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LETTER FROM THE COORDINATOR

We were all very excited about the ICOM-CC 17th Triennial Conference in Melbourne. For those unable to attend here are the titles and authors of papers presented during our session:

Te Hono Ki Aotearoa - The Link to New Zealand – Kaupapa Waka in the Netherlands by Farideh Fekrsana.

A protocol for use and preservation of a new traditional possum skin cloak used in University ceremonies by Holly Jones-Amin, Shaun Ewen and Mandy Nicholson.

Substituting SPME for Noses in the Detection and Quantification of Mothball Vapors from Textiles in the National Museum of the American Indian Collection by Odile Madden, Robyn Hodgkins and Susan Heald.

Woven Wonders: Revitalizing Collections and Community Relationship by Nancy Odegaard, Marilen Pool and Gina Watkinson.

Using UV fluorescence to characterize feather deterioration: Correlations between photochemical damage and UV fluorescence of feathers by Ellen Pearlstein, Melissa Hughs, Joy Mazurek, Kevin McGraw, Christel Pesme and Miguel Garcia-Garibay.

Identifying collagen-based materials in a museum laboratory by Ellen Promise, T. Rose Holdcraft and Sven Haakanson.

Micro-computed tomography; plant identification in artefacts by Catherine Smith and Bronwyn Lowe.


A different approach for treating skin loss on taxidermy by Lucie Graham (in collaboration with the Working Group on Natural History Collections).

The WGEC also had very interesting posters:

Stitching Values: A Preservation Proposal for the Bolivians Costumes Used in the Corpus Christi and Virgin de Guadalupe Festivities in the Colonial Andes by Amanda Cordeiro, Luiz Souza & Renata Peters.

Analysis of the state of preservation and determination of raw material of Paleolithic mammoth ivory personal ornaments (Dolní Věstonice, Czech Republic) using Micro Computed Tomography by Martina Lázničková-Galetová, Tomáš Zikmund, Marie Šejnohová and Jozef Kaiser.


Report of the 2011-14 triennial
Coordinator (CO):
Renata Peters, University College London, Institute of Archaeology, London, UK
Assistant Coordinators (ACO):
Kim Cullen Cobb (also Newsletter editor) Smithsonian Museum Conservation Institute, Museum Support Center, Suitland MD, USA
Membership:
WGEC has 106 registered members. Although members are predominantly from North America and Western Europe, the membership is growing in Africa, Asia, the Middle East and Latin America.

Activities from 2011 to 2014
Newsletters:
WGEC published 3 Newsletters
• NUMBER 33 SEPTEMBER 2011
• NUMBER 34 NOVEMBER 2012
• NUMBER 35 OCTOBER 2013
• NUMBER 36 NOVEMBER 2014

Directory Board/Coordinators meeting in New York City
Renata Peters (CO) attended the DB and Cos Meeting in New York City at the end of October 2012.

Preparation for ICOM-CC 17th Triennial Conference in Melbourne
From April 2013 on, WGEC focused on the organization of the session in Melbourne. The group received a large number of excellent submissions, evidence of the high professionalization of the field. We now have a very exciting line up for Melbourne (8 papers and 3 posters).

Name Change Proposal
In 2008 WGEC started discussions with the membership to decide whether the group should change its name and if so, what the new name should be*. A Name Change Committee was formed, under the coordination of Carole Dignard (CO from 2005 to 2011) and with the assistance of Tharron Bloomfield, Ellen Carrlee, Sherry Doyal, Farideh Fekrsanati, Monika Harter, Ann Howatt, Marian Kaminitz, Emily Kaplan, Janet Mason, John Moses, Luba Nurse, Ellen Pearlstein, Renata Peters, and Catherine Smith. This group steered discussions, consultations and surveys from 2008 to 2012.

The results of the consultations and surveys indicated that the name of the group should be changed to ‘Working Group on Objects from Indigenous and World Cultures’. A report was sent to the DB in 2012, asking for authorization to implement the change but authorization has not yet been granted. In April 2014 WCEC was informed that the DB decided to reject the request.

However, this committee would like to express their commitment towards bringing the Name Change discussions to a more rewarding conclusion. Collaboration with other groups such as the International Committee for Museums and Collections of Ethnography (ICME), whose membership started similar discussions recently, is high up on our agenda.

