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# Annual Meeting Abstracts

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*The 2016 WAAC Annual Meeting was held September 29 - October 2, in Tucson, AZ*

*The papers from the meeting are listed below along with summaries prepared by the speakers.*

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## **Measuring the Stiffness of Brittle Paper**

Andrea Hall

It has been estimated that one third of the paper materials in libraries are too brittle to handle. A typical paper sheet is comprised of semi-rigid cellulose fibers that are more than ten times longer than the sheet thickness and can be considered a two dimensional random fiber network. The main pathways of degradation, acid-catalyzed hydrolysis and oxidation, cause depolymerization of the cellulose chains and breaking of the interfiber bonds.

Conventional mechanical measurements of aged paper are destructive and often too severe to understand the true extent of deterioration. We are comparing the rolling test, fold endurance test, tensile tests, and a modified Clarke test (the JHU bend test) of naturally aged papers with varying amounts of brittleness. Through this comparison and the use of mathematical modeling developed by the JHU Department of Physics and Astronomy we intend to show the limits of each test and relate the state of paper degradation to test results.

## **Adhesives in the American Southwest and Microchemical Tests for their Identification**

Christina Bisulca, Marilen Pool, Martina Dawley, Nancy Odegaard

As part of a Save America's Treasure Grant, the Arizona State Museum recently completed a conservation survey, treatment, and rehousing of its Archaeological Perishable Collections. These collections have some of the earliest known and best preserved organic artifacts of the United States, and include basketry, sandals, wood artifacts, bows, arrows, textiles, cordage, vegetal artifacts, and botanical specimens.

As part of this survey, ASM also completed a study of the various adhesives, coatings, and binders used throughout this collection. Analysis was completed on samples from over 100 objects with Fourier transform infrared spectroscopy (FTIR). This survey found that pine resin and insect lac (shellac) were the predominant adhesives used in the Southwest. Concurrently, microchemical tests used for the identification of these materials were also evaluated as these tests can be used on site and without specialized equipment. Because no microchemical test is available for shellac, one was developed based on the color change of the anthraquinone dyes present in unprocessed insect lac exudates.

Results show that microchemical tests were successful in classifying these materials even in archaeological collections. The newly devised insect lac test was successful in 80% of the collections materials analyzed. The Raspail test for abietic acid, widely used to test paper for rosin size (TAPPI T 408), was successful in all cases. However it was found that this test will give positive results for all terpenoid exudates and is not specific for pine resin. While useful for sorting or preliminary survey, care must be taken in the interpretation of results when using this test on anthropology collections.

## **Detection through the Looking Glass: Investigating the Composition of Mirrors at the Winterthur Museum**

Leah A. Bright and Catherine R. Matsen

After two mirrors in the Winterthur Museum were discovered leaking mercury in early 2015, the need to identify the composition of the over 200 mirrors in the collection was realized. To serve as the initial stage of a project to identify all mercury-tin amalgam mirrors in the collection, the viability of x-ray fluorescence spectroscopy (XRF) to analyze mirrors was investigated.

Most, if not all, mirrors in the collection are backed, so analysis has to be carried out through the front glass. The analysis of two mirror fragments with a Bruker portable XRF spectrometer illustrated

how results can differ between the front and back of a mirror. Mercury is always accompanied by tin in a mirror amalgam, and mercury and tin were both clearly detected at the back of one of the fragments while only tin was identified through the front glass. Mercury peaks are similar in energy to calcium, iron, and other elements present in glass, so the peaks from these glass elements block any mercury peaks as well as tin L lines. The tin K lines however, are higher in energy and can be detected through the glass. Silver was detected through the front glass of the second mirror fragment. The detection of silver is indicative of a silvered mirror, which would not contain mercury.

Eight mirrors in collection storage were also analyzed with portable XRF, and tin was detected through the front glass of four of the mirrors, and no silver was detected. In addition to XRF analysis, a tip sheet was compiled with visual clues to help identify mercury-containing mirrors, and a summary of health hazards and safety procedures was produced for this project.

