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Author(s): Mina Thompson and Conor McMahon
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PLASTER, PLIACRÉ, AND PAPER

MINA THOMPSON AND CONOR MCMAHON

ABSTRACT

Established in 1909, the Museum of New Mexico ranks among the oldest museums in the Southwest. It also has one of the longest histories of planned and institutional conservation, beginning in 1935 conserving early Puebloan wall murals to early staff and consultants such as Per Guldbeck and Rutherford Gettens in the 1950s. This paper traces the history of conservation and conservation practices in the Museum of New Mexico System, from its inception as a single museum for Southwestern art by Edgar Lee Hewett to its current incarnation of seven divisions under the New Mexico State Department of Cultural Affairs. Evolving practices and trends of artifact restoration and preservation are discussed using case studies of archaeological ceramics and Spanish Colonial *santos*. Analyses of treatment materials, supplemented with archival documentation, uncover past treatment philosophies, some of which are remarkably modern. Retreatment and reexamination of these artifacts, as well as efforts to preserve the intangible aspects of cultural materials, have greatly influenced present-day treatments, including choices made in recent years toward less toxic and more easily reversible treatments of these two collection types.

1. INTRODUCTION

Established in 1909, the Museum of New Mexico ranks among the oldest museums in the Southwest. It also has one of the longest histories of planned and institutional conservation. This paper traces the history of conservation and conservation practices in the Museum of New Mexico System, from its inception as a single museum for Southwestern art to its current incarnation of seven divisions under the New Mexico State Department of Cultural Affairs. Evolving practices and trends of artifact restoration and preservation will be discussed using case studies of archaeological ceramics and Spanish Colonial *santos*. Materials analysis and archives research reveal past treatment philosophies, some of which are remarkably modern. Retreatment and reexamination of these artifacts, as well as efforts to preserve the intangible aspects of cultural materials, have greatly influenced present-day treatments, such as using less toxic and more easily reversible treatments of these two collection types.

2. EDGAR LEE HEWETT AND THE MUSEUM OF NEW MEXICO

It is probably safe to say that museums themselves are the first act of preservation, and the Museum of New Mexico, founded in 1909 by Edgar Lee Hewett was no exception (fig. 1). His mentor, pioneer archaeologist Adolf Bandelier, instilled in him a passion for both past and present indigenous cultures of the Southwest, and he spent the rest of his life building institutions and academic departments to commemorate them. Over his lifetime, Hewett created and simultaneously directed six institutions and academic departments, all of which he oversaw simultaneously.

The first institution he created was the School of American Archeology in Santa Fe in 1907.[1] The purpose of the school was to train future archaeologists to work in the Americas, as most schools focused on the Old World sites and cultures. Early field school students include now-legendary archaeologists Sylvanus Morley, Neil Judd and A.V. Kidder, as well as several women, which was highly controversial at the time (*El Palacio* 1981).

Fig. 1. Edgar Lee Hewett, ca. 1912, as Director of Museum of New Mexico, and the School for American Archaeology. Photograph by Jesse Nusbaum. (Courtesy of the Palace of the Governors Photo Archives (NMHM/DCA), #007339)

From their prolific summer excavations, there quickly became a need to house their numerous finds. In order to prevent the artifacts from being absorbed into east-coast institutions, Hewett and the New Mexico Territorial government founded the Museum of New Mexico, which was housed in the Palace of the Governors on the Plaza (fig. 2):

Critical to the founding missions of the school and the museum (which separated from each other in 1959) was also the encouragement and preservation of contemporary Southwestern Native American cultural material. New artifacts were acquired, and studios were even offered to craftsmen to encourage their work. The museum's collections – often the archaeological pottery - inspired contemporary makers either to revive old designs or create new ones (SAR 2007). Maria and Julian Martinez of San Ildefonso Pueblo are perhaps the most famous of this program, who were hired by Hewett to recreate pottery found on archaeological excavations that were no longer known, and from which they were inspired to create their own unique styles that are still coveted today.