*Details about the Name Change Consultation can be seen here: Ethnographic Conservation Newsletter 33 (pages 1 to 14) and 34 (pages 13 to 27) contain the full report on the Name Change consultation (prepared by Carole Dignard).
Traditional Techniques and Materials for the Conservation of Native American Ethnographic Objects

The conservation of Native American ethnographic objects sometimes requires carefully considered loss compensation so that damaged objects may be safely stored, handled or displayed. Modern conservation materials can be useful for loss compensation treatments but they do not always easily blend with the traditional materials and esthetic value of such objects, and in some cases their use may be unacceptable to the object owner or custodian.

Loss compensation becomes an important consideration when the private individuals or cultural groups holding the objects have certain requirements for the appearance or durability of the objects in their care. Such standards often cannot be met by simply stabilizing an object so it can be safely displayed or stored. Making repairs that are both durable and true to the artist’s original intent for the object can be important when cultural groups wish to put their objects back into use in a traditional context. It can often be in the best interest of the objects themselves to undertake some type of loss compensation. If a treatment solution is not acceptable to a private owner the owner may simply take the object elsewhere to be repaired by someone perhaps not well qualified to properly treat the object. Even in museum situations it may be desirable or even necessary to bring an object back to its original appearance so that it may be displayed in the best possible condition.

This article examines how traditional materials may be used in combination with modern conservation methods to produce effective preservation treatments which remain true to the artist’s intent while maintaining the high standards of good conservation practice. Techniques for loss compensation of Native American ethnographic materials using porcupine quills, custom-tanned leathers, tanning methods, and beadwork are discussed.

Porcupine Quillwork
Porcupine quill decoration on Native American clothing and articles is by nature extremely fragile. It is one of the most difficult art forms to try to repair using synthetic materials because the appearance and properties of the porcupine quills are so unique. Conservators have employed various materials for repairing porcupine quillwork, including Tyvek, Reemay, raffia straw, plastics and Japanese papers. The use of synthetic materials for loss compensation may be acceptable for some applications where objects will be on displayed in exhibit cases, in low lighting, or at such a distance from the viewer that the repairs are not noticeable. However, in situations where the quilled object is intended to be viewed at very close range or even handled, such repairs can be visually distracting and therefore unacceptable. One of the best solutions for loss compensation in porcupine quillwork is simply to use actual porcupine quills that are dyed to match the original work and that are attached and marked in such a way as to render all repairs completely reversible and identifiable. Two examples of how this type of loss compensation for quillwork using porcupine quills and traditional quillwork embroidery techniques follow.

The first example involves the repair of the plaited quill strips on a mid-19th century Upper Missouri man’s buckskin shirt. The shirt was purchased at auction by a private individual who wished to display the object in his home gallery, thus requiring that all repairs be made with original materials and undetectable upon close inspection.

The following three images show how new porcupine quills were woven into the original plaited work to complete the quilled design without interfering with any of the original materials. All original stitching and remaining quill fragments were left intact under the new repairs. Stitches holding the replacement quillwork were simply laid down immediately adjacent to the original construction threads. The felt-like quality of the brain-tanned leather, (sometimes referred to as “native-tanned” to distinguish the material from commercially produced leathers), on which almost all historic porcupine quillwork was made allows for repair stitches to be

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sewn into the uppermost surface of the leather without damaging the structure of the leather itself or leaving any new marks or holes.

Making repairs that are undetectable on close inspection also makes it difficult to easily identify the newly added materials. To solve the problem, the replacement quills are labeled using a solvent-based felt tip ultraviolet marker pencil. The quills are marked on the upper surfaces after the repairs are completed in order to ensure that marker residues did not bleed or rub off on adjacent materials during treatment. The ultraviolet labeling is invisible under normal lighting conditions but fluoresces readily under short wave UV (254 nm). Experiments with long-term durability of such markers is ongoing, but one test object in the conservator’s studio still fluoresces brilliantly after 10 years of exposure to ambient light and fluctuating environmental conditions. Careful consideration must be used when choosing fluorescent markers, as some early twentieth century quill dyes naturally fluoresce under ultraviolet light.