## **Treatment of a Karajá Feather Headdress**

Betsy Burr

This treatment on a Brazilian Karajá feather headdress from the Fowler Museum at UCLA is a case study within a larger project on the examination and treatment of Central and South American featherwork which was organized by professor and conservator Ellen Pearlstein.

Known as a lori-lori, this style headdress is worn by Karajá men both casually and in non-ceremonial dances, and consists of a woven plant fiber substrate onto which plumulaceous and pennaceous feathers are attached. The headdress was examined and documented (including microscopy and UV-induced visible fluorescence) to identify the technology and materials present as well as its condition. It was previously folded inside out for storage and reorientation was needed for examination and treatment. The pennaceous feathers were treated to improve visual aesthetic and prevent further loss. Heavily damaged and

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fragile feather barbs were encased with organza polyester sheaths adhered to the rachis using Lascaux. These sheaths both protect fragile areas from further losses and damage and provide visual reintegration. Pennaceous feathers were also cleaned and preened using warm water applied with a paint brush using a blotter paper backing. The headdress was returned to storage at the Fowler museum on a new support mount to accommodate its open orientation.

### **Protecting Historic Treasures during California's Fire Season**

Tania Collas

One of the less well-known members of the Natural History Museum of Los Angeles County Family of Museums is the historic mansion of the cowboy silent film star, William S. Hart. A collector of western art and Native American artifacts, William S. Hart bequeathed his home and all its contents to the County of Los Angeles.

The collections are administered by the Natural History Museum, and as a consequence, their preservation falls under the purview of NHM's conservation section. William S. Hart's charming Spanish Colonial Revival Style mansion is situated on a broad expanse of parkland in Newhall, California, just north of Los Angeles, an area which is unfortunately vulnerable to the periodic wildfires for which drought-ridden California is notorious.

In undertaking the evacuation of priority art and artifacts during a fire that threatened the area in 2015, we realized that our existing emergency response plan needed serious revision. Lessons from this experience have led us to redefine our response in order to limit the subjective, emotional factors that inevitably accompany efforts to save cultural heritage.

At the same time, we've worked on ways to make our evacuation of art and artifacts safer and more efficient. The major brush fires that have swept through nearby regions over the past year have kept us on high alert and pushed us to continue to improve our plan. For next

time – and we know there will be a next time – we want to make sure that we can save the Hart Museum's treasures while keeping the safety of our staff as well as our collections at the forefront of the response!

### **Conserving a National Treasure: The Chief Plenty Coups Bonnet and Coup Stick at Arlington National Cemetery**

Nancy Fonicello

In 1921, the Tomb of the Unknown Soldier at Arlington National Cemetery was dedicated as a memorial to American servicemen who gave their lives in the service of their country, but whose remains were never identified. Crow Chief Plenty Coups was invited to represent all Native Americans at the ceremony. During the dedication, the Chief placed his eagle feather war-bonnet and coup stick upon the Tomb as a gift of honor and of peace.

The Plenty Coups bonnet and coup stick have been displayed almost continuously at Arlington Cemetery since 1921, being part of two different exhibits and making at least one trip back to Montana, the Chief's ancestral home. The objects underwent a number of changes throughout the years, including a complete reconfiguration of the coups stick, and had sustained significant damage from their long tenure on display. The pieces were moved into storage in the early 1990s out of concern for their long term preservation.

In 2015, the US Army decided to return the Plenty Coups objects to public display. This posed a number of unique conservation problems: the choices of materials and treatments appropriate for objects of such national historical significance, special considerations for the anticipated long term display, and required extensive research into archival sources, including studying the film footage of the dedication ceremony in the National Archives, in order to document the original configuration and condition of the objects.

This paper discusses the conservation treatment and significant details revealed by background research that guided the

treatment decisions. It explores how the project became a unique collaboration between the conservator and the Arlington curator and chief historian, and includes a discussion of the display mounts and the design of special shipping containers that provided for the safe handling of the objects during transport and treatment.

