass mount. These mounts were designed for objects, such as masks, which required a rigid mounting system due to the size or weight or counterbalance. It was also important to create a virtually invisible mounting system that was sturdy enough to support the objects.

Fig. 14. Tray mounted objects inset into a display drawer units in the Multiversity Gallery (Courtesy of the UBC Museum of Anthropology)

Fig. 15. Old display mount (Courtesy of the UBC Museum of Anthropology)
Fig. 16. New custom made brass mount designed to fit the interior of a mask
(Courtesy of the UBC Museum of Anthropology)

Fig. 17. A black foam and mat board Northwest Coast rattle mount prototype
(Courtesy of the UBC Museum of Anthropology)
The second type of mount conceived during the Renewal Project after much community consultation and several rounds of Oddy Testing was the black tray model. These custom built supports made of black plastizote foam and black acid free matboard were chosen for objects which had the proper weight and dimensions to fit in a drawer unit or sit on a shelf in the new cases.

In some instances, storage solutions for large or difficult object had to be devised. One such example was the handling “sleds” that were built for long, heavy headdresses. These aluminum storage mounts were designed to hold the mask’s interior mount and to allow the mask to be safely moved without touching the object.

It was also important to keep collections access in mind during the extensive packing process. Packing the collections in geo-culturally homogeneous boxes and rolling racks greatly facilitated retrieval. Throughout the packing program, priority was given to object safety, but the consideration of object density and economy of supplies due to a finite amount of storage space and a set budget was unavoidable. The objects did not have to travel far, but they still needed to be secure enough to tolerate being moved quickly through a construction zone. Soon the focus shifted to the actual move. There was intense pressure to move the collections as quickly as possible so that construction could proceed. This was also the only time during the project where the collections were not accessible. The use of rolling racks greatly facilitated a quick and efficient move and the process of moving the collection of 35,000 objects took slightly more than two weeks.

Fig. 18. An example of a “sled” or handling mount for a long, heavy headdress (Courtesy of the UBC Museum of Anthropology)
Fig. 19. A fully loaded saddle mount rolling rack (Courtesy of UBC Museum of Anthropology)

Fig. 20. Ceramics packed with corrugated rings (Courtesy of UBC Museum of Anthropology)

Fig. 21. Small figures packed in divided tray using tissue donuts (Courtesy of the UBC Museum of Anthropology)
7. NEW DIRECTIONS

The museum Renewal Project brought forth one interesting and unexpected development that pushed the boundaries of collections access. As the Multiversity Gallery began to evolve, ceremonies that were considered to be important to the health and vitality of the objects being exhibited were conducted at the request of communities. All these ceremonies involved an aligning of cultural processes and conservation practice.

An example of this was the reanimation of a bronze representation of the Hindu god Vishnu that was done in conjunction with the opening exhibit for the renewed MOA. “Border Zones: New Art across Cultures” was an exhibit in which twelve artists explored how cultural interactions shift as the boundaries between them are lessened or removed. For his contribution to the exhibit, Hindu priest, Prabakar Visvanath, focused on a bronze image of the Hindu God Vishnu from the museum’s collection. His project was to reactivate or re-sanctify for worship this figure that had been held in museum storage for 24 years by conducting an abishekam, or ritual renewal. The challenge for MOA conservators was that the abishekam would involve a number of elements that are contrary to the standard care of bronze material.

The most significant conservation concern was the use of wet and sticky substances to ritually anoint the statue; the piece was bathed in a succession of auspicious liquids including water mixed with turmeric, milk, oil, honey, and finally fruit salad. After a quick rinse, the figure was ritually dressed in miniature regalia and floral garlands before being offered a feast of fruits and sweets. The image was later taken out through the museum on a procession that was attended by members of the Vancouver Hindu community as well as the general public.

The decision to conduct the ritual bathing of the bronze was made after careful consideration of the value of the ceremony to the community and the potential risk to the
physical object. While it was very possible that the applied liquids would have had a detrimental effect on the metal, it was decided that the spiritual revitalization was an important part of the life of the figure and that it served to further the preservation of the spiritual and cultural integrity of the piece. In order to mitigate any possible damage due to the elevated moisture level, the image was thoroughly cleaned and dried by conservation staff immediately following the ceremony and then placed in a desiccation chamber prior to its eventual reinstallation in visible storage. To date, no deterioration has been observed.

A surprising aspect of the process was the anticipation on the part of those bringing the request forward that conservation would not support the ritual. Even now that the event is over, a description of the proceedings on MOA’s own website refers to the need for ‘much negotiation between conservation and curatorial departments’ before the ceremony could proceed. It seems that the impression of the conservator as the rigid and unyielding protector of the physical object is a hard one to shake.

Fig. 23. Application of fruit salad as part of an Abishekam ceremony performed on bronze representation of Vishnu from MOA’s collection. (Courtesy of the UBC Museum of Anthropology)

8. CONCLUSION

The Renewal Project brought beneficial infrastructure changes to MOA that significantly improved the visual and virtual access to the collections and increased MOA’s ability to care for, manage, and provide access to its collections. Through the project, it was recognized that collections access at MOA is an evolving philosophy that will continue to grow with community input. MOA has an established history of working with local First Nations Communities to provide access to their belongings in the collection and, in the past, many of these items would travel to the communities to be danced or displayed at special events. The evolving philosophy of access enforces this practice, but also encourages a collaboration between museum staff and community members to engage in ceremony which, while challenging to historical conservation
methods, are increasingly understood as being vital in maintaining the spiritual life of the objects. There has also been welcomed broadening of groups that come to access their cultural material to include globally transplanted communities.

The following quote from William White, a North West Coast weaver, illustrates why collections access for originating communities is a critical part of MOA’s mandate:

“One of the things that is very important to me is accessibility for my people - to come into the museum and be treated with respect and honour;” William White

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“A DEFINITE RESPONSIBILITY TO SHOULDER”1
THE PRESERVATION OF HISTORICAL OBJECTS AT THE
BAHÁ’Í WORLD CENTRE

VICTOR SOBHANI AND SONJÉL VREELAND

ABSTRACT

The unique and extensive collection of historical objects, artefacts and decorative items at the Bahá’í World Centre has profound meaning and value for followers of the Bahá’í Faith. As tangible expressions of the body of doctrine and system of values and beliefs that form the religion, these items are integral to the strong cultural tradition of Bahá’í pilgrimage. Bahá’í conservators who treat these items must balance reversibility, honoring historic integrity, the artist’s intent, a scientific understanding of the object’s make and materials with beauty, aesthetics, reverence and piety.

The Bahá’í Faith is the youngest of the world’s independent religions. Its founders, Bahá’u’lláh (1817-1892) and the Báb (1819-1850), are regarded by Bahá’ís as the most recent in the line of Messengers of God that stretches back beyond recorded time and includes Abraham, Moses, Buddha, Krishna, Zoroaster, Christ and Muhammad. A large collection of historical objects of various materials, ranging from original sacred manuscripts and texts to household items and personal effects of Bahá’u’lláh and the Báb, members of their families and other historical figures is currently housed at the Bahá’í World Centre in Haifa, Israel. The importance of collecting, documenting and conserving these items, particularly the written works, has been delineated by Bahá’u’lláh himself, and has been reiterated by his successors, as a specific responsibility for His followers. Furthermore, the first exhibitions of these objects were arranged by Shoghi Effendi, the great-grandson of Bahá’u’lláh and appointed interpreter of His writings. In addition, the Bahá’í World Centre’s first administrative building to be erected was the International Archives Building, an exhibit hall designed and constructed under Shoghi Effendi’s guidance. He stated: “now […] is the time for the friends to exert their utmost in order to preserve as much as they can of the sacred relics and various other precious objects that are associated with the lives of the Founders of the Faith” (Shoghi 1973, 4). This prescribed emphasis on preservation for posterity necessitates an awareness among Bahá’í conservators of the latest preservation developments and techniques for both professional and religious reasons and engenders a reverent approach to their work.

This essay, which formed the basis of a presentation at the 2011 annual conference for the American Institute of Conservation, seeks to define the scope of the collection at the Bahá’í World Centre and describe its curatorial aesthetics; to highlight the directives for conservation as stipulated by the religion’s sacred writings and its authoritative interpretations; to provide a material culture study; and to briefly discuss the conservation treatment of one item from among the collection: a Rodgers & Sons pocketknife belonging to the Báb.

1. SCOPE OF THE COLLECTION

In order to define the scope of the collection of objects at the World Centre, a historical introduction to the Bahá’í Faith is required. As mentioned previously, the Bahá’í Faith was founded by the Báb and Bahá’u’lláh and is the youngest of the world’s independent religions. The Báb (an Arabic title meaning “the Gate” and whose given name was Siyyid ‘Ali-Muhammad) announced in 1844 the imminent appearance of the Messenger of God awaited by all the peoples of the world. Bahá’u’lláh was a member of one of the great patrician families of Persia. Rejecting a courtly life, Bahá’u’lláh became well known for His generosity and kindliness, and His support for the message of the Báb. Engulfed in the waves of violence unleashed upon the followers of the Báb following His execution before a firing squad of 750 soldiers in 1850, Bahá’u’lláh suffered not only the loss of all His worldly endowments but was subjected to imprisonment, torture, and a series of banishments – the first of which was to Baghdad where, in 1863, He announced Himself as the One promised by the Báb. From Baghdad, Bahá’u’lláh was subsequently exiled as a prisoner to Constantinople, Adrianople, and
finally to Acre, in present-day Israel, in 1868. In 1892, He passed away in a mansion in Bahji, north of Acre, and was buried in an adjacent property. This shrine is the focal point for Bahá’ís and is visited annually by thousands of pilgrims who travel from all corners of the earth to pay their respects at His resting place. The significance of this edifice is comparable to the Western Wall in Jerusalem for Jews and the Kaaba in Mecca for Muslims.

Fifty years after His death, the remains of the Báb were brought to Haifa and buried in a simple stone structure on Mount Carmel. This building, under the directives of Shoghi Effendi, the great grand-son of Bahá’u’lláh and appointed interpreter of both the writings of Bahá’u’lláh and His son ‘Abdu’l-Bahá, was later covered with a majestic superstructure crowned with a golden dome.

These two shrines and their surrounding gardens were inscribed in 2008 as UNESCO World Heritage sites. They demonstrate Outstanding Universal Value under two criteria: 1) as tangible places of great meaning for one of the world’s religions and 2) because they are visited by thousands of pilgrims each year from around the world, and provide an exceptional testimony to, and are powerful communicators of, the strong cultural tradition of Bahá’í pilgrimage (www.whp.unesco.org).

These two shrines, along with eleven other historical sites associated with the life and imprisonment of Bahá’u’lláh and His family, as well as the administrative buildings of the religion make up the Bahá’í World Centre. These buildings in Haifa and ‘Acre and the western Galîlee represent both the historical memory and the contemporary heart of the worldwide Bahá’í community.
The collection of objects at the World Centre is therefore comprised primarily of the decorative and historical items placed inside the historic sites (known hereafter as Holy Places), many of which are partially curated as historic homes. The room of Bahá’u’lláh in the Mansion of Bahji, for example, was painstakingly recreated with replica furniture by Shoghi Effendi while the remaining rooms are curated as exhibition spaces for calligraphies, photographs, drawings, newspapers articles, letters and legal documents demonstrating the growth and global nature of the religion. The Shrines are empty spaces for praying and are decorated with elegant Persian carpets and a small number of antique decorative items such as vases and candelabra. Many also house relics, or items of historical significance used by the Báb, Bahá’u’lláh, or members of their families.

A number of these relics are displayed in the International Archives Building, a building whose construction was overseen by Shoghi Effendi. He collated the majority of the collection over a period of thirty years. The collection includes letters and sacred texts, calligraphies, photographs, clothing, jewelry, household items, writing instruments, and corporeal relics such as dried blood, locks of hair and nail pairings.

Shoghi Effendi’s curatorial work has, among others, two remarkable attributes. First, he emphasized the importance of knowing the provenance of the items in the World Centre’s collection and of being assured of their authenticity. In many instances, authenticating documentation was kept next to or inside relics alongside exhibit labels in Shoghi Effendi’s handwriting. Regarding relics associated with the ‘Abdu’l-Bahá, the son of Bahá’u’lláh, Shoghi Effendi stated: “the general principle should be that any object used by Him in person should be preserved for posterity, whether in the local or the national archives. It is the duty and responsibility of the Bahá’í Assemblies to ascertain carefully whether such objects are genuine or not, and to exercise the utmost care and caution in the matter” (The National Spiritual Assembly of the Bahá’ís of the United Kingdom 1976, 34). The assured provenance of the items and their documented history are of primary importance as it frees a Bahá’í pilgrim from doubt; they can view the displayed relics and historical objects without hesitation or uncertainty.

Secondly, Shoghi Effendi’s curatorial work was remarkable as it was aesthetically pleasing and reverent to Bahá’ís. One powerful example of how beauty and reverence frame and enhance the exhibit of these historical objects in the International Archives Building is their display inside closed decorative cabinets. The act of unveiling the items and subsequently hiding them can convey to a pilgrim that the objects within the cabinets are rare, priceless, mysterious and stately. This gesture can also communicate that the occasion to see these objects is a solemn, slow paced, and meditative experience.

In other words, Shoghi Effendi’s care and diligence in collating the collection and ensuring its provenance, and the reverent manner in which he chose to display items set the tone for how these items are viewed, appreciated, and when deemed necessary, treated by a conservator. Reverence and piety, the natural attitudes of a believer working on an object of deep personal significance to them, is further generated by the stipulations of Bahá’u’lláh and Shoghi Effendi that call for the careful preservation and conservation of these precious items.

2. PRESERVATION AND THE BAHÁ’Í FAITH

Often the most dramatic measure taken to preserve an item prior to its arrival at the World Centre was when Bahá’ís, despite suffering intense persecution and at times unwarranted death,
carefully collected these sacred objects and passed them from one generation to the next, often hiding, protecting, and preserving them from those who wished to confiscate and destroy Bahá’í properties and belongings. Now safely and securely stored at the Bahá’í World Centre, the objects are subject to present day best-practice methods of conservation in accordance with Bahá’u’ulláh’s stipulation, which is here quoted by Shoghi Effendi:

In one of the Tablets, the Pen of the Most High, referring to this foundation, which provides the best and surest, the soundest and most perfect means of collecting, safeguarding and classifying the scattered, but growing body, of Sacred Writings and relics, states: ‘It is the concern of the True One [Bahá’u’lláh] to reveal, and the concern of men to spread what hath been revealed. He will, verily, promulgate His Cause by the hands of His scattering and well-favoured angels. Spiritual souls will assuredly emerge from behind the veil of Divine protection who will gather together the tokens and Verses of God and put them into the most excellent order. This is His sure and irrevocable decree.’ (Horby 1983, 95)

In relation to the preservation of the sacred texts, Bahá’u’lláh was even more specific. He stated:

The treatment of the Tablets should be such that they remain preserved in their original immaculacy. When being read they should be placed within a second sheet, and thereafter deposited in some special place for safekeeping. (Archives Office 1983)
In other words, the preservation of the texts of the Bahá’í Faith, as well as objects associated with its two Founders is a direct and explicit instruction. Furthermore the need for conservators and museum professionals is clearly delineated. Shoghi Effendi wrote:

Now that the Cause is rapidly passing through so many different phases of its evolution, is the time for the friends to exert their utmost in order to preserve as much as they can of the sacred relics and various other precious objects that are associated with the lives of the Founders of the Faith, and particularly the Tablets They have revealed. Every believer should realize that he has a definite responsibility to shoulder in this matter, and to help, to whatever extent he can, in rendering successful and valuable work which National and local Bahá’í Archives committees are so devotedly accomplishing for the Faith in America. (Shoghi 1973, 4)

3. POCKET KNIFE OF THE BÁB: MATERIAL CULTURE STUDY

In order to further understand the significance and treatments of objects in the World Centre’s collection, let us examine this item, described as follows in the World Centre’s database:

Bone covered steel pocket knife. Made of jigged bone, two liners and a two-end spring. There are two blades: the master blade, on the right, is a drop point blade and is 4.5 cm long, with the manufacturer’s name visible on the front tang and the star and Maltese cross trademark on the back with inscriptions. The blade on the left is a pen blade and is 1.9 cm long. It has the star and Maltese trademark on the front tang and inscriptions on the back reading:

RODGERS CUTLERS
HIS MAJESTY
ENGLAND
NO. 6 NORFOLK STREET.