When large areas of quillwork are damaged, or where the degradation of the underlying materials prevents the introduction of new stitches, it may be possible to fabricate an entirely new quilled panel.
which can be then be laid down directly over the damaged area. Such a repair restores the intended appearance of the object while leaving all of the original material intact beneath the repair.

This method was employed on a pair of child’s moccasins, pictured at left, where only fragments of the original quillwork survived. Enough of the sinew stitching and quill fragments remained in the damaged area on the moccasin to make it possible to determine the exact size, color and stitch technique used for the original quilled panel. A new quilled panel was then fabricated using brain-tanned leather and porcupine quills dyed to match the color of the quill fragments. This new quillwork was then attached to the moccasin toe by sewing the panel down along its outside edges only. Polyester thread was chosen for this application in order to facilitate easy identification and removal of the panel if desired. An insulating sheet of soft Tyvek was placed between the new panel and the moccasin body in order to protect the old sinew threads and quill fragments from abrasion. This repair method effectively allowed the moccasins to be displayed as they may have once appeared without changing or damaging the original materials in any way.

**Leather Repair**

The use of traditional materials in combination with contemporary conservation techniques can also be effective when working with leather and beaded items. Both materials are very common on Native American ethnographic objects and it is not unusual to encounter pieces with beads and leather that are extremely fragile and require some type of stabilization and/or loss compensation so that they can be safely handled or displayed.

The following example illustrates the treatment of a fully-beaded Lakota dress cape where natural materials were used in conjunction with synthetic fabrics and conservation adhesives to stabilize the object and improve its appearance for a museum exhibit. The cape had extensive damage and loss to the beaded areas as well as the underlying leather on which the beads were sewn. Because of the weight of the beadwork, the object could not sustain handling without further tearing of the fragile leather and the continual shedding of loose beads. Some type of loss compensation treatment was deemed necessary not only for esthetic reasons, but in order to give structural stability to the object for exhibit purposes.
The beaded dress cape was made of thick brain-tanned deer hide upon which many parallel rows of appliqué beadwork had been sewn with sinew thread. Because the losses in the leather were considerable, especially in the critical shoulder and neck areas, patching or filling the voids was necessary before any replacement beadwork could be applied. The thick leather and the fragile structure of the surrounding original materials mandated finding a fill material which could match the properties and dimensions of the old leather. The material also had to be easy to work with so that the process of applying new beadwork to fill out the design would not cause undue stress on the surrounding materials. Brain-tanned deer hide was chosen for the fills because it met all these criteria.

Brain-tan leather, as discussed above, has unique felt-like properties which allow for a thread and needle to pass through easily without binding. Hides tanned with animal brains, which are rich in phospholipids and fatty acids, have properties similar to oil-tanned hides but are generally thicker, softer and the fibers are more open than commercially available oil-tan leather. Brain-tanned hides are produced by only a handful of home tanners and are not available commercially. In addition, recent changes in the meat processing practices in the United States have limited the availability of animal brains and, thus, of brain-tanned hides. Another way of producing brain-tan-like leather which would meet conservation standards was sought.

Liquid soy lecithin, available in grocery and health food stores, contains phospholipids similar to those found in animal brains. The polar component of the soy lecithin was extracted using 91% isopropyl alcohol. The resulting solution was diluted with warm water and used to tan a deer hide using traditional methods. The resulting leather was surprisingly light and open with a high loft and soft hand similar to good quality brain-tan. In addition, the lecithin tanning produced a pure white leather that was pH neutral, which made it quite suitable for conservation applications. The new material was affectionately dubbed “conservation brain-tan” and used to fabricate the leather fills for the dress cape.

In order to make a reversible repair, pieces of the new hide were cut to fit the loss areas and laid in place. A backing layer of Beva-flocked tissue was secured behind the edges of the original leather and the new fills and tacked in place with a warm iron from the front to insure the alignment of the beaded rows across the voids. The tissue backing was then secured more firmly from the underside using low heat to activate the Beva adhesive. No adhesive was applied directly to the interface between the old and new leathers to avoid contamination of the original leather and ensure future reversibility if desired. Once the fills were in place, the new, white leather was colored to match existing leather using dry pigments. Pigmenting the white leather was particularly important because the fill leather would be exposed along the open neck line of the dress.