In the coming decades, the Museum of New Mexico grew from a single museum located in the Palace to a group of museums and institutions that include: the Museum of Art, founded in 1917 and located across the street from the Palace; the Laboratory of Anthropology, which opened independently in 1931 but merged with MNM in 1947; the Museum of Indian Arts & Culture, built in 1987 to house the Laboratory of Anthropology's growing collections; the Museum of International Folk Art, which opened in 1953 as the first folk art museum in the country; six State Monuments, and the Office of Archaeological Studies. The most recent

addition is the New Mexico History Museum, which houses the artifact collections of Palace of the Governors—the first museum site and the oldest public building in continuous use in the United States.

Nearly every one of these museums, which are collectively called the Museum of New Mexico System, has its own history of preservation, whether in its founding mission or through staff and consultants who helped actively conserve their collections.

Fig. 2. An early photo of the facade of the Palace of the Governors along the Plaza, as it appeared when it first housed the Museum of New Mexico. The Palace was renovated the following year into its current "Santa Fe Style" by Jesse Nusbaum. Photograph by Jesse Nusbaum, ca. 1911. [Courtesy of the Palace of the Governors Photo Archives (NMHM/DCA), #061537]

3. A BRIEF HISTORY OF CONSERVATION AT THE MUSEUM OF NEW MEXICO

Milestones in the museum system's conservation history can be marked as follows:

- The museum itself was founded to preserve ancient and contemporary cultural material of the Southwest. This is perhaps best represented in its pottery restoration, which will be discussed later.
- The first major, complex conservation treatment occurred during the Kuaua excavations between 1935 and 1938. During this collaborative project between the Museum of New Mexico, SAR and the University of New Mexico (UNM), intact kiva murals dating to the 1500s and earlier were discovered, and, quickly after began to separate from their adobe structure. The murals were faced and supported in plaster, removed and taken to a laboratory at UNM for preservation. Painstaking *strappo* conservation techniques revealed 17 layers of elaborately painted walls, which were mounted into 76 individual

support systems. The Kuaua murals are the most complete cycle of Puebloan murals with a continuous theme in existence (Munzenrider 2004).

- Consultations with Rutherford J. Gettens began in 1935, in which Jesse Nusbaum, director of the Laboratory of Anthropology, describes in great detail the Lab's wholesale pest eradication methodology with Carboxide gas, the brand name at the time for ethylene oxide gas (Nusbaum 1935). Gettens continued his association with the MNM for the next several decades, most notably in his identification of pigments used by Spanish Colonial artists and later in a treatment consultation on one Kuaua mural fragment in the mid-1950s (Gettens 1950).
- E. Boyd, in 1951, becomes the first curator and conservator of the newly created Spanish Colonial Art Department in MNM. She and protégé Alan Vedder conserve artifacts and also help to revive traditions with local *santeros*, much in the same spirit as Hewett's founding missions for Native American cultural material.
- In 1953, the Museum of International Folk Art opens. At that time, the museum was state-of-the-art, with climate control, a conservation lab, and fumigation chamber, which used hydrogen cyanide gas to fumigate the museum's founding collections.
- Per Guldbeck, the founder of conservation for Parks Canada, served as the first curator/conservator at the Folk Art Museum until he headed out to Cooperstown in what must have been the late 1960's. His years here working on diverse cultural material provided the foundation for his book written in 1972, *The Care of Historical Collections: A Conservation Handbook for the Nonspecialist*.
- In the mid-1950's F. DuPont Cornelius, paintings conservator at the Metropolitan Museum of Art, retires and moves to the Southwest, treating many paintings for the Museum of New Mexico system and consulting with staff on other conservation treatments
- In 1979 the first program-trained conservator, Claire Munzenrider, was hired. She worked here until her retirement in 2006, and had senior staff in the 1980s and 1990s that included Bettina Raphael, Landis Smith and Dale Kronkright.