### **Patronato San Xavier: a Not For Profit Tasked with Restoration of an Historic Site**

Miles Green

Managing a restoration project that is both an historic landmark and a working church has many facets. Raising the money to fund a variety of projects that are often difficult to cost accurately, and where sources of funding are by no means assured, make project management both difficult and challenging.

### **Tangible & Intangible Objects: Lessons Learned during the Digitization of Edward Weston's Portrait Negatives**

Jennifer Jae Gutierrez

In the twenty-first century most, if not all, collecting institutions have to devote significant resources to the digitization of collection materials to meet the expectations and demands of diverse audiences ranging from expert scholars to curious members of the general public. The digitization of collections offers opportunities for collaboration, increased access, and innovative research options. Digitization also poses challenges including resource allocation, long-term preservation of digital assets, and the creation of robust records about the material aspects of collection objects.

This presentation focuses on a digitization project at the University of Arizona's Center for Creative Photography (CCP) to digitize portrait negatives in the Edward Weston archive. In an effort to record as much information as possible about the negatives before placement in cold storage, while limiting collection handling, the CCP's conservation and digital imaging departments

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collaborated to develop a methodology for simultaneously conditioning and digitizing individual negatives. This presentation will introduce the project methodology, compare the research value of original film-based negatives to their digital surrogates, summarize lessons learned, and articulate ongoing challenges associated with digitizing collections at the CCP.

### **Culturally Appropriate Consultation: One example**

Audrey Harrison

The Protocols for Native American Archival Materials developed in 2006 encouraged collaboration between collecting institutions and Native communities through consultation. The consultation goal aimed at fostering trust and mutual respect necessary in shared stewardship. Collaborations often include consultations on various objects for proposed special exhibits. The example here describes one consultation hosted at the Western Archeological and Conservation Center (WACC), (the Grand Teton National Park) with representatives from three Northern Plains Tribes in 2016.

Among the items selected during the consultation included two beaded buckskin dresses, a woman's and a female child's. The tribal representatives identified the beaded pattern on both dresses as belonging to one of the Northern Plains Tribes. The matching beadwork colors suggested to the representatives that the dresses were made for a mother and her daughter. They requested spiritual cleansing of the child's dress with sage and sweetgrass and that the daughter's dress be reunited with the mother's.

The request made by the tribal representatives not only posed some preservation challenges but it also provided an opportunity to design and develop a unique preservation method and storage solution. This consultation also raised a number of questions: Is it allowed for objects to be spiritually cleansed? Can the two dresses be

stored in one box? What methods are acceptable in a collection facility with sensitive fire suppressant equipment if sage or sweetgrass is requested?

Although a consultation such as this is not a new experience for me as a Native American, it does require me to respect and acknowledge the diverse spiritual and cultural significance associated with various objects.

### **Multi-Spectral Imaging the Segesser Hide Paintings Using a CNC Travelling Camera Gantry**

Mark Mackenzie

In 1988 the State of New Mexico acquired the Segesser I and II paintings from the descendants of the Jesuit priest, Philipp von Segesser von Brunegg who acquired them in Sonora, Mexico between 1732 and 1758. These paintings are monumental in size, Segesser II being some 54 inches tall by just shy of 18 feet wide. They were most likely painted prior to 1758 and depict different historic events.

The paintings are unmounted and very large. Any analysis undertaken must do so with them well supported and lying flat. In order to proceed with this project, an imaging table with computer controlled travelling gantry holding the multi-spectral imaging equipment was designed and built. The clear span of the travelling gantry is 6 foot 8 feet so the Segesser II painting will have to be moved perhaps twice to allow complete coverage.

Imaging is done with a Phase One IQ260 Achromatic camera, apochromatic lens, and LED lighting array providing illumination in 365, 445, 470, 505, 530, 570, 625, 700, 735, 780, 870, 940 nm. A computerized filter wheel can be used to add both fluorescence emission and UV reflectance images.