Replacement beads were sewn in place to complete the original design, bridging the old and new leathers and using the original sewing holes in old leather where possible. The threads holding the replacement beadwork were knotted at the back of the work to
allow the newly beaded areas to be easily identified and/or removed if desired.

 Recovering Damaged Leather
The lecithin/alcohol solution used to prepare the replacement leather in the previous example appears to have additional applications for conservation treatment of objects made of brain-tanned leather. A pair of badly degraded Kiowa girl’s moccasins was treated with the lecithin solution as an experiment. Before treatment the moccasins were very stiff, with deep creases in the leather and large areas of dark staining and discoloration throughout. The extremely brittle nature of the damaged leather, particularly in the stained areas made it impossible to display the moccasins in their original shape. The foot and ankle areas were deeply folded and wrinkled, obscuring the beaded embroidery, and the top-most edges of the uppers could not be folded over at the knee as they were intended to be worn.

The loss compensation treatment made the dress structurally stable and allowed the object to withstand handling and mounting for the museum exhibit, in addition to improving its appearance.
flexing the leather in the hands as it dried, the original softness and loft of the material was almost entirely recovered. Even after the object was completely dry, the leather maintained its flexibility and much of the staining was mitigated as well, allowing the moccasins to be displayed in their original shape and form.

Conclusion
The techniques discussed here are just a few examples of conservation treatments which involved loss compensation using a combination of modern and traditional materials and methods. In each case the treatment was successful in that it met the needs of the owner or custodian while maintaining the ethical standards of good conservation practice. In all cases particular attention was paid to the need to make all repairs completely reversible and easily identifiable, while remaining faithful to the artist’s original intent for the object. This unique approach to loss compensation treatments allows for repairs that might otherwise not be possible and which serve the ultimate goal of the long-term preservation of the historic objects in our care.

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Endnotes
2. Author’s personal research, unpublished.

Reintegration of Line and Color on a Kwakwaka’wakw Beaded Button Blanket

The Charles Nowell blanket provided an opportunity to consider visual reintegration of lost beadwork. The addition of materials to replace missing decorative elements, like any aspect of treatment, must be carefully considered. Conservators, curators and owners weigh the added value (aesthetic, interpretive and it’s value as a representative of a time and use within a cultural group), the ability to recognize or detect the new materials as additions, and the effect on the object (material interactions, potential stress at attachment, increased weight, and ease of removal).

In 1997 the U’Mista Cultural Centre in Alert Bay, British Columbia, Canada was able to secure the return of a Kwakwaka’wakw Ceremonial Dance Blanket that had belonged to Charles Nowell (1870-1957)\(^1\). He came from a high ranking family at Fort Rupert, British Columbia. “Intellectually and in personality Nowell was an unusual man. He respected tradition and sought not only to comply with the forms of Kwakiautl custom but to understand their meaning as well, but at the same time he was able to make a better than usual adjustment to the stresses and strains of the bitter phase of acculturation that persisted most of his lifetime.”\(^2\)

In requesting treatment of the blanket at the Canadian Conservation Institute, the U’Mista Cultural Centre (UCC) noted that “ This blanket is important not only for its artistic merit but also more importantly because of its exceptional history, craftsmanship and what it represents to the descendants of Charles Nowell, many of whom still reside in this area”.

Description
Blankets were, and still are, worn at special gatherings and ceremonies. The designs are associated with family heritage and the crests and social status of the wearer. The Charles Nowell blanket is made of a navy blue wool fabric, with a tightly woven red wool fabric border at the sides and
top. At the center top is a plaid woolen fabric and the back of the blanket is lined with a green wool fabric.

The front is decorated with shell buttons and colored glass seed beads strung on cotton thread secured to the fabric with a couching stitch at every 5th or 6th bead. The navy fabric carries a beaded spread-winged eagle with a red heart, two killer whales, two grizzly bears and a fragmentary copper shield. Three edges of the navy fabric and the red border carry beaded floral motifs. A bird with raised wings is depicted on the top red border on each side of the plaid fabric. When the blanket was worn, the birds would appear in an upright position. Large shell buttons were sewn to the navy fabric along the inside edge of the red border and intermittently across the navy fabric. Smaller buttons augment the beaded elements and decorate the red border. Two fabric tabs are attached at the top edge, one with buttons and the other with button holes to fasten the blanket around the wearer.