All of these projects and individuals formed and informed conservation practices here at the Museum of New Mexico, and continue to influence treatments and approaches to the same materials today.

4. CASE STUDIES

Archaeological ceramics of the Southwest and Spanish Colonial *santos* are perhaps the two most common collections types requiring treatment in the Museum of New Mexico System, and therefore provide ample opportunity for comparing past and present treatment philosophies and materials.

4.1 CONSERVATION OF ARCHAEOLOGICAL CERAMICS OF THE SOUTHWEST: PAST AND PRESENT

The Museum of New Mexico was one of six institutions in the early twentieth century to sponsor archaeological excavations in the Mimbres Valley, which is located in Southwestern New Mexico. Archaeologist Wesley Bradfield excavated the Cameron Creek River site from 1923 to 1928. This project occurred in part to "keep up with the Jones' " on an institutional level, and, in part, to acquire stunning Mimbres classic bowls (dating to 1000 – 1130 AD) with a

reliable provenance. Even in the early twentieth century, the Mimbres valley was being ravaged by looting, and to this day there are only a handful of scientifically excavated Mimbres sites (Turnbow 2005). The Museum of New Mexico's Cameron Creek artifacts, with Bradfield's copious field notes and excavation reports, remain a highly studied and significant collection of Mimbres cultural material.

Because of their continued value, in 2004 the conservation department was asked to remove highly discolored restorations present on many of the Mimbres Classic bowls. After consultation with and ultimately approval from the Museum's Indian Advisory Panel[2], the work began.

As is evident in figures 3 and 4, the staining from the restoration materials is quite disfiguring.[3] Materials analysis and research among multiple museum archives revealed that the bowls had in fact been restored by Museum of New Mexico staff and soon after transport from the excavation site (Thompson and Elliot 2006). There appeared to be only one restoration campaign that utilized materials commonly available in the early twentieth century. UV-VIS examination of a cross section of the restoration materials, in addition to microchemical testing and FTIR analysis revealed the following information:

1. sherds were adhered with cellulose nitrate adhesive,
2. cracks and losses were filled with Plaster of Paris,
3. joints and fills were covered in a still yet-to-be identified material, though it is likely cross-linked copal resin or, in some cases, polyvinylacetyl resin used in paleontological samples, and
4. all cracks and fills were inpainted and overpainted with linseed-oil paints – probably store-bought but modified in-house for color matching.

The Cameron Creek bowls are the only collection at the museum with this kind of staining, so it is likely that the oil migration did not take too long to become noticeable. Just as oil is absorbed into raw canvas, so it was absorbed by the porous earthenware. While linseed oil can be relatively easily removed with certain organic solvents, the fact that up to 30 bowls had to be treated in a small conservation lab with limited exhaust capabilities and by multiple conservators made it critical to come up with a less toxic alternative for paint removal. After numerous testing campaigns, paintings conservator Claire Munzenrider suggested what became the best solution: an ammonium bicarbonate poultice as described in Mora, Mora and Philipot's book, *Conservation of Wall Paintings* (1984). Our resulting formulation was 10 ml of 10% ammonium bicarbonate in deionized water added to dampened paper pulp (from cotton rag blotters) mixed with a 15g of 4% 4M methyl cellulose to give the mix a smoother consistency.[4] The poultice was applied over mulberry tissue and left for 20 minutes to one hour. The poulticed area was then rinsed with deionized water and ethanol.

The staining, in most of the bowls, was successfully reduced (fig. 5). Perhaps the more significant benefit to removing the restorations was the uncovering of paint-polish strokes, use-wear marks, and, on one occasion, a kill hole. Such markings, noticeable in figure 5 as the small pock-marks in the slip near the kill hole, highlight the intangible aspects of the bowls and help to elucidate the mysteries surrounding these bowls that have persisted for the last century.