Both blades have a nail mark. There is one center pin and two nails on the sides made of nickel silver. With its blades sheathed the pocket knife measures 7.6 cm.

From the above mentioned inscriptions it can be inferred that the Báb’s pocket knife was manufactured sometime between 1821, the year Rodgers and Sons was granted its Royal Warrant as the official suppliers of knives and cutlery to the British monarchy, and 1850, the year of His execution. The story around the company’s designation is as extravagant as the exhibition knives they produced. John Rodgers, the second son alluded to in the company’s name, met with the Prince Regent and presented him with a miniature exhibition knife that when folded measured less than an inch long but contained fifty-seven blades and accessories. While handling the knife, the Prince dropped it onto the plush floor carpet where it was buried and difficult to retrieve. Impressed, he ordered several knives for himself and his family and Rodgers and Sons soon became the “Cutlers to the Royal Family”, emblazoning their title on their stationary, catalogues, and blades (Domenech 1999, 20–22). They proudly proclaimed themselves as makers of “The Knives of Kings and the Kings of Knives” (Domenech, 23), which reflected not only their warrant as suppliers to several successive British monarchs (King George IV, Queen Caroline, William IV, Queen Victoria, King Edward VII, and George V) but also to the Shah of Persia (Domenech 1999, 36).
Norfolk Street is located in Sheffield, an English city known for its cutlers, and sword and knife makers. Quality aside, what further distinguished Rodgers and Sons from other companies was the success of their sales abroad. By 1870, ten tons of their wares were shipped to the United States of America and they also maintained outfits in London, New York, Toronto, Montreal, Havana, Calcutta, and Bombay (Domenech 1999, 23). The presence of the pocket knife among the Báb’s possessions is a testament to the fact that despite the insistence of religious leaders to avoid contact and communication with non-Muslims and to adhere to traditions, the rapidly advancing technological, economic, political, military and cultural institutions of the West nevertheless extended their influence into the Middle East (Saiedi 2008, 5).

From the hustle and bustle of its manufacturer’s world, the pocket knife makes its way to Iran. Placed within the context as a calligrapher’s tool to sharpen reed pens, the pocket knife takes on an additional level of meaning as it becomes part of the mechanics of writing. Furthermore, as the Báb was known to, at times, reveal scripture in His own hand rather than the hand of a secretary, the pocket knife bears special connotations to Bahá’ís.

4. POCKET KNIFE OF THE BÁB: CONSERVATION TREATMENT

Conservation and restoration treatments at the Bahá’í World Centre align themselves with contemporary conservation philosophy that places an emphasis on reversibility, honoring history integrity and the artist’s intent, and a scientific understanding of the object’s make and materials. Due to the newness of the Bahá’í religion, its relics were spared the effects of early and now outdated conservation practices where, as part of their treatments, items were modified, reworked and significantly altered by artists and craftsmen (Hartin 1990, 31).

Like their display, the treatments of these objects are undertaken in a reverent manner. The reverent nature of the work conducted is demonstrated in the minimal invasiveness of the treatment. In the case of the pocket knife of the Báb, the object was only cleaned with solvent on the surface in those areas where the elements of the air slightly oxidized its metal components. The soiling that was found in between the two jigged bones were left untouched in order for future scientist and historians to be able to analyze it and to possibly determine the time and location the pocket knife was used.
The conservation and restoration of the decorative items in the Shrines – often also historical in provenance -- differ from those closely associated with the religion’s historical figures. In order to honour the sacredness of the places in which they are displayed and in order not to distract the praying and meditating visitors who gather from around the globe, these items are rendered as close to their original state as possible through the use of conservation methods; in these cases, Bahá’í conservators must balance every facet of contemporary conservation known to them alongside beauty and aesthetics. For example, a hanging gilded lamp inside the entrance to the Shrine of Bahá’u’lláh was suffering not only from serious insect damage, but most of the gilding was worn off. In addition, one of the glass panes was cracked, and some wood details were in danger of falling off. This was treated following restoration procedures rather than conservation procedures: it was completely dismantled, cleaned of dust, replaced the cracked pane with the exact same type of glass, all the insect holes were filled with bees wax, the wooden sections properly repaired and re-gilded in order to have its original beauty restored and its perfection regained.

5. CONCLUSION

In conclusion, the philosophy underlying conservation treatments conducted at the Bahá’í World Centre is unique as it is specifically mandated by the Founder of the Bahá’í Faith and treatments are carried out with a sense of reverence and respect. The end result is not only a preservation of the contents of the Shrines and Bahá’í Holy Places, but a preservation of the pilgrim’s experience – by caring for the contents of the Holy Places through conservation methods, subsequent generations of Bahá’í pilgrims will be able to visit the holy places and see the same things seen by their parents and grandparents. After first seeing the collection of relics housed at the Bahá’í World Centre in 1937, Amatu’l-Bahá Rúhíyyih Khánum, the wife of Shoghi Effendi, wrote:

If one could have walked into a museum of the authentic relics of the days and life of Christ [...] what would it have meant to the Christian believers? If they had seen His sandals, dusty from the road between Bethlehem and Jerusalem, or the mantle that hung from His shoulders - or the cloth that protected His head from the sun; what atmosphere of assurance, of wonder, even of adoration would have stirred the inheritors of His Faith. If their eyes could have rested on even one fragmentary line penned by His hand... To most of the people of the world the meaning of such things is beyond their imagining; but to Bahá’ís, believers in the newest Revelation of God’s Will as yet revealed to unfolding mankind upon this planet, this inestimable privilege has been vouchsafed. (Rabbani 2000, 63–64)

NOTES

1. (Shoghi 1973, 4)
2. The International Archives Building

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CHALLENGES FOR ESTABLISHING A CODE OF ETHICS IN KOREA: DILEMMAS OF A LATE RUNNER

SUJEONG LEE

ABSTRACT

Formalized conservation ethics have been absent in Korea for the last sixty years since modern concepts of conservation emerged in Korea. Korea’s long history in the 20th century of experiencing the Japanese colonial period (1910 ~ 1945) and the Korean War (1950 ~ 1953) has not allowed conservators to concentrate on the matters of philosophical reasoning - of why and how they preserve heritage - but demanded the reconstruction of destroyed monuments and damaged objects so as to recover national identity. Such approaches have encouraged conservators to focus on the development of conservation techniques and scientific analysis of materials, leaving conservation principles and ethical guidelines hardly explored and developed. Conservation treatment has been understood as a static and mechanical practice to follow a certain set of internationally well-known techniques rather than as a flexible social process to necessitate logical thinking and rational decision-making.

Establishing a code of ethics in Korea, as a guiding post for conservators to take a logical process for rational decision-making, has never been considered until a few pioneers stressed the importance of introducing a code of ethics to the field over the last several years through formal and informal talks (Yonghan Kim, pers. comm. December 3, 2009; Pilseung Yang, pers. comm. April 8, 2010; Yang 2011). In 2010, their input encouraged the National Research Institute of Cultural Heritage (NRICH) of Korea to provide a small government-given budget to initiate preliminary research into examining various sets of codes of ethics and professional guidelines by various institutes such as American Institute for Conservation of Historic and Artistic Works (AIC), Australian Institute for Conservation of Cultural Material (AICCM), European Confederation of Conservator-Restorers’ Organisations (ECCO), and etc. Two volumes of the report on the research outcome were published with the translated code of ethics of various institutes and distributed to conservators and libraries in 2011 (NRICH 2011). The three-year project will be completed with the announcement of Korean Conservation Code of Ethics at the end of 2012.

During the first meeting of a research advisory committee composed of professors, and conservators from museum and private companies two challenging problems were addressed: 1. The lack of recognition among conservators and policy makers about the significance of establishing conservation ethics; and 2. The concern of conservators who understand a code of ethics to be a legal enforcement to restrain their practice. Even NRICH staff had questioned the need for a code of ethics. In order to tackle these deep-rooted problems, NRICH has organized several seminars for museums, and their own NRICH staff. It has also organized an international symposium with well-known speakers from the American Institute for Conservation of Historic and Artistic Works (AIC), Australian Institute for Conservation of Cultural Material (AICCM), European Confederation of Conservator-Restorers’ Organisations (ECCO), Indian National Trust for Art and Cultural Heritage (INTACH), and Victoria and Albert (V & A) Museum, to attract public attention as well. The conference aimed to gather advice to set out a possible frame for a code of ethics to fit a Korean context.

This paper examines the problems and challenges in persuading and educating Korean conservators to understand what a code of ethics is, and why they need one in the course of their practice. It also explores the reasons why Korea was somewhat belated in setting out conservation ethics given her historical and social context. In addition, the paper introduces how NRICH has been tackling the challenges it came across during the 2010 preliminary research, such as a lack of legal recognition of the conservation profession, and problems related to the training and assessment criteria for professional competence. In delivering this paper at the AIC annual meeting, it was hoped that the paper would invite useful advice and allow others to share their experiences which could enlighten the NRICH process of conducting subsequent research. The ultimate goal of NRICH’s efforts was to introduce a draft of the code of ethics in 2011 and provide professional guidelines in 2012.

1. WHY IS A CODE OF ETHICS NEEDED IN KOREA?

1.1 HISTORICAL CONTEXT

For the last 60 years since its independence from Japanese rule, the Korean government has played a leading role in heritage management and conservation. The priority of the government was to recover national identity by re-discovering and listing various heritage
objects, and to repair any damaged objects to visually re-establish the dignity of the nation with material remains, which had been severely diminished during colonial rule. The government has implemented and applied acts and regulations such as Cultural Heritage Protection Act (1962), Traditional Temple Protection Act (1993), Historic City Preservation Act (2005), and Cultural Property Repair Act (2010), and managed conservation projects for nationally and locally valued heritage sites and objects. The budget for heritage activities has been steadily increased over time along with the economic growth and political stabilization of the country since the 1980s.

The Cultural Heritage Administration (CHA), which was under the Ministry of Culture, became an independent organization in 1999 enabling heritage related decision-making to be centralized, and its management to become more efficient. In order for the government to support heritage activities with academic foundations, NRICH was established in 1969 to conduct useful research projects for both the CHA and the public to manage and enjoy the benefit of the nation’s historical cultural material. NRICH opened the Cultural Heritage Conservation Science Center (CHCSC) in 2009 as a sub-institute of NRICH to focus on the conservation treatment of various materials. The centre is well-equipped with advanced equipment such as a multi-purpose high resolution X-ray diffractometer, a high temperature laser scanning microscope, an electron probe X-ray micro analyzer, a gas chromatography mass spectrometer system, etc., to analyze traditional materials and techniques in one place. While National Museums have looked after their collection since they took over the collection from the Japanese colonial government, NRICH and CHCSC have been involved all nationally designated movable and immovable heritage conservation which are not in the National Museum collection.

However, the aforementioned priority of the government to recover national identity previously led conservators to concentrate on the development of technical and scientific knowledge of an object. Theoretical aspects, such as why and what to conserve, and ethical principles of conserving heritage, have never been formally explored or examined for half a century. Due to the lack of attention to philosophical research, international ethical principles for conservators such as reversibility, minimum intervention, and assessing the use of traditional techniques and materials for conservation have not been adequately examined or questioned within a Korean context. Such international principles sometimes conflict with local practices, and therefore Korean ethical principles have been needed for conservators to reduce a gap between international principles and local practice and find a compatible approach to respect both.

1.2 LEGAL CONTEXT

Article 5 of the 2010 Cultural Property Repair Act (CPRA) states that all nationally and locally designated properties should be repaired and conserved by certificated conservators or a registered company. It also states that conservation of any designated object should be executed by a certificated skilled technician or a team of certificated skilled technicians. Certificated conservators have organized into two different categories: Skilled Technician and Technician. Specialties of the Skilled Technician are divided into 6 areas: 1. Building repair technician; 2. Painter of traditional patterns on the surface of timber building; 3. Surveyor and draftsman; 4. Landscape technician; 5. Conservation scientist; 6. Plant technician. The specialities ones of Technician are divided into 20 different areas including master carpenter, roof maker, carver, conservator, and etc. The “conservator” in the Technician category has two sub-specialties: fumigation technician and conservation treatment technician. The qualification criteria for
certifying a Skilled Technician and Technician are examined in two different ways: first, with a written exam followed by an interview for applicants who pass the exam. In the written test, applicants’ knowledge in the area of their specialty, and their understanding of Korean history and cultural heritage is evaluated. This interview examines an applicant’s ethical attitude and standards by asking questions on applicant’s decision-makings in his previous practice. The interview panel is composed of professors, a senior officers of CHA or NRICH, and a member of Cultural Heritage Committee (an external advisory committee for CHA to advise on important matters of designation and conservation of cultural heritage). However there is no formalised way of assessing ethical level of an applicant or criteria for judging ethical qualifications, or any explanation of what ethical attitudes are when dealing with historical objects. This displays that even though an ethical attitude is believed as an important factor to become nationally certificate conservator, no one, even in the government-regulated assessment process of certifying an ethical conservator is aware of exactly how to assess this. Furthermore, it seems that no one knows what ethical attitudes exist in conservation because these were rarely discussed or formalized.

1.3 RECENT CHANGES TO THE HERITAGE FIELD

The increased public awareness of cultural heritage in recent years has brought a change in the government-led structure of conservation; the public has emerged to become an important body in making decisions and judging the quality of conservation. Such change demands that conservators provide logical rationales for applying certain conservation treatments. Particularly since conservators are using specific materials and techniques to preserve nationally valued heritage that is significant to the entire Korean public, establishing ethical guidelines for conservators is essential.

A recent case of public criticism of cracks which formed on the newly restored wooden tablet of the main gate of Gyeongbok Palace in 2010 is an example of this change. The completion of the newly made tablet engraved with the name of the restored gate was set to coincide with Korea’s anniversary of independence from the Japanese Colonial regime on August 15th. Several months after the completion ceremony took place, cracks were found on the surface of the tablet and subsequently reported in newspapers. The public questioned the government’s responsibility and work ethic of the engraver who had disregarded the necessary period of drying for raw timber, which was seen as the reason for the appearance of the new cracks.

The increased numbers of conservators in Korea in recent years is another change in the field, and also suggests a reason for establishing the ethical code or guidelines that can guide them to practice the best quality of conservation treatment. There are almost a thousand members of the Korean Society of Conservation Science for Cultural Heritage at present who are working both in public and private conservation institutes. Their attitudes vary from one conservator to another, and therefore it is necessary to have a set of ethical guidelines in place in order for them to pursue a high standard of practice and encourage them to gradually improve the standard and quality of their work. Establishing ethical guidelines will also encourage universities to create training modules in conservation ethics and rational decision-making; these have not previously been included in the academic curriculum.
2. ESTABLISHING THE CODE OF ETHICS: THE PROCESS

2.1 INTRODUCTION OF THE PROJECT

Recognising the problems of the absence of ethical guidelines, in 2010, NRICH launched a three-year project called ‘A preliminary research for establishing a code of ethics’. Although most codes of ethics such as AIC, AICCM and ECCO have been drafted and adopted by a non-governmental institute or an association of conservators, government-based NRICH decided to initiate the research on conservation ethics and to take a leading role in introducing ethical guidelines for conservators. There is no conservators association in Korea and most conservation-related institutes or organizations work on the projects related specifically to conservation science or treatment. Furthermore, any research projects which do not directly bring monetary income have been mostly dependent on the Korean government’s involvement and support.

The Code of Ethics project aims at producing a draft ‘code of ethics’ that can be practically helpful and usable in the daily practices of conservators. The structure of the three-year project has been split into three stages: Stage 1. For the year 2010: understanding of the code of ethics and guidelines of various countries and organisations worldwide; Stage 2. For the year 2011: gathering various opinions and professional advice from a wide range of conservators who work for both, public and private institutes within Korea, and considering what aspects should be carefully considered in drafting the Korean Code of ethics; Stage 3. For the year 2012: drafting the code of ethics and consulting with Korean conservators before its final announcement.