**Stabilization of Damaged areas**
The blanket is in a slightly weakened state. Even though many of the beads and buttons are missing, those present result in a considerable weight carried by aged fabrics. (Image 1) The navy fabric at the front is longer than the green backing fabric – probably due to stretching from the weight of the decorative elements. A pleat in the navy fabric along the bottom edge was released, open seams and small cuts were stitched close, tears and fabric losses were backed with fabric and stitched in place and loose buttons were secured with the addition of new cotton thread.

At some point before the UCC purchased the blanket, many of the broken beading threads had been brought back and inserted under the line of beads behind a couching stitch to prevent bead loss. When the blanket arrive in the conservation lab 132 beads were loose (collected by the UCC over several years and when the blanket was opened for examination) and additional work was done to secure broken lines of beadwork. New cotton thread was inserted through the bead, beside the original thread, and the thread ends were anchored in the navy fabric with running stitches. If the bead perforation was too narrow to accommodate two threads, just the new thread was used or if 1 or 2 beads remained on the end of a broken thread, a small dot of adhesive was applied to the outermost bead to secure it to the beading thread. A large portion of the beadwork remains but losses measured along the exposed lines of couching threads, where lines of beads were lost, equaled 25 meters and reattachment of the loose beads only covered about 25 cm.

**Visual re-integration**
The Centre had agreed that visual reintegration could be done in a test area using cotton embroidery floss inserted under exposed couching threads. The design line and the bead color were known in all areas of loss as the exposed couching threads (Image 2) defined the design line and the color was known as some beads remained, or the color line was mirrored on the opposite side. As 25 meters of beads were missing, the cotton floss provided a lightweight reintegration material.

*Image 1: Close-up of exposed couching threads in areas of bead loss.*
removed. Glass beads had been ruled out as being too similar to the original, too heavy and attachment would stress the original beadwork and fabric.

Images of the test area before and after the insertion of the floss were sent to the UCC to see if they wanted the visual reintegration continued or have the inserted cotton strands removed. (Image 3) They felt that the insertion of the floss would give an overall feel of what the blanket must have looked like (before bead loss).

Strands from available shades of a color were mixed to create a color line of floss that was similar in tone to the color of the lost beadwork. Four to six strands were threaded through a blunt round point needle and inserted under couching stitches. (Image 4) Only the red bead was difficult to represent with strands of floss. A brighter red was toned before use with a dilute application of brown opaque acrylic (discontinued Rotring Artist Color for airbrush and pen). The floss was only slightly stiffer after drying. (Image 5 and 6)

Image 3: (Above) Before bead integration; (Below) after bead integration.

Image 4: During treatment showing insertion of red floss to minimize appearance of bead loss.

Image 5: Before integration of floss into couching threads.
Some couching threads were so weak that they broke as the needle was inserted beneath it. When this happened a new cotton thread was used to couch the line of cotton floss in place to avoid creating more breaks in the original thread. Much of the exposed couching thread was strong enough to hold the cotton floss.

About 1 – 1.5 cm of the floss was left extending at the start point and finishing point. The cut end was trimmed at an angle, Klucel G in ethanol 3% w/v was applied to the cut end and the strands were twisted together with tweezers to create a compressed end that would resist fanning open. If possible the end was inserted beneath a line of beads.

Results and Discussion
Although the bulk of the beadwork is present, the addition of color lines to the blanket allow the eye to more easily travel from one design element to another. (Image 7) The dark color of the navy fabric also tended to highlight losses and the loose beads could only fill a small number of these. Not all lines of bead loss were reintegrated. If a design line was well defined by beads, a line of loss beside it would not be filled. (Figure 4) The cotton floss contributes little weight to the blanket and is obvious as a substitute material. The decision to visually reintegrate lost beadwork was also made knowing that the floss can be easily removed should views change on the suitability of its use.