Though losses in archaeological ceramics would not usually be filled, the pre-existing plaster fills were stable. Removing them from all of the bowls was determined to be a lower priority and, frankly, too time-consuming. The conservation team instead toned plaster fills to the slip color with acrylic emulsion paints, taking special care *not* to replicate any lost imagery for a very specific reason: in the past, restorers' designs have been unintentionally mistaken for

original imagery and published as such. The museum and conservation team could not risk this happening again.

Fig. 3.

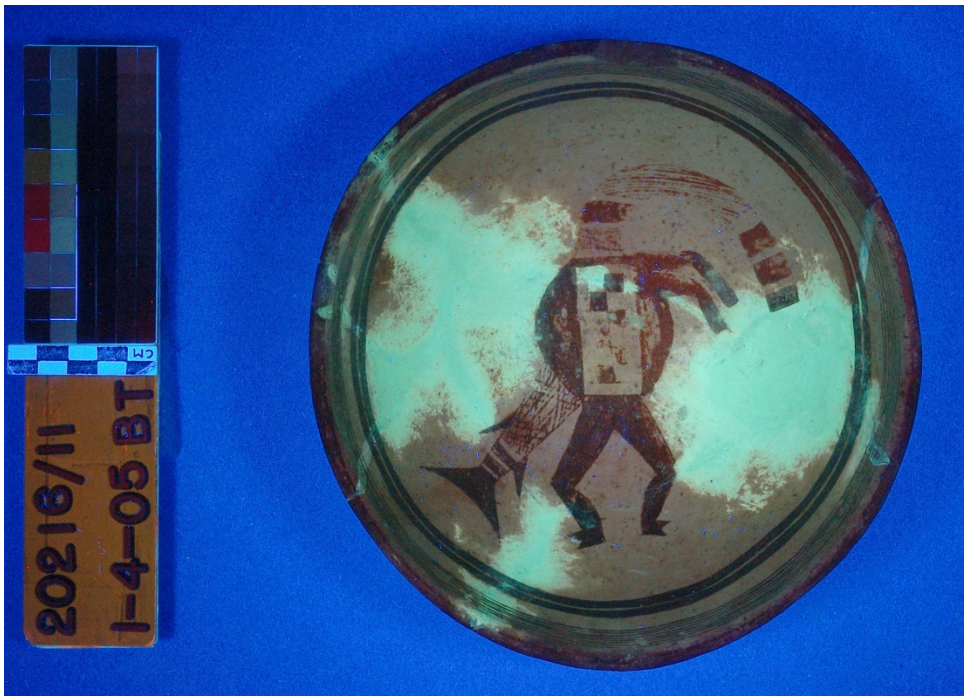

Fig. 4. Before treatment (fig. 3) and UV/VIS (fig. 4) illumination of the same bowl from the Cameron Creek excavations, highlighting the extent of restoration. Catalog number 20216/11, Museum of Indian Arts & Culture/Laboratory of Anthropology Collections. (Photographs by Larry Humetewa)

Fig. 5. After treatment, normal illumination, of the same bowl from the Cameron Creek excavations. Catalog number 20216/11, Museum of Indian Arts & Culture/Laboratory of Anthropology Collections. (Photograph by Mina Thompson)

It is easy to understand why these bowls were originally restored so extensively. Firstly, such treatments were not uncommon in the early twentieth century. Mimbres bowls were prized for both their reliable provenance but also for their unparalleled aesthetic qualities. Most importantly, it was these early-excavated Mimbres bowls that provided the basis for Mimbres pottery dating and classification that is still used today. "Complete" bowls made the images easier to read and therefore classify.