2.2 OUTCOME IN 2010

During the first year of the project, NRICH had focused on the understanding and examination of available codes of ethics including AIC, ECCO, AICCM, and others. At the beginning of the year, the research team had the unexpected opportunity to use existing funds to organise an international conference. Because it was hosting a conference about an unknown subject—conservation ethics and principles—the NRICH research team carefully selected speakers and organized arrangements. It was essential to contribute to the best quality of the project by effectively organizing the conference so that it would be a useful opportunity to present the breadth of international codes and ‘propagate’ the importance of establishing the code among Korean conservators. Fortunately, nine presenters with experience in establishing and revising code of ethics or conservation principles in AIC, ECCO, AICCM, V&A Museum, INTACH, ICOMOS China, and Nara Research Institute of Cultural Heritage of Japan were able to attend.

Under the title ‘Conservation ethics for rational decision making: the dialogue between east and west’, invited speakers from AIC, ECCO, AICCM, England, India, China, and so on discussed similar and contrasting experiences of establishing a code of ethics. One of the common understandings derived from various attitudes towards establishing codes displayed in the presentations was that ethical codes should reflect local contexts; therefore, Korean conservators began to understand that the code of ethics should be compatible with the local practice and that is the reason why local codes should be laid out. Such recognition was important progress in Korea, where there was no consensus on the need of a code of ethics among conservators until this stage.
The conference attracted significant attention from professional conservators, related professions, students, and general public and was a tremendous success. About 350 attendees were present at the conference, and a thousand copies of the conference proceedings were distributed during and after the conference, thus publicizing the importance of and the need for a code of ethics within a local context to Korean conservators.

2.3 ON-GOING PROCESS IN 2011 AND FUTURE PLAN

Entering into the second year of the project, the research team has been working closely with Korean conservators to develop ideas on applicable ethical guidelines that are compatible with local practices. In 2011, an advisory committee of five members from a university, a museum and a conservation company was created to provide guidance on the overall process of collecting and analyzing Korean conservators’ ideas and opinions.

Two meetings for internal staff of NRICH in the first half of the year have provided ideas on what aspects should be considered in setting out ethical codes in Korea. Conservators of NRICH have contributed their opinions and suggestions and discussed dilemmas they face in their daily practices.

In the second half of the year, the research team will organize two or three more meetings with internal staff, as well as one seminar for external conservators of museums, conservation companies, and private practices. During such a process, the advisory committee will continue to play an important role in directing the project. The research outcome in 2010-2011 will be published as a preliminary report of the two-year research on the international code of ethics and domestic framework.

The third year of the project, in 2012, will involve drafting the code of ethics that will then be circulated to conservators for review and comments. This stage should be carefully designed in terms of working on the dissemination of the code and implementing it into actual practice. First, several seminars and discussion meetings will be organized for NRICH conservators to educate conservators and related professionals on ‘why’ and ‘how’ to apply the code to their actual practice. At this stage, members from several non-governmental organizations, such as the National Association of Repair Technicians and the Korean Society of Conservation Science for Cultural Heritage, will be invited to review a draft and to provide feedback before its announcement. Second, a booklet with detailed explanations of the guidelines on how to use the ethical code in actual practice will be published.

3. ESTABLISHING CODE OF ETHICS: PROBLEMS AND DILEMMAS

The problems encountered during seminars and advisory committee meetings can be summarized with two points. First, conservators are afraid of having ethical guidelines, and second, conservators are very reluctant to talk about ethical guidelines. The reasons for these suppositions are explained below.

First, many conservators are skeptical about having the codes on the basis of misunderstanding existing codes. They believe that the code will ‘handcuff’ their freedom and authority to make a decision as an expert. Such misunderstandings have been formed by the idea that ethical codes or guidelines would provide absolute direction, rather than procedural principles of making a decision. Therefore, one important point to make conservators understand during future meetings is that the code is a self-regulated indicator, allowing conservators to ask
necessary questions of themselves when they need to make decisions, and is expected to help
them to think logically in the process of decision-making.

Second, Koreans tend to avoid discussing ethical issues, because discussing ethical
guidelines can be a sensitive matter. Therefore, the first seminar intended to remove prejudices
about conservation ethics from conservator’s perception by providing examples of the useful
cases of having ethical code. Texts from international ethical code have been displayed with
practical cases in parallel so that the seminar participants could re-consider the practical benefit
of having ethical guidelines in difficult decision-making process. Such prejudices have been
deeply rooted in their thoughts so the research team had to persuade conservators that the code is
not a tool to judge their practice as right or wrong, nor is it meant to criticize the quality of their
work.

In addition, given the expectations of Korean culture, young or junior conservators were
reluctant to offer their opinions in front of senior and experienced conservators. The research
team found that only seniors gave their opinions and juniors were very quiet during the first
seminar. Such behavior might have descended from Confucian traditions which respect aged and
experienced people and their opinions. Such attitude becomes more consolidated in discussions
about ethics. Although Confucianism is no longer a dominant philosophy in modern Korean
society, the tradition still exists in Koreans’ behavior in certain situations, and impacts the
conservation field. Therefore the research team had to tackle this problem creatively. Since
junior conservators respect their seniors’ ideas, it was essential for the research team to make
senior conservators recognize the importance of establishing the code of ethics and to have an
open mind on allowing junior conservators to freely talk about the subject. A series of seminars
and discussion has been arranged by different age groups so that peer groups can feel
comfortable to talk about their dilemmas and opinions without attendance with senior
conservators. The discussion was thereafter shared with all conservators so that they can be
informed what had been discussed.

4. CONCLUSION

In 2011, the project team focused on the exchange of ideas and opinions between conservators so
that they could gather practical information to set out structure of Korean Code of Ethics. The
research outcome of 2010 on the international code has been used as a reference to discuss a
possible structure to be fitted into Korean context. In addition, necessary sub-title and contents
have been discussed in the discussion so that the project team can have an overall idea of
drafting structure and contents of the Code in 2012. The research conducted in 2010-2011 has
been shared with conservators by publishing and disseminating two volumes of report with a full
Korean translation of code of ethics by AIC, AICCM, ECCO, Canadian Association for
Conservation of Cultural Property (CAC) and the Canadian Association of Professional
Conservators (CAPC), Canadian Association of Heritage Professional (CAHP), Dutch
Association of Professional Restorers (VeRes), and Indian National Trust for Art and Cultural
Heritage’s Charter for the conservation of unprotected architectural heritage and sites in India.
The project team plans to prepare a draft of Korean Code of Ethics and take a consultation
process with conservators, art historians, heritage administrators, and etc. Once the draft is
finalized, it will be announced, with a User’s Guide, at the end of 2012. The three-year project
for establishing a Korean code of ethics has been a very challenging project, and has been
perhaps a brave and bold project that has generated many barriers for the research team to
overcome. However the process of establishing the ethics code will surely contribute to opening a new chapter for Korean conservators as they enter into a new stage of improving the quality of their practice, and better preserving the nation’s heritage.

NOTES

1. They are: 1. Mr Yonghan Kim, a director of Cultural Heritage Conservation Science Center of Korea, an archaeologist; 2. Gyeongsoon Han, a professor of Kunkook University and a wallpainting conservator; 3. Pilseung Yang, a senior conservator of Seoul Municipal Museum.

2. Cultural Heritage Administration (CHA) is a ministry-level government organization to look after cultural heritage which has been separated from the Ministry of Culture, Sports, and Tourism. CHA has a research institute, called National Research Institute of Cultural Heritage (NRICH), which mainly conducts various kinds of useful research projects which CHA uses for the management and conservation of cultural heritage. One of responsibilities of NRICH is to conduct conservation treatment for CHA so it has a sub-institute called Cultural Heritage Conservation Science Center (CHCSC), which mainly conduct conservation treatment for NRICH.

3. At present there is one central museum and eleven provincial museums, each of which has individual conservation labs for the collections with highly educated and trained conservators.


6. The Committee members were selected based on the reputation of their knowledge and interest on conservation ethics, such as a professor who teaches or mentions conservation ethics during his lecture, or who were trained in Italy and exposed to international code of ethics. Five members of the committee are: 1. Heasun Yu (National Museum of Korea, Senior Conservator); 2. Kijeong Jeong (Wuri Cultural Heritage Conservation, President); 3. Kyuho Kim (Kongju National University, Professor in material analysis); 4. Sunduk Kim (Seojin Cultural Heritage Conservation, President); 5. Gyeongsoon Han (Kunkuk University, Professor in mural painting)
7. This report (written in Korean) can be downloaded from NRICH website (http://portal.nricp.go.kr/kr/data/mkr/original/view.jsp?page=1&id=1447&subject=5&contents=1&con2=1536).

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THE JANUARY 12, 2010 EARTHQUAKE IN HAITI: BUILDING A CONSERVATION FOUNDATION FROM THE GROUND UP

STEPHANIE HORNBECK

EXPANDED ABSTRACT

The January 12, 2010 earthquake in Haiti yielded devastating humanitarian consequences, as well as wide-spread destruction of built heritage and dramatic damage to public and private collections (fig. 1). While Haiti has an established, rich tradition of creativity in the visual arts, a systematic professional commitment to historic preservation and conservation of its cultural patrimony does not exist. Thus, the ability of its art professionals to adequately respond to the severe damage from the earthquake sustained by thousands of individual art works, public monuments, and historic structures is inherently limited. Nevertheless, professionals in the culture sector recognized the critical need to recover, stabilize, and restore the nation’s cultural patrimony, while beginning to formally introduce Haitian art professionals to current principles and methods of collections care and art conservation practice.

Fig. 1. Centre d’Art, Port-au-Prince: view of collapsed building and rubble (Photograph by Stephanie Hornbeck)
In partnership with the Government of Haiti, the Smithsonian Institution Haiti Cultural Recovery Project provides conservation expertise to support preservation priorities established by a steering committee of Haitian cultural institutions. The conceptual foundation of the project was developed by Richard Kurin, Under Secretary for History, Art and Culture at the Smithsonian Institution in collaboration with Corine Wegener, President of the U.S. Committee of the Blue Shield and the Haitian Ministries of Culture and Communication and Tourism. The response effort involves the American Institute of Conservation of Artistic and Historic Works (AIC). Together with AIC’s Eryl Wentworth, Executive Director, and Eric Pourchot, Institutional Advancement Director, an American partnership was formed as part of a larger international effort to respond to Haiti that also included UNESCO and ICCROM.

The project is a Haitian, American, and international effort funded by American federal and grant funds, as well as private donations. It operates at the Cultural Recovery Center Haiti in Bourdon, Port-au-Prince. The project has an 18-month duration, running from May 2010 – November 2011. The response of the American conservation community intimately involves the American Institute of Conservation, as AIC-CERT conservators, AIC Fellows and Professional Associates, and the AIC Executive Director and Institutional Advancement Director work in

Fig. 2. Painting conservator Viviana Dominguez assesses damaged wall paintings at St. Trinity Episcopal Cathedral (Photograph by Stephanie Hornbeck)
concert to provide critical conservation expertise to a region that previously had none. AIC and Smithsonian conservators in various specializations deploy as volunteers from the United States for short periods to staff the Center (fig. 2).

The project mission aims to recover, stabilize, and conserve works of art, monuments, architectural features, and audio-visual materials damaged by the earthquake (fig. 3). To this end, American and foreign conservation expertise support preservation priorities established by Haitian cultural institutions. The role of determining what patrimony should be saved by the Smithsonian project rests with individual Haitian institutions; all decisions regarding prioritization by cultural value rest with Haitian professionals. Once an institution decides to work with the project, several documents are signed which give formal permission for the project to take cultural property to the Center where work is undertaken and where works are stored securely. The response work flow has sequential stages. Because of the volume of affected art works and the magnitude of their damage, the primary treatment objective is stabilization. It is important to emphasize that after a disaster, stabilizing the greatest volume of works possible is the priority; restoration may follow at a later stage, after urgent interventions have been undertaken.

Fig. 3. MINUSTAH Unit Commander, Project Manager Marie-Lucie Vendryes and Chief Conservator Stephanie Hornbeck support an iron sculpture recovered from the rubble (Photograph by Carmelita Douby)

Significant challenges have been encountered along the way. Our over-arching challenge involves mounting a recovery effort in a region where no infrastructure of preservation professionals exists. Thus, we have to build a foundation by first identifying potential colleagues at art institutions and at fine art and chemistry programs and then provide training and on-the-job practical experience (figs. 4, 5) at the same time as we respond to a disaster that poses advanced conservation problems These latter include: paintings that are torn, punctured, or broken; works on paper that are badly torn and crumpled; sculpture that is broken, badly deformed or corroded. In addition, mold growth has been present in many instances, due to Haiti’s tropical climate.
Fig. 4. Object Conservator Paul Jett demonstrates surface-cleaning (Photograph by Stephanie Hornbeck)

Fig. 5. Assistants catalogue recovered paintings stored in a shipping container (Photograph by Stephanie Hornbeck)
Haitian professionals have limited exposure to contemporary preservation concepts and so it has been important to introduce conservation concepts like assessment, intervention, stabilization, repair, restoration and the importance of documentation and ethical practices.

Site visits to private and public collections demonstrated that basic collections care and house-keeping measures were largely non-existent, even pre-earthquake. Except in rare cases, most institutions do not have basic written or photographic inventories of their collections. Similarly, most collections have not been prioritized to identify the most culturally important art works. The absence of this information significantly impaired recovery and treatment efforts.

Access to stable archival and conservation grade materials is very limited, and 100% of such supplies must be imported. Such supply challenges are significant and they hinder rapid response efforts greatly.

An important early decision in the project’s framework, determined that conservation work would happen in Haiti. A corollary decision of undertaking the work at facilities in Haiti, involves incorporating Haitian professionals into conservation activities at every possible opportunity. The dual objectives of establishing a local facility and training local professionals were developed with a sustainable future in mind, after the current 18-month project finishes. The combination of the effects of the disaster and its lack of qualified local responders presents a crucible. The aid of conservation professionals and the application of contemporary standards of practice may yet yield the rise of the first generation of Haitian preservation professionals.

To date more than 1.5 million US $ from federal and private funding sources have been spent on the Smithsonian’s cultural recovery project. Perhaps a quarter century of work remains. The humid climate, an absence of adequate storage conditions, a dearth of professional expertise, the continuation of out-dated practices, the absence of locally-available archival and conservation-grade materials, and a dire need of funding indicate an uncertain future for preservation in Haiti. Now Haitian professionals in the culture sector need to determine if it will be possible to build and sustain a corps of local preservation experts to care for Haitian cultural patrimony. Perhaps the most pressing questions involve funding: is there room in the national budget or more likely, are there private funding sources to train and employ Haitian collection managers and conservators in years to come?

Post-disaster cultural recovery requires an investment of years of dedication. Hopefully, our early foundation-building preservation efforts will take root and eventually flourish in a country that so values its world renowned art. Additional information about the Smithsonian Institution Haiti Cultural Recovery Project may be found at www.haiti.si.edu.

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VARIABLE MATERIALS, VARIABLE ROLES: 
THE SHIFTING SKILLS REQUIRED IN 
CONTEMPORARY ART CONSERVATION 

GWYNNE RYAN 

ABSTRACT 

The Hirshhorn Museum, one of the Smithsonian Museums located on the National Mall in Washington DC, houses a collection consisting exclusively of modern and contemporary art. As is the case in many institutions with contemporary holdings, methods of addressing the unique challenges in the preservation of contemporary art are being sought out and developed to accommodate the specific needs of the museum. In response to fundamental shifts in artistic practices, contemporary art conservators are experiencing shifts in their own roles, resulting in a need to incorporate new tools, new skill sets, and a higher level of collaboration into everyday practices. Inspired by many of the current discussions underway in the pursuit of practical solutions, the collections care staff at the Hirshhorn have been exploring ways to modify their fundamental practices in the installation, acquisition, and conservation of contemporary art.

