Treatment of Native American Ethnographic Objects – The Use of Traditional Techniques and Materials for Modern Conservation

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 objects' 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.

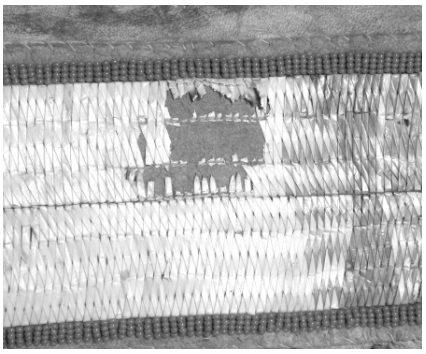
Porcupine Quillwork

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.

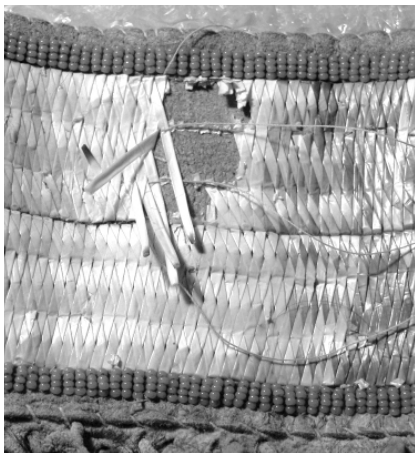
The use of synthetic materials for loss compensation may be acceptable for some applications where objects will be on displayed in exhibit cases, in low lighting, or at such a distance from the viewer that the repairs are not noticeable. However, in situations where the quilled object is intended to 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.

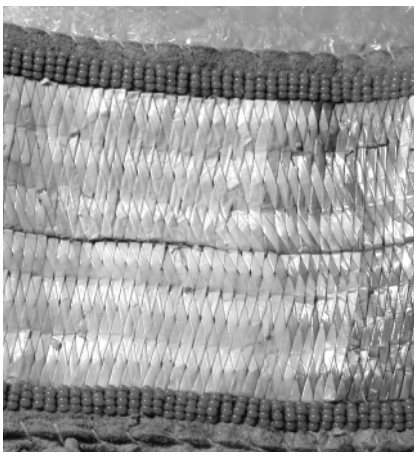
The images below show how new porcupine quills were woven into the original plaited work to complete the quilled design without interfering with any of the original materials. All original stitching and remaining quill fragments were left intact under the new repairs. Stitches holding the replacement quillwork were simply laid down immediately adjacent to the original construction threads.



Detail of woven quillwork panel before treatment



Weaving new quills into the original quillwork. This type of multiquill plaiting is done using eight quills and four threads simultaneously.

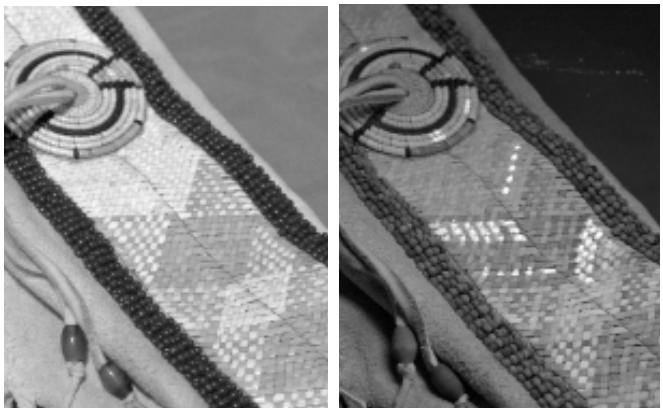


Repairs complete

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 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 make 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 pen. The quills are marked on the upper surfaces after the repairs are completed in order to ensure that marker residues do 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.



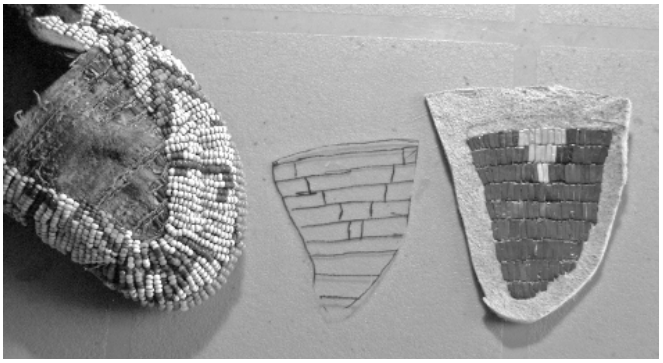
Quillwork repairs labeled with ultraviolet marker, shown under ambient light and 254 nm UV

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 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.

Moccasins with badly damaged quillwork on the toes



Fabrication of a new quilled panel using a pattern from the moccasins, matching the dyes, quill sizes, and sewing techniques with the original embroidery

Moccasins with new quilled panel in place

Treatment of Native American Ethnographic Objects - The Use of Traditional Techniques and Materials for Modern Conservation, continued

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.

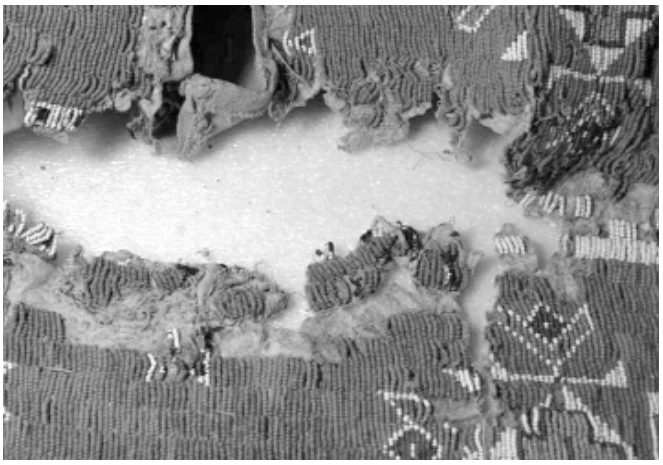
The following example illustrates the treatment of a fully-beaded Lakota dress cape where natural materials were used in conjunction with synthetic fabrics and conservation adhesives to stabilize the object and improve its appearance for a museum exhibit. The cape had extensive damage and loss to the beaded areas as well as to 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 applique 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.