Today, conservation treatments of Native American cultural material are often relatively minimal. It is consistent with modern practices not to fill losses, and rarely to replicate lost designs. When fills are deemed necessary for structural stability, however, today's conservation team often uses a two-part epoxy putty in lieu of plaster. These essentially fake sherds are tacked into position with small amounts of adhesive, which helps to diminish the relative strength of the epoxy over the earthenware. One can even paint them prior to adhering them in place, thereby minimizing risk of paint transfer to the original material (figs. 6, 7).

Fig. 6. Wintherthur graduate intern Elizabeth Rydzewski creates multiple structural, epoxy fills for a Tsankawi jar dating to 1580AD (Photograph by Mina Thompson)

Fig. 7. The same section after initial inpainting. Catalog number 55875/12, collection of the Museum of Indian Arts & Culture/Laboratory of Anthropology. (Photograph by Mina Thompson)

4.2 SPANISH COLONIAL *SANTOS*

In contrast to treatments of archaeological materials, basic philosophies for treating Spanish Colonial art mirror those of today, though the choice of materials has altered.

4.2.1 E. Boyd

Elizabeth Boyd White was known as E. Boyd, or, simply, E (fig.8). After moving to Santa Fe in 1929 to paint, she quickly developed an appreciation for the simple, painted wooden saints (*santos*) ubiquitous in churches and homes in New Mexico. Yet knowledge about the

devotional works was hard to find. *Santeros* (the saintmakers) and their collective knowledge were rapidly disappearing, mainly as a result of mid-nineteenth century Bishop Lamy's distaste for this "primitive" style. Boyd made it her life's work to study the aging religious artifacts. She inventoried Spanish Colonial devotional works state-wide, and, through careful study of local archives and church records, she was also able to date many works and even attribute them to *santeros* (Loomis 1964).

During her work, Boyd found the *santos* in such states of disrepair that she took it upon herself to learn how to restore them. While she never apprenticed formally, she knew where to seek help. Archives research shows numerous technical studies bulletins, treatment recipes and collaborations with conservators (Boyd 1951-1959). In the late 1940's, she and artist Cady Wells contacted Rutherford Gettens to perform the first pigment identification of Spanish Colonial *santos*. In 1951, he published his research in *El Palacio*, the quarterly publication of the Museum of New Mexico and the oldest museum magazine in the country (Gettens and Turner 1951, 13-28). Boyd's and Gettens' relationship continued on both professional and friendly levels, with letters describing the chemical makeup of gypsum to inquiries about the fine *retablo* (a two-dimensional *santo*) Boyd was procuring for Gettens and his wife in the late 1960s (Gettens 1958 and 1964).

Fig. 8. Image of E. Boyd in 1958 cleaning a *retablo* in her office in the Palace of the Governors. [Photograph by Charles Herbert, courtesy of Palace of the Governors Photo Archives (NMHM/DCA), #15368]

4.2.2 Early Conservation of *Santos*

It wasn't until 1951 that Boyd was officially hired as curator of Spanish Colonial Art at the Museum of New Mexico. She, and her protégé Alan Vedder, who worked by her side beginning in 1955 and continued after her death in 1974, had quite modern treatment

philosophies towards the conservation of *santos*. In a book written in homage to Boyd entitled Hispanic Arts and Ethnohistory of the Southwest, Vedder (1986), in his contributing essay, describes in great detail his and Boyd's philosophies and materials used to treat a fine *reredo* by José Raphael Aragón from a *penitente* in Vadito dating to around 1830. He states:

> Trying to achieve a final product that was exactly like the original work at the moment it was finished was not the goal to be strived for. The pieces were old, had been used and were worn, and that should be evident. (223)

He elaborates upon materials in an interview late in his life, stating that flaking paint and losses were filled with layers of gesso, and "inpainting was done only in the areas of loss" using "[watercolors] with the same pigments as those used by the *santero*" (Giffords 1988).