1. CONTEMPORARY ART CONSIDERATIONS 

Many factors are contributing to an overall paradigm shift in the decision-making processes in the preservation of contemporary art. Artists’ incorporation of ephemeral or non-conventional materials into their artwork is not uncommon, and the presence of food, live animals, and various electrical components are increasingly encountered. Such is the case of the cabbages, live snails, and electric oscillating fan in the work *Palimpsest* by Ann Hamilton (fig. 1). Concurrently, artists who choose to work with more traditional art materials often employ them in unconventional formats, such as the Prussian blue pigment that is applied, highly under-bound, over the entire surface of the oversized sculpture *At the Hub of Things* by Anish Kapoor (fig. 2).

Along with the presence of unconventional materials, the designated manner of display often puts the materials at unusual or increased risk. For example, *At the Hub of Things* is displayed directly on the floor and without a protective vitrine: two essential requirements of display that pose interesting challenges in the preservation of the under-bound surface pigment that is vulnerable to significant loss through any form of handling or surface cleaning. In the case of the interactive work *Palimpsest* by Ann Hamilton, notable loss or damage to the original materials has also been unavoidable during each period of exhibition as the floor tiles, which consist of cast beeswax, are actively walked upon by museum visitors. While the choice of the artist to use this material in this way was very deliberate, the condition of interaction during display results in the unintentional darkening of the wax as the surface becomes embedded with all manner of debris and is soiled in a very short period of time.

Another layer of complexity emerges as, by definition, a contemporary artwork is in its infancy. Many artists, understandably, continue to readjust their perceptions and their approach to a particular artwork over time as both they and their audiences discover its unique idiosyncrasies as it develops a life of its own, and eventually enters into the art historical continuum. This is currently the case with the work by Hamilton where the Collection Management staff at the Hirshhorn have been in active dialogue with the artist over the course of two decades, working together with her to explore and experiment with viable options that would
allow the beeswax floor to perform its intended function without resulting in its complete destruction. In short, the approach taken at one point in the life of the work has evolved and what was deemed as appropriate at one stage becomes less so at another and vice versa.

On the other end of the spectrum, some artworks are fabricated with the understanding and the requirement that the materials must evolve or be replaced over time. Many Conceptual Art objects fall into this category. In the case of time-based media, artworks can face the inevitable issues of technological migration many times over as old formats are necessarily replaced with new ones. The challenges encountered with time-based art are representative of those encountered in contemporary art in general; however, they often occur in a condensed time frame with solutions being sought out of urgency often at a quicker rate. This point is made to stress the trend of time-based media conservation often paving the way to solutions that become viable for the broader category of contemporary art.

2. PRESERVATION OF THE IMMATERIAL

Underlying each of these above-mentioned factors is the recognized fact that more often than not there is more than just the material to preserve; now conservators are often charged with preserving the intangible aspects of the work as well. This means several things. First, the preservation of the materials can take a lower priority to the preservation of the intangible components. The concept of the 'original surface' loses its hierarchical location at, or near, the top of our priority flow chart, and understanding the role that the actual material plays in any artwork is essential. Secondly, it also means that documentation takes on a much more prominent role as the primary means of preserving the immaterial aspects of any artwork. Indeed, the lack of adequate documentation of these intangible components puts the work at risk of loss. Condition reports, treatment reports, before-, during-, and after-treatment photographs are tried and true means for documenting the material, but now there are the conceptual, performance-based, interactive, and environmental or sensory-related components that need to be addressed, and addressed in a way that makes sense, not by forcing a fit into the current material-based systems of documentation.
As mentioned earlier, practical tools for collecting and maintaining documentation are being actively discussed and sought within the contemporary art preservation field. Challenges arise as these forms of documentation often call for an increased level of narrative and the incorporation of information that comes from a variety of sources in areas of expertise far outside of the traditional materials-based conservation resources. In response, the contemporary art preservation field is acknowledging the need to explore the more well-developed methods of documenting the intangible that are practiced in the broader arena of the social sciences. In a sense, conservators are discovering the need to adopt techniques that enable an approach to artworks as ‘living’ pieces that are evolving throughout their lifetimes and in response to a myriad of social forces in a very real way.

3. INSTALLATION DOCUMENTATION

One area of focus at the Hirshhorn is the evaluation of the documentation systems for installation purposes. The high priority placed on this type of documentation is due to the fact that a significant percentage of the museum’s collection requires some form of installation and assembly to be accessible to its audience. Unlike a traditional painting or sculpture that exists as an artwork even when it is not on display, these works exist as disassembled parts. The extent of assembly required and the degree of teamwork that can be involved in the installation of these artworks can be quite extensive. The need for collaboration extends into the creation of the documentation as well, as the know-how behind the installation often comes from a wide variety of sources, sometimes outside of the museum staff, and from specializations that lie far afield of traditional conservation contractors. In the past year alone, participants in installation procedures at the Hirshhorn have included: electrical engineers, the Department of Agriculture, software engineers, a seamstress, and a billboard manufacturer. Collecting this range of invaluable and diverse input into a comprehensive report that acts not only as a recipe in a sense, but also as a record of the narrative behind any particular iteration of the work is essential, especially since the process of installation and materials of the artwork itself may be altered over time or in different environments. However, pulling it together into something coherent is not an easy task. One interesting solution to this challenge was presented by Thomas Zirlewagen at the Electronic Media Group session of the 35th AIC Annual Meeting in 2009. He describes the installation of a complex kinetic time-based media artwork at the Center for Art and Media (ZKM) in Karlsruhe, Germany in which one conservator’s involvement was as a “Documentation Conservator” dedicated primarily to collecting and synthesizing the installation documentation (Zirlewagen 2012). This has thus far not been an option in the understaffed and cost-cutting climate currently present at the Hirshhorn; however, it is an interesting model and one that may emerge into more common practice.

Video documentation is also becoming regarded as a helpful tool in the preservation of installation art, both in terms of recording the process but also as a means of capturing the overall intended experience of viewing the artwork which is particularly useful for time-based works. The on-line tutorial “Guidelines for Video Documentation of Installations” put out by the participants of the Inside Installations Project (2007) is one example of how conservators are attempting to address the need for standards to be developed for this type of documentation, just as the means for photo-documentation of the material aspects of art have been standardized within our profession. Inspired by these studies, but falling short on resources and skills, the Collections Care staff at the Hirshhorn have often collaborated with the museum’s
Communications and Education Departments, teams better suited for the function with the skill sets and the equipment and also with the desire to capture the installation process of the permanent collection for their own purposes. However, one may predict that the demand for videography capture and editing skills will only increase within the contemporary art community in the future.

4. ACQUISITION OF CONTEMPORARY ART

In recent years at the Hirshhorn, the processes around the acquisition of contemporary art have been evolving with an increased degree of input from the Collection Management department, consisting of Conservation and Registration Departments, with an emphasis on establishing the preservation parameters of the artwork in the very early stages of discussions. Curators, registrars, conservators, and exhibition staff work together as a team, first contributing to a collaborative internal pre-acquisition summary. Once the decision is made to acquire a particular artwork, this collaboration is continued in the development of the acquisition contract itself. While full access to the artwork and the artist by the conservators prior to the acquisition is common practice for the acquisition of artworks at many institutions, it becomes imperative with contemporary artworks. The ability to gain a sufficient level of familiarity with the artwork and the artist’s goals for its preservation cannot be understated as it forms the underpinnings of the language incorporated into the acquisition contract.

The development of appropriate preservation-related language within the contract is becoming accepted as an essential step in any acquisition as often the long-term preservation and maintenance of a contemporary artwork is largely dependent upon the involvement of the estate or a designated third party. In addition, the resources required for continued display and maintenance of an artwork can far exceed what is immediately evident. As a result, increased concentration is being placed on outlining from the start what the overall resources may be in caring for the work into the future and on clarifying the various roles and responsibilities of the museum and the estate in the care and maintenance of the artwork.

For example, in the recent acquisition of three separate and distinctly different installation artworks whose primary materials are electrical light fixtures and bulbs, the individual acquisition contracts were drawn up to address the unique issues of each artwork by outlining the artist or the estate’s responsibility in supplying bulbs and in providing input on viable alternatives when light bulb technologies evolve or become obsolete. In addition, and just as importantly, provisions were put in place to define the level of decision-making power that remained with the museum as owner. It should be noted that the language from one contract to the next varied as there is not necessarily a ‘one-size-fits-all’ approach to the inevitable obsolescence of bulb technologies. The inclusion of such provisions is also not limited to artwork with electrical fixtures, but can apply for any work that requires replenishment of materials or the involvement of contractors that fall outside of the conventional conservation fields in order to maintain the artwork in a fully functioning and displayable state.

Although the current acquisition protocols are evolving at the Hirshhorn, distinct ramifications to the expanding skill sets required of the conservators are already evident. While there is significant input and assistance from legal representatives in tailoring the language of the contracts, it is clear that the role of the conservator is necessarily expanding into a less-than familiar realm and highlights yet another area of professional development that is lacking in the field. The ability to decipher the language of the contract takes on increased importance as the
document, with its focus on preservation parameters, now becomes an essential part of the overall conservation documentation of an artwork that must be considered or consulted by the conservator each time the artwork’s condition is evaluated.

5. REDEFINING ROLES IN THE PRESERVATION OF CONTEMPORARY ART

In addition to the development of new documentation protocols and the adaption of a wider range of skill sets, collaboration with the artist in the preservation of his or her artwork is an essential component of contemporary art conservation. With this new role of “conservator as collaborator” comes the need to define its limitations and boundaries, specifically as they relate to the artist’s voice. Such is the case in the longstanding research project currently underway with Janine Antoni in search of solutions for the preservation of her sculpture “Lick and Lather” (fig. 3). This artwork consists of a pair of busts: one cast in chocolate and the other cast in soap. The conceptual components of this work are multi-layered and complex. The busts are self-portraits and the chocolate bust is licked by Antoni and the soap bust is bathed by her; both actions can be interpreted as either self-mutilating or self-indulgent and result in a distorted image of the artist. In addressing the preservation of this artwork, the conservators have been focusing primarily on the soap bust, working with the artist to develop a process for recasting it in a manner that will extend the life of the inherently ephemeral material while staying within the conceptual specifications tied to its fabrication.

In any treatment where the artist and conservator are in active dialogue, where side-by-side investigation and problem solving is occurring with the artist and/or the artist’s assistant, it is possible to enter into a territory that seems to be increasingly common in contemporary art conservation: that of conservator as part researcher and interviewer, but also as part participant. The conservator becomes a participant in the evolution of the artwork as the very act of studying the work and engaging with the artist can to some extent influence the overall perception of how an artwork should age. While Antoni has clearly defined the conceptual parameters as they relate to the aging of her artwork, this is not always the case. The role of the conservator as a participant in the realization of an artwork is often present to some degree with contemporary art through re-installation, re-enactment, and many times through replication of the artwork itself and ideally the boundaries of this role would be clearly established. However, these boundaries, more often than not, can become rather blurred, and require consistent re-assessment over time from artwork to artwork.

In Roger D. Abrahams’ *Ordinary and Extraordinary Experience* from the 1986 publication titled The Anthropology of Experience (45-72) he describes his role as an ethnographer: “There is a double consciousness of experience: we participate in the action but also report about it, we are part of it but are also detached witnesses. In the field, ethnographers have to be aware of themselves and their experiencing and understanding, and how their subjects experience themselves and us.” Exchanging out the word “ethnographers” for the word “conservators” creates a statement that fits the scenario of working with an artist in the fabrication of their work quite well.

These are important issues to be aware of as the inclusion of the artist is growing in prevalence in conservation practices. At the Hirshhorn, means for incorporating dialogue with the artist as a more regular and standard part of the preservation decision-making processes are being explored both through formalized interviews and informal consultations that are a part of the necessary ongoing relationship that is ultimately sought to be established. However, with this
comes the need to be aware of professional shortcomings in this arena, specifically in terms of
the incorporation of interview theory and methodology into the training of conservators.

Garden, Smithsonian Institution. Joseph H. Hirshhorn Bequest Fund, 2001. (Courtesy of the artist)

6. CONCLUSION

As the preservation of the conceptual and intangible components of contemporary artworks can
take precedence over the materials themselves, it is important for conservators to examine the
ways in which these elements are documented and preserved and to find techniques that are
adequate and appropriate rather than trying to fit them into existing materials-based methods. At
the same time, as dependence upon new forms of documentation inevitably increases, the need to
develop new skill sets, and, therefore, train conservators to fully develop these skill sets is
urgent. Underlying all of this is the increased need for collaboration and long-term relationship
building with the artists and the many new participants who play a vital role in the preservation
of these types of artworks.
REFERENCES


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ABSTRACT

This paper presents a new treatment method for Donald Judd’s geometric, three-dimensional works comprised of acrylic sheets adhered to metal supports. The purpose of this paper is to establish a new standard for retaining, rather than replacing, the original acrylic sheets, which are a critical component of such works of art.

1. INTRODUCTION

Donald Judd’s (1928–1994) three-dimensional works consist of single or multiple, seemingly simple geometric forms intended to create specific spatial arrangements within a specified physical environment. These boxlike units are usually stacked and attached to a wall. Although they appear mass-produced and industrial, these works are unique objects fabricated by highly skilled craftsmen. They closely reflect the industrial methods of the period in which they were made as well as the specific skills of the individual craftsmen who completed them under Judd’s close supervision.

2. HISTORY

Judd began using metal and acrylic sheets in his works in the early 1960s. Initially, the two materials were assembled, but by the mid 1960s, Judd had begun adhering the acrylic sheets to the metal sheets to form boxlike units. Commonly referred to as “wrap–arounds,” the units consist of acrylic sheets that are adhered to the front and sides of the underlying metal sheets. The acrylic sheet on the front of the unit overlaps the cut ends of the acrylic on the unit’s sides. The overlapping edges of the acrylic are rounded to complete the wrap-around effect. The wrap-arounds were often made of galvanized steel, copper, brass, and, most commonly, stainless steel. The acrylic sheets varied in color but were typically blue, green, violet, and red.

The first-known work utilizing adhered acrylic sheets—Untitled 1967, DSS104—was made by Judd in 1967. He subsequently completed a flurry of wrap-around stacks in the late 1960s. Undoubtedly, the bulk of wrap-arounds were made in the late 1970s, but their production continued until the artist’s death in 1994. In the absence of a catalogue raisonné, a precise account of wrap-arounds cannot be ascertained. Nevertheless, it can be stated that works of this type became one of Judd’s signature works, and numerous wrap-arounds may be found in museums, private collections, and commercial galleries throughout the world.

Untitled 1977, the topic of this paper, is situated in Judd’s residence in Marfa, Texas, which is now a museum (fig. 1). During his lifetime, Judd developed Marfa as a site for permanent installations of his works (fig. 2). Untitled 1977 is a large indoor artwork comprised of 10 identical rectilinear units stacked vertically and mounted on a wall.
Fig. 1. *Untitled* 1977. Stainless steel and acrylic sheet, 10 units, each 9 x 40 x 31 in. (22.8 x 103.3 x 78.8 cm), mounted at 9 in. (22.8 cm) intervals (Courtesy of Donald Judd Foundation, photograph by Shelley Smith)

Fig. 2. *Untitled* 1977 (on left), Donald Judd’s residence “The Block,” Donald Judd Foundation, Marfa, Texas (Courtesy of Donald Judd Foundation, photograph by Shelley Smith)
Each unit is 9 x 40 x 31 in. and separated on the wall at regular intervals of 9 in. The units are constructed of stainless steel. The top, front, and bottom of each unit were formed with a hand brake from a single metal sheet. The sides consist of two separate stainless-steel sheets folded into pans and bolted to threaded rods along the inside seams. After the stainless steel boxes were fashioned, the fabricators adhered approximately 0.125 inch-thick blue acrylic sheets of 606-0 TL to the full front and sides of the metal units, using contact cement. The corners of the three sheets were butt-joined, and the overlapping front edges rounded (fig. 3).

Treatment of Untitled 1977 was prompted by adhesive failure of one of the acrylic sheets in the fall of 2008. The stack was de-installed to avoid further detachment and potential breakage of the acrylic sheets. A following closer inspection revealed that 20 of the 30 total acrylic sheets were delaminating to various degrees, in addition to other problems with the work. It became obvious that an overall treatment was required.