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Acknowledgements
Interns Avital Lang and Fran Paterson did most of the work blending strands of cotton embroidery floss and inserting them beneath the couching threads. Interns Madeleine Snedden, Brenna Cook and Asefeh Kenari, and textile conservator, Janet Wagner worked on stabilizing the fabrics and securing loose buttons. Thanks to Juanita Johnston at the U’Mista Cultural Centre who was the contact person for this project.

References
**World Conservation and Exhibition Centre**

**Storage Move:**

**Preparation for the large object move**

The two and a half centuries of the British Museum’s history has seen the countless movements of objects between the Bloomsbury site and its offsite stores. Among those items are a number of oversized objects, whose physical transit requires something more than just gentle tissue padding to ensure their safety. One medieval logboat from North Stoke, for example, was said to have taken the strength of 11 horses to excavate it from the findspot in 1834, while a ten-meter long canoe from Palau, Caroline Islands, donated in 1792, was once hoisted out of the museum in order to transport it to the offsite store. The photographs of this huge task show the canoe was fitted with a foam-padded internal wooden mount, and required foam protection to the prow, stern and around the hoists, to enable it to be carefully lowered to the ground (Fig.1). Today, the object still bears the chalk arrows and writing, and a few of the internal metal ribs added to prevent the object collapsing during hoisting. They remain as evidence of the painstaking planning and care taken for its safe transport during this high-risk operation, as well as reminders of the intervention deemed necessary for its safety at the time, which might be somewhat uncomfortable to present-day conservators.

The Palau canoe will be among the first of more than 175,000 objects to be transported to the Museum’s Bloomsbury site from its off-site ethnographic store in the course of 2014-2017.

The Museum is undertaking the largest redevelopment in its history: the building of a new World Conservation and Exhibition Centre (WCEC), which also houses new conservation and science facilities and modern storage for the ethnographic collections that have been stored off-site for many years. Objects from the Department of Africa, Oceania and Americas (AOA) in the offsite store are presently being condition-assessed, conserved where necessary, prepared and packed to be housed over three floors in the new building.

The first items to move into the new storage facilities will be approximately 100 large objects (i.e. over 5 x 2.5 x 1.2 m), mostly watercraft (boats and canoes) from every continent of the world. There has been very restricted access to much of this part of the collection because of inadequate, cramped storage facilities in the present ethnographic stores (Fig.2). The modern new storage facilities will allow this part of the Museum’s collection to be more accessible for exhibition, loan, research, study and conservation, and will further reduce the risk of physical damage to the objects. The redevelopment has provided a unique opportunity to assess a large and important section of the museum collection, much of which has not been looked at for many years.

**Image 1:** Canoe from Palau, Caroline Islands, Micronesia (1792.1201.1) being hoisted out of the museum at Bloomsbury. Date unknown. © Trustees of the British Museum

**Image 2:** Existing Large Object Storage ‘the boat pen’. 2013. © Trustees of the British Museum
Within the scope of this Large Object Move project, the Organic Artefacts Section of the Conservation and Scientific Research Department (CSR) was assigned a number of tasks:

1. Condition assessment of the objects.
2. Surface cleaning, as well as other treatment necessary to stabilize the objects, if required.
3. Addition of extra supports where necessary (soft support).

Due to time restrictions, conservation treatment was kept to a minimum. Interventive measures were taken only to stabilize the condition of the objects sufficiently to allow them to be safely and securely handled, crated and transported. The need to surface clean objects, in order to avoid contaminating the new stores with ‘museum dust’ or other types of debris, had been specifically included in the program for the move.

On completion of treatment, technicians provided every object with bespoke storage/transport mounts and a crate where required. Difficult or complex supports were discussed with conservators. These transport mounts will remain as supports for long-term storage and to facilitate moving between racking, and within the store for future safe handling. After preparation for transport the objects were treated for insect pest control prior to their transport to the new store as a precautionary measure (Fig.3).

Phase 1: Condition Assessment
Condition assessments for all objects were carried out prior to any treatment. The assessments were conducted to identify potential conservation issues, treatment needs and material requirements for the stabilization of the objects for transport. For resource planning purposes, the assessments also generated time estimates for individual objects and, in turn, for the project as a whole. It was also necessary to produce treatment recommendations in order to allow colleagues in CSR and curatorial departments to discuss and agree the next course of action.