A pilot study done in 2012 has shown that we will be able to detect alterations, additions, under drawings. Current work has demonstrated that we can use the creation of spectral curves to characterize and help identify the coloring materials

utilized and to establish condition baselines for these paintings.

Other analyses to be carried out include genetic testing of the various hides to determine animal species as well as the determination of the hide's average collagen thermal transition temperature. Samples will be taken for HPLC analysis in conjunction with the creation of the spectral curves.

### **San Xavier Mission: An O'odham's Point Of View**

Timothy Lewis

The Mission San Xavier del Bac was built by the Franciscans and the O'odham people of the village of Wāk in the eighteenth century. Wāk is the O'odham word for "enter." There were two other churches built around the same area but on a smaller scale. The current one, San Xavier del Bac, was built from 1783 and finished in 1797.

The church resides on the San Xavier reservation, and for over 200 years the O'odham people have been baptized, married, and had their funeral masses performed in the church. In later years Feast Committees were formed to honor the patron saint, Saint Francis Xavier. The same committees also celebrate the feast day of Saint Francis of Assisi. Many O'odham from various villages on the Main Reservation, located 60 miles west of Tucson, come to San Xavier to pay tribute to St. Francis of Assisi before making the pilgrimage to Magdalena, Sonora. This is done at the beginning of October.

During the restoration campaign, from 1992 to 1997, four O'odham members of the San Xavier community were trained to maintain the integrity of the interior of the church. Since the year 2000 the history of the church has come full circle. The church was built by Spanish Franciscans and Tohono O'odham. And now a member of the Tohono O'odham tribe, trained as an art conservator and his Spanish wife, an art conservator from Spain, are taking care of the interior of the church that their ancestors built.

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### **Cellulose Acetate Lamination: Composition and Document Condition**

Molly McGath, Emily Rezes, Vicki Lee, Jennifer Cruickshank, Andrea Hall, Patricia McGuigan

Barrow lamination of paper documents was a common preservation/conservation treatment in the 20th century. It fell out of favor due to concerns over the stability of the cellulose acetate films used for lamination. However, many collections contain large numbers of cellulose acetate laminated documents.

This research evaluates how the chemical make-up of these films today has impacted the overall condition of the laminated documents. It provides information on the composition of laminated films used at the Maryland State Archives (MSA) dating from 1941-1955, 1973-1992 and the current condition of laminated documents from those years.

### **Tips Session: Magnets: 201**

Denise Migdail

Rare earth magnets can be creatively incorporated into simple and supportive mounts. This presentation, drawn from the TSG session at AIC in Miami, offers tips on using and concealing magnets while working with a basic ferromagnetic receiver and weight distributed or point fastener magnetic mounting system.

### **Five Generations Preserving the San Xavier Mission**

Daniel Morales and Vincent Morales

It was 1947 when Apolino C. Morales and his father, Ernesto T. Morales, began preserving the San Xavier Mission and constructing new initiatives directed by the Franciscan Fathers. Apolino C. Morales carried a special mortar wash recipe which was passed on to his son Apolino G. Morales Jr., Sonny, who joined the family crew in 1956. Although the Morales' presence at the San Xavier Mission existed since 1947, it was not consistent until early 1980s when Daniel J. Morales came on board.

Daniel J. Morales began to analyze the projects led by his father and quickly gained leadership of the crew in the early 1990s during the restoration of the domes. By 1999 Daniel J. Morales obtained his general contractor's license and has led the restoration of the church since. Now, Daniel's role has been more than just restoring the San Xavier Mission Church. He plays the role of a historian as he aims to restore the church to its original form using his evolved family mortar recipe consisting of lime, sand, and cactus juice.

The family restoration now continues with the fifth generation son Vincent Morales. Together, father and son artistically collaborate using past and contemporary techniques to restore one of Tucson's greatest treasures!