![Fig. 3. Corner of one unit showing the overlap and rounded edge (Photograph by Shelley Smith)](image)

3. CONSIDERATIONS BEFORE TREATMENT

There is a long established debate about whether to use contemporary replacement parts in Judd’s works or to repair and reuse the original materials. The choice to discard the original materials and to replace them with new materials is based on the perception that Judd’s works are industrial fabrications that are easily reproduced. This view disregards the fact that the individual skills of the fabricators and the period hand tools and technology that they used were instrumental in creating the works. Although executed to the highest standards available at the time, the works display specific marks, including subtle imperfections, of the period technology, which, in most cases, no longer exists or is no longer in use. When discussing his work, Judd
stated that high-quality craftsmanship of the period is an essential feature of his works (Coplans 1971). Additionally, Judd was not a conceptual artist; his works are unique and there are no known records in which he authorized replicas of his works, or exhibition copies.

The removal of the acrylic sheets from Judd’s wrap-around stacks has been performed many times. In the currently practiced method, the original sheets are destroyed during removal and replaced with contemporary “equivalents.” The generally held view is that retaining the original acrylic sheets is unfeasible or impractical. Many, including the original fabricator and an assistant to Judd, hold this opinion. However, up until now, no one has proved that safe removal and reclamation of the original acrylic sheets is possible. Reexamining current assumptions and following the logic and ethics of conservation principles, the authors embarked on a treatment to preserve the authenticity of these works by retaining and reusing the original acrylic sheets.

A number of observations supported the authors’ ambitious aim. The nominal thickness of contemporary acrylic sheets is 1/8 in., or 0.125 in. The acrylic used on Untitled 1977 is slightly thicker, varying between 0.121 and 0.143 in. Commonly available 1/8 in. thick acrylic, measures less than 1/8 of an inch; it is typically only 0.116 in. and, in contrast with the sheets on the artwork, its thickness is more uniform.

While such differences may be ignored considering the scale of the overall object, they lead to the supposition that the original sheets are cell cast, one of three ways of producing acrylics. Cell-cast acrylic has superior hardness and machinability, and today its production is very rare (Cell Casting 2010; Evonik 2010). Acrylic that is cell cast, when compared to the currently available continuous cast and extruded types, varies in thickness and exhibits prominent shrinkage marks. During inspection of the Untitled 1977, such marks were noticed on the original sheets, along with visible variations in the thickness of the acrylic. The purchase order for Untitled 1977 specifies the color of the acrylic but not its manufacturing technique. For Judd, omitting such a detail is not unusual as purchase orders for his works often did not include a number of important details concerning the fabrication of his artworks, such as the spacing, type, and number of bolts. Molecular weight analysis would be the most effective method for identifying the manufacturing technique of the acrylic; however, this method is destructive and, therefore, has not been pursued. Although the type of acrylic sheet used for Untitled 1977 cannot be unequivocally determined without damaging the artwork, the authors, based on their observations of the artwork, deduced that cell cast grade of blue 606-0 TL was likely used. Currently, the only indisputable evidence of the type of acrylic sheet used for Untitled 1977 is the object itself. Moreover, the authors have come to realize that, to date, no information concerning the types of acrylics used for making Judd’s works is available.

Before executing the treatment, the following preparations were undertaken. The authors interviewed the son and successor of the original fabricator of Untitled 1977 to gather information about the fabrication method for fitting the acrylic sheets to the metal structures. Also, at the planning stage of treatment, the reversibility of the adhesive for securing the acrylic to the metal was carefully considered. Detachment of the original adhesive indicated that the acrylic sheets could potentially be removed without harm. Because acrylics are highly sensitive to solvents, the use of solvents would be avoided, and the original contact cement would be preferred for its initial water solubility.

A crack running nearly the full height of one unit brought into question the feasibility of removing damaged acrylic sheets without causing further damage. In preparation, the authors ordered a reproduction of cell cast 606-0 TL acrylic, should their attempt at removing the damaged original fail. The special order, which was a very close match to the thickness range of

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the 1977 original, was cut to size and delivered before the treatment started. The authors later learned that the company that produced the cell cast, Evonik Cyro, will phase out its cell cast acrylics in the United States by the end of 2011 (Evonik 2010).

4. TREATMENT

To prepare for the treatment, the exact configuration of acrylic panels on each unit was carefully marked so that the panels could later be re-adhered in the original configuration. Before removing the Plexiglas on a particular unit, the authors first located the acrylic sheet that had the poorest adhesion. The unit was then positioned so that the sheet to be detached was in vertical position. This allowed gravity to help facilitate the detachment process. Then the unit was placed on a custom-made wooden frame and carefully clamped in place to prevent the unit from moving while the acrylic panel was removed.

The acrylic panels were removed using a variety of tools, including custom-made cutting wires, typically used by potters for slicing through wet clay, as well as delicate, fine-toothed
Japanese saws. First, the authors used a thin, 1 in. long fine-toothed cutting blade with a wooden handle to probe the thin layer of the original adhesive between the acrylic and the metal. This tool, adopted from pottery making, earned the nickname “explorer” during the project. Afterward various cutting wires and Japanese Ryoba saws were used, which proved to be the most effective tools for detachment because they were thin enough to cut through the adhesive layer without cutting into or abrading the acrylic or metal (fig. 4). Furthermore, the wire and saw provided the necessary friction for sawing through the adhesive, which tended to be crumbly and brittle. Occasional squirts of water into the gap between the Plexiglas and the metal softened the glue and accelerated the process.

In an effort to prevent an accidental fall and breakage of the panel after detachment, an ACE rubberized bandage was wrapped around the unit (fig. 5). The bandage gently held the acrylic in place, while permitting it to slide slowly and safely to the floor. A piece of soft foam was placed under the acrylic sheet being removed to mitigate a sudden fall. The panels were removed one-by-one to prevent damage. The unit was repositioned on the frame for detachment of each panel.

Fig. 5. Detached acrylic sheet on the side of one unit. The unit is clamped to the Volara covered custom-made wooden frame. Note: the ACE rubberized bandage is wrapped around the unit; the foam under the acrylic sheet; and the tools used for detachment on the foam. (Photograph by Eleonora Nagy)
Glue residue on the verso of the detached acrylic sheets was mechanically cleaned using scalpels. The brittle glue separated readily from the surface of the acrylic sheets (fig. 6). Adhesive residue on the sides and fronts of the metal units was removed using a Carbopol formulated acetone gel. A thick layer of acetone gel was applied by brush to the glue residue. The area was then covered with Mylar to reduce evaporation of the solvent. The gel was left on the glue residue for 30 minutes to one hour, depending on the thickness of the glue, and then removed with a combination of scalpels and metal scrapers (figs. 7, 8).

The cleaned units were then placed on the wooden frames in order to re-adhere the original acrylic sheets. Once the units were in position, the original side panels were clamped onto the respective metal unit (fig. 9). This was done without using adhesive so that the front panels could be properly placed. This method ensured proper alignment of the acrylic sheets on the metal support, especially at the left and right corners of the front sheet. Leaning both side panels clamped to the metal support, the front sheet was carefully removed and adhered using the gel version of Weldwood Contact Cement, the adhesive originally used for fabrication. After interviewing the fabricator, the authors learned that the Contact Cement originally used resulted
in slippage of the acrylic sheets, as well as adhesive seepage during clamping, and so the higher viscosity gel version was used instead. The adhesive was evenly applied using a spreader, and the panel was clamped in position. After proper adhesion of the acrylic sheet on the front, the sides of the unit were glued one at a time. To avoid adhesive seepage, the position of the sheet being adhered always remained horizontal. To ensure even pressure on the acrylic panels during adhesion, full-size custom-made padded wooden panels were clamped onto each panel (fig. 10). Unexpected developments during treatment included a significantly longer setting time for the glue than the producer specified. Instead of the described two to three days, occasionally up to six days were necessary for the adhesive to set. The reason for this phenomenon remained unclear to the authors; however, it is suspected that high humidity might have been a contributing factor.

Although, theoretically, the metal surfaces of these rectilinear units are perfectly planar and precise in dimensions, technical attributes of the period machinery, such as bending of the metal sheets with a hand brake during fabrication, resulted in minute recesses and discrepancies in the plane and size of metal surfaces. Occasional indentations and gaps measuring up to 1–2 mm between the acrylic and the metal remained unnoticed before adhesion. The Contact Cement did not properly fill these indentations; however, adding 3M Glass Bubbles to the contact cement solved the problem. A thin plastic tube was attached to the tip of a hypodermic syringe (in place of the needle) and the mixture was squirted into the gaps. For similar projects, the authors recommend adding up to ¼ Glass Bubbles to the gel adhesive, volume to volume.

Among various challenges of the treatment was a major, disfiguring crack in the acrylic on the front of one of the units, which will be briefly described. Although the crack stretched across the front panel, it did not cause the front and side acrylic sheets to separate. The line of adhesion between the acrylic and the metal was cut, and the front and side sheets were separated as one right-angle unit. A mock-up of the metal unit was made, and the acrylic was transferred to the mock-up. A special right-angle frame was then used to allow access to the verso of the acrylic for cleaning. The crack was repaired and reinforced from the back. The repaired acrylic was then transferred from the mock-up unit and re-adhered on the metal support (fig. 11).
Fig. 9. Dry fitting of the acrylic sheets, with the front facing up (Photograph by Shelley Smith)

Fig. 10. Units clamped for adhesive setting. Note the full-size, Volara-padded wooden panels on the top of each unit. (Photograph by Eleonora Nagy)
Fig. 11. Crack on the front of and corner of unit 2. The crack starts at the top front and turns into the glue-line on the lower half of the corner. Before and after treatment. (Photograph by Shelley Smith)

5. CONCLUSION

The treatment of *Untitled* 1977 was a success, and the wrap-around stack was re-installed in its original, prominent location in Judd’s residence. Successful repair of the large crack proved that even severely damaged acrylic can be saved with this new method. The treatment is reversible and, compared to traditional approaches, requires no significant allocation of additional labor or funds (Figs. 12 and 13). This case study illustrates the importance of periodical re-evaluation of all customary treatment practices on works of art.

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NOTES

1. The word assembled here refers to objects that are fit together by bolts or screws, and readily disassembled; in contrast to works that are more permanently joined by means of soldering, welding, adhering, etc.


3. Personal communication between Bernstein and Eleonora Nagy took place in 2004. Bernstein is the son and successor of Bernstein Brothers, Inc. Bernstein Brothers Sheet Metal Specialties, Inc. fabricated an overwhelming proportion of Judd’s works made of metal, including Untitled 1977, the topic of this paper.

4. San Diego Plastics, Inc. 2220 McKinley Avenue, National City, California, 91950

REFERENCES


SOURCES OF MATERIALS

Ryoba Saw
Harima or Kungaro brands from Japan, or
Tools for Working Wood
32 33rd St., 5th Fl.
Brooklyn, NY 11232
Tel: (800) 426-4613
www.toolsforworkingwood.com

3M Glass Bubbles K1
http://solutions.3m.com/wps/portal/3M/en_US/Oil-Gas/Home/Prod_Info/Prod_Catalog/?nid=M819LFMJR7beMV4WNM35VFgl

ACE Rubberized Bandage
Local pharmacy

Weldwood Contact Cement
DAP Weldwood Gel Formula Contact Cement

Pottery cutting wires and various pottery tools
Pearl Fine Art Suppliers
http://www.pearlpaint.com/

Carbopol
BFGoodrich Company
Specialty Polymers & Chemicals Division
9911 Brecksville Rd.
Brecksville, OH 44141-3247
Tel: (800) 331-1144
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BALANCING ETHICS AND RESTORATION IN THE CONSERVATION TREATMENT OF AN 18TH CENTURY SEWING BOX WITH TORTOISESHELL VENEER

LORI TRUSHEIM

ABSTRACT

The AIC Code of Ethics provides a framework for professional conduct in treatment decision making, and it is a universal understanding among conservators that a conservation treatment should not entail the removal of original material. However, what is the ethical approach to a treatment when an object is so badly damaged that the only way to recover the artist’s original intent is to remove original material? Is it ever acceptable to deconstruct in order to reconstruct?

This fundamental challenge was encountered during the conservation treatment of a Palais Royal sewing box dating to the 18th century. The box is fabricated from wood and decorated overall with tortoiseshell veneer, of which the top panel contains carved mother-of-pearl inlay. Owned by a private collector in Maryland, the box held deep sentimental value to the collector and his family. Unfortunately, the box had sustained damage resulting in dimensional changes to the wood substrate as well as splitting, warping and significant loss of tortoiseshell veneer and associated mother-of-pearl inlay. More specifically, over one quarter of the tortoiseshell veneer with inlay on the top panel was missing, completely destroying any semblance of the original appearance. The dimensional changes to the tortoiseshell created jagged edges and protruding points that put the object at greater risk for loss.

The initial treatment involved stabilization, loss compensation and as much in situ flattening of the tortoiseshell as possible. The angles of the tortoiseshell cleavage combined with the location of the inlay and dimensional changes of the wood substrate inhibited a satisfactory result in flattening the veneer, but the treatment stayed within the ethical guidelines for our profession. The client, however, was not satisfied with the outcome and requested further treatment to bring the sewing box closer to its original appearance.

This paper will explain the decision making process employed to navigate this complicated treatment. Topics to be covered include: manufacturing techniques for tortoiseshell and mother-of-pearl inlay specific to this box; overview of structural and chemical features of tortoiseshell; loss compensation techniques for tortoiseshell veneer; the role of AIC code of ethics in the conservation treatment process, and discussion of conservator conduct in relation to client expectations for restoration as part of the conservation treatment.

1. INTRODUCTION

The degree of restoration desired by collectors and private clients can potentially challenge established standards of practice for conservators in private practice. This paper will describe how the concepts outlined in the AIC Code of Ethics and Guidelines for Practice guided the author through a composite object conservation treatment.

2. BACKGROUND

The object at the center of this discussion is an 18th century Palais Royal sewing box owned by a private collector; the box embodied precious family memories and held extreme sentimental value (figs. 1–2). Many can relate to the appeal of such boxes as described in the book Antique Boxes, Tea Caddies & Society 1700-1880, “The box is the great temptation. ‘Open me’ it says. The human cannot resist it; its charm is overwhelming” (Clarke and O’Kelly 2003, 5). The box’s date of manufacture places it in context with the public opening of the shopping and entertainment district at the Palais Royal, which was originally constructed in 1639 for Cardinals and royalty.
Fig. 1. Palais Royal sewing box, before treatment (Photograph by Lori Trusheim)

Fig. 2. Palais Royal sewing box, before treatment (Photograph by Lori Trusheim)
Fig. 3. Diagram of turtle scutes (Amazing Amazon Exotic and Australian Pets 2012)

Fig. 4. Historic manufacturing tools (from R. Remetter 3)
3. HISTORIC MANUFACTURE OF TORTOISESHELL

A review of the manufacturing methods and chemical structure of tortoiseshell is integral to the understanding of its deterioration mechanisms as well as treatment options. The hawksbill turtle is the primary source of shell used in decorative art objects; however, the green turtle and loggerhead turtle are also used (Espinoza and Baker 2007). The mottled upper surface is called the carapace and the blonde underside is called the plastron. The shell contains multiple plates, also called scutes (fig. 3). Some accounts of scute retrieval state that an extremely inhumane method was used, with the living creature suspended over a fire until the plates separated from the bone (Webster 1975). A precise amount of heat was required because excessive heat would darken and ruin the appearance of the shell.

Once the plates were removed, heat, pressure, mechanical scraping and filing were used to flatten the panels. Further shaping was achieved by working with hand tools, or by boiling in salted water to make it pliable, or by applying direct heat. To acquire curves or bends, warmed tortoiseshell sheet was placed in a heated wooden or copper mold, the positive and negative sides were screwed tight, and the mold immersed into hot water and tightened progressively (fig. 4). A pigmented coating (fish glue and pigment varying in color from black, green, red and white) was often applied to the back surface of the tortoiseshell prior to gluing to the wooden core; this coating would enhance the beauty of the shell and cover up any irregularities on the substrate. To create a recess for inlay a hot metal tool could be used, or inlay could be physically pressed into the heated tortoiseshell using molds and a press as described above (Holtzapffel 1843, reprinted 2000).