Condition assessments were carried out by two organics conservators and, where specialist advice was required, several additional conservators, each with expertise in specific material types, assisted in generating an accurate assessment of condition. Objects prepared for the project constituted a diverse range of organic materials, processed and utilized with a variety of technologies, such as North American birch bark canoes, skin-covered kayaks, shell inlays embedded in the resinous materials of Solomon Islands’ canoes and a reed boat from Lake Titicaca in Peru.

An essential part of the move project was to ensure that no object being moved to the new storage was infested or carrying insect pests. Freezing was used as the main means of pest eradication. Objects at possible risk if frozen were identified in consultation with the preventive conservator. Examples included those with unstable painted surfaces or resin-embedded inlays, and materials under tension. In such cases the objects were treated either by prolonged exposure to an anoxic environment or quarantined.

Phase 2: Stabilization Treatments and Cleaning & Phase 3: Additional Support
Treatments were carried out by the team of conservators chiefly consisting of staff from the Organic Artefacts Section. Many objects dealt with in the project comprised vulnerable organic materials such as feathers, plant fibers, skin, or degraded wood. A large number of these materials showed signs of deterioration. Many of the cumbersome objects were therefore very fragile and thus required...
Case study 1
A canoe from Manihiki, Cook Islands (Oc1982,Q.463), was one of the cases in which a solution based on an additional support was adopted.

The object comprises the wooden structure, with shell inlays embedded into individual recesses in the wood. The rim around the canoe consists of bound plant-fibre strips. On the exterior of the canoe, strips of turtle shell are attached to both sides of the prow and stern, as well as plant fibre tassels and shell beads cut into a diamond shape, strung with plant fibre cordage.

Although the object retained its overall structural stability, some of the decorative elements would be potentially at risk during handling and transport. The plant fibre fringes were very brittle and hung over the exterior of the canoe, making them vulnerable to physical damage. One of the ribs inside the canoe had been detached due to partial failure of the plant-fibre cordage that held it in position. Several strung diamond-shaped shell beads were loose and only precariously attached as they were immediately next to areas of frayed plant fibre cord that secured them to the main wooden structure. These elements showed evidence of previous intervention in the form of nylon filament threaded through the beads to hold them in place. However, the once tightly stretched filament was itself now loose and failing to support the beads.

During the initial condition assessment for this object, the restringing of these older supports for the beads was proposed as a treatment option. However after some discussion over the effective use of time and resources, an alternative, less interventive method of securing the beads temporarily was proposed. Since only a few beads were at immediate risk of detaching, the application of local additional support to secure them for transport was the option chosen. It was also concluded that even if the shell beads were re-strung, these pendant elements would have to be held in place by an additional support. Consequently, the unstable shell beads were held in position locally by encasing them in small pockets made of Melinex® (polyester film), followed by covering the beads on the exterior of the canoe with sheets of Melinex®. Gentle pressure was necessary to hold the strands of beads in position and Melinex® enclosures fulfilled this requirement. In addition, this method leaves the vulnerable areas visible to the museum staff who will subsequently crate, handle and transport the object, rather than kept hidden under padding. Similarly, brittle plant fibre fringes were protected in polyethylene pockets in situ, allowing the tassels to be held gently against the body of the canoe using cotton ties to mitigate movement. The detached rib was secured to a Plastazote® (polyethylene foam) base using cotton tape and then stored inside the canoe to travel securely, together with the rest of the object (Fig.4).

![Figure 4. Manihiki (Cook Islands) canoe (Oc1982,Q.463) with additional Melinex® and cotton tape supports attached. 2013. © Trustees of the British Museum](image)

Case study 2
In contrast, a canoe from the Solomon Islands (Oc1922,0309.12) was one of the objects for which interventive treatment was deemed necessary to ensure its secure transport.
The object comprises a wooden structure, covered with thickly applied layers of resin and a painted surface. Shell inlays are embedded into the resin. This resinous, inlaid surface was found to be severely deteriorated with a significant degree of lifting and flaking. As a result of the instability of the resinous surface, the shell inlays were also lifting. Some of the inlays were either partially or completely detached as a result of loss of adhesion in the natural plant resin (puttynut- crushed fruit and leaves from *atuna racemosa* subsp. *racemosa*). Following discussion with curators, it was concluded that an interventive treatment approach to re-lay the lifting resin and paint was necessary for safe transport. It was not possible to secure the lifting /flaking resin and loose inlays locally using protective covers and temporary supports, which was the method employed with many of the other boats. Covering and wrapping the surface, it was believed, would cause further damage and loss to lifting resin through direct physical contact. Once lost or detached, it would be impossible to find the original location of the fragments.