### **A Condition Assessment and Maintenance Plan for Mission San Xavier del Bac**

Suzanne Morris and Aneta Zebala

A condition assessment of the interior decorations of Mission San Xavier del Bac was performed by conservators Aneta Zebala and Suzanne Morris in May, 2011. The assessment was three-fold: first, to meet with the conservators for the mission, Tim Lewis and Matilde Rubio, and serve as a third party consultant; second, to determine the current condition of all of the moveable artwork and rich interior decorations within the mission in order to prioritize conservation treatments; and third, to provide a maintenance plan. This report presents the findings, concerns, and recommendations for the conservation and maintenance of Mission San Xavier del Bac and provides the groundwork to create a 5 year budget for future conservation work.

In order to prioritize conservation treatments and develop a maintenance plan, it was necessary to examine the overall condition of the polychrome sculptures, decorative architectural elements, wall paintings, and three oil paintings within the mission. It was also important to identify mechanisms that influence deterioration. The mission

was separated into the following sections for evaluation: the Choir Loft, Sotocoro, Nave, East Transept, West Transept, Sanctuary & Retablo Mayor, and Sacristy. In each section, dust levels, temperature and light readings, and condition concerns were noted.

The agents of deterioration were identified and the conditions of the artwork and decorations were used to create a prioritized treatment schedule. A recommended schedule for dry cleaning the various sections of Mission San Xavier del Bac and a daily maintenance schedule were developed based on the condition assessment. Although it was difficult to approximate how long it would take the mission conservators to finish each treatment, an estimate was given as a general marker rather than an absolute time frame for completion.

A new aluminum scaffold system was suggested and later purchased to reduce maintenance costs. Although over the years mission conservators have trained members of the Tohono O'odham Nation to carry out general maintenance, these trainees have not lasted. The general consensus was that a more permanent position be developed in order to preserve the great legacy and accomplishments of conservator Tim Lewis.

### **Dilemmas in the Conservation of Historic Building Resources: Old Main, Fort Lowell, Steam Pump Ranch, and the Bowman Hotel**

Corky Poster

The approaches for the preservation, rehabilitation, restoration, and reconstruction of historic buildings is guided by the Sec. of the Interior Standards for the Treatment of Historic Properties. The Standards are comprehensive, well-conceived, and thoughtful. They serve as an excellent guide for architects and preservationists practicing in this field. But like most standards, their application to the real world of complex and nuanced projects occasionally falls in the gaps between categories and among recommended treatments.

In these circumstances, preservation requires a creative and innovative

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approach to maximize the value of our historic resources for future generations. In this presentation, Corky Poster reviews four recent Poster Frost Mirto projects: the 1891 Old Main (on the University of Arizona campus); the 1873 Fort Lowell (Tucson); the 1874 Steam Pump Ranch (Oro Valley); and the 1917 Bowman Hotel (Nogales, Arizona).

### **Community Based Archiving: Preserving History and Culture in Barrio Pascua**

Guillermo Quiroga and Kari Quiballo

Many Yaquis, escaping the federally supported extermination policy between 1880 -1920 in the State of Sonora, Mexico, arrived in Southern Arizona. Old Pascua Village is the second oldest continuously occupied Yaqui Indian community in Arizona. Over the years the community collected and stored its history in a variety of locations.

In 1988, the last remaining original home was deeded to the community organization, the San Ignacio Yaqui Council. Plans were started to turn the home into a Museum. A grant was secured and the home, built in 1924, was restored by 2012. It is now listed on the National Register of Historic Places and won the AZ Governors Heritage Preservation Honor Award in 2013.

The Old Pascua Museum and Yaqui Culture Center, only a little over 400 square feet, opened to the public in August 2013. The museum collection includes textiles, fine art, regalia, books, instruments, archives, film, and photographs. The museum's mission is to preserve and strengthen Yaqui culture and traditions within the Yaqui community and share those with the non-Yaqui surrounding communities. Plans were put in place to someday seek national museum accreditation.