4. CHEMICAL NATURE OF TORTOISESHELL

Tortoiseshell has a structure similar to human nail, cow hoof and bird claw; all of which consist of a broad class of fibrous proteins called keratin (long chain polymer of amino acid). Cysteine is the primary amino acid specific to tortoiseshell and sulfur is critical to its function. Sulfur molecules link together and form disulphide chemical bonds (fig. 5). These bonds are very strong; however, heat can break down or cleave some of the disulfide bonds, making the substance pliable. Upon cooling, the disulphide bonds reform and the structure becomes rigid in its new conformation.

Although the disulphide bonds make keratin insoluble in water, some of the polypeptide chains in keratin are held together by hydrogen bonding, which allows water to penetrate into the keratin structure and causes swelling and dimensional change (Florian 2007). The physical structure of tortoiseshell is created as the keratin is deposited in layers associated with bone growth (Carr and Meylan 1980). With age, tortoiseshell can become desiccated and brittle causing microscopic separations between the layers of keratin and this air gap can cause a loss of translucency (Fenn 1983).
5. EXAMINATION OF THE PALAIS ROYAL BOX

The box has a hinged lid that opens to show a fitted tray for sewing accoutrements; the tray has silver handles on the sides that allow its removal to reveal a silk-lined storage compartment. There is a slide out drawer at the bottom with an ivory knob. The lid interior has a mirror framed by four silk-covered panels. The box sits upon four round silver feet. The back corners of the slide out drawer display slot mortise and tenon joinery. The surface was decorated with flat and curved tortoiseshell veneer overall. The tortoiseshell panels are separated by silver metal edging that conforms to the shape of the panel and the perimeter of the central top panel on the lid is surrounded by strips of ivory. The panels were adhered to the gesso ground, most likely using animal glue. The top tortoiseshell panel is decorated with mother-of-pearl inlay in a floral motif. Decorative detail lines were carved or etched into the mother-of-pearl inlay and a bituminous looking substance was applied into the recesses. Examination of the lid at various areas of damage show a very thin tortoise layer below the mother-of-pearl inlay, indicating that the floral inlay was embedded into the tortoiseshell layer as opposed to the inlay inserted into a void carved in the tortoiseshell. As described in the ‘Historic Manufacture’ section above, the lid inlay appears to have been made by the method where incised mother-of-pearl decoration and tortoiseshell were clamped together in a mold; the mold was placed into press and submerged in hot water and after sufficient heating, it was finally dipped into cold water. This method created a top panel consisting of a singular piece of tortoiseshell with inlay physically pressed into the tortoiseshell panel without adhesive, mechanically locked into place by the thermoplastic quality of tortoiseshell (fig. 6).

6. CONDITION

Many of the condition problems are the result of the box’s various organic components expanding and contracting at different rates. Fluctuations in the environment (cycling temperature and relative humidity combined with direct sunlight) and improper handling by
young children are contributing factors to the box’s current condition. The problems include:
lifting, warped and missing veneer (tortoiseshell and mother-of-pearl), and missing ivory inlay.
The greatest visual distraction was the large area of loss in the central tortoiseshell and mother-
of-pearl panel at top. Furthermore, the extant tortoiseshell around the loss has cracked, split
open, and warped so that one side of a break overlaps the adjacent surface. In addition to the
physical deformation of the tortoiseshell, the wooden substrate has also undergone dimensional
shrinkage making it almost impossible to flatten and set down the tortoiseshell veneer without
carving back some of its perimeter edges (figs. 7–9). Some of the extant mother-of-pearl inlay
was also cracked due to the movement of tortoiseshell veneer. At the time of the initial client
meeting, the issues of loose and lifting veneer and loss compensation were deemed high priority
to prevent subsequent loss of veneer and to bring the object closer to its original appearance.

7. TREATMENT

Initial treatment involved stabilizing areas of lifting veneer. The white ground, used as an
adhesive and gap-filler between the wooden substrate and veneer, is highly water soluble and
estimated to be animal glue and a white pigment as described in the Holtzapffel text. Paraloid
B-72 in acetone was injected below any areas of lifting tortoiseshell; this adhesive was chosen
for its long-term stability and because the solvent would not dissolve the white ground.

To address the large missing area of veneer on the top panel, three options were
considered: 1) Remove the top panel, humidify and flatten it, cast a fill in the corner, replace on
box. 2) Remove and save the top panel, and create a replacement panel that attaches to top of
box. 3) Humidify and flatten the panel in place, and add a detachable fill.

The first treatment option would require that the tortoiseshell veneer be faced to
minimize damage to all the cracked areas, then the panel would be removed as a whole unit by
separating it from the white ground either by injecting water or applying laponite water gel (5% in
distilled water) below the veneer to soften the ground allowing removal of the panel. Warped
and overlapping sections of tortoiseshell would probably need to be sanded or shaved in order to
fit back together and the perimeter edge of tortoiseshell may need to be cut back in order for it to
fit within the shrunken wooden substrate. Humidity and heat would be required to flatten the
panel. All of these steps require significant intervention. While this first option was initially
considered, it was not certain that the aesthetic improvement would be ethical or contribute to the
long-term preservation of the material. The second treatment option would require the same steps
as above to remove the top panel, but a replacement panel would be fabricated using modern
materials. This treatment option was considered to be unethical and unwarranted given the extent
of original material left. The third treatment option would allow for the top panel to remain in
situ, which would be the least invasive and best choice to attain long-term preservation goals
while achieving a visually integrated object.

In this case, the proximity of the large loss adjacent to the severely warped tortoiseshell
made the issue of structural repair directly linked to loss compensation. Sorting through the
above treatment options was aided by a review of the AIC Code of Ethics, especially Guideline
23, Compensation for Loss and its commentary. Relevant portions of this guideline include:
Fig. 6. Sewing box, detail of top panel, before treatment (Photograph by Lori Trusheim)

Fig. 7. Sewing box top panel, detail of cracking, splitting and dimension change (Photograph by Lori Trusheim)
Figs. 8, 9. Sewing box top panel, details of cracking, splitting and dimension change
(Photographs by Lori Trusheim)
Any intervention to compensate for loss should be documented in treatment records and reports and should be detectable by common examination methods. Such compensation should be reversible and should not falsely modify the known aesthetic, conceptual, and physical characteristics of the cultural property, especially by removing or obscuring original material. (AIC 2010, 50)

The commentary section of this guideline adds:

This guideline refers to physical loss to the material of a cultural property or loss of original appearance through chemical change. Loss may have a structural and/or visual effect. The baseline for determining the nature and extent of loss is the point at which the cultural property was generally accepted as completed, although compensation need not return the cultural property to this state. The original completed state (what the artist/maker actually did) takes precedence over the artist’s/maker original intent in guiding the nature and extent of compensation for loss. (AIC 2010, 50)

Consideration of Guideline 23 contributed to the conservator choosing the third option which involved keeping the panel in place; however, this choice would minimize the extent of veneer flattening that could be carried out. The words “less is more” and “do no harm” very much influenced the treatment approach.

8. TORTOISESHELL LOSS COMPENSATION OPTIONS

The box’s owner was savvy to current laws that protect endangered species, but he was interested to know the extent to which authentic materials could be used in the restoration. Here again, Guidelines for Practice mandate that conservators remain aware of laws affecting our professional activity as described in Guideline 3–Laws and Regulations:

The conservation professional should be cognizant of laws and regulations that may have a bearing on professional activity. Among these laws and regulations are those concerning the rights of artists and their estates, occupational health and safety, sacred and religious material, excavated objects, endangered species, human remains, and stolen property. (AIC 2010, 28)

The hawksbill turtle and other sea turtles found in U.S waters have been listed under the Endangered Species Act since 1970. The most comprehensive international treaty protecting sea turtles is the 1973 Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES). Of the seven sea turtles (hawksbill, green, loggerhead, leatherback, flatback, lamp’s ridley, olive ridley) recognized by CITES regulation, the hawksbill, green and loggerhead turtles are the ones most extensively used for tortoiseshell trade. Since this act, no protected species has become extinct. However, sea turtles are consumed, legally and illegally in many parts of the developing world. Other international organizations and conventions protecting these animals include: Marine Turtle Specialist Group; World Conservation Union (lists hawksbill, leatherback and Kemp’s ridley as critically endangered; green, loggerhead and olive ridley as endangered; and flatbacks as data deficient), and Inter-American Convention for the Protection and Conservation of Sea Turtles (May 2001) whose mission is to “promote the protection, conservation and recovery of sea turtle populations and of the habitats on which they depend, based on the best available scientific evidence, taking into account the environmental, socioeconomic and cultural characteristics of the Parties” (Campbell 2007, 324).
The issue of sea turtle conservation is not a static one – ongoing research and reinterpretation of law is continually assessed to protect sea turtles while addressing rights of local people, scientists, tourists and governments. In 1980, prominent researchers Carr and Meylan (58) wrote, “Existing conservation laws are ineffectively enforced and as long as there is a ready market for tortoiseshell the numbers of this turtles will continue to dwindle.” Even the eBay website (http://pages.ebay.com/help/policies/wildlife.html) has an extensive description of restricted materials for sale and items made from endangered turtles or tortoises are clearly not allowed; however ‘vintage tortoiseshell’ was sold as fragments on other websites. Given these concerns, even if tortoiseshell could be acquired, the conservator did not want to contribute to the demand for the product, even in a minute way. The owner accepted this approach without hesitation.

As tortoiseshell was not to be used as a fill material, other options were considered. Although horn and modern plastics like celluloid are not included in this list, they are materials that can be found in historic repairs of decorative art objects and proper identification of these materials can be aided by the use of ultraviolet light.2

Below is a summary of potential materials to fill the large area of loss:
1. Pigmented Epoxy (Davison 1998)
2. Faux Tortoiseshell – Turtleworks, see figure 10 (Braun 2002)
3. Tordonshell, patent pending, see figures 11, 12 (Williams, 2007)
4. Painted acetate (Lochhead 1989)

The author chose a pigmented epoxy fill because of the workability of the material in relation to the configuration of the loss.3 Further discussion of this choice is covered in the following section.

9. TREATMENT DECISIONS

Aside from technical challenges of choosing a fill material, the extent of restoration was also considered. The American Institute for Conservation defines conservation to include treatment and “treatment may consist of stabilization and/or restoration” (AIC 2010, 18). ICOM defines conservation as embracing preventive conservation, remedial conservation, and restoration.4 In the author’s experience, concepts of conservation and restoration are frequently explained to clients and in general, most private clients prefer and expect a higher degree of restoration than might be necessary or accepted within a museum environment. For the sewing box treatment, the extent of loss compensation was guided by the intended final use for the box as a cherished object to be displayed and enjoyed by the client.

The treatment utilized a pigmented epoxy fill to compensate the main loss. The floral design was cut from shell and the placement of the design was based on the impression remaining in the original gesso ground combined with the extant placement of floral elements (fig. 13). The use of actual shell was deemed appropriate for three reasons: it would be located in epoxy fill and readily identifiable as a restoration; the black detail lines would be painted on the shell surface as opposed to being recessed as observed in the original; and the shell could be legally obtained from a variety of sources.

After the individual shell details were cut, they were secured to Mylar and pigmented Epo-tek 301epoxy was cast around the shell. The detail lines on the shell floral design were added using Golden fluid acrylic paint. The fill was glued in place with Paraloid B-72 in acetone.
Fig. 10. Faux tortoiseshell available from Turtleworks (Photograph by Lori Trusheim)

Fig. 11, 12. Tordonshell, patent pending (Photographs by Donald Williams)
Smaller losses were filled with Flügger acrylic spackle, toned with Golden fluid acrylics and Golden gloss medium. A few of the high points were humidified and gently relaxed with low heat, but most of the planar distortion was assumed to be irreversible at this point. The goal of loss compensation was to visually unify the surface while ensuring a clear distinction between original and restoration (figs. 15–18). The large step between original surface and epoxy replacement detachable fill was initially filled with pigmented wax in an attempt to prevent snags from a dusting cloth; however, when critiquing this step, it was concluded that gap-filling alone would not sufficient to prevent a dust cloth from catching along the jagged surface. While the overall appearance was improved, the dimensional changes to the top surface still posed a threat to the long-term preservation of the object.

After the treatment was completed, the owner wanted to know if more could be done to improve the appearance of the warped top panel. Could more be done to bring the object closer to its original appearance? Theoretically, yes, but would it be safe and ethical? Should further structural veneer work be carried out by an objects conservator or by a furniture conservator experienced in marquetry repair? Once again, the AIC’s Code of Ethics was used to consider what would be best for the object.

Fig. 13. Sewing box, top panel during treatment, fill without detail lines painted
(Photograph by Lori Trusheim)
Fig. 15. Sewing box, before treatment  
(Photograph by Lori Trusheim)

Fig. 16. Sewing box, after treatment  
(Photograph by Lori Trusheim)

Fig. 17. Sewing box, before treatment  
(Photograph by Lori Trusheim)

Fig. 18. Sewing box, after treatment  
(Photograph by Lori Trusheim)
9.1 AIC CODE OF ETHICS

The first principle within AIC’s Code of Ethics states that “the conservation professional shall strive to attain the highest possible standards in all aspects of conservation including, but not limited to, preventive conservation, examination, documentation, treatment, research, and education” (AIC 2010, 21). Therefore it was considered due diligence for the author to investigate further treatment options.

Furthermore, the second principle within the Code notes that “all actions of the conservation professional must be governed by an informed respect for the cultural property, its unique character and significance, and the people or person who created it” (AIC 2010, 21). The author was also humbled by the following 2003 quote from the writer, editor and bobbin researcher Brian Lemin (6) that “Antique tortoiseshell items should be cherished both for their beauty and the pain that went into them.” These words speak to the intrinsic value of the object, not only in terms of its value to the owner, but also its value as a historic object made by highly skilled craftsmen utilizing precious materials. Further treatment to correct the dimensional changes within the tortoiseshell could be considered as an act of respect for the cultural property.

Introspection is encouraged by the Code of Ethics’s fourth principle, “the conservation professional shall practice within the limits of personal competence and education as well as within the limits of the available facilities” and the ninth principle, “the conservation professional shall act with honesty and respect in all professional relationships, seek to ensure the rights and opportunities of all individuals in the profession, and recognize the specialized knowledge of others” (AIC 2010, 21). Though one of the conservator’s assets is the ability to research materials, there is nothing that can replace the hours spent on working with an actual material. This concept is further examined in the AIC Guidelines for Practice, Guideline 10, Consultation:

Since no individual can be expert in every aspect of conservation, it may be appropriate to consult with colleagues or, in some instances, to refer the owner, custodian, or authorized agent to a professional who is more experienced or better equipped to accomplish the required work. If the owner requests a second opinion, this request must be respected. (AIC 2010, 23)

The commentary section of this guideline adds:

The conservation professional should view consultations or requests for second opinions as opportunities to ensure the appropriate level of care for the cultural property and to increase the knowledge of the owner, custodian or authorized agent. Such input should also be considered as opportunities for professional development. (AIC 2010, 37)

The conservator and owner of the box were fortunate to receive consultation from Donald Williams, Senior Furniture Conservator from Museum Conservation Institute, who provided invaluable assistance regarding further treatment options including the extent to which the tortoiseshell could safely be re-manipulated. Ethical considerations in the treatment of objects that are decorative as well as utilitarian were also discussed. The exchange between owner, conservator and consulting conservator was in keeping with the above mentioned guideline in that it truly provided an opportunity for the author’s professional development, and helped define a revised approach to the conservation treatment.

Principle XIII in the AIC Code of Ethics states: “Each conservation professional has an obligation to promote understanding of and adherence to this Code of Ethics” (AIC 2010, 22). While the AIC Code of Ethics is broadly written to address the varied specialties within our field, the insight within the text can help conservators to define and prioritize issues related to
treatment and other modes of conduct. Clearly the conservator must make judgment calls within this framework, but it would be unimaginable to navigate a complicated treatment without this ethics resource for our profession.