Boyd and Vedder rather extensively used a mix of waxes from Plenderlieth's seminal treatise, *The Preservation of Antiquities* (1934) to resaturate and protect the flaking, fragile surfaces. They used a light touch when applying the wax mixture; applying it diluted with turpentine and topically only (other contract conservators dipped the works in the wax). Boyd also recognized the need for reversibility, stating in her treatment records and interviews that the wax could easily be removed with turpentine should changes be necessary (Loomis 1964).

4.2.2 Today's Approaches to Treatment

Today the Conservation Department's approaches to the treatment of Spanish Colonial art are similar, though our treatment materials have changed. Wax, gesso and watercolors are no longer used. Instead, flaking paint is consolidated with isinglass (a close relative to Boyd's and Vedder's gesso), as it reacts well with the hide glue binder in the original paint and gesso layers. With some experimentation, the conservation team has ultimately found that masking losses with toned mulberry tissue, a technique introduced by senior conservator Maureen Russell and used by many institutions for similar purposes, is generally the best loss compensation technique for Spanish Colonial *santos*. *Santos* are highly complex artifacts: they have varying degrees of inherent vice, such as insufficiently cured wood, too little binder, and were often housed in environments with great fluctuations in relative humidity and leaky roofs. They often also have numerous campaigns of restoration or repainting by their caretakers. These campaigns of care speak to the object's past and its cultural significance, and it is important to preserve that information as completely as possible.

By tacking down the edges of the tissue with methyl cellulose (or other appropriate adhesive), the tissue becomes a Band-Aid, and there is no need for filling. The tissue fills are very easily reversible, and the tissue has enough give to move with the material as necessary in today's more stable museum environments, and hides conspicuous damage, as seen in figure 10.

Fig. 9. The *reredo* by José Raphael Aragón, ca 1830, before treatment on the left. On the right, the same *reredo* after treatment by Alan Vedder. Museum of International Folk Art, FA.1960.24.1.
(Photographs by Alan Vedder, courtesy of MOIFA)

5. CONCLUSION

Trends in conservation and restoration will continue to change, much as they have done in the past several decades. This is one of the reasons why conservators document their work, justify their decisions and strive for complete reversibility. It is for this reason that conservators and museums must retain their documentation, which hopefully explains decisions made and avenues not chosen. It has been many of these small notes and papers that have provided the insight into past treatments here at the Museum of New Mexico – and its shared history with other institutions and legendary conservators, such as Rutherford Gettens. Because of this research and what is likely available but difficult to find at other institutions, the authors of this paper have two ideas:

1. Museums around the nation often share artifacts from the same collections or sites. There are Cameron Creek bowls with the same dark stains at least four museums in the United States. Rarely, however, does documentation of such transfers exist. Wouldn't it be useful to establish an online database in which museums and/or conservation departments can share records - either on discreet collections or perhaps even treatments?
2. It is difficult to find information on many early conservators. Wintherthur has its oral history archives – perhaps this could be expanded to include digital copies of archival papers and images, such as the personal letters between Boyd and Gettens?

There is one trend that should not change, though documentation of it should always be maintained. The Museum of New Mexico's consistent focus, most notably through Hewett and Boyd, on working with contemporary populations to encourage, if not revive, their artistic traditions is very impressive and inspiring. Later museum directors and conservators have carried on this tradition of collaboration, evident with the Museum of Indian Arts & Culture's Indian Advisory Panel and Ms. Munzenrider's internships for *santeros* in the conservation laboratory.

Yet it is easy to lose sight of the importance of collaboration when time is short. In Santa Fe, the Museum of New Mexico System Conservation Department is profoundly lucky to live amongst the people whose art we safeguard in our museums. We need to maintain the tradition of collaboration Hewett began 100 years ago.