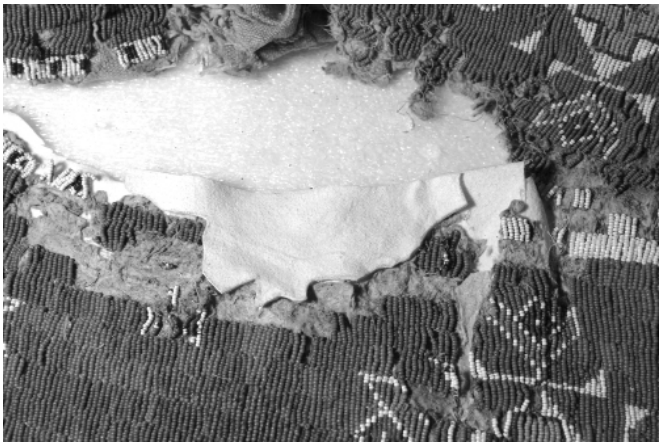
The thick leather and the fragile structure of the surrounding original materials mandated finding a fill material which could match the properties and dimensions of the old leather. The material also had to be easy to work with so that the process of applying new beadwork to fill out the design would 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 and 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.

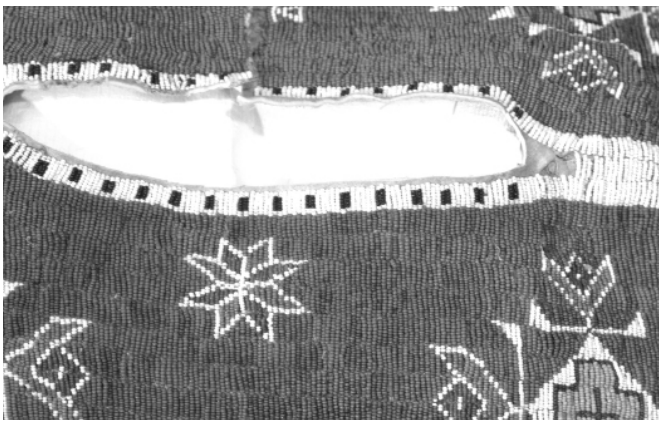
Liquid soy lecithin, available in grocery and health food stores, contains phospholipids similar to those found in animal brains. The polar component of the soy lecithin was extracted using 91% isopropyl alcohol. The resulting solution was diluted with warm water and used to tan a deer hide using traditional methods.



Detail of the neck area, showing leather and beadwork losses



Repair in progress. Patches fabricated from custom tanned leather over a Beva flocked tissue backing.



Replacement beadwork sewn over patched areas

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 back 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.

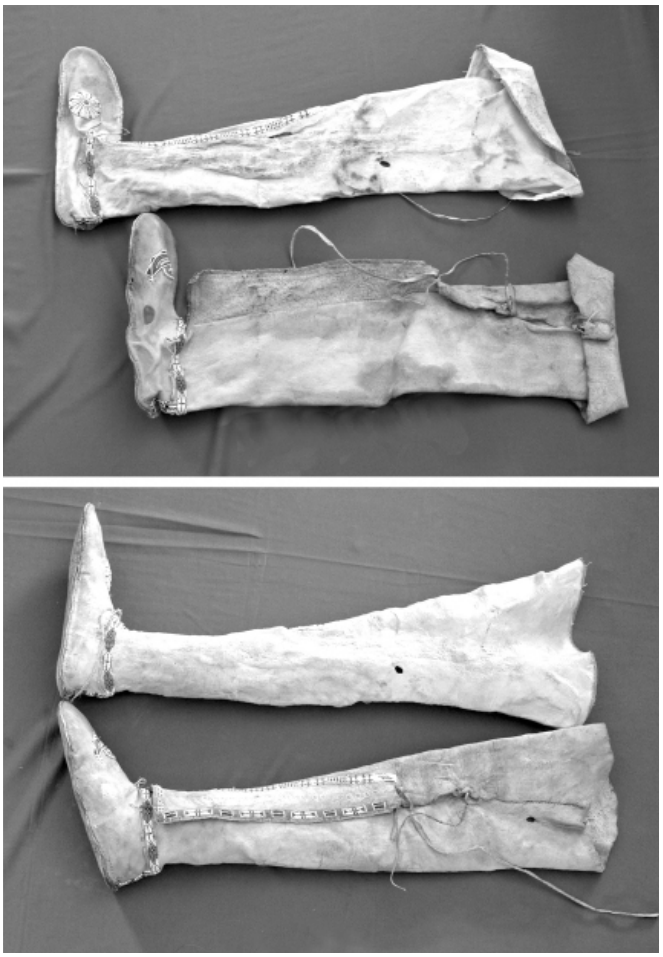
The loss compensation treatment made the dress structurally stable and allowed the object to withstand handling and mounting for the museum exhibit, in addition to improving its appearance.

Recovering Damaged Leather

The lecithin/alcohol solution used to prepare the replacement leather in the previous example has 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.

By first introducing the lecithin solution into a hydration chamber, using a Gore-Tex barrier between the solution and the object, then gently working and 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.



Kiowa moccasins: degraded leather recovered by treatment with lecithin solution

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.