9.2 SUBJECTIVITY IN CONSERVATION

In retrospect, the initial non-invasive treatment approach falls within the trend described in the 2009 article “The Basis of Conservation Ethics” by Jonathon Ashley-Smith (6). He wrote, “The changes in conservator behavior that I have observed over the last thirty years can be summarized as increasing involvement with management of collections and projects, and decreasing physical interaction with individual objects.” Further explanation can be found in the work of Barbara Appelbaum (2010, xvii) where she describes how conservators “shy away from any treatment that might affect the object adversely, even if on a microscopic scale and even if changes would not be apparent for a century or more.”

Another contributing factor for the non-invasive treatment approach is the role of subjectivity that develops within each conservator based on their training and experience. The author’s past involvement with the treatment of ancient art collections may have influenced the sewing box treatment by applying more of an archaeological treatment approach than a decorative arts one. In the author’s judgment, the warping and planar distortion was seen as part of the object’s history not to be changed. The box was viewed by the author as an artifact when it could actually have been viewed as a miniature piece of furniture as the condition issues are frequently experienced by furniture conservators. Wooden artifact conservation articles describe the physical manipulation of inlay or marquetry in order to make it fit into surfaces that have undergone dimensional change and these interventions are necessary and warranted to return the object to its original condition.5 While it is reasonable that a conservator’s approach to treatment is greatly influenced by training and former experiences, the caretaker’s wishes and expectations must be thoroughly understood and addressed as specifically as possible when devising the treatment plan.

9.3 VALUE OF COMMUNICATION

The gap between the final treatment outcome and the owner’s expectations would have been improved if there had been better communication from the beginning of the project. This realization on the author’s part serves to stress the importance of initial client meetings and ongoing conversations as issues arise. Conservators, especially those considering a career in private practice, can benefit from the language used in the Guideline for Practice 5- Communication, where part of the commentary and minimum accepted practice for this guideline states:

The conservation professional must endeavor to be fully informed about the responsible party’s expectations concerning the results of a proposed treatment. The conservation professional must communicate with the responsible party to assure that the relevant interests, rights and expectations of others are considered. These may include the artist’s/maker’s rights and wishes, cultural beliefs that may affect treatment considerations, and the end use of the cultural property in question. (AIC 2010, 33)

When carrying out the treatment of an object with a variety of condition problems, it is often observed that once the most visually distracting damages are resolved, the smaller damages emerge and raise a new set of issues to consider. With the sewing box treatment, the author began the treatment without full comprehension of the owner’s expectations regarding the veneer
distortion on the top panel with inlaid mother-of-pearl. From this the author learned that it is absolutely vital to plot out all of the treatment steps and to clearly describe the final appearance as close as possible for the owner or curator so as to manage the expectations of all parties.

9.4 SUITABILITY

Ultimately, the ethics review and professional consultation culminated in the final question of whether or not further, more invasive treatment would be suitable for the sewing box. AIC Treatment Guideline 21 – Suitability reminds conservators that:

The conservation professional performs within a continuum of care and will rarely be the last entrusted with the conservation of a cultural property. The conservation professional should only recommend or undertake treatment that is judged suitable to the preservation of the aesthetic, conceptual and physical characteristics of the cultural property. When nonintervention best serves to promote the preservation of the cultural property, it may be appropriate to recommend that no treatment be performed. (AIC 2010, 47)

The commentary section for Guideline 21 encourages a responsible approach to treatment by addressing the need to: “promote an open-minded, flexible approach on the part of the conservator”; “encourage consideration of a broad spectrum of possible actions, ranging from no treatment to extensive intervention”, and “encourage consideration of other factors that may have a bearing on the choice of treatment, including limits of personal competence, available resources, owner/custodial/institutional priorities, exhibit or loan requirements, and cost.”

Furthermore, a review of the concepts outlined in the minimum accepted practice for the Suitability Guideline require that a conservator consider “the physical environment in which the cultural property will be located and the likelihood of continuing care”; “the immediate and long-term consequences of treatment, including the effect on possible future examination, treatment, research and use”, and “the potential risks of treatment to the cultural property weighed against the anticipated benefits” (AIC 2010, 47).

Following these suitability guidelines, in the case of the Palais Royal box, it was necessary to consider the following:

- What is the function of the object?
- How will the object be handled?
- Have long-term preservation needs been met?
- Can it be justified to remove original material in order to preserve and restore object closer to its original appearance?

How does the risk of loss of translucency or darkening of tortoiseshell compare to the benefit of bringing the object closer to its original appearance? How does the risk of potential cracking of mother-of-pearl inlay compare to the benefit of minimizing damage caused by a dusting cloth as it snags on a warped surface? The tortoiseshell has already withstood a variety of degradation mechanisms (heating during scute removal from turtle and during manufacture, dessication as part of aging process, environmental fluctuations during display, stress from handling), but how much more dimensional change could it withstand?

These questions can be approached by recognizing that more invasive treatment requires a risk vs. benefit analysis. From extant research, loss of translucency is associated with excessive heat which would not be utilized as part of the treatment. Humidification and gentle heating would be employed to flatten the tortoiseshell, however it was not certain if the veneer in its current condition could even withstand this treatment without a loss of translucency.

Consultation with Donald Williams helped resolve this question as he shared his experience with
tortoiseshell repair and offered his opinion that it is possible to manipulate this type of veneer without causing damage. The alternative, to not attempt veneer structural repair, would diminish the aesthetic appreciation of the sewing box. Furthermore, it could actually pose a larger risk to the long-term preservation if the jagged edges on the top panel were to snag on a dusting cloth. Ultimately, the sewing box will be displayed in a home environment. Recommendations on handling and proper methods of care can be made, but objects will likely be handled more when they are not secured under a vitrine. A trusted and competent housecleaner may not always be equipped to properly handle artifacts; damages caused by dusting and handling are significant threats when considering the long-term preservation of objects displayed within a home. Having considered the possible risks and benefits, it was determined that the benefit of structural veneer outweighed the associated risks and that in the very least, further investigation was warranted.

10. CONCLUSION

To date, the large detachable fill on the top panel has been removed. A tacking iron was used to apply sufficient heat to soften the Paraloid B-72 that held the fill in place. There was no adverse effect to the substrate and reversibility was achieved. In the next steps of the treatment, a facing will be applied over the top panel prior to removal. Once the panel is detached, a small section will be tested for humidification and flattening. Treatment will proceed with caution, and consultation will be sought as necessary. It is the hope of the author that the lessons learned in the treatment of this object will be of assistance to conservators, especially those starting in private practice. When extensive structural repair is deemed necessary, thorough consideration of the ethics, risks and benefits must be assessed before any treatment is carried out. The AIC Code of Ethics and Guidelines for Practice create a framework for making ethical conservation decisions. Extensive intervention may be an acceptable treatment approach as long as all the implications of treatment are considered and that that preservation needs of the object are not compromised.

ACKNOWLEDGEMENTS

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NOTES

image dates to *L'Art du Menuisier* by André Jacob Roubo, 1769-1774); digital images from this text also available at NYPL digital gallery (http://digitalgallery.nypl.org).


3. A recent AIC Poster Presentation (Pouliot and Promise, 2011) describes the use of Melinex 516 to reproduce lanthorn slides, which could be adapted for use in tortoiseshell repair as well. A full description of The International Council of Museums discussion of terms can be found at http://www.icom-cc.org/242/about-icom-cc/what-is-conservation/#.UFiar7JIS7w.

4. See, for example, furniture conservation treatments described by Considine (1990) and Edwards (1997) where the restoration of marquetry surfaces are described.

REFERENCES


Williams, Donald. 2007. Personal communication. Smithsonian Institution Centre for Materials Research & Education, Suitland, MD.

**SOURCES OF MATERIALS**

Epo-tek 301  
Epoxy Technology, Inc.  
14 Fortune Drive  
Billerica, MA 01821-3972  
(800) 227–2201

Flugger Acryl, acrylic spackle  
Flugger A/S  
Denmark  
Available from Conservation Resources International, LLC  
[www.conservationresources.com](http://www.conservationresources.com)

Golden acrylic emulsion paint (acrylic polymer emulsion, pigments)  
Golden acrylic polymer varnish with UVLS (gloss)  
Golden Artists Colors, Inc.  
188 Bell Road  
New Berlin, NY 13411  
(607) 847–6154  
[www.goldenartistcolors.com](http://www.goldenartistcolors.com)  
Available from conservation suppliers as well as art supply stores

Mylar polyester film  
Talas  
330 Morgan Avenue  
Brooklyn, NY, 11211  
(212) 219-0770  
[www.talasonline.com](http://www.talasonline.com)

Orasol Dyes  
Conservators Emporium  
100 Standing Rock Circle  
Reno, NV, 89511  
(702) 852-0404.

Paraloid B-72  
Rohm & Haas Co  
Available from conservation suppliers
Mother of pearl shell
   Rescue Pearl Company
   1551 Duck Hollow Court
   Rescue, CA, 95672
   (532) 676-2770
   rescuepearl@sbcglobal.net

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THE ALASKA FUR ID PROJECT:
A VIRTUAL RESOURCE FOR MATERIAL IDENTIFICATION

ELLEN CARRLEE AND LAUREN HORELICK

ABSTRACT

The Alaska Fur ID Project, online at http://alaskafurid.wordpress.com, is a free internet resource developed at the Alaska State Museum. The website provides a reference set of images and data for more than 50 Alaskan animal furs used traditionally or commercially, as well as a compilation of practical observations and techniques for analysis. Both guard hair and underfur were examined for many clues, including maximum length in millimeters, diameter range in microns, medullary index, presence/pattern/appearance of the medulla, pigmentation in the cortex or medulla, banding, scale pattern and its change along the length of the shaft, and cross-sections. Slides mounted with Cargille meltmount and scale casts taken with Duco cement were examined under polarized light microscopy (PLM). This paper explains the design and methodology of the project as an example of a regional material identification dataset. It also discusses the possibilities and limitations of fur identification by this method. Many previous attempts to use microscopy for hair identification have suffered from the challenges of acquiring and disseminating good quality images as a reference set for the user, as well as limiting themselves to certain measurements while overlooking others. The project utilizes simple design and vocabulary to be accessible to many users, including museum conservators, archaeologists, biologists, forensic scientists, and students. An index, glossary, and annotated bibliography assist the non-specialist user.

1. BACKGROUND

Identification of materials in ethnographic, historical, and textile collections is often challenging, with a lack of comparative reference material as one limitation. Correct identification can inform cultural attribution, cultural meaning, trade relationships, historical period, methods of manufacture, and authenticity of artifacts. In the past, museum conservators grappling with fur identification had to rely on outside experts or have a reference set for comparative analysis. Before the advances of digital photography and the internet, photomicrography and publishing the images were limited. Previous studies of animal fur tend to concentrate on either general techniques for hair examination without dealing with a specific geographic area (Brown 1942; Deedrick and Koch 2004; Goodway 1987; Heyn 1954; Hicks 1977; Brunner and Coman 1974; Oyer 1946), or focused on detailed analysis of many species not found in Alaska (Adjordan and Kolenosky 1969; Blažej et al. 1989; Mathiak 1938; Mayer 1952; Moore et al. 1974; Stains 1958; Teerink 1991; Tóth 2002; Tumlinson 1983). Part of the Alaska Fur ID project hypothesis is that many previous attempts to use the microscope for hair identification have suffered from the challenges of acquiring and disseminating good quality images as a reference set for the user, as well as limiting themselves to certain measurements while overlooking others. In the heyday of the fur identification literature, roughly the 1930s through the 1970s, there was a focus on dichotomous key decision-making methodologies (Mathiak 1930; Mayer 1952; Stains 1958). These step-by-step either/or strategies were poor at integrating multiple kinds of data at once. A better result can be obtained by considering each sample on a case-by-case basis and using the various tools and clues explored in the Alaska Fur ID project to reach a conclusion based on a preponderance of the evidence. This approach considers aspects such as length, medulla, medullary index, width, shield, range, banding, color, cross section, provenance, and artifact type. Most users of the Alaska Fur ID project will be non-specialists without Scanning Electron Microscopy (SEM) access, which is the primary analytical tool used for “Furskin,” the on-line...
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Czech fur identification guide (www.furskin.cz). The typical conservator will infrequently be called upon to identify a fur. In such an instance, if the methodology used for identification is simple and straightforward, the likelihood that the correct identification will take place is increased. For this reason, the project uses tools like plain language and polarized light microscopy that are widely accessible. The proceeding sections of the paper offer a glimpse of the content available on the Alaska Fur ID website.

2. ANIMALS

The species investigated here comprise the most common Alaskan mammals used traditionally and commercially for fur, and therefore process-of-elimination is a valid approach if cautiously employed. Generalities are given on the website for overall animal groupings, and there is more work to be done in this area of the project. The animals examined as part of the Alaska Fur ID Project are as follows:

**ORDER ARTIODACTYLA (the even-toed ungulates)**

**Family Cervidae (the cervids)**
- Caribou/ Reindeer (*Rangifer tarandus*)
- Moose (*Alces alces*)
- Roosevelt Elk/ Olympic Elk (*Cervus Canadensis Roosevelt*)
- Sitka Black-Tailed Deer (*Odocoileus hemionus sitkensis*)

**Family Bovidae (the bovids)**
- American Bison (*Bison bison*)
- Calf/ Cattle (*Bos Taurus*)
- Dall Sheep (*Ovis dalli dalli*)
- Mountain Goat (*Oreamnos americanus*)
- Muskox (*Ovibos moschatus*)

**ORDER CARNIVORA (the carnivores)**

**Family Canidae (the canids)**
- Arctic Fox (*Alopex lagopus*)
- Coyote (*Canis latrans incolatus*)
- Dog (*Canis lupus familiaris*)
- Red Fox (*Vulpes vulpes*)
- Wolf (*Canis lupus*)

**Family Felidae (the felines)**
- Lynx (*Lynx Canadensis*)

**Family Mustelidae (the mustelids)**
- Fisher (*Martes pennati*)
- Least Weasel (*Mustela nivalis*)
- American Marten (*Martes americana*)
- Mink (*Neovison vison*)
- River Otter (*Londra canadensis*)
Sable (*Martes zibellina*)
Sea Otter (*Enhydra lutris*)
Short-tailed Weasel (*Mustela erminea*)
Wolverine (*Gulo gulo*)

**Family Ursidae (the ursids)**
Black Bear (*Ursus americanus*)
Brown Bear (*Ursus arctos*)
Polar Bear (*Ursus maritimus*)

**Suborder/superfamily Pinnipedia (the pinnipeds)**
Family Otarvidae (the otarvids)
Northern Fur Seal (*Callorhinus ursinus*)
Steller Sea Lion (*Eumetopias jubatus*)

Family Phocidae (the phocids)
Bearded Seal (*Erignathus barbatus*)
Harbor Seal (*Phoca vitulina*)
Ribbon Seal (*Phoca fasciata*)
Ringed Seal (*Phoca hispida*)
Spotted Seal (*Phoca largha*)

**ORDER LAGOMORPHA (the lagomorphs)**
Alaskan Hare/ Tundra Hare (*Lepus othus*)
Collared Pika (*Ochotona collaris*)
Snowshoe Hare/ Varying Hare (*Lepus americanus*)

**ORDER RODENTIA (the rodents)**
Alaska Marmot (*Marmota broweri*)
Arctic Ground Squirrel (*Spermophilus parryii*)
Beaver (*Castor canadensis*)
Hoary Marmot (*Marmota caligata*)
Muskrat (*Ondatra zibethicus*)
Northern Flying Squirrel (*Glaucomys sabrinus yukonensis*)
Porcupine (*Erethizon dorsatum*)
Raccoon (*Procyon lotor*)
Red Squirrel (*Tamiasciurus hudsonicus*)
Woodchuck (*Marmota monax*)

Several of the smaller animals mentioned have not yet been observed on artifacts at the Alaska State Museum (for example, least weasel, collared pika, or northern flying squirrel) but are similar in size to small furbearers known to be utilized in the region, such as the arctic ground squirrel. Smaller mammals such as mice, voles, or bats are not included in the project as there is little evidence of their utilization in Alaska, and because distinguishing between the hairs of those smaller mammals is difficult to achieve with the techniques described here.
3. FUR FEATURES

Most animal furs have two components: guard hairs and underfur. Fur is primarily made of hard keratin arranged in three major structural features: medulla, cuticle and cortex. The medulla runs down the center of the hair. The cuticle is the outer surface layer, generally made of overlapping scales. The area between the medulla and the cuticle is the cortex. These features are easily observed in the muskrat guard hair in figure 1. Muskrat underfur (fig. 2) also shows these features, although underfur in general shows less variation and contains less information than guard hair. When similarities occur in the appearance of guard hairs from different animals, identification can sometimes be secured by observing differences in the underfur. In some cases, processing of the fur by plucking or shearing involves the removal of guard hair, leaving only the underfur for analysis. Most underfur has a medulla, and therefore its absence is an important clue.