When the museum needed help processing an archival collection of over 4,000 photographs, scholars from the University of Arizona-School of Information Knowledge River Program helped develop a collaborative community-based processing plan. The focus of the Knowledge River Program

is advocacy for American Indian and Latino information issues in archives, libraries, and museums. Utilizing the principles of participatory archiving, which engages communities in the collection, preservation, and sharing of records documenting their own histories, Yaqui tribal members gathered to share memories and collectively create the metadata that accompanied the photographs. This community-based archiving project is one example of the steps that the Old Pascua Museum and Yaqui Culture Center are taking towards preserving the culture and history in Barrio Pascua.

### **Information Session: Emerging Conservation Network**

Kimi Taira

The Emerging Conservation Professionals Network (ECPN) is a forum and network within AIC to support pre-program, graduate student, and new professionals in art conservation. Founded in 2008, ECPN has been working to provide educational and professional development opportunities for emerging conservators while promoting involvement with AIC. This presentation briefly describes the organization, 2016-2017 projects, and ways in which people can connect to ECPN.

### **Conservation of the Interior of San Xavier del Bac**

Matilde Rubio

In 1987 a group of people from Tucson as well as O'odham people from San Xavier decided to create a committee to raise funds for the sole purpose of saving the church, San Xavier del Bac. This was the beginning of Patronato San Xavier. Between 1992 to 1997, for about 3 months each year, art conservators from Italy and one from Turkey took care of the wall paintings and sculptures on the interior of the Church.

This group also included four Tohono O'odham trainees from San Xavier. Between 1996 – 1997, an art conservator from Spain came along to join that group.

During this campaign, the entire interior of the Mission was restored except for the Baptistery. Since 2001 Spanish conservator, Matilde Rubio, and one of the Tohono O'odham trainees, Tim Lewis, have been working on the interior, two or three months per year depending on the funds that are available. In this time the restoration of the Baptistery has been completed. Since San Xavier is a living church, the interior requires constant attention.

The methods and products used for the consolidation of the interior paintings are more suitable to what was originally used during the construction of the church rather than what was used during the restoration campaign of 1992 – 1997.

This presentation will provide an explanation of the products and methods used for the conservation/restoration of the Baptistery and the Main Altar, as well as short explanation of the process for the conservation/restoration of the Immaculate Conception in the Main Altar and the plans for the future conservation of the façade.

### **Silicone Solvents, Emulsions, and More – Oh My**

Chris Stavroudis

This presentation will introduce the various uses of silicone solvents to conservators in both theory and practice and review the formation and uses of emulsions, both conventional and micro-emulsions.

Silicone solvents, relatively new to conservation, possess many properties of great utility to conservators. They are relatively non-toxic, have little to no odor, and are sublimely nonpolar. They have uses as neat solvents; in solvent mixtures; as protective, water-repellant barriers; and as components in microemulsions and polymeric emulsion stabilized systems. Modified silicone solvents, liquids and gels will be discussed as ways to extend the utility of the silicone world.

After an examination of salad dressing formulation, the basics of emulsions

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will be presented. Aqueous polymeric emulsion stabilizers (Pemulen and Xanthan Gum) will be discussed. An inverted phase (water in oil) conventional emulsion will be contrasted with microemulsions using both silicone solvents and mineral spirits as the continuous phase. Silicone-based polymeric emulsion stabilizers will be presented as versatile, non-surfactant based water in oil emulsification systems.

### Products:

Xanthan Gum Clear  
Germaben II

from The Personal Formulator at <http://www.personalformulator.com>

Cyclomethicone (D5)

From ChemistryStore.com at <http://www.chemistrystore.com>

### Working with Communities: A New Resource for Collaboration

Landis Smith and Martina Dawley

In response to an expressed need in the field, a new resource for collaborative work between museums and communities is being offered online. Developed over the course of three years of critical discourse among artists, conservators, curators, scholars, and other museum professionals, the guidelines present principles and practical considerations for collaborations between Native American communities and museums.