The following factors were taken into consideration when making the decision to carry out interventive treatment:

- The treatment needed to be well-defined and carried out within an allocated timeframe.
- The treatment method, once defined, needed to be followed consistently by a number of conservators, all of whom would work on the object.
- Treatment of the object would require additional space, and this would restrict access to other objects for the period of its treatment. This should therefore be taken into consideration at the work-planning stage.

It was essential to strike the right balance between the employment of passive, additional support and interventive treatment. Making a sound judgement as to what extent the objects forgive physical impact during handling and transport required consultation on an object-by-object basis. Interventive treatment options were followed for only a handful of objects, where passive additional support would not improve the stability of the object.

In the case of the canoe a compromise was made, in that only the most at-risk and vulnerable areas of paint and resin were prioritized and treated. The treatment methods were discussed and tested until a satisfactory method of stabilizing the resin and inlay was found (Fig.5).

The flaking and lifting painted surface was re-laid using Lascaux® Medium for Consolidation (aqueous dispersion of an acrylic copolymer), while the thicker layers of ‘puttynut’ resin was treated using Primal® B60A (acrylic dispersion) introduced between the wood substrate and the lifting surface, followed by application of heat (heated spatula) over a piece of lens tissue and Melinex®. The conservation of this object took five conservators 62 hours, the longest time spent on any one object in this project.

**Figure 5. Preparation of Solomon Islands canoe (Oc1922,0309.12) for transit to new store. 2014. © Trustees of the British Museum**

**Challenges**

The Large Object Move project presented several challenges. Access to the objects and the set-up of space for assessment, as well as treatment, was a major logistical obstacle. The majority of the objects stored in the boat pen were often stacked on top of each other in a number of two-to-three-tiered mobile racks, each tightly packed and with very little space between them (Fig.2). Access to these mobile racks often involved a complex procedure of shunting one rack to make room for another, while larger objects often required the use of a forklift. Access to objects also required the dismantling of the mobile racks which exacerbated the lack of storage. The order of treatment was therefore determined by
accessibility rather than the order of their conservation priority. Following treatment, the objects were sent for measuring, mounting and crating in the technicians’ workshop, which helped to generate space to move the racks.

Teamwork was an essential factor in this project. There were 13 conservators working in rotation to clean and treat objects. Many treatments took more than a day to complete and it was not unusual that multiple conservators were involved in a single treatment over a period of several days. The treatment was usually carried out by two conservators working together at any given time. This facilitated communication between conservators allowing the discussion of treatments, any upcoming issues and the need, in some cases, to alter or change techniques. Furthermore, this teamwork had the added advantage of allowing conservators to learn from each other’s expertise and techniques in dealing with a variety of objects or materials with which they may not have had much previous experience, making it an excellent opportunity for professional development.

Conclusion
As of April 2014, interventive conservation is nearing completion, with only a handful of low-priority treatments yet to be completed. Since the condition assessment for this collection of objects started in March 2013, the conservation project has taken over a year to complete. The conservation activity associated with the Large Object Move has made a significant improvement to the condition of the objects and their future storage solutions. Not only can the objects now be safely transported to their new storage facility, but conservation issues have also been identified, addressed, and recorded in the condition assessment. Some of the most vulnerable objects have been treated and many of the objects are now stored with new inert, soft padding. In addition, the objects are protected by storage/transport mounts, or in some instances crates, which will allow the objects to be handled with minimal direct contact when using hoists, fork lifts and other mechanical lifting equipment.

FROM THE EDITOR

Thank you to the authors who contributed to this 2014 issue! If you would like to make a submission to a future issue of the Newsletter please contact: Renata Peters (mpeters@ucl.ac.uk) or Kim Cullen Cobb (cobbk@si.edu)

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