Biological variation of these structures for each animal occurs within parameters that must be considered during the identification process. Variation and overlap can lead to incorrect conclusions if applied without an awareness of the possible parameters. A holistic application of different variables leads to the most confident result. Gender, season, age, and location on the body are generally not relevant except under specific circumstances. Color and length are the most typical exceptions. In the Alaska Fur ID Project, data was captured separately for the guard hair and the underfur of each animal. Because guard hair is often much wider than underfur, mounting them separately on the same slide under two different coverslips is recommended. Otherwise, only small sections of the underfur can be in focus at a time. The parameters reported on the website for guard hair and underfur include: length, medulla, medullary index, diameter range, cuticular scale, and color.

3.1 LENGTH

The overall length of the hair from the surface of the skin to the tip is measured in millimeters under the “length” sections for each animal. Sources in the fur identification literature vary in how measurements are given. Some use a maximum length which is usually taken from the longest guard hairs on the center back near the shoulders (dorsal hairs). Some use an average from hairs on various regions of the body. The Alaska State Museum samples were measured directly on the pelt with the hair in place, putting a metal rule at the skin and seeing how far the tip reached along the ruler. Awareness of the potential variation for each animal is very important in evaluating the significance of the hair length. For example, many hoofed animals like the caribou have a “bell” under the neck (fig. 3) that represents the longest hair on the animal. Caribou bell hair is seen on a headdress illustrated in figure 4. However, leg hair of the caribou is often used for boots and is very short (fig. 5). Other examples of long furs that do not occur on the dorsal area include the tail hairs of some rodents and the belly fur of the lynx.
Fig. 1. Muskrat guard hair (200X) with main structural elements indicated (Photograph by Lauren Horelick)

Fig. 2. Muskrat underfur (200X) (Photograph by Lauren Horelick)
Fig. 3. Bell under the neck of a caribou, Alaska State Museum collection I-B-27 (Photograph by Ellen Carrlee)

Fig. 4. Yup’ik dance headdress with caribou bell hair, Alaska State Museum II-A-4835 (Photograph by Ellen Carrlee)
3.2 DIAMETER RANGE

The “Range” section for each animal contains measurements taken at the widest part of each hair for a group of hairs examined, not the various widths along the shaft of a single hair. Measurements are in microns at the widest part of the hair under 200X or 400X magnification. Most hairs are fusiform in shape, with a taper at each end and the widest part of the hair occurring near the middle. However, some animals have a hair shaft shape that begins narrow near the skin, extending in a long stalk and then abruptly widening into a shield before tapering at the tip. This gives the overall hair a paddle shape. The presence of a shield is diagnostic for certain kinds of animals, particularly those of the family mustelidae. The only hairs on the body that are wide at the base and taper all the way to the tip are generally the tactile hairs (also called vibrissae or whiskers). These have little diagnostic use and are not included on the website.

Fig. 5. Caribou leg hair used on the shin area and vamp of an Athabascan boot, Alaska State Museum II-C-180 (Photograph by Ellen Carrlee)
3.3 MEDULLA

The central structural feature of the hair is an arrangement of cells called the medulla. Sometimes the medulla pattern is variable along the length of the hair, which is described in the “medulla” section for both guard hairs and underfurs. In this section general descriptive language was used for medullary classification such as, absent, continuous, interrupted, or fragmented. Scanning electron microscopy images can see much more medullary detail than polarized light microscopy, but PLM can reveal patterns or certain unambiguous features. Increasing the amount of light transmitted through the sample can aid in visibility. Crossing the polars of the microscope to look at a blackfield image can also be helpful. Some hoofed animals have no cortex, with the medulla extending almost the entire width of the hair. Caribou guard hair is one such example (fig. 6). The cells of this type of medulla tend to have a large honeycomb or bubble-pack appearance, and the lack of cortex leads to brittleness and weakness of the overall hair. Another distinct medulla is the so-called “multiserial ladder” of hares and rabbits (fig. 7). This kind of medulla has a distinct corncob appearance. Northern fur seal medulla has a distinctive lumpy intestinal-looking medulla (fig. 8). Crossed polars may make the medulla easier to observe. Findings to date suggest that medullary pattern is reasonably consistent in samples from different body locations, but may be absent in certain paw hairs.

Fig. 6. Honeycomb-shaped medullary cells seen in caribou guard hair 200X (Photograph by Lauren Horelick)
Fig. 7. Corncob or “multiserial ladder” medulla of the snowshoe hare (200X) (Photograph by Ellen Carrlee)

Fig. 8. Medulla of the Northern fur seal (200X) viewed with crossed polars (Photograph by Lauren Horelick)
3.4 MEDULLARY INDEX

Dividing the width of the medulla by the diameter of the hair at the point of greatest shaft width will give a ratio called the medullary index (M.I.). Since the medulla is always smaller than the overall hair, it will be a number less than one. This is a useful number because the findings of the Alaska State Museum correlate well with the data in the literature. Under the “M.I.” section the reported measurements from the literature are reported in addition to reference samples. For any given animal, there is variation of 10-20% in the medullary index, and therefore it is most useful to consider the M.I. as large, small, or intermediate. Many of the Alaskan mammals are in the intermediate range, so outliers are notable. Animals with a small M.I. (less than 0.4) include bison, beaver, black bear, brown bear, polar bear, raccoon, sea lion and sea otter. Animals with a large M.I. (greater than 0.7) include Alaskan hare, snowshoe hare, arctic ground squirrel, red squirrel, collared pika, least weasel, short-tailed weasel, and lynx.

3.5 COLOR

Clumps of pigment granules and air spaces scattered throughout the cortex or medulla are responsible for the color of fur and can be observed best under magnification. The observed colors on the hairs are described in this section for each animal. An individual hair may be also be “banded”, meaning it abruptly changes color over a short distance along the shaft. Colors and order of the banding can be diagnostic. Many references in the fur identification literature rely heavily on banding as a diagnostic tool, although there is lack of agreement about what is banding and what is a “bicolored” or “tricolored” hair, which often refers to more gradual changes in color. The pigmentation of the hair might show special features, such as a clumping of pigment particles near the medulla as opposed to evenly distributed throughout the cortex. Dyed fur will show pigment in the cuticle, which is naturally unpigmented. Additional aspects of color are described under the macroscopic features section, and may best be seen on a blue background with the naked eye.

3.6 CUTICULAR SCALES

The appearance of the cuticle is described under the “scale” sections. Scale patterns can most easily be observed with a scale cast since observation can be confused by the appearance of the medulla under transmitted light. Switching between transmitted and reflected light can help confirm which feature is being observed, as reflected light will show only the scale pattern. Decreasing the amount of light transmitted through the aperture of the microscope can also aid in observing the scale pattern. As with medullary pattern descriptions, the literature for scale pattern is not standardized and tends to use specialized vocabulary. The Alaska Fur ID Project endeavors to use plain descriptive language in characterizing the appearance of the scales. The database would benefit from an expanded range of cuticular scale images. For many animals, scale pattern of the guard hair changes predictably along the length of the shaft, with scales appearing drastically different from the base to the tip. The Arctic fox is one example, with long, pointy petal-shaped scales near the base becoming shorter and widely-spaced near the center and then closely-spaced with jagged irregular edges near the tip. Other animals, such as the Sitka black-tailed deer, will have the same scale pattern along the entire length of the hair. Guard hairs tend to have much more detail and variation in the scale pattern, but observation of the underfur scale pattern can also be useful. The scale shapes tend to be shaped like stacked cups as on the Dall Sheep (fig. 9), pointy petal or pine cone-like as on the raccoon (fig. 10), or elongated and very pointy as on the sea otter (fig. 11). Underfur can be difficult to manipulate during scale
Fig. 9. Scale cast of Dall sheep underfur (400X) demonstrating scales that appear as stacked cups (Photograph by Lauren Horelick)

Fig. 10. Petal-shaped or pinecone-like scales on the underfur of raccoon (400X) seen with transmitted light. Note also the fragmented medulla present in some of the underfur fibers. (Photograph by Lauren Horelick)
casting, and therefore microscopy techniques such as adjusting the amount of light or focusing up and down through a mounted sample may be preferred. Different scale casting materials and techniques are described and illustrated on the website, finding that five minute setting Duco cement yielded consistent and legible scale casts. Additionally, Duco cement is inexpensive and simple to use.

4. MACROSCOPIC QUALITIES

The way the fur appears to the naked eye is described under the “macro qualities” section. Appearance of the overall pelt, seasonal color phases, clumping of guard hairs, curliness at the tips of underfur, gloss, readiness of shedding, and other helpful diagnostic information is included. Color is an especially salient macroscopic feature of fur, and potential variations must be taken into account. For example, light furs may be albinism, as seen on the beaver in figure 13. Polar bear fur is naturally white, but black bears may also show light color phases such as the Kermode bear or the glacier bear. Colors may also be darker than expected, such as the Alexander Archipelago wolf of southeast Alaska, or the black arctic ground squirrels in the vicinity of Carcross, Yukon Territory, just over the Canadian border from Alaska. Within a single species there may be considerable natural variation (fig. 12).

4.1 CULTURES

An incomplete listing of how this fur has been recorded in use is included in the “cultures” section as the information is encountered by researchers at the Alaska State Museum. The intent of this project is to see this section grow into its own body of evidence to aid in fur identification.

4.2 NOTES

The sources of the furs used by the Alaska State Museum are listed in the “notes” section of the database. Most samples came from pelts in the educational and permanent collections of Alaska State Museum. Additional sources included the Alaska Department of Fish and Game, the University of Alaska Museum, the American Museum of Natural History, taxidermists, and private collectors.

4.3 TROUBLESHOOTING

Specific ways to differentiate the hair on each animal from other similar animals is highlighted in the “troubleshooting” section. For example, marine mammals of the superfamily pinnipedia have a distinctive cross section. While most animals have an oval or round cross section, pinnipeds have a flattened cross section that appears cigar or aerofoil shaped. This may be observed through preparing a cross section, which is described and illustrated on the website, but the flatness of the hair also causes it to bend over itself in a ribbon-like kink that may be observed by microscopy (fig. 13). Pinniped hair also tends to have frayed tips. This project aims to see this section grow over time as unusual diagnostic features are verified.
Fig. 11. Underfur of the sea otter (400X), showing elongated pointy scales (Photograph by Lauren Horelick)

Fig. 12. Blanket made from over 300 fox paws, Alaska State Museum II-B-1498, showing the natural variation of color in the red fox (Photograph by Ellen Carrlee)
4.4 RANGE

A general idea of where the animal is found in Alaska is given in the “range” with data from recent published sources (Forsyth 1999, MacDonald and Cook 2009). Historical ranges of each animal have not yet been added to the project.

4.5 NAMES

Nomenclature is ever-evolving, but the project follows the 2008 Alaska Department of Fish and Game scientific names whenever possible. Older names are given to help interpret references in the literature. Colloquial names are also given, and points of confusion are mentioned.

5. CASE STUDIES

Artifacts in the collection of the Alaska State Museum were used to conduct several case studies where the efficacy of the Fur ID project was tested. In each case study the cultural attribution, macro fur qualities, measurements, and micro-features were observed and used comparatively to narrow down possible choices. The following section of the paper summarizes three brief case studies illustrating a methodology for fur identification on cultural objects.

5.1 CARIBOU HAIR EMBROIDERY

A decorative element on a fur mat (fig. 14) was suspected to be hair embroidery, but porcupine quill and bird quill were also among the possibilities. Under magnification, the distinct honeycomb-shaped medulla of a hoofed animal was visible suggesting either moose or caribou. Both moose and caribou have a bell of long hairs under the neck, but the moose does not.
typically have light-colored fur, and the width of the hairs did not reach the larger width range expected for moose, strongly indicating the use of caribou hair for the embroidery. As caribou hair is known to be brittle, the rolled storage conformation of this fur mat may not be best option for its preservation.

Fig. 14. Detail of a fur mat made of phocid seal fur (top) and Northern fur seal (bottom) with decorative caribou hair embroidery (center). Alaska State Museum II-A-4210. (Photograph by Lauren Horelick)

5.2 LANUGO

Dyed, kinky fuzz appears as a decorative element on several artifacts in the Alaska State Museum collection. One such artifact is a ball made from fur and skin (fig. 15). The bright color of the dye suggests the fur was originally light in color, pointing to one of many arctic animals with white fur such as polar bear, arctic fox, snowshoe hare, or fetal seal fur. Spotted, bearded, ribbon and ringed seals are collectively known as ice seals because they pup on the ice. The newborn ice seals are covered with white fetal fur, known as lanugo, for several weeks (fig. 16). Commercially available sheep wool was another possibility. Examination under the microscope revealed hair that was flattened in cross section, confirming seal. The Alaska Fur ID reference set is not extensive enough to determine differences between the phocid seals. Use of fetal fur illustrates an aspect of how seals were used as a resource.
Fig. 15. Decorative dyed fiber element made from lanugo (background fur is ringed seal) on a Siberian Yupik ball made by Irma Ungott from Gambell, St. Lawrence Island. Alaska State Museum II-A-6297. (Photograph by Lauren Horelick)

Fig. 16. Taxidermy specimen of a baby ice seal with white fetal fur known as “lanugo.” Alaska State Museum, unaccessioned artifact 85-13. (Photograph by Ellen Carrlee)
5.3 FUR FELT

A Russian tri-cornered hat in the collection of the Alaska State Museum is important for its role in early diplomatic relationships between the Russians and the Tlingit people of southeast Alaska. Significant portions of the hat are made from fur felt (fig. 17). High quality fur felt is made from beaver, while lower quality fur felt is made from rabbit. The identification of fur felt from rabbit or hare was confirmed by observing the diagnostic corncob-like multiserial ladder pattern of the medulla in combination with a scale pattern of long chevron shapes with acute points and parallel diagonal margins. Curatorial investigation may take this identification into account in exploring the meaning of the hat.

Fig. 17. Detail of the brim of a fur felt tri-corner hat (black area is the fur felt), Alaska State Museum 94-2-1 (Photograph by Ellen Carrlee)

6. CONCLUSIONS

Alaska has long been a source for pelts used in the fur trade, making this resource potentially useful for identifying fur found on historic garments as well as Alaska Native artifacts. In general, pelts and individual hairs present features which, applied in combination, can lead to a secure identification at least down to family and often to the genus level. The Alaska Fur ID
Project is complementary to other material identification resources, such as the Czech website “Furskin” or Ohio State University’s Fiber Reference Image Library (FRIL). In anticipation that technology will afford opportunities for integration and access of information, the master files of the Alaska Fur ID project are backed up in the simple and standard formats of Microsoft Word documents and jpeg images. The current weblog format facilitates easy updating and allows comments from users. Future directions for the project include gathering more data for underreported species such as the seals, and determining if species-level identification is possible with this methodology. Additional images of scale pattern and artifacts will aid further in fur identification, as will additional references to historical and cultural uses.

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REFERENCES


**FURTHER READING**


———. 2005 One more example of morphological convergence: Similarity between the architectonics of feather and hair. *Doklady Biological Sciences* 405:446–450.


SOURCES OF MATERIALS

Cargille Meltmount
Proprietary optical quality thermoplastic mounting medium
including halogenated diphenyl oxide and natural hydrocarbons.
Cargille Laboratories
55 Commerce Road
Cedar Grove
New Jersey, 07009
(973) 239-6633
www.cargille.com

Duco Cement (Devcon)
Nitrocellulose (10-20%) adhesive supplied in a proprietary mix
including acetone, isopropanol, camphor, and 1-methoxy-2-propanol acetate.
Widely available in local hardware stores.

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