Sponsored by the Indian Arts Research Center at the School for Advanced Research (SAR) in Santa Fe, New Mexico, and with additional support from the National Museum of the American Indian (NMAI), the focus of the guidelines is Native communities and collections, but can be broadly applied to other communities as well.

The website is comprised of two parts: The first part is intended for communities that are considering working with museums. The second part, still in development but scheduled for launching next fall, is geared toward conservators and other museum professionals interested in, or currently engaging in, collaborative work with Native American, or other communities. An overview of both parts will be offered.

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## Articles You May Have Missed

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### “How to Preserve Human Specimens in the Conservation Lab,” *Creators Project.org*, 08/09/2016

Down in the basement of the Mütter Museum in Philadelphia, known worldwide as a treasure trove of medical history, there’s a “bone room,” with racks upon racks of human remains: a wet lab full of brains, hearts, and fetuses floating in glass jars, and a conservation lab filled with tools that help keep this unusual collection intact for generations to come.

It’s also where you’ll find George Grigonis, Collections Technician and Conservator, and the lab’s head problem-solver for the past six years—

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### A Brief History of the Mission San Xavier del Bac and its Preservation

Robert W. Vint

The mission church of the Native American village of Wa:k (or Bac, as rendered by Spanish conquistadores) was established in 1692 by the Italian Jesuit explorer-priest Eusebio Francisco Kino, whose life’s work was evangelizing the northern frontier of New Spain. He dedicated this particular church to his own patron saint, Francis Xavier. Yet the church standing today in the Sonoran desert south of Tucson was begun in 1783, nearly a century later, by Franciscan missionaries -- followers of St. Francis of Assisi. Still, the Franciscans retained the church’s original dedication to the Jesuit, San Xavier.

Robert Vint, architect for the preservation of Mission San Xavier del Bac, will elucidate this and other ironies and mysteries including the enigmatic unfinished tower, as he presents a history of both the centuries-old church and the quarter-century long campaign to preserve San Xavier for future generations. He will touch upon the philosophy and technology of preservation being practiced at the oldest structure of European design and cultural origin within the state of Arizona -- noting that construction of the edifice was only made possible by the people of Wa:k, who raised its walls and laid its roof vaults. It is thus every bit as much a Native American monument as it is a Spanish Colonial one.

originally as a volunteer, then as part of the staff.

To better display the 139 human skulls that make up the collection of Joseph Hyrtl, a 19th century Austrian anatomist who used them to debunk phrenology, Grigonis designed new mounts to replace the old ones made of brass and wood. In front of a display holding skeletons prepared in the early 1800s, Grigonis explains that, whenever possible, the articulations were maintained by leaving the cartilage and the connective tissue in the joint areas, and letting it dry. Over time, though, the tissues and bones can shift and require adjustments.

“If we need to reposition some of these, it’s a simple matter of rehydrating the connective tissue,” Grigonis explains. “We rehydrate it, and then we can reshape it and reposition it—and then let it air dry.” The rehydration process involves temperature-controlled baths, vacuum chambers, and ethanol solutions.

Sparing the details, the main takeaway is the following: Rather than giving up on these shriveled up specimens and throwing them out—as many institutions do—the Mütter has found a way to save them.

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### “Showtime at the Musée d’Orsay: Watching Varnish Dry,” *The New York Times*, 08/15/2016

Visitors gather in silence to gawk at the paint whisperers — small teams of conservators poised on scaffolding and encased in two glass cubes. From these makeshift stages, they swipe away centuries-old dark grime on precious works — from Gustave Courbet’s enormous oil painting of his crowded studio to Auguste-Barthélemy Glaize’s violent battle of a stone-throwing female revolt against Roman invaders, “The Women of Gaul.”

Ordinarily such a delicate task is carried out in the tranquillity of a laboratory. But the once mysterious craft is increasingly turning into a high-end reality show — long-running spectacles that appeal to donors who lavish money on makeovers, but trouble some conservators accustomed to quiet and absolute concentration.

Many art conservators are evolving into museum ambassadors —