Fig. 10. Detail of *Entierro* (Christ interred) from Mora by José Benito Ortega. Image on the left shows a detail of the coffin before treatment, the dark drip-marks from previous water damage. On the right, the same area after treatment with toned mulberry tissue. 2007.32.91, Collection of the New Mexico History Museum/Palace of the Governors. (Photographs by Mina Thompson)

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NOTES

1. The School of American Archaeology was renamed the School of American Research in 1917 to reflect the broadening spectrum of its mission, namely, a greater anthropological approach that included twentieth century cultures. SAR was renamed again in 2007 to the School for Advanced Research.

2. The Indian Advisory Panel was founded in 1987 and consists of 15 to 26 members at a given time who represent 29 pueblos, tribes and nations in the American Southwest. The IAP is regularly consulted on exhibits, collections issues and programs at the museum; but it was essential to gain their consent for the Mimbres treatment project because about 60% of the bowls are funerary items subject to repatriation under NAGPRA. While most culturally sensitive artifacts from MIAC/LAB's collections have been repatriated in the past 15 years, the Mimbres funerary bowls from Cameron Creek excavations remain at the museum because there are no existing lineal descendants or tribes with recognizable cultural affiliations to the Mimbres. The project was presented to the IAP by Chris Turnbow, the Assistant Director of MIAC/LAB at that time and curator of the project, as a means of removing disfiguring staining and modern restoration materials applied to the Black-on-white bowls. Through the proposed treatment, the original designs of the bowls would appear more clearly and images invented by early restorers would be removed. Most importantly, the bowls would return to a state more closely resembling the condition in which they were originally placed in the ground. On the basis of these statements, the project was approved.

3. Archaeologist Wesley Bradfield does not identify this bowl as being associated with human remains, and therefore both the Indian Advisory Panel and the staff of the Museum of Indian Arts & Culture/Laboratory of Anthropology have allowed its image is allowed to be published. Staining on other bowls associated with human remains often has even more pronounced staining.

4. The authors are grateful for subsequent discussions with George Wheeler, Director of Conservation at the Historic Preservation Program and Columbia University. Dr. Wheeler alerted the authors to the danger of high pH solutions on ceramic, something that was overlooked in 2005 when the treatments occurred. The pH of the ammonium bicarbonate is measured at 8.5 – 9.0, and should be used with caution. Ammonium bicarbonate may have been the best solution given the constraints of the project and the invasiveness of previous treatments, but, the potential damage incurred on silicates from the relatively high pH deems the treatments risky.

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SOURCES OF MATERIALS

Ammonium carbonate
Sigma Chemical Co.
www.sigma-aldrich.com

Blotters (100% unbuffered cotton)
University Products
www.universityproducts.com

Methyl cellulose (4000 centipoises)
Sigma Chemical Co.
www.sigma-aldrich.com

Mulberry tissue (30% kozo/70% pulp)
University Products
www.universityproducts.com

Polyfix (calcium carbonate-bulked spackle with polyvinyl alcohol binder)
Conservation Support Systems
www.silcom.com/~css/

Golden acrylic emulsion paints
Golden Artist Colors, Inc.
New Berlin, NY, USA
(607) 847-6154
supplied by:
Artisan's,
Santa Fe, NM

MINA THOMPSON has been the associate conservator for the Museum of New Mexico System since 1999. She received her M.A. and Advanced Certificate in objects conservation from Buffalo State College in 1998 and has also trained at the Los Angeles County Museum of Art, the Brooklyn Museum of Art, the UCLA Fowler Museum of Cultural History and the Poggio Colla Field School. Her primary interests are the research and conservation of cultural material from the southwest. Address: Conservation Department, Museum Resources Division, Department of Cultural Affairs, 725 Camino Lejo, Santa Fe, NM 87505. Phone: (505) 476-1238 Email: mina.thompson@state.nm.us

CONOR MCMAHON completed his third-year internship with the Museum of New Mexico System in 2004 and has worked as assistant and then associate conservator through May 2010. He received his M.A. and Advanced Certificate in objects conservation from Buffalo State College in 2005, and is currently the conservator for the Museum of the Horse in Lexington, Kentucky.